Sustainable urban water management: understanding and fostering champions of change
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ABSTRACT
This paper highlights and discusses ten characteristic attributes of emergent leaders (also known as 'champions') who worked as influential change agents within publicly managed, Australian water agencies to encourage more sustainable forms of urban water management. These attributes relate to: the 'openness to experience' personality characteristic; career mobility and work history demographics; personal and position power; strategic social networks; the culture of their organisations; and five distinguishing leadership behaviours (e.g. persisting under adversity). Guided by the findings of an international literature review, the author conducted a multiple case study involving six water agencies. This research identified attributes of these leaders that were typically strong and/or distinguishing compared to relevant control groups, as well as influential contextual factors. While it is widely acknowledged that these leaders play a critical role in the delivery of sustainable urban water management, there has been a paucity of context-sensitive research involving them. The research project highlighted in this paper is a response to this situation and has led to the development of a suite of 39 practical, evidence-based strategies to build leadership capacity throughout water agencies. Such capacity is one of the elements needed to drive the transition to more 'water sensitive cities'.

Key words | champions, change agents, emergent leaders, leadership, sustainable urban water management

INTRODUCTION
The move towards more water sensitive cities
There is growing awareness that traditional approaches to urban water management that place little emphasis on water efficiency, recycling, energy efficiency and protection of environmental values are no longer sustainable (Wong 2006). These approaches are also seen as being inconsistent with the contemporary values of many Western countries (see Ashley et al. 2004; Brown et al. 2006).

A new paradigm of 'sustainable urban water management' (SUWM) has emerged (see Wong 2006). Adopting this paradigm at a city-wide scale and thereby making the transition to 'water sensitive cities' (Brown et al. 2008) is, however, problematic. As highlighted by Brown & Farrelly's (2007) meta-analysis of the literature, numerous impediments exist to the adoption of this paradigm; the bulk of which are socio-institutional rather than technical. It is within an environment of numerous socio-institutional barriers that emergent leaders known as 'champions' often emerge to act as change agents (White 2006) and work with others to promote the SUWM paradigm.

Sustainable urban water management champions
There is no consistent definition of champions within the literature. The author's research has, however, found that practitioners within Australian water agencies typically

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define ‘SUWM champions’ as being emergent leaders who have specific attributes and are adept at influencing others to adopt SUWM principles and practices. These attributes include: the personality characteristics of creativity, persistence and resilience; a strong personal commitment to SUWM and environmental sustainability; a good general knowledge of the water industry and associated technology; advanced skills at exercising influence; high levels of personal power; and key leadership behaviours, such as identifying opportunities for influence, choosing the right influence tactics for the right target and time, executing a variety of such tactics, developing and encouraging colleagues, and undertaking advanced forms of social networking. As acknowledged ‘leaders’, these individuals also engage in group-based processes of influence that involve establishing direction, aligning resources, and motivating and inspiring their colleagues to implement SUWM.

The literature on ‘champions of innovation’ highlights the existence of two types of champion that may exist within an organisation. These are ‘project/product champions’ and ‘executive champions’ (see Maidique 1980; Howell & Higgins 1990a; Howell et al. 2005). This literature suggests project champions act as change agents on a daily basis within organisations or broader institutions, and primarily rely on personal forms of power. In contrast, executive champions are more senior leaders with high levels of position power who allocate resources to innovations and who share some of the associated risks (Maidique 1980). Executive champions rarely promote innovations on a daily basis and may work in tandem with project champions (Witte 1977). The author’s research within Australian water agencies has found this typology to be relevant to SUWM champions.

The importance of urban water champions

It is now widely accepted in Australia that SUWM champions play a critical role in the transition to water sensitive cities. This conclusion is supported by academics (see Brown et al. 2006), industry practitioners (see White 2006) and politicians (see Commonwealth of Australia 2002). To illustrate, Brown & Clarke (2007) examined the evolution of sustainable forms of stormwater management in Melbourne and concluded that “an important driver of Melbourne’s transition [to a more water sensitive city] was the legacy of a committed and innovative group of associated champions working across multiple sectors to advance change” (p. iv). Researchers in Europe and North America have made similar observations (see Lehner et al. 1999; Cashman 2008).

Despite the importance of these leaders, little has been known about them or the leadership processes they commonly drive. Previous research by Brown (2003), Brown & Clarke (2007) and White (2006) highlighted some of their individual attributes. There has been, however, a paucity of focused, in-depth, context-sensitive research on these leaders that has been grounded in leadership theory and that has used established leadership research methods. Such research must be done in order to design evidence-based strategies to attract, recruit, supervise and build the leadership capacity of SUWM champions in water agencies, as well as improve the overall SUWM leadership process that typically involves many different types of leaders (see Taylor 2008).

Overview of this paper

This paper highlights some key findings from a research project that has investigated the attributes of SUWM project champions and related leadership processes within publicly managed Australian water agencies. This project has also used this knowledge to develop evidence-based strategies to build leadership capacity in water agencies to accelerate the transition to more water sensitive cities (see Taylor 2008). In the following sections, the author describes the project’s methodology, and highlights ten of the most highly developed and/or distinguishing attributes of SUWM project champions. The paper also describes how knowledge of such attributes can be used in practice to encourage emergent leadership in water agencies to drive SUWM policies and projects. Finally, the author highlights the significance of this research and discusses three lessons from the project.

METHODS

The research involved two phases. Phase 1 was an international literature review involving five bodies of literature. These were the SUWM champion, environmental leadership, ‘champions of innovation’, organisational leadership,
and leadership development literatures. This review helped to develop preliminary conceptual models of leadership by SUWM champions and strategies to enhance emergent leadership in water agencies (see Taylor 2008).

Phase 2 involved a multiple case study that used Yin's methodology (2003). The author gathered data from a diverse group of six publicly managed Australian water agencies. These agencies employed SUWM project champions who were well known within the local water industry. Within each case study agency the author conducted group interviews with staff who played different roles in promoting SUWM. These interviews, like subsequent data collection methods, were primarily designed to test the validity of a preliminary conceptual model of SUWM champions and examine the nature of group-based SUWM leadership processes.

As part of each group interview, the author facilitated an anonymous peer nomination process to identify six staff members who were performing specific leadership roles, including the role of ‘SUWM project champion’. The descriptions of these roles were initially derived from the literature (see Esteves & Pastor 2002; Howell & Higgins 1990a; Maidique 1980) and then refined through consultation with practitioners in the SUWM industry. Individual interviews were then conducted with the people most strongly nominated by their peers for the six leadership roles. A two-part ‘360° questionnaire’ (see McCauley & Van Velsor 2004) was also used to gather data from these leaders, their supervisors and five of their peers.

The author also conducted an interview in each case study agency and analysed relevant documents (e.g. strategic plans) to gather additional information on the context in which SUWM leaders worked, as leadership is acutely sensitive to context (Bryman et al. 1996). Principal findings of the research emerged from a cross-case analysis (see Yin 2003). These findings were subsequently validated through consultation with a broad group of industry stakeholders (see Taylor 2008).

RESULTS AND DISCUSSION

The project identified 77 significant attributes of SUWM project champions. Figure 1 presents a conceptual model of leadership by these champions that lists these attributes and explains how they interact to produce leadership outcomes. The model's structure is based on Yukl's (1989) ‘integrating conceptual framework for leadership effectiveness’. The model also highlights attributes that distinguished champions from leaders in control groups, and attributes that were associated with the most effective champions.

The following sections highlight and discuss 10 of the attributes in Figure 1. These have been chosen as examples of strong findings from each major component of the conceptual model.

Personality characteristics: openness to experience

Openness to experience relates to a person’s propensity to be innovative, creative and open to new approaches. The strength of this personality characteristic was assessed through individual interviews and the 360° questionnaire (using self and peer ratings). Figure 2 presents self-assessed data from the 360° questionnaire for illustrative purposes.

Analysis of all the available data indicated this characteristic was usually highly developed amongst the champions, and often substantially stronger than their peers in the same organisation who occupied four ‘non-champion’ SUWM leadership roles.

Management strategies that follow from this finding include looking for this personality characteristic to be highly developed during recruitment activities as well as selection processes for leadership development programs within water agencies. This can be done through psychometric testing (with the assistance of suitably trained psychologists) or more simply through informed analysis of people’s work and life histories during interviews and when reviewing resumes. The key point here is that this personality characteristic is one of the attributes that can be used to identify potential SUWM champions who can be developed into valuable assets to the organisation.

Demographics: career mobility and work history

The author gathered data on the number of roles and jobs the champions had held in the last five years via the 360° questionnaire, and details of their work history via individual interviews. The majority of these champions had a higher degree of career mobility than typical
Supportive contextual factors (external to water agencies)

Organisational culture (OC):  
- Adaptable orientation at the branch level (e.g. trust, flexibility),  
- Supportive of emergent leaders at the branch level,  
- Shoring up of important values at the branch level,  
- Often a highly supportive dominant OC, characterised by support forthcoming, innovation, encouragement, collaboration and sustainability.

OC change management and leadership development (LD) programs:  
- Organisation-wide and complementary OC change management and LD programs that encourage distributed leadership.

Support from colleagues:  
- Strong support from colleagues across the organisation.  
- Support is lateral (from peers) and vertical (from executives and politicians) in the organisation.

Resources (hands and skills):  
- Well resourced organisations.  
- Existence of several funding strategies for SUMW.

Positive succession planning and recruitment of project champions.

Organisational task system:  
- Predominantly boundary spanning unit at the branch level.

Nature of core tasks:  
- Typically complex and require a high level of creativity and personal effort / sacrifice.

Organisational size:  
- Community medium-sized (540 terms 1,000 staff).

Strength of SUMW policy framework:  
- Community strong to very strong.

Figure 1 A validated conceptual model of leadership by SUMW project champions (adapted from Taylor, 2008).

**Personal characteristics**

- **Personality traits:**  
  - Extraversion  
  - Openness to experience  
  - Agreeableness  
  - Conscientiousness  
  - Neuroticism

- **Personal values:**  
  - Strength of agreement between personal values and the SUMW philosophy.

- **Knowledge:**  
  - General knowledge of SUMW.

- **Behaviours:**
  - Leadership style:  
    - Use transformational leadership, especially the inspirational motivation element.  
    - Use distributed leadership, with a preference for some behaviours (see below).
  
  - Core behaviours:  
    - Questioning the status quo and gathering political and managerial support (high to very high levels).
    - Articulating a vision for SUMW: scanning for patterns; establishing pilot projects; expressing enthusiasm and confidence; and persisting under adversity.  
    - Communicating clearly and frequently, coordinating leadership, and getting the right people involved: All high to very high levels.
    - Influence tactics:  
      - Frequent use of numerous influence tactics

- **Outcomes:**  
  - Outcomes influence future behaviour.

- **Outcomes help to build or reduce power.**

- **Power types:**  
  - Relative use  
  - Level of personal position

- **Notes:**  
  - 1 – Often associated with the most effective champions.

- **Outcomes help to build knowledge and experience.**

- **Supportive contextual factors (external to water agencies)**

  - Peace and extent of change.  
  - The local environment is subject to rapid and substantial change.
  - Crises and a related community and political concern.
  - Water and waterway-related issues are driving change through community and political concerns.
  - The local physical environment, waterway history and community ownership of waterways.
  - Local waterways are highly valued but are under threat.  
  - The region has a history of local waterway-related problems.
  - There is a strong connection between the community and local waterways.
'non-champion' SUWM leaders in their organisations. Despite showing a tendency for career mobility, some of the studied champions had long tenures with their organisations (i.e. up to 16 years), highlighting that these leaders can be assets to their organisations over long periods.

A multiple criteria analysis, involving eight criteria, peer and supervisor ratings from the 360° questionnaire and a sensitivity analysis was used to determine the relative effectiveness of the champions (see Taylor 2008). This allowed the author to examine the attributes associated with the most effective champions. For the attribute of career mobility, the more effective champions generally had a higher level of career mobility than the least effective champions. This finding is consistent with research that emphasises the value of ‘job assignments’ in leadership development. For example, job assignments are used to develop skills relating to team leadership, strategic thinking and influence tactics (Day 2000), as well as building self-confidence, contextual knowledge and valuable social networks (Howell & Higgins 1990b, c).

The relatively diverse work history and high career mobility of the champions are attributes that are probably related to their relatively strong openness to experience personality characteristic. This potential relationship is apparent from the following quote from one of the champions in reference to this characteristic:

That’s almost my actual existence, and that expands right across my professional and personal life, always--[I] can’t stand still for very long. [Interviewer: So your resume would be varied?] It is varied, yes. … I’m not frightened to step out of--in fact, I don’t like being very comfortable and in order to get up the ladder I sort of stepped into roles that … give me the experience I need…

Management strategies that flow from this finding include proactively seeking to accommodate the tendency of champions to want to take on new roles. Water agencies could seek opportunities to place emerging leaders in roles that benefit the organisation but are also structured ‘job assignments’ within individual leadership development plans (see McCauley & Van Velsor 2004). Greater benefits are likely to accrue if such assignments are provided early in a leader’s career (Adair 2005) and in an environment that offers support and feedback.

**Power: personal and position power**

Power is the potential to influence others. Personal power is derived from the personality characteristics and skills of the leader, as well as the outcomes from previous episodes of leadership (Yukl 1981). Position power is derived from a person’s formal role within the organisation (Yukl 1981).

As shown in Figure 3, all of the champions had a preference for using more personal than position power. This preference was a distinguishing attribute for half of the champions, and is consistent with the tendency of these leaders to focus on exercising influence across organisational boundaries.

The research also found that five of the six champions possessed ‘moderate’ to ‘strong’ levels of personal power. A high level of personal power was also a distinguishing attribute for most of these leaders. While levels of position power were generally lower, the most effective champions had at least ‘moderate’ levels of *both* personal and position power.

Management strategies that build on these findings include ensuring leadership development programs for
emergent SUWM leaders focus on the tactics and skills that are needed to build personal power. Examples include the acquisition of different types of knowledge, advanced strategies for social networking and ‘interpersonal’ skills.

Social networks: strategic networks

Research by Ibarra & Hunter (2007) examined the operational, personal and strategic forms of social networking. They found that the strategic form is the most challenging, is typically underdeveloped, but is commonly a characteristic behaviour of the most effective organisational leaders. This type of networking focuses on building relationships to achieve medium to long-term, strategic organisational goals.

The author examined aspects of social networking through individual interviews and the 360° questionnaire. Strategic networking was found to be a major point of difference between the surveyed leaders. Generally, this form of networking was uncommon amongst the leaders in ‘non-champion’ leadership roles, common amongst the executive champions, and ranged from being a very strong to very weak attribute amongst the project champions. Four of the six project champions engaged in some strategic networking, with three of these leaders being exceptionally focused on building relationships with powerful people (e.g. local government politicians and executives) who could help them to meet both organisational and personal goals. There was a positive association between the most effective champions and their tendency to focus on strategic networking. The following quote gives an insight to some of the tactics used by one champion to build strategic networks with politicians within local government:

… I’ve tried … getting to know those political players a little bit better, on a personal level, and working out how they operate, how to win them over, how to actually influence them more. [Interviewer: Is getting access difficult?] Usually, yes. [Interviewer: What’s the trick from a middle management level?] Usually it’s defining what their interests are, if they have particular passions, whether it be a certain place or whether it be a certain issue, finding out what that is and then maybe going out of your way a little bit to actually help them on that or give them information on it.

Management strategies that can use this finding include the need to coach emerging SUWM leaders to excel at social networking, with an emphasis on the strategic form. Such an approach contrasts with traditional networking education which normally focuses on operational networking (Ibarra & Hunter 2007). Water agencies could also create strategic networking opportunities for emergent leaders. For example, in one of the case study agencies, informal, regular, subject-based discussion forums provided a valuable opportunity for a relatively junior staff to interact with executives and local government politicians.

Behaviours: five examples of ‘signature behaviours’

Figure 4 shows the extent to which five behaviours from the preliminary conceptual model were relevant to the champions, as assessed by their peers (i.e. ‘articulating an inspiring vision’, ‘questioning the status quo’, ‘gathering political and managerial support’, ‘expressing enthusiasm and confidence,’ and ‘persisting under adversity’). These behaviours were usually highly relevant and often distinguishing. In addition, there was a positive association between the ‘questioning the status quo’ and ‘gathering political and managerial support’ behaviours and the most effective champions.

Management strategies that follow from these findings include building the necessary knowledge, skills, confidence
and support mechanisms so that emergent SUWM leaders can effectively use these behaviours. Ideally, attempts to do this would begin with a customised, ‘feedback-intensive’ leadership development program (see McCauley & Van Velsor 2004).

**Context: organisational culture**

The research found that organisational culture was a highly influential contextual factor that affected the emergence and effectiveness of the champions. For example, the most effective champions generally emerged in agencies that had complementary programs to establish a desired organisational culture and encourage specific leadership behaviours. These programs were driven by the most senior executives, and strongly encouraged collaborative forms of leadership. These agencies had unusually strong corporate cultures that encouraged continual learning, adaptive management, responsible risk-taking, innovation and environmental sustainability.

Management strategies that can be informed by these findings include the need for the most senior leaders in water agencies to actively foster corporate cultures that support the SUWM paradigm and encourage complementary leadership behaviours throughout the organisation. Executive leaders with strong transformational leadership attributes are best suited to this task (see Bass & Avolio 1994; Taylor 2008).

**CONCLUSIONS**

This paper has highlighted some of the characteristic attributes of emergent leaders (project champions) that worked within publicly managed Australian water agencies to effectively promote SUWM. The length of this paper prevents an examination of all 77 attributes and 39 management strategies that have been identified during this research project (see Taylor 2008). The intent, however, is to provide some illustrative examples of champion attributes, and explain how this knowledge can assist the development of strategies to build SUWM leadership capacity in water agencies.

This research is significant for two reasons. First, it is the first time that leadership theory, models, research findings and research tools have been used to study leaders...
who play a critical role in promoting SUWM and making the transition to more water sensitive cities. Second, it provides a platform of knowledge on which management strategies, such as those highlighted in this paper, can be constructed within water agencies.

This research has generated three main lessons. First, it has highlighted the value of undertaking cross-disciplinary research. In particular, the project benefited from being able to use theories, models and research methods from the leadership literature in the context of urban water governance research. Second, while research designs and methods that are needed for context-sensitive leadership research are time-consuming and require significant cooperation from industry partners, they are also productive. Finally, as illustrated in this paper, there are attributes of SUWM champions that are highly developed and/or distinguishing compared to leaders in relevant control groups. This knowledge can be used to design practical, evidence-based strategies to attract them, recruit them, and realise their leadership potential within water agencies that want to build more water sensitive cities.

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REFERENCES


