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Discussion Paper

The Role of Greening Businesses as Drivers of Employees' Changes towards Pro-environmental Practices

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Abstract: Several initially attractive possible explanations for the engagement of people in more ecological behaviour have been shown as not influencing individual pro-environmental behaviour, unless there is some personal benefit which is obvious and immediate. Although not all pro-environmental behaviours and practices used at work are transferrable to the home or community spheres of employees, it is reasonable to assume that organisations that embrace pro-environmental practices at the core, will have an impact on actual employee practices and behaviours, and consequently on awareness levels about environmental issues. It is argued that the current trend in organisations towards implementing pro-environmental greening behaviours and practices may contribute to a process of a 'sustainability evolution'. Understanding the factors and processes which determine employees' pro-environmental behaviour patterns, with regard to the settings and interfaces of work, home and community permits one to grasp the main factors and processes that may influence the interaction of resource and sustainable waste management behaviours, among all life domains.

Keywords: Organisational Psychology; Waste and resource management; Work-life

Field and Focus

The focus of this discussion paper is to gain a better understanding of pathways towards instilling pro-environmental practices in waste and resource management in individuals. This concept will examine the notion that the mandatory power of pro-environmental expectations in organisational settings is able to influence employees in their conduct of waste and resource management practices across the borders of their work environment and enrich their household and community praxis. This conceptual idea investigates the intersection of work, family and community domains to help make sense of the

interpenetration of pro-environmental practices across all three life domains, work, family and community.

Research[1] adopting this conceptual idea may potentially enrich the fields of organisational and industrial psychology, waste and resource management at a time where individuals and organisations need to work together to create a sustainable world.

1. Introduction

Although there is evidence that attitudes[2] and intension[3] lead[4] to preferences and corresponding behaviours, a high percentage[5] of people[6] across the world who are concerned about environmental issues, do not translate their proclaimed disquiet into pro-environmental practices[7] and behaviours.[8] In fact, Kollmuss and Agyeman[9] and others[10] have established that the drivers that form pro–environmental behaviours of individuals are so intricate, transient and complex that one single framework cannot capture them. Only one study, conducted by Geller[11] could establish that feelings of personal control and sympathy positively influence pro-environmental behaviour.

Therefore, rather than pursue the issue of how to identify a pattern leading to an alignment between proclaimed pro-environmental attitudes and intentions into pro-environmental practices,[12] it seems necessary to turn the problem on its head and examine the influence of domains and settings where pro-environmental behaviours and practices[13] are mandatory. The issue of the voluntary adoption by individuals of pro-environmental practices is therefore removed.

A workplace which is committed at the core of its business activities to pro-environmental practices can be considered a domain where employees are obliged to follow a prescribed set of eco-

[1] The author is currently engaged in researching two organisations in Australia using this concept

[2] Allport, 1935, reflected on the psychological concept of attitude that it is '…an indispensable concept in American social psychology' (p. 798), for definition see Glossary

[3] Pro-environmental intensions have been shown to have a stronger correlation to actual aligned pro-environmental behaviour

[4] e.g., Ajzen and Fishbein, 1977, 1980; Borgida and Campbell, 1982; Faio and Zanna, 1981; Fishbein and Ajzen, 1974

[5] Beattie, 2010, up to 85 % of people claim to be supportive of the environment

[6] Beattie, 2010; Diekmann and Franzen, 1999; Dunlap et al., 2000; Drori and Yuchtman-Yarr, 2002; Edgelland Nowell, 1989; Goksen et al. 2002;Kilbourne and Pickett, 2008; Kim, 1999; McAllister, 1994; Moloney, 2011; Mostafa, 2007; Mostafa 2011; Murray, 2011; Norris, 1997; Olli et al.,2001; Weaver, 2002;

[7] Practices are according to Kemmis, and Grootenboer (2008) divided into action and praxis such as understandings (sayings and thinking), skills and capabilities (doings) or values and norms (relatings) of practitioners

[8] pro-environmental behaviour or practices refer to '…behavior that consciously seeks to minimize the negative impact of one's actions on the natural and built world' (Kollmuss and Agyeman, 2002, p. 240) and includes resource (e.g., water, electricity and gas) and waste (e.g., organic, hazardous, e-waste) management, but goes far beyond those practices; please note, green or greening behaviour refers to this definition also.

[9] 2002

[10] Moloney, 2011; Beattie, 2010; Murray, 2011;

[11] 1995

[12] Climate policy implementation is already acknowledge to be problematic in multilevel governance of democratic states, see for example Lundqvist and Biel, 2007

[13] Kemmis and Grootenboer (2008) argue that professional architectures and their associated mediating preconditions enable and constrain the conduct of individuals. Consequently, they believe that changing professional practices is not just a matter of changing the understandings (sayings), skills and capabilities (doings) or values and norms (relatings) of practitioners, but also changing the practice architectures that enable and constrain practitioners, i.e. the operations within different organizational sections.

efficient if not eco-effective[14] practices. In accordance with Kemmis and Grootenboer,[15] the term practice is referring here to '*…generic practices of communication, production-consumption and social connection,*[16]' e.g., '*saying*', '*doing*' and '*relating*'. These authors argue that practice is made distinctive by the characteristics of its content and in the way sayings, doings and relating are bundled together. Both authors stress that practices are viewed within and affected by the context in which they occur. Notably, they state:

> How a practice turns out will also be shaped by the history and experience of the people involved, but also against *cultural histories* (how discourses have been shaped in usage over time for particular groups and in particular places), and *social histories* (how objects and things in the natural and physical world and economic processes and relations have changed over time).[17]

Therefore, it is important to understand that the individual as a person possesses the ability to act within a contextual matrix, shapes and forms cultural, social and material-economic formations and structures. Additionally, Kemmis and Grootenboer[18] pointed out that aggregated 'cultural, social and material-economic practices dialectically and reciprocally shape individuals over time, *through practice'.*[19]

However, human activities are significantly influenced by economic systems, administrative directives of government and other institutional structures of society. A significant example of the influence of dominant economic systems, and consequently a turning point in human history, was the major change in social conditions and individual life practices and experiences propelled by changing organisational behaviours during the period from 1780 to 1850, the period now termed the '*Industrial Revolution.*'[20] This was an era characterized by a powerful transition in the way that people lived and worked. The work environment and structures, organizational and family practices and cultures changed, as people working in cottage industries and living mostly in village communities had to adapt to working in mechanized factories and living in cities.[21] The change in work practices had profound effects and caused major changes in agriculture, manufacturing, mining, transportation, and technology and in society's structure.

Similarly, it is possible that the current trend in organisations towards proactive changes,[22] which culminate in the implementation of pro–environmental greening behaviours and practices, may in themselves contribute to a process of a 'sustainability evolution'. This in turn may have a profound impact on economic and

[14] Eco-effective is used synonym to pro-environmental but goes beyond eco-efficiency. McDonough and Braungart (2002) have defined eco-efficiency as a way to minimise harm to the natural environment, which is different from eco-effective, as the latter is defined as a circular 'Cradle to Cradle' approach. This strategy includes a regenerative use of materials and resources, see (McDonough and Braungart, 2002, p.78)
[15] 2008, pp.50
[16] p.50
[17] Kemmis and Grootenboer, 2008, p. 50
[18] Kemmis and Grootenboer, 2008
[19] p. 51
[20] Hull, 1999
[21] Clark 1984; for a differing view regarding a country town 29 miles from London see: Raven, 2003.
[22] Haanan et al. 2011

social systems, practices and cultural conditions and therefore on major aspects of the lives of individuals, and ultimately on society, perhaps comparable to the effects of the first '*Industrial Revolution'*.

Work, family and community life are domains where practices shape individuals over time, but also domains where individuals shape practice. The spheres of work, family and community may be perceived as different domains, but are in reality contexts in which the roles of individuals are 'permeable and interactive'[23] and interrelated.[24]

The objective of this conceptual idea is to entice empirical investigations into greener practices within a work-life interpenetration paradigm. Two analytical frameworks could be utilised around work, family and community and the ways in which they intersect: The first is Voydanoff's[25] nested 'work-family interface' which takes into account the complexity of cross domain effects[26] and is described in more detail in another section. The second, Pocock et al.'s[27] 'socio-ecological systems model'[28] could be employed as it allows for the conceptualization of relational dimensions of work, family and community, and other aspects[29] not included in Voydanoff's[30] work-family interface.

To the knowledge of the author, no previous examination of the reinforcement of pro-environmental practices amongst people working in highly pro-environmental organisational settings has utilised either theoretical framework. In particular, the extent to which eco-efficient and possibly eco-effective waste[31] and resource[32] practices of employees positively shape and penetrate behaviour across domains[33] are not investigated.

2. Systemic integrative approach – ecological systems and boundary theory

Waste reduction and resource efficiencies are often identified as sustainability driven opportunities, with which organizations easily engage as a first step towards pro-environmental practices. This occurs, because it is easier to make a business case for improved waste and energy efficiency as immediate monetary rewards are traceable.[34] A rationale for choosing those pro-environmental management measures as a focus in an investigation of the transfer of pro-environmental practices

[23] Noya, Clarence & Craig, 2009
[24] Pocock et al., 2011
[25] 2008, see Figure 1: *Voydanoff's adapted systemic integrative approach - the work-family interface*
[26] e.g. work-home, home-community, community-work, home-work-community
[27] 2011
[28] Pocock et al., 2011, p.15
[29] 'Time', 'Space', 'Life stage', and 'Power', e.g., economy, political context, legislative context –carbon emission scheme, see Polock et al., 2011, pp. 13
[30] 2002, 2007, 2008
[31] Waste refers to any discarded, rejected, abandoned, unwanted or surplus matter
[32] Resource management refers to any element in the environment which contributes to the products created or processes undertaken by an organisation. It is not necessarily the management of the environment as such, but rather the management of the interaction and impact of an organisation on the natural environment.
[33] e.g. work-home, home-community, community-work, home-work-community
[34] Haanaes et al, 2011, p. 25

across domains also lies in the fact that both waste and resource management[35] present common environmental household issues, are familiar to everyone and are traceable.[36]

This paper suggests that the systemic integrative approach of the work life interface, developed by Voydanoff[37] may be employed to define the nominal space of work-life intersections between work, household and community. Voydanoff's [38] ecological systems theory and by necessity boundary theory are useful approaches to understand linkages between work, home and community spheres, and are applied in work-family integration studies.[39]

Pro–environmental practices in particular settings within targeted organisation, such as the office (resource and waste management), and the kitchen (especially waste management with regard to composting) could be targeted in research projects. This would permit a deeper understanding of whether pro-environmental practices will permeate the work–life interface as predicted. Factors and processes which might be barriers or hindrances or which might support such a permeation as stated in the literature to date, can include personal and group norms,[40] boundary permeability[41] and flexibility,[42] and work role identification.[43]

Consequently a research project could be a description and exploration of the work–family interface,[44] with regard to the interpenetration of pro–environmental resource and waste management practices at work into non–work spheres. It could relate to individuals (e.g., employees, householders), individual processes (e.g., feedback loops of personal boundaries with regard to work, home and community), groups (e.g., adults in households, office group in organisation), different settings (e.g., household or office or club), systems (e.g., micro–, meso–, exo-, macro–system), linkages (e.g., between an individual's behaviour in cross–domain processes), and involved organisations per se (e.g., Organisations A, B, …; small, medium-sized…).

2.1 Voydanoff's adapted model of the work, family and community interface

Voydanoff's[45] conceptual model of the work-life interface encompasses all three life domains, work, home and community. It considers a broader context than the usual work–family constructs used in most studies to date. Based on Bronfenbrenner's [46] ecological model of human development,

[35] Water, electricity and gas use
[36] Utility bills usually include details of the usage of a resource over a quarter
[37] 2008
[38] 2005, p. 822
[39] e.g., Olson–Buchanan and Bowell, 2005
[40] Nye and Hargreaves, 2010
[41] See Glossary for definition
[42] See Glossary for definition
[43] Matthews and Barnes-Farrell, 2010, see Glossary for definitions of macro, exo and meso.
[44] Voydanoff, 2008
[45] 2008
[46] 1989

Voydanoff's[47] model conceived the work–family interface as a system, whereby aspects of each domain (work, home and community) are encased within each other and occur at multiple levels.

Such a system in regard to pro-environmental practices and behaviours may be expressed by a general conceptual model (developed by the author, see Figure 1 below), which adapts and relies heavily on Voydanoff's[48] long term research[49] and her original basic conceptual Model of Work, Family and Community.[50] It shows the varied contexts and their impacts on work, family and community individual role performance in regard to pro-environmental practices. This model provides a means to demonstrate the nested complexity of the inter-relationships between domains and influencing factors of practice architectures on or within individual domains and boundary–spanning crossings in the work–life interface.

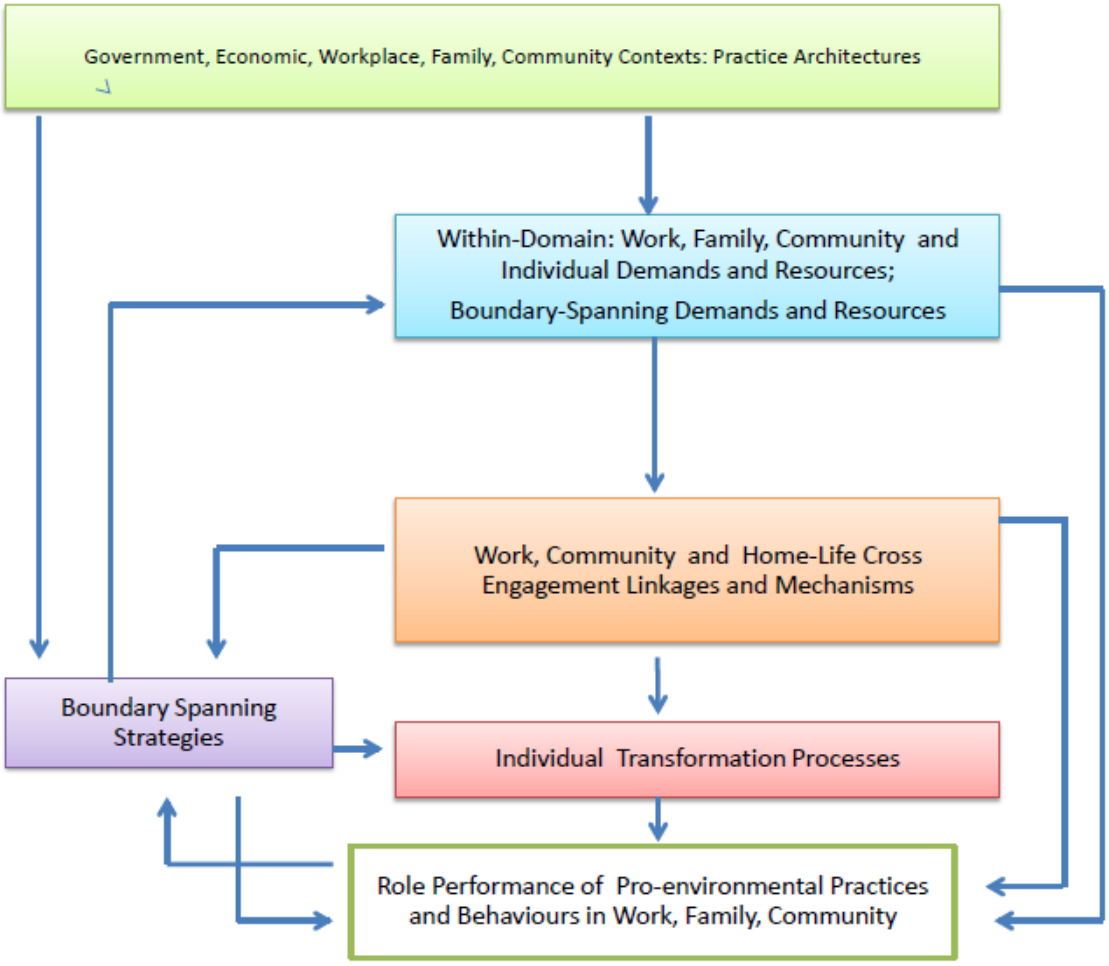

Figure 1. Pro-environmental Practices in the Nominal Space of Voydanoff's[51]

[47] 2008, pp. 37
[48] Voydanoff, 2007
[49] 2002, 2004, 2005, 2007, 2008
[50] Voydanoff, 2007, p.11
[51] Voydanoff, 2007, p.11

Adapted Conceptual Model of Work, Family and Community (developed by the author, 2011).

The model indicates that practice architectures of governmental, economic, workplace, family, and community contexts particularly influence the demands[52] and resources,[53] and strategies that are expected to impact pro-environmental role performance of individuals at work, family and community.

This illustration (Figure 1.) about how pro-environmental practices and behaviours of individuals are influenced in the work-family interface relies heavily on Voydanoff's long term research[54] on work-life integration. However, it attempts to include practice architectures as another important new component. For example, practice architectures are imposed via macro structures. Accordingly, Kemmis and Grootenboer[55] argue that practices are not necessarily the products of individuals, and often they are rather a social product. An individual's own practice occurs within practice architectures (e.g., organizational culture, structures and traditions). This approach suggests that in addition to the knowledge, capabilities and values internal to a particular tradition, practice is constructed from meta-practices: practices that are external to the individual but still influence and shape practice.[56]

Interaction of work and other life spheres is frequently either tackled at the micro perspective, that of the individual, or with a focus on the macro aspects of the economy and policy development. Additionally, it is often considered from an organisational level in general, or a managerial perspective, in the context of how organisations respond to issues of change.[57] However, it is suggested here that a system's perspective is needed whereby the interaction between all subsystems are considered (e.g. micro, meso-, exo- and macro-level).

2.1.2 Microsystems

Microsystems are the workplace, and the family, or the home environment, or a community, such as the neighbourhood. These represent the setting in which patterns of behaviour in relation to roles, and contextual social interpersonal relations[58] influence a person, constituting a grid of references that influence behavior. For example, the concept of role performance relates to and encompasses behaviour adopted in the specific settings of the work environment, or in the home or community. This

[52] 'Demands are structural or psychological claims associated with role requirements, expectations, and norms to which individuals must respond or adapt by exerting physical or mental effort.' Voydanoff, 2007, p.10
[53] 'Resources are structural or psychological assets that may be used to facilitate performance, reduce demands, or generate additional resources.' Voydanoff, 2007, p.10, see also Voydanoff, 2004
[54] 2008, 2002, 2004, 2005
[55] 2008
[56] Kemmis, 2009
[57] Makin and Cox, 2004
[58] Of interest here could be a new concept: Psychosocial safety climate: in such settings, see for details, Hall et al., 2010.

concept in turn leads to the concept of mesosystems.[59]

2.1.3 Mesosytems

Mesosytems consist of interrelationships among the microsystems. Thus the mesosystems of interest are those that constitute linkages between an individual's behaviour in cross–domain processes or settings (e.g., working from home). These linkages include those concerned with the adoption of pro-environmental behaviour, and of the positive enrichment[60] of other domains with pro-environmental behaviors in regard to resource and waste management. Related to these systems are the external environments in which a person does not directly participate, but which exert indirect influence on the person. These are referred to as exosystems.

2.2.4 Exosystems

Exosystems may include organisational or work settings (e.g., organisational culture) or the structure of the family (e.g., type of household: single or couple or family with children household) in which a subject in this study exists. The dominant context of these elements is represented by the macrosystem, the overarching pattern of the culture or subculture in which the micro–, meso–, and exo–systems are nested.

2.2.5 Macrosystem

In this approach the macrosystem may be seen to consist of the institutional patterns and broad belief systems represented both by government policies and societal belief systems, such as the belief in the validity of science (e.g., scientific findings with regard to climate change). An understanding of macrosystems may provide the overarching context for an individual's adoption of pro–environmental behaviours. In her original conceptual map[61] of the work-family interface, Voydanoff was interested in outcomes, within a number of microsystems, such as work (e.g., job performance), family (e.g., family role performance) and community (e.g., community satisfaction) and in individual outcomes (e.g., well–being).

This paper proposes a focus on work (microsystem), home (microsystem) and community (microsystem) with regard to the individual response to the influence of the various combinations of all three microsystems. These would then comprise four mesosystems (work-home, work-community, home-community, and work-home-community). Outcomes at the work, home and individual level clearly have implications for the system–level functioning of workplaces, families, and in the end on

[59] See Figure 3.
[60] Edwards and Rothbard, 2000
[61] 2007, p. 39

communities and finally on society.

The presented conceptual model[62] (see Figure 1.) demonstrates how aspects of each domain interlink at multiple levels. The upper part of the model specifies that governmental regulations, economic influences, work–places, family circumstances, and community factors are assumed to influence the relationships and processes that encompass all meso–systems.

Within each domain demands and resources are associated with characteristics such as the structure and content of practices of that domain. However boundary–spanning demands and resources are inherently part of two or three domains (e.g., introducing green work practices to use electricity and a supportive family culture to adopt those practices).

Although boundary–spanning stresses and reserves originate in one domain, they may serve as demands and resources in other domains. This is the case when employers acknowledge and address employees' needs for greener work–practices, through supportive ecological work policies.[63] In such instances the two domains are partially integrated.

2.2 Boundary theory: flexibility and permeability

Boundaries (e.g., physical, temporal, and behavioural) assist to structure and define the countless roles an individual maintains in different domains. Boundary theory suggests that individuals differ in the extent to which their diverse roles are integrated or segmented across domains (e.g., work, family, community). Kossek et al.[64] claimed that boundary management strategies of individuals are '…partly shaped as a result of the structure of the job they are in and partly by individual differences.'[65] High role integration transpires when 'no distinction exists between what belongs to 'home' or 'work' and when and where they are engaged.'[66] In comparison, high role segmentation transpires when the domains of work and non-work are treated as completely separate. Hence, role integration-segmentation falls on a continuum, ranging from high segmentation to high integration.[67] However, directionality is also an important consideration.[68] Integration into one domain is independent of the reciprocal integration.

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[62] See p. 16
[63] For example organisational services such as rental services for bikes or car sharing as suggested by Muster and Schrader, 2011, p. 149
[64] 2005
[65] Kossek et al., 2005, p. 254
[66] Nippert-Eng, 1996, p. 567
[67] Ashforth et al., 2000; Nippert-Eng, 1996
[68] Ashforth et al., 2000

2.2.1 Flexibility and permeability

Kossek et al.[69] have suggested that boundaries have two associated but separate characteristics, namely flexibility and permeability, which allow or hinder the integration of either sphere(s). Flexibility describes the degree to which an individual contracts or expands a domain boundary in response to demands from another domain or other domains. Permeability is the degree to which an individual allows elements from one domain to enter the other domain,[70] such as pro-environmental resource and waste management practices.

Recently, Matthews and Barnes–Farrell[71] established that those boundary characteristics are key factors in understanding how people manage the work–life interface. Employees and workers seem to vary in the degree to which they are '… willing to change the timing and location of domain related behaviours.'[72] Of great interest in their findings is the important aspect of boundary flexibility, or a willingness to adopt a flexible attitude to boundaries.

The exploration of boundary flexibility as a factor in employees' behaviour in the mesosystem of the work−life interface may allow some understanding of variance in employees' transfer of pro–environmental behaviours. It may be of use to establish whether flexibility willingness is an enhancing factor of transferring pro-environmental practices from one domain to another. It could be shown that employees who are attitudinally aligned with their company's adopted eco–effective practices (recycling) transfer those practices and behaviours to a varying degree from their home life to work.[73]

2.2.2 Work role identification

Work role identification[74] is yet another concept that seems to relate positively to work, family and community interpenetration. Ashforth et al.[75] suggested that individuals are likely to favour work or non-work roles that provide satisfying extrinsic or intrinsic rewards to the individual. As a result of these rewards, the individual is more likely to experience role identification whereby the individual considers the role (e.g., teacher and parent; parent and net-ball coach) to be a defining component of one's identity.[76] Olson-Buchanan and Boswell[77] recognised that it is essential to investigate role identification[78] and other similarly relevant concepts[79] when researching the joint enactment of work,

[69] Kossek et al., 2005
[70] Matthews and Barnes-Farrell, 2010
[71] 2010
[72] p. 342
[73] Tudor et al., 2007
[74] Olson-Buchanan and Boswell, 2005
[75] 2000
[76] Pratt, 1998
[77] 2005
[78] See e.g., Chakrabarti, 2008; Olson-Buchanan and Boswell, 2005
[79] E.g., family role synthesis, see Kossek, Noe and DeMarr, 1999,

family and community roles and the associated practices across and within an individual's personal, organizational and communal sphere.[80]

2.3 Individual behavioural paradigm

The individual who is learning and applying pro-environmental practices across microsystems can be viewed as the cultural carrier of those practices. The concept of the cultural carrier of practices requires a further dimension of enquiry, as complex psychological underpinnings and mechanisms which influence the actual behaviour of a person must be taken into account. Human beings have many predispositions to do one thing rather than the other. This may depend on their attitudes, beliefs and habits, their estimation of what others might think about their behaviour, and a host of other similar factors. Some factors are more personal and specific, others more general.[81]

Kollmuss and Agyeman[82] created a complex model of pro-environmental behaviour drivers.[83] Their model is based on the belief that internal factors like knowledge, feelings, values and attitudes provide much of the drive for pro-environmental behaviours. Thus in their model, hindrances to behavioural changes include lack of internal and external incentives and lack of positive reinforcement that could support new behaviours. However, it did not include mandatory pro-environmental expectations.

3. Rationale

It is argued that the proposed research agenda is relevant as governments across the world and naturally also in Australia[84] are currently moving towards shifting more responsibility for waste and resource management on to producers and consumers.

3.1 Global and Australian perspectives

Rising levels of production, trade, and consumption are an important driving force behind many of the world's most pressing environmental threats.[85] Economic growth and human welfare gains cannot be

[80] Kossek, Noe and DeMarr, 1999
[81] Beattie, p. 16 and pp. 239
[82] 2002
[83] Kollmuss and Agyeman, 2002, p. 257
[84] Author's homeland
[85] 2005 Millennium Ecosystem Assessment. The Millennium Ecosystem Assessment assessed the consequences of ecosystem change for human well-being. From 2001 to 2005, the MA involved the work of more than 1,360 experts worldwide. Their findings identified climate change as one of the most important drivers of stress and degradation of ecosystems and ecosystem services. Climate change is reported to be directly linked to the buildup of carbon dioxide in the atmosphere from the use of fossil fuels. A critical challenge in the protection and restoration of ecosystem services is the transition to an energy future with lower carbon emissions, less air pollution, and minimal risks from the extraction and transportation of fossil fuels.

sustained with current consumption, production patterns, nor current resource and waste management practices.

According to recent figures extracted from the United Nations Environment Program (UNEP):[86]

> Every year, an estimated 11.2 billion tonnes of solid[87] waste are collected worldwide and the decay of the organic proportion of solid waste is contributing to about 5 per cent of global Greenhouse Gas (GHG) emissions. Of all the waste streams, waste from electrical and electronic equipment containing new and complex hazardous substances presents the fastest-growing challenge in both developed and developing countries.[88]

It is important to understand that the sectors used to account for sources of greenhouse gases are not neatly separated, as the statistics seem to indicate that waste creates only around 3% of the greenhouse gas production. However, if one takes into account that waste management, for example recycling, leads to substantial resource savings, a new picture emerges:

> For example, for every tonne of paper recycled, 17 trees and 50 per cent of water can be saved. Recycling each tonne of aluminium, the following resource savings could be accrued: 1.3 tonne of bauxite residues, 15 m^3 of cooling water, 0.86 m^3 of process water, and 37 barrels of oil. These are in addition to the avoidance of 2 tonnes of CO_2 and 11 kg of SO_2.[89]

Despite the ongoing depletion of global resources (e.g., non-renewable minerals, water, fertile soil, oil, rare earth minerals, etc.) dominant economic systems still conceptualize consumption as a positive process.[90] As Alexander[91] has emphasized: 'To live is to pollute. We all consume. We all generate waste.'[92] Thus, '…waste is not simply a waste management issue…. rather it is a societal problem and one that is culturally embedded'[93] in the organisational praxis of the workplace and also in private and community everyday life practices.

Waste in everyday life is intrinsically related to the last phase in the sequence of a consumption cycle that starts with acquisition, followed by consumption and possession, and is completed at end–of–life with disposition. This is called the production–consumption–waste–path. Coverly at al.'s[94] article 'The Social Avoidance of Waste' argues that the study of the disposal of waste at an individual level is greatly marginalised. The authors postulate that consumption is currently a dominant paradigm

[86] 2011
[87] Any waste that is not gaseous and is not a liquid
[88] UNEP, 2011, Waste, p. 290
[89] UNEP, 2011, Waste, p. 290; please note, SO_2 is Sulfur Dioxide and is often generated by the combustion of petrol and coal. It frequently forms sulfuric acid which is responsible for acid rain.
[90] McKay, 1997
[91] 1993
[92] Alexander, 1993, p. 175
[93] Coverly, McDonagh, O'Malley, Patterson, 2008, p. 300
[94] 2008

and is '…currently conceptualized as a sacred process …Disposition, on the other hand, is far more secular and mundane.'[95]

Consequently, disposal of waste in the developed countries mirrors the socialisation of people living in the industrialised world, where a distance from and a lack of awareness with regard to issues of waste is imparted. The implications are that responsibility for waste is taken away from people in the industrialised world, as most people dispose of waste in their homes at a regular and often immediate pace, with waste bins also being collected at regular and usually weekly intervals.

Hence, in most countries of the Western World[96] the nature of our relationship with waste can be described as one where waste is quickly out of sight and therefore out of mind, whereas the demand for consumption continues to be obvious and in the foreground. Similarly, Bauman[97] and Coverly et al.[98] stress that most people do not have an understanding of their consumption habits and how they are directly related to '…waste mountains, litter escalation, throwaway cultures, and landfill capacity exhaustion….'[99] This view implies that the necessary behavioural changes required in managing waste are not necessarily easily conceived of by individuals in households.

Waste in this context may be seen as an exemplar, as the arguments brought forward about waste could easily be repeated in the context of energy use. The consumers who use electricity from the grid are so removed from the actual process of the production of electricity that it is hard for them to come to understand the fact that many of the electricity production methods used are little different from those conceived in the late 19th and early 20th centuries, with their associated production of pollution.[100]

Australia, with around 21 million people is one of the foremost consuming countries in the world.[101] Australians generate municipal waste[102] and emissions[103] per person at a higher rate than most other OECD [104] countries. [105] According to the recent Garnaut Climate Change Review,

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[95] Coverly, McDonagh, O'Malley and Pattersons (2008), p. 289

[96] There are pockets in the Western World such as in Naples in Italy, where waste and litter are poignantly visible and a severe garbage crisis constitutes a source of enormous unrest in the population and in the Federal and Local political scene , e.g., See Waste crisis; Naples snubbed by Northern League, July 3, 2011, <http://naplespolitics.com.au /2011/07/03waste-crisis-naples-snubbed-by-northern-league/>

[97] 2008

[98] 2008

[99] Coverly et al., 2008, p. 290

[100] Australian Academy of Science, 2010

[101] ABS 2008 Australia at a Glance

[102] ABS 2006 Waste:' Municipal waste includes waste that originates from households, commercial activities, office buildings, institutions such as schools and government buildings, and small businesses that dispose of waste at the same facilities used for municipally collected waste'

[103] ABS 2006, international comparisons:' Australia accounts for around 1.4% of global emissions of CO_2. 18.75 tonnes of CO_2 were emitted for every Australian, compared with an OECD country average of 10.97 tonnes per person'.

[104] Organization for Economic Cooperation and Development

'Australia's per capita greenhouse gas emissions are the highest of any OECD country and are among the highest in the world'.[106]

In 2007, the energy sector was the primary source[107] of greenhouse gases emitted in Australia, accounting for more than 68% of Australia's total greenhouse gas emissions.[108]Recent changes in governmental policies in Australia reflect the urgency of the situation and have tended to emphasise increased producer and end user responsibilities for an increasingly wide range of environmental measures. This has implications for the proper environmental consideration of issues of waste and carbon emissions.

These issues are so prominent as to warrant the involvement of all levels of governments in Australia, Federal, State and Local. At a Federal level a 'Department of Climate Change and Energy Efficiency' has been established, which is actively involved in supporting scientific research and publishing reports on the impact of Climate Change. The release in Australia of the *Research Report on the Carbon Emission Policies in Key Economics*[109] at the beginning of June 2011, and the introduction of a Carbon Emission Trading Scheme in Australia, underline the necessity of engaging organisations, citizens and cities[110] with the issues of resource supply and management.

The Australian Government's Productivity Commission *Inquiry Report on Waste Management*[111] has also highlighted the responsibilities of both organisations and individual citizens to deal with issues of waste production and management. Hence, research into the possible influence of pro-environmental organisations that are true embracers of eco-efficient management strategies might provide timely insights.

2.2 'Embracer' organsiations

Although not all pro-environmental behaviours and practices used at work are transferrable, it is reasonable to assume that organisations that embrace pro-environmental practices as a core activity (Figure 2.), will have an impact on actual employee practices and behaviours at work, and consequently on levels of awareness about environmental issues amongst employees.

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[105]ABS 2010, Australian environment: 'Many large economies, including Japan (9.68 tonnes/person) and the United Kingdom (8.6 tonnes/person), had significantly lower per capita CO_2 emissions than Australia in 2007', '18.75 tonnes of CO_2 were emitted for every Australian, compared with an OECD country average of 10.97 tonnes per person'. In 2003, Australia had the fifth highest rate of per capita municipal solid waste generation among OECD countries with 690kg per capita, whereas the OECD country with the lowest per capita municipal solid waste generation was Poland with 260kg per capita, followed by The Czech Republic (280 kg) and Slovak Republic (300).
[106] Garnaut, 2011 a, p. 153
[107] ABS 2010
[108] by the Kyoto accounting method
[109] Carbon Emission Policies in Key Economies, June 2011
[110] See Zaman and Lehmann, 2011
[111] Waste Management, 2006

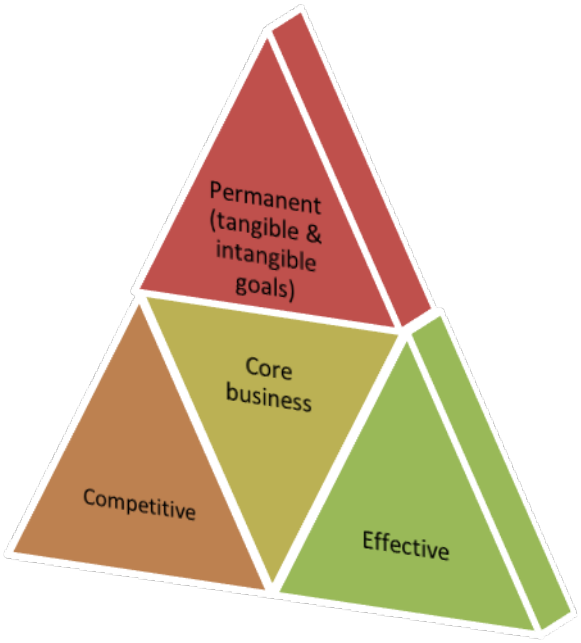

Figure 2. Sustainability Investment in a Pro–environmental 'Embracer' Organisation.

(developed by the author, 2011)

Figure 2. illustrates that strategically oriented organisational leaders may choose to commit to investments in areas such as sustainability, as a core company activity, because they believe that it will become a source of advantage for the business to grow, to stay competitive and to gain in efficiency. Many companies may view sustainability driven management outcomes as tangible (e.g., cost reduction) and intangible (e.g., innovation) advantages.

Sustainable management has been defined by Murray[112] as:

> …ultra high efficiency resource and material use, prioritizing the manufacture of durable products, developing re-use and re-manufacturing processes to reduce wastage, seeking zero waste emission methods of production, developing bio-mimicry applications, where manufactured processes and products mimic the performance of natural systems using industry ecology approaches, where the waste stream from one manufacturing process becomes the resource stream for another.[113]

In line with Dovers, [114] sustainability is differentiated as an end from the term of sustainable development, as a process of achieving that end. Plainly, sustainability is referred to as the goal of

[112] Murray, 2010
[113] Murray, 2010, p.185
[114] 2003

economic, social, and environmental dimensions to ensure as stated by Lehmann[115] '…on-going and long-term maintenance of humans and their ecosystems' future continued existence.

Waste reduction and resource efficiencies are often identified as sustainability driven opportunities with which organisations might easily engage as a first step.[116] Early adopters or 'embracer'[117] organisations might over time be instrumental in broader societal change towards environmental (greener) practices in waste and resource management at work, home and in community life and may not have received adequate recognition for their preparedness and their potential to act as significant change agents in the evolution of sustainable living.[118]

Should organisations embrace sustainability management strategies in a radical manner, it might have a profound impact on economic and social systems, practices and cultural conditions and therefore on major aspects of the lives of individuals, and ultimately on society, perhaps comparable to the effects of the first '*Industrial Revolution.'*

4. General hypothesis and possible research questions

A general hypothesis of this discussion paper is that highly committed and evolved greening organisations are likely to become drivers in the uptake of pro-environmental practices and behaviours by individuals.

4.1 Possible research questions

(a) What are good indicators for identifying an organisation that truly embraces and adopts pro-environmental management strategies?
(b) Do organisations that truly embrace and adopt pro-environmental sustainability measures ('embracers') influence and instil pro-environmental practises in their employees?
(c) Can acquired pro–environmental work practices and behaviours positively penetrate and permeate the boundaries between work and non-work spheres?
(d) Can these practices inspire interaction between pro-environmental behaviours at home and in community life, or in any combination of the three life domains? Conversely, can pro-environmental behaviour cultivated privately at home or in the community penetrate into and permeate the work place?

[115] 2010, p.65
[116] Haanaes et al, 2011, p. 25
[117] Haanaes et al, 2011; MIT's Sloan Management Review, 2011
[118] A change agent is an organization or person that acts as a catalyst for effective change, bringing about future organizational change. Moreover, bringing change to organizational structures has proven to be difficult, complex and often a timely process.

(e) If so, can organisational practices be positively affected, if individual employees are able to model these privately cultivated green behaviours for colleagues, in the setting of an organisation that truly embraces and adopts pro–environmental sustainability measures?

Answers to those questions and possible research findings will have implications for organisations interested in pro-environmental development and make a contribution to the body of empirical research about work, family and community. Research projects would also provide useful insights into practices of pro-environmental waste and resource management across life domains. This would permit an assessment of, if and how stringent organisational environmental management practices could be one of the ways by which society could engage individuals in pro-environmental praxis across life domains. Therefore an examination of the responses, reactions and practices of employees working in pro-environmental organisational settings and cultures should be a priority in ecological behavioural research of humans.

5. Literature review

The gap in the research on what causes the adoption of pro-environmental behaviour is twofold. Firstly there is a need to transcend the limitations of previous research into the gap between pro-environmental attitudes and behaviours. This means finding a solution to the conundrum between the obvious and proclaimed pro-environmental attitudes of people, and their lack of corresponding individual pro-environmental behaviour. This can be done by looking at organisations which have already changed their work practices and therefore demand pro-environmental behaviours from their workforce. Of particular interest is the influence of these organisations upon the work practices and behaviours of their employees, particularly the extent to which workers will adopt similar pro-environmental resource and waste management practices in other life domains, such as in their home or community over time.

Secondly, there is a gap in the methodology of the few studies[119] which looked at the interaction between pro-environmental behaviour and practices, between work, home and community. No strong theoretical or analytical framework around work, family and community has underpinned any of the previous few studies. Only Tudor et al.[120] and Turnbull Loverock[121] have conducted studies comparable with the proposed approach. Both explored the interaction between work and home spheres or vice versa, with regard to pro-environmental behaviour, inclusive of waste management and

[119] Tudor et al., 2007; Turnbull Loverock, 2010
[120] 2007
[121] 2010

resource management. Turnbull Loverock[122] extended her study to encompass the interaction between workplace, home and community.

5.1 Relevant studies

Understanding the factors and processes which determine employees' pro-environmental behaviour patterns, with regard to the settings and interfaces of work, home and community, allows us to grasp the main factors and processes that may influence the interaction of resource and sustainable waste management behaviours, among all domains. The literature on such factors and processes cuts across several disciplines and fields of academic enquiry. Therefore this literature review is of necessity multi–disciplinary.

For example Tudor et al.'s[123] study of 566 employees of the Cornwall National Health Service (NHS) examined the nature of pro-environmental behaviours in regard to waste management in both home and work domains. A bivariate relationship between recycling behaviour at home and sustainable environmental behaviour at work was established. It could be shown that there is a link in behaviour which was driven by the environmental attitudes and beliefs of employees. Accordingly, those employees who privately held pro-environmental views were most likely to perform sustainable waste management practices in both settings when their work place expected them to recycle.

These findings support the general hypothesis of this discussion paper, as a statistically significant link[124] has been shown to exist between pro-environmental practices exhibited by the employees between the two settings of home and work. However, these findings related mostly to the recycling of paper and plastic bottles.

Significant exploration of the processes by which these behaviours migrate from one domain to another has not been carried out or documented. Nor has an examination of the role of the organisation, as a social factor influencing pro-environmental behavioural change amongst individuals, been undertaken. Neither has there been an examination of the influence of peer pressure and therefore of power, under such circumstances.

Moloney, an environmental sociologist, researched environmental significant behaviour (ESB), defined as behaviour that is carried out with the intent of benefitting the environment. She investigated predictors of ESB using Value-Belief-Norm (VBN) theory as a conceptual framework. VBN states that personal norms, activated by problem awareness have a significant influence on ESB. She extended VBN theory to include social contextual factors such as household structure, location of residence (e.g., big city, suburban, village), and geographic region.

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[122] 2010
[123] 2007
[124] Tudor et al. 2007, p. 416

These social contextual factors refer to aspects of a person's life that facilitate or eliminate opportunities and constraints. However, Moloney's[125] attempt to extend and assess VBN theory in order to predict ESB came to the conclusion that

> '…a combination of personal and social contextual factors is most likely the determinant of ESB, and there may be a different combination for every individual.'[126]

Therefore, as her findings did not support a pattern for predicting individual environmentally significant behaviour, Moloney[127] concluded:

> '…actions of environmental organizations and corporations both significantly impact the environment, focusing on how organizations' behavior affects individuals' behavior could prove to be fruitful'[128]

The lack of a demonstrable pattern of behaviour is therefore in itself significant and the above statement reinforces the approach of this research agenda.

Nye and Hargreaves'[129] research project differed from Moloney's study, as they assessed the social dynamics and mechanisms of two comparable, team-based behaviour change interventions, at work and at home. Their study considered the impact of social contextual factors on pro-environmental behaviour, especially reactions and expectations of the immediate peer group, existing workplace or domestic roles, and the situation-specific definitions of what counted as appropriate behaviour in the home and the workplace.

Nye and Hargreaves'[130] study is relevant in the context of this proposed research project, because it examined intervention programs at work and at home to investigate changes in pro-environmental behaviour. However, their study paid no attention to possible cross over effects of the newly formed habits[131] at work to the home sphere of the participants in the work intervention program, and vice versa.

Their exploration of the social dynamics of pro-environmental behaviour change did not include an investigation as to whether the older middle class women in the home intervention program transferred their newly acquired ecological behaviours into the work force. No data was provided which established if those women were even in the workforce.

What is of interest to and in support of the proposed research agenda, is that employees who participated in the behaviour change team at work were observed to have developed new pro-environmental habits. Nye and Hargreaves[132] noted that these achievements were attained by

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[125] 2011
[126] Moloney, 2011, p. 57
[127] 2011
[128] Moloney, 2011, p. 56
[129] 2010
[130] 2010
[131] According to Beattie, 2010, habits are amongst 'forms of learned behaviour ….not instinctual and not necessarily biologically programmed (although may well be)', p.111
[132] 2010

'distinctly social, collective, and contextually specific processes of change.'[133] Interestingly, the authors did suggest that outcomes had '…little to do with changing individuals' attitudes toward, knowledge about, or values regarding the environment.' [134] Instead, the shift towards pro-environmental behaviour appeared to develop 'within the existing "officially accredited" rules for office conduct by introducing (and beginning to police) new social expectations.'[135] It was suggested that new informal rules for everyday office behaviour had taken hold.

Nye and Hargreaves' work is relevant to the research agenda, as their results suggest that pro-environmental interventions at work are powerful drivers for actual adoption of pro-environmental behaviour at home and possibly in the community. The study holds this to be so, if these interventions are introduced with attention to the power of contextual social factors (e.g., reactions and expectations of the immediate peer group). This establishes that it is necessary to investigate cross engagement linkages at different levels[136] of the interface between work and non-work.

Similarly, Turnbull Loverock's[137] study on the influence of work-place culture, as a driver of employee pro-environmental behaviour, does not investigate the processes that lead to the cross linkages of behaviours between domains, such as work, home or community. However, Turnbull Loverock[138] explores the domain of the community in her study, by exploring how people influence others in the community and in the home, as role models of pro-environmental behaviours learned at work. Figure 3. below illustrates her findings.

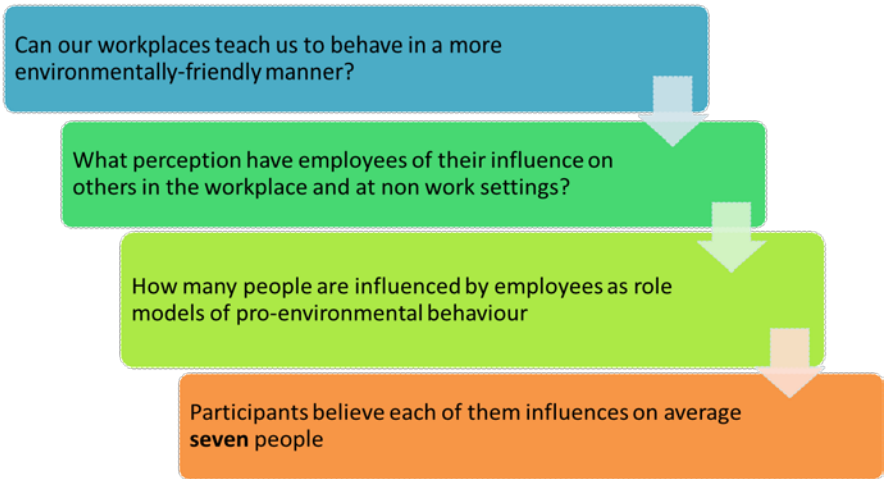

Figure 3. Turnbull Loverock's[139] findings (developed by the author, 2011)

[133] Nye and Hargreaves, 2010, p. 143
[134] Nye and Hargreaves, 2010, p. 143
[135] Nye and Hargreaves, 2010, p. 143
[136] re micro-, meso-, exo- and macro-levels, definitions> see Glossary
[137] 2010
[138] 2010
[139] 2010

Turnbull Loverock's study 'Employee pro-environmental behaviours: Workplace culture as a driver for social change'[140] concluded that participants believed that they have influenced seven people as role models of pro-environmental behaviour. Turnbull Loverock's[141] work is relevant to the topic of this discussion, as her approach and results suggest that the focus of this research area should be on actual practices rather than on perceptions. This constitutes an extension from soft data to hard data.

Only Tudor et al.[142] and Turnbull Loverock[143] have conducted studies comparable to the proposed research agenda. Both explored the interaction between work and household spheres with regard to pro-environmental behaviour. Turnbull Loverock[144] extended her study to encompass the interaction between workplace, home and community. However, none employed the conceptual model of Voydanoff's[145] work-family interface, as it has not been considered by either Tudor et al.[146] or Turnbull Loverock.[147]

The chosen sphere of enquiry can be related to a green HRM[148] paper that the German authors Muster and Schrader[149] published in 2011. Their conceptual model for 'green work-life balance'[150] proposes that green work-life balance instruments may enrich work-to-life and life-to-work pro-environmental experiences. The range of work-to-life interventions they suggest includes information based (e.g., lectures and events), service based (green canteen and cooking courses) and finance based interventions (e.g., discounts on green company purchase offers). Proposed life-to-work interventions included an 'attractive suggestion scheme with an adequate incentive system'[151] for solving environmental issues at work. In addition to providing evidence of the interpenetration of work, life and community spheres, the proposed research agenda may provide evidence that supports the basic assumptions and approach of Muster and Schrader.

6. Conclusion

This discussion paper focused on the change in the economy and society towards sustainability, which have started to take place as increasing numbers of organizations move to embrace sustainability as a core business activity, as a conceptual mission, and as a governing principal for their organizational structure. A soft revolution of working and living sustainably is evolving and therefore organisational practices and their impact on society deserves academic attention by researchers.

[140] 2010
[141] 2010
[142] 2007
[143] 2010
[144] 2010
[145] 2002, 2007, 2008
[146] 2007
[147] 2010
[148] Human Resource Management
[149] 2011
[150] Muster and Schrader, 2011, p. 147
[151] Muster and Schrader, 2011, p. 150

Based on observations by Haanaes and others,[152] the key findings of the second annual's sustainability and innovation survey of global corporate leaders suggests that businesses are fast embracing sustainability as a core business activity despite the recent global economic turbulence: 'Overall, investment in sustainability strategies is rising, despite the down turn'.[153] Mindful of this, so called 'embracer' organisations might, for instance, be instrumental in the societal change towards greener practices in waste- and resource management across all life domains; work, family and community.

Additionally, recent advances in the development of analytical frameworks[154] around work, family and community and the ways in which they intersect, offer researchers a strong framework to investigate pro-environmental practices and behaviours inclusive of the social and political context.

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Conflict of interest

The author is currently undertaking research for a PhD on organisations which adopt sustainable management practices and their influence on the pro-environmental behaviour of their employees across life spheres.

"The author declares no conflict of interest".

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[152] Haanaes et al., 2011
[153] Haanaes et al., 2011, p. 23
[154] Voydanoff, 2002, 2004, 2005, 2007, 2008; Pocock et al., 2011

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Glossary

attitude Recent definitions of attitude by Crano and Prislin (2006) and Ajzen (2007) describe an attitude as a hypothetical construct that manifests in a wide variety of observable responses. Attitudinal responses are of an evaluative nature and resemble the integration of cognitions and affects experienced in relation to an object or target (e.g., a person, institute, policy or event). 'Attitudes are the evaluative judgements that integrate and summarize these cognitive/affective reactions. These evaluative abstractions vary in strength, which in turn has implications for persistence, resistance, and attitude-behavior consistency' (Crano and Prislin, 2006, p. 347).

boundary flexibility describes the degree to which an individual contracts or expands a domain boundary in response to demands from another domain or other domains (Matthews and Barnes-Farrell, 2010).

boundary permeability is the degree to which an individual allows elements from one domain to enter the other domain (Matthews and Barnes-Farrell, 2010).

cautious adopters Businesses that adopt sustainability management strategies are categorised as embracers (strategic leaders) or cautious adopters (laggards). However, both types first approach waste and resource management as their starting point to create a business case and apply pro-environmental management strategies for efficiency and risk management gains. Embracers are more aggressive in their strategies as they view pro-environmental practices as a core activity of their organisation (Haaneas et al. 2011).

Community is defined by '…relationships of support and/or interaction between people beyond the household or workplace, which may be based on place, shared interest or identity' (Pocock et al. 2011, p. 7).

embracers Businesses that adopt sustainability management strategies are categorised as embracers (strategic leaders) or cautious adopters (laggards). However, both types first approach waste and resource management as their starting point to create a business case and apply pro-environmental management strategies for efficiency and risk management gains. Embracers are more aggressive in their strategies as they view pro-environmental practices as a core activity of their organisation (Haaneas et al., 2011).

enrichment is defined as the degree that experiences, resulting from either instrumental pathways (e.g., skills, abilities, values) or affective pathways (e.g., moods), in one domain (e.g., work, home of community), positively enhance the quality of life in the other domain (e.g., home, community, work).

exo in this study refers to exo-systems which include organisational or work settings (e.g., organisational culture) or the structure of the family (e.g., type of household: single or couple or family with children household) in which an individual exists.

facilitation refers to the extent to which participation in one domain fosters improved or enhanced engagement or processes in another domain. Facilitation includes skills, experiences, resources, and knowledge interacting with individual and contextual circumstances that are portable and contribute to increased levels of organization and development (Grzywacz, 2002)**.**

family is defined as a group of people which pools social life, money and time to sustain their everyday life (Pocock et al., p.7).

green, pro–environmental, greening '…behavior that consciously seeks to minimize the negative impact of one's actions on the natural and built world' (Kollmuss and Agyeman, 2002, p. 240) and includes resource (e.g., water, electricity and gas) and waste (e.g., organic, hazardous, e-waste) management, but goes far beyond those practices.

greening, pro–environmental, green'…behavior that consciously seeks to minimize the negative impact of one's actions on the natural and built world' (Kollmuss and Agyeman, 2002, p. 240) and includes resource (e.g., water, electricity and gas) and waste (e.g., organic, hazardous, e-waste) management, but goes far beyond those practices.

macro in this study refers to the dominant context and the overarching pattern of the culture or subculture in which the micro–, meso–, and exo–systems are nested, (e.g., Australian Nation State, legislation of carbon).

meso in this study refers to meso-systems, which consist of interrelationships among the micro-system (meso-systems are work-family, work-community, family-community, and work-family - community).

work is defined to include activities undertaken as a volunteer in an organisation, in paid employment or through self-employment.

work-family enrichment is defined as 'the extent to which experiences in one role improve the quality of life in the other role' (Greenhaus and Powell, 2006, p. 73).

resource management refers to any element in the environment which contributes to the products created or processes undertaken by an organisation. It is not necessarily the management of

the environment as such, but rather the management of the interaction and impact of an organisation on the natural environment.

solid waste refers to any waste that is not gaseous and is not a liquid.

waste def.: Any discarded, rejected, abandoned, unwanted or surplus matter, whether or not intended for sale or for recycling, reprocessing, recovery or purification by a separate operation from that which produced the matter; or anything declared by regulation or by an environment protection policy to be a waste; whether of value or not *(The Environment Protection Act 1993).*

waste types: Organic, hazardous, recyclable, e-waste, construction, fluid, and any other form of industrial waste.

power '...relative power between socioeconomic groups, employers and employees, men and women, and ethnic groups, including the security of citizenship available to migrants, all affect the demands and resources that are experienced in each domain. This includes the nature and availability of 'voice' in social and political arrangements' (Pocock et al. 2011, p. 14).

practices are according to Kemmis, and Grootenboer (2008) divided into action and praxis such as understandings (sayings and thinking), skills and capabilities (doings) or values and norms (relatings) of practitioners.

practice architecture Kemmis and Grootenboer (2008) argue that professional architectures and their associated mediating preconditions enable and constrain the conduct of individuals. Consequently, they believe that changing professional practices is not just a matter of changing the understandings (sayings), skills and capabilities (doings) or values and norms (relatings) of practitioners, but also changing the practice architectures that enable and constrain practitioners, i.e. the operations within different organizational sections.

pro–environmental, greening or green behaviour '…behavior that consciously seeks to minimize the negative impact of one's actions on the natural and built world' (Kollmuss and Agyeman, 2002, p. 240) and includes resource (e.g., water, electricity and gas) and waste (e.g., organic, hazardous, e-waste) management, but goes far beyond those practices.

pro-environmental practices refer to '…behavior that consciously seeks to minimize the negative impact of one's actions on the natural and built world' (Kollmuss and Agyeman, 2002, p. 240) and includes resource (e.g., water, electricity and gas) and waste (e.g., organic, hazardous, e-waste) management, but goes far beyond those practices; please note, green or greening behaviour refers to this definition also.

spillover refers to shared similar effects (e.g., affect, values, skills, behaviours) of work and family life. Spillover occurrences can be either positive or negative, but the experiences of those occurrences at work and at home are identical (Edwards and Rothbard, 2000; Grzywacz, 2000).