

**Abstract.** *This is the second of two papers concerning wisdom as an ecosystem appearing in sequential editions of Management & Marketing journal. The notion of wisdom as an ecosystem, or „the wisdom ecology”, builds on work by Hays (2007) who first identified wisdom as an organisational construct and proposed a dynamic model of it. The centrepiece of this and its former companion paper is a relationship map of the Wisdom Ecosystem (the Causal Loop Diagram at Figure 1). The first paper, „The Ecology of Wisdom”, introduced readers to the topics of wisdom and complex adaptive systems, and presented a dynamic model of the Wisdom Ecosystem. This second paper discusses systems dynamics modelling (mapping systems) and covers the Wisdom Ecosystem model in detail. It describes the four domains, or subsystems, of the Wisdom Ecosystem, Dialogue, Communal Mind, Collective Intelligence, and Wisdom, and walks readers through the model, exploring each of its 25 elements in turn. It examines the relationships amongst system elements and illuminates important aspects of systems function, providing a rare tutorial on developing and using Causal Loop Diagrams.*

**Keywords:** Causal Loop Diagramming, Complexity, Dialogue, Organisational Learning, Systems Dynamics, Wisdom.

## **MAPPING WISDOM AS A COMPLEX ADAPTIVE SYSTEM**

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## **1. Introduction**

This is the second of two papers appearing in sequential editions of *Management & Marketing* journal concerning the Wisdom Ecosystem, or the ecology of wisdom. The first instalment, „The Ecology of Wisdom”, appearing in Volume 1, provided background on organisational wisdom and complex adaptive systems. It introduced a dynamic model of the Wisdom Ecosystem, included here as the Causal Loop Diagram at Figure 1. Causal Loop Diagrams (CLDs) are sometime referred to as relationship or influence diagrams. This one incorporates 25 elements (or variables) arranged in four domains, or subsystems. These four subsystems, Dialogue, Communal Mind, Collective Intelligence, and Wisdom, are explored in this paper, as are the individual elements and their interrelationships. This paper also explains the process of CLD development, or mapping the system, and underscores the value of the process to teams and organisations.

The notion of organisational wisdom as an ecosystem builds on work by Hays (2007) who first identified wisdom as an organisational construct and proposed a dynamic model of it. The ecological perspective presented here adds to Hays’ 2007 preliminary model, revealing organisational wisdom as a complex adaptive system that evolves, given supportive conditions. When thriving, the Wisdom Ecosystem will learn, develop, and adapt in correspondence with changing environmental demands and opportunities. As such, it will be more resilient and responsive than organisations that have not attained or been capable of sustaining wisdom. At higher levels of functioning, the system will become conscious of itself as wise, and will be capable of anticipating and preparing itself for impending changes in the environment.

## **2. Systems Wisdom**

Organisations struggle to keep abreast of, understand, and practically employ ideas, tools, and techniques for getting the best out of their people and other resources they have available to them. Systems that promise to connect people, foster dialogue, and capitalise upon their distributed intelligence and often tacit knowledge are seductive and hopefully worth the investment. This paper and its predecessor, „The Ecology of Wisdom”, presuppose that resident in the minds and hearts of people are the knowledge to solve many of the challenges that arise and the fervour to relentlessly pursue solutions and opportunities. This assertion will resonate with some and accord with many on-going initiatives and the values than underlay them. Too often, however, this inherent brilliance remains an untapped, if vital potential. Many of us feel – and system providers and consultants would have us believe –that if we could only get people talking (about work-related matters), harness their collective intelligence, and leverage that passion that our organisations can survive problems that befall them. Our people, too, will thrive in the process as meaningful involvement can

be a significant contributor to employee morale. Furthermore, engaging employees in the problems and opportunities organisations confront is the single best way to build internal capability (Kirk and Shutte, 2004).

Unfortunately, no Knowledge Management or Management Information System, yet available, is going to ensure people use it wisely or that their collective wisdom will be cultivated, captured, multiplied, or exploited (Hasan and Crawford, 2003; McDermott, 1999; Stapleton, et al, 2005). They may, and on-going initiatives are encouraging. In the final analysis, however, it is *if* and *how* people use the tools they have available that makes all the difference. To use, abuse, or ignore tools and the information they can provide are choices; not as black and white as we might assume, and not as rational as we might like. Such choices are complex, involving amongst other things motivation, confidence, opportunity, and skill—some of the very variables integral to the Wisdom Ecosystem.

Choices, human behaviour more generally, and social systems are by nature dynamic and complex, more intricate and involved than we usually give them credit for. Simple correspondence between two or three factors may be easy to control for and validate, but this tells us little about human behaviour in broader context. Yet, human behaviour and interaction make perfect targets for dynamic modelling such as Causal Loop Diagramming. It can be used to explain and predict why people do what they do (or don't do), and what might be required to shift their behaviour—not in a manipulative or self-serving way, but in such a way that everyone wins. So much the better if the targets of change are the instruments of change; that is, stakeholders are meaningfully involved in the process. Getting employees or other stakeholders engaged in problem system modelling can be a first step toward problem resolution. It provides them with an enhanced understanding of the system and their place in it. It can galvanise commitment to decisions and strategies that come out of the analysis process. It builds sophisticated skills that can be applied across a wide range of other current or future problems.

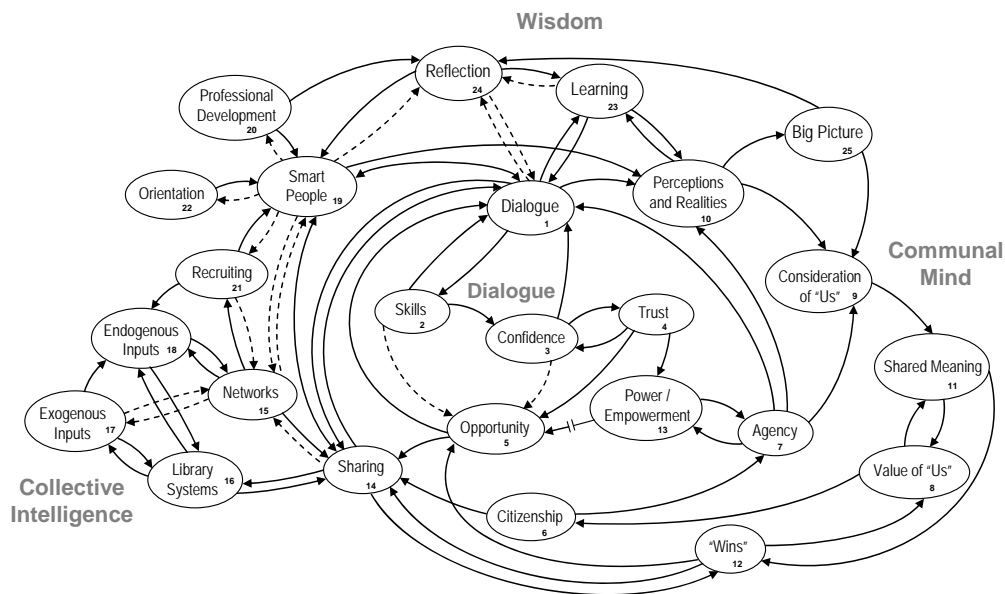
The point of this is that Causal Loop Diagramming builds and reflects wisdom. It is not just clever. It is not just for the high-brow. Dynamic systems modelling is a meaningful activity that generates meaning. We'll look at meaning (or meaning-making) more closely, later, in discussing the Communal Mind zone of the Wisdom Ecosystem. But what we are talking about here is the meaning that arises from people as they interact at work and through the tasks in which they are collectively engaged (Raelin, 2006). Wisdom and meaning are different; but they go hand-in-hand. Groups can come to shared meaning and common ground through complex system modelling (Gold, 2001; Vennix, 1999; Wright, 1999). And at low cost. A competent facilitator might be advisable, and/or a couple experienced participants. But, other than that, there is little to no machinery, software, training, or other investment required. The choice to engage employees or other stakeholders in problem-system mapping (dynamic modelling) is a wise one.

This series does not endeavour to cover and explain the various systems and tools for Collective Intelligence (CI) or Knowledge Management (KM). There are

many useful sources readers may refer to in that regard, including: Ali (2001); Boder (2006); Bonabeau (2009); DiGiammarino and Trudeau (2008); Griffith and Sawyer (2006); Stapleton, et al (2005). The article does, however, explore some of the ideas, principles, and philosophy underlying CI. More importantly, it examines the system (not the technological or administrative system—see Christis, 2005) in which Collective Intelligence occurs. As we will see, CI comprises an intact system; itself, subordinate, but integral to a larger system—a system we call, here, the Wisdom Ecosystem.

The bulk of this article concerns this Wisdom Ecosystem. The elements of this system and their interrelationships are identified (*the what*). The way these elements, or variables, interact are described (*the how*), as is why they interact as they do. The variables and their interaction are referred to collectively, here, as *systems dynamics* (Größler, 2004; Lane, 2000; Schwaninger, 2004). The essence of systems dynamics, however, will be explained to provide context for understanding the Wisdom Ecosystem, why it is presented as it is, and what the value of conceiving the Wisdom Ecosystem thusly is for researchers and practitioners.

The model is presented as a Causal Loop Diagram (Figure 1), an established systems thinking tool and technique.



**Figure 1. The Wisdom Ecosystem, showing the four subsystems, Dialogue, Communal Mind, Collective Intelligence, and Wisdom, and each of the 25 elements**

The Wisdom Ecosystem is comprised of four distinct domains, Dialogue, Communal Mind, Collective Intelligence, and Wisdom. In the language of systems

dynamics, each of these constructs comprises a system; or in this case major subsystems of what may be referred to as a *complex adaptive system* (Bettis and Prahalad, 1995; Espinosa, et al, 2007); Hall, 2005; Jankowicz, 2000; Stacey, 1995).<sup>[1]</sup> This paper defines and explains each of these component parts. Individually powerful and ostensibly unrelated constructs, the merging of Dialogue, Communal Mind, Collective Intelligence, and Wisdom into one unified construct presents those concerned with organisational learning and change with a model that may be implemented and tested. The model put forward should be of interest to researchers and practitioners concerned with group dynamics and teamwork, Knowledge Management, learning and development at all levels of the organisation, stakeholder engagement, organisational culture, and communications. The significance of understanding wisdom as a complex adaptive system is underscored. The very real need of organisations to develop resilience and adaptive natures – to evolve – in response to continually dramatic environmental change is at the heart of the Wisdom Ecosystem.

### **3. The Domains: Dialogue, Communal Mind, and Collective Intelligence**

#### **3.1. Introduction**

This section introduces readers to the main topical areas embraced by the Wisdom Ecosystem, Dialogue, Communal Mind, and Collective Intelligence. Organisational wisdom was covered at length in the first paper in this series, and will not be repeated herein. The wisdom subsystem and its respective elements, however, are discussed in detail in the section titled “A Walk Around the Map.” Worth reemphasis, however, are that:

1. Organisational wisdom is possible, desirable, and perhaps even essential.
2. Wisdom may be productively conceived of as a complex adaptive system, referred to here as the Wisdom Ecosystem.

The ecosystem was described as comprising four domains, or subsystems, each critical to the functioning of the ecosystem. This idea of systems within systems is consistent with much of the literature on systems thinking and complexity, as elaborated by Clayton and Gregory (2000), Keating et al (2001), Stead and Stead (1994), and others, and on systemic organisational change (Bramson and Buss, 2002; Hornstein, 2008; Svyantek and DeShon, 1993).

Under the catch-all term systems thinking (Bonn, 2005; Clayton and Gregory, 2000; Maani and Maharaj (2004); Midgley, 2008; Minati, 2007; Montuori, 2000), the first paper in this series introduced the ideas of systems dynamics and complex adaptive systems. This instalment goes further by exploring dynamic modelling. The

basic premise is that much behaviour and performance is systemic, and can really only be understood within the larger context or environment in which they occur. Systems thinking is a holistic approach to problem-solving (Clayton and Gregory, 2000) and learning (Montuori, 2000). This means, essentially, that one must explore the whole system and work on or within the system to effect change (Brodbeck, 2002; Fuller, et al, 2000). Causal Loop Diagramming was introduced as one means of *coming to understand* complex adaptive systems through the mapping or modelling process. This is especially useful in teams and when working with multiple and diverse stakeholder groups. It was argued that this kind of thinking and the modelling process are linked to organisational learning and change, a point endorsed by Minati (2007). Montuori (2000) agrees, positing that studying, mapping, and seeing interrelationships among organisational factors is crucial to learning and survival. Finally, it was asserted, the process of Causal Loop Diagramming can lead to organisational wisdom—better decisions and more sustainable solutions.

### 3.2. Dialogue

Dialogue implies an enhanced form of communication. While it may *feel* to the insider and *appear* to the outside observer as “just good conversation,” it is more than talk or even active listening. Dialogue is not the typical workplace chatter, filled with hidden agendas, power plays, inane time-passing, and unconscious or unstated assumptions. In the early days of building the Wisdom Ecosystem model, the author and colleagues identified Dialogue as the prime mediator amongst Collective Intelligence, Communal Mind, and Wisdom. Over time, Dialogue emerged as its own subsystem central to the Wisdom Ecosystem.

Dialogue has risen from relative obscurity to distinction in the past decade, at least in the management and organisation literature. For more information on Dialogue as it is used here, readers may refer to Atlee (2004); Calton and Payne (2003); Dron (2007); Hays (under review); Kirk and Shutte (2004); Korac-Kakabadse, et al (2001); Nonaka and Toyama (2007); Scharmer (2001); Simatupang and White (1998); Snell (2001); and van Eijnatten (2004). Cooren (2004) doesn't use the term, but his brilliant article on communication and “collective minding” is all about dialogue. Then, there is always the Isaacs (1999) classic *Dialogue and the Art of Thinking Together*.

### 3.3. Collective Intelligence

Writing on complex systemic problems and adaptive challenges, Heifetz and Laurie (2003) state: „Adaptive problems have no ready solutions. They require that people apply their collective intelligence and skills to the work only they can do. This, in turn, requires that they unlearn the habits of a lifetime spent as a manager, learn to meet challenges that they cannot meet with their existing skills, and develop the capacity to explore and understand the competing values at stake” (p. 9).

Collective Intelligence is the effort to get the most out of what people know and do. It is meant to integrate, synthesise, and leverage or capitalise on distributed knowledge, skill, and talent. Collective Intelligence systems, then, are concerned with connecting people, providing access to „intelligence” and ideas, and equipping people with tools to convert intelligence into tangible products and practical services as quickly and easily as possible. Collective Intelligence may well prove to be one of the most essential capacities of the 21<sup>st</sup> Century, contributing significantly to enterprise and institutional wisdom.

The idea of collective intelligence is sound, aspiring to and enabling what Knowledge management has always sought. KM may be thought of as the engine or framework of collective intelligence. CI is much more, however, than a KM or technological system, a mechanism for gathering, storing, accessing, or even directing knowledge and intelligence. Indeed, it exists outside, before, and beyond any knowledge machinery. As alluded to in the introduction, Collective Intelligence is resident within the heads and hearts of members of work groups and communities. It exists in any group where individual experience and knowledge have accumulated. Collective Intelligence, however, often resides as a potential, and this is what the machinery attempts to surface and exploit; Unfortunately, few groups and individuals within groups are aware of their own vast *collective* potential or know how to best tap it. This oversight extends to organisations as well (Ringer, 2007). Too often, cleverness and creativity are thought to be traits possessed by *individuals* (and, then, in short supply). And, while it is true that there are exceptional individuals, this article is concerned with the collective potential of groups and organisations:

1. How to simply and effectively elicit and make the most of collective potential (accessibility); and, moreover,
2. How to increase the consciousness or awareness of a group of its own potential (and the organisation’s appreciation of and ability to exploit the potential of a given group or staff at large).

What is required for this and how it works is embodied in the Collective Intelligence subsystem, but in no way can be achieved exclusively by it. This observation partly explains what gave rise to the notion of Communal Mind (see below) and how it operates synergistically with Collective Intelligence; in turn, producing something greater than either of these two subsystems independently or combined.

Collective Intelligence may be linked to organisational learning <sup>[2]</sup> and could be conceived of as the output of the learning organisation, or at least part of what the LO attempts to do. As we will see, however, CI is more of an input to learning than learning itself. Learning occurs through the interoperation of Dialogue, Communal Mind, Collective Intelligence, and Wisdom.

The Collective Intelligence subsystem is situated on the lower left-hand side of Figure 1, and is amplified in Figure 5.

### 3.4. Communal Mind

Communal Mind is a new idea in the management and organisation literature, though it can be linked to more familiar concepts such as organisational culture.<sup>[3]</sup> CM plays a central role in the Wisdom Ecosystem, where it serves an important balancing or mediating function to Collective Intelligence.

Communal Mind has been understood as or is similar to organisational mind (van Eijnatten, 2004; Weick and Roberts, 1993) or consciousness, collective consciousness (Hoogerwerf and Portius, 2002; Raelin, 2006; Smith and Graetz, 2006), collective mind (Brockman and Anthony, 1998; Cooren, 2004; de Leede, et al, 1999; Dron, 2007<sup>[4]</sup>; Weick and Roberts, 1993), and group mind (Weick and Roberts, 1993) or consciousness (Gustavsson, 2001). Somewhat related is the theory of organisational cognition (Bonn, 2005). Raelin (2006) suggests that collective consciousness is shared meaning. He sees one of the roles of leaders as „meaning-makers” as bringing out the collective consciousness of employees or other stakeholders: „The meaning-maker, essentially by the sheer act of framing reality, consolidates the prevailing wisdom on the entire group” (p. 66).

The critical notion of Communal Mind is that intelligence is a fundamental part of the system and its interactions, not a character of the individual minds comprising it. This is the thrust of much work on collective intelligence and performance (Cooren, 2004; van Eijnatten, 2004; Weick and Roberts, 1993). The „group mind generates its own distinct dynamic through the collective activities of its individual participants” (Dron, 2007; p. 214).

In discussing the need for organisations to become more adaptive, Brodbeck (2002) notes that organisations require a new way of thinking, and uses terms such as „heightened consciousness, „higher-order assumptions, and “deepest consciousness” to exemplify the new thinking needed. van Eijnatten (2004) noted that mind is the essential driving force of an enterprise. „As long as the organizational mind fails to hold profound system change as both possible and desirable, any effort to effect a change in strategy will be futile (p. 437). He defines organisational mind as „...the sum total beliefs, assumptions, premises, values, and conclusions members of an organisation system hold commonly as truth...” (p. 441)

As used here, Communal Mind implies:

1. A shared acceptance of a given group that it *is* a community (however temporary) – there is a sense of „us” van Eijnatten, 2004) or „we-ness” (Fayard and DeSanctis, 2009). It has and demonstrates commonality of purpose, values, language, and other understandings such as norms, roles, and practices. There is a commitment to the welfare and continuation of the group and its reason for being. This is, as Husted (1993) notes, the „collective interests”: „The beauty of a reliably designed system is that although individuals and subunits may pursue their narrow self-interests, the system will incorporate these diverse interests in a process of accommodation and compromise with other represented interests” (p. 768).

This is the community in Communal Mind. These ideas are in concert with the elaborations of community in Hays (2009).

2. A shared way of thinking that includes the way the world is perceived and the group's place within it. Members would understand things similarly: what works and what doesn't; what causes a particular problem and what might resolve it. Such shared thinking can be problematic, as highlighted by the literature: (Argyris, 1991; Bernthal and Insko, 1993; Kim, 2001; Prahalad and Bettis, 1986). While challenges cannot be denied, the value of concerted thought and action is likewise critical. This is the shared or collective mind in Communal Mind. It can be the galvanising and unifying force needed to mobilise a group into committed action and focus its efforts (de Leede, et al, 1999; Ringer, 2007).

3. An active and encompassing awareness or consciousness of the collective, what might be called collective mindfulness or heedfulness (de Leede, et al, 1999; Weick and Roberts, 1993). This is not just about manifest behaviour (e.g., how the group solves a problem or carries out a task), but also how the group is thinking, how mindful the group is concerning its thought processes and member effectiveness as they go about their tasks. This is collective *knowing* (Korsvold and Ramstad, 2004), not knowledge. The idea of group mindfulness is explained and described in Hays (under review), where Mindfulness, along with Dialogue and Reflection, comprise what he terms the team learning pyramid.<sup>[5]</sup> Gustavsson (2001) presents an insightful interpretation and application of individual and group consciousness in his article on transcendent epistemology and organisational change.

This may be called collective meta-cognition<sup>[6]</sup> – thinking about thinking; bringing to the surface (making conscious) habits of mind and practice that often remain unwitting and, thus, unconsciously impede constructive group dynamics, including the way the group thinks, and undermine problem solving, innovation, and learning. In the absence of such conscious awareness (and other things being equal), groups may actually with the best of intentions behave in ways that are counterproductive. This might explain why „logical” solutions fail to solve problems or produce unanticipated consequences, or why people don't respond to our initiatives as we expect them to. While beyond scope of the present discussion, this kind of behaviour can be described and predicted by Causal Loop Diagrams.

Communal Mind plays an important role in the Wisdom Ecosystem, translating, interpreting, adopting, contextualising, and applying the „intelligence” enabled by Collective Intelligence and other means. It is the human, psychosocial side of CI—what makes CI collective, or better, *communal*. The work here begins to address Husted's (1993) call: „There is an urgent need [to take] a more expansive, natural systems view which takes into account the cultural and behavioural side of organizations” (p. 768). This notion of „natural systems” (McElroy, 2000; Svyantek and DeShon (1993); Yoon and Kuchinke, 2005) is quite useful, and accords with the ecological view of organisational systems and dynamics (Hall, 2005; Kunsch, et al, 2007; Ruth, 2006) as well as the importance of ecological considerations in organisational problem-solving and decision-making (Clayton and Gregory, 2000; Devine, 2005).

Intelligence *may* exist in the interaction of an organisation's CI hardware, software, and procedures, but wisdom does not. Wisdom is evident in the way such

systems are used (and perhaps in the way they are designed). This means that Collective Intelligence is a potential that may remain dormant or unfocused until and unless Communal Mind is brought to bear. The Wisdom Ecosystem model reveals how CM relates to CI, why this relationship is so important, and how to foster development of effective Communal Mind. Communal Mind is located on the right and lower right-hand side of Figure 1, and is shown exclusively in Figure 4.

## **4. The Wisdom Ecosystem**

### **4.1. Orientation to and Excursion through the Wisdom Ecosystem**

Previous sections introduced readers to the four domains of the Wisdom Ecosystem, Dialogue, Communal Mind, Collective Intelligence, and Wisdom. This section explores these respective subsystems in more detail. Using Figure 1, the Causal Loop Diagram of the Wisdom Ecosystem, and a narrative keyed to the figure, the individual variables comprising each subsystem are identified and explained, and the nature of their dynamic relationships discussed. To aid in viewing and referring between narrative and diagram, Figures 3, 4, 5, and 6 have been added, respectively:

Figure 3–Dialogue Subsystem

Figure 4–Communal Mind Subsystem

Figure 5–Collective Intelligence Subsystem

Figure 6–Wisdom Subsystem.

Additionally, Figure 2 applies two aspects of Causal Loop Diagram of complex adaptive systems, nodes and clusters, to the Wisdom Ecosystem.

### **4.2. Causal Loop Diagrams**

Dialogue, Communal Mind, Collective Intelligence, and Wisdom are subsystems of the Wisdom Ecosystem. Each subsystem contains multiple elements. The term „factor” is used interchangeably with element in the discussion, and, as will be explained, these elements and factors are often referred to here and elsewhere as variables. The variables comprising the Wisdom Ecosystem, as represented by the Causal Loop Diagram (Figure 1), have been found to have an enduring quality or presence in the system. They are, by no means, however, static. They are dynamically variable. Their dynamic nature is explained in the discussion of the model below; and is what makes Causal Loop Diagrams (CLD) a particularly apt device for illustrating complex adaptive systems (Akkermans and van Helden, 2002; Repenning and Sterman, 2001; Schwaninger, 2004; Sterman, 2001).

Causal Loop Diagrams (CLDs) are often used to „map” complex adaptive systems (Schwaninger, 2004). They are very versatile and show richer relationship effects between and amongst elements in a system than many simple block diagrams. They tend to have a more natural flow about them than mechanistic diagrams, and tell

a more complete and engrossing story. Mapping complex systems (developing the CLD) involves identifying key elements, and depicting the dynamic relationship between and amongst the elements. The individual elements are often called variables because they increase and decrease – or *vary* – according to their inputs.

There are no hard and fast rules as to how many variables should be included or prescribing the process of identification and arrangement. A team sometimes brainstorms the elements conceivably in a given system or problem. Schwaninger (2004) provides an example of how this—what he refers to as „surfacing issues”—works. Elements surviving a first cut are then subjected to a process whereby variables are arranged according to what appears to be influencing and being influenced by what. As part of this process, variables are defined and clarified so that all participants come to understand them the same way. This operationalising is an important part of coming to shared understanding. The attempt to „force fit” results in discarding or rearranging the elements to more sufficiently explain their relationships, and adding supplementary variables to more complete the picture. The richer the diversity of informed contributors the more adequately the resultant map should illuminate the dynamics of a particular problem or other system. Complex problem-solving using Causal Loop Diagramming can be a purposeful and effective team-building activity, and contributes to deeper shared understanding of the system in question (Vennix, 1999).

The construction of Causal Loop Diagrams is an iterative process where successive drafts are validated and refined. The current Wisdom Ecosystem model represents the most recent amongst a series of drafts—straw man models—each progressively subjected to individual and group modelling and revision. In addition, support for variables and relationships between and amongst them was continuously sought from the literature and adjustments made accordingly. In truth, the Wisdom Ecosystem remains a straw man—a work in progress—seeking wider scrutiny, challenge, and improvement. Its purpose is less to submit a defensible and elegant model of organisational wisdom than it is to suggest that one is possible. Its second objective is to show the value of the modelling process.

Outcomes are not limited to better-understood problems and systems. Appreciation of complexity must increase as a result of the modelling process and attention paid to dynamically-complex phenomena. Heightened appreciation for complexity and the skills that develop through the process have wide currency, and may be essential competencies for the 21<sup>st</sup> Century. It is reasonable to assume that individuals and groups will also develop a new way of thinking and operating that are generally more aware, conscious, mindful, and deliberating. The author has witnessed such shifts of mind<sup>[7]</sup> in individuals and groups ranging from university students through to senior public servants and corporate executives. An interesting feature of such shifts is that once „there” one can never really go back: it becomes difficult to think *unsystemically*. Systems thinking, thus, serves as a threshold concept (Hays, 2008a). You begin to see everything in a new light, less myopically, as if through a new set of lenses. This is not to say that everyone becomes an instant genius; it takes a

while. Or that people don't backslide; but you are more likely to catch yourself slipping and adjust your thinking before it deteriorates too badly.

Developing a Causal Loop Diagram entails both art and science. Individuals may err toward one side or the other, the one drawing primarily on intuition, insight, and observation, the other relying heavily on established theory covering the elements and relationships. Akkermans and van Helden (2002) discuss the intuitive nature of the CLDs they put forward in their study on vicious cycles,<sup>[8]</sup> admitting that they „cannot be proven.” They also note that the systemic nature of the Critical Success Factors explored means that all „are closely causally related and, hence, that changes in any one of them will ripple through in all the others” (p. 44). This characterisation applies to the Wisdom Ecosystem as well.

Größler (2004; p. 324) writes of the problems of „bounded rationality” in his work on systems dynamics modelling, and notes that „Only comparisons and validation against the real world system and problem can help” resolve concerns with abstractions, assumptions, and modeller bias. This is the acid test for the model advanced here. Does it, in fact, accord with experience? Does it represent the complex phenomena making up our real world? Do interventions in the system (at any variable) have the predicted effects on the remaining, relevant parts of the system? If not, why not, what is missing, and how can the model be improved? This current model represents a balance in art and science. Considerable empirical and theoretical work has been done to validate the elements and their relationships.

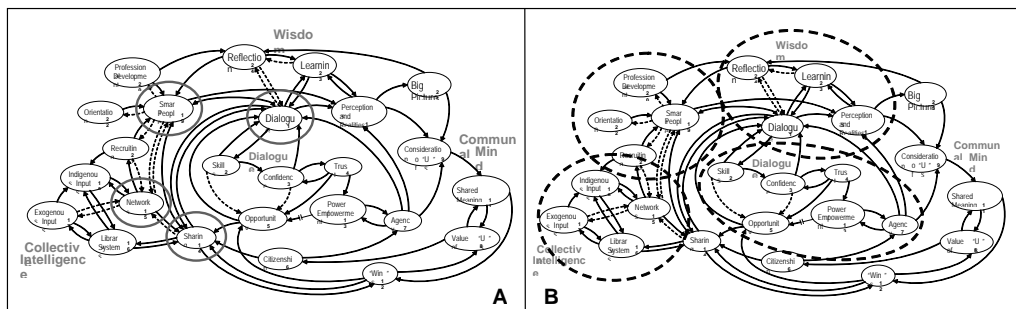
In what appears to be a first attempt to map wisdom using a Causal Loop Diagram, Hays (2007) presented a model explicating the dynamics of organisational wisdom. There were twenty-four elements in his model, including knowledge, appreciation for complexity, systems thinking, learning, and reflection to highlight several. He positioned organisational wisdom as the next era in organisational learning. That era may be dawning as more people realise that knowledge is the only sustainable competitive advantage remaining for 21<sup>st</sup> Century organisations (McElroy, 2000), and that knowledge and even learning, on their own, are insufficient. The Wisdom subsystem (Figures 1 and 6) draws on Hays's (2007) work, though here includes only seven variables crowning the other two subsystems Collective Intelligence and Communal Mind.

It is entirely coincidental that this present model proposes twenty-five variables,<sup>[9]</sup> with respect to Hays's (2007) twenty-four. While there are a few similarities (note, for instance, the prominence of Reflection and Opportunity as elements in both models, and well as the general similarity in the format of the dynamic models), Hays (2007) did not include Dialogue and Sharing, which are fundamental drivers in the way the Wisdom Ecosystem operates. While Hays's (2007) model is intricate and logically sound, this current model represents a significant step forward in understanding and presenting complex wisdom dynamics in organisations. Incorporation of important emerging thinking on Collective Intelligence is complemented by the introduction of Communal Mind and the role it plays in both CI and organisational wisdom.

## Mapping wisdom as a complex adaptive system

Important debates often ensue in the team approach to developing Causal Loop Diagrams. Working to resolve disputed variables and their lines of influence results in enhanced map coherence as well as better team understanding of the system. Questions arising for readers with respect to variables, arrangement, and lines of influence are due, in part, to the natural difficulty in explaining all phenomena associated with the system. And, admittedly, may represent flawed or incomplete thinking in mapping. CLDs are always works in progress and can continually be refined. Questions coming up generally point to variables whose position and influence have not been sufficiently demonstrated, or a relationship that needs further examination, rather than a problem with the whole map. Such minor difficulties are common, and are usually resolved with the addition of one or more variables and/or making needed connections to existing variables whose relationships were previously missed. A completed CLD should speak for itself, but usually needs someone to „talk through it.” The map will be robust if the variables and their relationship seem reasonable when going through the CLD step-by-step.

**Nodes.** A very interesting feature of Causal Loop Diagrams of systems with multiple elements and interrelationships is that one or more variables reveal themselves to be much more significant than others—a significance that would be lost without the inclusion of the more complete spectrum of variables. Some elements, then, spawn and/or relay more lines of influence than others in the system. These are key nodes, and are easy to see. While the implications of this for the Wisdom Ecosystem model will be discussed in the concluding paragraphs of this section, Dialogue (1), Sharing (14), Networks (15), and Smart People (19) are the clear key nodes, with a couple of others also worthy of additional attention. These nodes have been circled in Figure 2 A.



**Figure 2. The Wisdom Ecosystem**

**A depicts four nodes (encircled). Key nodes (variables) are leverage points as they connect to (influence or are influenced by) multiple elements in the system. B illustrates primary clusters, proximal variables with significant interaction**

**Clusters.** Relatedly, there are often groupings of elements that emerge. They sometimes, but not always look proximal in the diagram, and are interlinked by lines of influence—they interoperate. Such operative groupings are called clusters. Bigger

maps of more complex systems will usually have multiple clusters. Figure 2 B shows four possible clusters of variables, enclosed by thick dashed circles. The Collective Intelligence grouping comprises one cluster. Smart People, Learning, and Opportunity provide other examples. Perceptions could form a less distinct cluster, and Dialogue could be at the centre of a much larger one.

Key nodes and clusters are significant because, as a general rule, they indicate where to intervene in a system and what will happen if you do. They are the points of greatest leverage, and reveal the effects that an intervention in a particular area of the system will have on other parts of the system. System effects are often unanticipated because people have not explored the interrelationships amongst the elements that comprise a system. While unnecessary for the current discussion, lag times are also characteristic of complex adaptive systems, and account for ostensibly little to no immediate effect of intervention.<sup>[10]</sup>

Finally, this particular Causal Loop Diagram has four zones, or subsystems, as labelled: Dialogue, Communal Mind, Collective Intelligence, and Wisdom. The notion of subsystems is also helpful in using CLDs as intervention maps. In studying a complex problem or considering intervention options, focusing on a particular zone or subsystem may serve to reduce complexity (to narrow the scope) or allow the concentration of limited resources to a more narrowly-defined area. The four subsystems have been excised for ease of study in Figures 3 – 6.

### 5. A Walk around the Map

To simplify orienting to the diagram and the referral between diagram and narrative, each element in the Wisdom Ecosystem has been numbered. Numbering, per se, is not significant in terms of precedence or weighting. It does, however, generally follow a logical sequence in terms of influence flow, one of the key features of a Causal Loop Diagram. (For this reason, these maps are sometimes referred to as „influence diagrams.”) Lines of influence are shown between and amongst elements as arrows, the arrow pointing in the direction of influence. Dotted lines indicate relationships with some, but less-pronounced or indirect influence. The nature of CLDs is generally such that you may start anywhere in the diagram—that is, with any element—and proceed to follow the lines of influence from element to element. The logic of each relationship is revealed as you make your way stepwise around the diagram.

Every Causal Loop Diagram has to start somewhere (from a numerical or sequence point of view). Elements don't usually start as “Number 1” but take on the character as more variables are identified, some initial arrangement has taken place, and a logical flow emerges. In the case of the Wisdom Ecosystem, Dialogue was found to be common to Collective Intelligence, Communal Mind, and Wisdom. It seemed to unify or promote synergy amongst them. And, thus, we have our Number 1. We thus begin our description of the Wisdom Ecosystem with an elucidation of the Dialogue subsystem.

### 5.1. Dialogue Subsystem

The Dialogue subsystem is composed of Dialogue (1), Skills (2), Confidence (3), Trust (4), and Opportunity (5).

**Dialogue (1).** Dialogue is at the centre of the diagram for good reason (see Figures 1 or 3). It is the engine of Collective Intelligence and Communal Mind, as well as heart of the overall Wisdom Ecosystem. Dialogue comprises its own subsystem that can operate as a virtuous cycle. While he does not place this within a larger system, Hays (under review) examines the dynamic nature of dialogue, reflection, and mindfulness explaining how they operate in a virtuous, self-reinforcing cycle to enable team learning. Dron (2007), too, explores the dynamics of dialogue and its relationship to power, though he does not attempt to show the relationship in a causal loop. His observation is that as dialogue increases decentralised control could increase—or decentralisation can lead to greater dialogue. Conversely, as centralised control increases, dialogue is likely to diminish; centralised control is more likely to be asserted in conditions of low dialogue.

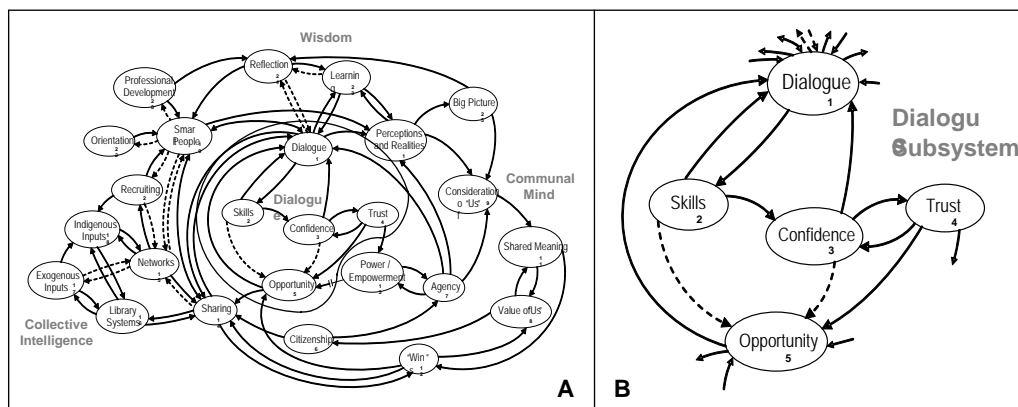


Figure 3. The Dialogue Subsystem, shown as the encircled loop in A and independently in B

Dialogue hinges on skills, discipline, confidence, and trust. It doesn't just happen. Even groups that appear to possess and demonstrate these attributes may break down when attempting Dialogue under challenging circumstances, such as might be the case with new membership, greater complexity of issues, conflicts, threats, or urgency. Here, the dynamics operate thusly: As [Dialogue] **Skills (2)** increase, <sup>[11]</sup> (a) the potential for effective Dialogue is enhanced (skills, alone, are insufficient) and (b) **Confidence (3)** increases, further enhancing the probability of effective Dialogue. „The most important role of the leader,” Heifetz and Laurie (2003; p. 7) note, „is to create confidence among people.”

Also indicated in the diagram is that engagement in Dialogue produces greater associated skills. This simple mutually-reinforcing loop is known as a virtuous cycle: as one variable increases the associated element increases correspondingly. The opposite would be a vicious cycle. It should be emphasised that the value of Dialogue skills transcends a given Dialogue or work group, and may be deployed in many facets of organisational communications and problem-solving. Increases in confidence also lead to increases in **Trust (4)**. In another two-way relationship, increases in trust also lead to increases in confidence. A group that feels trusted by its manager(s) will exhibit higher levels of confidence to undertake difficult or risky tasks. Consistent with these propositions, Vlaar, et al (2007) present organisational trust, coordination, and control as virtuous and vicious cycles using a Causal Loop Diagram to explain the dynamics. Since, as they demonstrate, enduring patterns are established in initial interactions, changing the system can be quite difficult. You can „build in” persistent distrust and need for control from the beginning. It might be better to start with trust and see what happens.

Trust is, itself, a complex element. It concerns (a) trust in the process (Dialogue works); (b) trust in members/participants in the process (they care about each other, share common purpose and values; will not use the process in any way to harm contributors); and (c) trust in authorities (managers or sponsors support the Dialogue process, the individuals involved, and are willing to take recommendations or other outputs „on board”). Prewitt (2003) highlighted the importance that trust and caring play in organisational learning, and without so saying, that they are mutually reinforcing. Martins and Terblanche (2003) stressed the importance of fostering a trusting environment, as creativity and innovation depend on it. A large part of trust development ensues from the quality of communication that exists amongst employees and between staff and managers. Amongst their other insights on wisdom, Korac-Kakabadse, et al (2001) note that „The very essence of trust building is to get fully immersed in complex organization, not only the financial aspects but the human and physical aspects as well and to understand their interactions” (p. 211).

Trust must come from experience (opportunity—see 5 below) and related observation (Dialogue process). As noted above, as confidence goes up, so does trust. As trust increases, the likelihood that opportunity will increase is also expanded. For example, sponsors may see more value in the Dialogue process, thus create more time and space for it. Greater Trust would also lead to greater Opportunity in the form of access to work requiring and developing more sophisticated skills and knowledge and demanding higher levels of responsibility which, for some at least, would be rewarding and motivating. Dialogue is a key strategy in building trust, Caldwell and Karri (2005) assert. They argue for a covenantal relationship amongst leaders and employees based on stewardship. Such a relationship relies on empowered dialogue, which builds trust. As an important aside, these authors invoke Solomon’s six contemporary virtues for business ethics to characterise covenantal relationships: community, excellence, role identity, holism, integrity, and judgment. These virtues largely apply to the Wisdom Ecosystem as described herein.

Closing the loop of this subsystem, **Dialogue (1)** depends on **Opportunity (5)** as shown. There is little chance that Dialogue can begin and sustain if there is no time or space. It can quickly become the victim of „other priorities” and routine „busywork.” Tucker, et al (2001) stress the importance of „windows of opportunity” in learning. Opportunities must be present, but people must also be equipped and motivated to make the most of them. This may not be automatic and, thus, may need inducement. In many respects, opportunity also relates to skills, discipline, and confidence (the additional dotted arrows). These attributes (along with trust) take time to develop and may require some investment. An obvious investment might be in skills training, for example, to enable individuals to Dialogue effectively (and to practice its discipline). As opportunity increases, so increases the likelihood that effective Dialogue will.

As shown in the figures, Dialogue links to the Collective Intelligence branch primarily through Smart People (19) and Sharing (14), both discussed below. Dialogue links to the Communal Mind subsystem essentially through Perception and Realities (10), again, elaborated below.

## 5.2. Communal Mind Subsystem

The Communal Mind (CM) subsystem consists of Items 6-13, each discussed below. Sharing (14) is instrumental, striding the interface between CM and Collective Intelligence (CI). While covered in the next section (the Collective Intelligence subsystem) it bears special mention at this point. Sharing may at first seem to fit more suitably in the Communal Mind subsystem, and could complete a major part of the story. Dialogue was presumed to serve the sharing purpose for the Wisdom Ecosystem. Sharing as a variable was added later as the primary components of the Collective Intelligence subsystem lacked linkage to the emerging model. In the revised model, Sharing (14) along with Dialogue (1) provide the fulcrum for the Wisdom Ecosystem and the tie to CI.

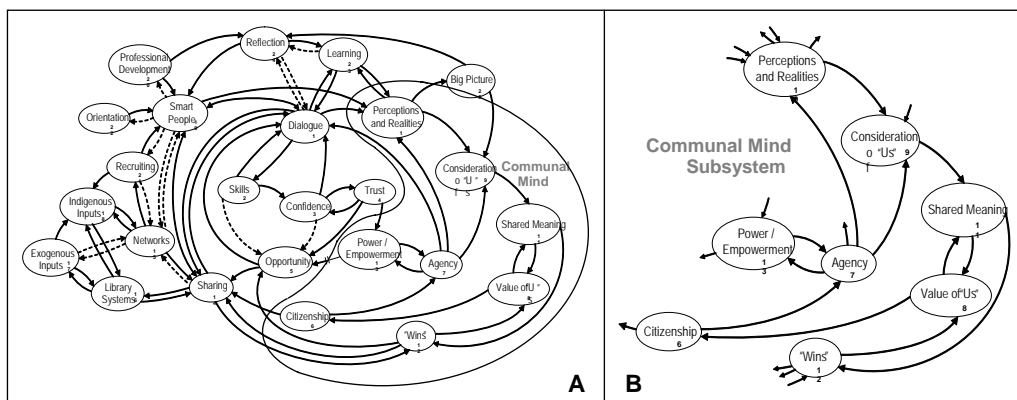


Figure 4. The Communal Mind Subsystem, shown as the encircled loop in A and excised in B

**Citizenship (6).** Here, citizenship implies a set of obligations and responsibilities individuals or groups *feel* compelling or inducing them to commit or engage at levels higher than might otherwise be the case, to „go the extra mile” (Bolino and Turnley, 2003). Citizenship *is* the call of duty. Citizenship also carries with it rights, privileges, and other benefits that accrue from belonging. Some of these are tangible (like voting) others less so, such as social support and emotional fulfilment.

Citizenship is tied to agency. This is not the agency of management and organisation (governance) theory, but human agency. There is a fascinating, if finite body of literature on agency, and is important to apprehend if concerned with notions of empowerment, democracy, decentralisation, or human and community development. From among the many references on the subject reviewed for this article, one of the most complementary is Young’s (1992) „Chaos Theory and Human Agency.” His main point is that organisations and all social systems operate as complex adaptive systems, including an inherent measure of chaos, a prerequisite to evolution. To operate sustainably within such systems requires not control, but latitude (Rowse and Berry, 1993; Smith and Graetz, 2006). In such an environment, human agents on the whole have to fulfil six characteristics. They must be emancipated and autonomous; knowledgeable of their environment; creative, innovative, and skilled; rational and reasoning; principled; and wilful or purposeful. This is a tall order, but these are at least many of the qualities needed to be an effective citizen.

**Agency (7)** is the capacity to act (Bandura, 1989; Garikipati and Olsen, 2008)—a combination of a personal feeling of self-efficacy (the ability to contribute or to make a difference) and of the ownership, responsibility, or mutual obligation to contribute to the group’s welfare, to ones organisation, community, or society at large. Self-efficacy comes primarily from skills, confidence, and power (or empowerment). Self-efficacy, while very important, is not shown in the figures as it is subsumed and implied by skills, confidence, and agency. van Woerkom, et al (2002) present a helpful overview of self-efficacy and how it contributes to learning and performance. Skills include those such as required and built by Dialogue but also involve other task, discipline, managerial, and process skills. (For ease of display and discussion, we group skills together in Figures 1 and 4. Professional developers would need to identify and distinguish the range of skills individuals might need, and target training and coaching efforts accordingly. To indicate this (and make the diagram less dense), Professional Development (20) – discussed further on – has been added. PD falls within the Wisdom subsystem).

While citizenship rests on its own set of skills, here we employ Agency (7) as the embodiment of citizenship. An agent puts citizenship into practice. Through agency citizenship has action. Citizenship is also a value possessed more or less by individuals, groups, organisations, communities, and so on. As a value it is a cultural attribute. The more a culture values and incorporates citizenship, the more it will be evident through, for example, individual and group agency.

Citizenship is a contextual idea and will be defined differently based on place and time. One aspect of citizenship important in the West includes democratic ideals and equality (Weymes, 2004). As applied here, an *individual* (agent) has the right and the obligation to try to make a positive difference, to contribute to his or her group. This is taken for granted in the United States and many other parts of the world, including Australia, the author's home (Westheimer and Kahne (2004). These attributes might not be so self-evident in other cultural contexts. The point is that, other things being equal, in the modern West we create more opportunities for citizenship and, thus, agency than in some other parts of the world.

Morrison (1996) is a useful reference, here, as she covers a number of themes central to this article, including empowerment, selection and socialisation, and other facets of HRM that she ties to organisational citizenship behaviour. Her bottom line is that sustained service quality depends on citizenship. While not specifically about citizenship, Stohl and Cheney's (2001) treatise on workplace democracy contributes significantly to issues of concern here, including empowerment, agency, and control. Westheimer and Kahne (2004) provide three types of citizenship, each of relevance to our understanding: personally responsible; participatory; and justice-oriented.

Agency is often identified as an individual sense or act. Here, we are concerned with *collective agency*. Interestingly and paradoxically, some of the factors that contribute to individual agency (autonomy, competitive spirit, personal ambition, experience/history of success), may impede collective agency—the effective working together of a group to accomplish shared purpose. Collective agency often means an individual must subordinate his or her own agenda or preferred way of doing things for the group „cause” or welfare. Some people have considerable difficulty with this. They may be simultaneously „individual stars” or White Knights and poor team players.

Citizenship (6) resides at the nexus of Collective Intelligence and Communal Mind, serving as a bridge and narrowing what might otherwise be a huge gulf between the two. Citizenship is one of the key values of Communal Mind, and it is an important mechanism linking CM and Collective Intelligence. Citizenship as used here is not (necessarily) a political idea, but a socio-cultural one. It has its roots in the **Value of „Us” (8)**. The Value of „Us” is a shared assessment of a group or community, both conscious and unconscious or taken-as-given. The higher the „value,” the more commitment there is by all members to remain a part of the group and to have concern for its collective welfare.

The stronger the commitment, the more likely that norms and values will form to sustain the group. (Of concern, here, is that the group may work to maintain itself (harmony, continuity), as opposed to working to evolve. For viability, a group or organisation must continually confront a gap between the way things are and the way they could or should be. This is accounted for in the Wisdom Ecosystem through the mechanisms in the uppermost part of the Causal Loop Diagram, the Wisdom subsystem, as explained below.) Citizenship provides a prime example of where values and norms develop. A group might acknowledge that it depends on members

who exhibit positive citizenship and agency. They volunteer to help out or lead when opportunities present themselves, support one another in times of trouble, or pull together as a team, as examples of citizenship behaviour. Having the conversation about what it means to be a „good citizen” (having an on-going Dialogue about this) ensures that old hands and new recruits alike know what’s valued and how to contribute. Hopefully, they’ll more readily recognise *as a group* when things need to change. This will be more likely to occur because of **Consideration of „Us” (9)**.

Where Value of „Us” is an assessment, Consideration of „Us” is an on-going Dialogue about and understanding of the significance and implications of trends and occurrences in the environment with respect to the group and the organisation or community in which it resides. Fayard and DeSanctis (2009; pp. 1-2) stress how important it is to “develop a sense of «we-ness»” which they see as collective identity and culture. This comes about through interactions „referencing the group as a collective, [and] creating a sense of belonging and a situated understanding of how to do things.”

Consideration of „Us” comes about through Agency (7) and **Perceptions and Realities (10)**. Note the significant role played by Agency, here. It directly feeds Dialogue (1), Perceptions and Realities, and Consideration of „Us.” The „system” will break down without sufficient agency. Few groups, organisations, or other communities demonstrate effective agency with any consistency. Risk-averse and authoritarian organisations will show a dearth of agency, for example, as might an organisation with a high proportion of inexperienced staff. People are afraid to speak up or take on challenges with which they have little experience (and, thus, a high chance of failure).

Unfortunately, when lack of agency exists, persons in positions of authority are likely to assert greater levels of control and direction. They may feel obligated to their institution or that “the people need overseeing.” This is a vicious cycle. As greater levels of control and direction are exerted, greater levels of compliance, passivity, and dependence are fostered. To change this would require a substantial shake-up. One means would be to simply „let be”—to allow chaos and confusion to persist until self-organising order ensues. Theory assures us it will (Sice and French, 2006; Yoon and Kuchinke, 2005), though the new form might not be at all to one’s liking. In any event, few individuals are patient, trusting, or committed enough to allow this state of affairs to continue. In fact, it can be predicted that the more responsible an individual feels the more quickly he or she might intervene to impose a sense of order. The previous allusion to White Knights applies to such individuals. Downsides to such saviour or paternalistic behaviour include that subordinates or other stakeholders have little chance to exercise discretion and develop their own leadership or collaborative skills.

A crucial aspect of Consideration of “Us” (9) is an intimate understanding of the organisation and the group’s place in it. Effectiveness and productivity often suffer as a result of groups having low understanding of or appreciation for what the organisation is trying to achieve or the way it operates. As we will see later on, **Big**

**Picture (25)** plays a key role in this. Many say that it is the leader's job to provide this coherence, to create and communicate a compelling vision of where the organisation is headed (Bonn, 2005; Gill, 2003), or at least to distil the vision from the organisation's stakeholders and help others to identify with it (Rowse and Berry, 1993). Whether or not a single individual can or should do this is worth considering. It is less disputable, in any event, that an organisation or other community can long sustain itself without a unifying purpose and direction. People need to know that they belong, how they belong, and why they belong.

Consideration of „Us” is where Collective Intelligence is enacted and brought to bear. Without the idea of Communal Mind (community survival or thriving), „intelligence” is just information. It needs to be interpreted through the communal lens, as do decisions about what to do and how. This aspect of Communal Mind accords shared understanding and commitment, and increases the probability of coordinated, purposeful action. Thus, increases in Consideration of „Us” produce increases in **Shared Meaning (11)**. Shared Meaning comes from Dialogue and on-going interactions where:

1. all stakeholders are represented;
2. their perceptions and realities are shared; and
3. issues are considered within the context of the aggregate perceptions and realities and „what this means for us” (it is contextualised within the „big picture”).

Here, the literature on organisational sensemaking provides helpful background. Readers may like to refer to Allard-Poesi (2005); Calton and Payne (2003); Chen (2007); Schwandt (2005); Thomas, et al (2001), each contributing a unique view on or application of sensemaking or shared meaning. Communal Mind implies that the group „owns” the problem and commits to taking action to resolve it using its combined or *collective* resources. Of course, they must have the opportunity to even formulate this belief and to develop the skills to put it in to effect.

Rowse and Berry (1993; p. 18) restate Selznick's idea of integrating ethos—the spirit and focus of „collective identity and joint purpose.” While they assert that it is the leader's duty and to communicate through „words and deeds” this integrating focus, and we might argue that it is a distributive prerogative, the fact remains that unity and coherence are essential. Chen (2007) notes that „Understanding conflicting opinions, creative ideas, and collective intelligence requires a holistic sense-making approach” (p. 311). Such an approach must be able to accommodate vast and discrepant information and viewpoints, and balance and place them within context, that is relate the micro/local and macro/global levels. This becomes both more important and difficult as the complexity of the system or focus problem increases. Calton and Payne (2003) write on multistakeholder dialogue as a pluralist sensemaking process and means for learning and change.

Thomas, et al (2001; p. 332) link organizational learning, knowledge management, and sensemaking. They found that the sensemaking process undertaken by organisational members contributes significantly to strategic learning and change.

As an aside, they cite Miner and Mezias' observation that sensemaking is hard to measure, „and even the simplest models involve dynamic, nonlinear processes with complex interactions across multiple units, people, and even organizations,” concluding that „our understanding of such learning phenomena is underdeveloped, even speculative.” These authors could have been writing about the Wisdom Ecosystem.

**Perceptions and Realities (10)** are the aggregate of individual perspectives of a group, usually (but not necessarily) about a particular issue or opportunity. This includes their perspectives, interpretations, speculations, concerns, questions, doubts, biases, beliefs, assumptions, and so on. It is seldom the case, unfortunately, that a group has [*manifest*] combined perspectives of its stakeholders, the realities of the situation as they individually experience them. Views are censored, discounted, buried, and otherwise unheard or underappreciated. This means that some voices will be heard—the loudest or most authoritative. This also means that “public” views will be biased and incomplete. The overall result of this skewing and slighting will be suboptimal decisions and solutions, and low levels of commitment.

Effective **Agency (7)** and **Dialogue (1)** both increase the chances that Perceptions and Realities will be fully aired and attended to. Dialogue is one of two key mechanisms through which Perceptions and Realities are shared, come to be understood, and evolved toward consensus (new shared understandings). The second is exemplified by the Causal Loop Diagramming process used here. Modelling of a complex system, as a group process in which all participants are fully engaged, requires the surfacing, challenging, and explication of assumptions, and the sharing of perspectives, insights, questions and the like, all necessary to the development of a model that „speaks” to its architects and those to whom it might be presented. Such modelling attempts to reach what Sice and French (2006) have called „the act of knowing,” a process of modelling, knowing, and coding that leads participants to represent systems of which they are a part and to understand them as such—dynamic and evolving. In this view, modellers are „coming to know” or „becoming knowing.” According to Sice and French (2006) this might minimise the tendency to think of „the model in its own right” rather than as a system within and connected to other systems.

**Wins (12).** With increased **Shared Meaning (11)** greater focus can be brought to bear on solving problems and capitalising on opportunities (de Leede, et al, 1999). This means the group understands individual competencies and motives and how they can be best concerted. They also have a shared sense of imperative. These conditions naturally increase drive and the chances of successful strategies, thus generating „Wins.” Wins is a generic term implying successful achievement of goals and other fortuitous outcomes. Wins are rewarding in many ways, not least of which is the enhanced **Value of “Us” (8)** that ensues, with the flow-on effect leading to **Citizenship (6)**. Simply, as a group „proves itself,” appreciation of belonging to the group and commitment to continuing to work toward its welfare are fostered. Wins are generally motivating, build momentum, and can help sustain a group. Though not

directly shown in the figures, the process leading to and the experience of winning bolster skills, confidence, and trust.

Closing this loop, Wins (12) flow directly back to **Opportunity (5)** in the Dialogue subsystem. As groups prove themselves increasingly competent, Opportunity expands to allow them to take on even more challenging and diverse endeavours. This comes about as, say, potential customers become aware of the group's abilities to deliver, or management recognises the group's greater potential. Realising its own capabilities, a more self-directing group may decide to pursue new and different work. Such initiatives can be motivating and lead to the development of new skills and greater access, thus creating another virtuous cycle.

At this point, the element **Power (13)** remains, seemingly with little connection or influence. It has been included because **Agency (7)** – through self-efficacy – is associated with power and empowerment. Power may be vested, as in delegation, which is a formal attribute and comes along with title and/or position. Managers may, thus, give more power to a group. Power may also be assumed or appropriated, as might be the case with the influence an expert authority or a charismatic might have. In any event, other things equal, as Power increases so does Agency. Gherardi, et al (1998) highlight the importance of power and position in terms of the access they permit an individual to have to others, which significantly increases learning opportunities. People who are not afforded such access are disenfranchised. Specifically, “Engagement in the community, learning, and expanding existing knowledge are inseparable from some form of empowerment: learning requires access and opportunity to take part in on-going practice. Participation...defines the possibilities for learning” (Gherardi, et al; p. 279).

Mutually reinforcing, as Agency goes up so do Power and influence. Sometimes, groups do not realise how much Power they have until they begin demonstrating Agency. In unhealthy organisations, an individual or group's assertion of Agency and, thus, Power, may be looked upon with trepidation, resulting in some measure taken to mitigate them, or, in other words, to reduce opportunity. This is designated with the –||– symbol between **Power (13)** and **Opportunity (5)**.

We use the –||– symbol in this case to highlight the odd behaviour of Power with respect to Opportunity. It doesn't flow as the lines of influence between other variables in this systems map do. It would be easy to say that this relationship is a balancing one [(-) rather than a reinforcing one (+)], but the reality is another element must account for the “switching” behaviour of the Power/Empowerment variable in addition to Trust. This indicates that another system is at work, one involving, perhaps, management decision-making, delegation, control, and/or centralisation, which could be the subject of another CLD.

For example, Yeo (2002) highlights the importance of freedom, trust, and responsibility leading to employee empowerment. These fall within the Dialogue and Communal Mind subsystems. At least within a well-functioning, supportive team and environment, these conditions, Yeo argues, stimulate employees to find better ways to meet organisational objectives. Their diversity and complementarity concerted

through working together builds consciousness that is instrumental and essential to building learning. On top of this, Yeo (2002) adds reflective thinking, which is necessary for adaptive, generative learning. The latter applies to items (24) and (25), Reflection and Learning, respectively, which here fall in the Wisdom subsystem. The link Yeo makes amongst trust, empowerment, consciousness, reflection, and learning is noteworthy, and helps to explain the Wisdom Ecosystem.

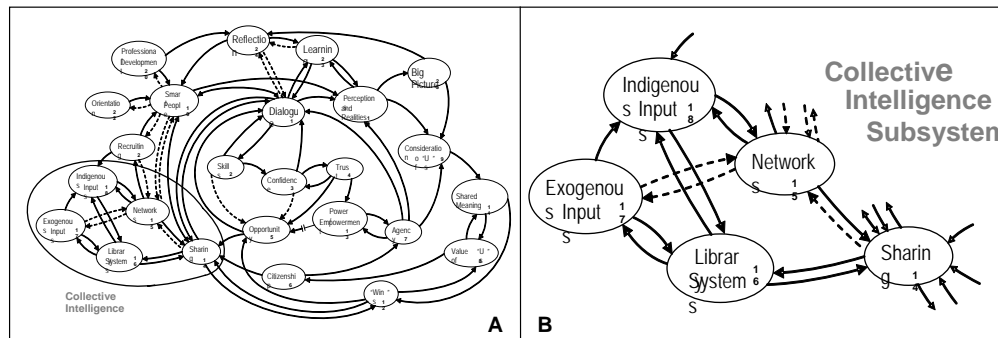
Referring to the previous suggestion that another system might account for behaviour around Power/Empowerment, the impact on the Wisdom Ecosystem of such withholding behaviour remains an open question. Yeo (2002) would certainly contend that empowerment and enablement are necessary, at least for teams or organisations confronting volatile circumstances. Higher levels of control would reduce learning and adaptability. The general thrust of this article would suggest that withholding or withdrawing Power and, thus, limiting Opportunity runs counter to the logic of complex adaptive systems and would, therefore, be unwise.

Much has been researched and written about empowerment. Sources cited elsewhere in this article that deal with the subject include Gill (2003), Hornstein (2008); Korac-Kakabadse, et al (2001); and Morrison (1996). Kirk and Shutte's (2004) concept of „collective empowerment” is especially helpful in our understanding of the Wisdom Ecosystem. They see collective empowerment as the result of effective interconnection and interdependence of individuals in all parts of the system. This comes about through „helping individuals to find their place, their role, their identity and their voice” (p. 242). They also see collective empowerment as distributed leadership. Such leadership requires of individuals that “they take account of the system they are in and their relations with others in that system. They then take responsibility for themselves in relation to these others, their work, the system they are in and to the larger environment that contains their system” (p. 243).

### 5.3. Collective Intelligence Subsystem

Now, we move to the Collective Intelligence subsystem of the Wisdom Ecosystem (see Figure 5, below). The main elements of the CI subsystem are Networks (15), Library Systems (16), and Exogenous (17) and Endogenous (18) inputs. **Sharing (14)**, sitting alongside the other four variables, as mentioned in the previous section, is the key link to the Communal Mind subsystem.

Citizenship (6), central in the Communal Mind subsystem, also plays a significant role in Collective Intelligence, particularly with respect to Sharing. Citizenship is manifest in behaviours that promote the continuation and welfare of the collective. Citizenship as understood here is *not* an individual, self-serving set of behaviours, but social and collective. It is more „communitarian” (Block, 1994; Stead and Stead, 1994).



**Figure 5. The Collective Intelligence Subsystem, shown as the encircled loop in A and separately for clarity in B**

Similarly, **Sharing** is a value and a manifestation of Citizenship, which is why as Citizenship increases Sharing behaviours do too. One does not, as a good citizen, hoard information or use it to further ones own agenda. „The opposite of hoarding, sharing usually comes about through the removal of barriers between people and departments,” Martin, et al (2005; p. 342) write. They explain that knowledge transfer or sharing involves a circulation of knowledge around the organisation, but that many factors impede it, not least of which is a lack of awareness of the nature and importance of knowledge sharing. They, amongst many others (Bartol and Srivastava, 2002; Mittendorff, et al, 2006; Oliver and Kandadi, 2006; Swan, et al, 2002; Ward, 2000)<sup>[12]</sup>, recommend Communities of Practice as a viable means of fostering knowledge sharing. Elkjaer (2004) compares Communities of Practice to “social worlds” (following Strauss), stressing the mechanisms of participation, commitment, action, and transaction: “Thinking is never to be understood as an isolated personal and individual mind process but always as part of a transactional relation between individuals, [organisations], and environment” (p. 429)

Similarly, Gherardi, et al (1998), inform us that „Knowledge is not what resides in a person’s head or in books or in data banks. To know is to be capable of participating with the requisite competence in the complex web of relationships among people and activities. Learning, in short, takes place among and through other people” (p. 274).

These understandings are in accord with the notions put forward here on Communal Mind and Collective Intelligence, and are central to the understanding and functioning of Sharing.

Sharing is not just the soft kind as in „caring and sharing.” It is the life-blood of the Wisdom Ecosystem. Perhaps the metaphor of hybrid vigour is more appropriate. Organisms need genetic variety to remain vital over time—diversity of inputs. Husted (1993) refers to this as requisite variety in his conceptualisation of the natural systems view. The greater the „sharing,” other things equal, the more versatile, resilient, and

responsive an organisation will be. This implies, of course, a richness of sharing, but both quality and quantity apply. That said, Nonaka and Toyama (2007) state that „it is only in an environment of caring, love and trust that individuals are able to transcend the self and connect with others.” Sharing context and knowledge is one of Nonaka and Toyama’s six attributes of distributed wisdom. We see feeds into Sharing from Smart People (19), Dialogue (1), and other variables. These channels ensure a continual flow of new, diverse, and rich input.

Hasan and Crawford (2003) contend: „A major shift, associated with the advent of information technologies, is a shift from individual notions of expertise and merit to shared information, knowledge and teamwork, ie from individualism to collectivism” (p. 185).

However, they stress that sharing is not easy or automatic; organisational systems and individual mindsets serve to impede sharing. The concept they borrow from McLure-Wasko and Faraj is useful: „knowledge is sticky and does not flow easily through the organisation even when made available” (p. 185). It follows that organisation systems and dynamics need to be thoroughly understood and may be in need of more than a cosmetic “make-over.”

Hong and Kuo (1999) are among the minority of scholars who write on wisdom sharing as a part of organisational learning, particularly as it relates to creative learning; that is learning beyond maintenance and benchmark levels, surpassing that which is demanded by the moment towards what might be needed. Wisdom sharing invokes beliefs and values and involves a continual process of going deeper—getting behind or under the beliefs, assumptions, values, etc. This reality *coming into being* happens through sharing, or as Sice and French (2006; p. 854) observe: „reality is born in our interactions with the world.” As we will see, Reflection (24) can also be an important focus for Sharing and group learning (Korsvold and Ramstad, 2004; Scharmer, 2001; Taylor, 2008; van Woerkom, et al, 2002; Yoon and Kuchinke, 2005). Other significant sources on knowledge sharing include: Bartol and Srivastava (2002); van Woerkom, et al, 2002; Hasan and Crawford (2003).

Sharing depends on forums, channels, and a host of supports and incentives, part but not all of which comes directly from the Collective Intelligence framework. Overcoming individualistic tendencies might be quite difficult in some contexts, requiring coaching and rewards, possibly even censure or dismissal (not shown). The bottom line is that Collective Intelligence, Communal Mind, and the entire Wisdom Ecosystem are fuelled by sharing. It is the foundation for it all. The synergistic operation of the Dialogue and Communal Mind subsystems contribute to build a culture of sharing. It is all about *interdependence*, as opposed to how many of us prefer to operate—independently.

Without a culture of sharing, no system or technology will make Collective Intelligence happen. People need to see that it is worth their while (ease of use helps as well). Sharing is likely to be increased if it can be seen to result in „Wins” (12). Wins can be almost anything, but examples here include successful endeavours, progress and achievements, benefits and rewards accruing, solidifying of team

continuity and welfare. As noted previously, Citizenship (6) provides „the call to share.” Opportunity (5) provides reason and means for sharing. Wins reinforce it.

There is also an important link between the Collective Intelligence and the Communal Mind subsystems through Dialogue (1) to which we will later, again, return. As will be shown, Dialogue is also the linchpin to wisdom (or the Wisdom subsystem in this case)—wisdom being in this context a *collective* or organisational phenomenon. Here, Dialogue and Sharing (14) are tantamount, Dialogue being a prime vehicle for Sharing. It should be clear that Dialogue is also dependent on Sharing; Dialogue will go nowhere if Sharing is withheld, dishonest, unrepresentative, or partial. Note that with the arrows of influence pointing in both directions, as Dialogue improves so does Sharing, and vice versa.

**Networks (15).** „Another term for ecology is the ‘web of life’ and another term for web is network (Hearn and Pace, 2006; p. 59). These authors highlight the vital role networks play in facilitating information exchange, idea generation, and knowledge creation. Networks are the relationships between and amongst individuals and groups and the channels connecting them that permit and encourage communication. They are human, hardware, and software. Snell (2001) includes networks as one of his seven characteristics of learning organisations. He notes that networks are the essential physical, mental, and virtual spaces where people create knowledge and the mechanisms for distributing knowledge and experience. DiGiammarino and Trudeau (2008) provide cases illustrating uses of the interactive web to harness and exploit Collective Intelligence in the public sector. Weick and Roberts (1993) provide detail on the organisational mind and how coordination and productivity depends on its neural networks. Stacey (1995) presents a fascinating analysis of formal and informal organisational networks and their implications. Aligned with the community emphasis in this article, Stapelton, et al (2005) explain that the „idea of knowledge networks finds its root in studies into the development and operation of communities of practice” (p. 166).

Citing Wenger and others, these same authors emphasise the complex and dynamic nature of knowing, and that it is embedded in social relationships and interaction. „Knowledge Networks,” they assert, “are complex, heterogeneous and distributed, and their knowledge must be seen as process, not content” (p. 167).

„Occupational and professional networks are important inter-organizational forums for learning and innovation,” Swan, et al (2002; p. 480), note. They are important leaks in boundaries between departments and organisations.

Citing Castells, Penzias, and others, Yoon and Kuchinke (2005) state that „Needed on-the-spot information, regardless of geographic distance, comes from information through networks outside and within companies, personal and computer. This results in creating more networked, flattened, and bottom-up organizations. The interplay between knowledge and technology, instead of labour and capital now operates the primary influence on the world economy. Networked communication technologies are expected to play greater roles in creating business opportunities by engendering increased acquisition and application of knowledge” (p. 18).

Networks and networking are only likely to increase. Constant communication within and across businesses and other organisations, while posing issues of its own, is essential to responsiveness and adaptability. Where efforts in the past may have emphasised control, including direction and type of communication, stability, and uniformity, they might better these days be directed toward equipping employees with the skills and tools to exploit knowledge and cultivate wisdom.

**Library Systems (16).** These are the systems that enable information to be gathered, stored, accessed, and distributed, both from outside and inside the organisation.

**Exogenous Inputs (17).** Exogenous Inputs are information from „outside” the group or organisation. This environmental information includes threats and opportunities, but also knowledge and technology, political and social trends. A formalised mechanism for accessing inputs might be called environmental scanning.

**Endogenous Inputs (18).** These are ideas, suggestions, questions, solutions, and other contributions that add up to the collective body of knowledge and abilities a group or organisation has at any given time. The assumption that greater contributions automatically and exclusively flow from people *individually* more experienced, competent, or creative must be challenged. In some cases, exceptional individuals might choose not to contribute. Likewise, many who could (and should) might not, lacking confidence, channel, or invitation. There are multiple and complex reasons why these phenomena may occur. These dynamics, while not explored here, are important and need to be understood to account for contribution patterns.

There is a series of mutually-reinforcing relationships amongst the elements of the Collective Intelligence subsystem, generally operating synergistically. Library Systems (16) appear to play a central role in seeking, cataloguing, storing, and distributing information. More advanced systems will organise, analyse, and interpret information, so earning the reference “intelligence.” Library Systems may be an important interface between organisation and the outside world.

Informal Networks (15) have always served in this interface role and will continue to do so, but they tend to be more independent and sporadic than concerted. This unpredictable and incomplete relationship is indicated in the figure as dotted lines of influence with Exogenous Inputs (17). The relationships are more solid and mutually reinforcing between Exogenous Inputs (17) and Library Systems (16); Endogenous Inputs (18) and Library Systems; and Networks (15) and Library Systems. In addition, a strong relationship exists between Endogenous Inputs and Networks. A potential problem in deployment of Collective Intelligence systems is that they may be perceived as a closed system incorporating these four main elements. They do comprise an intact system with (more or less) input from (if not exchange with) the external environment. However, they are only of real value to the extent to which they foster *collective* (not collecting) intelligence and awareness within the Communal Mind of the organisation and its collective wisdom. This is why sharing as a phenomenon is worthy of attention. Sharing is an aspect of organisational and cultural exchange and enlightenment for which Collective Intelligence (technology) systems may be necessary but remain insufficient.

### 5.4. Wisdom Subsystem

Thus far we have examined the Dialogue, Communal Mind, and Collective Intelligence subsystems. Each subsystem has been shown to operate synergistically in its own right and in concert with the others. While each subsystem is itself interesting and value-adding in organisational terms, it should be clear that none of them alone fulfils the hope and potential of organisational wisdom. It is a long way from Collective Intelligence and Knowledge Management systems to learning, change, or performance. In concerted operation, however, the whole system—the Wisdom Ecosystem—holds promise for sustainable high-performance: responsiveness, adaptability, and resilience. It is the function of the Wisdom subsystem that sits atop (diagrammatically) the other subsystems to exact the most they individually have to offer. The Wisdom subsystem includes Smart People (19), Professional Development (20), Recruiting (21), Orientation (22), Learning (23), Reflection (24), and Big Picture (25).

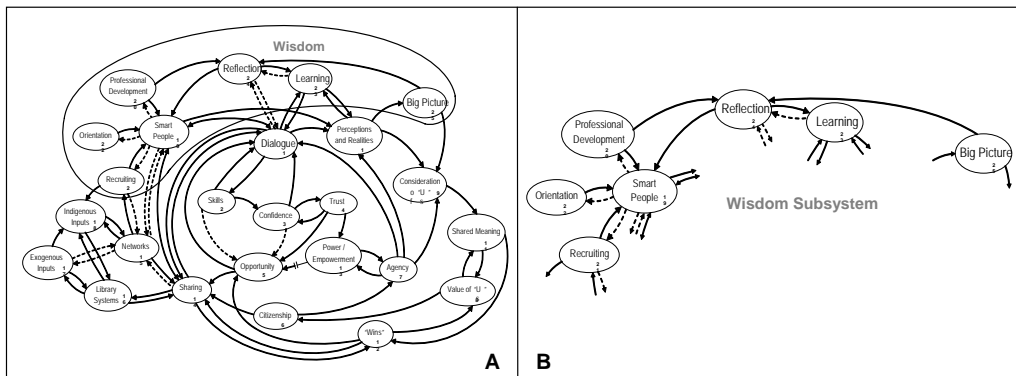


Figure 6. The Wisdom Subsystem, shown as the encircled loop in A and independently in B

The Wisdom subsystem begins with **Smart People** (talent) (19). This may come as no surprise, but might sound contradictory to other positions taken in this article. It is not. Wisdom does entail intelligence, but by no means is intelligence sufficient. This is similar to the assertion that no amount of education, per se, makes an individual wise. Moreover, even in tandem intelligence and education (or knowledge) do not a wise person make. The point is that neither intelligence nor knowledge is sufficient to produce wisdom, even when synergistic. It is what one does with them that makes substantive difference. There are smart people who are not wise, and some of them are well educated.

It is also the case that we do not imply individuals as „smart.“ There will be individuals who are clever, possibly even sage, in most groups and organisations of any size, but they do not contribute to *collective* wisdom in the way that we interpret it and endeavour to explain in Figures 1 and 6. While we neither advocate dismissal of

„stars” nor expect to see organisations letting them go any time soon, individual stars—brash, idiosyncratic, focused to a flaw—may actually undermine collective wisdom.<sup>[13]</sup>

Here, it is assumed that most people are smart. Some don't know or downplay it; others are overlooked, dismissed, or underutilised. A smart system employs and cultivates its talent. So, part of „talent management” (as used here) is about helping individuals to come to recognise and appreciate their own wisdom and that of others, including that of subordinates and peers, customers and suppliers, those in other sections and groups, and so on). Part of this comes from **Professional Development (20)** and **Orientation (22)**. Coming to and sustaining this realisation is also deeply connected to the Communal Mind subsystem, and through the mechanisms of Dialogue (1) and Sharing (14). Note that Professional Development (20) has been added for clarity and prominence in the Wisdom subsystem. It associates closely with Skills (2), and in practical terms the two could be merged.

**Recruitment (21)** is also included here, not because organisations don't already recruit, but to highlight the potential contribution of recruitment to wisdom. Recall that collective wisdom is not merely multiple smart individuals working side by side (independently), but individuals who can effectively work collaboratively, who seek out others for information or assistance, and who willingly and voluntarily offer help to team-mates and other employees (Oliver and Kandadi, 2006). These researchers found recruitment to be one of ten major factors affecting knowledge culture in organisations. Some of their other critical factors of relevance to this article include Communities of Practice, time and space, evangelisation (publicity and education), and infrastructure.

Thus, in recruiting for the wisdom organisation emphasis should be placed on candidates' teamwork experience, orientation, and associated skills (e.g., group problem-solving), not, as examples, their individual achievements, Grade Point Averages, and the like. Also, since wisdom implies or requires an encompassing view of the world, well-roundedness should be sought over discipline-specific skills. A flexible, enthusiastic young graduate with a general education and modest grades, but who has studied and / or worked abroad or was active in student government may add much more value to the firm in the long run than a very focused student who earned high marks in a narrow major.

Writing on empowerment, a fundamental characteristic of the Wisdom Ecosystem, and citing Peppard and Rowland, Stainer and Stainer (2000) note that it is only really possible through the recruitment of suitable individuals, training them, and entrusting them with accountability and authority. This, they assert, contributes to employee involvement. The Wisdom Ecosystem would break down or never be realised if employees were not fully capable and engaged. They must be both willing and able (Morrison, 1996).

Morrison (1996) describes the crucial role played in selection and socialisation (see Orientation (22) below). The first step is to select individuals “on the basis of how well they fit into the organization's overall culture rather than solely on

the basis of how qualified they are for the specific job they will be assuming. This has been referred to as person-organization fit” (p. 504).

Good compatibility will increase the likelihood that employees will identify with the organisation’s values and goals.

The dotted arrow between Smart People (19) and Recruiting (21) suggests that the recruiting effort can be improved as Smart People increases in the organisation. Smart People will likely know other smart people outside the organisation (potentials) or would at least recognise the kind of person the organisation seeks. Their insights might also reasonably be expected to improve the recruiting process.

**Professional Development (20).** Professional Development comprises the raft of skills and knowledge building activities and topics of concern to an organisation and its members, for capability-building and advancement. Here, we stress just two things. First, Professional Development is not a reward for loyalty or achievement. It is to develop potential and build individual, team, and corporate capability to perform today and in the future (thus must be forward-focused). Second, Professional Development represents a solid opportunity to establish and reinforce the required culture of the organisation, notably of learning, continuous improvement, and sharing. Too often training is divorced from the context with significant missed opportunities to embed desired values, practices, and behaviours. This is partly due to the off-site nature of many professional development activities, and/or the outsourcing of trainers and other practitioners who cannot sufficiently represent the organisation.

**Orientation (22).** Induction and Orientation provide amongst the earliest opportunities to begin shaping new employees to fit into and contribute to the culture. Morrison (1996) refers to this as socialisation, which „is the process by which a firm instills into new employees the knowledge, attitudes, and behaviors they need to effectively carry out their roles” (p. 505).

Induction and Orientation are often perfunctory and at risk of doing more harm than good. Organisations that care about the future of their business and the welfare of their people should seriously consider how well they are ushering-in new staff and how they might continually improve this process. Orientation, by the way, is an on-going endeavour, not a one-off. Many organisations “tick the induction box” in the first week or two of a new starter and leave it at that. This is only the beginning of what could be orientation.

It is reasonable to assume that the way new recruits are socialised (oriented) into an organisation can have long-lasting effects on how they see the organisation and their role within it. A preferred model is one that introduces new recruits to and welcomes them into work groups that embody the values of and operate in accordance with principles of learning, equality, democracy and citizenship, interdependence, and shared responsibility. This collective model would be consistent with the ideals and advantages offered by Communities of Practice. Such a model may be starkly contrasted with formal, rigid, hierarchical inductions or approaches that (if unintentionally) emphasise insularity or distinctions between new starters and veterans.

Professional Development and Orientation both contribute to Smart People (19), as indicated in Figures 1 and 6. At the same time, Smart People will lead to enhanced PD and Orientation *if* they are involved in the process. Again, Smart People, here, does not end with intelligent or knowledgeable individuals, but people who embody the wisdom of the organisation, including its values.

Dotted lines of influence connect Smart People and Networks (15) in a mutually-reinforcing loop. This suggests the potential that Smart people could bring to the networking. Brighter more interesting people will attract others. Networking is often viewed as an individual activity to further ones career or personal connections (as in academia where we seek research collaborators). Networks can provide a vital contribution to organisations and groups—connecting to the life-blood of information, talent, and other resources inside and outside business boundaries.

Networking might be envisaged as a strategy involving all employees, and opportunities (see Item 5) created to encourage and enable the mixing and exchange it offers.

In addition to bringing in new blood [Recruiting (21) and Orientation (22)] and formally developing employees [Professional Development (20)], Smart People (19) as an element is most directly influenced by Sharing (14), Dialogue (1), and Reflection (25). Presumably, Sharing and Dialogue will be enhanced by expansion of Smart People. (Here we break with convention and include lines of influence with arrows on both ends to indicate mutuality (virtuous cycle) as the diagram is very dense.) Smart people could also reasonably be expected to enhance the quality of Reflection, as indicated by the dotted line. Smart People is shown in Figures 1 and 6 to directly impact Perceptions and Realities (10), which can be expected to be richer and more varied corresponding to the number and capacity of Smart People in the organisation.

Pretty much in the centre of the Wisdom subsystem and at the top of the diagram are **Learning (23)** and its two main companions **Reflection (24)** and **Big Picture (25)**. Learning plays a more dominant role in Wisdom than knowledge or skills. The latter may decay or become redundant, while the need for learning is never ending. Recall that wisdom is not merely about knowledge, intelligence, or experience, but about *if* and *how* they are used. In an ever-changing environment even the wise must continually learn and adapt to survive.

There are numerous impediments to learning, not least of which are a set of „learning disabilities,” impacting individuals, groups, and organisations. These have been discussed widely in the organisational learning literature. A few relevant sources include: Argyris (1986; 1991); Lyles (1994); Senge (1990); and Yeo (2007). van Woerkom et al’s (2002) observation about the problem with experience concentration is a case in point: „The more experience one has in one context, the less one will put up for debate in this particular context” (p. 379).

Linking to the lower part of the diagram and returning to our beginning, Learning is tightly coupled to Dialogue (1): as Dialogue improves so does Learning (23) and, presumably, as Learning increases so does the ability to effectively

Dialogue. Learning, however, does not necessarily result from Dialogue, at least not directly. The Learning that Dialogue *might* produce is enhanced through Reflection (24). Scharmer (2001) explains how Dialogue and Reflection contribute to Learning, and stresses that organisational learning will not occur without them. Shared experience and reflection are even more important, Scharmer maintains, in distributed, networked groups and organisations. They, along with shared will, „are the glue that keeps distributed networks in synch and together” (p. 145). Moreover, these same practices build community, which is especially difficult for virtual groups and does not occur through typical working behavior and communication.

Reflection is often held to be an individual process but, here, reflection is conceived of as shared, either as part of the Dialogue process or as an adjunct to it.<sup>[14]</sup> The idea of shared or collective reflection appears to be gaining ground, especially where action, change, and transformational learning are concerned. This was the underlying intent of Scharmer’s (2001) position above. Taylor (2008) sees the process as a collaborative one moving from lived experienced, through shared reflection, to collective reflective action. Likewise, Yoon and Kuchinke (2005) link shared team reflection to double-loop learning: as they step up from reflection merely on problems and corrections to reflecting on the way they conduct their work and identify better ways to collaborate and become proactive in identifying potential future problems they will become better learners and more adaptive and effective performers.

Van Woerkom, et al (2002), agree, emphasising the critical role reflection plays in learning from failure and challenging the way people think and act. They conclude: „In order to work well, people must be able to (collectively) put up for discussion their day to day work practices. It seems that critical reflection brings together the interests of both employers and employees” (p. 382).

Yeo (2007), citing Senge, Argyris and Schön, and others, notes that „true learning is implicitly related to dialogue and inquiry where deeply-held assumptions and beliefs are surfaced through the process of reflection. Without reflection, it is not possible to understand feedback and contribute to dialogue in meaningful and productive ways” (p. 543).

Indicated by the dotted line between Dialogue and Reflection, Reflection *may* increase as a result of increased Dialogue, but cannot be depended upon until and unless Reflection is embedded in the culture—the way people communicate and think and business is done. Note that Reflection directly contributes to Smart People (19), as well. The link between Professional Development (20) and Reflection (24) emphasises that the organisation can and should help individuals and teams develop their reflective skills. Reflection should be a core competency and employed liberally.

Importantly, Learning (23) and Perceptions and Realities (10) are mutually-reinforcing, together bolstering Big Picture (25). Big Picture understanding is a defining feature of Wisdom, to be able to make sense of the tangled web of complexity, competing issues, and multiple stakeholders. Big Picture thinking is holistic. As we have discussed, holism (Clayton and Gregory, 2000; Keating, et al, 2001; Sice and French, 2006) is a systemic way of perceiving and acting in the world.

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It tends to particularly embrace ideas of interdependence—that everything is related, connected in some way. This understanding and appreciation is at the foundation of the Wisdom Ecosystem. We may be the centre of our world, but we are in no way superior to or detached from it.

In an interesting application of systems thinking, Treven and Mulej (2007) adapt ideas of international cooperation to formulate what they call an „ethics of interdependence” amongst different employees. In their view, people evolve through six stages: ignorance, awareness, understanding, appreciation, acceptance, and transformation. Applied here the level of transformation would represent a full integration of attitudes, skills, values, and behaviours that embody interdependence. Interdependence is founded on a set of qualities including:

<ul style="list-style-type: none"> <li>■ Appreciation of differences along with efforts to capitalise upon complementarity; synthesis.</li> </ul>	<ul style="list-style-type: none"> <li>■ Perspective on relationships and context. Efforts to operate in harmony with the existing environment.</li> </ul>
<ul style="list-style-type: none"> <li>■ Openness and willingness to experiment, experience new things, and learn.</li> </ul>	<ul style="list-style-type: none"> <li>■ Genuine attempts to understand reality from others' points of view; empathy.</li> </ul>
<ul style="list-style-type: none"> <li>■ Preferences for cooperation over competition.</li> </ul>	<ul style="list-style-type: none"> <li>■ Concern for all stakeholders; stewardship, ecological thinking, and sustainability.</li> </ul>

Clayton and Gregory (2000) propose that the first principle of critical systems thinking for researchers and change agents is „to study organizational forms as if they are systemic; to take into account the whole, to consider «the system» under study as one comprised of interacting parts, that are themselves elements of an even greater whole” (p. 147).

Big Picture thinking and acting cannot be independent and self-serving. It must consider the self or the organisation within its larger context. So taken into account, intelligence is not a solitary, but a collective resource. Mind is not embodied merely in an individual, but in his or her networks and communities. Wisdom is not the sole prerogative of the sage, but the concerted experience, insight, and brilliance of those to whom we are connected, and the shared responsibility for stewardship of that ecosystem—or, more broadly, for the planet.

A greater Big Picture (25) informs Consideration of „Us” (9) such that a group better knows itself and its organisation within the context of the larger environment. This is a key function and capacity in weighing options with long-term consequences and implications. One way to formulate a better understanding of „us” with respect to and as distinct from the larger system is to conduct what Clayton and Gregory (2000) term „boundary critique” (drawing on Ulrich, and on Midgley, et al). This entails, they explain: „regular questioning of who is involved and what demarcation lines are being drawn—in other words, thinking about what is viewed as outside the system, or marginal to it, as well as what is seen as relevant” (p. 147).

This scoping exercise should also reveal who is in and who ruled out. Striking a balance is both difficult and important. It is the author's experience that the lines around projects are often drawn too narrowly, sometimes at the advice of expensive consultants. This is related to the tendency to simplify discussed earlier and our desire to reduce uncertainty and increase control. As we have learned, however, systems will not change, at least not as expected, until and unless we consider the interrelationships amongst the variables of the system in question—including ourselves! For example, one reason for failed organisational and other large change projects is inattention to the range of stakeholders that should be incorporated and/or inappropriate inclusion and involvement strategies. A reasonable systems or Big Picture perspective derived at from cooperative efforts would be more realistic and practicable, and, hence, increase the probability of change. Citing Flood, Clayton and Gregory (2000) note that „it is only by bringing together the perceptions of all the people involved and affected that it becomes possible to advance sufficient understanding and maintain a whole systems perspective” (p. 148).

As shown in the diagram, a greater Big Picture also provides more to reflect upon [Reflection (24)], in turn feeding back into Learning (23) and, presumably, into Dialogue (1).

This concludes our brief „walk-around” of the Wisdom Ecosystem Causal Loop Diagram, Figure 1. The map of the system is ambitious and complex, but taken element by element, relationship by relationship, the model is logical, well-ordered, and comprehensible. While it is unlikely that the map is complete or applicable to all contexts, it provides many points of interest and alternate routes for approaching them. Some may argue that the model is unwieldy in its complexity; too big to be useful. Others may criticise the variables included or the lines of influence that link them together into a continuous flow. Still others may point out gaps; the missing links.

Potential faults notwithstanding, the Wisdom Ecosystem model illuminates a set of organisational dynamics in a holistic way. It imbues with life a system that might otherwise seem mechanistic and particularistic. It highlights the *embeddedness* of problems and points to the complexity of systems within which we operate or upon which we would like to affect change. We cannot understand complex phenomena by examining elements in isolation, despite the appeal of such investigation.

The fascinating and vital phenomena revealed in the Causal Loop Diagram are the essence of the Wisdom Ecosystem. Vitality and spirit are often lost in attempts to simplify. Complex adaptive systems cannot be dissected without distancing oneself from their soul. We require a means for considering the entirety and the essence of complex living systems.<sup>[15]</sup> The Wisdom Ecosystem provides that means. This is in accord with the on-going, if gradual transition to more enlightened ways of thinking and knowing. Ruth (2006) asserts that „It is now widely accepted that we have moved from a mechanistic to a more organic understanding of organisations. Strategic thinking is drawing on systemic and ecological contexts for analysis (p. 206).

It is debatable whether or not this new thinking has been embraced, but it is nonetheless essential. Without it, large-scale development initiatives, environmental amelioration, and sustainability objectives have little chance of succeeding.

### 6. Concluding remarks

The two papers in this series propose a model of the Wisdom Ecosystem. That model, built around the Causal Loop Diagram comprising Figure 1, represents a complex adaptive system. By definition, a complex adaptive system interacts with its environment in a co-existence of mutual influence (Espinosa, et al, 2007; Hall, 2005; Jankowicz, 2000; Pickering, 2004; Stacey, 1995). Focusing on the Wisdom Ecosystem, itself, Figure 1 appears relatively contained, having minimal points of interaction with the external environment. The Collective Intelligence subsystem serves as the primary interface. Recruiting (21) in the Wisdom subsystem offers a potential point of exchange with the environment, in addition to being the gateway for „new blood.” A complex adaptive system will survive to the degree that it adapts to its environment—it evolves (Montuori, 2000). It is not only responsive and resilient, however, but also shapes its environment (if only imperceptibly). A complex adaptive system learns... or perishes.

The notion of the organisation as a complex adaptive system is not new, though the idea of the organisation as a conscious organism acting wisely in and on the world is only just beginning to take hold. The view of the organisation as rational and mechanical has serious limitations, especially in an unpredictable and unstable environment. This has been persuasively argued by Catton and Dunlap (1980); Shelton and Darling (2003); and Yoon and Kuchinke (2005).<sup>[16]</sup> No matter how well engineered, the precision organisation fails in fluid, dynamic circumstances. An exception to this is when procedures aren't followed to the letter; that is when people behave spontaneously. This behaviour at „the edge of chaos” is thought to be what enables a complex adaptive system to adapt, evolve, and learn.<sup>[17]</sup>

The model put forward tries to portray the complex, fluid, and dynamic nature of an organisation that proactively learns and adapts, anticipates and initiates. The features may not be absolutely correct, and despite the attempt to develop an encompassing model, additional variables may be needed. As complete and complex the model, even it might not tell the whole story of the Wisdom Ecosystem. But the model is a genuine attempt to capture and depict the elements and their relationships as a living, breathing complex adaptive system. There is plenty there to think about, and ample material to examine more thoroughly.

The term ecosystem was incorporated because it invokes the notion of a diverse, thriving community whose members are mutually interdependent, working in harmony, concerned with continuity and welfare, and interacting continually with the environment. It can be instructive to conceive of a group or an organisation as an ecosystem. One need only look at the consequences of one species disappearing on the rest of its ecosystem to appreciate the vital significance of each element in the

Wisdom Ecosystem. An inherently wise system is one that is both resilient and does minimal harm to the environment. A truly wise organisation will be the one that contributes positively to the world while sustaining itself. Ecology—as in the Wisdom Ecology—speaks to the arrangement of the individual components, or variables, of wisdom and their interrelationships, here depicted as sets of lines of influence. The design, in ecological terms, is elegant.

The notion of organisations as living systems or as ecologies has been increasing, as a spate of scientific papers reviewed for this article attests<sup>[18]</sup>. These new ways of conceiving of and studying organisations, referred to herein as metaphors or paradigms, have profound implications for research and practice, not least of which include the way we structure organisations and approach change. While it might be impossible to determine what is leading to what, it is clear that consciousness of systems thinking, chaos, and emergence is increasing at the same time that organisations are flattening, decentralising, and empowering. There are many parallels and connections between the two distinct sets of phenomena. Fundamentally, both express the need for resilience, re-ordering, and adaptation; to learn: to respond, evolve, and anticipate changes in the environment. Central capacities enabling such responsiveness are communication and internal variability and interpretation, qualities proscribed or hampered by formal hierarchies, bureaucracies, and centralisation—structures currently being compensated for, if not overcome by almost universal access to and unimpeded flow and exchange of information.

We can predict under these conditions that organisations can and will change. One must ask, however, whether or not imposed coherence is necessary and, if so, what will provide it? The subject of other studies entirely, answers to these questions may have to do with vision and values. If vision and values can provide the unity and direction needed, and given the democratic and self-governing ideals and principles advanced herein, they will emerge from collaborative effort, that is the Collective Intelligence and Communal Mind inherent in the Wisdom Ecosystem. They will not and cannot be imposed.

Until this article and the work leading up to it, there was no Wisdom Ecosystem as a concept in the scientific literature. There was, however, in reality, always a Wisdom Ecosystem, at least potentially. It was right there in front of us, embedded in and often subverted by the systems with which we are more familiar and, perhaps, even take for granted. In some respects it was not in front of us, but rather part of us. We are the system. This explains why we don't see certain things.<sup>[19]</sup> In this case, the Wisdom Ecosystem just needed to emerge as an idea. The idea became manifest as Collective Intelligence was deeply considered, and questions asked concerning its place in organisations and more broadly. Why are there so many smart people acting foolishly? If there is so much intelligence available, why don't we act intelligently? How can so many individually brilliant people produce such mediocre products, services, and solutions when asked to collaborate? If we know that "two heads are better than one," why is it that so many people so often are driven (or prefer) to work alone? These are simple examples of the kinds of problems Collective

Intelligence, Knowledge management, and related systems are supposed to solve. As the model presented demonstrates, they can never solve such problems on their own.

Collective Intelligence fulfils an important but limited role in organisational learning and change. However, working in concert with other crucial subsystems it can deliver on its promises. The other major parts of the Wisdom Ecosystem include Dialogue, Communal Mind, and Wisdom, each with its own interesting internal dynamics and working interdependently with the rest of system. Each subsystem needs to be understood and effectively put into place for the overall system to begin to think and act wisely.

Figure 1 is a major step forward in conceiving wisdom as a system. However, it should be noted that the process of developing a Causal Loop Diagram to map a complex adaptive system is as important if not more so than possessing a completed map. Readers may choose to discard Figure 1 and develop their own maps. While it takes a measure of skill and thought, anyone can do it. The result is a deep understanding of and appreciation for the system mapped. What better way to develop and demonstrate wisdom? Moreover, mapping a complex system as a group builds team and teamwork skills, in addition to the collective capacity to solve tough problems.

The Wisdom Ecosystem series takes as starting point that human beings are inherently brilliant. We possess the ingenuity to solve most problems, create and appreciate beauty, and cultivate environments in which people and ideas can flourish. While we have vast potential, we limit ourselves and each other. Our individual behaviour towards one another, the systems we employ, and the institutions we build all work – unintentionally – to dampen our creativity, courage, and collaboration. On the one hand, rhetoric asserts the need for learning, change, cooperation, and the highest standards of ethics; on the other, learning is punished or, at best, unrewarding; change produces few real and meaningful outcomes; competition reigns; and ethical behaviour seems to be mechanical and contractual as opposed to the embodiment of virtue.

Systems operate as they are designed (through intention or default). They will continue to function as they do until redesigned. The problem with reengineering living systems—call it organisational change—is that we seldom understand or downplay the significance of the many elements of the system and their complex and subtle interrelationships. In „The Ecology of Wisdom” and „Mapping the Wisdom Ecosystem” we have adapted an ecological paradigm to examine and portray wisdom as a complex adaptive system. In its present incarnation, that system comprises 25 elements distributed across four major subsystems. Each of those subsystems contributes crucially to organisational wisdom.

The purpose of the whole exercise was to demonstrate that organisational wisdom is within grasp, and to share a powerful tool for systems analysis. Causal Loop Diagramming is a means for accessing, building, and exploiting wisdom. It allows us to penetrate deeply into complex systems, producing insights—why and how the system works. If we are to begin acting more wisely in and on the world, then we need to begin to better understand it and our place within in it. We must resist the

temptation to see only the obvious, simplify and shortcut, and concern ourselves with superficial issues. They are easy to address and serve to distract from and postpone dealing with grave concerns and wicked problems. This, itself, is a vicious cycle.

Anything of significance—problem or opportunity—is probably deep. Surface understandings and shallow efforts are insufficient to resolve challenging problems or realise the full potential of significant opportunities. Causal Loop Diagramming helps us to go deeper and gain greater appreciation for complexity. The ecological paradigm reminds us that problems and opportunities are enmeshed in variables and relationships exceeding our typical range of attention, and that whatever we do will have effects throughout the system. The less well we understand the system, the less likely our interventions will produce desired and predicted results; *and* the greater the level of unanticipated and unintended effects they will have. Such efforts are unwise and counterproductive.

The intent of this series was to promote a new way of thinking about work, and how and why things work as they do. If readers will now spend a little more time thinking about, looking into, and talking through problems and decisions before acting then this aim will have been at least partly realised.

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<sup>1</sup> See also the first paper in this series, „The Ecology of Wisdom,” appearing in *Management & Marketing*, Vol.5 , No. 1(17)/2010

<sup>2</sup> There exists a rich heritage of literature on organisational learning and learning organisations. Select sources of particular relevance to this article include: Bell, et al (2002); Easterby-Smith, et al (1998); Hall (2005); Jankowicz (2000); Shelton and Darling (2003); and Yeo (2002; 2007).

<sup>3</sup> Due justice to organisational culture cannot, here, be served, as the field is large and interesting. One might wonder where culture is in the Wisdom Ecosystem—it seems like an obvious candidate. It does not appear as an individual variable, but is ubiquitous. On the whole, the dynamic model presented embodies organisational culture. That culture is wisdom—how it is manifested and encouraged; the values, processes, systems, behaviours, and thought patterns of wisdom. Readers may refer to any of the following sources, selected for their wider relevance to this article, for further detail on organisational culture: Ahn, et al (2004); Brunetto (2001); Den Hartog and Verburg (2004); Fard, et al (2009); Lok and Crawford (2004); Martins and Terblanche (2003); Maull, et al (2001); and Wallace, et al (1999).

<sup>4</sup> Dron (2007) humorously includes reference to *Star Trek's* Borg, a collective race sharing one consciousness.

<sup>5</sup> While not addressing the group level, per se, Avey, et al (2008) persuasively link mindfulness through positive emotions to efficacy, citizenship, and engagement, thus positively impacting organisational performance and change. This has important implications for the Wisdom Ecosystem, especially if considered at collective levels.

<sup>6</sup> Useful sources on meta-cognition include Blatner (2004), Boström and Lassen (2006); Brown and Ryan (2004). See also Hays (under review).

- <sup>7</sup> Shifts of mind are defined and illustrated in a number of sources. Some relevant references are Dhiman (2002), Janson and McQueen (2007), and Simatupang and White (1998). Perhaps the author's first hearing of shifts of mind as used here was Senge's (1990) influential text containing a chapter so titled. Dhiman (2002) suggests that "no true learning can take place unless the learner is prepared to undergo a shift of mind" (p. 87). Senge (1990) refers to „mental models.“ Simatupang and White (1998) apply the notion of mental models to knowledge acquisition and stress the importance of shared (*sharing*) mental models as a means to reach „mutual understanding and joint commitment to action“ (p. 767). This occurs through Dialogue and interactive / appreciative approaches to policy development. Smith (2003) distinguishes between mental models and mindsets, maintaining the latter are more entrenched, strongly resistant to ideas that do not fit current thinking. Catton and Dunlap (1980) used the term „world view,“ likening it to paradigm, and call for a new ecological paradigm. The changing of world views and mental models is commonly referred to a „paradigm shift“ (O'Connor and Wolfe, 1991). While not precisely the same, these terms are generally interchangeable, as are “paradigm shift” and „shift of mind.”
- <sup>8</sup> Virtuous cycles are explained further on, but essentially are self-reinforcing feedback loops: as one variable increases its counterpart(s) increase as well. Vicious cycles work the same way (we just don't like them). They are indicated on some CLDs with the plus symbol as (+). This is contrasted with balancing loops which serve to counteract increases (or decreases). They are indicated by the minus symbol as (-). See Akkermans and van Helden (2002), Hays (under review), Kuznetsov (2008), Lasseur (2004), or Stacey (1995) for more detail.
- <sup>9</sup> Causal Loop Diagrams often depict a handful of variables as they are simplifications or subsystems of the system under investigation. Senge's (1990) popularisation is indicative of this trend, as is Hays's (in press) depiction of the dialogue-reflection-mindfulness CLD. Schwaninger's (2004) network CLD provides a more sophisticated and encompassing example with 25 elements.
- <sup>10</sup> Systemic lag times are explored in Doyle (2000), Trost (2002), and Senge (1990) (*delays*).
- <sup>11</sup> Dialogue skills, here, includes a set of behaviours and attitudes that promote effective Dialogue, primary amongst them: active listening, agency, equality, open-mindedness, tolerance for ambiguity, enquiry (as opposed to advocacy), understanding of role and group dynamics, commitment to shared understanding and personal and group movement, including development of new, collective position not heretofore held by the group or any of its members. These and other elements could be mapped in their own Causal Loop Diagram to reveal the dynamics of Dialogue. There is a discipline to Dialogue. Here, discipline is incorporated as skills.
- <sup>12</sup> An incredible amount on Communities of Practice has been written—too much to even sample, here—suggesting huge appeal and considerable belief in their contribution to organisational learning and collective intelligence. Hays (2008; 2009) provides and interprets a comprehensive review of the literature.
- <sup>13</sup> This counter-intuitive phenomenon is the result of its own set of complex dynamics, certainly worthy of exploring, but beyond the scope of this present article. Suffice it to say that star behavior is individual acts that reinforce the belief that the best ideas and greatest productivity are the domain of an elite minority. The attention this attracts detracts from investment in the potential of the majority.

- <sup>14</sup> Hays (under review) covers the collective nature of Dialogue, Reflection, and Mindfulness in his paper, „The Team Learning Pyramid,” and presents a synthesis of the literatures on these three aspects of group learning and performance. Korsvold and Ramstad (2004) undertake the topic of shared reflection, reporting on the critical role it can play in innovation and change. Elkjaer (2004) presents a thorough analysis of reflective thinking and reflection and learning, à la Dewey.
- <sup>15</sup> For more on organisations as living or natural systems see sources referenced elsewhere herein, including Hall (2005), Stead and Stead (1994), or Svyantek and DeShon (1993). See also Kalaidjieva and Swanson (2004).
- <sup>16</sup> See also Dey and Steyaert (2007) and Weymes (2004) who tackle this issue more philosophically, the former in terms of education and the latter in terms of management theory (individual freedom versus organisational requirements).
- <sup>17</sup> We have provided numerous source references throughout this article on the role of chaos and emergence, prominent ones being: Gleick (1987), Hoogerwerf and Poorthuis (2002), Rowsell and Berry, 1993; Smith (2003), Smith and Graetz, 2006; Svyantek and DeShon, 1993; and Young, 1992).
- <sup>18</sup> Bonn (2005); Catton and Dunlap (1980); Devine (2005); Fleckenstein, et al (2008); Hall (2005); Hearn and Pace (2006); Johnson and Macy (2001); Kunsch, et al (2007); Ruth (2006); Yanitsky (2007).
- <sup>19</sup> Clients the author has worked with often have little success changing their organisations until they come to see that they are the culture or system. They may need to „step out of themselves” to see how things really are and what will be required to shift them. Sometimes the first shift needed is one of personal perspective; sometimes one has to change oneself in order to change the system.

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