

# KNOWLEDGECONNECT

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## FROM THE EDITOR

*'If a factory is torn down but the rationality which produced it is left standing, then that rationality will simply produce another factory. If a revolution destroys a government, but the systematic patterns of thought that produced that government are left intact, then those patterns will repeat themselves in the succeeding government. There's so much talk about the system. And so little understanding.'*

- Robert Pirsig (1974 p92)

In the quintessentially '70s book *Zen and the Art of Motorcycle Maintenance*, author Robert Pirsig explains the power and resilience of social systems.

Systems, whether local or global, often challenge and confound leaders interested in bringing about lasting and positive social change.

I was first exposed to systems thinking while working as a young manager struggling to implement organisational change programs. I was fortunate to attend one of the first workshops Peter Senge conducted in Australia, following the launch of his ground-breaking leadership book *The Fifth Discipline* in 1990. Most people who heard Senge speak came out convinced that by embracing systems thinking we would be able to work our way out of problems that had previously seemed intractable.

Later, my masters' research investigated three successful leaders of change and found that a capacity for systems thinking and self reflection and an openness to learning explained a large part of their success.

## In this Issue

- 1. Thinking in systems: A primer**  
Donella Meadows
- 2. Learning from evidence**  
John Sterman
- 3. Wicked Problems**  
Horst Rittel and Melvin Webber
- 4. Nonprofit Leaders**  
David F. Suarez
- 5. 21<sup>st</sup> Century Enlightenment**  
Matthew Taylor
- 6. Embracing Complexity**  
Mehreen Faruqi

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GUEST EDITOR: Tracy Wilcox

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When we understand systems we see the world differently, and are better able to address complex and dynamic problems. Big-picture systems such as national economies, health care systems, markets or political systems all have sub-systems, which themselves have interconnected component parts. We saw the stark reality of this when the ripple effects of the recent global economic crisis took hold around the world.

In essence, 'systems thinking' entails a consideration of the whole and its parts, and the complexity, paradox and interconnections within them. It also involves examining a situation from multiple perspectives, looking for long term as well as short-term effects and consequences, and recognising patterns, cycles and relationships.

Systems thinking is something that is being embraced in the education and health sectors, but not necessarily elsewhere. This is not surprising; when we are captured in our own paradigms we are usually unaware of their existence, at least until we try to communicate with someone with a different paradigm! Self-awareness, and the ability to reflect honestly on our actions and mental models, is crucial.

Adopting a systems mindset changes not only how we think about a problem in the first place, but what the solutions might look like. For leaders, this may mean letting go of the need to find quick, 'definitive' answers. In a complex, interconnected world it is simply unrealistic to expect heroic leaders to come up with solutions to problems and take organisations forward on their own.

Ron Heifetz, whose work was reviewed in *Knowledge Connect No. 7*, has long been telling us that 'adaptive challenges', of the type faced by the social sector, will never be overcome by traditional 'authority' approaches to leadership, which look for certainty and quick results.

It is only by seeking the collective input of stakeholders, and embracing *distributed* leadership – leadership across and throughout an organisation – that systems thinking can be operationalised. This point has been reinforced by writers such as Otto Scharmer (*Theory U*) and Deborah Ancona (*The Incomplete Leader*).

In this edition of *Knowledge Connect*, we consider some key ideas on leadership and systems thinking, ideas that have direct relevance to the social sector. Guest reviewer Mehreen Faruqi revisits one of the seminal concepts driving systems thinking, Rittel and Webber's idea of 'wicked problems'. This important idea has been around for some time now, but few people have taken the trouble to go back to the source, which Faruqi does for us.

Our other guest reviewer Hokyu Hwang, looks at Suarez' study of the multiple career journeys of social sector leaders. Also reviewed is Donella Meadows' much-loved Primer on systems thinking, Faruqi's work on leadership, complexity and change, and John Sterman's essay on systems thinking and policy resistance in the public health and welfare sectors. Finally, the RSA considers one of Donella Meadows' challenges to 'expand the boundary of caring' in Matthew Taylor's essay on 21<sup>st</sup> Century Enlightenment and its accompanying animation.

We leave the final word on leadership and systems thinking to Donella Meadows:

*"We can't impose our will on a system. We **can** listen to what the system tells us, and discover how its properties and our values can work together to bring forth something much better than could ever be produced by our will alone."*

**Dr Tracy Wilcox**

## 1. THINKING IN SYSTEMS: A PRIMER

**by Donella Meadows, 2009, published by Earthscan, Abingdon**

*"There is too much bad news to justify complacency. There is too much good news to justify despair."*

- Donella Meadows.

No serious student of systems thinking can ignore the contributions of the late Donella Meadows. She is perhaps best known for her work on the *Limits to Growth*, and for the 'State of the Village Report'; the latter inspiring the well-known *Miniature Earth Project* video.

In her book, which has been republished several times (the most recent in 2009), she sets out the key elements of systems thinking, namely an ability to understand diverse parts of a system and know the whole is more than the sum of its parts, to 'see' interconnections and feedback loops, to ask 'what if' questions about possible future behaviours, and finally to have the courage and creativity to redesign systems through their most effective leverage points.

In doing so, she takes pains to avoid the jargon and technical language sometimes associated with systems theorists, and sprinkles her arguments liberally with examples from a range of spheres, times and places.

Meadows argues that our mental models and thinking habits prevent us from 'seeing' the interconnections between system and sub-system parts, or the positive and negative feedback loops that regulate and react to the system changes. She seeks to answer the question of 'why everyone or everything in a system can act dutifully and rationally, yet all these well-meaning actions too often add up to a perfectly terrible result'? This is a question those of us working in the social sector have undoubtedly asked.

Many of the social issues and problems we encounter are products of system 'traps' – difficult to overcome no matter how much analytical or technical expertise is thrown at them. Systems problems, Meadows (2009, p4) tells us, can only be overcome when "we reclaim our intuition, stop casting blame, see the system as the source of its own problems, and find the courage and wisdom to restructure it." Meadows reminds us that the world is non-linear, yet we are trained to think in linear ways, assuming that action A will lead to effect B. And so we fail to understand why, for example, building more roads and highways results in more, and slower, traffic. And our *bounded rationality* – the fact that our poor brains can only know so much – means that we rarely seek to view things from alternative perspectives.

Meadows also explains the 'leverage points' in which we can intervene in a positive way in systems. At the lowest and easiest level, are the numbers, funds, parameters or standards that can be raised or lowered; these typically won't change things a great deal but they are usually the interventions we turn to first. She moves through balancing and reinforcing feedback loops, to information flows, organising rules, system goals and purposes and finally the paradigms and mindsets defining a system itself.

It is these higher level leverage points that are the most difficult (and take the most courage) to act on, but which have the capacity to lead to lasting change. Barack Obama's changes to the US healthcare system, and the global responses (or lack of responses) to the financial crisis provide apposite examples of actions at these various levels.

The final chapter, 'Living in a World of Systems', is of particular importance to those interested in leadership *for change*.

The key ideas (pp 170-184) are summarised here:

### Creating Change: Advice for Leaders

1. Get the beat of the system: Observe how systems behave before you try to make changes. Surfers do this all the time – the best surfers study the pattern of waves, the weather and the tides for some time before choosing the best spot. As she notes; 'If it's a social system, watch it work. Learn its history...' This helps to overcome our natural tendency to define a problem 'not by the system's actual behaviour, but by the lack of our favourite solution'.
2. Expose your mental models to the light of day: Our thinking and knowing reflects, and is reflected by, our dominant mental models, so we need to explicitly identify them, get others to challenge our assumptions, invite alternative hypotheses – and 'scuttle them if they are no longer supported'.
3. Honour, respect and distribute information: Don't distort, delay or withhold it.
4. Use language with care and enrich it with systems concepts: Think of the terms we use to describe something, what kind of thinking are they prompting/supporting?
5. Pay attention to what is important, not just what is quantifiable: There is much pressure to focus only on the quantifiable in the social sector. But she reminds us that: 'No one can define or measure any value. But if no one speaks up for them, if systems aren't designed to produce them, if we don't speak about them and point towards their presence or absence, they will cease to exist'.

6. Make feedback policies for feedback systems: In other words, our policies should ‘design *learning* into the management process’.
7. Go for the good of the whole: The aim should be to ‘enhance total systems properties such as growth, stability, diversity, resilience and sustainability’ – even if they aren’t easily measured.
8. Listen to the wisdom of the system. Before you charge in to make things better, pay attention to the value of what’s already there.
9. Locate responsibility in the system: Design systems with ‘intrinsic responsibility’, so that they send feedback about the consequences of decisions *directly* to decision makers. She cites the example of having pilot sit up at the front of the plane – where consequences are certainly direct and immediate!
10. Stay humble – stay a learner: Remember that our own mental models are incomplete, so reflective trial and error, seeking feedback from others is important.
11. Celebrate complexity: Accept and embrace the messiness of the world – as Meadows says, it’s ‘what makes the world interesting, what makes it beautiful, and what makes it work’.
12. Expand time horizons: Short term thinking – in all spheres of life, can be damaging; we should remember that in systems, actions taken now have some immediate effects and some that radiate out for decades to come’.
13. Defy the disciplines: Don’t stick to your own comfortable discipline (whether it is economics, social work, politics, theology or chemistry); listen to other perspectives and be open to learn from them.
14. Expand the boundary of caring: Leading in our complex world means not only expanding our time horizons and thought horizons, but also our ‘horizons of caring’. In this sense systems thinking reinforces ethics.
15. Don’t erode the goal of goodness: Be conscious of the race to the lowest common denominator in the media, popular culture and

politics, as she noted more than a decade ago ‘it is much easier to talk about hate in public than to talk about love’.

All in all, this book is a worthwhile addition to any leader’s library, and will remain a classic for years to come.

## 2. LEARNING FROM EVIDENCE

**by John Sterman, 2006, *American Journal of Public Health*, 96, 3**

Why is it that when a politician announces a reduction in hospital waiting lists for surgery, the net effect is often to make the situation *worse*? In this article, John Sterman from MIT (who has written widely on systems thinking) explores why policies to promote health and welfare can end up failing, or even exacerbating the problems they are meant to solve.

This is where systems thinking comes in. Many of the social issues we face are themselves linked to earlier actions, decisions, or system effects. Because of the complexity of social systems, the real impacts of policy interventions might only be seen at a different time, or in a different place, to that intended.

Sterman argues that the things we label ‘side effects’ or ‘unanticipated events’ are in fact simply systems working in ways that we failed to foresee, because our mental models were too narrow or our time horizons were too short.

In complex settings it is unrealistic to expect that continued and diligent application of ‘logical’ interventions will ensure that ‘targeted’ policies and programs will be successful. If this were the case, then former Australian Prime Minister, Bob Hawke’s promise that ‘no Australian child will be living in poverty’ by 1990 would have been fulfilled.

Complexity, Sterman notes, is dynamic and evolving, so taking a snapshot of the various parts of a system will only ever show part of it.

What often happens is ‘policy resistance’, whereby the intended effects of a policy or program are delayed,

distorted or even overturned by the responses of different parts of the system to those interventions.

Sterman cites the example of how the introduction of tar and nicotine cigarettes had the effect of actually *increasing* the intake of toxins because smokers tended to take longer, more frequent drags on their cigarettes to compensate. Antibiotic over-usage and subsequent bacterial resistance is another well-known example.

Like other systems thinkers, Sterman cautions against leaving policy solutions to the experts. People are reluctant to make fundamental changes to their beliefs and behaviours simply because they are told to by experts. The profound changes needed to tackle poverty, homelessness, or global warming for example, require 'complementary changes in education, incentives and institutions', according to Sterman. It is only by educating and involving the range of stakeholders (including the public at large) that they will be able to 'learn' from any evidence presented to them, and hence support more considered interpretations. Contrast the educational initiatives and policies used in Australia to combat HIV/AIDS in the 1980s and 1990s, with the current policy approaches and (lack of) education around the treatment of asylum seekers.

Typically, leaders and decision makers don't understand the range of feedback loops surrounding their decisions, which are frequently made around the low-level 'leverage points' that Donella Meadows tells us are typically ineffective. Even when strong evidence is available, our mental models lead to 'erroneous but self-confirming inferences', Sterman says. Often the response is to do more of the same, rather than take a step back, consult with stakeholders and try to understand the system better.

Sherman also discusses the need for 'double-loop learning' in addressing problems. This idea, first introduced by Chris Argyris, involves not simply acting to correct problems (this is single-loop learning) but taking a step back and looking at the underlying systems, assumptions and mental models that led to the problem in the first place. In doing so it is important to become aware of our own biases and 'defensive routines' – those routine interpersonal behaviours we use to save face, make our untested beliefs seem like facts, and suppress dissent. All of us fall back on them at from time to time, in spite of our best intentions!

Sterman concludes this article by recommending we become more familiar with modelling and simulation tools, and what he calls 'virtual worlds', to augment the evidence we collect from the real world. If we couple more rigorous and reflective application of the scientific method, along with collaborative enquiry skills and an openness to multiple perspectives, he is optimistic we will be more likely to find success in leadership for social change.

## 3. WICKED PROBLEMS

**'Dilemmas in the general theory of planning'**  
short article by Horst Rittel and Melvin Webber  
in *Policy Science* 4 pp 155-159

*This is a modification of a paper presented to the panel on policy sciences, American Association for the Advancement of Science, Boston, December 1969.*

**Review by Guest Contributor: Dr Mehreen Faruqi**

The use of the term 'wicked problem' has recently become popular vernacular as a way of describing complex, multidimensional and interconnected social and environmental challenges such as climate change and global inequity. It may come as a surprise to many that this rather provocative term was coined some 45 years ago by two Professors from Berkeley who provided a critique of technical, rational planning approaches to 'solve' problems that may only be 'resolvable'.

The subject article was written in the backdrop of significant socio-political movements questioning the status quo on environmental protection, the place of women and African Americans in society, and the Vietnam War. This underlying context of anarchy does pervade the analysis as the authors reject traditional mechanistic-thinking in favour of contemporary systems-thinking.

At the heart of this article is the framing of policy planning problems such as dealing with crime, or poverty as inherently 'wicked'. Ten distinguishing attributes of wicked problems are described including their uniqueness, difficulty in formulation, many solutions (but no true/false answers) based on conflicting views and values, and reliance on the

subjective judgement of decision-makers for resolution.

Such complex problems are differentiated from 'tame' science and engineering problems such as a mathematical equation which can be solved through step-by-step objective analyses leading to a true or false answer. Since policy decisions affect so many, defining and treating wicked problems as tame is a moral and ethical issue for the authors, especially since solutions may be a complete mismatch, irrelevant and often irreversible.

The language used in the article is dated and gender-biased, but the central theory aligns well with contemporary research on complex systems that endorses the authors' view of wicked problems having many interdependencies, uncertainties, values-dependent formulations, a plurality of views and no clear-cut solutions. A failure to recognise these difficult-to-deal-with elements has hampered progress on complex issues.

Rittel and Webber do not attempt to clarify how these dilemmas may be resolved or how we might transition from traditional tactics to new ways of thinking and doing. As leadership plays an important role in influencing change, many answers may lie in contemporary views of 'complexity leadership'. This approach is cognisant of the wicked realities and advocates openness to ambiguity and adaptation, confronting and clarifying conflict, and a shared and collective process for resolving problems.

## 4. NONPROFIT LEADERS

**'Street credentials and management backgrounds: Careers of nonprofit executives in an evolving sector' in *Nonprofit and Voluntary Sector Quarterly* 39 (4): 696-716**

**Review by guest contributor Hokyu Hwang**

Not-for-profit organisations around the world are facing challenging times.

On the one hand, an impending leadership deficit looms large: the retirement of the Baby Boom Generation is expected to create a shortage of not-for-profit leaders.

On the other hand, the retreat of the welfare state and the subsequent marketisation of social services and growing competition from for-profit firms in the past few decades have put much pressure on these organisations to become more efficient and 'businesslike'. These two challenges are likely to shape the future leadership of the not-for-profit sector.

Although mission remains the front and centre, in the changed environment of privatised welfare, the increasing inflow of for-profit management and business practices (such as strategic planning and performance and outcome measurement) has significantly transformed this once informal sector.

Not-for-profit organisations are increasingly being staffed and managed by individuals with professional pedigrees who have dense relationships with multiple stakeholders including funders, clients, regulators, volunteers and professional associations.

In this new context, not-for-profit organisations have become a main mechanism through which external resources and support find local causes, and nonprofit leaders need to be well versed in both management knowledge and the substantive issue areas (such as health care or education) within which they work.

This is a tall order, as these two sources of expertise may not always find peaceful coexistence. For instance: how does one capture and quantify improvement in children with special needs to show that an intervention for which one received funding was effective? Or how does one justify the value of experimental dance in financial terms? In other words, not-for-profit leaders are increasingly asked to translate and frame local, often idiosyncratic causes, into a more general, universal language of metrics.

How do not-for-profit leaders develop these different types of expertise?

While it is difficult to predict what the not-for-profit sector's future leadership would look like, the profile of current leaders in this sector provides a good deal of insight into different types expertise and professional backgrounds represented in the sector's leadership, different routes to not-for-profit leadership and – perhaps most importantly – what qualities are valued in not-for-profit leaders.

In this sense, David Suarez's work on the careers of not-for-profit leaders provides a welcome glimpse into

the professional and career backgrounds of these leaders.

To summarise briefly, Suarez found that there is a diversity of backgrounds and careers represented in the representative sample of nonprofit leaders he analysed.

Not-for-profit leaders in the San Francisco Bay Area in the United States are a highly credentialed bunch with many receiving post-graduate degrees in management and other substantive fields like education and counseling. Surprisingly, a significant number (60 per cent) had management experience in the public (government) and/or for-profit sectors. However, most executive directors were promoted to the current position internally (39 per cent) or recruited from another not-for-profit (24 per cent).

Some direct transitions from the public or for-profit sectors were cases of transferable skills, but other cases revealed more interesting twists. While these leaders came directly from other sectors, they somewhere along their careers built extensive experience in, and ties to, the sector.

Suarez concludes that while management expertise and cross-sector experience are useful resources for not-for-profit organisations and their leaders, 'street credentials' provide legitimacy for the sector's executives.

This study does not debunk the rising importance of managerial skill and business experience in the evolving not-for-profit sector. Rather, it shows that not-for-profits are receptive to individuals with cross-sector experience and management expertise.

However, as mission-driven organisations, not-for-profits look for signals of commitment and dedication as reflected in their careers. While the changing external environment in which these organisations are expected to become more businesslike and efficient, as long as not-for-profit organisations are in the business of doing good, 'street cred' will always matter.

## 5. 21<sup>st</sup> CENTURY ENLIGHTENMENT

### **Matthew Taylor, 2010, *21<sup>st</sup> Century Enlightenment*, Royal Society for the Encouragement of Arts, Manufactures and Commerce (RSA), UK**

While not strictly systems thinking, Matthew Taylor's work is a compelling call to arms for the type of thinking and behaviour embodied in systems thinking approaches.

His ideas are expressed in an essay, a speech and a short animation. The essay is the most 'academic' in tone and the animation the most accessible.

Taylor, from the Royal Society for the Encouragement of Arts, Manufactures and Commerce (RSA), has articulated what the RSA calls *21<sup>st</sup> Century Enlightenment*, paying homage to the impact that the original Enlightenment thinking had on Western society in the 18th and 19th Centuries.

He brings together important ideas in political science, philosophy and psychology to explain how mental models around possessive individualism – a rationalist, utility-maximising view of human nature where autonomy means looking after number one, have overtaken more holistic understandings of society.

Just like the original Enlightenment of 300 years ago, we are now facing new knowledge, new technology, and new ways of living. Taylor reminds us that living differently means thinking differently; it involves seeing the world and ourselves from new perspectives – a perspective shared with systems thinking.

Taylor commences with a series of contentious questions, such as:

- How do we deal with the contrast between the powerful global forces of commerce, conflict and dispossession and the as yet weaker global public sphere of civil society and governance?
- How do we manage risk and shape progress to human ends when science, technology and commerce are so fast moving?

He points out that much of our thinking has been dominated by three logics:

1. The logic of science and technology
2. The logic of markets
3. The logic of bureaucracy

The first two logics are, he says, 'indifferent' to concerns for the general good. So 'if something can be discovered and developed it should be discovered and developed. If something sells it should be sold'. Rarely did we consider the upstream, unintended effects of developing financial derivatives, or selling collateralised debt obligations (CDOs) or other financial products – until the system traps brought the whole system down, with catastrophic consequences.

In the case of bureaucratic logics, it is the privileging of rules over ends that causes problems – like the rule that 'whatever it takes' to compete successfully is ok. Taylor has argued that it is only through the development and nurturing of what he calls 'empathic capacity' will we come close to understanding and tackling the systemic social problems we face. In many ways he is emphasising the 'system wisdoms' advocated by Donella Meadows, such as expanding the boundary of caring, maintaining the goal of 'goodness' and paying attention to what is important, not just what is quantifiable.

Taylor calls for a more self aware, socially embedded model of autonomy; this is the essence of the 21st Century version of the Enlightenment project he promotes.

Taylor's ideas, and those presented by the RSA more generally, provide excellent food for thought for those of us interested in social improvement, and are a great discussion starter for strategic planning sessions.

**Read the essay:** [www.thersa.org/about-us/rsa-pamphlets/21st-century-enlightenment](http://www.thersa.org/about-us/rsa-pamphlets/21st-century-enlightenment) (35pp)

**Watch the video of the speech:**  
[www.youtube.com/watch?v=x5ZjSEqWQQU](http://www.youtube.com/watch?v=x5ZjSEqWQQU) (1hr)

**View the RSA animation:**  
<http://www.thersa.org/events/rसानimate/animate/rsa-animate-21st-century-enlightenment> (10 mins)

## 6. EMBRACING COMPLEXITY

**Embracing Complexity to Enable Change, *Environmental Leadership: A Reference Handbook*, Sage 2012**

*Embracing Complexity to Enable Change, Environmental Leadership: A Reference Handbook*, Sage 2012.

This chapter forms part of a larger handbook on environmental leadership released this year, but many of the points Faruqi makes are equally applicable to the social sector.

She starts with an idea shared by all systems thinkers (and many leaders): that the failure to systematically address big issues (or 'wicked' problems) is due to mismatches between problems and solutions. As she puts it, 'attempts to solve complex problems are based on traditional simplistic notions of fixing systems rather than addressing underlying root causes'. It's not difficult to think of numerous attempts to 'fix' social issues like homelessness or the 'drug problem' that have failed and in some cases made the situation worse.

Such problems have, among other things, multiple causes and complex interdependencies; they occur at local, regional, and global levels; contain uncertainties and risks requiring trade-offs, and embody new moral dimensions and multiple values. All of which make them features of complex adaptive systems, Faruqi argues. Yet leaders (and some consultants!) often approach such problems in a simple, mechanistic fashion.

Faruqi calls for a new approach to leadership, one that is 'adaptive, flexible, and recognises the importance of relationships, networks and collaboration as keys to success'. This idea is shared by many systems thinkers – one that seems simple in principle, but in practice is more messy and time-consuming than many leaders would like.

Traditional, hierarchical and 'expert-led' leadership is simply insufficient to deal with the complex systemic problems we face in the 21st century. When there are multiple scenarios and many possible, futures', a single

heroic leader working through their positional authority to define problems and come up with solutions on their own is simply insufficient.

This point is supported by many contemporary leadership scholars, where a common thread running through complexity leadership is the need to take into account multiple stakeholders, often conflicting values, and complex trade-offs. All within an environment that is constantly changing and unpredictable. If we think of leadership as a process, rather than a person, it becomes clear that leadership can, and should, exist anywhere in an Organisation. Faruqi argues that this distributed or 'relational' way of thinking about leadership means that more people develop a sense of responsibility and ownership, 'creating alignment and generating commitment'. This may mean a different kind of leadership appointment – openness to change, tolerance of ambiguity and relational skills are particularly valuable.

This chapter provides a useful way forward for those interested in translating systems thinking to leadership development. If we think of leadership in terms of building leadership capacity throughout an organisation, rather than picking the right leaders, we are more likely to develop the kind of adaptive, learning cultures necessary for embracing 21st Century complexity.

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### Further reading

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