

# Re/defining Leadership in the 21st century: the view from cybernetics

Or, why leadership rhetoric  
needs renewal and how  
cybernetics can help

A white paper developed  
by the ANU School of  
Cybernetics powered by  
The Menzies Foundation



Australian  
National  
University

School of  
Cybernetics



Re/defining Leadership in the 21st century



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## Foreword

The Menzies Foundation is delighted to be collaborating with Distinguished Professor Genevieve Bell AO and her team at the ANU School of Cybernetics to build the foundations for the national and global leadership conversation we must cultivate collectively to address the significant leadership challenges we face in Australia, our region and the world.

This white paper builds a bridge between the past and the future, it highlights the foundational importance of a systems perspective, and provides a framework to deepen our collective understanding of the essential leadership attributes we will need to be instrumental in creating an imagined future which optimises the potential of people, technology and planet.

The Menzies Foundation aspires to build a leadership movement which encourages Australians to reflect on leadership, build their leadership capability and contribute to the 'greater good'. This white paper is an important contribution to this movement.

We look forward to working with the School of Cybernetics to elicit your feedback and then develop the experiential platform to build this leadership capability.

Liz Gillies,  
CEO, Menzies Foundation



## Foreword - where are we now, Australia?

In the summer of 2019, nearly 80% of Australian households were impacted by bushfires, either directly or indirectly<sup>1</sup>. These impacts were felt across all dimensions of daily life - from the quality of the air we breathed and our mental health, to the availability of reliable information and telecommunication networks, to the relative robustness of supply chains and transportation routes.

We discovered a renewed sense of community, an orientation to data and datasets of renewed importance, the stubborn persistence of state-borders, and the importance of partnerships between government officials and content experts. We tuned into daily news briefings, downloaded new apps, and worried about our friends and families, about our country, and if things would ever be the same again. We grieved both for the lives lost and the theft of a certain kind of seasonal pleasure. And then it rained. A lot. And in many places.

Before we could catch our breath, the COVID-19 pandemic started.

For more than two years, Australia, like the rest of the world, has navigated the pandemic. Depending on the moment or the vantage, our handling of that pandemic has been successful, farcical, naïve, brilliant, thoughtful, compassionate, reckless, fast and slow. Of course, the pandemic is still ongoing, and the final assessments will be years in the making.

The role of government, corporates and NGOs blurred again, as we sought to secure supply chains. Daily or hourly engagement with algorithmic check-in systems became a cornerstone of our new ways of living and governing for community safety and information-sharing.



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What is clear now, however, is that the pandemic, like the bushfire season before it, *were not simple, single events*. Indeed, the marked similarities between the 2019-2020 bushfire season and the COVID-19 pandemic thus far point to something significant and worthy of further scrutiny.

Bushfires and the pandemic are manifestations of *complex adaptive systems*; systems that encompass ecological, cultural/social/economic and technological dimensions. The challenge of leading in a world full of such systems feels acute. Everything is connected. Our actions today and our experiences of this period - life and death mediated and experienced through individual screens, the use of analytical tools and a broad range of new technologies not present in past global events of this magnitude - will have far reaching consequences in workforces, social dynamics and geopolitics for decades to come. This raises an urgent question we must tackle now, head on: *how do we lead effectively in this context?*

This white paper addresses the reimagining of how technology, society and the environment are connected, and how we can empower people to lead change towards a safe, responsible and sustainable world for humans, non-humans and the environment, and map the transformations required at individual, organisational and community levels.

I hope you find this paper thought-provoking and will join us in giving it life through tools, capacity building and transformational experiences. It is not enough to write; we must also do!

Distinguished Professor Genevieve Bell,  
Director, School of Cybernetics,  
The Australian National University



## We started with a conversation...

In 2021, we convened a group of individuals with a range of community, academic and commercial organisational affiliations. We sought to understand what questions about leadership they were grappling with now. An interesting picture emerged, as we circled in on a number of questions...

*What skills will be effective for leading change in these complex and algorithmically mediated environments?*

*Will those who lead change be those in traditional leadership positions?*

*How do we lead change not just in corporations and organisations, but at a global, national, and community levels, and within ourselves?*


*How is leading change across and between all these arenas possible?*

These questions bring into sharp relief the need for new ideas, and motivated us in the search for a new way to think about leadership.

We have scoped this work as a cybernetic leadership white paper. It provides an introduction and a way into the relatively new field of cybernetic leadership. It is not meant to be comprehensive, but will address some of the why, what and how of cybernetics leadership, drawing on a selection of the many years of research and applications in the domain from Australia and across the world. Our ongoing work with Menzies Foundation will put the principles from this research into practice in leadership learning experiences - moving to the who, when and where, and critically, how we scale this approach to reach broader audiences and understand its impact in the world.



## How can we think differently about leadership?



Futurists have been heralding the advent of the 4th Industrial Revolution for some time. However, it wasn't until recent cataclysmic events, which precipitated huge disruption to existing structures such as supply chains, and accelerated the uptake of digital technologies, that we have started to appreciate the emergent future. The intersecting ecological, social and technological disruption creates unique opportunities and challenges for shaping this future.

There is much anxiety about the future - how can we use leadership to steer towards not only surviving this future, but thriving in it?

The conversations we have had with leaders to date about this new world have yielded two themes in particular: 1) that we must re-define what we mean by leadership in this modern context, and 2) that in re-defining leadership, we must also re-frame purpose and the relationships that constrain or enable it. We explore these themes in the context of a cybernetic approach.

*For more on what leadership is, and why it needs to change in the 21st Century, see [The Menzies Leadership Forum - Audio Podcast](https://www.menziesfoundation.org.au/leadership-forum-audio-podcast) ([menziesfoundation.org.au](https://www.menziesfoundation.org.au))*



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How can we think  
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## Re/defining leadership

### Central idea:

The leader is often at the centre of thought, training and action about leadership. We cannot lead effectively in the 21st century without challenging this assumption.



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We start from the premise that in the 21st century, the *system* is the critical unit of analysis.

A future-focused approach to leadership will be built on networks of change agents who can foster and support multi-sector collaborations to support the radical thinking required to build capability.

If we think of the system, rather than the individual, as the focus for leadership, we might jettison the term "leader". In its place we prefer the broad space of "leadership" or "skills for leading change". *Anyone* can engage in leadership activities, or possess skills for leading change. This enables us to move away from the power dynamics inherent in notions of the leader and the led, and the dominant central view that leadership comes from an individual who has been given the rank of "leader".

Systems thinking methodologies challenge the idea that there is a single dominant view from the centre. The precise methodologies are varied and growing in popularity.<sup>2</sup> We acknowledge these and build on them in the specific area of leadership. This necessarily includes moving beyond a focus primarily on describing the relationship between entities and environments, towards a focus on change and purposeful action.<sup>3</sup>

Not all systems methodologies explicitly address the role of technology. But in the 21st century, no analysis of systems - whether in the context of leadership or not - can be complete without considering technology. To date, the idea of incorporating technology into leadership discourse has been focused predominantly on technology literacy for leaders, coaching for tech start-up leaders, and the like.

The idea that *all* those leading change will need to fundamentally address the role of technology in altering their businesses, practices, communities and selves, is much rarer and an area ripe for discussion.

The increased role of technology in our lives offers fertile ground for exploring an approach to leadership inspired by the study of human-machine interactions. Technologies that learn from and adjust to information they receive are being embedded in many contexts. They shape us and are shaped by us, in relationship with the broader environments within which we both sit. In analysing *feedback* between technologies, humans and the environment - how information and other elements flow, where, and their effects - we are able to make explicit opportunities for intervention and action. Rather than focus on the static, we are led by the dynamic.



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Cybernetics is a systems methodology that engages with technology. It is an old idea that found new form in the 20th century with the rise of computing, and again now in the 21st century as many of the technologies it imagined, like artificial intelligence, come to fruition. It challenges ideas of control and communication in systems, and the role and interplay of human, environmental and technology-automated actions.

The complexity of technology systems in the 21st century forces us to think of leadership in terms of these systems.



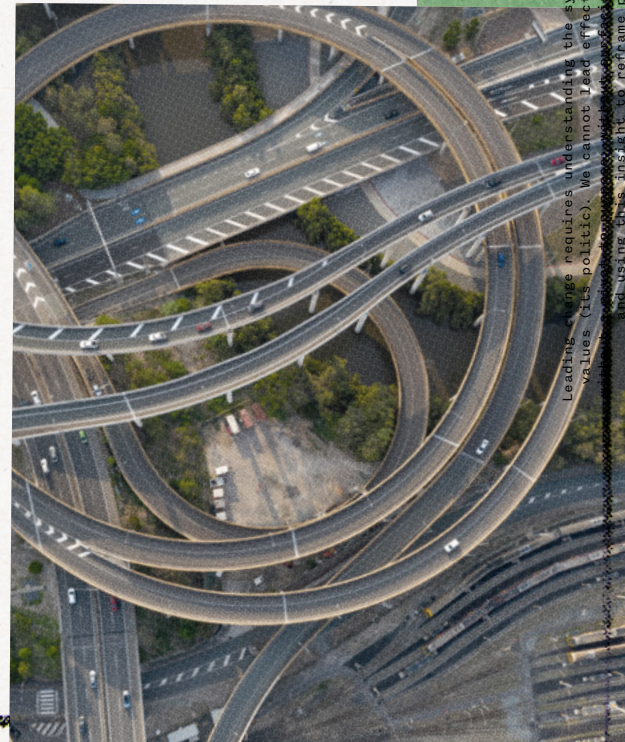


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## Re/framing purpose

Central idea:

Leading change requires understanding the system's goals and underlying values (its politic). We cannot lead effectively in the 21st century without a pivot to purpose; without surfacing hidden goals and values, and using this insight to reframe purpose and action.



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When talking about systems that are characterised by multiple goals, we refer to them as *purposeful systems*. Many goals in purposeful systems are hidden or tacit, and are influenced by drivers in other parts of the system. For example, while many commercial organisations try to be mission-driven towards community or environmental wellbeing, the need to address shareholder requirements (as enshrined in the Corporations Act<sup>4</sup>) may come into conflict with these goals, depending on what the priority of a diverse set of shareholders is.<sup>5</sup>

This insight challenges how we view "purpose", as it highlights that there may be many different objectives at play in any given situation.

To lead in a purposeful system, we need to pivot to purpose. We need to reflect and clearly identify our own goals, aligned to our value systems, and read those against the goals we identify in the systems in which we operate. If we are not clear about our own purpose, we can be unwittingly pushed in directions that run contrary to our purpose.

Leadership renewal requires challenging the simple idea of a singular "goal", and then defining, creating or finding spaces where different (often competing goals) can be held together in creative but viable tension, that does not inhibit beneficial change.

Change is brought about by:

1. the defining of purpose and goals that are necessary to achieve this change;
2. an adaptive process of navigating the path towards them, and;
3. managing the complex and conflict-ridden space between the tensions amid those goals.

The aim is to maintain the system in a viable state for meeting its purpose and being able to work towards its goals<sup>6,7</sup>.

All action towards goals requires some sort of change, whether it is adaptation to resist intervention, or to break through resistance itself. Similarly, taking no action does not inure the system against change - implicit goals drive change as much as explicit ones. This is precisely why decision-making informed from complex systems knowledge is so important for leadership today.



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Cybernetics allows people to displace the dominant view and see a system from different angles and perspectives. It allows people to see how the goals inherent in those different angles and perspectives can interact and steer that system in different directions. This liberates us to see the idea of *leading change* from new and helpful angles, roles and places. It allows us to understand how relationships, responsibilities and reciprocities influence the behaviours we see at individual, organisational, community and even global levels.

Our theory of leadership builds on cybernetic principles, enabling us to address the key challenges of seeing the system as the unit of analysis (Re/Defining Leadership) and pivoting to purpose through a clear articulation of goals (Re/Framing Purpose).





## Why Cybernetics? And why now?

Cybernetics is way of understanding systems with a focus on relationships and dynamics between humans, technology and physical environments. Cybernetics acknowledges that systems are complex and comprise a myriad of feedback loops that inform the way those systems operate, fluctuate, and change (or learn) over time.



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Why Cybernetics?  
And why now?

Cybernetics is an ancient idea<sup>8</sup> that was given new life at the dawn of the computing age. Norbert Weiner, in predicting the path of bombers and anti-aircraft machines in WWII, realised that these old cybernetic principles of goal-directed adaptive systems could be applied not just to humans (how we synthesise information and decide how to react, which in turns changes our environment) but also to technologies and ecologies<sup>9</sup>.

Thus began the cybernetics movement that is most familiar today. In the post-WWII period, when people were forming approaches to managing the rapid growth of computing technology and exploring the question of how we can incorporate the cultural and ecological into the design of new technologies that contribute to a safer world (as opposed to the design of technologies that wrought devastation in World War II), the Macy's conferences were an extraordinary convening of ideas and set the benchmark for cybernetics through the 20th century.<sup>10</sup>

Cybernetics has been a generative intellectual wellspring across the world - it helped shape everything from AI to critical systems theory, computer-driven art and music, design thinking, post-structuralist philosophy and the internet. Its success in so many areas was ultimately the reason for the decline in the use of the word. However, with the recent rapid

increase in technology development - the promise that was imagined in the 1940s is to some extent finally here - cybernetics is again an important platform from which to make meaningful change in the world.

Cybernetics has been applied successfully to organisational design, psychiatry/psychology, robotics and large-scale change in other areas<sup>11</sup>, and has given rise to a range of systems theories.\*

\* For those keen to explore more, take a look at Beer's Viable Systems Models, Checkland's Soft Systems methodology<sup>12</sup>, Bateson's Family Systems Theory<sup>13</sup>, and Ulrich and Midgley's<sup>14</sup> critical systems approaches, and associated post-structuralist work including Latour's Actor Network Theory<sup>15</sup>, affordance theory<sup>16</sup>.

The application of recent evolutions in cybernetic theory to issues of leadership remains under-explored and a fertile area for practice<sup>17</sup>.

Cybernetics is a way to imagine steering systems safely in the world, and recognising the importance of ecology, people and technology in all systems.



# Leadership and cybernetic skills for leading change

Through disrupting the idea of who is a leader, and re-thinking how we identify differing goals and values in a system, we now introduce a series of cybernetics principles that will allow us to translate these themes into skills for leading change:

- Feedback
- Connections
- (Perspective) Plurality
- Synergy





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cybernetic skills  
for leading change

## Cybernetic principle: Feedback

Central idea:

In order to achieve our purpose, we need to understand the impact of interventions. This is achieved through identifying and managing the impacts of feedback.



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"Feedback" is a common term now, but it is less than a century old as a term in English. Before the 1940s, "feedback" as a word was rare, and related primarily to feeding back in electrical systems.<sup>18</sup> It is now a term that is taken for granted. We ask for feedback on our work, and give it to staff during performance interviews. It has become a central idea in agile methodology and rapid prototyping.

It is worth stopping and considering what feedback is, and how it helps us navigate the world.

Feedback in the development of technology has been a central process in designing more autonomous self-regulating systems. From the governors in early steam engine technology to control systems now present in today's cyber-physical systems, feedback is ever-present. Systems that are AI-enabled learn through feedback loops and input of new data, with the addition of complex statistical time series methods and different varieties of neural network algorithms<sup>19</sup>.

Cybernetics teaches us that understanding either technological feedback, or interactive human-to-human forms of feedback in isolation is insufficient in today's world. Those seeking to create positive change will need to take into consideration feedback loops between human and technological facets of systems, as well as environmental feedback from local and global contexts.





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## Cybernetic principle: Connections

Central idea:

The relationships between  
things are more important  
than the things themselves.



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One of the more exciting developments in algorithmic decision-making is graph database technology (GDT). In GDT the connections are more important than the object itself. This supports semantic search and a whole range of ways we can understand complex data.<sup>20</sup> The learnings in this technical field have application in how humans interact with each other and with actors in natural and human-made systems.

In organisations or other communities of people, how individual actors respond to stimuli in the system is more about the system than the individual. This concept, a key component of cybernetics, is central in the works of French post-structuralists<sup>14</sup> who focus on the power of networks and relationality between things other than humans. If we look back further still, it is a centuries and millennia old key concept in Indigenous and Eastern philosophies, where acting based on interconnectedness, relationality, reciprocity and responsibility to relationships in systems that humans are a part is key<sup>21</sup>.

Taking the lens that organisations are goal-oriented complex adaptive systems, which are interconnected with a range of other systems, a helpful frame for leading change is to understand relationships, as well as identify and act on what connections need to be promoted, sustained and renewed.



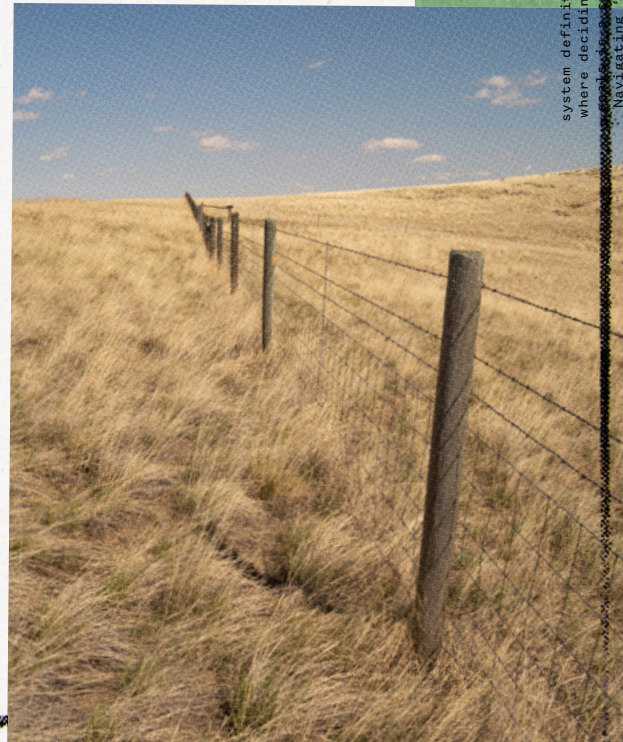


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for leading change

## Cybernetic principle: (Perspective) Plurality

Central idea:

System definition is a contested process where deciding on system boundaries and goals is a cultural and political act. Navigating 'boundary' work and making decisions on definitions of 'systems of interest' is a core leadership need for the 21st century.



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Leading change in complex systems has long had to deal with ambiguity, uncertainty and conflict. In such messy situations, embracing multiple perspectives is necessary. Over the past 50 years, research in operational research, anthropology, political science and application of decision theory in a range of organisational, cultural and political contexts has developed to explore the identification of differing values, beliefs and preferences linked to decisions for managing the dynamics of complex systems.

The concept of boundaries is core to leading change in complex systems. Skills for leading change include:

- **boundary judging** - deciding the edges of the system is difficult, once you see everything as connected. We need to know how to create systems of interest so that we can observe behaviours and drive desired actions without becoming overwhelmed by complexity<sup>13</sup>;
- **identifying and using boundary objects** - objects (including conceptual ones) that are sufficiently ill-defined or have many different definitions for different groups of people can be used to enable discussion and interaction across worldviews.<sup>22</sup> By focusing attention on a boundary object we can bring people together around something of common interest and develop helpful conversations even where the parties are not aware that they mean a completely different thing when they use the same words; and
- **boundary spanning** - boundaries exist everywhere and are frequently taken for granted, until someone steps across them. Spanning boundaries is the action of working across different systems (whether they be organisations, sectors, disciplines, or any number of other types of boundary) to create additional connections, opportunities for communication, and innovation in the broader system of interest.<sup>23,24</sup>



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## Cybernetic principle: Synergy

Central idea:

Synergy is the interaction between the goals of the individual and the goals of the group. High synergy groups have strong alignment between these goals and the overarching system purpose. These groups achieve more.



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Ruth Benedict (American Anthropologist, 1887-1948) took the word 'synergy' from biological sciences and applied it to human societies.<sup>25</sup> She inspired a number of others, including early cyberneticians like Margaret Mead, who in turn inspired Warren Bennis. He writes:


*"The more I learned, the more I realized that the usual way of looking at groups and leadership, as separate phenomena, was no longer adequate.*

*The most exciting groups - the ones [...] that shook the world - resulted from a mutually respectful marriage between an able leader and an assemblage of extraordinary people.<sup>26</sup>"*

Through synergy, the people in the group providing the skills for leading change will likely shift as the focus on different goals and actions adjust dynamically over time. Synergy also allows a collective memory to be constructed and accessed over time to allow for creative synthesis at opportune moments in the dynamic shifts of the complex adaptive systems the group is working with.

This also relates to new work in generative versus exploitative leadership. As Ariella Helfgott describes, we need to move systems towards generative rather than exploitative processes throughout their configurations<sup>27</sup>, which raises new questions for ethics and what organisational changes and can be enacted to achieve these.





Leadership is  
a condition of  
an organisation,  
not an individual<sup>28</sup>

Building on these cybernetic principles that bring new insight to leadership, we now turn to considering groups of people, and where and how people organise, looking at traditional organisations, but also beyond, to new conceptions of organising units. This follows on from the idea that relationships within a system of organisation and dynamics between groupings of people are critical to the skills we will need to lead change.



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We explore the central idea that while individuals are driven by their own goals, the goals of the organisation drive both the organisation itself, and the individuals within it. That is, the goals of the organisation can influence an individual's own goals, without them being necessarily aware of it.

In this section, we reference our colleague and fellow cybernetician, Paul Pangaro, who has researched organisational functioning from a cybernetic perspective and is a leading thinker in conversation theory. The statement: "Leadership is a condition of an organisation, not an individual" we credit to him.

Decision-makers in organised units must invariably balance their own personal comfort with ambiguity and complexity, with their role in reducing uncertainty for those around them, which is essential to make change safe. Therefore, a critical activity for those leading change is to develop their own certainty, where none can be found elsewhere in the system.<sup>29</sup>

This approach tackles head on the paradox of needing change, whilst also ensuring efficiency and certainty for certain parts of effective system regulation. These two forces pull against one another and deeply affect the system that is the community of people (organisation). Shining awareness on these forces enables us to see their effects and therefore to use them sequentially and strategically as levers.

More broadly, early cybernetician, Gregory Bateson wrote about noticing the *difference* that makes difference.<sup>30</sup> The stability of the system ("whether it will act self-correctively or oscillate or go into runaway") is not determined by the 'governor' but by the "transformations of difference" over time. This has significant implications for how we view leadership and the role of the 'governor'. Those who are notionally governing the system (be they team or community leader, or Board member, etc) need skills in identifying the hidden dynamics in the system and what causes change over time. As Mary Douglas put it, what is important is recognising the system's state and its likely oscillations between different configurations to predict change in the system and intervene more effectively.<sup>31</sup>



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## Building teams: Requisite variety and "Viable Systems"

Central idea:

A diversity of voices is  
required to ensure the  
constant adaptation that is  
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Cybernetician W. Ross Ashby considered that to provide appropriate regulation, "the variety in the regulator must be equal to or greater than the variety in the system being regulated" and, moreover, that "every good regulator of a system must be [or contain] a model of that system"<sup>32</sup> While Ashby was considering closed systems, further work by Gregory Bateson and Stafford Beer use the word "viable" in open and living systems.

For these systems - like all organisational systems-this viability is linked to the interplay between different levels or arrangements of voices, functional roles, 'models' of the system and operational goals shaped by diverse knowledge and skills appropriate to system purpose. This complexity was a focus of cultural anthropologist Margaret Mead at the Macy Conferences on Cybernetics:

*"There were three groups of people. There were the mathematicians and physicists - people trained in the physical sciences, who were very, very precise in what they wanted to think about. There was a small group of us, anthropologists and psychiatrists, who were trained to know enough about psychology in groups so we knew what was happening, and could use it, and disallow it. And then there were two or three gossips in the middle, who were very simple people who had a lot of loose intuition and no discipline to what they were doing. In a sense it was the most interesting conference I've ever been in, because nobody knew how to manage these things yet."*<sup>17</sup>

Today we know such variety is not only a novelty but a necessity to ongoing viability and effectively navigating complex organisations towards their desired goals.



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## Building teams: The role of language and conversation

### Central idea:

Organisations all develop their own languages and types of conversations, which increases efficiency. However, these can become constraints that limit future vision.



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As organisations transition to more and more complex technology, different languages spring up in different areas to encourage efficiency, and so too do barriers between those areas. Organisations need people who can translate across boundaries, and others who can create new languages to enable different futures.<sup>33</sup>

One way of ensuring a system of language regeneration and boundary spanning is to obey the law of requisite variety and the rules for "viable" systems. Another is to introduce, allow and practice unnatural question asking. Brian Eno in 1975 created 'Oblique Strategies' - a card game to enable people in organisations to ask unnatural questions.<sup>34</sup> It's an idea that has been copied over and over again so that it is virtually unrecognisable now as the insightful tool it was at the time. It is worth cutting through the avalanche of 'daily thoughts' and returning to what made oblique strategies so radical - creative action through frame multiplicity.

A key cybernetic skill is the ability to allow for multiple interpretations of things; to be able to hold ideas lightly, avoiding dogma and ideology. And as a result, to know when and when not to pin down definitions and commonly held concepts is crucial to support organisations through processes of learning and change.

Patricia Shaw's "Changing Conversations in Organizations: A Complexity Approach to Change" also advocates for holding multiple interpretations by suggesting that messy sense-making conversations can shift constraints.<sup>35</sup> Shaw argues that leadership is about:

- convening conversations that might not happen otherwise;
- having the courage and skill to invite and sustain open-ended and free-flowing conversation that is not always within a structured agenda;
- enabling brave conditions for team members to meaningfully contribute ideas, voice and action aligned with purpose;
- opening spaces for reflective inquiry;
- taking action or giving voice "when the consequences of that will always ripple out in ways beyond what you can ever know";
- the ability to evoke and notice "vivid moments of experience" to enable collective sense-making about what is happening<sup>36</sup>.

Sensing and knowing when and how to create opportunities for engagement and serendipity - and what the constraints or scaffolding may be to enable this, including who to have conversations with to develop these spaces for interaction - is another key cybernetic leadership skill, and happily one that can be honed<sup>37</sup>.

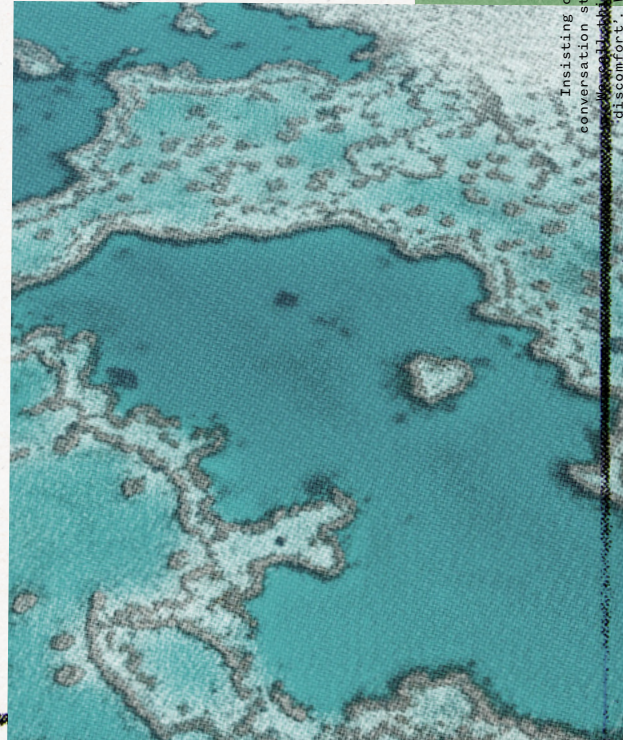


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## Building teams: Productive discomfort

### Central idea:

Insisting on variety and disrupting conversation status quo creates discomfort. However this feeling is part of embracing diversity in order to enable learning and change. We call this "productive discomfort".



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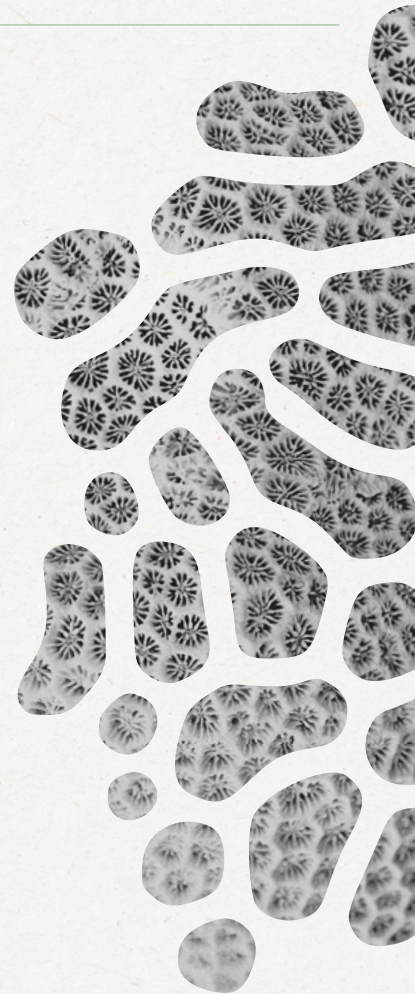


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Current diversity and inclusion initiatives can work against productive discomfort, particularly those that seek to promote integration (which aligns with a desire to fit in, to adapt to surroundings, and to reduce discomfort).

If we recognise the need to change (to update our goals against our reframed purpose) then we need to find a way to embed it in our goals, and to embrace an adjusted framing of what a diverse and inclusive environment might feel and behave like.

We need people who can *lead with friction*, those with the skills to hold people in productive conflict and harness the creativity that comes from this process of learning and exploration of multiple perspectives. Facilitating complex exchanges and processes for learning from and with others is thus fundamental to organisations effectively innovating to manage change.<sup>38</sup>





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## Individuals are themselves goal-oriented complex adaptive systems

Central idea:

How individuals behave is as much a function of their environment and dynamic adaptations as of their innate personality.



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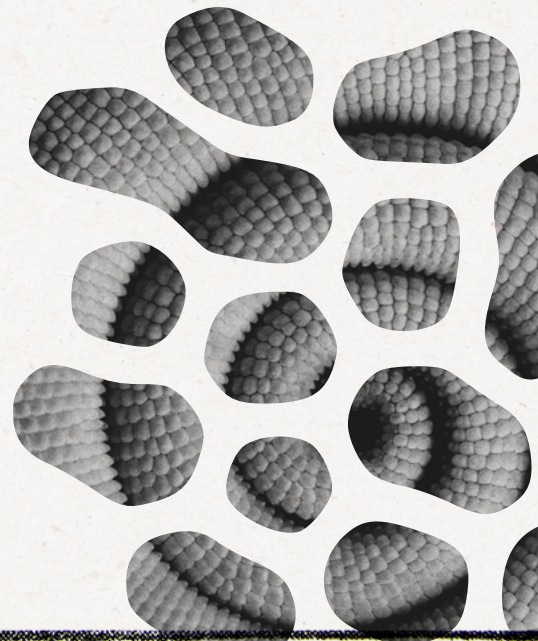


←  
Leadership is  
a condition of  
an organisation,  
not an individual

We can think of humans themselves in the context of a cybernetic cycle. Our actions in life can be organised according to: 1) goal activation, 2) action (or strategy) selection, 3) action, 4) outcome interpretation, and 5) goal comparison. This has been explored in the Cybernetic Big 5 theory of personality.<sup>39</sup> Our individual differences are a result of our innate personalities, but also of our interaction with our environment and feedback in this human system.

Thinking about our actions in this way can open us up to reframing our purpose (goals). If we understand that how we behave is influenced by the complex interplay between internal and external factors, and that our goals can be subconsciously reframed by our experiences, we can be more deliberate in deciding our purpose.

The challenge comes when individuals and the organisations they work with hold a collection of competing and potentially unrecognised goals. Navigation of this requires analysis to recognize and surface competing goal systems and intentionally weigh up and choose priorities for personal change that will lead to positive individual and collective outcomes.<sup>40</sup>





← Leadership is  
a condition of  
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not an individual

## Transcendence and grace

Central idea:

We have an obligation to  
imagine a better world and  
to disrupt the present to  
make that future possible.



We have an obligation to imagine a better  
world and to disrupt the present to make  
that future possible.



← Leadership is a condition of an organisation, not an individual

Abraham Maslow was an American psychologist, who, while famous for his hierarchy of needs, also developed a comprehensive theory of self-actualisation, which included the notion of "peak experience", versions of which are found in many religious and core human experiences.<sup>41</sup> This idea is enjoying a renaissance through work such as 'Transcend' by positive psychology practitioner Scott Barry Kaufman<sup>42</sup>. Maslow was active during the time of the so-called cybernetics revolution<sup>43</sup>, and it was the cybernetic ideas swirling in the zeitgeist that led to the creation of the humanistic psychology movement, which has influenced much of the leadership training in existence today.

Core to self-actualisation is growth, which is built upon letting go. As Kaufman quotes Maslow himself; "One can choose to go back toward safety or forward toward growth. Growth must be chosen again and again; fear must be overcome again and again."<sup>44</sup>

At the School of Cybernetics, in the context of the importance of letting go, we talk about grace. How can we hold ideas lightly, and let them go into the world? How might we not dictate solutions, but create conditions for human flourishing? How can we raise ourselves above, to see the whole life-cycle? Where will we be in 10, 20, 100 years time? How do we think about our purpose now?

Leading change is about positively influencing complex adaptive systems. It is about us, deeply and unavoidably, and it is about how we connect to everything out there. This push and pull, this loop of prediction (or envisioning), action, assessing, adapting is the stuff of life. The goals we set for ourselves and how we hold them productively in tension - continuously learning and adjusting our beliefs, values and actions-are what give us meaning and shape our purpose and those of the organisations to which we dedicate ourselves.



## Transformative leadership education: a cybernetics-inspired approach

Building on previous sections that focused on *what* we need to learn to lead change, from a cybernetic viewpoint, this section will now bring in our insights from the Master of Applied Cybernetics, an experiment in transformative leadership education. It particularly focuses on the environment we need to create so that we can learn. Think of this as the *how* of leadership learning.



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Transformative  
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a cybernetics-inspired  
approach

## Insights from an experiment in individual and collective transformation

How can we use cybernetic leadership education experiences and tools, such as collective making, multi-perspective systems analyses and speculative futures, to create different neural pathways to imagine and enact change? How can we ensure that our educational experiences build their own momentum?

We have learned a great deal about cybernetic leadership from the Master of Applied Cybernetics at the Australian National University, an experimental program that we have run since 2019. By way of background, the program is a year-long, full-time, in-person, immersive experience for between 10 and 20 students. Around 6 educators do the majority of the teaching, with a range of guests and external perspectives brought in at various points in the year.

The program is specifically developed in place with connection to Country – at the Australian National University that is the land of the Ngunnawal and Ngambri peoples in the region where Australia's capital city Canberra now sits. Students are welcomed onto Country, and those Countries that are connected are brought into dialogue through the program, whether through student, staff, partner or guest connections.

The program engages heads, hands and hearts. Students build with hardware and software in a dedicated lab space and discover new insights through interactive activities (hands). They are encouraged to engage personally with the content, to surface and reflect on their values in connection and interaction with the values inherent the course material (hearts). They are taught critical question asking and to engage their critical brain at every step (heads).



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Transformative  
leadership education:  
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Although the objectives of this program are linked to integration of new technologies into society and environments, they share similarities to some other cybernetic programs for training people in systemic change<sup>45</sup> and leading future product design<sup>46</sup>. Over several iterations of the program, staff and partners from within and beyond the university have woven together multiple cybernetic threads<sup>47</sup>, adding to and amplifying those noted in the sections above:

- **multi-modal communication approaches** including for memorable story-telling, and learning/development of new languages and translation between these and other languages—for this case it includes the Python computer language, and systems and cybernetics theory terminology and modelling schema;
- **multi-faceted approaches to creativity and prototyping** through designing and building technology with both reclaimed and harvested materials, as well as those employing more advanced manufacturing and visualization technologies;
- **embodied, analytical and reflective exercises** to enhance critical and computational thinking, and self-reflexivity, including those needed to reflect on multiple values and what imagining and building safe, sustainable and responsible futures might entail; and
- **facilitation skills to support collective learning of others** by effectively acknowledging multiple ways of knowing, being and doing and deploying methods and analytical frames that support pluralist analyses, boundary spanning and critical action.



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Transformative  
leadership education:  
a cybernetics-inspired  
approach

## Skills and formats for learning to lead: insights for leadership training

We discovered that the structured spaces we created, where individuals with diverse profiles from different organisations come together, freed learners up to play, imagine, create, unlearn and relearn who and what they seek to do in relation to each other and the wider world - in the context of scaling technology and AI for a safe, sustainable and responsible world. The very specific challenges we assigned to work through together were deliberately designed to provoke the productive discomfort that arises from the presence of different languages, values, cultural constructs and ways of knowing, being and doing in the world. This enabled students to hold difference together in creative tension.

Two critical cybernetic themes we experimented with in the program are context-awareness and feedback. Encouraging similarities and differences to be identified and respected, and allowing ideas and people to transform through learning, interaction and feedback from others in and

beyond the learning system space, provoked the generation of alternative views in individuals. This act created safe and (re)generative spaces for individual reflection and support to imagine, challenge and renew amongst moments of collective and peak experience.

Overall, we found that the program helped students develop their own individual and collective syntheses that led to deep personal learning and change. We have discovered that transformation is cohort specific, dependent on interactions between students and staff. We have observed that staff are a necessary part of the transformational experience and undergo their own journey. Each year we have noted the development of new collective imaginations and differing levels of productive discomfort. These appear to be fit for the purposes and systems of interest of the learners involved - a genuinely novel synthesis.



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The program commenced in 2019. That means we have now guided 2 out of the 3 cohorts of Masters students through a COVID-aware world, where we value – but cannot always achieve – embodiment. We must embrace, and strive to improve, hybrid experiences: cybernetic principles of feedback, interaction with technology, self-reflexivity and connections strongly support our efforts in this area.

Here we summarise some of the key cybernetic ingredients to facilitate leadership learning that support the principles noted in the earlier sections in this paper:

### **Embodied experiences**

We refer to embodiment to capture all those elements of learning that involve other parts of the learner's body than their mouth and ears (talking and listening). Embodiment might include physical activities, sensory exploration, or making. The act of making – both individually and collectively – is a key element of learning in the Masters program, designed to go beyond typical intellectual traditions. We employ it to support learning through frustration<sup>48</sup> and the unknown/unpracticed, but also to hone an ability for purposeful composition and an understanding of interactions and dynamics. Not least of

all, making allows learners to achieve a sense of accomplishment and often wonder from the experience of exploration or creativity.

### **Creating space for self-reflexivity, courage and creativity**

When there is enough trust in the space, leadership skills such as self-reflexivity, embracing vulnerability, respectful and persuasive communication, imaginative speculation and a range of systems analysis and intervention methods can be unlocked. As well as creating this for our students, we teach by example how they can create this space for themselves and their teams. Creating space is a key leadership skill we demonstrate and foster in the student cohorts.



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## Facilitating viable strategic and collective action

Understanding how to structure, support and facilitate collective action in desired directions for change is another specific leadership skill for driving systemic change. Viable pathways and new interconnections/assemblages/cybernetic feedback cycles can be developed for future complex systems operations leading processes of managing alignments and opportunities. This requires convening and communicating skills including storytelling<sup>49</sup> and deep listening as a basis for facilitating cybernetic conversations<sup>50</sup> as a platform for change. These all feature in our program.

## Navigating and supporting creative tensions

Understanding and providing tools for respectfully disrupting assumptions, developing multi-sensorial and multi-perspective awareness and encouraging it in others to acknowledge where tensions might stem from and that all sides hold particular values and beliefs; learning to boundary span, connect and translate between multiple languages and to acknowledge the system viability benefits of the hybrid.



## Next steps: scaling capability

The individual transformations prompted by the experimental Masters program have been stark and ground-breaking, but educating 10-20 students each year is not enough. Our work now is to take the insights generated and replicate them in smaller engagements - from festival-type embodied experiences, to online community courses, to online video "rabbit holes", to social media snippets. The question is: How do we scale skills for leading change?

The next phase of our work with the Menzies Foundation will focus on putting into practice the ideas that have been surfaced through our experiments, research, conceptualisation and conversations, and importantly, this paper.

We will explore vectors of change, including connecting with our Masters alumni group, and other alumni groups around Australia, to identify how their

individual transformation has translated into their work and community contexts, particularly in the context of the work the Menzies Foundation is exploring in "movement building".

Like any good system, effective leadership training must engage with:

- *What* capabilities we are seeking to strengthen and *why* (the first part of this paper)
- *How* we will do it (the second part of this paper)
- *When* and *where*, and with *whom* (the focus of our next steps on this journey)

We look forward to bringing you these next steps, where there will be far less reading and much more transformational experience gathering!

ANU School of Cybernetics, February 2022



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**Graphic design:**

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**Suggested citation:**

ANU School of Cybernetics (2022)  
Re/defining Leadership in the 21st century:  
the view from cybernetics, A white paper  
developed by the ANU School of Cybernetics  
powered by The Menzies Foundation, Australian  
National University & Menzies Foundation,  
Canberra, Australia.





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