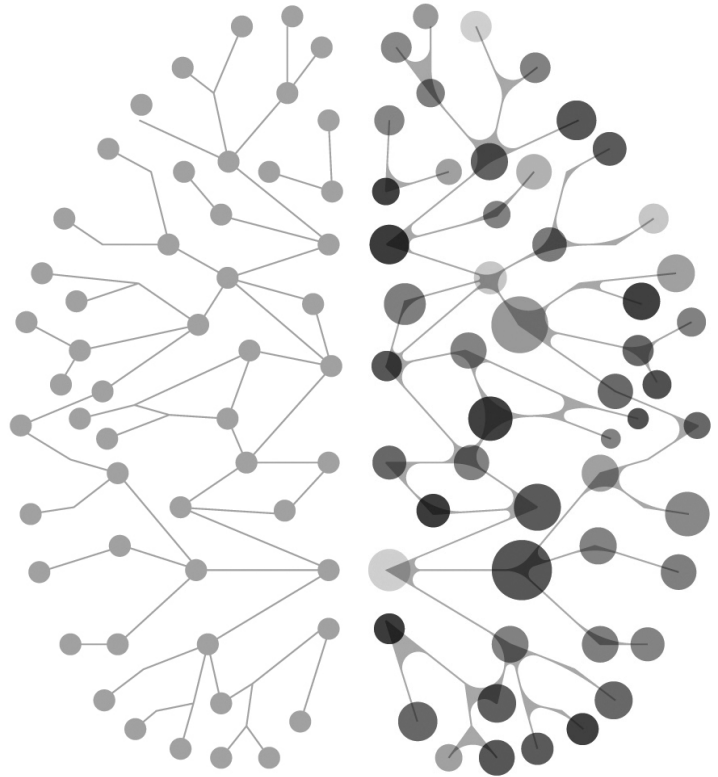


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ARTICLE

# HOW INDIGENOUS WISDOM CAN SUSTAIN HUMANITY

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**Ancient self-governing practices of Indigenous Australians demonstrate how modern society can achieve sustainable wellbeing for the environment and humanity. No other existing culture has a longer record. Governance scientist Dr Shann Turnbull and human and earth rights advocate Prof Anne Poelina explain how Indigenous practices can contribute to a new model of corporate governance to benefit all stakeholders.**

## INTRODUCTION

The ancient decision-making practices of Indigenous Australians can provide a way for modern society to learn how to achieve sustainable wellbeing for our environment and humanity.<sup>1</sup> Aboriginal Australians have created ways to nurture and sustain both their environment and themselves through intimate symbiotic relationships for over 65,000 years. This is more than any other culture in the world. Indigenous knowledge and practices of self-regulation and self-governance involve cultural landscapes, biodiversity, transdisciplinary sciences, wisdom and high culture.<sup>2</sup>

There is much to learn from these Indigenous practices, yet they are not taught in modern educational institutions. This represents an intellectual void in universities' teaching management, public administration and business. There is much to learn if universities are willing to understand, synthesise and distribute proven Indigenous relationist practices.<sup>3</sup> That this void needs to be filled urgently is clear from Richards and Pierce's article 'Climate change is the most important mission for universities in the 21st century',<sup>4</sup> which emphasises the importance of sustainability education.

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1. Poelina, 2020

2. Lim, 2016

3. Ostrom, 1990; Redevers et al., 2020

4. Richards and Pierce, 2020

Incorporating Indigenous wisdom requires a significant shift in thinking for social sciences. While engineering students are educated in how to design, build and operate self-regulating and self-governing automobiles and spacecraft, social science educators centre their teaching and research around a socially constructed concept not found in natural systems described as 'economic value'. But what does economic value mean? Astoundingly, neither economists nor accountants have established a standard unit of value. Instead, the relative value of currencies is determined on a subjective speculative self-referential basis concerned with the expected relative strengths of the relevant national economies. Value is not defined by any one or more specified goods or services. Prices represent a social construct not defined by anything real in the natural world. This makes prices – and value – disconnected from the wellbeing of individuals, humanity and/or the environment.

It is unbelievable to Indigenous Australians that modern society is governed by such a disconnected social construct. It makes no sense. It is especially mysterious that markets can still be accepted as a governance mechanism when market failure is endemic. Back in 1937, Ronald Coase<sup>5</sup> explained that firms exist because markets fail to produce complex components. In 2009, Lord Stern<sup>6</sup> reported that 'Climate change was the result of the biggest market failure the world has even seen'. From an Indigenous perspective, modern society is sleepwalking into what Bradshaw<sup>7</sup> describes as a 'ghastly future'.

This article builds on the work of Nobel Prize winner Elinor Ostrom and her design principles for creating self-governing 'common pool resources'. It discusses how these principles can be enhanced and applied to ameliorate the 'ghastly future'.

Specifically, it outlines how the design principles can be enhanced to also:

1. recognise Indigenous wisdom, relationships and practices;
2. apply to incorporated organisations to create a new model of corporate governance to provide benefits for all stakeholders that could then be distributed globally;
3. introduce features revealed by systems science that allows creatures to become self-regulating, self-managing and self-governing;
4. identify a politically compelling tax incentive for shareholders to adopt stakeholder self-governance with the incentive cost paid by tax payments from stakeholders, reducing welfare payments and the cost of government regulation.<sup>8</sup>

The principles create a basis on which to introduce a universal wellbeing income from corporate dividends. Corporations would provide benefits for all stakeholders by becoming agents for reducing environmental and existential risks for humanity.

The article also examines a barrier to the widespread application of the design principles. This is an education barrier; in that graduate schools are educating our most gifted leaders of the future to lead centralised command-and-control hierarchies adopted by political dictators. This approach undermines democracies and explains why the number of democratic nations in the world is reducing.<sup>9</sup>

Contrast this to the organising principles of Indigenous society. Imagine any group of individuals using modern technology to organise a festival lasting over a week, without any, script, musical scores, or dance choreography, and involving more than 500 individuals speaking many

5. Coase, 1937

6. Stern, 2009

7. Bradshaw, 2021

8. Turnbull, 2021e

9. Zelinsky, 2021

different languages without rehearsals. Corroborees of this complexity were organised without newspapers, mail, phones, faxes or internet despite participants needing to know months in advance to undertake weeks of travel to arrive at the right time at the right place and then self-organise their catering and accommodation. Activities were determined by relationships based on language, Country, kinship, skin, moiety, totems and nature of the ceremony. The nature of the ceremony also determined the relevant songlines, stories, trade, hunting and food sharing.

Indigenous co-author Anne Poelina has participated in sharing the wisdom of such complex events through travel guided by celestial and seasonal environmental signs to find the ceremonial location at the specified time. Poelina has witnessed the processes of self-management based on the art of both diplomacy and sometimes retribution. The processes involved assigning areas for camping, hunting, ceremony or other activities.

Biological researchers routinely observe that all forms of life are self-organising. There are countless ways animals, plants and other forms of life become self-regulating<sup>10</sup> and self-governing without any centralised system of communications, control and decision making. However, these possibilities for social organisations are typically beyond the comprehension of management scholars.

Management research and education is almost exclusively based on hierarchies. Carucci<sup>11</sup> described how they can create a 'toxic culture'. An endemic problem of hierarchies is that they lack reliable systemic feedback for 'building trust'.<sup>12</sup> Turnbull and

Guthrie<sup>13</sup> argue that 'hierarchies can only manage complexity incompletely' because they 'lack reliable communication and control channels'. The problems of hierarchies were identified by Dee Hock, the founding Chief Executive Officer of the stakeholder-controlled VISA corporation. Hock designed the corporation to possess hundreds of boards within a single legal entity to create what Ostrom<sup>14</sup> describes as 'polycentric governance'. Polycentric governance allows a requisite variety of decision-making centres, communication and control channels to be introduced to allow the governance architecture of organisations to become consistent with the laws of nature.<sup>15</sup> These laws supports the views of Hock.<sup>16</sup>

**Industrial Age, hierarchical command-and-control pyramids of power, whether political, social, educational or commercial, were aberrations of the Industrial Age, antithetical to the human spirit, destructive of the biosphere and structurally contrary to the whole history and methods of biological evolution. They were not only archaic and increasingly irrelevant; there was a public menace.**

There is no word for 'hierarchy' in the hundreds of Aboriginal languages – there is no need for one. There were no 'Lords' ruling Aboriginal people to extinguish what Lilienthal and Ahmad<sup>17</sup> describe as 'allodial' title. Rather 'land owns people' in a reciprocal relationship.<sup>18</sup> Here Aboriginals are 'ownees' of the land,<sup>19</sup> a concept that makes explicit that Country is not just what Ostrom and other modern scholars refer to as a common pool resource to be exploited but a relationship that

10. Turnbull, 2008a, 2014a

11. Carucci, 2018

12. Fritz, 2019, p. 18

13. Turnbull and Guthrie, 2019, pp. 60, 63

14. Ostrom, 2009

15. Turnbull, 2002b, 2008a, 2014b; Turnbull and Guthrie, 2019

16. Hock, 1995, p. 7

17. Lilienthal and Ahmad, 2018

18. Turnbull, 1986

19. Turnbull, 1980, pp. 163, 164

introduces non-negotiable obligations to care for Country. In a *Global Review*, Voss<sup>20</sup> states: 'Local residents conceive of their relationship to land in terms of heredity: land is related to their forebears, themselves and their children yet unborn'. This deep relationship need not frustrate sharing other types of property rights – it is consistent with what Ostrom identified in her principles to facilitate modern self-governance of natural resources.

This is because Indigenous Australians are taught and governed in a symbiotic relationship with nature. Their governing laws are based on their Dreaming songs, language stories, environmental totems, moiety, skin, tribe, clan and customary law of obligation to protect human and non-human entities co-existing with their ancestral Country. These natural realms of governance are not recognised in modern societies,<sup>21</sup> just as hierarchies are alien to Indigenous Australians.<sup>22</sup> The bottom-up decision-making processes by the owners of Groote Eylandt were recognised in a report to the Australian Parliament.<sup>23</sup> The report noted that: 'Aboriginals of Groote Eylandt are reputed to be some of the most firmly committed to their traditional culture' and 'the conduct and discussions at the meeting provided unequivocal evidence that Aboriginals who are committed to traditional ways are equal to if not superior to white communities in managing their money'.

However, economists have educated modern humans to discount the future to maximise their undefinable totem of 'economic value'.<sup>24</sup> This narrow view makes it impossible to account for the wellbeing of future generations, unlike Indigenous

societies, who are known to consider the wellbeing of their seventh generation.<sup>25</sup> But times are changing and there is now a growing awareness among leading economists of the shortcomings of economic metrics – a promising alternative approach has been developed by the Organisation for Economic Co-operation and Development,<sup>26</sup> which has developed metrics of individual wellbeing.

Humans who survive future centuries will find it difficult to explain how our current society failed to apply its profound knowledge to maintaining the health and wellbeing of our home, the planet, instead allowing the poisoning of soils, water and atmosphere to such an extent as to reduce biodiversity and the ability of the environment to support its inhabitants. The degradation of the global environment has many interconnected complex relationships that can only be countered by addressing them together. Simplifying such complexity reliably, quickly and comprehensively requires all members of humanity to become involved.

Life cannot exist without knowing how to survive, thrive and reproduce in complex, dynamic environments. For most modern individuals, these complexities mean different ways of understanding, feeling, hearing and participating are required. Albrecht<sup>27</sup> highlights that the English language 'speaks out' about nature and environments as if these concepts are separate from people. Indigenous languages, on the other hand, describe complex networks of relationships that are place-connected, lawful, spiritual, physical, cultural and intuitive.<sup>28</sup>

20. Voss, 1975

21. Whyte, 2017

22. Turnbull, 1980, p. 9

23. Turnbull, 1980, p. 15

24. Turnbull, 2019b

25. Warner, 2015

26. OECD, 2021

27. Albrecht, 2019

28. Poelina, 2021

By embracing these complex 'systems thinking' approaches,<sup>29</sup> we can develop solutions to society's big problems together.<sup>30</sup> These problems include overpopulation, economic inequality, biodiversity loss and the pollution of oceans, the atmosphere and soils. Such problems require transformative learning that recognises humans as part of multi-species ecosystems, from early childhood and throughout education from primary school to university and lifelong unlearning and learning.

An important contribution of this article is in identifying how Aboriginal practices can become literally 'incorporated' into modern corporations to reduce planetary problems for humanity. This also creates a compelling way to respect and protect Aboriginal 'laws and culture', as promoted by Stoianoff<sup>31</sup> and her work with the Indigenous Knowledge Forum.<sup>32</sup> We do so by finding a new way of talking about governance, consistent with the language of the US Vice President Al Gore, who in 1996 recognised the efficacy of natural forms of governance that we describe as 'ecological'.<sup>33</sup> Gore<sup>34</sup> suggested that governments should be 'imprinting the DNA' of society and that: 'evolution could offer insight into our social structures. But at the moment, we lack the vocabulary even to begin such discussions'.

A vocabulary has now developed with words such 'holon', 'holarchy' and 'tensegrity', described by Turnbull and Guthrie.<sup>35</sup> These systems science words are used in the third section of this article, where we identify 'alternative to hierarchies' for designing organisations. Before that, we outline the operational

problems of hierarchical organisations. We go on to discuss how tax incentives can be used to transform existing corporations to adopt 'ecological governance' in section four, with section five outlining the consequences of introducing ecologically governed institutions into modern society.

## OPERATING PROBLEMS OF HIERARCHICAL ORGANISATIONS

### Methodology

Coase<sup>36</sup> pioneered a theory of firms, limiting his analysis to organisations established as 'an authority system', like an employee ~ employer relationship, to form a hierarchy. Coase argued that firms arise when markets fail to communicate qualitative information to construct complex items. Williamson<sup>37</sup> extended the work of Coase but limited his analysis of firms to 'markets and hierarchies'. Williamson introduced Transaction Cost Economics (TCE) as his method of analysis. As noted above, economic value – and so costs – cannot be defined in terms of any one or more tangible thing. Difficulties in defining transactions compound the lack of rigor of TCE.<sup>38</sup> TCE was subsumed and extended by Transaction Byte Analysis (TBA) introduced by Turnbull.<sup>39</sup> As bytes are perturbations in energy and matter that make a difference, TBA established 'The Science of Governance'<sup>40</sup> and 'The Science of Corporate Governance'<sup>41</sup> to ground elements of social science in the natural sciences. In this way, TBA extended the remit of cybernetics to the universe and all its systems.<sup>42</sup> It subsumes and extends the remit of

29. Turnbull, 2021d

30. Yunkaporta, 2019

31. Stoianoff, 2021

32. Indigenous Knowledge Forum, 2014, 2018

33. Turnbull, 1992, 2014b, 2015, 2018, 2020, 2021d

34. Gore, 1996

35. Turnbull and Guthrie, 2019

36. Coase, 1937

37. Williamson, 1975

38. Barney and Ouchi, 1986, p. 8

39. Turnbull, 2000b

40. Turnbull, 2008a

41. Turnbull, 2002b

42. Turnbull, 2021d

**TABLE I: COMPARISON OF TCE AND TBA BOUNDARIES<sup>43</sup>**

A FRAMEWORK OF ANALYSIS	TCE (COASE/WILLIAMSON)	TBA (DEVELOPED BY TURNBULL)
1. Type of social institution	For-profit firms, not labor managed	Within and between all forms of life, including any type of firm
2. Subject of analysis	Transactions and their costs	People and the quanta (bytes) of data they process
3. Relationship of people	Master/servant or competitive	Any e.g., family, cooperative, competitive, associative, etc.
4. People behaviour	Self-interest	Any e.g., altruistic, self-interest, etc.
5. Objectives	Economizing costs	Anything (for firms, economizing the transaction of bytes with errors correction)
6. Basis for objective	Normative	Physiological limits in transacting bytes
7. Modes of governance	Markets, hierarchies and hybrids of both	Any combination of clans/communities, associations, hierarchies, or markets
8. Communication and control through:	Markets and hierarchies	Senses, semiotics, language and numbers
9. Firms exist because:	Markets fail to provide information	Two or more people can reduce 'bounded rationality' and allow specialization in skills and/or knowledge

the Williamson methodology from hierarchical organisations to any type of social organisation for any form of life (see Table I).

TBA provides an alternative theory of any type of firm.<sup>44</sup> It also provides a methodology for grounding the analysis of decision making, communication and control within and between any forms of life, including plants or physical processes in the universe. Plants highlight how the architecture of their growth and behaviour described by Wohlleben<sup>45</sup> can be governed by changes in the shape and configurations of their cellular parts, as identified by Ingber.<sup>46</sup>

### Systemic Problems of Hierarchies

At least four systemic dysfunctional physical problems are identified in simple centralised command-and-control hierarchies:

1. 'bounded rationality'<sup>47</sup> with data overload by centralised decision makers without error correction mechanisms that lead to the delegation and the implementation of decisions to subordinate levels to form a hierarchy and additional problems outlined below;
2. data losses, biases and distortions from subordinate level feedback without error correction processes;<sup>48</sup>

43. Adapted from Turnbull, 2000b

44. Turnbull, 2000b, 2022

45. Wohlleben, 2017

46. Ingber, 1998

47. Simon, 1972

48. Shannon, 1948

3. discretionary interpretation by subordinates in determining the details of how to implement superior level communications without error correction processes;<sup>49</sup>
4. absence of systemic external feedback channels to detect mismanagement, misconduct and malfeasance independently of those responsible.<sup>50</sup>
4. behavioural tensesgrity by employees and agents is suppressed, inhibited, prohibited and punished to frustrate discovery of superior operating processes;
5. behavioural tensesgrity by the organisation is denied, frustrating the identification of novel ways to adjust to complex dynamic environments.

In addition, at least five behaviour problems are identified as arising from the power relationships inherent in simple centralised command-and-control hierarchies. As noted by Hayne,<sup>51</sup> institutions act unlawfully 'because they can', and this arises as 'there is always a striking asymmetry of power and information'. These problems arise from the following:

1. centralised decision making introduces absolute power<sup>52</sup> for the decision-making individuals to identify and manage their conflicts of interest to corrupt themselves, their organisation, its stakeholders, and society;
2. blind obedience to authority by subordinates creates 'groupthink',<sup>53</sup> to deny the adequate variety of reliable feedback;
3. excess exploitation of subordinates to alienate them as loyal cooperators and so reliable communication and control agents;

The use of authority as described above creates 'toxic' relationships, as identified by Carucci,<sup>54</sup> to aggravate systemic dysfunctional physical data processing. There are several ways the exploitative characteristics of hierarchies can be mitigated or eliminated. These are considered next.

### Alternatives to Hierarchies

There are various alternatives to hierarchies to consider. These include Viable Systems Model,<sup>55</sup> Syntegrity,<sup>56</sup> Sociocracy,<sup>57</sup> Second Track,<sup>58</sup> Holacracy,<sup>59</sup> Heterarchy,<sup>60</sup> polycentric governance,<sup>61</sup> Holarchy,<sup>62</sup> Ecological governance<sup>63</sup> and various hybrids forms. Each describes some form of decentralisation and bottom-up decision making. All can provide valuable alternatives and adjuncts to simple hierarchies.

Syntegrity operates at the smallest scale, involving typically up to 30 individuals, VSM, Sociocracy and Second Track, at a larger scale. Heterarchy and

49. Ashby, 1956; Downs, 1967

50. Ashby, 1956

51. Hayne, 2018

52. Acton and Fears, 1985

53. Fink, 2018

54. Carucci, 2018

55. Beer, 1995

56. Beer, 1994

57. Rau, 2021

58. Fritz, 2021

59. Kettering, 2020

60. McCulloch, 1945

61. Ostrom et al., 1961

62. Mathews, 1996

63. Turnbull, 2015



polycentric governance are applicable for associating several organisations or entities. Holarchies, by definition, are a network of almost self-governing 'sub-systems'<sup>64</sup> that Smuts<sup>65</sup> described as 'Wholism', Koestler<sup>66</sup> described as 'Holons', and Hock<sup>67</sup> described as 'Chaords'. Simon<sup>68</sup> was describing holons when referring to 'nearly decomposable systems in which the interactions among sub-systems are weak, but not negligible', 'the existence of stable intermediate forms',<sup>69</sup> and what Turnbull<sup>70</sup> described as 'almost self-governing components'.

While Mathews<sup>71</sup> does not use the word tensegrity, he recognises its existence and describes its various contrary ~ supplementary behaviours. He identifies these as defining features of holons and their holarchies. This makes holarchies radically different from all the other alternative forms of organisations. Likewise, Ingber<sup>72</sup> does not use the words holon or holarchies but recognises their existence by referring to holons as 'systems' and holarchies by pointing out that our bodies are 'organised hierarchically as tiers of systems within systems'.

Crucially, Ingber notes that the 'rules of self-assembly' allow new emergent properties to arise that do not exist in the parts of the whole. In this way, he considers tensegrity as the design rules for creating and building various life forms to support the title of his article as 'The architecture of life'.<sup>73</sup> This provides another reason why holarchies are radically different from other forms of organisations.

Five case studies of polycentric governance are presented by Turnbull.<sup>74</sup> Two are US-based, the plywood cooperatives and the American Cast Iron and Pipe Company, another two are UK-based, the Scott-Bader Commonwealth and the John Lewis Partnership (JLP), and one from Spain, the Mondragón Corporación Cooperativa (MCC). Other examples recognised were a Japanese Keiretsu and VISA Inc in the US. Bernstein's<sup>75</sup> global study of cooperatives suggested that unless distributed decision making of polycentric governance was introduced, stakeholder governed firms would not survive.

The JLP, MCC and VISA cases provide evidence of polycentric governance's resiliency, competitiveness and operating advantages. They all survived several business cycles over the last half century. Their existence also demonstrates that no change in public law is required, only changes in the private law of corporate constitutions.

### Initiatives for Change

We describe below how shareholders who change their corporate constitutions to adopt an ecological form of polycentric governance could be provided with self-financing tax advantages.<sup>76</sup> A distinguishing feature of ecological governance is that it introduces dynamic time limits on property rights to reduce overpayments to investors and free carried interests from owning, *but not using rights*, to land, buildings, enterprises and/or currencies.<sup>77</sup>

64. Simon, 1962

65. Smuts, 1926

66. Koestler, 1967

67. Hock, 1999

68. Simon, 1962, p. 474

69. *Ibid.*, p. 472

70. Turnbull, 2000b, p. 130

71. Mathews, 1996

72. Ingber, 1998, p. 30

73. Ingber, 1998

74. Turnbull, 2000b

75. Bernstein, 1980

76. Turnbull, 2021a, c

77. Turnbull, 2018

The tax incentive to change corporate constitutions would allow Ostrom's design principles to be enhanced to become an ecological form of polycentric governance as found in nature to:

1. explicitly recognise the need to follow Indigenous practices of bottom-up distributed decision making;<sup>78</sup>
2. apply polycentric governance design principles not just between organisations but also *within* incorporated organisations by amending their constitutions;
3. introduce the need to establish systemic contested decision-making processes to introduce tensegrity to generate a requisite variety of decision-making centres and associated communication and control channels to allow self-regulation, self-management and self-governance as found in nature;
4. introduce dynamic property rights to limit
  - a. the ability of investors to become overpaid with 'surplus profits'<sup>79</sup> in a way accounting doctrines do not report because they do not recognise investor time horizons, and
  - b. the size of organisations to human scale.

The above enhancements allow polycentric governance to mimic nature's process of 'use it or lose it' to establish an ecological form of governance. Indigenous Australians did not create artificial corporate bodies that over-rule nature with rights of perpetual succession. British sovereigns used these rights to privatise the building of the British empire.<sup>80</sup> As an integral component of nature, they naturally obtained non-negotiable heredity obligations of perpetual succession.

In this way Australian Aboriginals were taught and governed intimately by nature through their Dreaming relationships,<sup>81</sup> songs, language stories, Country, totems, skin groups and moieties. Governance was celebrated and self-regulated through reciprocity, songlines, trade, ceremony and marriage exchange.<sup>82</sup> Rather than possessing land rights, Indigenous societies saw themselves as being from and of the Country in their Dreaming songlines. These created collective obligations, values, ethics, and responsibility for caring for Country.

First Nations people had a much more powerful and non-negotiable relationship with Country than any British 'Lord' or Sovereign could claim, recognise or grant to any individual in Britain, let alone in any other place. Aboriginal relationship to and for the land is more than 'allodial' as described by lawyers Lilienthal and Ahamd.<sup>83</sup> They were constrained by the limits of their English language that did not contain the word 'ownee'. However, in the last paragraph of their article, Lilienthal and Ahamd<sup>84</sup> conclude that introducing a foreign legal custom to a new land would fail for lack of prescription. This view supports the superior relationship of Indigenous people with the Country of their birth.

As pointed out by Mary Graham:<sup>85</sup>

**Because the land brought us into being and continues to keep us alive and protected, we're forever obliged to look after it, but it is more than a duty, it's brought us into the sacred *relational*, the embedding of ethics, morality, empathy in us, that is, acquiring the condition of being worthy of what is proper.**

**Foundational Principle. To the extent that the Land is the source of the Law, Aboriginal Australia said to the people: "co-operate,**

78. Thurston and Fernández-Götze, 2021

79. Turnbull 2000a, p. 403

80. Turnbull, 1973, 1975, 1991b, 1998, 2002a, 2003b, 2014a, 2020

81. Lilienthal and Ahmad, 2018

82. Woolltorton et al., 2020

83. Lilienthal and Ahmad, 2018

84. Ibid.

85. Graham, 2009

don't compete; share, don't hoard; attend the consensus; extend your relationships; look after Land and Honour your Sacred sites". It is a Law, which requires an a historical view of time."

**The idea and practice of Obligation gives to human society a greater return, for observance and adherence to the tradition, such as – nourishment / health, meaning, a flourishing society, security, protocols and above all, well-being assurance for future generations.**

Aboriginals obtained their law from nature that included Country described in their Dreaming songlines and all other living things with the voice of reason and logic.<sup>86</sup> The jaybird provides an example of how Aboriginals follow the practices found in nature. It 'eats acorns and beechnuts but buries a multitude of them as it does so, ensuring that the trees can multiple more efficiency with it than without it'.<sup>87</sup> This place-based efficiency with Country continues to be managed by seasons in deep relationships, connectedness, ecological learnings and meaning and is a lesson for sustaining lifeways from nature.<sup>88</sup>

Ostrom<sup>89</sup> recognised different types of property rights, but her design principles did not because property rights were not relevant to common pool resources. Ostrom and scholars use the term common pool resources to describe the *passive* resources of nature. This is why recognising and incorporating common pool resources introduces a new dynamic in global risk management. It means all humanity must recognise their environmental obligations.

## Corporations as Agents of Change

Corporations could become a crucial means for residents 'amplifying regulation'<sup>90</sup> that would also allow them 'regulating the very large system'<sup>91</sup> that is the planet. These two cybernetic processes are crucial because 'The law of Requisite Variety, like Conservation of Energy, absolutely prohibits any direct and simple magnification, but it does not prohibit supplementation'<sup>92</sup> to regulate complexity. Corporations can magnify regulation by engaging with a requisite variety of supplementary co-regulators. There is an insufficient number of governments in the world to provide a requisite variety of co-regulators to manage the complexities of the interrelated varieties of environmental degradations comprehensively and reliably without a requisite variety of supplementary co-regulators.

To provide an example of how corporations can be agents of change, as a business entrepreneur, Turnbull designed the constitutions of several public companies that included elements of polycentric<sup>93</sup> and/or ecological governance.<sup>94</sup> Separate decision-making centres were established in the constitutions of two firms to illustrate a first step in creating polycentric governance. One of these ventures, and two others, illustrated an element of ecological governance by limiting investor property rights to 15 years or less. Each raised millions of dollars, with two becoming publicly traded.

Turnbull<sup>95</sup> also introduced polycentric governance when he incorporated the controlling body of skiing in Australia in 1978. The unincorporated national body was a federation of self-governing state councils. Federating the self-governing components formed polycentric self-governance

86. Nangan and Edwards, 1975

87. Wohlleben, 2017, p. 72

88. Woollorton et al., 2020

89. Ostrom, 2009

90. Ashby, 1956, p. 265

91. Ashby, 1956, p. 244

92. Ashby, 1956, p. 268

93. Guthrie and Turnbull, 1995; Turnbull, 1995, 2002c, 2014b, 2021c; Turnbull and Guthrie, 2019; Turnbull and Myers, 2017

94. Turnbull, 2000a, 2002a, 2014a, 2015, 2018, 2020, 2021c

95. Turnbull, 2020, p. 7

at the state level. Each self-governing state organisation represented a 'holon' that competed in ski races but cooperated administratively to form the national body. State councils were made up of self-governing clubs that competed against each other and cooperated to create a three-level holarchy. The national body likewise represented a holonic component, extending the holarchy through to the international controlling body of the sport that federated with other international controlling sporting bodies of other sports to create the Olympic Committee. This five-level holarchy from the local to the global level was made up of self-governing components. The component holons did not have to invoke the need for 'markets and states', as Ostrom<sup>96</sup> noted in her Nobel Prize acceptance speech.

In 1978, Turnbull<sup>97</sup> created polycentric governance at the national level when he amended the constitution of the non-profit Company Directors Association of Australia. It had been incorporated with a single board in 1967. The new constitution likewise created a federation of polycentric self-governing chapters in each geographic state or territory of Australia. In 1990, the association became the Australian Institute of Company Directors. It maintained a watered-down version of polycentric governance but still attracted a far greater membership than the centrally controlled sister organisations in the UK and the US that have much larger populations to service.

There are numerous professional, trade, community service, civic, and even some religious, organisations that illustrate bottom-up polycentric self-governance. Problems arise when constituent organisations grow to form command-and-control hierarchies to become internally hybrid organisations.

Until universities begin educating governance architects to custom design polycentric self-governance, this paper restricts itself to a tax incentive that only introduces a hybrid form of ecological self-governance. Details of this are outlined in the next section.

## INTRODUCING AN EQUITABLE, SUSTAINABLE ECONOMY

### Tax Incentive

This section explains how a tax incentive can be used to begin turning the existing corporate 'pyramids'<sup>98</sup> of power upside down to create an equitable, eternally sustainable democratic society. Shareholders are provided tax advantages on the condition that they make three changes to their corporate constitutions, as explained below. The changes introduce an ecological form of polycentric governance to 'benefit all stakeholders'.<sup>99</sup> Stakeholders obtain a voice to become bottom-up co-regulators to enrich democracy.<sup>100</sup> However, shareholder primacy is maintained because all stakeholders can automatically become shareholders as part of transforming corporations to promote the common good for all citizens. As noted above, this makes corporations a 'common pool resource'.

The tax incentive provides shareholders with a more significant, quicker profit with less risk in return for them endowing a small fraction of their equity each year to a new class of 'stakeholder' shares.<sup>101</sup> Institutional investors would obtain a legal obligation to support arrangements that increased their returns.

Unlike leveraged employee share ownership share plans (ESOP), stakeholder shares would not require debt financing. This simplifies their creation and

96. Ostrom, 2009

97. Turnbull, 2021c, p. 7

98. Berger, 1974

99. Fink, 2018

100. Givens, 1991; Turnbull, 2021e

101. Turnbull, 1975, 2002a, 2003b, 2014a, 2018, 2020, 2021c

allocation to only voting citizens. Stakeholder shares would be funded by the corporate constitution, automatically endowing a specified small fraction of shareholder equity each year by a book entry to stakeholder shares. This illustrates the concept of 'dynamic' property rights proposed by Turnbull<sup>102</sup> that creates a way for *Democratising the Wealth of Nations*.<sup>103</sup> Dynamic property rights also provide a simpler way to privatise socialism to create a stakeholder economy. For this reason, Turnbull was invited to Prague in 1990 and 1991 and to Beijing in 1991.<sup>104</sup> Translations of his papers were published as Turnbull.<sup>105</sup>

### Simplifying and Expanding Existing Processes

The endowment of stakeholder shares could also be used to simplify the creation of ESOPs. Over 10% of US nongovernment employees own shares in their employers valued at \$1.4 trillion.<sup>106</sup> This citizen ownership of shares has been promoted by tax incentives. However, the incentive for political leaders to create stakeholder shares is many times greater. This is because *all* citizens become eligible for benefits, not just those employed in ESOP companies. The possibility exists that the current loss of revenues from promoting employee share plans could be more than offset by introducing stakeholder endowment incentives.

This possibility arises because citizens can pay tax at higher rates than corporations to allow governments to raise more revenue than the cost of the incentive. In any event, a process is established for distributing wealth with less taxes

and less welfare payments to shrink the size and cost of government. These additional savings could provide additional ways to finance the tax incentive. Stakeholder governance also provides a way to privatise the cost of regulation to further reduce the size and cost of government.<sup>107</sup> A compelling incentive is created for political leaders because all their constituents could obtain rights to a universal wellbeing dividend income.<sup>108</sup>

The amended corporate constitutions would introduce 'A new model for corporate governance',<sup>109</sup> as suggested 16 years later by Larry Fink.<sup>110</sup> Fink is the CEO of BlackRock, which manages around 10% of the value of all publicly listed corporations worldwide. BlackRock is the world's largest asset manager, with over \$9 trillion in assets under management as of July 2021. Fink is a shareholder of corporations employing the CEOs of the Business Round Table.<sup>111</sup> As stakeholder shares can only be issued to citizens, a process is also created for increasing local ownership of foreign businesses. In this way, local economies become richer by reducing alien ownership. Penrose<sup>112</sup> noted that foreign investment creates 'the acceptance of an unlimited, unknown and uncontrollable foreign liability'. They create 'surplus' profits for investors that accountants cannot report because they do not identify investor time horizons.<sup>113</sup>

Stakeholder shares can localise the ownership and control of corporations into the regions hosting their stakeholders and being endowed with their equity. This improves corporations'

102. Turnbull, 1973

103. Turnbull, 1975, p. 83

104. Turnbull, 1991a

105. Turnbull, 1990, 1991b

106. NCEO, 2021, <https://www.nceo.org/articles/employee-ownership-by-the-numbers>

107. Turnbull, 2008b, 2021b, c

108. Turnbull, 1975

109. Turnbull, 2002a

110. Fink, 2018

111. BRT, 2019

112. Penrose, 1956, p. 235

113. Turnbull, 2000a, p. 403

accountability and ability to protect and nurture their host environments, as is also wanted by Fink and predominantly Indigenous Australians. Besides serving all stakeholders, Fink<sup>114</sup> wants corporations 'to engage with shareholders like BlackRock and bring other critical stakeholders to the table'. This makes good business sense as it provides a way to improve business operations, as identified by Porter.<sup>115</sup> Also, as Von Hippel<sup>116</sup> reports, stakeholders can provide a way to add value from customer suggested innovations. This approach could be extended to all stakeholder constituencies to obtain continuous constructive feedback to add mutual value and avoid harms.

Notably, the formal establishment of self-elected stakeholder advisory committees and qualified advocates creates a process for introducing self-regulation to reduce the role and intrusiveness of government regulators. To encourage the privatisation of regulation from stakeholder regulation, corporate constitutions could make provisions to form, resource and recognise the voice of stakeholder committees.<sup>117</sup> US-based Citizen Utility Boards, which have operated for generations, illustrate this process because they add value.<sup>118</sup> Further, the cost of resourcing stakeholders' voices could be recovered many times over by reducing fines from regulators. These are hundreds of million of dollars per year, except in financial services, which incur billion-dollar fines per year.<sup>119</sup> Stakeholder committees would also eliminate the cost and questionable integrity of internal corporate customer advocates and ombudsmen. So many corporations now employ internal ombudsmen that they now have an International Association.<sup>120</sup>

Fink also wants corporations that are 'less likely to succumb to groupthink and miss new threats'. New severe threats are now emerging from the degradation of global soils, water and atmosphere and losses in biodiversity. These threats have introduced risks to the global commons. Stakeholder committees and their advocates provide a loyal opposition to any groupthink by management. They can also act as 'the canary in the coalmine', sounding the alarm about both the state of known knowns, known unknowns, and the existence of unknown unknowns, such as may be arising from emerging environmental degradation.

To achieve the objectives of Fink<sup>121</sup> and the US Business Round Table<sup>122</sup> and to follow the bottom-up governance practices of Indigenous Australians, the tax incentive would be conditional upon shareholders introducing three changes to corporate constitutions. Shareholders would need to approve the following:

1. Establish a class of stakeholder shares that can only be issued to citizens recorded on electoral rolls of the host tax precincts of the firm. The shares automatically become endowed with equity according to the tax incentive provided with their negotiability subjected to stakeholder engagement and other conditions.
2. Establish a board of governors to simplify directors' duties significantly. This is achieved by replacing the need for directors to be exposed to personal conflicts of interest by being members of specific committees, such as nomination, remuneration and audit committees, and not having any creditable way of managing any other sources of personal conflicts.

114. Fink, 2018

115. Porter, 1992, pp. 11, 16, 17

116. Von Hippel, 1986

117. Turnbull and Guthrie, 2019; Turnbull, 2019a, 2020

118. Given, 1991

119. Violation Tracker, 2021, <https://violationtracker.goodjobsfirst.org/parent/jpmorgan-chase>

120. International Ombudsmen Association, 2021, <https://www.ombudsassociation.org/>

121. Fink, 2018

122. BRT, 2019

Personnel conflicts arise when a director chairs, and so controls annual meetings of shareholders, whose purpose is to hold directors to account by presenting their accounts.

3. Provide for creating and resourcing self-elected advisory committees for each stakeholder constituency and their employment of qualified advocates as described in articles by Turnbull.<sup>123</sup>

## OPERATIONS OF ECOLOGICAL CORPORATIONS

### Behavioural Changes in Corporations

This section outlines the dynamics of ecological corporations and how globally they can become responsible for managing the complexity of existential risks to society locally. As self-financing self-governing agents, they are able to engage with most people on the planet in most regions of the world. This provides a basis to collectively protect and nurture the complex inter-related integrity of the atmosphere, water, soils and biodiversity.<sup>124</sup> Crucially, stakeholders of ecological corporations can radically change their behaviour to reflect their innate individuality to exhibit and contribute the necessary variety to manage complexity. An outcome as noted above is inhibited, denied and punished in centralised command-and-control hierarchies.

At the local level, ecological corporations could introduce constant change in how corporations operate. Because shareholder equity is gradually diluted with stakeholder endowments, corporations will become highly motivated to distribute all their profits as promptly as possible to minimise diluting shareholder returns on their diluting equity. Cooperatives commonly adopt a total payout of profits. However, unlike cooperatives, corporate investors and their managers have incentives for adding value.

Adding value could be achieved by sponsoring newly incorporated 'offspring' firms' funding by re-investing dividends. Offspring firms provide a way to grow business activities. They also provide continuous opportunities for both investors and management. However, managers become continuously exposed to market forces to perform. This arises from the need to continuously obtain the confidence of their existing shareholders or such new ones that may be required to fund offspring firms to drive growth.

### Behavioural Changes in People

A process of constant change is introduced to change power relationships and personal incentives profoundly. Evidence from stakeholder governed firms like JLP and the MCC indicate that this leads to changes in behaviour and culture.<sup>125</sup> Stakeholder voices from various stakeholder constituencies of each firm would become publicly disclosed if corporations provided benefits to all. Disclosure of the identity of all beneficial owners of ecological firms would be continuous. This would make share trading self-regulating to allow firms to trade their own shares. The costs of being listed on a so-called 'public' stock exchange that denies public disclosure beneficial ownership would be eliminated.<sup>126</sup>

In addition, an increasing number of stakeholders would become shareholders to replace investors. Directors and their management would become accountable to key performance indicators (KPIs) set by the board of governors elected on one vote per investor rather than how directors are appointed on one vote per share. Democracy would counter self-serving, self-enriching plutocracy.

Stakeholder voice and advice on KPIs from the bottom-up would protect and strengthen citizens' voices to enrich civic democracy with corporate democratic oversight on how business operations

123. Turnbull, 2019a, 2020, 2021e

124. Turnbull, 2003a; Turnbull and Myers, 2017

125. Aviram, 2003

126. Turnbull, 2021b

are managed top-down. Self-governing stakeholder constituencies<sup>127</sup> would introduce what Ostrom<sup>128</sup> describes as 'polycentric governance' to introduce the self-governance of 'common pool resources'.

One of the most crucial advantages of bottom-up distributed decision making is that it allows individuals to maintain their identities to create self-respect and variety. Ostrom<sup>129</sup> reported how, in the 20th century, economists used simplistic and unrealistic models of how humans behave. By the end of the century, influential scholars like Jensen and Meckling<sup>130</sup> identified five static models of human behaviour. However, as Ostrom pointed out, behaviour is determined by context, so human behaviour is dynamic to make all five models irrelevant most of the time.

The context-dependency of human behaviour had been identified half a century earlier by Wearing, a professor of psychology. Wearing<sup>131</sup> reported that humans: 'Stands in an interactive cybernetic relationship to his/her community and environment and is changed as a result of any interaction', 'Sometimes competitive, sometimes collaborative, usually both' and 'Does not consistently order his/her preferences (i.e., changes his/her mind over time, may prefer A to B, B to C but C to A)'. These comments describe tensegrity.

Neurologists Kelso and Engstrøm<sup>132</sup> reported: 'Experiments show that the human brain is capable of displaying two contradictory, mutually exclusive behaviours at the same time'. Kelso and Engstrøm introduced the '~' notation adopted in

this article to indicate the paradoxical dual contrary ~ complementary interdependent relationships of tensegrity present in our brains; they list many other contexts.

Many do not meet the Mathews<sup>133</sup> test of being a holonic. However, Mathews notes 'biological structures are invariable holonic', and that 'evolutionary processes proceed through alternating periods of collaboration (association, symbiosis) and competition (variation and selection)'. In this way, tensegrity becomes the driver of evolution and so needs to be reproduced in any new emerging forms of increasing complexity for evolution to be maintained.<sup>134</sup>

Ingber<sup>135</sup> also expands the relevance of tensegrity to evolution and the universe as included in Table 2. This speculation has also been raised by quantum physicist Bohm.<sup>136</sup> Turnbull<sup>137</sup> uses the law of requisite variety to support this view. The phenomenon of tensegrity may also assist in reducing 'the mysterious neurobiology of human social interactions'.<sup>138</sup>

Ancient Chinese Philosophy used the term Yin ~ Yang to describe how two different and even contrary features can be interdependent with each other, like males ~ females. This is illustrated in Table 2 for the behaviour of humans, organisations and fundamental features of nature and the universe. The last three rows in the Table are an attempt to explain in the English language concepts that are alien to modern humans. As noted above, modern humans possess powerful

127. Turnbull, 1994, 2014a

128. Ostrom, 1990, 2009, 2012

129. Ostrom, 2009

130. Jensen and Meckling, 1994

131. Wearing, 1973

132. Kelso and Engstrøm, 2006

133. Mathews, 1996, pp. 48, 51

134. Turnbull, 2021d

135. Ingber, 1998

136. Bohm, 1980

137. Turnbull, 2021d

138. Fritz, 2021, p. 34



**TABLE 2: IDENTIFYING DUAL BEHAVIOUR OF HUMANS/BIOTA/HOLONS/HOLARCHY AND THE UNIVERSE**

DOMAIN	TENSEGRITY DRIVES BEHAVIOUR AND EVOLUTION	
<b>Chinese philosophy</b>	Yin ~	Yang
<b>Humans</b> (Representing a holon can become part of a holarchy or a hierarchy that is dysfunctional because it denies tensegrity)	Approach ~	Avoidance
	Cooperative ~	Competitive
	Trusting ~	Suspicious
	Selfless ~	Selfish
	Other behaviours ~	Other behaviours
<b>Holons &amp; Holarchies</b> (Represent ecologically governed organisations or structures)	De-centralised ~	Centralised
	Autonomous ~	Integrated
	Bottom-up ~	Top-down
	Ordered ~	Chaotic
	Other characteristics ~	Other characteristics ~
<b>Light</b>	Radiation/energy ~	Photons/matter
<b>Electrons</b>	Wave ~	Particle
<b>Quarks</b>	Up ~	Down
<b>Gravity</b>	Space ~	Time
<b>Universe</b>	Here/how ~	Where/when
<b>Dark matter/energy</b>	Where/then ~	Here/now
<b>Indigenous Australians</b>	Dreaming song-lines ~	Stories of languages
	Country ~	Totems
	Skin name ~	Moiety

governing social constructs like 'price' and 'value' that cannot be translated into Aboriginal languages as these concepts are not required to sustain their existence and wellbeing. Poelina et al.<sup>139</sup> identifies other concepts that are not relevant like 'markets and state', identified by Ostrom<sup>140</sup> and 'ownership' identified by Turnbull.<sup>141</sup> Aboriginals saw themselves as being created by their Country, so they became its decedents. This established a

much more powerful and integrating relationship of being an 'ownee'.<sup>142</sup> It introduced obligations to Country. Mission social worker, Margret Bain, cited in Turnbull,<sup>143</sup> noted that the Aboriginal 'approach to life is based on being rather than doing'. Also, they have no verb 'to have', they see white people as 'possessed by their property', and they have no word for 'thank you'.

139. Poelina et al., 2021

140. Ostrom, 2009

141. Turnbull, 1980, pp. 163, 164

142. Turnbull, 1986

143. Turnbull, 1980, pp. 56-58

**TABLE 3: HOW MIMICKING NATURE CAN MITIGATE SYSTEMIC PROBLEMS OF HIERARCHIES**

TOXIC PROBLEMS OF HIERARCHIES	MITIGATION BY MIMICKING NATURE
1 Society assumes top-down control is natural	Nature uses bottom/up control & top/down guiding
2 So no education about ecological governance with distributed control to simplify complexity	Complexity simplified with almost self-governing sub-systems dependent upon contrary guiding
3 Unitary boards obtain absolute power to identify and manage their own conflicts of interest to allow absolute corruption of directors, auditors, the business and society. Allows toxic leaders	Shareholders appoint one board to manage the business and another board to become integrity guardians to govern the corporation and represent all stakeholders & community views for investors
4 Group think arises from directors captured by CEO to hide risks, misconduct & malfeasance	Guardians of stakeholder voices obtain contested 'requisite variety' of data for checks and balances
5 Corporations can lie and/or mislead themselves about director independence	Directors' independence becomes irrelevant except for their relationship with Guardians
6 Directors capture auditors who judge their A/c	Guardians control auditors who judge director's A/c
7 Auditors lie that they are independent	Auditors kept independent by Guardians
8 Accounting doctrines hide how investors get overpaid beyond their investment time horizons with surplus profits creating hidden sources of inequality and stakeholder exploitation	Ownership of surplus profits distributed by corporations issuing shares to citizen stakeholders that democratizes wealth and power. Reduces the need for corporate taxes and welfare programs
9 Directors control advisors to shareholders	Shareholder advisors controlled by Guardians
10 Directors nominating themselves for election	Director nomination by shareholders & Guardians
11 Directors control their own pay after setting and marking their own 'exam papers' aka KPIs	Guardians determine director pay from Stakeholder Key Performance Indicators (KPIs)
12 Directors control reports about corporate impact on the environment, stakeholders and community welfare and their own governance	Stakeholders provide guardians with reports for shareholders on Guardians pay, corporate impacts on stakeholders, the environment and society.
13 Directors control how they are held accountable to shareholders at AGMs and control the voting processes on own election and remuneration.	Stakeholder nominee controls conduct of AGMs. Guardians determine AGM agenda, location, acceptance of proxy votes, vote counting, etc.
14 Directors ignorant of shareholder identities, etc.	All ultimate owners and/or controller made public
15 Share trading relationships and price manipulation hidden from directors and public	No shares traded without prior disclosure of any related derivatives and identity of counter parties
16 Shares traded covertly by third party exchanges	Corporations directly execute all share transfers
17 Directors not held to account by various stakeholder groups who may have conflicting interest but on who directors rely upon to improve the quality, reliability and efficacy of continuous operational improvements	Each common interest stakeholder group obtains rights to form their own non-profit associations to appoint advocates/supplementary regulators/ management mentors that avoid directors and shareholders being kept in a cocoon of ignorance
18 Directors of simple command-and-control hierarchies lack systemic process to cross check management actions and misreporting	Directors obtain stakeholder communication and control channels independent of managers to cross-check the integrity of operations and outcome reports.
19 Impossibility of controlling complexity directly	Complexity controlled indirectly by stakeholders
20 Self-regulation/governance is impossible	Self-governance shrinks costs & size of government