

The role of governance on the wellbeing of individuals or organisations

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Abstract

Ten of the eleven OECD metrics established for measuring individual wellbeing can be directly affected by how organizations are governed. Two types of governance architecture are considered: (i) simple centralised command and control hierarchies and (ii) an ecological form universally found in nature and pre-modern societies that Nobel Laureate Elinor Ostrom described as possessing “polycentric compound” decision-making centres as also found in human brains. Modern stakeholder controlled organisations that survive over generations typically possess elements of an ecological form of governance. This can be explained by the ability of networks to reliably simplify complex environments as comprehensively as required to survive and thrive. Centralised hierarchies simplify complexity incompletely and less immediately by filtering data through different levels that can obscure harms, opportunities and existential threats. The paper concludes that the OECD metrics provide a basis for rating the quality of governance of organisations or democracy with rich opportunities for research.

Key words: Hierarchical governance, Individual wellbeing, Network governance, OECD metrics, Organizational-wellbeing.

JEL: A14, D02, D21, D63, D70, D85, D91, G38, I31, L25, L30, M14,

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The role of governance on the wellbeing of individuals or organisations

1. Introduction

This paper investigates how the wellbeing of individuals and entities can be affected by their governance architecture. Wellbeing represents a neglected aspect of governance scholarship. A central contribution of this paper is to develop this topic. Evidence of neglect is provided by a search of the Social Science Research Network archives. As at 26 August 2018 only seven of the 15, 622 posted papers concerned with corporate governance that mentioned the word “wellbeing” also in their abstract or key words. However, none of the seven, related wellbeing to individuals or a firm, to corporate governance. Instead, corporate governance was discussed when wellbeing was being related to retired individuals, society, the economy, environment, or how managers undertook Corporate Social Responsibilities.

A second contribution of this paper is the comparison of two distinct types of governance arising from entities being organized as a simple centralized command and controlled hierarchy as considered by Coase (1937) or as a network of almost self-governing components. The components possessed their own decision-making centers to create a “compound board” (Turnbull 2000b: 27). Henry Simon (1962) described the components as being “sub-assemblies” (p. 472), “stable intermediate forms” (p. 473) or “nearly decomposable systems, in which the interactions among the sub-systems are weak, but not negligible” (p. 474). Mathews (1996) describes how other analysts use different names in disparate disciplines to describe the same phenomenon. Jan Smuts (1926) initially identified the phenomenon in nature. Arthur Koestler (1967) coined the term “Holon” to describe the components described by Simon and the term “Holarchy” to describe the hierarchy of complexity identified by Simon (Mathews 1996: 36). Depending on the architecture of the components a “Compound Republic” (Ostrom 2008: 254) could qualify to be a Holarchy.

Koestler coined the word Holon by combining the Greek words for “Whole” and “Part” to recognize the dual nature of Holons. Likewise, the founding CEO of the VISA credit card organization, Dee Hock (1999) coined his own term “Chaord” by combining the contrary terms “Chaos” and “Order”. In the 1960’s Quantum physicist David Bohm proposed that contrary behavior, like order and disorder, is a fundamental characteristic of the universe (Mathews 1996: 37).

A defining characteristic of a Holon is that it possesses contrary properties. Like quantum physics holonic organisations can exhibit, at the same time, contrary features like being: centralised~decentralised, bottom-up, top-down, autonomous~integrated, order~ambiguity (Mathews 1996: 52-53). These properties are antithetical to command and control hierarchies that dominant modern society. Hierarchical organizations very much depend upon reliable obedience, subservience, conformity and group think. Alternative views may be encouraged to some extent but typically they can be career threatening.

Buckminster Fuller (1961) coined the word “Tensegrity” from combining the words “tensional integrity” to explain the structural integrity that arises from combining material with contrary characteristics. The tension~compression interactions of tensegrity minimize materials, add structural resiliency, and provides the most efficient possible use of space. Tensegrity allows geodesic domes to cover the greatest area with the least material.

Tensegrity explains why nature uses materials with contrary properties to build living things. Biologist Donald Ingber (1998) describes tensegrity as “The architecture of life”. For example, it would be difficult to construct a stable structure from either a bag of all the bones in a human, that are best used in compression or a bag of all the muscles in a human, that are best used in tension. But by combining both these materials that possess contrary properties new characteristics emerge to create a huge variety of stable structures. Tensegrity resonates with the Chinese philosophy of Yin and Yang that “describe how seemingly opposite or

The role of governance on the wellbeing of individuals or organisations

contrary forces may actually be complementary, interconnected, and interdependent, in the natural world, and how they may give rise to each other as they interrelate to one another” (Wikipedia 2017). The need for systemic fractions with contrary views as a way to counter tyranny has been recognized by political scientists (Buchan and Tullock 1962, Hamilton, et. al. 1787, Hayek, 1944, Ostrom and Allen, 2008, Ostrom and Ostrom 1971, Popper 1945).

The relevance of tensegrity for social institutions is that it also explains why DNA hard-wires contrary behaviour into biota as noted by Kelso and Engstrøm (2006). They introduced the tilde notation of “~” to indicate a contrary relationship. Survival of social animals not only depends upon contrary behaviour like approach~avoidance but on other contrary behaviours like being cooperative~competitive, trusting~suspicious, altruistic~selfish and so on (Kelso 1995; Kelso, et. al 2013). Hard-wired contrary behaviour allows fauna to generate a huge repertoire of responses to learn how to survive and thrive in novel unknowable dynamic complex environments.

Like geodesic domes tensegrity allows fauna to obtain a “requisite variety” of communication and control responses using the least amount of data processing materials and/or energy. Hierarchies deny tensegrity to achieve its advantages. In addition, hierarchies incompletely simplify complexity by filtering out data, information, knowledge and wisdom through each level. This introduces omissions, biases, distortions, ambiguities and deniable misunderstandings (Downs 1967). Such outcomes have been systematically and widely identified by The Australian Royal Commission into misconduct into the banking, superannuation and financial services industry (RC 2018) has found widespread and systemic examples of these problems in the largest financial institutions in Australia including activities they believe are criminal. Similar problems have been reported in the US (DoJ 2012, Faulkner 2018, Peltz 2018).

Humans illustrate the crucial evolutionary importance for fauna to minimise their data processing materials and energy for governing their survival. “In the average adult human, the brain represents about 2% of the body weight. Remarkably, despite its relatively small size, the brain accounts for about 20% of the oxygen and, hence, calories consumed by the body” (Raichle and Gusnard 2002). As noted by Ashby (1956: 270) “The gene-pattern, as a store of channel variety has limited capacity. Survival goes especially to those species that use the capacity efficiently”. Tensegrity allows DNA to efficiently transmit a requisite variety of complexity for survival and replication in novel environments. While computers now exceed human abilities in data processing they have not yet matched the compactness, energy efficiency and mobility of human neurological data processing.

Even though humans are distinguished by their large brains, small simple minded insects like ants and bees are still capable of collective decision making about when, where and how to design, build, operate and maintain their complex dwellings. However, the data processing required by each insect is minimal because decision-making is undertaken on a decentralized collective basis involving hundreds of insects using a holonic form of network governance. As reported by Mathews (1996: 30) in describing how robots are designed. “The reduction in data transmission, and in data complexity, achieved by holonic architecture, is prodigious. Moreover, the advantages accumulate as the robotic devices get more complex.”

Holonic, or what will also be referred to as “ecological” governance is used by all social fauna, except modern humans, to survive and thrive in novel complex dynamic environments. This is because networks distribute decision making to simplify complexity as comprehensively as required while hierarchies simplify complexity incompletely by filtering data that can obscure harms, opportunities and existential threats.

The role of governance on the wellbeing of individuals or organisations

In referring to human limitations, Williamson (1975: 21) observed: "the physical limits take the form of rate and storage limits on the powers of individuals to receive, store, retrieve and process information without error." Williamson (1975: 45–46) noted that: "a change in organizational structure may be indicated" when individuals are exposed to "information-processing limits".

Some change in organizational architecture was achieved by the development of Multi-divisional or M-form firms in the early 20th century. Williamson (1985: 283) saw M-form firms as a way "of decomposing the entire enterprise in efficient informational processing aspects". However, as complexity increased this form of decomposition introduced the problem of divisional silos becoming disconnected (Turnbull and Pirson 2012). The problem was that each silo was still constituted as a command and control hierarchy. This limitation can be avoided by using ecological governance that allows "prodigious" reduction in data processing.

In the following section the systemic problems inherent in hierarchic institutions to achieve operating wellbeing are considered. Section three introduces the OECD framework of individual wellbeing and considers the impact of different governance architectures. Section four describes a way for introducing ecological stakeholder governance and considers its impact on wellbeing. The concluding section raises some wider and more profound implications for the research agenda pioneered by this paper.

2. Impact of hierarchies on organizational wellbeing

As noted above one fundamental problem of hierarchical organizations is that in each level of their command chain, subordinates must filter the information reported to avoid their superiors being subject to data overload. In the context of hierarchical organizations this questions the ability of executives to reliably exercise the requirement raised by Kenneth Arrow (1974: 68-70) that: "Authority is needed to achieve a coordination of the activities of the members of the organization".

Coase (1937) had already refuted the practicality of the Arrow requirement when he answered his own question: "Why is not all production carried on by one big firm?" A more compelling reason to explain why authority cannot be reliably exercised in centralized command and control hierarchies is provided by "the science of control and communications in the animal and machine" described as "cybernetics" (Wiener 1948). The laws of cybernetics "absolutely prohibits any direct and simply magnification" of reliable authority through a large organization (Ashby 1956: 268). Magnification of control is only possible indirectly by independent supplementary co-regulators that then form components of a network organization. Some political scientists, led by the Ostrom's, have recognized the relevance of Ashby's Law of requisite variety to govern complexity (Ostrom and Ostrom 1971; Ostrom, et. al, 1993: 66; Ostrom 1998: 150; Ostrom and Allen 2008: 253).

Humans have both physiological and neurological limits in processing data. Peter Cochrane (2000) as head of the British Telecom research laboratories first made public the physiological limits for human to receive data by sight, sound, touch, taste and smell. MIT speech recognition scientist Ray Kurzweil (1999:103) identified the limited ability of the human brain to process and store data.

Beside the physiological and neurological limits there are limits of language. According to Williamson (1975:21): "Bounded rationality involves neurophysiological limits on the one hand and language limits on the other". Many people have played the party game of "telephone" where teams of four or so people compete with another team to transmit the same message. Even with the most careful cooperative efforts the message often becomes subject to

The role of governance on the wellbeing of individuals or organisations

errors (Downs 1967: 116-118). In a business hierarchy, the problem is considerably compounded by the incentive of subordinates to bias, obscure and/or omit any data that might be seen to reflect on their performance and so put at risk their pay, promotion or even employment.

However, it is possible to increase the accuracy of communications as much as desired by introducing a requisite variety of independent crosschecking channels. This is “the law of requisite variety” identified by a Bell Telephone engineer Claude Shannon (1949). In any event, even if there were no communication errors, simple hierarchies deny, by definition, sufficient independent channels to communicate the complexity of the disturbances that need regulating.

Ashby’s Law of requisite variety of control states that “R’s capacity as a regulator cannot exceed R’s capacity as a channel of communication” (Ashby 1956: 211). This explains why it becomes impossible for simple hierarchies to reliably control complexity. Even if there was a requisite variety of communications channels Ashby’s law of requisite variety of control introduces another problem. It states: “only variety can destroy variety” (Ashby 1956: 211). Stated another way it means that the variety of responses from any Regulator cannot be less than the variety of the Disturbances. This is illustrated by contact sports where a team is disadvantaged by not having as many players as the opponents.

The lack of requisite variety in either control or communication channels in simple hierarchies makes hierarchies intrinsically unreliable in identifying and/or countering weaknesses, harms or existential risks to further their wellbeing, let alone their existence. This explains why the human brain has no “chief executive neuron” (Kurzweil 1999: 84). More generally it explains why evolution does not employ a hierarchical command and control architecture to allow creatures to become self-regulating and self-governing to survive and thrive at their birth in complex dynamic complex environments.

Humans have added another dimension of why hierarchies governed by a single decision-making authority can deny wellbeing in organizations. Lord Acton (1887) explained this problem when he wrote: “Power tends to corrupt, and absolute power corrupts absolutely. Great men are almost always bad men, even when they exercise influence and not authority, still more when you superadd the tendency or the certainty of corruption by authority.”

The well-known solution is to introduce a division of powers as is found in political constitutions. However, this is not typically found in Anglophone jurisdictions for corporations. The exception is when new firms enter into a funding agreement with a Venture Capitalist (VC). As a condition for providing funds at the riskiest stage of the life of a firm, the VC obtains an agreement with shareholders that they take over the power to govern from both them and the directors. This provides compelling evidence that there is no commercial reason for corporate constitutions not to separate the powers to govern from the powers to manage. A model constitution included in the UK Company Act (1862) made provisions in this regard for audit committees to be controlled by shareholders rather than directors.

This removes a systemic unethical conflict of interest for both directors and the external auditors. As directors pay the external auditors they may be considered to be party to bribing those who judge the integrity of their accounts. Auditors can be seen as accepting a bribe by providing agreeable judgements. The official acceptance and enforcement of this systemic unethical conflict can establish a poisonous culture so business people can no longer distinguish between what is right and what is wrong. A situation widely revealed by an Australian Royal Commission into misconduct in the financial services industry (RC 2018). It did not occur to a number of witnesses that taking money out of pension fund accounts for no reason was a theft and so a criminal act! An act that some institutions tried to cover up and/or

The role of governance on the wellbeing of individuals or organisations

report late, which is another crime, and/or tried to invent a service they provided to justify paying themselves what they and their regulators euphemistically described as “a fee for no service”.

It is significant that it is only modern humans that use centralized command and control hierarchies to manage complexity. Dee Hock (1995: 4) recognised this when he identified the lack of wellbeing of hierarchies by stating:

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 were a public menace.

The menace of hierarchies to the wellbeing of organisations and society was recognised by Hock (1999: 6) nine years before the global financial crisis of 2008. He stated:

We are experiencing a global epidemic of institutional failure that knows no bounds. We must seriously question the concepts underlying the current structures of organization and whether they are suitable to the management of accelerating societal and environmental problems – and, even beyond that, we must seriously consider whether they are the primary source of those problems

A forensic analysis of the failure of Lehman Bros Inc in 2008 identified another growing systemic lack of wellbeing of hierarchies (Turnbull and Pirson 2012; Pirson and Turnbull 2015). The failure of Lehman represented a specific example of a systemic problem in hierarchies. This is the lack of communications between management silos (Pirson and Turnbull 2011). The silos disconnect communications between individuals who together possess: (a) Information to act to remove problems; (b) Incentive to act; (c) Power to act, and (d) Capability to act. In other words, capitalism based on hierarchies can become disconnected (Turnbull and Pirson 2012). The introduction of “For Benefit” or “B” corporations does not address this fundamental problem. Nor do B corporations eliminate the absolute power of a single board to identify and manage their own conflicts of interest. This creates “Toxic governance” from the power of director to corrupt themselves, the business and society (Turnbull 2014d, 2016b)

The cure is to introduce appropriate division of powers with stakeholder networks to provide independent outside in, and bottom up, feedback and control channels. In this way hierarchies could evolve towards an ecological form of governance with distributed intelligence, communications and control. Their evolution into ecological forms of network-governed firms would require changes in their corporate charters but not necessarily any changes in law. The existence of large ecological governed firms like Visa International Inc in the US, The John Lewis Partnership in the UK and the Mondragón Corporacion Cooperativa (MCC) in Spain demonstrate that no changes in the law is required in major jurisdictions.

The option for firms to evolve into ecological forms of governance architecture is likely to exist in some form in most jurisdictions. How this change could affect the wellbeing of individuals is next considered.

3. Impact of hierarchies on individual wellbeing

This section introduces the OECD framework to consider how hierarchies affect individual wellbeing. The OECD initiative arose from a commission set up by the French government in 2008 for the “Measurement of Economic Performance and Social Progress”. The Commission was chaired by Joseph Stiglitz with Amartya Sen as the economic adviser and French Economist Jean-Paul Fitoussi as the Co-ordinator. The recommendations made by the

The role of governance on the wellbeing of individuals or organisations

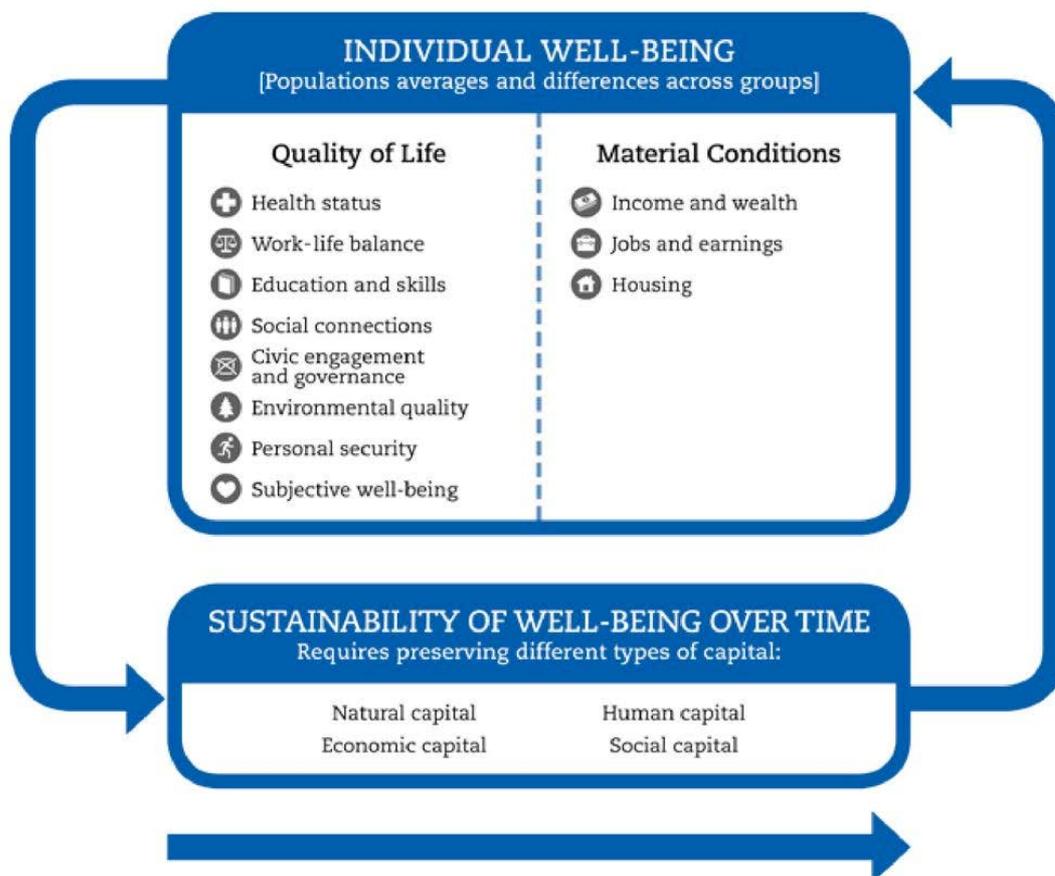
Commission sought to address concerns that standard macroeconomic statistics like GDP failed to give a true account of people's current and future wellbeing.

Hierarchies introduce asymmetries of power, prestige and privileges. These can be source of discontent and become more important as income levels increase (Ono and Lee 2016: 36). Hierarchies also introduce dysfunctional subservience, blind obedience, alienation, conformity and "group think". "Group think" in publicly listed firms was considered counter productive by the largest investor in the world (Fink 2018). Conformity is dysfunctional because social creatures and their organisations require a dynamic rich menu of behavioural responses to survive and thrive in novel complex and ever changing environments.

As noted above humans, are hardwired by their DNA to generate a rich menu of ever changing behaviours to survive and thrive. However, these instincts become suppressed and inhibited in hierarchies that depend upon subservience, obedience and conformity. Non-conformity can jeopardize promotion and even employment. Hierarchies can become frustrating, alienating and dehumanising to deny wellbeing be they be in the public, private or non-profit sectors.

The OECD (2015: 23) framework for analyzing individual wellbeing has eleven measures as illustrated in their Figure 1 reproduced below. The framework contains eight "Quality of Life" indicators and three "Material conditions".

Figure 1, The OECD framework for measuring individual wellbeing



The lack of accountability within hierarchies allows exploitation of employees or stakeholders in government or other non-profit organisations alike. This could be in the form of excessive demands for employees to undertake unpaid work to jeopardise quality of life measures like

The role of governance on the wellbeing of individuals or organisations

“Work-life balance” or psychological stress to affect “Health status”. Health status may also be jeopardised by sexual harassment arising from asymmetries of power that can exist even in religious or educational hierarchies. Reports of exploitation and neglect in health and age care hierarchies are not uncommon. In any case, other quality of life concerns like “Personal security” and “Subjective wellbeing” can also become adversely affected without systemic checks and balances commonly absent in hierarchies.

The excessive power of large hierarchical firms and government departments can make them impervious to negative feedback in the delivery of the goods and/or services to clients, shareholders, members and/or other stakeholders. The insensitivity of call centres, even if they are not located in alien cultures, in a case in point. Direct citizen engagement in the governance of hierarchical organisations is generally not available, ignored or when it is available it is impotent.

An important exception and exemplar of the efficiency of establishing formal stakeholder feedback were the Citizen Utility Boards (CUBs) established by Ralph Nader in the US. CUBs were established to counter price regulators being captured by managers (Givens 1991). CUBs were formed by Nader organising an insert to be distributed with the monthly invoices sent to millions of customers of regulated utilities providing electricity, gas or water. The insert invited customers to donate \$10 to establish a price “watchdog” to counter the arguments of management with the regulator for price increases. A small minority of stakeholders donated sufficient funds to obtain savings in excess of their donation while providing a “free ride” for over 95% of the other customers.

There are numerous other examples of minority stakeholders committing personal resources to further the material or quality of life of others. A case-in-point are the non-profit shareholder associations established in some countries like Australia to represent the interest of retail investors. The impotence of retail investors to protect and further their common interests is widespread example of how the power of hierarchical organisations frustrates or fails to become accountable even to the stakeholders to which they are legally accountable. Indirect engagement with organisations through their governing shareholders, members, or political leaders can be frustrated by lack of individual accessibility and/or resources. As noted above disconnections can exist between individuals that collectively have the information, incentive, power and capability to act.

Providing feedback on concerns on environmental degradation provides particular challenges to individual wellbeing. This is because the source of many problems may be unknown, distant and multi-sourced. Even when there exists a dedicated regulator, they may not be able to act expeditiously or effectively. However, networks can be established to include organisations and/or individuals with environmental interests as explicated in Turnbull (2014c). The advantage of hierarchies for dictators is they can shut out the voice and concerns of stakeholders who may be adversely affected by their operations.

This is why by either commission or omission hierarchies can adversely affect individual wellbeing in all the dimensions of quality of life measures. Hierarchies do not have an incentive for inclusivity. Network organisations do have an incentive for inclusivity as the reason for their existence can be lost if they do not establish tenses to achieve a comprehensive requisite variety of opposing interests.

Only two of the three OECD “Material Conditions” are likely to become directly affected by the nature of the governance architecture of organisations. The conditions of “Income and wealth”, and “jobs and earnings”, are subject to direct determination by command and control hierarchies in the private, non-profit and government sectors.

The role of governance on the wellbeing of individuals or organisations

A dimension of corporate governance that is commonly neglected in shareholder corporations is the tenure of control over corporate property rights. It is this dimension that is significantly responsible for excessive concentration of income and wealth in society (Turnbull 1973). The reason that this aspect of corporate governance is neglected is because it allows investors to become overpaid in a way not reported by accountants. This means the overpayments are not measured by statisticians or noticed by economists and policy-makers.

The life of all intellectual property rights is time limited. This limits the ability for individuals who contribute value-adding ideas to society to obtain unlimited remuneration. Their ideas become public property when the time limit expires to further the common good. The ideas become a “commonwealth”. No such time limits may exist for owning land, buildings, corporations or modern forms of money. In these situations, there is no limit to the extent that investors can be overpaid in ways not available to owners of intellectual property.

Overpayments are not supposed to occur in a market economy. Economists assume that market forces will limit excessive payments. Indeed, this is both a core justification and a reason for supporting a market economy.

But even when market forces do limit prices and so income, at any one time, they may not limit the extent of how much income and wealth may be aggregated over time when ownership and control rights extend indefinitely. The continued generation of operating surpluses is dependent upon the continuing support of primary stakeholders. Primary stakeholders are the individuals that without whom the firm could not exist. Beside workers, they could include customers, agents, distributors, suppliers and other services provided in the host community or individuals involved with any of the primary stakeholder entities. As no firm can exist without such individuals it becomes fair that such individuals should automatically become endowed with any income and wealth arising in excess of that required to attract investors for establishing the business (Turnbull 1975, 1997, 2014a).

The capture and concentration of undisclosed, unnoticed surplus profits arising from firms, denies improving the material wellbeing of individual stakeholders and others in society. It creates political pressure to increase taxes, welfare and so bigger and more costly government. However, the need to identify surplus profits and so incur the dead weight transfer costs referred to above can be removed by widely distributing ownership rights directly to increase the material wellbeing of many citizens. The opportunity to achieve this objective and at the same time introduce network governance is considered in the following section.

4. Wellbeing and ecological stakeholder governance

This section considers how an ecological form of governance could be introduced on a voluntary basis to overcome the problem of hierarchical firms systemically overpaying investors to exacerbate inequality in a way not reported by accountants. This process could also increase the wellbeing of individual stakeholders to create a virtual self-reinforcing way of increasing wellbeing for all individuals in society by contributing to Universal Basic Income (UBI).

As investors cannot reliably predict the future they will not invest unless they expect to recover all the funds they invest with a competitive return within the foreseeable future. Any cash received after the foreseeable future becomes a surplus incentive or “Surplus profit” (Morehouse 1989: 131; Turnbull 2006). Accountants do not identify such profits as surplus because they do not identify investor time horizons. A foreseeable future is typically less than ten years. Some investment time horizons may extend longer. To avoid distortions in allocating resources between patents that last twenty years and investment in corporate shares a time limit of twenty years could also be applied to the rights of investor shares. Equity

The role of governance on the wellbeing of individuals or organisations

entitlements in the investor shares could automatically accumulate in the stakeholder shares at five percent a year no matter how many were issued. Details are provided in Turnbull (1975, 1997, 2002a, 2014a). These writings identify how a relative small tax concession could yield shareholders with a bigger, quicker and less risky profit in return for approving the creation of stakeholder shares to over time acquire all the equity of the investor shares.

Fiduciary shareholders like pension funds would have a legal obligation to give up ownership and control in return for higher returns. Paradoxically government tax revenues could increase as the tax base transfers from corporations to individuals who are typically taxed at a higher rate. A process is created for funding a UBI to underwrite the material wellbeing for citizens on a basis that reduces tax, the size of government and welfare payments.

The formation of such ecological governance that endows stakeholders with ownership and control would keep firms to human scale and facilitate self-governance (Turnbull 2014a). Ownership time limits create a compelling incentive for firms to distribute most, if not all profits each year as dividends. This is because equity in any profits retained would be reduced each year by automatically being endowed to stakeholder shares. Continuity and business growth would be funded by dividend re-investment plans in “offspring” firms sponsored by progenitor firms, perhaps augmented with new investors. The offspring firms would be given birth by acquiring for cash some of the assets, activities, and related staff from their birthing firm. The success of this method of replication and growth is illustrated in nature by amoeba, and for organisations by the MCC.

The MCC has grown mainly through the spin-off of new firms from existing firms since the first cooperative was established sixty years ago (Turnbull 2000b: 273-293). It explains how the MCC has kept its component entities to human scale by giving birth to a network of networked governed firms. Member firms of the MCC did not issue shares that were publicly traded so time limits were not required to distribute surplus profits. Surplus profits were shared through stakeholder cooperative membership determined by self-management processes within the cooperative firms.

Corporations that issue traded equities become ecological when they replace conventional exclusive, static and perpetual property rights with ones that are inclusive, dynamic and time limited. “All structures in animate nature are actually dynamic” (Kelso 1995: 5). Ecological ownership and control provides: (a) a way to recycle both business activities and investment in a process of “creative destruction” that, (b) limits systemic overpayments to investors, and (c) legitimises the introduction of stakeholder governance even with the existence of private property rights.

The legitimisation of stakeholder governance becomes compelling from the need to introduce a requisite variety to provide reliable self-regulation and self-governance. Social scientists have yet to apply the knowledge of self-regulation and self-governance that engineers use to design self-regulating and self-governing space probes and self-driving automobiles. The introduction of stakeholders into the governance architecture of corporations would represent a first step. Including stakeholders into the governance architecture would allow the integration of Corporate Social Responsibilities (CSR) into the governance of organisations.

The operating and/or competitive advantage from introducing elements of stakeholder governance into firms was identified by Michael Porter (1992: 15). Porter recommended that shareholders: “Nominate significant owners, customers, suppliers, employees and community representatives to the board of directors”. Porter developed his recommendations from considering the practices found in Japan and Germany. What Porter overlooked was that stakeholder involvement in these countries was achieved by there being more than one board.

The role of governance on the wellbeing of individuals or organisations

A single board accountable to many different interests becomes accountable to no one. It allows governance to become toxic as found in firms without a dominant investor to hold management to account on their systemic unethical conflicts (Turnbull 2000b: 115; 2004). This point is recognised and avoided in all non-trivial sustainable stakeholder controlled firms. A global survey of such firms by Bernstein (1980) reported that they all possessed multiple boards to introduce some separations of powers. This is an essential requirement to reduce or eliminate toxic governance (Turnbull 2014d, 2016a, b).

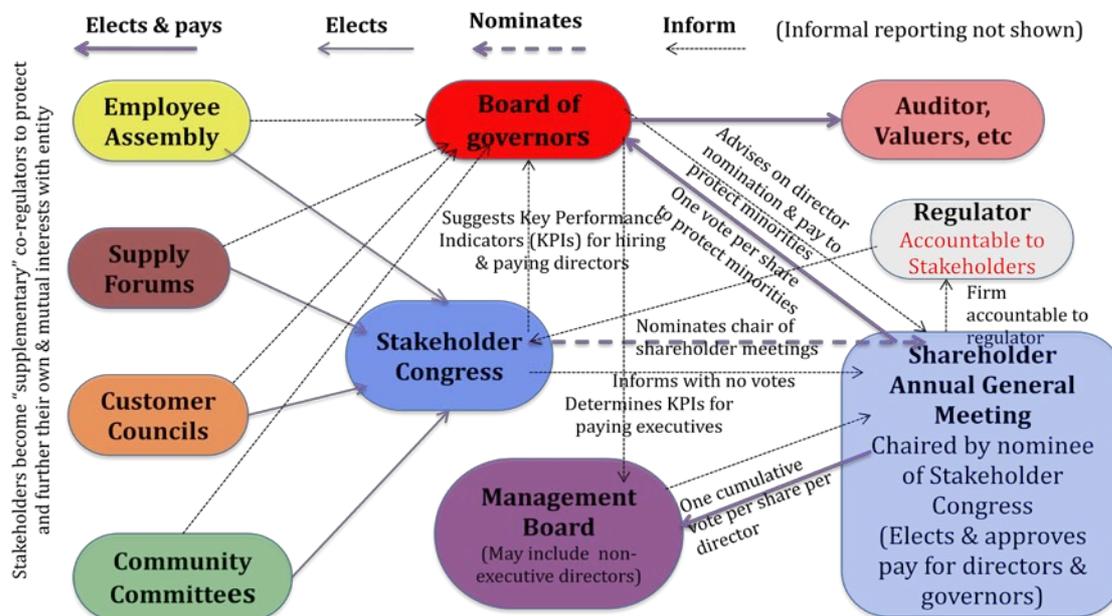
The detailed governance architecture of five selected non-toxic stakeholder-governed firms are presented in Turnbull (2014b: 231-307). Various viewpoints and aspects of ecological governance are presented in Turnbull (1997; 2002a, b; 2012) with a generic form provided in “Figure 2, Illustration of network governance with stakeholders as co-regulators”.

A simplistic generic illustration of introducing elements of ecological governance to hierarchical form of governance is presented in Figure 2. It introduces two crucial features to organisations:

1. A separation of the power to manage from the power to govern. This eliminates absolute power and the systemic toxic conflicts of interest from unitary control;
2. A requisite variety of formal outside in and bottom-up communication and control channels with stakeholders. This allows the identification and control of complexity as reliably as desired with stakeholders able to protect and further their own interests and those of the firm while reducing the role, size, intrusiveness, insensitivity and cost of government regulators whose prime role is to protect stakeholders.

Figure 2, Illustration of network governance with stakeholders as co-regulators

Separation of governance powers from management allows independent bottom-up and outside-in stakeholder intelligence to integrate governance into Corporate Social Responsibilities to monitor and control misconduct while protecting and furthering the interests of stakeholders, the firm and society with less costs



For publicly traded, large private firms, non profits and government corporations

As shown by Venture Capitalists, there are no ethical commercial reasons for directors to also obtain the power to govern. While one vote per share is required to protect the property rights of investors to appoint the directors, the rights of minorities needs to be protected from oppression by large shareholders and/or their directors. This can be achieved by appointing a

The role of governance on the wellbeing of individuals or organisations

governance board on the basis of one vote per investor. The powers of the Board of Governors are those that are not required by directors to carry out management functions.

Governance powers involve:

- a) Establishing Key Performance Indicators (KPIs) for directors;
- b) Co-nomination and remuneration of directors elected by shareholders;
- c) Co-nomination and remuneration of auditors elected by shareholders;
- d) Nomination, appointment, remuneration and control or influence of any other advisers to members/shareholders or chair of annual meetings to hold directors to account;
- e) Control of director elections and discretionary proxies exercised;
- f) Determination of director tenure;
- g) Determination of how directors manage any operational conflicts of interests.

To maximize the variety of distributed intelligence, data feedback, control initiatives and contestability of views, separate self-appointed representative bodies are required to represent the various common-interest groups of stakeholders. These could involve local, regional, national and global perspectives to provide independent crosschecking intelligence on the known knowns, the known unknowns with exposure to identifying the unknown unknowns.

Because of the diverse interests between stakeholders and between stakeholders and management network governance can introduce creative tensions with contested decision making just as occurs in the human brain from existential risks, opportunities and conflicting desires. Rather than forcing individuals into obedience, conformity and group think, network governance can constructively use individual contrariness to introduce contested decision making for the common good at the individual, group and entity level.

In these ways network governance introduce tensegrity to allow new emergent attributes to arise to cope with complexity more simply, innovatively, resiliently and comprehensively than its individual parts. These outcomes are denied in command and control hierarchies.

The division of powers allows contestability to arise within and between managers, directors, shareholders, governors, and with other stakeholder constituencies. Competition for control between stakeholders provides a more informed, economic, efficient and nuanced situation than being exposed to competition for control through a stock exchange. The advantage of this approach is that it can occur without organizations being publicly traded or even for the need for property rights to exist. This is the situation in non-profit corporations and incorporated professional associations. John Pound (1992, 1993) has articulated other advantages of internal competition for control.

The stakeholder congress shown in Figure 2 connects individuals with the: (i) information to act; (ii) incentive to act; (iii) power to act; and, (iv) the capability to act, negotiate, protect and/or promote their individual and/or common interests. This “polycentric compound republic” architecture allows well-informed, nuanced and expeditious identification of Key Performance Indicators (KPIs) to be developed by stakeholders for the Board of Governors to determine the pay and tenure of the directors. This arrangement forces directors to recognize the need to take into account the individual wellbeing of stakeholders interests but leaves to their discretion as to how this is achieved in the best interest of the corporation as a whole. In this way, individual interests that could lead to “the tragedy of the commons” can be avoided.

Further sources of tensegrity can arise from other ways of establishing a division of powers and influences. As a purpose of general meetings is to hold directors and governors accountable and determine their tenure and remuneration, it means that neither a director nor a governor should control the process. This is why Figure 2 suggests that stakeholders should nominate the chair of AGMs from either their own number or from members/stockholders of the corporation. This in turn generates interdependencies between the relevant stakeholders,

The role of governance on the wellbeing of individuals or organisations

as is in fact the case for the operating success of most enterprises. Also a formal governance framework is created for Just-In-Time (JIT) supply chain practices and Total Quality Control (TQC) of goods and services.

Stakeholders could also obtain the right to attend shareholder meetings to voice their views without a vote on the nomination, tenure and remuneration of governors who determine the tenure and pay of the directors. In this way, Governors could be encouraged to work out mutually beneficial ways in determining KPIs to protect and further the interests of both stakeholders and the firm. There exist other various ways for using a diversity of views to generate constructive tension to discover or invent processes for continuous improvements for all concerned including individual wellbeing and for the enterprise as a whole.

Ideally, the diversity of views within the architecture of networked governed firms should also be available to the firm as a whole. It is in this way that network governed entities can mimic the contrary character of holonic entities found in nature. There is a great variety of ways in how network governed firms can be designed, but little research into firm specific details. The most outstanding example of how the architecture of a network governed firm can mimic the architecture of life and the universe is provided by the MCC. So closely does the MCC mimic nature that a “Holon Typology of Mondragon” was identified in Table 6.1 of Turnbull (2014b: 290). How the MCC represents a Hierarchy of Holons within a Holarchy of the universe is presented in Table 3.8 “Holarchy: Hierarchy of holons” in Turnbull (2014b: 167).

Thomas and Logan (1982: 126-127) reported the superior resiliency and operating advantages of the MCC. For other network governed firms Nohira and Eccles (1992), Craven et al (1996), Podolny and Page (1998) and Turnbull (2000a; 2002b) reported on their competitive and operating advantages to suggest that the benefits of network governance in relation to hierarchies increases with the complexity and dynamism of the environment and/or the activities of the firm. This supports the intuition that the architecture of creating and surviving complexity in nature provide a superior approach for humans to adopt. The topic suggests many research opportunities. Some are considered in the following concluding Section with some closing comments.

5. Research agendas, OECD “Key Questions” and conclusions

The discussion presented above on how the architecture of corporate governance affects the wellbeing of individuals and their organizations is mostly an under-researched topic. One reason is that they’re relatively few network-governed corporations and to make their economic impact trivial, even though the success of individual firms may be impressive.

However, networks of non-profit incorporated and/or non-incorporated association are more common. Examples are the Red Cross, surf life-saving organizations, scouts, hobby and cultural associations, business service organizations and sporting bodies. Omitting the word “corporate” to simply focus on the governance of organizations creates a more significant research area. Most unincorporated associations and networks have some form of constitution defining how their decision-making processes, communications and control systems operate.

One important point neglected in this paper is the existence of a body corporate. It introduces the complication of creating a new entity that is different from its directors or members. A justification for this neglect is that a corporation is a social construct. However, the entity technically introduces additional conflicts of interests between the entity, its stakeholders and society to be considered. While important they represent a second order concern from the perspective of the OECD developing metrics on individual wellbeing.

The role of governance on the wellbeing of individuals or organisations

Individual wellbeing could be subject to the governance architecture of all types of social institutions, whether or not they involved with families, clans, tribes, associations, networks, firms, markets or other forms of relationship in the private, non-profit or government sectors. This supports the view that future research should not be restricted to incorporated bodies. The idea of markets possessing architectures arises from the possibility of designing electronic forms of money with different characteristics. For example, money possessing time limits to become ecological as used in the Great Depression (Fisher 1933).

Another reason inhibiting research into firms controlled by more than one board was the lack of a methodology to undertake the task. This has now been overcome by the development of Transaction Byte Analysis (TBA). Bytes involve perturbations in energy and/or matter. So TBA provides a basis for grounding social interactions in the natural sciences to establish a science of Governance and specifically a science of corporate governance (Turnbull 2002c, 2008). No fauna can take any action alone or with others without internally transacting bytes and/or receiving and transmitting bytes. While the social constructs of information, knowledge and wisdom cannot be objectively metered like bytes, no change in these constructs can occur without the transaction of bytes within and between humans.

Technology now routinely measures bytes involved in written, verbal and visual communications to provide a basis for empirical research into comparing the data intensity of using hierarchies, networks and/or other integrative mechanisms for governing society. The limited ability the human physiology and brain to receive, store, process and transmit bytes has now been measured to allow researchers to identify when data overload and “bounded rationality” (Williamson 1975: 4) arises. Tools now exist for empirically investigating the differences in efficiency and reliability of alternative governance architectures. This could allow new designs to be developed and tested. A basis could be developed to evaluate the extent that the governance architecture of organizations is best fit for their purpose. This in turn could provide a basis for evaluating organizational wellbeing.

Because hierarchical governance is so dominant future research could introduce profound changes for both the theory and practice of social governance. Governance is about the exercise of power so the OECD metrics may also provide a basis for improving the wellbeing of democracy.

An objective of this paper is to indicate the potential importance of the OECD metrics. Hopefully this paper may motivate others to undertake a much more detailed and deeper research into the issues raised.

6.0 References

- Acton, Lord (1887), Letter written to an ecclesiastic scholar in the context of not supporting papal infallibility, April, https://en.wikipedia.org/wiki/John_Dalberg-Acton,_1st_Baron_Acton.
- Arrow, K.J. (1974), *The limits of organizations*, pp. 68–70. New York, Norton.
- Ashby, W.R. (1956), *An introduction to cybernetics*, p. 268. New York, Wiley, <http://pespmc1.vub.ac.be/books/IntroCyb.pdf>.
- Bernstein, P. (1980), *Workplace democratization: Its internal dynamics*. New Brunswick NJ, Transactions Books.
- Buchanan, J.M. and Tullock, G. (1962), *The calculus of consent: Logical foundations of constitutional democracy*. Ann Arbor, University of Michigan Press.
- Coase, R.H. (1937) ‘The nature of the firm’, *Economica*, **4**, pp. 386–405, reproduced in: J.B. Barney and W.G. Ouchi (eds). 1986, 80–98, *Organisational economics: Towards a new paradigm for understanding and studying organizations*. San Francisco, Jossey-Bass.

The role of governance on the wellbeing of individuals or organisations

- Cochrane, P. (2000), 'Hard drive: Bandwidth and bandwidth', *Telegraph*, April 6. London, <http://www.telegraph.co.uk:80/et?ac=002781235701807&rtmo=wA0eAK5b&atmo=99999999&pg=/et/00/4/6/ecrhard06.html>.
- Craven, D.W., Piercy, N.F. and Shipp, S.H. (1996), 'New organizational forms for competing in highly dynamic environments: The network paradigm', *British Journal of Management*, 7, pp. 203-218.
- DoJ (2012), 'HSBC Holdings Plc. and HSBC Bank USA N.A. Admit to Anti-Money Laundering and Sanctions Violations, Forfeit \$1.256 Billion in Deferred Prosecution Agreement', Tuesday, December 11, <https://www.justice.gov/opa/pr/hsbc-holdings-plc-and-hsbc-bank-usa-na-admit-anti-money-laundering-and-sanctions-violations>.
- Downs, A. (1967) *Inside Bureaucracy*, Boston: Little Brown & Co.
- Faulkner, J. (2018), 'HSBC to pay regulators \$765M to settle loan probe', *Law360*, August 6, <https://www.law360.com/articles/1070340/hsbc-to-pay-us-regulators-765m-to-settle-loans-probe>.
- Fink, L. (2018), 'A sense of purpose', BlackRock Annual Letter to CEO's of investee firms. <https://www.blackrock.com/corporate/investor-relations/larry-fink-ceo-letter>.
- Fisher, I. (1933), *Stamp scrip*. Adelphi & Co, New York.
- Fuller, R.B. (1961), 'Tensegrity', *Portfolio and Art News Annual*, 4, pp. 112–127, 144, 148.
- Givens, B. (1991), *Citizens' Utility Boards: Because utilities bear watching*. Centre for Public Interest Law, University of San Diego, School of Law, San Diego, CA.
- Hamilton, A., Madison, J. and Jay, J. (1787), *The Federalist papers*, Dover Thrift Edition, New York.
- Hock, D. (1995), *The Chaotic Organization: Out of control and Into Order*, <http://www.2learn.org/archive/the-chaotic-organization-out-of-control-and-into-order/2/>.
- Hock, D. (1999), *Birth of the Chaotic Age*. Bernet-Koehler Publishers, Inc., San Francisco.
- Ingber, D.E. (1998), 'The architecture of life', *Scientific American*, pp. 30-9, January.
- Kelso, J.A.S. and Engström, D.A. (2006), *The Complementary Nature*. Cambridge, MA, MIT Press.
- Kelso, J.A.S. (1995), *Dynamic Patterns: The self-organization of brain and behavior*. Cambridge MA, MIT Press, <http://www.letras.ufmg.br/arquivos/matte/bib/kelso.pdf>.
- Kelso, J.A.S., Dumas, G. and Tognoli, E. (2013), 'Outline of a General Theory of Behavior and Brain Coordination', *Neural News*, 37, pp. 120-131, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3914303/>.
- Koestler, C.O. (1967), *The ghost in the machine*. London, Hutchinson,
- Kurzweil, R. (1999), *The age of spiritual machines: When computers exceed human intelligence*. New York, Viking.
- Mathews, J. (1996), 'Holonic organisational architectures', *Human Systems Management*, 15, pp. 27–54.
- Morehouse, W. (ed) (1989), *Building sustainable communities, Tools and concepts for self-reliant economic change*. New York, Bootstrap Press.
- Nohira, N. and Eccles, R.G. (1992), *Networks and organizations: Structure, form and action*. Cambridge, MA, Harvard University.
- OECD (2015), *Hows life? Measuring wellbeing*. OECD publishing: Paris, <http://www.oecd.org/statistics/how-s-life-23089679.htm>.
- Ono, H. and Lee, K.S. (2016), *Redistributing Happiness: How social policies shape life satisfactions*. Santa Barbara, CA, Praeger.
- Ostrom, V. (1998), 'Some developments in the study of market choice, public choice, and institutional choice', in: J. Rabin et al (eds) *Handbook of Public Administration*, p. 150. New York, Marcel Dekker.

The role of governance on the wellbeing of individuals or organisations

- Ostrom, V. and Allen, B. (2008), *The political theory of a compound republic: Designing the American experiment*. Plymouth, UK, Lexington Books.
- Ostrom, V. and Ostrom, E. (1971), 'Public choice: A different approach to the study of public administration', *Public Administration Review*, **31**(2), pp. 203-16.
- Ostrom, V., Feeny, D. and Picht, H. (eds) (1993), *Rethinking institutional analysis and development: Issues, alternatives and choices*, p. 66. San Francisco, ICS Press.
- Peltz, J.F. (2018), 'Wells Fargo agrees to pay \$480 million to settle securities-fraud lawsuit over fake accounts', *Los Angeles Times*, May 4, <http://www.latimes.com/business/la-fi-wells-fargo-settlement-20180504-story.html>.
- Pirson, M. and Turnbull, S. (2015), 'The future of corporate governance: Network governance – A lesson from the financial crisis', *Human Systems Management*, **34**, pp. 81-9, <http://ssrn.com/abstract=1570924>
- Pirson, M. and Turnbull, S. (2011), 'Corporate governance, risk management, and the financial crisis - An information processing view', *Corporate Governance: An International Review*, **19**(5), pp. 459–70, <http://onlinelibrary.wiley.com/doi/10.1111/j.1467-8683.2011.00860.x/abstract>.
- Podolny, J.M. and Page, K.L. (1998), 'Network forms of organizations', *Annual Review of Sociology*, **24**, pp. 57–76, August, <https://doi.org/10.1146/annurev.soc.24.1.57>.
- Popper, K. (1945), *The Open Society and Its Enemies*. London, Routledge & Kegan Paul Ltd.
- Porter, M.E. (1992), 'Capital choices: Changing the way America invests in industry', *Journal of finance*, April, https://www.academia.edu/2917971/Capital_choices_Changing_the_way_America_invests_in_industry.
- Pound, J. (1992), 'Beyond takeovers: Politics comes to corporate control', *Harvard Business Review*, March-April, pp. 83–93.
- Pound, J. (1993), 'The rise of the political model of corporate governance and corporate control', *New York University Law Review*, **68**(5), November, pp. 1003–71.
- Raichle, M.E. and Gusnard, D.A. (2002), 'Appraising the brain's energy budget', *Proceeding of the National Academy of Sciences of the United States of America (PNAS)*, **99**(6), 10237–39, August 6, <http://www.pnas.org/content/99/16/10237.full>.
- RC, (2018), Royal Commission into misconduct in the banking, superannuation and financial services industry, <https://financialservices.royalcommission.gov.au/Pages/default.aspx>.
- Shannon, C.E. (1949), *The mathematical theory of communications*, 1–94, Urbana, The University of Illinois Press.
- Simon, H.A. (1962), 'The architecture of complexity,' *Proceedings of the American Philosophical Society*, **106**, December, pp. 467–82
- Smuts, J. Ch (1926), *Holism and evolution*. London & New York, Macmillan.
- Thomas, H. and Logan, C. (1982), *Mondragón: An economic analysis*. London, George Allen and Unwin.
- Turnbull, S. (1973), 'Time limited corporations', *ABACUS: a journal of business and accounting studies*, **9**(1), pp. 28-43.
- Turnbull, S. (1975), *Democratising the wealth of Nations*. Sydney, Company Directors Association of Australia, <https://ssrn.com/abstract=1146062>.
- Turnbull, S. (1995), 'Innovations in corporate governance: The Mondragón experience', *Corporate Governance: An International Review*, **3**(3), July, pp. 167–80, <<http://cog.kent.edu/lib/Turnbull6.htm>>.
- Turnbull, S. (1997), 'Stakeholder governance: A cybernetic and property rights analysis', *Corporate Governance: An International Review*, **5**(1), pp. 11–23. Republished (2000), in: R.I. Tricker, (ed), *Corporate Governance: The History of Management Thought*, pp. 401–13, Ashgate Publishing, London, <http://ssrn.com/abstract=11355>.

The role of governance on the wellbeing of individuals or organisations

- Turnbull, S. (2000a), 'Corporate charters with competitive advantages', *St. Johns Law Review*, **74**(1), pp. 89-173, < <https://ssrn.com/abstract=245691>>.
- Turnbull, S. (2000b), *The governance of firms controlled by more than one board: Theory development and examples*, PhD Thesis, Macquarie University Graduate School of Management, Sydney, <https://ssrn.com/abstract=858244>.
- Turnbull, S. (2002a), *A New Way to Govern: Organisations and society after Enron*, London, The New Economics Foundation, http://www.corporation2020.org/Papers_files/Turnbull2.pdf.
- Turnbull, S. (2002b), 'The competitive advantage of stakeholder mutuals', in J. Birchall (ed), *The New Mutualism in Public Policy*, London, Routledge, pp. 171–201, London, <http://ssrn.com/abstract=242779>.
- Turnbull, S. (2002c), 'The science of corporate governance', *Corporate Governance: An International Review*, **10**(4), pp. 256–72, October, http://ssrn.com/abstract_id=316939.
- Turnbull, S. (2004), 'Why unitary boards are not best practice: A case for compound Boards', in, *Progress in Macroeconomics Research*, Nova Science Publishers, Inc, <http://www.novapublishers.com/index.html>.
- Turnbull, S. (2006), 'Grounding economics in commercial reality: A cash-flow paradigm', in Kreisler, P., Johnson, M. and Lodewijks, J. (eds), *Essays in Heterodox Economics: Proceedings, refereed papers, Fifth conference of Heterodox Economics*, Sydney, University of New South Wales, Australia, pp. 438-61, <http://ssrn.com/abstract=946033>.
- Turnbull, S. (2008), 'The science of governance: A blind spot of risk managers and corporate governance reform', *Journal of Risk Management in Financial Institutions* Volume **1**(4), pp. 360–68, <http://ssrn.com/abstract=1742584>.
- Turnbull, S. (2012), 'Discovering the "natural laws" of Governance', *The Corporate Board*, R. Ward (ed.) March/April, Okemos, MI, Vanguard Publications Inc. <http://ssrn.com/abstract=2062579>.
- Turnbull, S. (2014a), 'A proposal for self-governing corporations', in P. Blond (ed.), *The Virtue of Enterprise: Responsible Business for a New Economy*, London, ResPublica, pp. 52-5, January, http://www.respublica.org.uk/wp-content/uploads/2014/01/jae_The-Virtue-of-Enterprise.pdf.
- Turnbull, S. (2014b), *Designing resilient organizations: With operating advantages for public, private, non-profit and government entities and their stakeholders*. Lambert Academic Publishing, Saarbrücken, Germany, Table 3.8, <https://www.morebooks.de/store/gb/book/designing-resilient-organisations/isbn/978-3-659-34586-9>.
- Turnbull, S. (2014c), 'How might network governance found in nature protect Nature?' *Journal of European Law*, **11**(2), pp. 98-102, April, <https://www.kluwerlawonline.com/document.php?id=EUCL2014019>.
- Turnbull, S. (2014d), 'Its time to fix toxic governance', *INFINANCE, Journal of the Financial Services Institute of Australasia*, <https://www.finsia.com/news/news-article/2014/11/13/it-s-time-to-fix-toxic-governance>.
- Turnbull, S. (2016a), 'Defining and achieving good governance', in G. Aras and C. Ingleby (eds), *Corporate behavior and sustainability: Doing well by being good*. London, Ashgate Publishing Ltd., UK, Chapter 13, pp. 232-49, <http://ssrn.com/abstract=2571724>.
- Turnbull, S. (2016b), 'Toxic Governance in B Corporations', *LinkedIn*, December 22, <https://www.linkedin.com/pulse/toxic-governance-b-corporations-dr-shann-turnbull?articleId=6217624238334050304>.
- Turnbull, S. and Pirson, M. (2012), 'Could the 2008 US Financial Crisis been avoided with network governance?' *International Journal of Disclosure and Governance*, **9**(1), pp. 1–27, <http://www.palgrave-journals.com/jdg/journal/v9/n3/full/jdg201126a.html>.

The role of governance on the wellbeing of individuals or organisations

UK Companies Act, (1862), Section 31,

https://archive.org/stream/companiesactwit00pulbgoog/companiesactwit00pulbgoog_djvu.txt.

Wikipedia (2017), https://en.wikipedia.org/wiki/Yin_and_yang.

Wiener N. (1948), *Cybernetics*, John Wiley & Sons, New York..

Williamson, O.E. (1975), *Markets and hierarchies: Analysis and anti-trust implications*. Free Press, New York.

Williamson, O.E. (1985), *The economic institutions of capitalism*. Free Press, New York.

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8,306/27082018