Review of Productive Pragmatism: Can industrial democracy be viable under neoliberalist capital conditions?

Shankar Sankaran

Abstract: I review the two cases of industrial democracy in Norway and Mondragon using multiple perspectives. From a system thinking perspective, I use a General Systems Theory (GST), Viable Systems Model and Soft Systems Methodology. From a management perspective, I examine how institutional entrepreneurship plays a role in creating new ways of coping with regulative, normative, and cultural-cognitive forces impacting the two cases. I then view the two economies from a governmentality perspective on how they deal with power and autonomy. My analysis demonstrates that the two democracies have coped well with internal and external forces. I also argue that industrial democracy would face challenges in dealing with new ways of working that have emerged due to the influence of technology.

Keywords: Viable Systems Model; Soft Systems Methodology; Institutional Theory; Governmentality

Una revisión del Pragmatismo Productivo: ¿Puede la democracia industrial ser viable bajo condiciones capitalistas neoliberales?

Resumen: Reviso los dos casos de democracia industrial en Noruega y Mondragón utilizando múltiples perspectivas. Desde una perspectiva de pensamiento sistémico, utilizo una Teoría General de Sistemas (TGS), un Modelo de Sistemas Viables y una Metodología de Sistemas Blandos. Desde una perspectiva de gestión, examino cómo el emprendimiento institucional juega un papel en la creación de nuevas formas de hacer frente a las fuerzas regulativas, normativas y cultural-cognitivas que impactan en los dos casos. Posteriormente veo las dos economías desde una perspectiva de gubernamentalidad para ver cómo tratan con el poder y la autonomía. Mi análisis demuestra que las dos democracias han hecho frente bien a las fuerzas internas y externas. También argumento que la democracia industrial enfrentaría desafíos al tratar con nuevas formas de trabajo que han surgido debido a la influencia de la tecnología.

Palabras clave: modelo viable de sistemas, metodología de sistemas blandos, teoría institucional, gubernamentalidad

Introduction

As I began to review the two excellent accounts of industrial democracy (Norway and Mondragon), it took me a while to reflect on how to respond, as I am not a specialist in the topic area. However, as I started reading the accounts, I began to sense a feeling of excitement that I may have something to say as a scholar working on organizations and management and systems thinking.

I plan to look at what has been written from three perspectives. The first perspective is from the viewpoint of systems theories. The editors mention General Systems Theory in their lead article. My view will be more from a cybernetics perspective, especially using the Viable Systems Model developed by Stafford Beer (Beer, 1984) as their essay asks a question about viability. I will also refer to Peter Checkland's work on Soft Systems Methodology (Checkland, 1989) as the article discusses conflict resolution with multiple actors with multiple perspectives.

The second perspective is from institutional theory as we are discussing institutions and their interactions with the environment in the two cases. I will specifically use Scott's work on institutional theory that discusses "regulative, normative and cognitive structures and activities that provide stability and meaning for social behavior" (Scott, 2014, p. 33). Within this view I will also discuss the role of institutional entrepreneurs. The term institutional entrepreneur refers to the "activities of actors who have an interest in particular institutional arrangements and who leverage resources to create new institutions or to transform existing ones" (Maguire, Hardy and Lawrence, 2004, p. 657).

The third perspective is from a governance perspective as my research covers project governance where we discuss the impact of governmentality on neoliberal theory which "involves a description of the shaping of freedom and power's attempts to negotiate the space between a subtle exertion of authority over subjects and their complete autonomy." (Baerg, 2009, p. 117)

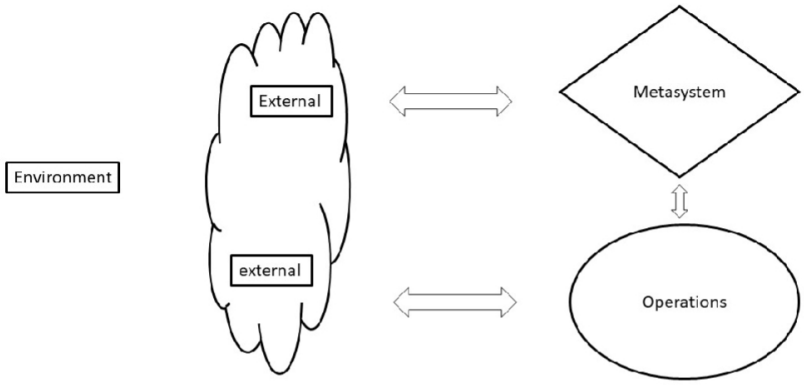
Before I discuss what, I observed about the case studies from the three perspective I will introduce some of these perspectives briefly for the sake of the reader who is unfamiliar with them.

1. Systems Theories

Cybernetics developed from control engineering but has similarities to the concept of GST (Bertalanffy, 1968) in that its founder Norbert Wiener (Wiener, 1948) opined that it works across disciplines as "it dealt with general laws that governed control processes whatever the nature of the systems under consideration" (Jackson, 2003, p. 7). The key concepts of cybernetics include communication, control, and feedback. While the early cyberneticists were mathematicians, engineers and scientists, cybernetics, also attracted social scientists such as Gregory Bateson's (Bateson, 1972), whose work on is mentioned in the lead article. I will also refer to another concept developed by cybernetics. Ross Ashby's concept of requisite variety (Ashby, 1956) is also used in Beer's Viable Systems Model. Ashby's notion of requisite variety implies that to cope with the complexities posed by an external environment a system (or organization) must have sufficient variety. The later cyberneticists developed second order cybernetics which is known as the cybernetics of the observing system taking a more subjective view that recognized the social construction of reality. Stafford Beer's Viable Systems Model is also driven by second order cybernetic ideas which originated from his work on neuro-physiological concepts which he applied to management systems. His original work viewed the firm using human physiology (heart and brain) as metaphors to design a viable organization (Beer, 1972; Beer, 1979).

The structure of a Viable Systems Model depicting an organization has three basic elements (see Figure 1).

Figure 1: Viable Systems Model for an Organization.



The metasystem represents the functions carried out at the top of an organization such as developing strategy and policy. The second element, Operations, deals with the day-to-day working of basic activities of an organization (e.g., manufacturing) and its coordination. An organization is an open system that is in constant interaction with the external environment. The organization interacts with the environment in two ways. The operations are concerned with the immediate environment (e.g., market demand for its product guiding the rate of production) while the metasystem is scanning the future environment to decide on policy and strategy (e.g., whether current products could become obsolete creating the demand for newer products).

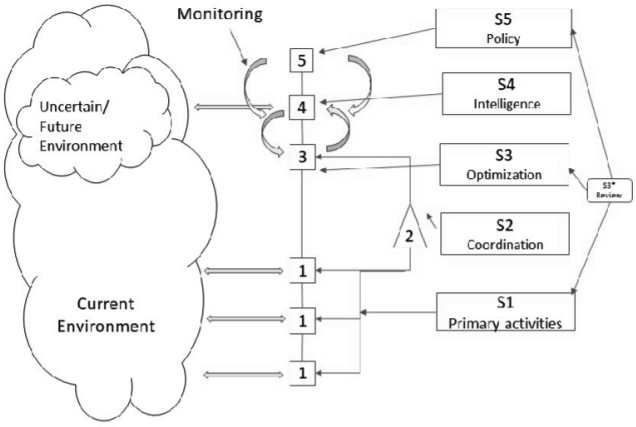
A Viable Systems Model as applied to an organization has five systems called S1 to S5, as shown in Figure 2.

S1 is the subsystem where primary activities of the whole system are performed. An example is the production line of a manufacturing firm.

S2 is the coordination function when several activities being carried out at S1 need to be coordinated or balanced to minimize perturbations. This work is usually carried out by managers on the production floor who manage any conflicts or remove bottlenecks.

S3 optimizes the interactions at the S2 level such as optimizing activities to balance production across several production lines and also acts as a resource bargaining for provision of adequate resources to S2 and S1. It also has a direct link to S5 which is the level of policymakers such as making regular reports on production figures. A special function at S3 which is known as S3* which is the audit function such as the quality control function in a factory that ensures that any quality issues are brought to light.

Figure 2: Subsystems of a Viable Systems Model.



S1, S2 and S3 are responsible for the present state of the organization and the day-to-day concerns of the organization.

S4 is called the intelligence function that scans the external environment to see if any future events that could impact on policy and strategy of the firm.

S5 is the policy level that direct the organization and set policy and strategy.

We will now look at how we can represent the two case studies using viable system model to analyse if all the subsystems depicted in Viable Systems Model can be identified and whether any of the essential components are missing.

I will use two figures presented in the case studies to depict a Viable Systems Model.

Figure 4 of the Norwegian Industrial Democracy System could be used to draw up a Viable Systems Model of the system. The structural elements shown in the political and socio-technical systems can be used to construct a Viable Systems Model of the Norwegian Industrial Democracy System as our system of interest.

The SDM projects (Figure 4 of the lead article) can be viewed as the S1 subsystem or operations of Norwegian Industrial Democracy System. The department committees can be considered as S2. These committees discuss improvement proposals, deal with work environment issues and initiate internal improvement teams. These committees coordinate the activities of the SDM projects.

The work carried out by the Work Committees dealing with the various reports can be considered as the work of subsystem S3. S3 acts like a hub and a link is shown to the Board indicating that Work Committees report back to the higher levels.

The role of the board clearly shows activities that are usually carried out at a policy level. However, because of the nature of this system the board and the union together represent the function so S5 as both have decision making responsibilities.

The role of the Working Environment Committee can be viewed as the work of S3* if it has a review or audit function or S4 if it also collects intelligence from the outside environment. This is unclear and the authors of the article can throw more light on this.

One example of how Norwegian Industrial Democracy System takes care of oscillations that have an impact on the system is evident from the way the systems managed downsizing. The assessment process clearly shows the balancing actions of the systems to keep it viable through self-organization.

It will be interesting to know how these challenges that led to downsizing were predicted or anticipated. That will show which body in Norwegian Industrial Democracy System performed the function of the subsystem S4.

Let us now look at Mondragon.

Figure 10 used in the Mondragon case study can be compared to a Viable Systems Model. In the Mondragon case the separation between the operations and metasystem is clearer.

S1 is clearly where work is carried out in departments and sections representing the daily work required to be carried out.

S2 is the line managers of the various functions depicted as Directors.

S3 is the work of the CEO who optimizes the function of the cooperative and communicates with the higher levels.

The audit committee along with the social council represent the function of S3*.

The President and the Governing Council represent the function of S5.

The subsystem S4 is again not so clear in the Mondragon cooperatives.

There is evidence that the Viable Systems Model for Mondragon has a balancing function between the political and socio-technical participation.

The lack of a S4 subsystems becomes clearer when issues with strategic decision making are explained from pages 35 onwards. Did the lack of a S4 subsystem lead to the collapse of Fagor Electrodomésticos as no intelligence function was performed? This is worthy of discussion in the article.

Incidentally Viable Systems Model has been used to design an adaptive Viable Systems Model to contribute to industrial democracy in a textile manufacturing company in Turkey (Toprak & Torlak, 2018). Table 1 shows a comparison of Viable Systems Models for the Norwegian Industrial Democracy System and Mondragon.

Table 1 – Comparison of Viable Systems Model for the two cases.

Subsystem	Norwegian Industrial Democracy System	Mondragon
S1	SDM Project/Initiatives	Work in departments and sections (Production?)
S2	Department Committees	Directors of department and sections
S3	Work Committees	CEO
S3*	Working Environment Committee	Social and Audit Council
S4	Unclear	Unclear?
S5	Board and Union	President and Governing Council

2. Soft Systems Methodology

Next, we look at aspects of Soft Systems Methodology evident in the two cases.

Checkland (1989) observed while in using systems engineering (a hard systems approach) to solve management problems that these problems were often ambiguous and not well structured. Addressing such issues required reaching an 'accommodation' of stakeholders who had conflicting views but could agree on a way forward through a debate. Soft systems thinking uses a process called "rich pictures" to capture stakeholder views visually. Checkland (1989) argues that problems faced in organizations should be called 'problematical situations' as you need to learn about the problem before addressing it. Rich pictures which capture problems without analyzing them does that. These pictures "capture informally, the main entities, structures and viewpoints in the [problematical] situation, the processes going on, the current recognized issues and any potential ones" (Checkland & Poulter, 2006, p. 25). Once rich pictures have been drawn by stakeholder groups with different perspectives, they can visit each other's pictures to understand their differing perspectives and the 'worldviews' that gave rise to those pictures.

In both cases in the lead article multiple stakeholder views had to be ascertained and 'accommodated' to achieve "desirable and 'feasible change" (Checkland, 1985). But it is unclear what participatory approach was used in Norway and Mondragon to debate stakeholder views and arrive at a consensus to move forward. That would have been useful to explain.

As soft systems methodology developed and started being used by practitioners to apply it to their own organizations it had to address social and cultural aspect of the situation being addressed as well, along with the power and political issues involved. This is also evident from the case studies in the discussion of sociotechnical participation and power and politics and its influence on the working of the two cases.

Another tool used in Soft Systems Methodology is the development of a human activity system. This usually takes place after the transformation required to improve the systems under consideration is discussed. The human activity system (HAS) represents the important steps to be taken to get the transformation in place including the sequencing of these steps. It serves as a high-level statement for the scope of a project that helps deliver the transformation and is evaluated for efficacy, efficiency and effectiveness. Figure 6 of Norwegian Industrial Democracy System resembles a HAS as part of the project design to develop flexibility to promote competitiveness.

While considering the transformation often the worldview of the systems under consideration is used to develop stakeholder accommodation. Mondragon's original motto (Ravn et. al., 2023, p.20) depicts its worldview "to do justice to a holistic view of the worker as a person".

3. Institutional Theory

Another perspective on the case studies is from institutional theory. I want to use Scott's three pillars framework to examine the case studies (Scott, 2014).

Classical institutional theory posits that organizations adopt organizational structures to suit the environments in which they operate to maintain stability and gain legitimacy. DiMaggio and Powell (1983) identified three types of isomorphisms that constrain organizations. Coercive isomorphism, which is enforced by external forces and behaviours of external organizations (e.g., mandatory reporting). Mimetic isomorphism, which rests on alignment and mirroring and works towards rendering organizations to imitate successful organizations in a field (e.g., a bank). Normative isomorphism, which influences organizations gaining legitimacy through adopting practices and standards established by professional bodies (e.g., ISO standards for quality). DiMaggio and Powell (1983) argued that organizations are not static and that the actions of "institutional entrepreneurs" can promote creative change. Battilana et al. (2009) described institutional entrepreneurs as individual actors within an organization who can change an organization through collective action.

Scott (2014, p. 56) defines institutions as made up of "regulative, normative, and cultural-cognitive elements that, together with associated activities and resources, provide stability and meaning to social life." Regulatory processes generally set rules and monitor and sanction organizations. Normative systems "include both values and norms" (Scott, 2014, p. 64). Values express desirable behaviours while norms "specify how things should be done". Normative systems specify desirable outcomes and how to pursue them. Cultural-cognitive areas are based on organizational cultures and behaviors bringing conformity to the way 'things are done' (Scott, 2014, p. 68); indeed, "a cultural-cognitive conception of institutions stresses the central role played by the socially mediated construction of a common frame of meanings" (p. 70). Javernick-Will and Scott (2010) created typologies of knowledge in relation to the three institutional pillars, as shown in Table 2.

Table 2: Typologies of knowledge (Based on Javernick-Will & Scott, 2010, p. 550)

Regulative	Normative	Cultural-Cognitive
Laws and regulations	Work practices	Local culture/beliefs
Operating laws	Social norms, expectations and local preferences	Language/concepts/meaning
Knowledge of government	Industry organization	
	Logistics	
	Relationships	
	Resources and productivity	
	Market knowledge	

The three-pillar framework can provide some insights into the two case studies to point out various aspects of the theory in use.

In the Norwegian Industrial Democracy System, the Main Agreement can be considered as part of the normative pillar due to the establishment of collective agreements as "Social norms, expectations and local preferences" while the industrial democracy experiments can be viewed as a cultural cognitive element to see if the results could be meaningful to the people

involved. Einar Thorsud's work created the necessity for change and he can be viewed as an institutional entrepreneur who tried to mobilise people through his research program.

The skilled people/groups using the institutional environment (Ravn et al., 2023, p. 8) point to a cultural cognitive aspect of the organization. The main agreement is also referred to as a regulative institution (p. 8) which points to the regulative pillar. The cooperative conference (p. 9) where deliberations take place contributes to the cultural cognitive pillar.

In the Mondragon case, the group of young entrepreneurs led by a charismatic priest to transform living conditions (p. 20) represents a form of intuitional entrepreneurship to instigate change to the system of cooperatives that can be viewed as an institution. The establishment of local protocols by the Work Councils (p. 20) represents a normative aspect of the institution as a work practice. The local variants developed to the protocols (p. 20) can be attributed to the cultural cognitive pillar as adjustments to suit local culture. So too are the Inter-cooperation mechanisms (p. 32) developed between cooperative and corporate structures. Cultural cognitive activities are also observed in the procedures that were developed to improve the robustness of decision making (p. 37) at the general assembly.

The criteria that were considered appropriate for a group of cooperatives to ensure fiscal processes such as earning, taxation, depreciation and amortization represent what was necessary to follow regulations thus pointing to the regulative pillar.

Table 3 shows a comparison of the elements of the three pillars for the two cases.

Table 3: Comparison of Three Pillars for Norwegian Industrial Democracy System and Mondragon

Case	Regulative	Normative	Cultural cognitive	Institutional Entrepreneur
Norwegian Industrial Democracy System	Main agreement	Main Agreement can also be normative?	Skilled people groups using the institutional environment Cooperative conferences	Einar Thorsud and his research
Mondragon	Fiscal processes	Work Councils	Local variants of protocols Procedures for General Assembly	Young entrepreneurs and charismatic priest

4. Governmentality

Governmentality refers to how 'we think about governing, with the different rationalities or, as it has been sometimes phrased, "mentalities of government" (Dean, 2009, p. 24). In other words, what we think about governing or being governed. The ideas of governmentality arose from the works of Barthes (2013) and Foucault (1991). Governmentality also represents how governance is implemented in organizations considering human aspects of governance.

When authoritative approaches are used to govern organizations, punishments or penalties are enforced on managers to follow rules and procedures. If liberal approaches are used, then managers are often incentivized to follow rules and procedures as well as motivated to follow them. In neoliberal organizations core values that members of an organization share and find it meaningful enables governance.

In both Norwegian Industrial Democracy System and Mondragon neoliberal approaches are found in setting up governance structures. When lack of orders led to the need for redundancies participatory processes were used, which led to a protocol signed by both the unions and management to decide on how redundancies will progress using a process agreed upon and valued by all. There was no attempt to force decisions to reach a fair solution. The mobile schedules used to deal with Covid-19 downsizing (Ravn et al., 2023, p. 33) and the establishment of benefits committee (p.35) shows how care is taken during times of change to look after the interests of the worker member. The collective leadership implemented to deal with challenges of the market dynamics also shows how the organization's vision and mission are kept in mind despite disruptive challenges. Several of the processes used in both Norwegian Industrial Democracy System and Mondragon reflect the care taken to protect workers even during challenging times indicating that these are values-based organizations.

5. Industrial Democracy

Poole, Lansbury and Wailes (2001) who have been studying developments in industrial democracy, discuss some ways to understand historical movements that are relevant to answer some questions raised by the authors. Poole et al. (2001) classify the main types of industrial democracies as:

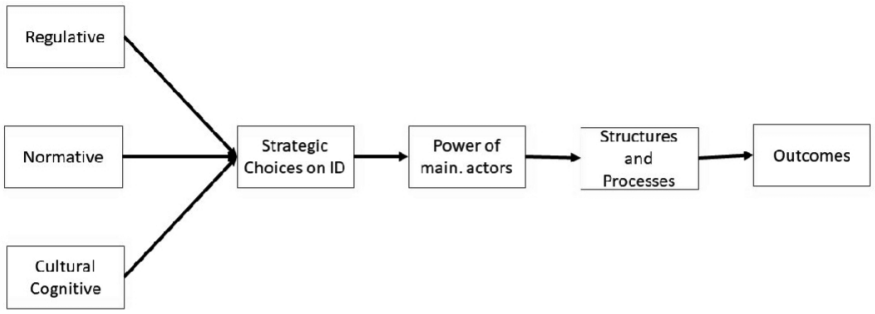
1. Initiatives started at the shop floor by workers to have control over production processes.
2. Union based participation where bargaining and negotiation on conditions of employment take place.
3. State-based initiatives with legislative support that focus on employee's rights to participate in decision making.
4. Initiatives taken by managers to increase employee involvement to contribute to efficiency, productivity and being adaptable to changes.

They trace the historical evolution of industrial democracy to three approaches:

1. Evolutionary approaches depend on 'growing role for the state and legislature in industrial relations' (p. 492).
2. Cyclical approaches that do not think that the development is linear but happen in cycles demonstrating "isolated periods of advance that have been followed by the decay and abandonment" (p. 492).
3. A more complex approach is based on isolation of factors that explain the movement. This view argues that "long term discontinuities arise from variations in the power of actors" (p.493), but the trend seems to favor management.

Poole et al. (2001) present a model to explain the growth of industrial democracy that include structural variables, subjective variables and the legal framework and politics. Poole et al's (2001) model can be viewed from the three pillars of Scott (2014) that was discussed earlier as shown in Figure 3.

Figure 3: Analysis of Industrial Democracy



Regulative elements are the legal framework and polity, normative elements are structural factors based on economics and technology and cultural cognitive elements are subjective based on cultural values and an ideological predisposition.

In a more recent book chapter published by Poole et al. (2018) point to the "recent advances in information and production technologies [that] have led to multitasking using operational clusters in the firms" (p. 26). These are relevant to the context of debates on industrial democracy and can be of relevance to address the questions asked in the article by Ravn et al. (2023).

More recently, Poole et al. point to a decline in trade and state unions over the past decade. They attribute this to "globalization not markets and production, fundamental political changes based on the neo-liberalist agenda, rapid technological advances" that have resulted in the increase in power of management (p. 27). This has been aided by declining economic performance especially in Western countries as production has moved to countries like China and Vietnam.

In the West, flexible specialization in work has given rise to 'responsible autonomy' among work teams (p. 29). This has led management to introduce new modes of participation using schemes that promote such participation.

6. Questions to be addressed

The two case studies with different trajectories demonstrate that industrial democracies have developed differently but there are some similarities as the analysis of these case studies using different perspectives shows. The use of Viable Systems Model to examine the two case studies shows that both streichen possess subsystems that can lead to a viable system, although their purposes may be different.

My analysis also shows that worldviews do guide these systems to cope with changes in the external environment, which led to downsizing in both cases. While changes had to be made for the systems to survive, the worldviews did provide some stability in the midst of change.

Unionized movements and cooperative systems are facing a crisis in the West as pointed out by Poole et al. due to economic conditions, technological advances and the imbalance in the power of management. This will require some adjustments in how these structures adapt to learn from each other and introduce new ways of working. The use of apps in Norwegian Industrial Democracy System is an example of how advances in technology can be used to enhance participation.

The analysis of the two cases using Scott's (2014) three pillars framework of Institutional Theory shows how elements of cultural cognitive pillars are used to adapt to changes.

The two case studies detailed in the article provide rich descriptions of processes, structures and protocols used to support their growth despite economic challenges. They serve as a good example that existing organizations can learn from in setting up industrial democracy designs.

However, changes are afoot and industrial democratic systems should adapt to new flexible ways of working. There is evidence that despite the diminishing union power and deregulatory policies adopted by governments, management could still take steps for increased participation to create high performance organizations (Levine, 1997; Diamond, 2011).

References

Ashby, W. R. (1956). *An introduction to cybernetics.* Methuen.

Bateson, G. (1972). *Steps to an Ecology of Mind: Collected Essays in Anthropology, Psychiatry, Evolution, and Epistemology.* University of Chicago Press.

Baerg, A. (2009). Governmentality, neoliberalism, and the digital game. *Symploke, 17*(1), 115–127. http://doi.org/10.1353/sym.2009.0028.

Barthes, R. (2013). *Mythologies.* Hill & Wang.

Battilana, J., Leca, B., & Boxenbaum, E. (2009). How actors change institutions: Towards a theory of institutional entrepreneurship. *Academy of Management Annals, 3*(1), 65–107. https://doi.org/10.1080/19416520903053598.

Beer, S. (1972). *Brain of the firm.* Allen Lane.

Beer, S. (1979). *The heart of the enterprise.* John Wiley.

Beer, S. (1984). The viable system model: Its provenance, development, methodology and pathology. *Journal of the Operational Research Society, 35*(1), 7–25. https://doi.org/10.1057/jors.1984.2.

Checkland, P. B. (1985). Achieving 'desirable and feasible' change: An application of soft systems methodology. *Journal of the Operational Research Society, 36*(9), 821–831. https://doi.org/10.1057/jors.1985.148.

Checkland, P. B. (1989). Soft systems methodology. *Human systems management, 8*(4), 273–289. https://doi.org/10.3233/HSM-1989-8405.

Checkland, P. B., & Poulter, J. (2006). *Learning for action: A short definitive account of soft systems methodology and its use for practitioners, teachers and students.* John Wiley.

Dean, M. (2009). *Governmentality: Power and rule in modern society.* Sage publications.

Diamond, L. (2011). The impact of the economic crisis: Why democracies survive. *Journal of Democracy, 22*(1), 17–30. https://muse.jhu.edu/article/412890.

DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review, 48*(2), 147–160. https://doi.org/10.2307/2095101.

Foucault, M. (1991). Governmentality. In G. G. Burchel, C. Gordon, & P. Millers (Eds.), *The Foucault effect. Studies in Governmentality* (pp. 87–104). University of Chicago Press.

Jackson, M. (2003). *Systems Thinking: Creative Holism for Managers.* John Wiley & Sons.

Javernick-Will, A. N., & Scott, W. R. (2010). Who needs to know what? Institutional knowledge and global projects. *Journal of Construction Engineering and Management, 136*(5), 546–557. https://doi.org/10.1061/(ASCE)CO.1943-7862.0000035.

Levine, D. I. (1997). Reinventing workplace regulation. *California Management Review, 39*(4), 98–117. https://doi.org/10.2307/41165912.

Maguire, S., Hardy, C., & Lawrence, T. B. (2004). Institutional entrepreneurship in emerging fields: HIV/AIDS treatment advocacy in Canada'. *Academy of Management Journal, 47*(5), 657–679. https://doi.org/10.5465/20159610.

Poole, M., Lansbury, R., & Wailes, N. (2001). A comparative analysis of developments in industrial democracy. *Industrial Relations: A Journal of Economy and Society, 40*(3), 490–525. https://doi.org/10.1111/0019-8676.00221.

Ravn, J. E., Imaz, O. with Ortega, I., Haga, T., & Greenwood, D. J. (2023). Productive pragmatism: Industrial democracy under neoliberal capitalist conditions. *International Journal of Action Research*, (this issue).

Scott, W. R. (2014). *Institutions and Organizations: Ideas, Interests, and Identities.* Sage.

Toprak, S., & Torlak, N. G. (2018). An adaptive use of Viable System Model with Knowledge System Diagnostics serving industrial democracy in a textile manufacturing company. *Systemic Practice and Action Research, 31*(1), 1–26. https://doi.org/10.1007/s11213-017-9419-6.

Wiener, N. (1948). *Cybernetics.* M.I.T. Press.

Shankar Sankaran is the Professor of Organizational Project Management at the School of the Built Environment and a Member of the Centre for Informatics Research and Innovation at UTS and a core researcher of Megaproject Management in its Industry Transformation Cluster at the University of Technology Sydney.