

Philadelphia PA (Unpublished). http://repository.upenn.edu/asc_papers/251

Lim H. S. & Ciszek E. (2024) Effects of perceived fit and authenticity in transgender influencer endorsement: An analysis of the Bud Light and Dylan Mulvaney's partnership. *International Journal of Strategic Communication: Latest Articles*.

McLuhan M. & McLuhan E. (1988) *The laws of media: The new science*. University of Toronto Press, Toronto.

McLuhan M. & McLuhan E. (2017) *The lost tetrads of Marshall McLuhan*. OR Books, New York.

Niu X., Wang X. & Liu Z. (2021) When I feel invaded, I will avoid it: The effect of advertising invasiveness on consumers' avoidance of social media advertising. *Journal of Retailing and Consumer Services* 58: 102320.

Zhang P. & McLuhan E. (2016) The interological turn in media ecology. *Canadian Journal of Communication* 41(1): 207–225. <https://doi.org/10.22230/cjc.2016v41n1a308>

Peter Jones is Distinguished Professor of Systemic Design at Tecnológico de Monterrey, in Mexico City. Jones is a co-founder of the Systemic Design Association and is Editor in Chief of the SDA journal *Contexts*. He is also a co-founder and Academic Director of the Flourishing Enterprise Institute. Dr. Jones's research involves design for complex service and social systems, incorporates cultural evolution and flourishing, cognitive ethnography of professional practice, and organizational. He has published a wide range of papers in systemic design, and four books, noted at <http://designdialogues.com>

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Harnessing Variety Engineering for Management of Non-Trivial Systems

Juliana Mariano Alves

Universidade Estadual do Tocantins, Brazil • juliana.ma/at/unitins.br

> Abstract • I explore the potential of second-order cybernetics to promote resilient processes and a capacity to adapt in systems of diverse kinds. For demonstration, I use two abstract systems: brand management and water governance. By connecting parallels between these systems, this commentary also aims to inspire transdisciplinary dialogues and practical innovations that not only reinforce the applicability of second-order approaches in these domains but also suggest that this approach can be adopted in other social and organizational systems, treating variety engineering as a management strategy.

Stakeholder consultation and co-creation for de-trivialization and viability

« 1 » Seiichiro Honjo's target article offers a valuable contribution by deepening our understanding of the relationship between second-order cybernetics and exploratory brand management. Honjo explores how stakeholder co-creation and systemic perspectives reshape traditional views of brand identity, presenting thought-provoking arguments for treating companies as non-trivial machines (§§76–78). Honjo aligns brand management with the principles of systemic design, emphasizing mutual value generation and brand activism, where brand identity emerges from continuous and recursive interactions (§§14, 72, 74). In this context, companies actively engage with social and environmental issues relevant to their audiences.

« 2 » This perspective shares similarities with the structures I have encountered in my work related to water governance, where River Basin Organizations (RBOs) act as mediators among multiple stakeholders, such as farmers, environmentalists, and policymakers. Companies and RBOs operate in complex ecosystems shaped by political,

economic, social, and environmental forces. To ensure their viability/sustainability, they cannot be managed as a trivial system; they must reflect environmental complexities and engage with social and cultural dynamics, aligning with contemporary challenges. It should be noted that the working definition conceives of governance as the system of rules, practices, and processes by which an organization is directed and controlled.¹ The concept of management is conceived as the design, control, and development of organizations (Ulrich 2001). The two terms are used by and large synonymously. It is also worth noting that viability and sustainability are nearly synonymous (Espinosa 2023). Viability refers to the ability to continue existing or developing as a living system (Beer 1985). Sustainability, on the other hand, as per the Cambridge Dictionary,² is defined as the quality of causing little or no harm to the environment, thereby enabling continued existence over the long term. Organizing for sustainability, therefore, implies organizing for viability (Schwaninger 2018: 1226).

« 3 » In his theoretical argument, Honjo emphasizes that non-trivial machines and second-order cybernetic models demonstrate that the observer and the system are not independent entities, but are intrinsically connected (§45). In this sense, companies and RBOs need a management model that not only reflects the systems in controls but is also capable of co-evolving in response to dynamic challenges. As Roger Conant and Ross Ashby (1970: 89) state, "Every good regulator of a system must be a model of that system."

« 4 » The ability of companies and RBOs to cope with environmental disturbances and preserve their identity/purpose is inherently tied to their capacity to learn and anticipate problems. In non-trivial machines, regulation through feedback alone is insufficient. According to Markus Schwaninger (2009: 26), the creation of a desirable future is largely based on what we

1 | "Corporate governance: Definition, principles, models, and examples," by James Chen, Investopedia 12 September 2024. <https://www.investopedia.com/terms/c/corporategovernance.asp>

2 | <https://dictionary.cambridge.org/dictionary/english/sustainability>

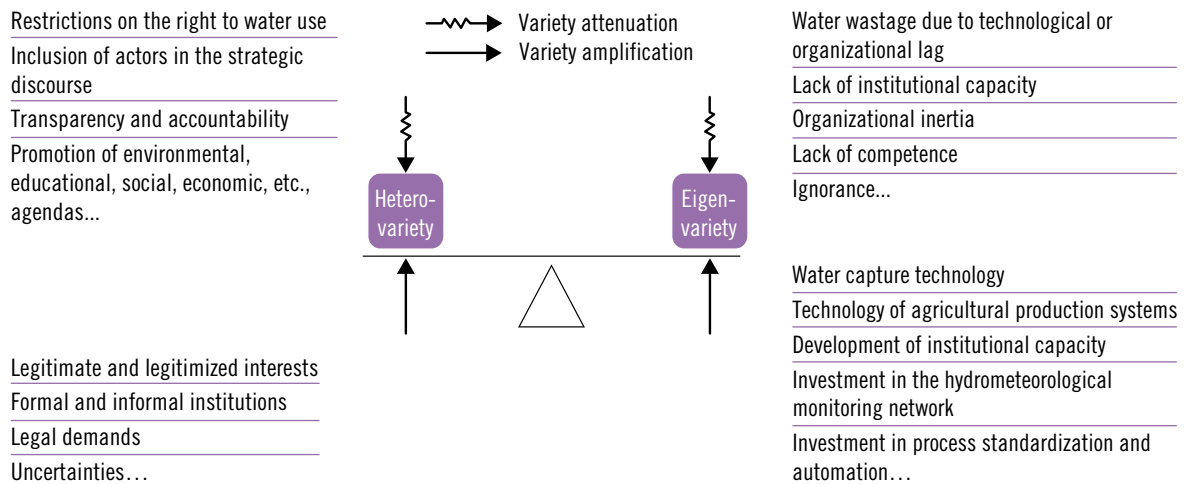


Figure 1 • Attenuating and amplifying mechanisms of complexity in an integrative water resources management. Diagram adapted and modified from Schwaninger & Ott (2023).

call steering, that is, on feedforward, and on the pre-control concepts. The difference between control and pre-control has become important under the evolutionary pressures of complexity and change. Pre-control is also a form of control but involves a longer time vista and operates thereby on a distinct logical level of its own. Pre-control concerns the anticipative creation of preconditions or prerequisites at a higher logical level, which largely predetermine what can be achieved in terms of control and performance at later stages and on the lower logical levels. These lower levels are orientated towards a shorter time horizon (ibid: 28).

« 5 » In this way, Honjo emphasizes the need to reformulate traditional marketing research methods. He suggests that, much like in a black box, the focus should not be on fully uncovering the system's interior but rather on observing emerging behavior patterns and understanding how interactions influence system outputs. This shift in perspective enables a move from deterministic control toward adaptive management, a transition that is equally applicable to water governance.

« 6 » Honjo's research on brand management reflects what hydropolitics researchers increasingly recognize – but have yet to verify in detail when analyzing the black box of RBOs – that institutional capacity within a watershed is as important,

if not more so, than the physical aspects of the system. According to Susanne Schmeier (2013), the results of the analysis go beyond the traditional institutionalist assertion that institutions matter, reinforcing the need to view governance as an evolving and learning system rather than as a static structure.

« 7 » Honjo invites us to think outside the box, uncovering how continuous feedback, stakeholder perceptions, and reflexive adaptations shape the identity and performance of a brand. Similarly, in water governance, second-order approaches encourage participatory decision-making and reflexive governance mechanisms that better account for shifting socio-environmental dynamics.

« 8 » Ashby's Law of Requisite Variety (Ashby 1956) provides an essential basis for analyzing companies or RBOs as non-trivial machines. For Stafford Beer (1984: 11), the Law of Requisite Variety for organizations is comparable to Newton's law of gravity: anyone who tries to ignore it will be unpleasantly surprised. The principle that “only variety can absorb variety” is central to understanding how complex systems can remain viable in highly dynamic environments. In brand management and water governance, institutions must be designed to accommodate and regulate increasing complexity, rather than suppressing it.

« 9 » In the context of brand management, Honjo argues that identity/purpose

should emerge from interactions with stakeholders (§71), which implies the need to amplify internal variety (or eigen-variety) to deal with the diversity of external demands (or hetero-variety). Similarly, in water governance, local communities act as critical sensors of the system, capturing environmental and social complexity and influencing decision-making processes. Brand management and water governance alike face the challenge of balancing the variety of interacting systems, which requires the attenuation of external variety by reducing excessive complexities and amplifying internal behavioral capacity through adaptive feedback processes.

« 10 » Variety engineering is the combinations of amplification and attenuation used to balance a system of interactions. Amplification and attenuation are the actions or strategies by which the hetero- or eigen-varieties of a set or agent are modified (Schwaninger & Ott 2023: 2). Figure 1 illustrates attenuating and amplifying mechanisms of complexity in River Basin Organizations (for further details, see Alves 2022 and Alves & Schwaninger forthcoming).

« 11 » In a management system balanced by variety engineering, first-order cybernetics, focused on external control and objective regulatory mechanisms, is insufficient to capture the social and complex dynamics involved in water governance, and the

same applies to brand management. Effective management requires the addressing of objective elements (a feature of first-order cybernetics, such as communication strategies) while also fostering reflexive adaptation (a feature of second-order cybernetics), which emerges from dynamic interactions with stakeholders.

« 12 » This approach avoids the trap of creating uncontrollable organizational complexities, and instead promotes structures and practices that make complexity manageable and effective in responding to organizational challenges. If these listings have been conscientiously made, and the relevant amplifiers, attenuators, and technological generators considered in terms of Requisite Varieties, some telling discoveries about the viable system under study may have been made already (Beer 1985: 46).

« 13 » Therefore, an integrative approach is necessary, in which the complementarity between first- and second-order cybernetics is essential for dealing with non-trivial machines that depend on continuous feedback and learning to remain viable. In *Designing Freedom*, Beer observes that freedom and control are not opposites but complementary; a stable identity/purpose guides the system, while execution remains adaptable (Beer 1974).

« 14 » Inspired by Schwaninger (2009), one key insight here is that ethical principles cannot simply be dismissed as subjective, as relativism might suggest. For companies, communities, or even broader societal bodies to function effectively, there should be an established set of shared values that guide decisions and actions. Without this, a society may lose the collective strength needed to confront challenges, as there would be no common ground to focus efforts toward a shared goal. Schwaninger (ibid: 142) argues that, while the postmodern view regards moral values as “polycontextural” – fragmented and incommensurable across different societal sectors – there is a crucial question: how can we reconcile the diversity of values with the need for unity in action?

« 15 » Reconciling diverse values with coordinated action is a critical challenge in brand activism and water governance. As Honjo highlights (§§62f), brand activism pushes companies to adopt responsible stances on societal issues, navigating con-

flicting values to align with broader goals. This mirrors Ishii's concept of the “evolutionary brand” (2022, apud Honjo §30f), where brands, much like the Japanese middle voice, perform actions while simultaneously being shaped by them – in contrast to the active voice, where the subject acts upon something else, or the passive voice, where the subject is acted upon. Ultimately, transforming systemic dynamics for mutual benefit hinges on an active commitment to inclusivity and the continuous process of learning and adaptation, which is also a vital condition for the sustainability of water services.

« 16 » Thus, in the process of de-trivialization, identity/purpose cannot be reduced to norms and regulations – it manifests, in the case of an RBO, in how water is distributed, the environmental impacts generated, and the system's capacity to adapt to climatic and social changes. Just as water governance is defined by its effectiveness in maintaining the viability of water services – encompassing regulation, provision, support, and cultural services – a brand's viability is determined by the tangible actions it takes to meet stakeholder expectations, rather than solely by what the company claims to represent.

Conclusion

« 17 » Honjo's insights into stakeholder co-creation and systemic design illustrate the critical role of de-trivialization in achieving organizational viability. In this commentary, I have aimed to contribute to this discussion by emphasizing how amplifying internal variety and attenuating external complexities can guide the management of complex systems. Brand management and water governance demonstrate the importance of balancing freedom with control and cultural pluralism with unified action. In this context, variety engineering emerges as the key to the viability of complex organizations. By applying strategies of amplification and attenuation of variety, organizations can manage the complex interactions within systems and foster the learning capacity essential for viability/sustainability. Therefore, variety engineering is not merely a tool for control but a fundamental principle for the co-evolution of systems. By integrating variety engineering into man-

agement models, brand management and water governance can be (re-)designed, creating more adaptive and sustainable organizations.

« 18 » Given these considerations, I am curious about Honjo's perspective on how to navigate the fine line between de-trivialization and maintaining manageable complexity. How can a system avoid excessive de-trivialization and overload of its capacity to absorb complexity, while still retaining its ability for self-organization and adaptability? **Q1**

References

- Alves J. M. (2022) Cibernética organizacional para o diagnóstico e o design da governança multinível dos recursos hídricos [Organizational cybernetics for the diagnosis and design of multilevel governance of water resources]. Doctoral dissertation, Universidade Federal de Tocantins. UFT Theses and Dissertations Repository. <https://repositorio.uft.edu.br/handle/11612/4020>
- Alves J. M. & Schwaninger M. (forthcoming) Water governance for sustainability: What do we need for a viable future? In: Shaping collaborative ecosystems for tomorrow. Emerald Publishing, Leeds.
- Ashby W. R. (1956) An Introduction to cybernetics. Chapman & Hall, London.
- Beer S. (1974) Designing freedom. John Wiley & Sons, London.
- Beer S. (1984) The viable system model: Its provenance, development, methodology and pathology. Journal of the Operational Research Society 35(1): 7–25.
- Beer S. (1985) Diagnosing the system for organizations. Wiley, Chichester.
- Conant R. C. & Ashby W. R. (1970) Every good regulator of a system must be a model of that system. International Journal of Systems Science 1(2): 89–97. ► <https://cepa.info/6403>
- Espinosa A. (2023) Sustainable self-governance in businesses and society: The Viable System Model in action. Francis & Taylor, London.
- Schmeier S. (2013) Governing international watercourses: River Basin Organizations and the sustainable governance of internationally shared rivers and lakes. Routledge, London.
- Schwaninger M. (2009) Intelligent organizations: Powerful models for systemic management. Springer, Berlin. Originally published in 2006.

Schwaninger M. (2018) Systemic design for sustainability. *Sustainability Science* 13: 1225–1234.

Schwaninger M. & Ott S. (2023) What is variety engineering and why do we need it? *Systems Research and Behavioral Science* 41(2): 235–246. <https://doi.org/10.1002/sres.2964>

Ulrich H. (2001) *Gesammelte Schriften* [Collected writings]. 5 Volumes. Haupt, Bern.

Juliana Mariano Alves is a professor at the State University of Tocantins (UNITINS), leading the Research Group on Development and Environmental Performance. She is also a professor in the Postgraduate Program in Management and Regulation of Water Resources (UNITINS, IFTO, UFT). In addition to her academic work, she has consulted for Brazil's Ministry of the Environment. As an MIT Climate Solutions Simulator Ambassador, she advocates for a cyber-systemic approach to climate challenges. Alves works on applications of the Viable System Model (VSM) to diagnose and (re) design complex adaptive systems, shaping new pathways for water governance in collaboration with communities, authorities, and stakeholders.

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Author's Response

Toward Implementing Second-Order Brand Management

Seiichiro Honjo

Institute of Science Tokyo, Japan
honjo.s.ab/at/m.titech.ac.jp

> Abstract • I emphasize the significance of addressing second-order brand management by clarifying the scope of the target article and the research context, in which the conditions and methods through which ethical and profitable business practices can be achieved are explored. Furthermore, I clarify the position of second-order brand management by distinguishing phenomena related to variety and complexity that can be attributed to selling and first-order brand management, and by using e-commerce case studies to support the theoretical framework.

« 1 » I would like to thank all the commentators for their stimulating and inspiring contributions. The commentaries received include elements I did not emphasize, aspects I failed to explain, and insights that will catalyze future development. In the target article, I aim to connect brand management and cybernetics by answering the two research questions (§§37, 80). Suppose I can convincingly demonstrate that brand management is a practice of cybernetics. In that case, the target article has achieved most of its goals. I propose two future research programs in the target article. The first is research on brands as systems (§82). This line of inquiry engages with the ecosystem of stakeholders incorporated within second-order brand management. The second is research into how to grasp the brand image held by stakeholders (§83). This line of inquiry is related to the question of how people perceive brands. I planned to conduct these research programs after the cybernetics community had recognized brand management as a relevant subject for cybernetic study. The commentaries I received are related to how to develop these research programs, so I can say that I achieved the purpose of the target article.

Scope of the target article

« 2 » **Peter Hayward Jones** provides a valuable clarification of concepts for readers unfamiliar with marketing and brand management to understand the target article while clarifying what the article addresses and leaves unaddressed. First, the definition of brand management cited by **Jones** (§3), which concerns “gaining power, by making the brand more known, bought, and engaging” (Kapferer 2012:10), does not align with the concept of a brand as an autopoietic system, as discussed in German-speaking countries and Japan. However, in the discussions developed in the target article, there are no deviations from Jean-Noël Kapferer's definition. **Jones's** (§2) point that the label exploratory should be further delineated is also plausible. In the target article, I use the term exploratory as an alternative to new. Conventional and exploratory labels correspond to traditional approaches and newer approaches to brand management, distinguishing between those with established methodologies and those without. Apart from those old and new, second-order brand management is exploratory in the sense that it is open-ended. **Jones** emphasized this exploratory nature in developing his commentary on second-order brand management. The brand portfolio strategy (Aaker 2004), including the master brand strategy described by **Jones** (§4), addresses the relationship among multiple brands. It has become common practice to define and systematically manage the relationship between the corporate brand as the master brand and product brands as subbrands. Although in the target article I do not address the management of multiple brands, brand portfolio strategy remains within the domain of conventional brand management – that is, first-order brand management. However, this point raises issues that warrant further exploration. Considering the complementarity between first- and second-order cybernetics, as discussed by **Juliana Mariano Alves** (§13), one could envision a strategic framework in which the corporate brand is approached through second-order brand management, while product brands are addressed through first-order brand management. This framework may offer a valuable analytical perspective.