

Management cybernetics

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Management cybernetics is the application of [cybernetics](#) to [management](#) and [organizations](#). "Management cybernetics" was first introduced by [Stafford Beer](#) in the late 1950s.^[1] Beer developed the theory through a combination of practical applications and a series of influential books. The practical applications involved steel production, publishing and operations research in a large variety of different industries.

As practiced by Beer, research into operations involved multidisciplinary teams seeking practical assistance for difficult managerial issues. It often involved the development of models borrowed from basic sciences and put into an isomorphic relationships with an organizational situation. Beer initially called this "[operations research](#)" (OR) but, along with [Russell Ackoff](#), became increasingly disenchanted with that term as the field transitioned into one in which a predefined set of mathematical tools was applied to well-formulated problems. Beer's critique of traditional OR, in part, was that it became a matter of experts in mathematics looking for situations that could be conformed to their methods. Beer insisted that what was needed for effective research into operations was to first understand the key dynamics within the situation and only then to select the theory or methods that would allow one to understand that situation in detail. Beer's "Decision and Control", especially chapter six, discusses the methodology in some detail.

Viable means capable of independent existence and implies both maintaining internal stability and adaptation to a changing environment. "Internal stability" and "adaptation" can be in conflict, particularly if the relevant environment is changing rapidly, so the [viable system model](#) (VSM) is about maintaining a balance between the two such that the system is able to survive.

The VSM is a model of the structures and functions that are both necessary and sufficient for the long term survival of a system in a changing environment. Allenna Leonard, Beer's longtime partner, suggested that the most useful way to think about the VSM is as a language. The VSM is a language of viability. The VSM is a language for diagnosing organizations and managerial teams in terms of their viability or lack thereof. The VSM is also a language for designing organizations and managerial teams that will be viable.

One of the great difficulties in managing the modern large organization is that many of the issues are far too [complex](#) for even small groups. The critical knowledge is often dispersed among a substantial number of people. Organizations are often faced with

choosing between 1) very costly and time-consuming meetings of large groups or 2) making bad decisions based on an inadequate grasp of the relevant factors.

Synteintegration is a group method designed to solve this conundrum.

Synteintegration melds a number of cybernetic principles with [Bucky Fuller](#)'s ideas on [tensegrity](#). The initial "team [syntegrity](#)" format involved 30 people divided into 12 overlapping teams to deal with some broad and initially ill-defined issue. The teams and roles within the teams are arranged to achieve the mathematically optimum degree of resonance of information throughout the entire group. In practice, synteintegration achieves a remarkable degree of shared understanding of the initial issue. In synteintegrations intended to develop a plan of action, the implementation phase is usually very quick and effective, probably because of the shared understanding developed among the participants.

The literature on management cybernetics is extensive. Beer wrote hundreds of papers and about ten books. Others have contributed perhaps an equal amount. Barry Clemson, at Beer's urging, [\[citation needed\]](#) wrote an introduction to management cybernetics. [\[2\]](#) Patrick Hoverstadt wrote an introduction using real-life examples. [\[3\]](#)

Organizational cybernetics (OC) is distinguished from management cybernetics. Both use many of the same terms but interpret them according to another philosophy of systems thinking. The full flowering of management cybernetics is represented in Beer's books [\[4\]](#)

Organizational cybernetics studies organizational design, and the regulation and self-regulation of organizations from a [systems theory](#) perspective that also takes the social dimension into consideration. Extending the principles of [autonomous agency theory](#) (AAT), cultural agency theory (CAT) has been formulated for the generation of higher cybernetic orders. [\[5\]](#) Researchers in economics, public administration and political science focus on the changes in institutions, organisation and mechanisms of social steering at various levels (sub-national, national, European, international) and in different sectors (including the private, semi-private and public sectors; the latter sector is emphasised). [\[6\]](#)

- [Autonomous agency theory](#)
- [Gregory Bateson](#)
- [Institut für Unternehmenskybernetik](#)
- [New cybernetics](#)
- [Viable system theory](#)
- [Warren McCulloch](#)

1. [^](#) Jonathan Rosenhead (2006) "IFORS' Operational Research Hall of Fame Stafford Beer", in *International Transactions in Operational Research* Vol 13, nr.6,

pp. 577–578.

2. [^ Barry Clemson \(1968\). *Cybernetics: A new management tool*.](#)
 3. [^ Patrick Hoverstadt \(2009\). *The Fractal Organization: Creating sustainable organizations with the Viable System Model*. ISBN 978-0-470-06056-8.](#)
 4. [^ Michael C. Jackson \(1991\), *Systems Methodology for the Management Sciences*.](#)
 5. [^ Yolles, M.I, Fink, G. \(2014\). *Personality, pathology and mindsets: – Agency, Personality and Mindscapes*, Kybernetes, 43\(1\)](#)
 6. [^ Organisational Cybernetics](#), Nijmegen School of Management, The Netherlands.
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- [The Cybernetics Society](#)
- [Web Dictionary of Cybernetics and Systems](#)