

## Viable System Model

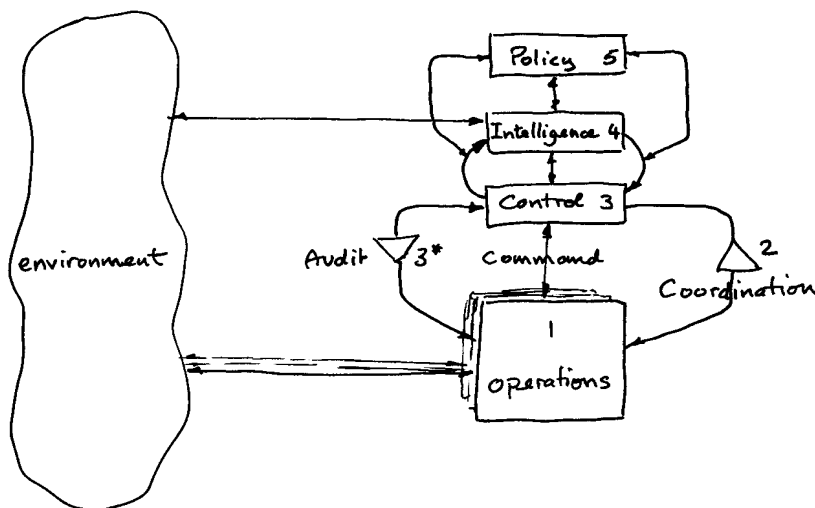
The Viable System Model developed by Stafford Beer draws on the science of cybernetics, applied to the management process of an enterprise. Beer argues that an enterprise must conform to certain invariant laws to maintain a separate although not independent existence from a supporting environment, and therefore remain viable. It would therefore have the capability to respond to changes in the environment, even if such changes could not be foreseen, with a variety of states that equal or exceed the possible states that can occur in the environment, relevant to the viability of the enterprise and therefore its purpose. This accords with a fundamental cybernetic law; Ashby's Law of Requisite Variety. This 'sufficiency' of variety can be achieved by attenuation of high variety, arising from the extent and complexity of information, and amplification of a potentially low variety response.

In order to be viable a system must incorporate five inter-connected functions.

- System 1 (operation) is those parts of the organisation directly involved in implementation, with each of these parts autonomous.
- System 2 (co-ordination) provides co-ordination between the sometimes many systems 1, to prevent oscillations.
- System 3 (control) provides short term control of internal stability.
- System 5 (policy) is responsible for policy.
- System 4 (intelligence) acts as a switch between the lower levels and System 5, and is the point where internal and external information can be brought together, with consideration of future requirements.

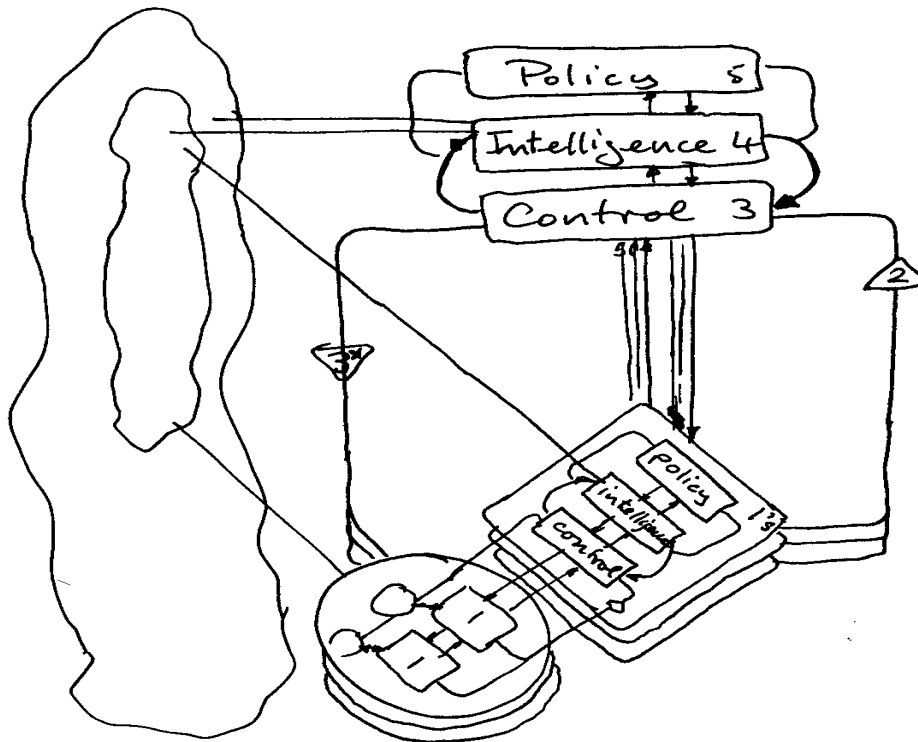
Direct control is minimised to that necessary to maintain overall cohesion by making use of indirect channels, one through system 2 and another termed system 3\* (audit) that links system 1 to system 3 on a sporadic, auditing basis.

**Figure - Simplified view of VSM**



The VSM is recursive in nature, with another viable system within each System 1 at an order of recursion lower than this system-in-focus. Conversely each viable system is contained within system 1 of a higher order of recursion. The autonomy of each level of recursion, ensures that the higher levels are not overwhelmed with unnecessary information. Again it is emphasised that direct control between system 3 and system 1 (and therefore between one level of recursion and the next lower level) is minimised to that necessary to maintain overall cohesion.

**Figure - Simplified view of recursive VSM**



In using the VSM, Beer cautions against confusing levels of recursion, and in defining a viable system. Particular functions are singled out, that can not be considered as viable systems in view of their being common services that contribute to synergy, and that their activities do not themselves constitute the purpose of the manufacturing company. For example sales and engineering are explicitly mentioned. Sales would be in the environmental loop in a manufacturing company but could constitute a viable system if the purpose of the company is to sell.