

Towards a Participative Methodology for Viable System Diagnosis

This paper introduces a participative methodology for the use of the Viable System Model (VSM). The methodology has been developed through practical application in a number of organisations. It emphasises the role and purposeful activity of the stakeholders in the system, reducing the potential for autocratic abuse of the VSM and redefining the role of the intervenor. Critical review of the purpose of the system is incorporated, the language of the model is simplified and the matter of relevance for the development function addressed.

Key words: Viable System Model, Viable Systems Diagnosis, methodology, participation.

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1. INTRODUCTION

The Viable System Model (VSM) (Beer, 1979, 1981, 1985) has been in the public domain for around twenty five years. During that time, the methodology for its use has been elaborated by Beer (1985) and crystallised by Flood & Jackson (1991), their work provides the platform for the methodology outlined in this paper. Numerous others (Clemson, 1984, Espejo & Schwaninger, 1993, Britton 1989 and Flood, 1993 & 1995) have worked with and developed both the model and its methodology. While Ulrich (1981) and others have criticised the VSM for being difficult to use in practise and for its apparent susceptibility to autocratic abuse, the utility of the model and its general acceptance, appear to have been inhibited by two key factors. The first of these may be considered as the language in which most of the established works are expressed; the second is the lack of an explicit participative approach in the methodology.

Beckford (1993) began to address these issues and this paper abstracts a revised methodology for the VSM based upon practical experience. This methodology works towards a participative approach and suggests revisions in understanding and language intended to make the VSM more accessible and acceptable to managers. The understanding of the VSM expressed in this paper requires that the model move beyond the constraints of the neurophysiological analogy (the “brain” metaphor) to incorporate the capacity for self-control in social systems. This is represented by accountability of the metasystem to those activities which create the system i.e. System One – Implementation.

2. “THE PURPOSE IS WHAT THE SYSTEM DOES.”

This section of the paper considers the definition of the purpose of the system and the achievement of a consensual view.

2.1Or is it?

The methodology for the VSM requires that the purpose of the system be determined. Beer (1985) suggests that “The purpose of a system is what it does” and what it does can be imputed from its outputs. In practical intervention, this leaves no scope for critical appraisal of purpose, either by an external observer or a stakeholder. If the purpose of a system, fulfilled through implementation, is defined by its outputs, which is what can be observed, then present outputs define present purposes. This raises a problem. What the system does is not necessarily what the stakeholders think it does, or indeed, want it to do. For example, Beer’s (1979) interpretation of the purpose of British Rail as a system for stopping him smoking and working would be most unlikely to be in accord with the view of the board of British Rail.

The methodology needs a prior step introduced which enables critical appraisal of the purpose of the system, asking not what it does, but what its stakeholders intend it to do. Taking Beer’s example, to model British Rail as an anti-smoking system would generate an entirely different outcome to a modelling which perceived a public transport system. Although each interpretation would be valid for its imputed purpose, only the second would contribute to a more effective and efficient railway, something which might be the purpose of British Rail from a management, staff and customer perspective. Effective and efficient pursuit of an inadequately defined or inappropriate purpose is of little benefit.

In taking this step, a more or less formal participative approach needs to be taken, extracted for example from Checkland’s (1981) Soft Systems Methodology or Ackoff’s (1981) Interactive Planning. In organisations where it is not possible to bring together the relevant stakeholders for debate, a variation on the Delphi technique or the Japanese Ringgi system may be appropriate. Using these techniques a view of the purpose of the system, as defined by one stakeholder (or group), may be circulated to each of the others who is free to amend it. This process may continue until a common view is achieved. Participants should focus on four key questions to aid this process:

- What constitutes the system?
- What are its outputs?
- Do the outputs meet expectations?
- What other, or different, outputs are sought?

Asking these questions should enable critical appraisal of the system definition and its purposes. These can then, if necessary, be redefined at the outset.

2.2 Consensus

Criticism may be levied that a consensual view of the purpose of the system may not be achievable. Similarly, it may not be possible to debate purpose in any meaningful way, for example in a coercive context, or where the purpose is given by a higher order system containing the system to be studied e.g. a division of a conglomerate.

In the first case, if the purpose cannot be agreed amongst the stakeholders, then the continued application of the VSM is rendered inappropriate and some other approach must be employed to handle that issue. In the latter cases, the intervenor must consider whether or not he or she is content to work with the given purpose and that must depend on personal values and beliefs. It must always be remembered that achievement of a truly consensual view may simply be unachievable if the participants are each seeking satisfaction of individual (or group) objectives and are unwilling to sacrifice or compromise these for the good of the system as perceived by others. The statement of purpose should represent the collective, agreed, perceptions of the stakeholders. Very importantly, it should not be defined by a consultant or management scientist, who often stands outside the system, is a supportive part of it or owes allegiance to a particular stakeholder group. It should be defined by those within it and responsible directly for the fulfilment of the chosen purpose.

An exercise defining purpose should be undertaken at every level of recursion to be studied. Care should be taken to ensure that the defined purposes are not in conflict with each other and that an appropriate degree of consistency is obtained. This is particularly important where the pursuit of a chosen purpose at a given level would lead it to direct conflict with its containing system.

3. SYSTEM IDENTIFICATION

This section reviews the process of system identification and looks at the division of activities at any given level of recursion.

3.1 What constitutes the system?

The process of negotiation and debate leading to agreement about purposes may also have revealed what, in the participant's view, constitutes the system to be studied. Its boundaries should have been defined and refined. The relevant system for achieving the given purpose should now be agreed by the participants. Identification of formal systems, such as a corporation or partnership, may be relatively straightforward – they are legal entities. It should not be forgotten however that the relevant system may extend beyond these legal boundaries. For example, an intervention addressing issues of Total Quality Management may well extend outside the organisation to accept customers and suppliers as part of the system

studied – they are each important stakeholders in the enterprise. Informal, or conceptual, systems such as the Trade Training Network in New Zealand (Britton & McCallion, 1989) or Commercial Broadcasting in the United States (Leonard, 1989) will need to be defined and their boundaries determined by those who claim their existence.

The system so defined is contained in and contains other Viable Systems. These should be identified at this stage.

3.2 Splitting the System

Identifying the contained systems requires a division of the activities within the system into two categories, purposeful and enabling. Purposeful activities are those which fulfil the purpose of the system; they are the implementation activities – the viable parts of the system-in-focus. All activities which are not identified as purposeful should, at this stage, be treated as potentially being enabling.

The containing system, that to which the system-in-focus belongs, may be more difficult to adequately define. It is suggested that the most appropriate approach is to select a containing system which is most useful for the purpose of the enquiry. This will be one that exercises a management, or controlling, influence on the system studied. It may be represented by a legal owner, a trade body, a franchisor, or perhaps in the case of government, by membership of a political or economic union e.g. the European Union, the Commonwealth. The identity of the chosen chain of viable systems, its purpose and existence, must remain open to question throughout any intervention. The topic should be revisited whenever considered appropriate by the participants in the study.

4. System Diagnosis

This section reviews the role of the consultant, the language used and the conception of the enabling functions of the viable system. Changes are proposed to these aspects as well as to the process of diagnostic enquiry.

4.1 The Role of the Consultant

The role of the consultant in Viable Systems Diagnosis (VSD) is often conceived as that of the expert, acting in the prime role of managing the intervention and accepting responsibility for the results.

Rather than this, it is proposed that the participants should drive the study. The consultant can then act in the role as ‘Devil’s Advocate’, consistently challenging and questioning the findings of the participants in the process. This is considered to help

the participants to explore and develop their own understanding of the situation. This in turn assists them to push back the limitations on their actions, to learn to question their assumptions about the organisation's reality and, importantly, to own the changes which result from the process. This approach is considered to help overcome the difficulty of application of the model. It must be accepted though, that in adopting this approach the redesigned organisation may not fully reflect the ideal encapsulated by the model.

4.2 Language

The naming of various parts of the system as Systems One – Five is considered as a further obstruction to understanding and use. These terms belong to management scientists and cyberneticians as experts, not participants as system members. Two changes are proposed here. First, rather than being thought of and described as sub-systems, the enabling functions should be thought of as sets of activities which, taken together, constitute a particular function. Second, these activities should be labelled by the use of names, not numbers. These changes ease understanding for those unfamiliar with the model and are less directly hierarchical in their implications than the numbering approach. Suggested names are standard:-

- System One – Implementation
- System Two – Co-ordination
- System Three – Control
- System Three* - Audit
- System Four – Development
- System Five - Policy

4.3 Enabling Functions

It is suggested that Co-ordination, Control, Audit, Planning and Policy taken together should be known as enabling functions. While Implementation activities fulfil the purpose of the organisation and are interdependent with the other functions, these other functions only exist to enable survival of the system in carrying out its purpose(s). Without purposeful parts there is no need for their existence; they are necessary parasites. This conception of their organisational role is considered to help clarify the reason for their existence and as a means of focusing their activity. This reduces the risk of pathologically autopoietic behaviour.

4.4 Implementation: System One

If the purpose of the system has been adequately defined, then each of the operational elements should emerge readily from its examination. Each of these

parts should be potentially viable and the act of isolating the enabling activities should highlight the purposeful parts and reveal any anomalous activity.

Frequently, difficulty arises when studying a traditionally tiered and hierarchical organisation. The layers displayed in the hierarchy rarely represent recursive levels of organisation. Departments and functional groupings will often not denote either purposeful parts or entire operations. Attention must be paid at this stage to splitting activities and functions coherently; the guidance of an organisation chart is more often an obstruction than an aid. Similarly, a basic assumption about the organisation may need to be challenged. For example, in a bank the basic assumption might be that the fundamental operating unit is represented by the physical branch network, very much the traditional view. This view could be replaced with a set of divisions of the customer base linked through an information system with the branch buildings treated as administrative devices for the delivery of certain services.

It will often be the case that a number of separate activities will have to be brought together to constitute a recognisable, viable operational element. It is vital, for the effective use of the model, that this aspect of the study is undertaken with care and, that alternative modelling are undertaken to determine which view is the most useful in the context of the purpose to be served.

Finally in this section, it is important, in addition to the standard requirements of the methodology, to determine whether the Implementation managers consider that they have sufficient authority and capability to achieve their purposes. Authority represents freedom to act and these managers must be able to take decisions on matters relevant only to their own unit. Similarly, it is useless to grant authority to the manager if his or her capacity for managing is inadequate for the variety absorption requirements of the role.

4.5 Co-ordination: System Two

Co-ordination is one of the most difficult sets of activities to isolate within a system, often appearing to be passive rather than active. Beer (1985) suggests as one example a school timetable; another might be allocation of service bays at a car dealership, or telling windows in a bank. Each of these serves to dampen potential oscillation between Implementation elements and reduces the need for routine decision making through Control activity. Co-ordination provides a service to Implementation and in so doing reduces the variety that Control must absorb.

The Co-ordination function can also deal with the 'soft' issues of an organisation such as ethical standards and management of culture. If such aspects are not to be seen as 'commands' they must be handled in this way.

Poor handling of these aspects of systemic cohesion, or 'organisational glues', have been seen in the development and breakdown of many nations this century, particularly those in Eastern Europe. These appear to have been bound together through central dictat rather than common interest, cohesion being ensured by apparently oppressive regimes. Once the pressure is released, the organisations fragment. Some organisations, such as Hewlett Packard, have a very strong sense of identity and employees who do not share it will apparently rapidly leave the organisation. This sense is reinforced through recruitment practices designed to ensure a good fit of the new employee with his or her colleagues. The 'HP way' in recruitment may be seen as a massive variety attenuator, affecting the behaviour of the entire workforce. To those on the inside, the 'HP way' is not perceived as command based, but as a positive step towards a sense of belonging.

Disney on the other hand appears oppressive. It regards itself as being in the entertainment business and treats staff as 'cast' members, each playing a role when 'on stage'. The staff are instructed in their role and religiously follow their script, minimal variations are allowed. All this seems reasonable given the fantasy nature of the product. However, the instructions to staff at Eurodisney to wear 'proper undergarments' at all times, seems to me to be moving beyond the bounds of cohesion. Quality of underwear does not affect the quality of performance. The organisation appears to be going past the needs of anti-oscillatory, or even control, requirements and imposing a set of expectations which reduce individual autonomy to zero.

Such massive attenuation of personal variety must be questioned in a world where staff are increasingly highly educated, and articulate, and where much attention is being paid to the rights and expectations of individuals. It is difficult to accept that cohesion through corporate dictat, rather than individual commitment, can be sustained. This demands a more deliberate use of the co-ordination mechanisms for creating and sustaining corporate culture.

The methodology must ask:

- Whether 'soft issues' such as ethics, morality and culture are addressed through co-ordinating devices.

The answers will not only reveal whether and how these issues are addressed but also tell something of the nature of the organisation itself, i.e. is it democratic or autocratic.

4.5 Control: System Three

Control activity is concerned with the management of the on-going day-to-day activities of the system. It is responsible for informing

- How are the parts of Control made accountable, at this level of recursion, for the recursions they consume?
- How is their performance, in enabling the fulfilment of purpose, measured?
- Are all Control activities necessary to the maintenance of the system?

It will frequently be found that the answer to these questions is that there is no accountability; there is no measurement of their performance. Control functions are recognised as necessary to the functioning of the organisation, the cost and bureaucracy which arises is simply accepted as part of the expense of being in existence.

The Control activities should be critically examined to answer the foregoing questions. This will help in the identification and resolution of problems of pathological autopoiesis, inhibiting the development of their own purposes. The answers will help in the allocation of resources to the control function, and taken with the additional questions proposed for Implementation, will contribute to the determination of the appropriate level of autonomy in the system studied while ensuring cohesion.

One device used to achieve control of Control has been the inclusion of all Implementation managers in Control activity. This provides two benefits. First, they can monitor resource consumption by other System Three components. Second, they are provided with a view not just of their own element, but of the whole system, this helps to broaden their understanding of different and competing needs.

4.6 Audit: System Three*

Audit is a commonly failing function. As Beer suggests, while audits are carried out they are ineffective because they have become routine and predictable. Effective audit is essential to amplify knowledge of Implementation at Control. The methodology must seek to determine:

- whether audit activities are sporadic or routine?

If audit activity has become routine then it has been denatured; it has lost its investigative power.

A second point here is the variety attenuating capacity of sporadic Audit. The knowledge at the Implementation level that certain activities are unacceptable or proscribed, and when discovered will lead to retribution, may inhibit the desire to engage in them. This serves to reduce the potential for friction with System Three and can induce a relaxation of actual control while retaining the control framework, i.e. Implementation feels that it is conforming voluntarily rather than by coercion.

The Control activity should include the responsibility to reward good performance at Implementation as well as punish transgressions.

While normally undertaken as a check on conformance, a form of inspection, audit should not only be used in this sense. It should be extended to allow sporadic amplification of any relevant aspect of Implementation to Control.

4.7 Development: System Four

Development is responsible for creating the future of the organisation. It is the key to adaptation and any organisation without this facility will experience great difficulty in coping with environmental change and in generating organisational growth.

It is suggested that the Development activity is the root of any viable system, any new organisation emerging from an existing one to which it may or may not be similar. An idea or possible future arising in one system, if not accepted by that system yet carrying the commitment of its originators, may lead to the emergence of a new and separate system. That new system will have as its initial purpose 'planning of the new venture' and once the preparation has reached critical proportions, it may break away from its host and seek to implement its own future.

It seems that most organisations, having defined themselves and their future once, consider that the problem is solved. They cease to actively seek alternative futures or selves, emphasising internal stability and thus jeopardising viability. They view planning and management as actions not processes. The essence of viability seems to rest in the ability to constantly redefine the organisation, its structure and purposes, in the light of environmental disturbances and changing expectations, while maintaining cohesion.

Development activity is often a poorly articulated, unwelcome and unaccountable presence in organisations. The creation of a highly change oriented mechanism is inhibited in an organisation that resists change. The result of this weakness is evidenced by an obsession with short term results and the 'fire-fighting' attitudes of many managers. Espejo & Schwaninger (1993) have proposed a new approach to considering organisational fitness which provides a framework for the discussion of development problems which should help to alleviate these difficulties.

The established methodology for the VSM already adopts a critical stance for Development, aiming to discover whether the activity undertaken guarantees adaptation. Further questions are necessary though to encourage focused, accountable development work. As with Control, measurements of performance and resource use need to be installed to inhibit the growth of pathological autopoietic behaviour. Equally, Implementation managers should be included in the Development function since they contribute to the essential model of the enterprise;

they have after all greater knowledge of the system than any consultant or 'staff expert'. The technological model of the enterprise, represented by Beer's Opsroom, will be enriched by the inclusion of those staff who will bring to the debating process the human values which must influence decision making. Since these Managers are involved in decisions which affect themselves, they cannot behave autocratically. They are defining their own freedom.

4.8 Defining Relevance for Development

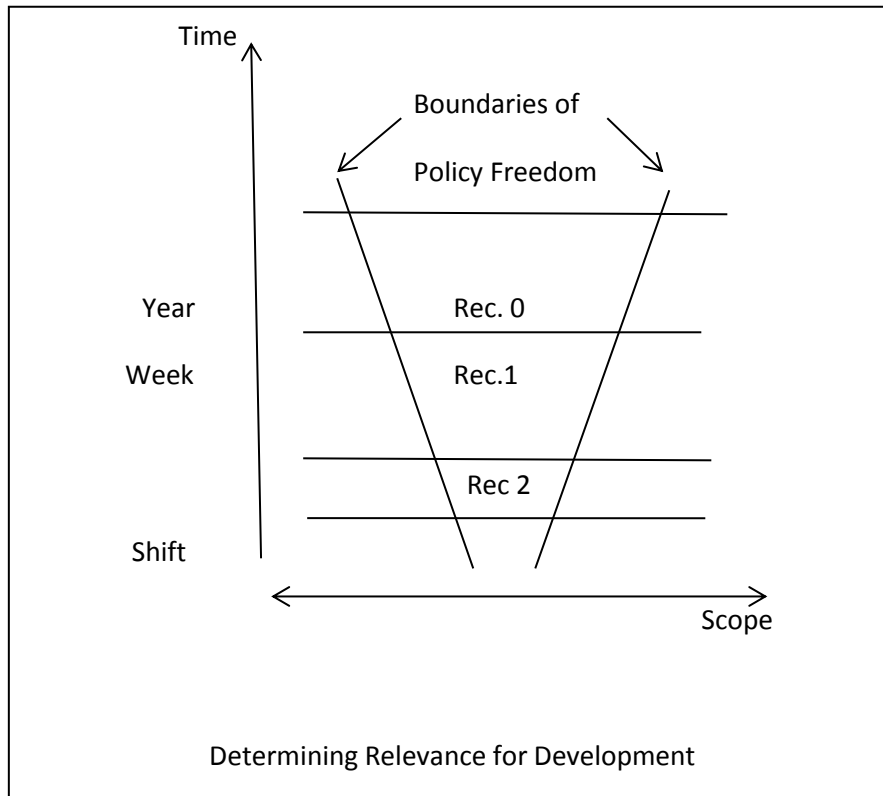
The development function must guarantee adaptation of the system to the changing environment. This is normally taken to involve activity such as market research, product development etc but must also include the internal development of the organisation's facilities e.g. how to take advantage of new technology or new understandings of organisation. Experts in these areas often fail to focus on the needs of the organisation, pursuing instead the latest developments in their field of expertise. The rapid changes in computing provide a good current example, with central computer departments often pursuing the latest technology because that is professionally exciting, regardless of its usefulness for the enterprise. While the Development function must explore changes which may hold opportunities or threats for the future of the organisation, there must be a means of evaluation and internal control which recognises and prevents useless pursuit of irrelevant changes.

The Development function is perhaps the area of the VSM where recursivity needs to be most clearly understood and articulated. This will enable the recognition of what constitutes a relevant development at any particular level of recursion. This may be determined by two factors; time scale and scope.

Scope may be determined by the membership of a higher level system which imposes constraints on the freedom of Policy at the subject level, a topic which will be explored in section 4.10. Any Development activity leading to research which would provoke Policy decisions outside the constraints imposed from the next higher level must be seen as irrelevant at the subject level. That is not to say that the metasystem, in its Implementation embodiment at the next higher level, cannot alert its metasystem to developments beyond the scope of its own enquiries, but it should not utilise its own resources in that area.

The second factor is time scale. At any given level of recursion, the organisation will work within a relevant time scale. For example, in a production environment the relevant time scale for the Production Line manager might be 'the shift', a period of around eight hours in which a particular volume of output is required. The planning and development time scale for that manager is determined by the start and finish times of the shift. At the next higher level, say that of Manufacturing, the Manufacturing manager may have a broader time scale of the 'Production Week'. His or her development activity, at that level, is again limited. The Manufacturing manager may have a further embodiment at the 'Factory' level of recursion where

the Development horizon changes again, perhaps expanding to a year, while the scope of planning activity would similarly broaden. This idea is presented diagrammatically in figure 1.



The additional questions to be included in the methodology for Development are:

- how are the Development activities made accountable, at this level of recursion, for the resources which they consume.
- how is their performance in enabling the development of the system measured.
- how is the relevance of Development activity determined.
- how does the Development function learn from the experience of the whole system.

4.9 Policy: System Five

The Policy function is responsible for the creation and maintenance of the identity of the system i.e. its values, beliefs and expectations. Its task is to listen to the debate between Control and Development and arbitrate between their potentially conflicting demands using the embedded values as the basis of decision. This could be viewed as a metasystemic Co-ordination role, ensuring that the present and future of the

organisation are properly coherent. The diagrammatic convention adopted by Schwaninger (1993) is useful here, showing the two functions alongside each other rather than in a hierarchy.

Since at any given level, Policy can only receive intra-recursion information, it can only make decisions based upon that information. Its function must be to dampen oscillation between Control and Development. This will, as required by the logic of the model, absorb all remaining variety.

There are two flaws apparent with this expectation. First, in a social system, the Policy function will be composed of one or more people. No matter what the logic of a proposal, or the need for decisions to be taken, an individual may be in this role who is apparently incapable of fulfilling it. Beckford (1992) gave an example of a Policy function creating an 'organisational greenhouse effect', a variety mirror bouncing back into the organisation all the residual variety it was expected to absorb.

Second, there is a flawed assumption – that the Policy function, given the requisite information, has complete freedom to act in the best interests of the system. However, any one viable system is, by definition, nested in a chain of viable systems and Policy is constrained by its embodiment as an Implementation Management unit at the next higher level of recursion. In other words, Policy cannot simply act in the interest of its own level of recursion since there would be no guarantee of cohesion with its own metalevel.

It must be recognised that the behaviour of Policy is modified by its existence as an Implementation unit at the next higher level. Autonomy is inhibited by membership of the chain of systems and the VSM is recursively open to influence from higher levels.

This must be accounted for in the methodology for using the model. Any intervention recognises three levels of recursion, the system-in-focus, its contained systems and its containing system. A practical intervention will always be bounded by limitations of time, finance or the interest of the organisation studied; there will always then be a highest recursive level available for examination. The practitioner must always establish what limits on behaviour constrain freedom to redesign the system arising from its membership of a wider system not under study.

Perhaps, if Beer & Allende had recognised that the autonomy of Chile was constrained by it belonging to a higher recursion – 'the World of Nations' – which had expectations of it, the outcome of their work may have been different.

5. SUMMARY METHODOLOGY

This section summarises the whole of the revised methodology. It uses the work of Flood & Jackson (1991) as its base. New material is in bold print.

System Purpose:

It is necessary initially to identify the purpose to be pursued by the system. This is achieved through a process of discussion and debate centering on four questions and involving all relevant stakeholders in the system:

- **What constitutes the system?**
- **What are the system outputs?**
- **Do the outputs meet expectations?**
- **What other, or different, outputs are sought?**

System Identification:

Taking the purpose as **defined**, determine the relevant system for achieving the purpose. This is called the 'system-in-focus'.

Remember that the purpose of a system is what **the stakeholders consider it should do**, and what the viable system does is done by **Implementation** (so it is Implementation that produces the 'system-in-focus').

Specify the viable parts of **the Implementation activities** of the system-in-focus.

Identify the apparently enabling activities carried out within the system-in-focus.

Specify the viable system of which the system-in-focus is part (wider systems, environment etc). **This should be that system which is considered the most useful for the purpose of the enquiry and will normally exercise a management or controlling influence.**

System Diagnosis:

In general, **ask the participants to** draw upon the cybernetic principles to carry out the following:

Study the **Implementation functions** of the system-in-focus and:

- For each **Implementation element** detail its environment, operations and localised management
- Study what constraints are imposed upon each **Implementation element** by higher management
- Ask how accountability is exercised for each part and what indicators of performance are taken
- **Determine whether Implementation managers have adequate authority and capability to enable the fulfilment of purpose**
- Model **Implementation** according to the VSM diagram.

Study the **Co-ordination functions** of the system-in-focus:

- List possible sources of oscillation or conflict between the **Implementation elements** and their environments and identify the co-ordinating mechanism that have a harmonising or damping effect
- **Determine whether 'soft tissues' such as ethics, morals and culture are addressed through this function**
- Ask how **co-ordinating activity** is perceived in the organisation (as threatening or facilitating)

Study the **Control functions** of the system-in-focus:

- List the **controlling activities** of the system-in-focus
- Ask how **Control is exercised**
- Ask how resource bargaining with the **Implementation elements** is carried out
- Determine who is responsible for the performance of the **Implementation elements**
- **Establish whether Control and Development activities are adequately discriminated from each other**
- **How are the parts of Control made accountable, at this level of recursion, for the resources which they consume**
- **How is their performance in enabling the fulfilment of purpose measured**
- **Are all Control activities necessary to the maintenance of the system**
- Clarify what 'audit' enquiries into aspects of **Implementation, Control** conducts
- **Are audit activities sporadic or routine**
- Understand the relationship between **Control** and **Implementation elements** (is it perceived to be autocratic or democratic?) and find out how much **autonomy Implementation elements** possess

Study the **Development function** of the system-in-focus:

- List all the **Development activities** of the system-in-focus
- Ask how far ahead these activities consider
- Question whether these activities guarantee adaptation to the future

- Determine if **the Development activities** include monitoring what is happening to the environment and assessing trends
- Assess in what ways, if any, **the Development function** is open to novelty
- Find out whether the **Development activities have a** management centre/operations room, bringing together external and internal information and providing an 'environment for decision'
- Question if **Development** has facilities for alerting **the Policy function** to urgent developments
- **How are the Development activities made accountable, at this level of recursion, for the resources which they consume**
- **How is their performance in enabling the development of the system measured**
- **How is the relevance of Development activity determined**
- **How does the Development function learn from the experience of the whole system**

Study the **Policy function** of the system-in-focus:

- Ask who is on 'the Board' and how it acts
- **Determine what constraints are imposed on Policy making by the next higher level of recursion**
- **How do these constraints limit freedom to adapt**
- Assess whether **the Policy function** provides a suitable identity for the system-in-focus
- Ask how the ethos set by **the Policy function** affects the perception of Development
- Determine how the **Policy** ethos affects the **debate between Control and Development** (is **Control** or **Development** taken more seriously?)
- Investigate whether **the Policy function** shares an identity with **Implementation** or claims to be something different

Check that all information channels, transducers and control loops are properly designed.

At each stage of the process critically review each response with the participants to help them explore and develop their understanding. Amend results as necessary.

6. CONCLUSION

The methodological changes for Viable System Diagnosis proposed in this paper do not represent an end but a beginning. Considerable work remains to be undertaken in; defining and refining the extent, meaning and value of the participation proposed; reducing the practical problems of using the VSM and validating the revised approach in a wider range of organisational contexts than has so far been reported

(see Beckford, 1993). Equally the impact of using plain English rather than the rather obscure language of cybernetics and management science must be explored.

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