The '*O*ne *P*age *M*anagement *S*ystem' (*OPMS*)

Some technology and behavior issues in abstract

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Our ***OPMS*** software is now being released on trial! Write in to us to find our how you could get hold of it!

A: UNDERLYING THE OPMS APPROACH:

1. The **'One Page Management System' (*OPMS*)** is a powerful means to enable people (as individuals or as groups) to accomplish their complex Missions with significantly higher effectiveness than is possible by any conventional means**.** It enables the creation of **effective** Action Plans to accomplish challenging Missions, along with all systems and sub-systems needed for the effective implementation of the Action Plans**.**
2. ***OPMS*** is based on **Interactive Management (*IM*). *IM*** is a set of system methodologies that specifically enable groups of people involved in complex problems to put into practice what is known as the **structural approach to system design.** This structural approach has been propounded by the renowned systems scientist, Professor John N. Warfield, with a view to enable people 'understand system complexity and practically cope with it'. There is a considerable information about ***IM*** at a site maintained by Warfield:
   <<www.gmu.edu/departments/t-iasis>>
   and also at
   <<http://www.gmu.edu/library/specialcollections/warfield.htm>>**.**
   Professor Warfield was President of the IEEE SMC Society and also of the Society for General Systems Research
3. The ***OPMS***, like its parent ***I***nteractive ***M***anagement (***IM***), involves a careful integration of **behavioural** considerations with **technology** considerations – as it is clear that technology alone cannot resolve our system problems**.** ***OPMS*** enables individuals as well as groups to put into effective practice "**the structural approach to systems design".**
4. The fundamental idea underlying the ***OPMS*** is always**: "To enable anything and everything that could contribute to the accomplishment of the identified Mission** AND **to remove or at least minimise all potential obstacles, hindrances, barriers, weaknesses, etc, that might hinder or prevent accomplishment of the Mission".**
5. **What's special about the *OPMS*:** See Page 1 of the note titled: **"*OPMS* – Description"**

Behavioural Issues

6. The fundamental principles underlying Interactive Management derive from the following: **True resolutions of complex problems can be developed only by the people actually involved in them.**
7. **Human behaviour must be given due consideration at the very basis of design** so as to enable desirable individual and group behaviour towards enhanced productivity of the and of the group. Only in this way would we be able to accomplish effective design of complex systems. Thus, for instance, the maintenance of systems must be duly considered right at the beginning in the design of systems – and this should include the behaviour of the human components involved in system maintenance!

Technology Issues

8. Technology is invoked primarily in order to enable that human attributes are properly considered so as to enhance intellectual group productivity.
9. The designed system must be transparent to: a) the designers; b) those involved in its maintenance; c) those who need to use it (i.e. all the stakeholders of the system).
10. To ensure transparency of any system, we need to ensure that the **relationships** between the parts of the systems are made clear to all the stakeholders of the system.
11. A most important set of relationships is those relationships that are **'transitive'** (see 'Transitive Relationships and their Logic', Page 5 of this note). Such transitive relationships enable us to explore various parts of systems, in depth**.** (See 'Examples of transitive relationships', Page 6).
12. **Interpretive Structural Modeling (ISM)** is a powerful modeling methodology conceived and developed by Professor John N. Warfield as a grand generalisation of the PERT Chart methodology (which enables creation of structures based on the transitive relationship **"precedes"). ISM** enables users to create structures based on **ANY transitive relationship whatsoever.**
13. **ISM** enables, for instance, the development of **effective** Action Plans designed to accomplish any chosen Mission. During our workshops, we are able convincingly to demonstrate that: a) An Action Plan can indeed become highly effective through the ***ISM*** process demonstrated at our workshop**;** and b) Action Plans made without a process such as is demonstrated are likely to have major gaps and holes in them**.** This is just one of the significant advances enabled by ISM.
14. Another powerful modeling tool invented by Warfield is **Field Representation (FR)** method. FR enables us to insert factors of a

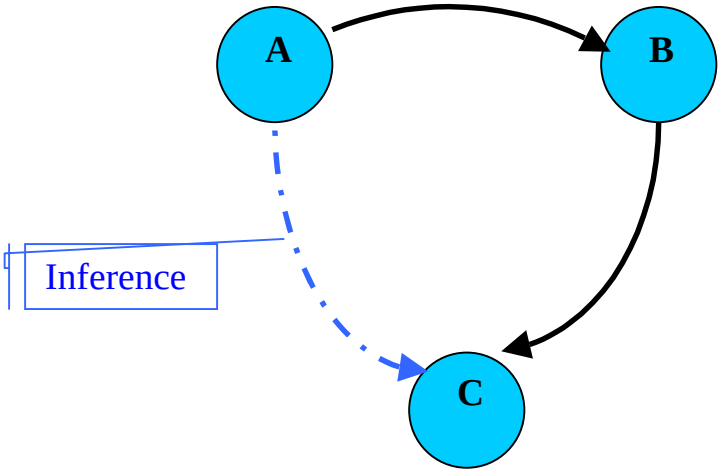
system into appropriate **similarity classes** (or categories) entirely on the basis of the similarities perceived – without being constrained by the pre-existing classes or categories we may have become accustomed to. An FR is created by asking whether elements, taken two-by-two, are **'similar to'** each other. If 'YES', the two elements go into the **same class;** if 'NO', the elements go into **different** classes. Titles to the classes are given **after** the FR is felt to be is reasonably complete. A most important feature in an FR is the **'System Tie Line'**, which represents **'any or all the relationships in the system under consideration'.**

15. FR method enables representations of systems in terms of the 'Dimensions' perceived in the system under consideration – the Dimensions being created on the basis of existing reality, not the categories we may have pre-conceived mentally or by habit.
16. It turns out that FR helps us develop representations of systems that, over iterations, would come to satisfy **"Ashby's Law of Requisite Variety".**
17. A 'Simple Simon' statement of Ashby's Law**:**

    "The dimensions of any proposed solution to a problem must match the dimensions of the problem". (**Because:** If the solution dimensions are too few, it will not work. If the dimensions are too many, the solution will be too expensive or too complicated) because the system is 'overconstrained'.
18. Studies show that most failures and non-optimal performance in human-made systems arise simply out of the failure of the system to satisfy Ashby's Law. It is found that creation of Field Representations enable us to graphically portray systems in such a way that the total system design would be more likely to satisfy Ashby's Law.

B: The Logic of Transitive Relationships

Positive Logic

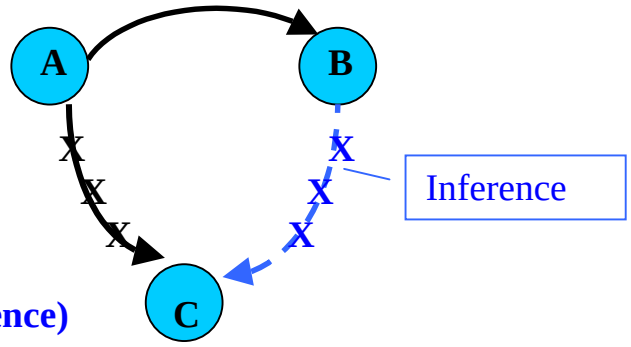


If ‘A’ ⟶ ‘B’
AND
If ‘B’ ⟶ ‘C’
THEN
‘A’ MUST ⟶ ‘C’ (Inference)

(where ⟶ stands for transitive relationship under consideration – say, **‘precedes’** or **“contributes to”**, for example).

Negative Logic

If ‘A’ ⟶ ‘B’
AND
If ‘A’ ~~⟶~~ ‘C’
THEN
‘B’ ~~⟶~~ ‘C’ (Inference)



(where ~~⟶~~ stands for **DOES NOT ‘precede’** or ‘**contribute to’**, as the case may be)**.**

{Because if ‘B’ was in the transitive relationship to ‘C’, then ‘A’ ⟶‘B’ + ‘B’ ⟶‘C’ would force ‘A’ ⟶‘C’, a contradiction of the given}.

C: <u>Some Examples of Transitive Relationships</u>:

1. **"Contributes to"** (or its 'system equivalent': **"should help achieve") –** enables the creation of 'Intent Structures' showing how THINGS TO DO (or 'Intents') may contribute to each other and to the Mission.
2. **"Is more important than"; "should have priority over" –** yield **'Priority Structures'**
3. **"Supports"; "enhances"; "leads to"; "enables"** – the 'action' of these relationships are often *somewhat* similar to (but not exactly the same as) **"contributes to".**
4. **"Aggravates" –** enables creation of structures showing how **'problems', 'difficulties', 'barriers', 'obstacles', 'weaknesses'** (negative factors generally) may **aggravate** each other. Such structures are technically called **'problematiques' –** these are most useful for resolution of **'system messes'** (as Russell Ackoff has termed them)**.**
5. **"Includes"** – enables creation of **'inclusion'** structures (useful for curriculum design)**.**
6. **"Implies" –** the basis of all mathematics, much of physics, much of law, etc. A most important relationship – currently this relationship is not enabled in the ***OPMS*** software. It would appear in due course.
7. **"Precedes":** Already well known as the basis of **PERT/CPM –** used to create graphical structures showing the precedence holding between EVENTS/ MILESTONES**.**
8. **"is heavier than"** – most useful for creating 'tangible' examples for explaining system relationships

Different transitive relationships are appropriate in different parts of the system under consideration, at various times.

C1: <u>A couple of 'non-transitive relationships'</u>

(NOT to be used in ISM)

1. **"Loves**": If 'A' loves 'B' and if 'B' loves 'C' – then it DOES NOT FOLLOW that 'A' MUST love 'C'. **"Hates"**, is likewise non-transitive.
2. **"Partially includes"** (If 'A' partially includes 'B' and if 'B' partially includes 'C' – then it DOES NOT FOLLOW that 'A' MUST partially include 'C').
3. **"Obeys" -** if a dog **obeys** a boy, and the boy **obeys** his father, it DOES NOT FOLLOW that the dog would **obey** the boy's father!

D: A background note: What is modeling?

The Structural Modeling Approach – and how it is significantly different from any conventional approach

First, a quote from John N. Warfield:

Modeling is a process that begins with human perception. A sequence of the following nature describes the activity of modeling:

1) Perception
2) Storage in the brain
3) Identifying a context within which to place the perceptions, and within which they can potentially be integrated
4) Generating factors associated with that context and with the perceptions that are the focus of attention at the time
5) Identifying types of relations that appear to be associated with these factors in the chosen context
6) Structuring the factors to show how they are interrelated through specific relationships that are representative of the selected types
7) Interpreting the structures produced
8) Associating the factors with algorithms that permit the relationships discovered to be quantified (if they are possible to quantify)
9) Assigning or computing numerical values to/for the factors
10) Interpreting the model-related information for purposes of design or decision-making

(Above paraphrased from "Structural Thinking", J.N. Warfield: 1995-96 Essays on Complexity)

The above sequence describes **Structural Modeling,** the process underlying **Interactive Management** (and the **One Page Management System**). Built into the above-outlined Structural Modeling process, when ***IM*** or ***OPMS*** is used, is an ongoing comparison of model-related information at each stage with the reality on the ground. These comparisons

become sharper and more focussed as the models evolve and develop over time.

The conventional way (which the IM or OPMS process would not allow at all) is to start at Step 8 or at Step 9 of the above-outlined modeling sequence.

In fact, most discussions between people **not using IM/OPMS** start out at Step 8 or Step 9, usually leaving out Steps 1 to 7, which are pre-requisite for clear understanding all round! (It is true that there are, on occasion, some context-clarifying remarks made, but these generally lack adequate focus to ensure truly clear understanding all round). Thus, many discussions between people are, in the conventional way, based on sets of 'mental models' that are significantly different from each other because of differing backgrounds of the people holding them. These mental models on which different people are basing their discussions are left entirely unclarified. Because of the differences in context, **the very same words spoken by different people could often mean significantly different things.** In any case, the context is entirely unclear. This leads to non-understanding, misunderstanding, confusion, and, finally, ineffective or incompetent action.

We are interested in ensuring effective action at every level in the organisation – starting with the individual. Because discussions in the Structural Modeling process are always based on a significant clarification of the context of each idea and thought contributed to the discussion by each person, subsequent action is much more likely to be effective. (Step 3 of the sequence of Structural Modeling outlined above).

It should be observed that 'Structural Modeling' INCLUDES the 'conventional modeling process'. The conventional 'numerate models'

(showing numbers, e.g. how much money, how many copies will be sold, and so on – on which most people rely to the near-total exclusion of any structuring activity) will develop, in a natural way, as the **structure** of the interrelationships of various issues becomes clear. The difference is that the numbers developing through the Structural Modeling approach are based on a detailed consideration of all structural aspects of the issue, and will therefore have **far higher reliability** than the numbers made in the usual approach.

E: References

A: Interactive Management

- **"Societal Systems: Planning, Policy and Complexity",** by John N. Warfield, Wiley, 1976
- **"A Handbook of Interactive Management",** John N. Warfield and Roxana A. Cardenas, Iowa State University Press, 1994
- **"A Science of Generic Design: Managing Complexity Through System Design",** John N. Warfield, Iowa State University Press, 1994
- **"Essays On Complexity",** John N. Warfield, (Review Copy 1997)
- **"A Structure-Based Science of Complexity",** John N. Warfield (Review Copy, 1997)

B: One Page Management System

OPMS Workbook, G.S. Chandy, Private Publication, 1993, again 2000
OPMS Handouts, ILW, latest – July 2001

C: General Systems Theory (Background study)

There is an enormous literature relating to GST, the mere listing of which would run into literally hundreds, perhaps even thousands, of pages. Those of you who wish to become Facilitators may like to write to us for the names of some reference and background books on GST.

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