Responsibility Analysis: a basis for understanding complex managerial situations

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Abstract

Management practitioners have always felt the need to understand organisational contexts and processes. Consequently many different theoretical bases have been used to facilitate this evaluation. However the focus of existing approaches has primarily been on the 'formal' aspects of the organisation. This has often resulted in inadequate and poor analysis of various complex managerial situations. In viewing organisations as communication systems, this paper introduces the responsibility analysis approach which helps in presenting a comprehensive picture of an organisational environment. At a very generic level organisations are viewed in terms of three sub-systems: technical, formal and informal. When conducting a responsibility analysis, the endeavour is to identify the responsible agents and capture the norms associated with each action. In doing so we seek to understand the underlying repertoires of behaviour. This produces a high level specification of the organisation and its attendant responsibilities, thus allowing a comparison to be made with the implicit and explicit structures of responsibility. The paper demonstrates these concepts with examples drawn from a National Health Service case study.

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Introduction

Management researchers and practitioners alike have always felt the need to represent organisational boundaries in models. Consequently organisational processes and issues need explicit understanding. Since organisations are constantly influenced by culture, power and politics, it has not been easy to model these organisational processes. Researchers have regarded demarcation and attribution of responsibility as a first step in this direction. However, they have been unable to find a means to do so. This is because their focus has been on the formal aspects of the organisation. As researchers we must appreciate that organisations are dominated by an informal environment. The boundaries of which are either fuzzy or so encompassing as hardly to exclude anyone. To analyse any managerial situation is thus problematic.

Any attempt to analyse complex managerial situations or perhaps model them, requires some understanding of the very nature of an organisation. Over the years various models or metaphors have emerged. Some of these are overlapping in character, while others present conflicting viewpoints. In fact, many differences of opinion in understanding complex situations originate from the differences over these models. Traditional work in organisations was either focused on the study of bureaucracy (e.g. Merton *et al*, 1952; Blau, 1955) or decision making (e.g. Cyert and March, 1963; March and Simon, 1993). Increasingly researchers have explored the manner in which organisations relate to their environment (Pfeffer and Salanick, 1978; Aldrich, 1979). This reorientation has been because of the diffusion of general systems theory concepts into social sciences.

Central to the various debates on the nature of organisations has been the relative focus of these approaches on the formal and the informal environments. System theory influences have resulted in a narrow focus in studying organisations as machines. Beam (1983), for example, proposes an organisational model with three logically irreducible elements. First is a detector that acquires and processes information about a system environment. Second is a selector that chooses responses. Third is an effector that determines overt behavioural responses. He regards these to be the core elements of the formal systems. Viewing organisations on this basis results in inter– and intra–organisational social relationships being considered as incidental. This becomes apparent from the work of Kuhn and Beam (1982) who give "substantial attention to the importance and inevitability of informal organisation within the formal and of making the informal work with, or at least not against, the formal".

Understanding the informal aspects of an organisation is of even greater significance today. This is because of the *informatisation* of most activities (Zuboff, 1988). In this changed environment, where information technology has extensively been used, it is important that a multi-perspective viewpoint of organisations is developed. Morgan's (1986) work on *Images of Organisation* is one such example. In recent years Walsham (1991, 1993) has used Morgan's metaphors in studying information technology usage in organisations. This has resulted in developing a good understanding of the complex managerial situations arising with an increased use of information technology.

Taking note of earlier work (e.g. Doubleday and Walsham, 1986; King and McAulay, 1989; Clemons, 1991; Zuurbier, 1992; Baugh and Walters, 1992; Alters, 1992; Konsynski, 1993), this research recognises the evolving nature of organisations. These days managers are faced with complex issues which range from the co-ordination and control of the activities to the effective management of information. There is also an increased awareness of the need to understand and respond to various environmental changes. These changes affect an agent's ability to communicate,

command, persuade, or even to induce a particular behaviour. Consequently organisations pose situations which are difficult to comprehend.

In addressing the issue of understanding complex managerial situations, this paper views organisations in terms of deep and surface structures. It introduces the concept of 'Responsibility Analysis', which is a deep structural analysis, to evaluate complex managerial situations. Subsequently the analysis is applied to understand a complex managerial situation. It is envisaged that this will eventually facilitate the representation of organisational boundaries in models.

The conceptual framework

Nature of the organisation

We begin with the premise that there is no single framework, encompassing all domains of knowledge, which helps in the study of organisations and hence of the nature of complex managerial situations. In recent years contributions to the study of organisations have come from different domains. Natural science, mathematics and engineering viewpoints are largely being criticised because they lead to inconclusive and inapplicable results. This has led researchers to consider ideas afforded by theories such as contingency theory, resource dependency theory and more recently the structuration theory. Others have used concepts drawn from semiotics, the theory of signs, to understand administrative and business systems and the use of information in the society at large (e.g. Kitiyadisai, 1991; Backhouse, 1991; Liebenau and Backhouse, 1990; Stamper, 1973).

The emergent belief of most studies is to view organisations as evolving social forms of sense making. Consequently, they allow different groups to relate to each other and the environment. Walsham (1993) views this to be a dynamic process of action/context interweaving, which is fundamental to the understanding of the process of organisational change. Liebenau and Backhouse (1990) have viewed organisational environments as constituted of the informal, formal and the technical parts which are in a state of continuous interaction. Many authors have attempted to explain the nature of organisations and information usage on basis of a similar categorisation (e.g. Land 1992; Galliers and Land, 1987; Klein and Hirschheim, 1987).

Traditionally organisations have been viewed as formal systems characterised by bureaucracy, where concern for rule and form replace that of meaning and intention. These formal systems were essentially concerned with the inter–organisational (between the organisation and its customers, suppliers, financial institutions, etc.) and intra–organisational (between different departments) information. In present times many computer based information systems have been used to automate the administrative tasks of the formal systems.

An analysis of an organisation on this basis ignores the sub-culture where meanings are established, intentions understood, beliefs, commitments, responsibilities, are made, altered and discharged. This is essentially the informal component. With the establishment of an organisation, a system of fairly cohesive groups with overlapping memberships is created (Fig. 1). These social groupings of the informal system have a significant bearing on the well being of an organisation. The groups or even the individuals may have significant power and may be in a position to influence other informal groups or even the formal structures.
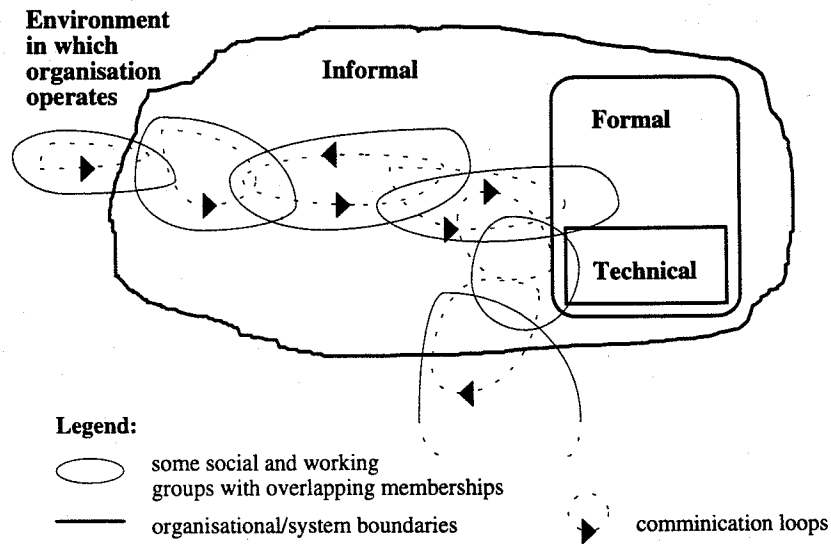
Environment
in which
organisation   Informal
operates

Formal

Technical

Legend:

⬭   some social and working
     groups with overlapping memberships

─── organisational/system boundaries   ▶   comminication loops

Fig. 1, Organisational environment

The levels of analysis

At this stage we are faced with a major question: what sort of conceptual basis do we need to move on in analysing complex situations? What is needed is a theory which binds together the multiple images of a problem and at the same time brings in consistency. Research in the study of organisations has been dominated by two divergent schools of thought. There are those who concentrate their analysis on the objective structures of organisations. This kind of an analysis gives little consideration to the environmental influences. At most it helps in determining the actions and interpretations of human beings. Then there are others who are concerned with the subjective meanings and interpretations of actors. Analysis of this nature does not consider the historical and structural context. This dichotomy has been recognised by many researchers (e.g. Coombs *et al*, 1992; Morgan, 1986; Pfeffer, 1982; Burrell and Morgan, 1979).

Alternatively, organisations can be viewed as communication systems with formal, informal and technical components. This viewpoint gives significant importance to the communication aspects of different individuals and groups. The concept of communication incorporates in itself the notion of intentions of agents and their ability to interpret signals. Consequently complex organisational situations can be understood in terms of the communication system. These situations can be analysed at two levels:

- The level of deep structures: At this level we address issues related to the content and purpose of the communications.
- The level of surface structures: At this level we address the issues related to the form and means of communication.

The surface structures have been considered by many researchers in organisational analysis, and are therefore excluded from our discussion here. These broadly correspond to the formal and technical systems in an organisation. The main focus is on constructing formal rules and in understanding the means by which they inter-relate.

The deep structures of an organisation

With the foregoing in mind, we can regard organisations as embodiments of structures of responsibility, characterised by groups of responsible agents charged with specific responsibilities

over the substantive actions and tasks of the business. By modelling the underlying patterns of behaviour which characterise the domain of action, it is possible to highlight the actions that must be accomplished. From unearthing the patterns the focus moves to identifying the persons responsible for instantiation, and examines the norms they use when, for example giving approval to requests. These norms can be cross-checked against company policies and statutory requirements. The interdependency of the decision making by one responsible agent on the decisions of others is highlighted so as to be able to specify improvements to the management system.

In order to understand complex situations, it is essential to evaluate these within the context of organisations. Ermann and Lundman (1992) view organisations as made up of a collection of people. These people occupy certain roles. These roles are generally fixed, whereas the people holding them may change over a period of time. The roles have certain obligations and expectations of the people who occupy them. Thus organisations can be viewed in terms of their stable underlying patterns of behaviour (see Backhouse and Dhillon, 1993). This constitutes the deep structure of the organisation. Analysis at this level has largely been neglected.

In analysing organisations as patterns of behaviour, one very important aspect of social causality becomes evident: responsibility. In literature, it has been mentioned several times in relation to organisations in general and information usage in particular (e.g. Lane 1985; Buchanan and Linowes 1980; Withington 1980; Shaver 1985; Liebenau and Backhouse 1990). It is also our endeavour with the present framework to analyse the various aspects of the attribution and identification of *structures of responsibility*. These structures provide a means of understanding the manner in which responsible agents are identified; the formal and informal environments in which they exist; the influences to which they are subjected; the range of conduct open to them; the manner in which they signify the occurrence of events; the communications they enter into and above all the underlying patterns of behaviour.

Since the thrust of the deep structural analysis is on the identification of responsible agents and the repertoires of behaviour associated with those agents, the whole process in itself is termed as 'Responsibility Analysis'. The basic principles of conducting Responsibility Analysis are described elsewhere (see Backhouse and Dhillon, 1993). The analysis makes extensive use of drawing semantic schemas. These schemas take the form of ontology charts, where agents and behaviour patterns are arranged in an existence dependency manner. Principles for drawing semantic schemas and ontology charts can be found in Backhouse (1991).

In the following section Responsibility Analysis is used to evaluate and understand a particular issue. This issue is derived from a NHS case study. Though this paper picks up just one element, the usefulness of the approach can very well be appreciated from the depth of the analysis.

Application in an organisational context

The setting

The recent changes in the organisation of NHS prompted by the Griffiths report of 1983 and the more recent Community Care Act (1990), have inspired the NHS Management Executive and the individual hospital trusts to reassess their information needs. The most obvious problem was the timely availability of information. This was particularly the case in the NHS Trust which is the focus of this study. A computer-based information system was seen as a means to fill this information gap. It was envisaged that such a system would not only help the Trust to adapt to the macro environment (where there was an increased pressure on the Trusts to provide precise information on its activities), but also to add value to the health care deliver process. With respect to the recent changes in the health services, the traditional health care management system had certain shortcomings. For instance it was not possible to give due consideration to isolated 'encounters' which could subsequently be consolidate into health plans. It was also not possible to perform audits and assess the effectiveness

of resources used. In response to such criticisms an integrated information system at this NHS Trust incorporated care planning functionality in itself. It also allows for case mix management and has clinical audit functionality. Thus the system helps the Trust to adapt better to the existing environment. This is facilitated by meeting the demands of the purchasers in providing information to assess the quality and effectiveness of services delivered. Such information is drawn through a process of constant monitoring of care delivery, recording of assessment details and measurement of outcomes.

In implementing the integrated information system, the NHS Trust has regarded information technology as the main catalyst for change. It has relied on information technology for successful implementation of the concepts which add value to the health care delivery process and consequently to change the culture of the organisation. Thus there has been an over-reliance on the functionality of the system to reap information technology benefits. As a result the Trust has seen a massive reorganisation of its ways of working. The adoption of new management, new structures and new styles of teamwork have come to the fore-front. In achieving its objectives the management of the Trust is moving towards adopting principles of systematic monitoring and a single line of command and developing hybrid staff members who know something of everyone's job.

The problem and a deep structural analysis

The issues related to the viability of the changes will be left for the students of politics and government. Our immediate concern here is to see, at a micro level, the factors considered in implementing an information system in the NHS Trust. To do this we have taken the issue of controlling a staff member session schedule. Controlling such a schedule poses a complex managerial situation, especially when a computer-based system is used to carry out the task. The staff scheduling module is not just another duty rostering mechanism. It gives a graphical display of the 'free' and 'busy' times of each staff member. This allows the service point manager to plan the use of staff effectively. However the system analysts and the designers have not related the procedures and structures so created in the technical system to the meanings and intentions of the users and the staff who are being controlled. Thus the syntactic domain so created in the computer system does not represent the semantic domain (activities of the real world). An understanding of these issues is of significant importance for the success of the information system. In this context, our focus should be to analyse the usefulness of 'Responsibility Analysis' to understand such complex situations. This will help us to decide the boundary between the formalisable and the non-formalisable aspects of the management systems. It would also be possible to prioritise the system development tasks, especially when the scale of the project is of significance.

Figure 2 shows the ontological existence and dependence of the two roles in question. A service point manager, a role which is part of a particular hospital in the Trust, is responsible for allocating work to another role, a nurse. Thus, for all necessary activities, the role of the nurse draws authority from the service point manager. The particular activity in question is to provide therapy to a specific patient. In the normal situation, a nurse would allocate (book) time for the therapy sessions and would be held responsible for the activity. With the implementation of the computer-based information system the situation has changed. Not only would the nurse be held responsible for the activities, but the time allocations, free times, number of sessions per day/week etc., would all be monitored. The computer has indeed emerged as a new supervisor.
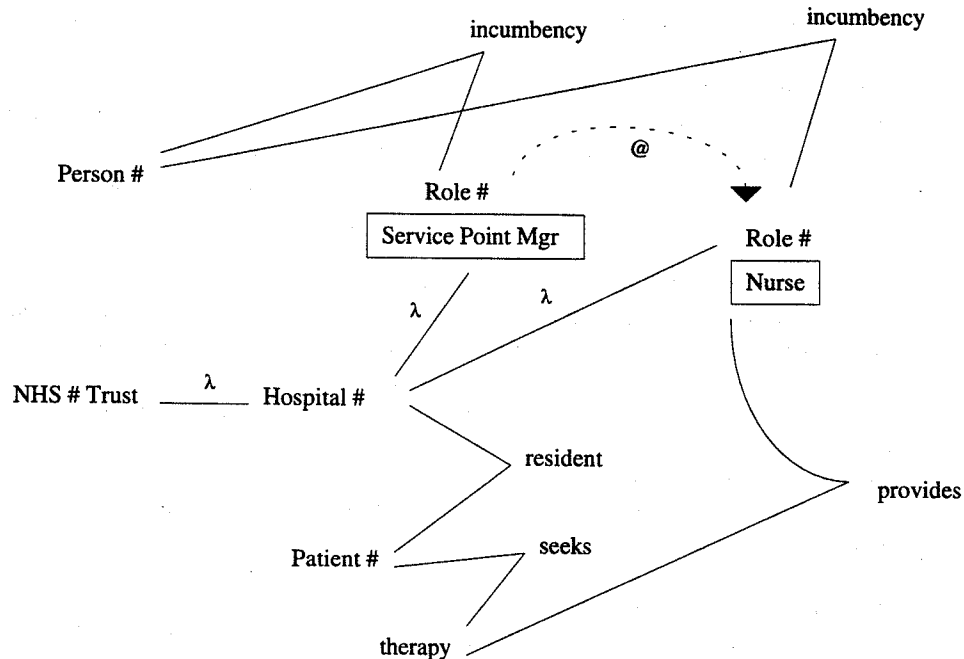
Fig. 2, Ontological representation of the normal situation

The development of a module controlling a staff members session schedule is a typical example of a poor system specification. It should be the endeavour of the system analyst to relate the syntactic domain (i.e. the formalisable aspects of the problem) to the semantic domain (i.e. to ask the question: what would it mean in the real world?). In other words, consideration has just been given to the *form* of the problem and not to the *content*. Such a design, which concentrates on the surface structures only, not only leads to the development of systems that cause problems (e.g. staff morale) but also lack vigour. Consequently such projects are seldom abandoned.

The technique of 'responsibility analysis' not only allows us to comment on the form and content of the problem but also helps in analysing the underlying repertoires of behaviour. This gives us a better insight into complex managerial situations. Responsibility analysis can be extended to do a communication analysis as well. Thus allowing us to assess the attitudes of different roles. Such an analysis is of great significance since the basic objective of the Service Point Manager is to get things done through the Nurse. In figure 3, the solid line represents the transmission of the actual signal from Role 'A' to Role 'B', allocating a specific task to the nurse. The transmission of the signal is an indication of a communication having taken place between the two roles. With the computer-based information system in place, the communication takes place through the computer. Thus in net effect Role 'A' gets things done through the computer.

Consequently the transmission of the signal from Role 'A' to 'B' influences the attitude of Role 'B'. The complex situation posed by controlling a staff member session schedule through the use of a computer can only be understood in terms of differences between the formal communication used by machines and the natural language used by people. At this point it is interesting to consider the different modes in which people communicate. Ordinary communication between people (written or spoken) operates in any of the four modes: 'affective', 'denotative', 'ritual' and 'formal' (Morris, 1964). The affective communication conveys judgements of value and thus plays upon a recipients'
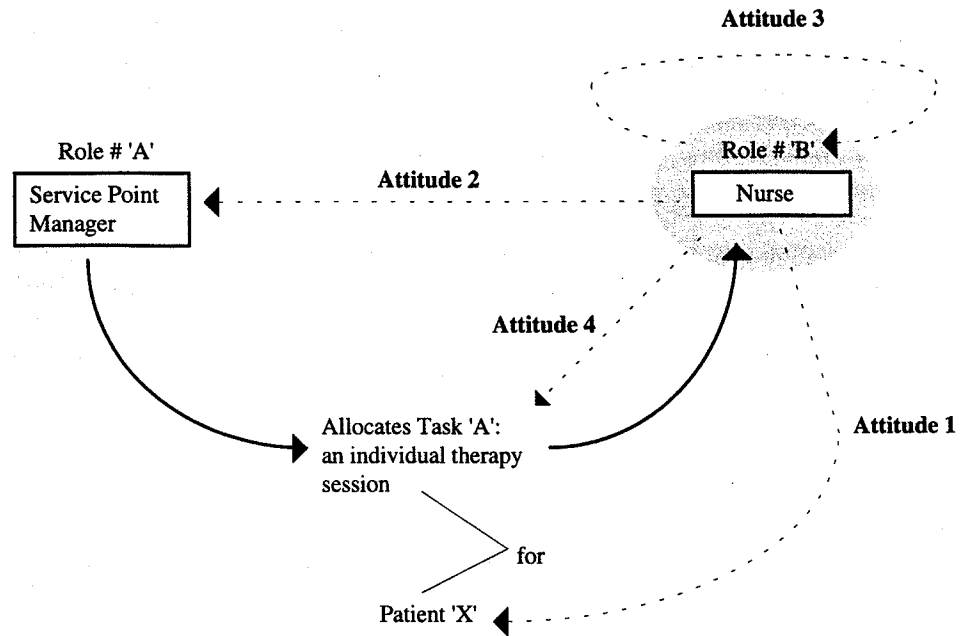
Fig. 3, Communication analysis of the two roles

feelings while the denotative communication is based on facts and evidence. The ritual communication is used in our everyday discourse and uses words without reference. The formal communication employs signs as objects and is not intended to trigger any behavioural responses. All modes of communication operate simultaneously.

A distinction between the modes of communication is useful to evaluate the attitudes of Role 'B' towards 'A'. These attitudes can be classified as follows:

Attitude 1: By allocating a particular task, Role 'A' can influence Role 'B's attitude towards the subject being referred. Since in this context we are not considering mechanical tasks, the implication of this influence could be serious. The situation becomes far more complex when the incumbent of Role 'B' knows that the time spent with the patient would be closely monitored. This could adversely affect the very content of the therapy session. Thus in providing an 'effective' and an 'efficient' service, the management would in fact be sacrificing the quality.

Attitude 2: The attitude of Role 'B' towards Role 'A' would also be influenced. Role 'B' will have to adjust his attitude towards Role 'A'. This is especially so when a machine is used to control and co-ordinate the work and performance of Role 'B'. Such a situation is typical of superior-subordinate relationships.

Attitude 3: Less consciously, the whole context would influence the attitude of the persons themselves holding Role 'B'. Again the consequences could be serious. There would be problems with the self-confidence and morale of the individual. Rather than providing therapy to the patient, the Role 'B' incumbent would require some kind of help to cope with the situation.

Attitude 4: The attitude of Role 'B' towards the message itself is very interesting in the context of organisational change. Role 'A' perhaps unintentionally, but often deliberately may convey some measure of confidence that should be placed in what is said. This communication act becomes far more complex when Role 'B' sees a computer as performing a supervisory task.

It becomes apparent that with the use of a computer-based information system, the affective and the ritual modes of communication are marginalised. This has serious implications. A service point manager who does not achieve an emotional rapport with the nurse will be left with neat time allocations but may fail in motivating the nurse. On the contrary a manager who establishes a rapport, will promote enthusiastic activity, however this is significantly curtailed because of the structure imposed by the computer system.

The usefulness of responsibility analysis for analysing complex situations can not be under estimated. An understanding of various attitudes, both at the individual and the group level, is equally important. This is of significance if collective co-ordinated action is to be achieved. It is often very difficult to have a formal representation of such actions. However, the schemas created while conducting a responsibility analysis are a first step in that direction.

Conclusion

In this paper organisations have been viewed as communication systems. They are considered to be constituted of three sub-systems: technical, formal and informal. In conducting a responsibility analysis, the endeavour is to identify the responsible agents and capture the norms associated with each action. In doing so we seek to understand the underlying repertoires of behaviour. By looking at the informal environment, it should be possible to capture the structures in their cultural context. This would enable the analyst to understand the object system better. The analysis also helps in the interpretation of sign functions which play an important role in the decision making process. Finally we are able to develop an understanding of an organisation including its informal, underlying cultural infrastructure. This deep structural analysis should form the basis for modelling organisations.

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