

Value-Program Analysis: Capturing the Pluralistic Nature of IT Enabled Organizational Action

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Abstract

This paper introduces a framework for analyzing technology-based organizational action. It presents the concept of 'value programs', to represent the complex, pluralistic nature of organizational action around the application of IT systems. The nature of IT based organizational functioning and change is distinguished in terms of multiple courses of action, driven by dissimilar and sometimes conflicting interests. An example of the use of this analysis approach is presented in terms of a case study analysis of IT-based customer service operations. The framework's utility is seen to lie in capturing the social complexity of IT based organizational functioning from an inter-relational, integrative standpoint. This research advances the application of systems thinking to organizational analysis in the IS field.

1. Introduction

Information technologies represent tools or resources for strategic organizational action. However, the task of understanding the way that contemporary enterprises function around the use of IT is made difficult by the socially complex, indefinite and emergent nature of organizational domains. Burns [2, p.83] noted that "organizations seem to be assemblies of relationships and activities that operate in accordance with several quite different sets of principles and presumptions – different rationales ... there is a pervasive pluralism affecting the organizations we work in and study, a pluralism which affects their make-up, and which our perceptions and analytical apparatus have tended to pass over."

Information systems (IS) researchers have thus stressed a critical need to account for such complexity when representing or modeling the nature of organizational functioning around IT tools. Robey and Boudreau [13] and Truex [17] issued calls for IS studies to develop a theoretical logics that can account for variability and incongruency in the application of information systems within organizational domains. It is important that managers and researchers have conceptual tools for representing the pluralistic nature of IT based organizational activity.

This paper introduces an analytical framework to address this crucial need. This framework, which is based on systems thinking [6, 9, 11] serves to help researchers or practitioners to clarify/enhance their understanding of the complex, multifaceted nature of IT enabled organizational action.

2. Theoretical Framework

Given that IT systems are designs or propositions for purposeful organizational activity, their value or significance is constituted through action and application in achieving the aims (espoused or covert) of an organization and its members. It is thus important that researchers or analysts are guided by an explicit theory of action, when seeking to study the use of IT in specific organizational contexts [13]. To fulfill this requirement, this framework adapts and modifies ideas from the work of Greimas [7, 8], regarding the structure and value of human action.

Assumptions

This framework is characterized by certain assumptions or emphases. An underlying assumption throughout is that individual or collective action is essentially teleological in nature: human activities derive value or significance from their projected end.

IT based organizational activities are regarded as being processes of value-transformation for relevant stakeholders. The central and key notion of 'value' referred to here is meant to be interpreted in a broad sense, as equivalent to and used interchangeably with the idea of 'meaning' or 'significance'. It thus goes beyond the narrow sense of economic value typically found in management literature, since it also includes the following sub-categories [5]: (i) use value – the value of an activity, tool or object in performing a function; and (ii) social value – that of an activity, tool or object as a symbol of some form of status.

In addition, organizational functioning is viewed as consisting of several distinct, sometimes inconsistent courses of action [2, 18]. Accordingly this method of analysis seeks to discriminate multiple courses of action, and the features of IT use or organizational behavior pertaining to them.

Value Programs

The heuristic notion of a value program (VP) is presented as a way by which a researcher or analyst might 'organize' an understanding of organizational activity and IT based practices as processes of value creation. A value program refers to a change in value (or significance) of the activities of an organizational group, that is being brought about by the interaction of heterogeneous elements and factors pertaining to a course of action being undertaken by members of that group.

Essentially, a VP is a conceptualization of the inter-relationship of a set of activities, means (i.e. IT based or otherwise), factors and events, that are perceived by an analyst as relevant for understanding a process of action and change in a domain of organizational activity.

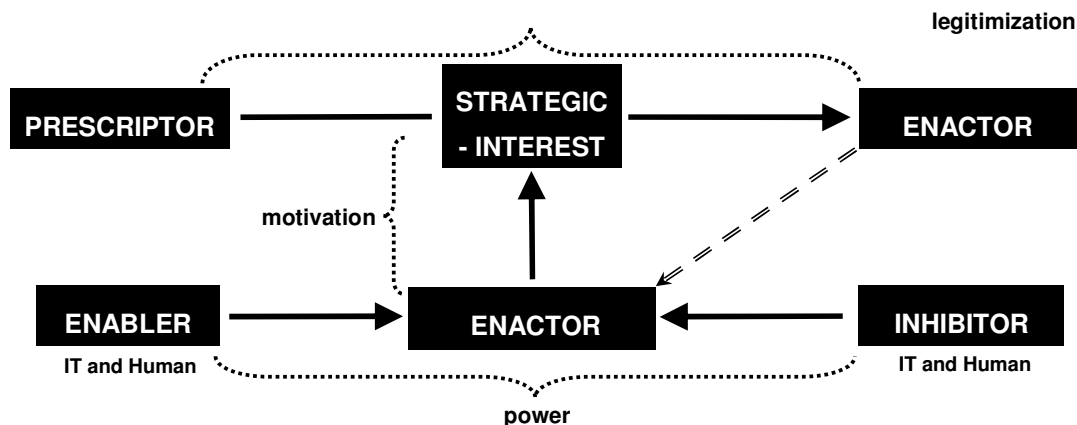


Fig 1. A value program (VP)

The composition of a value program is represented by the role-based schema depicted in Figure 1, which is a structural ‘template’ for identifying its various elements. It is intended to account for key structural relationships linking all heterogeneous elements (i.e. individuals, groups, ideas, norms, events, contextual forces, IT functions or features) that are of relevance to a course of action.

This analytical schema designates five categorical roles by which the comprehension of any set of social actions and circumstances may be said to be fundamentally organized i.e. they underlie all the varying actors, events, means and circumstances pertaining to a course of action in any IT-based organizational domain (in the same way abstract linguistic roles like ‘subject’, ‘verb’ and ‘object’ categorize elements of various different sentences). The inter-relationship of these categorical roles is seen to reflect three key dimensions of the social structure of action, that have been highlighted in past IS studies [3, 12]: legitimacy, motivation and power. These principle roles are: prescriptor, enactor, strategic-interest, enabler, and inhibitor. They are explained next, in relational pairs.

(1) **Enactor – Strategic-Interest:** The enactor may be an individual or collective agent (e.g. a company, specific department/workgroup). The enactor is the principal figure (i.e. the ‘leading actor’) of a VP. The enactor is motivated by, and acts in order to achieve, a particular purpose or desired state, termed as the strategic-interest. This categorical designation warrants some clarification. The term ‘strategic’ may be taken in a broad sense of implying significant value for any form of organizational or human action i.e. not only in a narrow sense of being associated with the espoused strategic goal of a company (although this is not excluded). Moreover the appended term ‘interest’

implies a subjective, ‘political’ dimension to this value. The success of a VP is constituted by the enactor realizing the desired strategic-interest, and its failure by the converse outcome. The relation between elements in the enactor and strategic-interest positions represents the plane of motivation in IT-based organizational action.

(2) **Prescriptor – Enactor:** The prescriptor role is occupied by individuals, groups, abstract ideas, social norms or discourses which generate or provoke a course of action, and regulate it. The prescriptor transmits or communicates to the enactor a desire or obligation to act in relation to the particular strategic-interest. This categorical role thus designates the influencing or controlling forces in a scheme of action, which institute the set of values by which the strategic-interest appears attractive and the enactor must act. The enactor refers to individuals or groups who are implicated by the strategic-interest, and who have to respond through some form of action or other. The individuals/groups who undertake a course of action to achieve the strategic-interest (i.e. deploy the VP) thus assume the enactor role of the value program. The influence of the prescriptor on the enactor role denotes the plane of legitimization in organizational practices of IT use. Key elements which therefore are often seen to occupy the prescriptor role are social ‘institutions’. Institutions refer to ingrained systems of premises or regulative structures (e.g. implicit patterns of action, expectations) that provide a basis of validity for, and which exert pressures on, the way people perceive or act (Avgerou, 2000; Scott, 1995).

(3) **Enabler – Inhibitor:** The enabler role-slot refers to any individuals, groups, ideas, social norms, techniques, tools, or material features that help the enactor to achieve the desired strategic-interest. Its counterpart, the inhibitor role, designates any similar

elements that are impeding the enactor's attempts to realize the strategic-interest and thus complete the value program. The relation between elements in the enabler and inhibitor categories denote the capacity of power towards achieving the strategic-interest i.e. asymmetrical distribution of power shapes a VP's progress and outcome. Information technologies (i.e. the features, processing functionalities and information assets that they present) are key elements that invest the enabler and/or inhibitor role-positions in organizational courses of action, as indicated in Figure 1. Organizational features or elements may also constitute either of these two positions. One value program can also occupy the enabler or inhibitor position of another (i.e. to be thus embedded within another VP) insofar as the undertaking of the former promotes or thwarts the course of the latter.

The concept of a value program, prefigured by the above schema, can thus aid a researcher/analyst in determining the extent or implications of a course of action: who or what is driving it, what elements, entities or factors are involved or relevant, how is it helped or hindered etc. It should be noted that a value program is only a heuristic concept for organizing an understanding of the multiple, sometimes inconsistent courses of activity that typically constitute an organization's functioning. The identity and composition of a value program (or a set of VPs) is not given: being established by empirical investigation rather than a priori assumption. The value programs that may be seen to characterize an organization's use of IT in its operations are extrapolated from descriptive accounts and data gathered by an analyst on the organization's work practices and socio-historical context. The analytical utility of a set of identified VPs depends on how well it serves for representing and ordering an inclusive understanding of a sphere of organizational actions.

An analysis of an organization's functioning and transformation around the use of IT will typically evince one overall or over-arching value program, known as the macro value program. The macro VP is made up of several sub-units, termed micro value programs. These micro VPs represent smaller courses of action that occur concurrently or in sequence. The overall transformation undertaken in the macro VP is effected by, and contingent upon, transformations being undertaken in its constituent micro VPs.

The number of VPs identified depends on the scope and level of resolution that a researcher/analyst brings to the analysis, as well as the degree to which he/she can account for all the various courses of action that reflect the complexity and evolution of organizational functioning around the use of IT. This systematic role-based framing of action thus presents a means to reduce the complex heterogeneity of elements, factors or circumstances

in organizational domain of IT based practices into an 'ordered' understanding. The length restrictions here prevent a full demonstration of the framework. Nevertheless a partial one is made next.

3. Illustration

A fractional and summarized account of a case analysis serves to illustrate the form and outputs of this framework. The case details are derived from a study (by the author) of the IT enabled, call centre-based customer service operations of the British Broadcasting Corporation (BBC), a major media institution in the United Kingdom. After some initial background description, the BBC's customer service operations are elaborated in terms of various VPs. Only some of the VPs are explained in detail below to illustrate the above ideas, while the descriptions of others have been curtailed to meet length restrictions.

Operational context

The British Broadcasting Corporation (BBC) is a major national broadcasting and media institution in the UK. The programs it transmits on numerous television and radio channels, from news to entertainment to educational documentaries, have cultivated a widespread audience. The main strategic focus of the BBC in recent years is its accountability to its license-paying audiences. Communications and interactions between the BBC and its huge body of audience members are managed by its customer service operations department (or CSO department for short) in London. Up to the mid-1990s, the BBC's audience contact activities had been handled independently, in a decentralized way, by groups of staff members at various regional offices. However, subsequently, the BBC restructured its customer service operations in response to that key emphasis on accountability and other competitive challenges. It centralized and expanded these operations by setting up a new call centre in 1999, and by turning over the running of its new call centre and its older one to a major outsourcing vendor, Services Company (a pseudonym) – referred to as 'ServeCo' in upcoming accounts.

The new call centre was named the BBC Information centre, while the older one was renamed as the BBC Audience Line. The BBC's customer service activities are currently organized around these two call centers, with the BBC Information being seen as the main hub of operations. The CSO department oversees the actions of ServeCo in operating the centers, and acts as their liaison with the rest of BBC. Following ServeCo's takeover, BBC Information and Audience Line were 'virtually' integrated: they both not only share the same CRM database (i.e. BBCQ) but a common communications infrastructure too. This means that telephone calls to the BBC Audience Line can be switched to and handled by staff at BBC Information or vice-versa by real-time configuration of each center's ACD software. This permits staff at one centre to assist their counterparts at the other, by

taking on excess calls at the latter when it experiences too great a surge.

Development of Customer Service Operations

The shaping of the customer service operations can be analytically characterized by six micro value programs (numbered VP-1 to VP-6). Together, they constitute the macro value program (VP-0), that denotes the establishment of effective customer service operations at the BBC.

Three of the micro VPs, VP-2, VP-1 and VP-3, pertain to the ‘corporate interface’: the interactions between the ServeCo-run call centers and units of their parent firm (BBC). The other VPs (VP-4 to VP-6) compose the ‘customer interface’: interactions between the ServeCo-run call centre operations and the BBC’s viewers/listener audiences. The following description focuses only on the activities at the customer interface.

Table 1. Selected value programs at the customer interface

		Disposition				
		Prescriptor	Enactor	Strategic-Interest	Enabler	Inhibitor
VP-4: Functional unity of BBC Information and the BBC Audience Line’s operations	From separate, disconnected operations to infrastructural integration and inter-supportive operations between the two call centres	outsourcing contract; expectations of the BBC’s CSO mgt. staff	ServeCo management staff	effective (daily) back-up coverage by BBC Information for the BBC Audience Line’s call-handling activities	common telecommunications & IT infrastructure; shared database (BBCQ) and networked systems; temporary transfer of CSRS from the BBC Information to Audience Line for training and knowledge transfer	sub-component mal-integration in technology infrastructure; differences in CSR skill/experience bases; pronounced disparity in call traffic patterns; problems with ‘productivity’ of Audience Line staff; ServeCo’s priorities in performance management; lack of improvement in the service partnership between the CSO department and ServeCo (VP-3)
VP-6: Control of the volume and complexity of customer contacts	From rapid growth in call volumes and complexity of responses to stable call volumes and standardised, simplified responses	social institution of ‘operational efficiency’; cost-reduction pressures	CSO management staff	reduced audience expectations on nature of service responses	CSRs instructing callers in how to find the information on web-site themselves; design of internet web-site as ‘surrogate centre’; gradual (e.g. audience-profiling information used to create easily accessed, well presented website information, staged reduction in length of CSR email replies; repertoire of standard, generic letters for reply to comments; (anticipated) automatic email-reply software; pre-formatted forms at web site	ServeCo’s customer service model with its stress on relationship-building and pleasing callers; the BBC’s public commitment to accountability and openness to audience (VP-5) and its campaign to heighten audience awareness of this; complexity of servicing digital TV environment; surveys indicating that audience members are not convinced about the BBC’s level of accountability

Table 2. The macro value program

		Disposition				
		Prescriptor	Enactor	Strategic-Interest	Enabler	Inhibitor
VP-0: Heightened accountability through the establishment of effective customer service operations	From decentralised, uncoordinated, low quality audience feedback & inquiry services to centralised, consistent high-quality services	Formal emphasis on accountability (1996 charter); strategic imperative for customer loyalty; rising customer expectations on service quality	BBC (CSO dept) and ServeCo staff	high-quality service-responses	Progress in VP-1 (improving understanding by program makers of audience interests), VP-2 (improved audience feedback to the BBC senior management) (VP-2); and VP-5 (increased audience satisfaction levels); technological integration of two call centres (in terms of shared databases and networked communications infrastructure	Lack of progress in VP-3 (improvement of ServeCo’s partnership), VP-4 (functional unity of two call centres); difficulty of finding appropriate balance between VP-6 (reducing audience contact volumes and service complexity) VP-5 (increased audience satisfaction levels); conflict between the social institutions of ‘public service broadcasting’ and ‘customer focus’; complexity of audience inquiries and responses; complex stakeholder environment; range and variability of customer queries; shortcomings in information practices

VPs at the Customer Interface

VP-4 (see Table 1) involves efforts to achieve functional unity between the operations of the BBC Information and the BBC Audience Line centers. The transformation being undertaken is the integration of the operations of the two centers, at both the technology infrastructure and the organizational levels.

The main aim is for the BBC Information to provide back up (i.e. reserve staff resources) for the BBC Audience Line. Such coverage is needed to help the BBC Audience Line cope with the excess calls, or 'call overflows', which it faces frequently, often daily. That call centre experiences alternating periods of excessive and light call volumes, as audience-members contact it en masse in reaction to specific programs being broadcasted. In contrast, the BBC Information centre receives a far more uniform rate of call arrivals. This back-up coverage is also needed for operational resilience, in case one center is put out of action by a calamity.

One problem faced in achieving such integration is that the role and training of CSRs differ significantly at the two centers. Thus a key factor enabling achievement of the back-up arrangements are temporary transfers of the BBC Information CSRs to the Audience Line centre for on-the-job training. However, several factors have impeded the envisioned integration, including problems with poor integration between components of the technology infrastructure and the key differences in CSR skill bases and work culture at the two sites. One particular issue represents a bone of contention for CSO management. The motivation of ServeCo staff to use the CSRs at BBC Information to handle the overflow of the BBC Audience Line's calls is undermined by the fact that the outsourcing contract stipulated performance targets for the BBC Information (length of call, speed of response) but did not state similar targets for the BBC Audience Line. This gives ServeCo a reason (or excuse, as perceived by the CSO management) to keep the centers functionally separate i.e. to avoid degrading performance levels at the BBC Information.

VP-5 pertains to the efforts by the CSO and ServeCo staff to raise audience satisfaction levels, by improving the information and feedback services for audience members at the BBC Information centre. This VP has been driven induced by the social institution of 'customer focus', which represents the needs of the customers as the key organizing principle of work arrangements, and as the way to ensure the profitability and continued survival of the company [2]. VP-6 (see Table 1), by contrast, represents the efforts of CSO management staff (and ServeCo staff acting under their direction) to curb rising volumes of audience contacts as well as complexity

of service responses. A consistent trend of rising audience calls and e-mail had triggered the concern of CSO managers (e.g. in 2000-2001, emails rose by 300%), as significant increases in staff and other outlays are needed to cope with this proliferation. These rising cost pressures are pressing since audience members are not charged anything for using these services. The social institution of 'operational efficiency' [14], which is the need to demonstrate maximum output with minimum expenditure of resources, is a primary force driving this effort. CSO staff see it as essential to maintain the BBC's commitment to spend its public funds economically i.e. to service as many audience contacts as possible with available staff/IT resources.

The aim of this course of action is to cultivate an orientation among audience members to 'self-serve' their needs (and thus to accustom them to expect less labor-intensive service responses). CSO management staff have conceived an approach to 'educate the customer', as they call it. This involves encouraging audience members to utilize the company's internet web-site to satisfy their queries, rather than calling up the BBC Information. This course of action has been promoted by such activities and factors as: a key effort by CSO staff to place a large range of sought-after information on the internet; careful thought in designing the web-site as a 'surrogate' call centre (e.g. using audience profile data to inform the presentation); the CSR practice of telling callers the web address of information available online.

A related effort at economizing has been a gradual introduction of generic, de-contextualized email and letter replies (i.e. that are shaved of reference to details of the original feedback/complaint, but sufficiently brief to impart a sense of acknowledgement, and preserve a semblance of BBC's accountability). The effectiveness of such actions may be limited, however, by ServeCo's strong emphasis on relation-building with audience members, which may encourage them to persist in calling the BBC Information centre for personalized attention. Moreover an ongoing trend of public doubt (as reflected in surveys) that the BBC is showing enough accountability may eventually curb such efforts at economizing. In addition another factor counteracting the BBC's efforts to raise its audience satisfaction level is the newly emerging environment of digital TV, which is seen to present more complex and intractable service issues than those of analogue TVs.

From the preceding accounts, a composite picture of understanding can thus be formed of the macro value program (VP-0), which pertains to the overall effort to improve the BBC's accountability to its audience members by the setup of effective IT enabled call centre operations (summarized in Table 2). The emergent pattern of service work organization and

performance has thus been characterized by several courses of action, aimed at successfully aligning the outsourced call centre services with the BBC's internal operations. A consideration of inter-linkages between the various micro courses of action also appears to be helpful for discerning the overall shaping of these IT based operations. It may be seen that the accomplishment of some courses of action are complemented by or contingent on the progressive development of others, while in some other cases, one course of action can run counter to another. Thus, in summary, the foregoing accounts have illustrated the use of this framework for disclosing the pluralistic, inter-related as well as contested nature of IT based organizational action.

4. Discussion

The utility of this framework may be perceived to lie in applying an inter-relational, systems thinking approach for illuminating the social complexity of IT based enterprise.

This framework embodies the system thinking method promoted by IS researchers [3, 6, 9, 11]. Systems thinking refers to "thinking in terms of facts and events within the context of wholes, forming integrated sets with their own properties and relationships" [10, p. 19]. This major principle underlies the structured systems analysis method, traditionally used in design and construction of software. Though it has been successfully enlisted hitherto for developing IT systems, traditional systems analysis has however been seen as poorly fitted for analyzing the use of IT in human milieus: being conceptually inadequate for elucidating the social complexities of organizations, or addressing human processes of interaction and sense-making [4, 16]. Alter [1] had thus issued a strong call for information systems researchers to develop the applicability of systems thinking for performing analysis of organizational activities in which IT is embedded, rather than IT tools only.

The framework presented here is in a limited respect analogous to the afore-mentioned systems analysis modeling method often used in software construction, in which an area of work activity is reduced to a combination of several sub-processes or logical sets analyzed in states of interaction or inter-relationship with each other. However, only technical aspects are emphasised in that traditional form of systems analysis – the humans, actions and information flows that make up the work domain are modeled as purely functional elements, and their interactions are viewed in terms of cause-and-effect linkages or transformations. By comparison, in this paper's systems thinking framework, it is the analyst or researcher's understanding of a socially-situated domain of IT based organizational operations that is reduced to several subsets (i.e. 'value programs', not processes), and the inter-relationships of elements within and between these programs examined. Moreover, this systems thinking framework differs from structured systems

analysis in that social aspects of human activity (e.g. power, legitimization) are also considered, in addition to the purely functional aspects. Secondly, relationships between elements are not considered in terms of causative linkages or interactions, but as relations of significance.

The systems-thinking based framework of analysis illustrated here may thus be seen to help redress past inadequacies in elucidating the social complexity of organizations. The notion of a value program illuminates the way social capacities of organization, like legitimacy and power, are promoted or negated within specific lines of action. The complex nature of an organization might thus be analytically disengaged into 'whole' assemblies of actions, events, means and conditions, ordered by their correspondence to the prevailing concerns of stakeholders. This approximates the essence of organizations as nets of relations [18]. IT enabled organizational functioning can thus be suitably treated as a process of pluralistic constitution [14] entailing multiple complementary (and at times inconsistent) courses of action, that elaborate it into an emergent form.

The use of this framework to disentangle the disparate nature of organizations, and clarify the way various features, functions or capacities of IT take on relevance for particular courses of action, could also assist in identifying the trade-offs or accommodations that management has to juggle with [18]. In addition, the decomposition of IT-supported organizational action also help illuminate how macro transformations in the value of strategic enterprise take shape in a composite, contested manner at the more micro levels of functioning, as illustrated in the preceding account of the BBC's efforts to meet its aim of accountability.

5. Conclusion

This theoretical paper presented a framework for discriminating the complex, pluralistic nature of organizational action in the use of IT, specifically from the standpoint of systems thinking. This systems framework incorporates fundamental recognition of the social dimensions of organizational functioning. In this way, this paper may be seen as extending to the study and modeling of IT enabled organizational functioning, the benefits of an integrative, inter-relational form of systems analysis. This approach addresses the contemporary need to equip the information systems field with concepts and tools for expressing and clarifying the complexity and richness of IT-based organization action.

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