

Postmodernist Business Information Management

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Abstract

The concepts and ideas loosely described as post-modernist have gained increasing currency within organisational studies. Their influence has yet to be established to a significant extent within business information management theory and practice. The post-modernist perspective may provide an alternative approach to information systems implementation and business information management through the pursuit of the non-obvious, the counter-intuitive and the surprising,

Post-modernism challenges modernist dependency on reason, uniformity and grand theories (meta-narratives) which provide umbrella explanations of phenomena and events. Post-modernism questions the progression towards certainty and clear unambiguous reasoning. It welcomes diversity, variety, multiple interpretations of phenomena and multiple strategies. Pluralism, fragmentation, heterogeneity and paradox are the order of the day. Attention is paid to the margins, the left-out and the forgotten. Rather than seeking a centralised, uniform understanding of events, localised, individual explanations are explored. Generalisation, while not rejected, is not seen as important as the understanding and exploration of the detail of individual situations.

How does this relate to information management, systems and technology? We would argue that a majority of IT practice to date is modernist in its outlook. IT practitioners seek to standardise systems, to reduce organisational practice to fixed business rules and to encourage conformity in data use. IT practitioners tend to ignore marginal user populations and concentrate on large organisation-wide systems. Ideas such as data warehousing gain importance. Variety is eschewed as system analysts seek to establish single organisation-wide meanings for data and processes and consequently stifle multiple meanings and inhibit diversity. IT managers continue to look for a single, standardised approach to systems development which will assure successful implementation of information systems, ignoring Brooks' contention that there is no silver bullet.

We would advocate a post-modern approach to information management in which multiple approaches to information systems development are encouraged and attention is paid more to the individual information needs of users than to generalised corporate information models. In the post-modernist IT department, systems are developed through participative design with an emphasis on narrative. Multiple meanings for data are encouraged and users are enabled to develop their own personal information environments which suit the needs of their particular tasks and goals. While underlying standard IT infrastructures may be established, application systems are seen as fluid and transient. All data sources are maintained and owned by individuals and IT development is focused locally and not centrally.

Introduction

While the demand for information management is increasing as organisations change and society requires more information, the ability of information technologists to deliver reliable systems which meet users' needs is not improving (Connell and Shafer, 1989, showed that according to US Government statistics, out of a total spend of almost seven million dollars on computing defence projects, only 1.5% of this represented systems used as delivered)). Information systems development failures continue to make the headlines as information management is pulled in two directions.

On the one hand there is a requirement for ever-larger information systems encouraging centralisation and standardisation of business functions. Telephone banking, remote call centres and centralised information functions all indicate a move towards greater automation and towards a Taylorist approach to information dissemination. On the other hand there is an increasing requirement for customised information, for variety in the delivery of information to users who are no longer satisfied with the corporately dictated diet of information and now require information systems suited to their own personal tasks (e.g. Symons, 1990). Information technologists may fail to meet the requirements of either end of the spectra. At one end large-scale system developments frequently fail to deliver. By virtue of their size and complexity, development failure is almost built-in as projects are delivered late, over-budget or not at all. At the other end, individual information needs go unheeded in the search for standardisation and the development of corporate information structures.

We would argue that such failures within information technology arise from the nature of the overarching philosophical paradigm which drives information systems development and information management. This philosophy views organisations as machines, in which rational actors take rational decisions whose effects are predicable and reproducible (see Gergen and Thatchenkery 1996 for an overview of rational agency in organisations). In information systems, this modernist position results in the drive to standardise transactions and to treat the meanings of entities as unambiguous and stable.

However, while the IT function may operate within a modernist paradigm, the organisation within which it resides may be subject to dynamic change, may have several meanings for the entities and events involved in transactions, and may consist of multiple and conflicting groups of companies or organisational groups, working within diverse cultures and markets. While some organisations are moving towards postmodern structures and modus operandi, IT departments frequently remain firmly modernist in their approach to the delivery of information services. In this paper we discuss the modernist nature of information technology functions within organisations, examine postmodernist approaches to organisational studies and show how a postmodern approach to information management might be developed.

The modernist information technology department

Modernism originates in the Enlightenment notion of reason (Hassard, 1994). Intellectual structures are built on rational knowledge which has an objective existence independent of the observer. These intellectual structures are used to facilitate innovation and change. Systemic modernism seeks to control complex and large-scale operations through knowledge technologies (Hassard, 1994).

Modernism has been a great success in enabling understanding and control of physical phenomena and resources and the creation of technologies. Instrumental rationality has provided the basis for developing modern technology and for the foundation of industrial society. Information technology has evolved from the use of rational thinking where the observer is seen as separate from the system being observed. The hardware and software and the other technologies are firmly modernistic, as is software engineering itself (Low et al, 1996).

It is not surprising therefore, that IT departments seek to develop information systems which control human activity through disciplined and ordered workflows, systems analysis itself emerging from the techniques of operational research. The emphasis within the IT department is on certainty, exactness and unambiguity. Processes are expected to be rigorous and reproducible. Decisions should be clear and programmable as a series of non-fuzzy selectable options. Classifications of business data should be exact. Uncertainty should be eliminated because scientific rationality requires clear 'yes' or 'no' answers and uncertainty does not sit well on a Von Neumann machine.

Entities should have single unambiguous meanings. Entities with multiple meanings must be eliminated from data models. There should be only one version, one narrative for each business process within the organisation. This is not always made explicit in the academic literature, but can be seen as implicit in discussion of the role of enterprise rules in data analysis (e.g. Howe, 1989). The doctrine of eliminating ambiguity becomes thoroughly explicit in some OOA texts (e.g. Rumbaugh et al, 1991). The IT department sees reality as an objective unity which is independent of the observer and pre-exists observation. The world of systems within IT is made up of discrete and identifiable entities which can be documented using precise concepts and categories. This being-realism (Chia, 1996) posits static entities and events whose properties can be easily identified.

IT departments work towards conformity in the use of systems and data. Standardisation is the order of the day. Structured systems development methods and formal approaches to quality and testing add to the modernist emphasis. IT managers continue to look for a single standardised approach to systems development which will assure the successful implementation of systems, ignoring Brooks' contention (Brooks, 1987) that there is no silver bullet.

We would suggest that, in the majority, IT departments pursue the implementation of their view of organisations as scientific machines containing well-oiled business processes based on logical analysis of the optimal and most efficient approaches to administration and organisation. This underlying philosophy is based on the dominant positivist view of management which predominates in management science. Scientific management requires that operations are broken down into their constituent parts and reassembled in an optimum manner. This fits well with ideas of decomposition in programming and top-down data flow diagramming in systems analysis. IT departments easily subscribe to management techniques such as business process re-engineering and total quality management, which rely on the machine metaphor in which organisations are systems of interlocking parts giving

routinised, efficient and predictable performance (Steingard and Fitzgibbons, 1993). Indeed, business process re-engineering projects often originate within IT departments and are closely allied to information systems developments.

The postmodernist view of the organisation

We consider here, both the postmodern understanding of organisations and the epochal view of organisations in the postmodern world, reflecting the use of 'postmodern' as both a theoretical perspective and as a label for current social and economic structures. Postmodern theoretical perspectives are now emerging in organisational research as the predominant positivist paradigm is being questioned (Nodoushani, 1996). Organisations cannot be viewed simply as logical, physical entities, responding to set laws and ways of working that can be subjected to scientific reductionism. Rather they are organic social groupings, formed with some common purpose that could not be fulfilled by individuals. As organisations grow, habitual patterns of working develop, based on the combined knowledge and culture of participants. Although these can then be optimised and the organisation treated as a rational and logical machine, it remains a social construction, subject to the culture, perceptions and irrationalities of its members. All organisations will contain some diversity. Participants may have multiple perceptions of events and procedures. There may be many different ways of thinking, different cultures and different knowledge requirements. Some organisations promote variety as a way of creating new knowledge and ideas (Nonaka, 1994). Business methods continue to ignore this and seek to repackage the old ideas of scientific management in more palatable forms, such as Business Process Re-engineering and Total Quality Management (Grint, Case & Willcocks (1996); Boje & Winsor 1993).

In the epochal view of postmodernism emphasis is placed on organisational responses to postmodern conditions. Postmodernism hyperbolically accentuates the processes of increased turnover time, speed of circulation and the disposability of subjects and objects (Lash and Urry, 1994). The need to bring products to market faster and to address individual customer needs through customisation results in more flexible organisations. Organisational structures are experimented with (Scott-Morton, 1995), bureaucracy is replaced by democracy (see for example, Semler, 1994) and there is an emphasis on flexibility, market-orientation, and empowerment (Alvesson, 1995). Organisational forms, structures and procedures are constantly altered to fit the market. New ideas are tried out and grow or atrophy. Systems appear and disappear. Manufacturing is moved globally according to economic and marketing needs. Employees adopt flexible and changing roles. Managers do not make decisions based on pure rationality and logic but operate on intuition and experience, responding to markets, culture and the forces surrounding them. Information is drawn more from the phone, the boardroom and newspapers than computer systems and statistical analysis.

Some of these aspects have attracted the label. 'Postmodern'. It is important to distinguish between postmodernism as a theoretical perspective versus the epochal view as these may easily be confused. In the first, our view of the organisation is one in which uniformity, standardisation and specialisation have been superseded by variety, diversification, customisation and diffusion (Alvesson, 1995). In the second,

for example, we describe a type of organisation which may flexibly move in and out of markets depending on the match with its culture.

The attributes of postmodernism

In discussing the postmodern view of organisations it is important to outline certain characteristics of postmodernism in order to highlight some organisational attributes and contrast them with the modernist IT culture.

Firstly, postmodernism rejects the grand narrative. In any area, it would suggest, there is no one overarching theory, no one generalisable view which can describe all phenomena of a particular type. Rather there may be many views held which are diverse and even contradictory. Postmodernism champions the simultaneous availability of many different frames of reference (Kilduff and Mehra, 1997). Furthermore, postmodernism rejects methodological unity. There is no one method of tackling a particular problem, rather there may be many approaches which are equally valid - provided they work. Postmodernism is driven by the need to develop strategies to address the very problems inherent in the use of modernist approaches (Wersig 1993). In rejecting the grand narrative, postmodernism emphasises local diversity. Understanding and exploration of local situations is given greater importance.

Secondly postmodernism questions objectivism which suggests there is a single objective reality which can be viewed separately from the observer. The observer is part of the system and puts an individual interpretation on what happens or how things are done. Attempts by the observer to claim objectivity are challenged. Each actor within an organisation has his or her own interpretation of events and entities. Postmodernism emphasises subjectivity (see for example Boje's (1994) use of postmodern theatre to illustrate this aspect).

Thirdly, postmodernism emphasises process over facts. What is important is how things become what they are - becoming-realism (Chia, 1996). Emphasis is placed on change, flexibility and transformation. Relationships, process and emergence score over static facts.

Fourthly, postmodernism places a greater emphasis on the individual. Interest in variety and local ways of doing things has a greater role. Since individuals perceive the truth about the world differently, it becomes important in a postmodernist view to listen and understand individual perceptions. Universal agreement on representation of the world is seen as difficult, if not impossible.

Finally, the importance of the text is key to postmodernism (Kilduff and Mehra, 1997). Whether that text is interview notes, data structures, standards manuals or invoices, postmodernism seeks to 'deconstruct' texts, to expose inherent contradictions and show how various strategies are applied which give objectivity and structure and hide inconsistencies, hidden agendas, paradoxes and fuzziness.

Aspects of postmodern information management

In the light of these ideas about postmodernism we can begin to outline some aspects which should influence IT. Postmodernism does not reject application of systems

theory but is skeptical of its claims to universality and particularly, the problems caused by its inappropriate use which may perpetuate instrumental reason (Coyne, 1995). We believe that, although postmodernism provides insights of value to information management and a new direction, some practical generalisation must occur if we are to make it workable in the real world. Below, we highlight some areas of IT where, we believe, postmodernist perspectives offer the potential to develop strategies to address real problems

i) User Needs

The information needs of individual users should be emphasised. A new climate must prevail which encourages diversity, and fosters the freedom to develop systems which meet diverse needs. New systems will allow individual and multiple meanings for data items to be recorded. Facilities need to be provided for the development of local systems - which may give rise to new strategic applications (Andreu and Ciborra, 1996) - and also for rapid development of transient solutions to meet the immediate problems of users (Davenport, 1994).

Thus the focus will be on management developed systems or end user systems. Individual users should be encouraged to develop their own information environments and to customise their data sources. Within the information management department, the emphasis must be on providing individual services to users, and information architecture should be developed with reference to their individual needs.

ii) The role and process of analysis

The traditional role of the analyst requires deconstruction. He or she is an actor in the system with distinct motivations; they may drive development in a fixed direction using a veneer of objectivity. In fact, the conventional distinction between the roles of analyst and user creates an artificial and illusory division between observer and observed. Analysts should be encouraged to be reflexive and suspicious of their role within the development process.

The process of analysis depends on historical, political and social understanding of the influences that led to the current situation within an organisation. Awareness of such factors takes precedence over classification and definition in postmodernist analysis. Requirements analysis must adopt techniques from the arts. In order to develop systems which allow for multiple and individual interpretations of information about a business situation, what must be gathered is essentially a series of fictions. A key aspect is eliciting narratives, perhaps represented as the written word, perhaps as the storyboards already in use in the development of interactive multimedia software. Vivid and immediate details must be captured, so story-telling, critical theatre and ethnographic methods may all play a role (for an example of the latter, see Hales, 1995). Above all, requirements analysis should be carried out in a participative manner.

Systems themselves will concentrate on the processual view, allowing dynamic development of processes and welcoming change and redefinition. Flexibility and transformation should be easy, and the system should allow for the emergence of new properties and interpretations during use. Analysis will concentrate on the life and development of objects and ideas rather than static definition. Objects are replaced by dynamic patterns, and the emphasis shifts to events (Sahay, 1997). There is already some evidence of this within object-oriented approaches (e.g. Coad, North and Mayfield, 1995).

iii) Information Systems Strategy

IS strategy should be responsive and emergent. A rigid modernistic method such as Method/1 (Lederer and Gardiner, 1993) applied as a formal exercise is inappropriate. IS strategy should respond to the individual and the local, providing a portfolio of IS which accounts for local needs.

iv) Decision Making Support

As we suggested above, uniform meaning of data cannot exist where people hold different interpretations of entities, processes and data. For example, there may never be one single definition of a 'customer', however much effort is put into obtaining it. Corporate-wide information models are examples of the overarching metanarratives which a postmodernist perspective rejects. Attempts to produce them will run into trouble whenever agreement cannot be reached, and in such cases, the agreed model will represent a lowest common denominator, reduced to the point that it is meaningless and worthless.

Standards have their place, but they should not be enforced at the expense of individual needs. Some individualisation of data should be promoted. The value of modernist ideas such as data warehouses within information management should be questioned. Contradiction and paradox should be exposed and discussed, not suppressed or necessarily resolved.

Attempts to reduce decision making and processes within the organisations to logical flowcharts should be avoided. Decision support systems need to recognise the fuzzy nature of many decisions, and the importance of multiple views and narratives. Here, the need is to provide the decision maker with a wide canvas of linked data, and with structures which, while limiting the data to a manageable amount, do not force or suggest particular interpretations. The value of concepts such as 'traffic lights' within executive information systems should be questioned and deconstructed.

Postmodernist Information technology

We do not wish to suggest that all modernist aspects of information technology and management should be rejected. Postmodernism does not advocate this. In architecture, the postmodernist style has been defined as 'an eclectic mixture of any tradition with that of its immediate past' (Jencks, 1989). Postmodernism is quite at ease with the absorbing of modernist traditions. The rejection of all modernism would result in anarchy and the degradation of the organisation's information base. At the same time, slavish obedience to modernist ideas results in an inability to adapt, systems which suit nobody and an information base which is out of tune with the organisation's needs.

We believe that postmodernist ideas should be incorporated into information management thinking in order to provide for diversity, variety and meeting constantly changing environmental challenges.

In order to communicate, some uniform technology is required. There is a paradox in that elements of modernist approaches are necessary for building in postmodern flexibility. A system architecture should provide a layer of standardisation on top of which individualised and diverse systems can be built. That standardised architecture should be transparent and should not inhibit the development of customised and interpretive systems.

For example, the use of object-oriented architectures may support postmodern information management. Individuals can build objects which express their view of the world on top of a basic organisation-wide model. This so-called subjective programming (REF _NEIL) allows the development of multiple interpretations of information without creating anarchy. Similarly, the use of standard Intranet technology creates a stable technical architecture in which a wide variety of individual information sources may be represented. Corporate-wide communication is supported at the same time as individual knowledge bases are created.

Postmodernism would react against an information environment in which everyone used the same database, and was forced to interpret data in one way. However postmodernism would advocate clear communication of information and the exchange of stories, interpretations and understandings between members of an organisation.

Development of Postmodern Business Information Management

Within business information management, postmodern ideas have yet to have much impact. In this paper, we have attempted to trace the implications of postmodernist thinking for practice. We have highlighted some areas of IT where we believe postmodern ideas should be applied, but this cannot be either exhaustive or prescriptive. We intend to look for examples of the application of postmodern ideas in business information management in order to inform and develop our approach.

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