Information Resource Management: A Question of Attitudes?

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Abstract

Based on field work carried out in 71 manufacturing firms during 1986, a number of key personal factors influencing information behaviour are isolated. The implications of these factors for the take-up of information resource management ideas are examined.

Introduction

A growing awareness and consideration of the dependence of organizations upon their internal and external information systems and practices for continuing operational effectiveness is one of the key strands in recent management literature. This new sensitivity to informational contributions to organizational success has pushed into prominence the cause and claims of information management. (1) The drive to exploit information resources has supported a succession of theoretical and practical efforts to conceive and implement organizational information systems with claims to better reflect the information needs and attitudes of managements. Management data systems, management information systems, decision support systems, information centres, information resource management—all reflect attempts at establishing more comprehensive, and at the same time more precise, complex, integrated and discriminatory systems for providing managers with data and information needed for managing organizations in circumstances of change.

Information resource management (IRM), the currently favoured concept linking managerial effectiveness and information acquisition and use, represents the latest synthesis of a range of ideas based on the premise that effective decision-making and strategic thinking cannot be divorced from information consideration. These include the ability to translate diagnostic results into specific and knowledgeable information requests. The satisfaction of the latter, within acceptable time, cost and human ability constraints requires the establishment of external and internal information systems associated with the active handling of information as a management resource of comparable importance to other factors of production.

Attempts at solving problems implicit in the latter processes have led information managers to rely increasingly upon computers and telecommunications for the means of overcoming their difficulties. This unavoidable reliance upon technology has produced a daunting volume of literature in which the distinct elements of information and technology are confused, and in which information technology frequently appears as a conscious and unconscious synonym for information. (2) This is not simply an example of slipshod expression—an understood professional ellipsis. On the contrary, it is a seriously misleading understanding that allows stress to be placed upon enabling mechanisms to the detriment of serious consideration of content and purpose aspects of information behaviour.

Information technology is an essential element of information resource management. However, the acceptance of the IRM concept, and the translation of the concept into the practical reality of systems, has as much to do with individual information attitudes, expectations and abilities as it has with technology. In other words, despite the mass of literature extolling the benefits of information technology in organizational contexts the driving force towards its acceptance owes as
much to personal managerial attributes as it does to advantages manifest in the technology itself. These personal attributes help to explain the variable degrees of information technology take-up in organizations and, more fundamentally, the established forms of organizational informational behaviour against which newer modes of information practice associated with information technology have to compete. In short IRM is as much about attitudes towards information as it is about systems. Comparatively few contributions by information technology advocates spend time on making this clear.

What can be said about such personal factors in this context? What are the main personal attributes that favour the adoption of IRM, and related concepts? Based on recent field-work, (3) the following constitutes a first attempt at isolating significant personal factors likely to influence receptivity to information management ideas in manufacturing environments.

Personal determinants of information behaviour

Five major personal attributes emerged from interviews with managers kIS having significant information behaviour consequences:

1. Personal propensity to information consumption.
2. Receptiveness to externaiities.
3. Strategic perceptiveness.
4. Recognition of information unity,
5. Belief in the value of organization and system.

These factors are considered in greater detail in the following paragraphs.

Propensity to information consumption: To a degree the amount of information ‘consumed’ by individual managers is a function of their responsibilities, type of industry. product, etc., that is, a set of extrinsic factors. In this respect organizations are characterised by routine distributions of largely predictable ‘chunks’ (4) of data/information associated with specific functions and usually generated in-house. Beyond the immediate routine there exist tasks and decisions which require access to, and use of, information not generated internally by an organization. In both these categories, however, as well as responding to extrinsic factors, individual managers will display different patterns of information intake and use in relation to decisions to be undertaken, levels of understanding attained. etc. These variations are products of intrinsic factors–attitudes, preferences, abilities. Some managers will more willingly act upon sparse, or dubious, information and data than others, for example. Others will insist upon as sound an information base as possible for their decisions. In other words the latter group demonstrates a higher propensity to information consumption. It is in this group that we might expect to find individuals favourably inclined to the implementation of IRM concepts. Without this propensity, and the practical information system implications gives rise, it is unlikely that information managed in a constructive sense–whether by manual or computerised systems.

Externalities: IRM in its most effective forms requires its practitioners, and those who accept the ideas of information management, to appreciate that current and future organizational states are profoundly influenced by events and trends originating in the external environment. (5) These include a broad range of predictable and unpredictable factors and forces ranging, for example, from changes in national and foreign government policies, through unexpected changes in consumer preferences, to influential activities of competitors. Practitioners of IRM, in this form, have the task of abstracting from the external information environment those messages likely to have significance for the future of the organization. Such messages have to be analysed and presented in ways likely to ensure their effective exploitation by general and operational managers.
Generally individuals in these latter groups have to be receptive to messages from external sources if the results of IRM systems are to be beneficial. Managers have to assimilate the substance of such messages, relate them to current operations and assess their significance for future operational states, while still giving priority to current requirements. Not all managers possess the requisite balance of qualities to achieve such ends. (6)

**Strategic perceptiveness:** By this is understood the practical realization that organizational futures involve change. Further, that there are substantial organizational benefits to be gained in reducing the element of future surprise through the timely acquisition of forewarning information. In one respect this attribute is a reflection of individual management styles and philosophies. Many managers are content to regard their jobs in terms of confronting and solving problems as they cross their desks, or in sorting out ‘messes’ as they occur on the factory floor. While IRM systems might be expected to respond to the immediate to satisfy such approaches to management they are adapted, in addition, to represent more than the sum of an organization’s current and short-term concerns. An important aspect of IRM systems is their focus upon medium- and long-term issues. In other words, strategic considerations likely to have future significance for continuing effectiveness, even survival. (7) The application of IRM ideas, in their most productive forms, requires this fundamental recognition, not simply of the utility of information, but of its crucial contribution to organizational survival and adaptation. It should be pointed out that the information competencies required of IRM practitioners in this area of information acquisition and exploitation are distinctly different from those deployed for information purposes within organizations. While the former have to be expressed in situations of information disorder, internal information systems are bounded, rule governed and largely predictable. Not many managers possess information competencies applicable in the less ordered external information environment. (8).

**Information unity:** When information acquisition and exploitation are linked to the possible impacts of externalities and to considerations of possible future states it becomes apparent that individual organizations cannot achieve viable states of information autonomy. They cannot exist on internally generated information solely. The latter can provide only a dangerously incomplete picture of the world in which they are required, and will be required, internal information systems have to be complemented and supplemented with information and data abstracted, in a variety of fashions, from individuals, agencies and other sources existing outside organizational boundaries. IRM, both as a concept and an activity, recognizes that the ‘products’ of these separate information-generating domains—the internal and external—have to be combined and coordinated as elements of a single information system for greater organizational effectiveness. IRM, usually, represents a movement intent upon employing information technology as an enabling mechanism to overcome problems inherent in the existence of diverse, discrete, sources of information generation. It is a movement of information integration and discrimination. (9)

**Systematisation:** The use of information on a regular, systematic basis in decision-making, or problem-solving, implies an acceptance of ordered and organized procedures of acquisition, storage, packaging, dissemination, etc. It implies, also, an acceptance of the need for order and organization as a pervasive aspect of personal character. In other words, relationships between processes, responsibilities and individuals are arranged in a manner best calculated to achieve understood organizational goals. In smaller firms the idea of organization may manifest itself in the form of systematic working practices rather than in overt, management structures, etc. Nonetheless, whatever the size of an organization, the presence, or absence, of a systematising will is quickly apparent. It is certain IRM cannot be made to work in organizations lacking this factor of organization.
Current attitudes

Measured against such attitudinal factors what can be said of the degree of recognition awarded IRM in manufacturing firms in the UK? Recent investigations provide a basis for a number of critical observations of sufficient strength to merit general consideration. (10)

Propensity to information consumption

Of the 71 firms visited 8 per cent (i.e., six firms) claimed that they had no need of information; they were informationally autonomous. This is how they perceived their information situation. In this state of imperviousness to information issues it is apparent that IRM concepts would not have a ready audience. These firms were small (usually less than 60 employees) and characterized by limiting market, product and management outlooks.

Such firms were hardly typical, however. The remainder considered themselves dependent, not only upon their internal information systems, but upon external sources of information. Although the extent of external information dependence varied between firms, for a variety of reasons, there was a majority view that information relationships with elements of the external environment were ‘unavoidable’, ‘crucial’, ‘essential’, ‘necessary’, etc. Paradoxically, however, this general recognition of the obvious rarely transformed itself into reflective, sustained, practical, information actions, or activities. The point needs illustrating. The establishment, and continued existence, of firms places them, with minimal organizational volition, within inflowing information streams of surprising depth and breadth. Some of this information arrives freely, without initiating actions on the part of firms, some is obtained routinely for the outlay of comparatively small sums of money (trade journals, newspapers, etc.), some is acquired through special purchase (market research reports, consultants’ advice, economic forecasts, directories, etc.). Some data are gathered ‘in the field’ by salesforces, or provided by customers. There are numerous channels through which information rushes or trickles to reach even the most information impervious of firms, even those which take no information initiating actions of their own.

Information acquired in the foregoing manner from external sources has the potential, at least, of assisting in relating products, practices and policies to changing and future circumstances. Those with high information consumption propensities might be expected to recognize such potential. On the evidence gathered it may be asserted that information propensities operate at low levels and that relatively few attempts are made to integrate externally derived information with information contained within, and circulated by, internal systems. Only 12 per cent (nine firms) had advanced their information thinking to the point where a member of staff was assigned minimal responsibilities for the examination, analysis and distribution of incoming information. Use of information technology to access information from external sources was rarely standard procedure. Of the 71 firms visited only three had such facilities installed in-house.

The majority of firms (79 per cent = 56 firms) bought in. and otherwise received, various forms of data and information from external sources, but took no steps to ensure that these forms, and their contents, were usable in systematic fashion as a collective resource. Typically, materials and data were scattered throughout an organization. Only with difficulty, and with inordinate expenditures of time and effort, could already acquired information be assembled and brought to bear upon specific problems. As a result it was undeniable that decisions frequently were taken on an inadequately informed basis. Most respondents in these firms acknowledged a willingness to make and take decisions on the basis of imperfect information—but, because they had given so little thought to the concept and role of information as an organizational resource, they were accepting lower standards of information assistance than even the imperatives of their current situations warranted. (11)
Within this dominant majority group few respondents linked improved managerial performance on their part, or better performance by their firms, with more effective personal forms of information behaviour, or with better information systems. Neither was it common to associate failures to obtain needed information with deficient management abilities. (I2)

In summary, the majority of manufacturing firms visited revealed low levels of information awareness and low levels of information consumption. (I3)

Externalities

Awareness of externalities, as a state of mind strong enough to motivate systematic, practical, information actions was in evidence only rarely. Naturally, and inevitably in current circumstances, firms acknowledged the influence of extra-organizational factors upon their thinking and activities. Changes in interest rates, competitor activities, consumer preferences, availability of new materials, these were some examples quoted of such influences. Nonetheless, despite this widespread recognition of the need to react to externalities there was no accompanying general sense of a need to maintain a systematic watching brief upon such factors. For the majority it was thought enough to take cognizance of developments as, and after, they happened. This may be seen as another manifestation of reactive, short-term, styles of management. Systematic monitoring of ‘home’ externalities was rare. It was even rarer to discover firms undertaking such activities in relation to overseas events. (I4)

The degree to which firms needed to take externalities into account on a regular basis varied. Forms and degrees of variation were shaped by a number of extrinsic factors such as type of product, market characteristics, organizational size and complexity, etc. In a number of cases the operations of these extrinsic factors were powerful enough in themselves to condition organizational information characteristics and behaviour. For example, a multinational pharmaceutical concern could never be informationally introverted. Its activities and need to know would not allow the development of such attitudes. On the other hand, a small firm producing routine products for a restricted, geographically limited, market would not feel the information compulsions of extrinsic factors to anything like the same degree. Having said as much, it has to be recognized that numerous manufacturing firms do not exist at either of these extremes. In these cases the degree of concern expressed about the operation of externalities and the willingness to undertake deliberate, sustained, organizational actions to wrest useful information from the operating environment depend upon intrinsic, personal, factors to a large extent. These factors include such diverse contributions as education, experience, mentorship, problem-solving styles, etc.

Strategic perceptiveness

The unsystematic treatment of externalities was accepted by the majority of managers interviewed because their main concerns were for immediate and short-term matters. Managers were unaware of alternative forms of information behaviour also. Only a minority possessed a developed appreciation of the role of information as something more than a contribution to solutions of a short-term, crisis, nature. Almost all the references to managerial information activities related to more or less immediate needs and demands.

Concern for long-term, strategic, issues in which futures different from the present were analysed for their possible effects upon organizations, was encountered on only a handful of occasions. Information contributions to such long-term analyses and policies could only be the result of considered and sustained information acquisition activities. Few managers displayed the inclination, or believed that they had the time or resources, to embark upon such projects, or to propose
them. Managers could not perceive advantages in adopting new information behaviour patterns when established forms had proved adequate in the past. A small number of managers expressed the view that current forms of management information behaviour, especially as these related to strategic issues, reflected more than a set of pragmatically derived information attitudes. They were the product of a lack of fundamental information skills. Managers, it was asserted, frequently lacked the ability to analyse problems in a manner systematic enough to produce clear and relevant statements of information requirements. They were not able to isolate, accurately, the information components of the issues they were analysing. Even when information requirements were accurately rendered, it was claimed that most managers lacked basic information competencies. They could not relate information requirements to information sources. An extreme perhaps, but little evidence was forthcoming to dispute the issue.

Information unity

All firms had internal information systems of varying capabilities and potential, and all handled information produced and processed within the organization. Thirty per cent of the firms visited had introduced computers to improve the efficiency and effectiveness of internal information systems. In contrast only three (4 per cent) had access to computerized external databases. This difference of emphasis upon external and internal roles of information technology paralleled the general tendency to regard external and internal information domains as distinct and unrelated. There was little evidence of an understanding that the nature and eventual utility of information demanded full recognition of its interconnectedness. The influence of the limiting information concepts held by data managers was all too evident on occasion. As a consequence of these attitudes and their uncoordinated implementation results, information integration could be effected only through the unpredictable synthesizing capacities of information conscious individual managers.

System and organization

Information systems of the type implied in the foregoing discussion are the products of system and organization. While it is inconceivable that the larger firms could continue without the possession of such attributes to a high degree it is apparent that many firms operated with less well developed notions of organization and system. In these latter firms individual management preferences dence over the establishment of procedural structures inevitably associated with information management. While it is immediately apparent that it would be difficult to introduce IRM into firms lacking an overall sense of system and order, it cannot be assumed that size, structure and other large firm considerations ensure an easy path for IRM in such environments. The latter are likely to produce information systems in plenty, usually of the internal data provision kind but, even here, IRM concepts require directing individual wills for their appreciation and implementation. They are not always to be found even in large organizations.

Discussion

It has to be concluded that information management has yet to be either accepted, or understood, by the majority of firms visited. Given the spread of firms included in the two projects there are grounds for accepting the results as representative. It was evident that most managers were satisfied with existing provisions for the use and receipt of internal and external information. This high level of satisfaction prevailed despite the obviously unsystematic nature of existing forms of information acquisition. Available forms and methods of information supply, and degrees of access, adequately reflected management notions of information needs. Significantly, these levels of satisfaction were associated frequently with the qualification that considerable additional information inputs were obtained through working discussions and the experience of doing–‘most of my information comes from experience and personal contacts’.

Information management, in its information technology manifestation, is a distant and impractical idea for the majority of manufacturing firms. Most are devoid of levels of information awareness sufficiently lively to influence information behaviour and practices in a positive fashion. In these circumstances what response may be expected from advocates of IRM?
It could be argued, on the one hand, that the situation reflects the complacence of managements-in the sense that current practices are adequate to cope with change. On the other hand, managements could be charged with ignorance and obscurantism: a total failure to comprehend the potential benefits of progressive information policies. There is truth in both charges. However, such views cannot form the basis of a constructive response; neither do they offer a suitably convincing explanation of current information states.

It is evident that many firms succeed without resorting to IRM in its advanced forms. The difficulty of establishing direct links between forms of information systems and practices and organizational success also has to be taken into account. On these grounds there is little to convince sceptics of the value of IRM as an aid to more effective management. The most convincing case for the wider applications of IRM has to be based upon practical demonstrations of consequent improvements upon current levels of performance in forms of increased productivity, lowered costs, more accurate spotting of opportunities, higher levels of innovativeness, etc. Unfortunately, contemporary claims of IRM protagonists are based mainly upon dubious anecdotal experiences and ungrounded expectations. Systematic research by information management exponents has contributed little to support such claims. In other words, marketing of IRM has advanced a considerable way ahead of demonstrable realities. There is a pressing need for additional knowledge about the practical results of implementing information management ideas. One relevant response of information specialists must be the encouragement, and undertaking, of research which explores the complex issues clustered around ‘information effects’.

The majority of managers fail to develop positive information attitudes, and find difficulty in comprehending the notion of information as something other than a personal, mental, possession. In the circumstances it is not strange that information specialists appear to them to inhabit a land of which managers know little, even if they believe such a country to exist at all. If it is accepted that improved information attitudes and practices are required to assist in improving the performance of manufacturing industry then nothing less than a national programme for the education and re-education of managers in information awareness, skills and competencies will have to be devised and implemented. This is too large an issue to be treated in detail here, but the potentially crucial roles of management and information management schools should be noted. Not simply because they educate and train model-forming elites, but because there is room to question whether their treatments and approaches to information issues are fully attuned to the requirements of the current situation. (15)

Notes


2. As examples of this confusion of mechanism and content and of the ability, in business/management literature, to talk about technology/systems to the exclusion of information, see MCFARLAN, F.W. (1984). Information technology changes the way you compete. Harvard Business Review, 62 (No. 3), 98-103;
create a competitive weapon from information systems. Their strategy was based on the idea that businesses could use information systems to gain a competitive advantage. They argued that managers needed to understand the role of information technology in their organizations.


4. The phrase “chunk of information” is used in a rather informal sense... During the past 25 years, however, “chunk” has been used in cognitive psychology as a means for talking about a grouping of data in which complexity, recall, understanding, and familiarity are significant factors. A chess master can “see” much more on a chess board than can a novice, because the master groups potential moves into a strategy-into-understandable chunks. Expert computer programmers seem to use chunks to understand a program rather than individual instructions...”This is a most interesting concern for the information field, and will eventually have impact on how formal messages may be put together for different audiences.”


8. It is likely, in the opinion of many strategists, that the decade of the eighties will be regarded as the decade which began the information revolution. This book emphasises the importance to strategic planners of having good information, or access to it, and encourages managers to become harvesters and beachcombers of information.”


12. For example, ‘Generally these situations relate to peripheral areas so if we can’t find the data then we have to admit to failure with nothing lost’; ‘Use lateral thinking and try to get by (i.e., without desired information input)... Can become resigned to a problem The main need here is for support information to build up a full picture. If we can’t find it we live with a partial picture’; ‘By the time we realize we can’t find it (i.e., a piece of information) the urgency may have gone so we live without it’. Quotations from interviews carried out by Roberts and Clifford.
13. There were exceptions, of course. For example, managers with formal business/management training gave highly untypical interviews in information terms. They showed a greater awareness of the need for information organization and of the impacts of externalities. Managers in, or who had worked for, large corporations also gave interviews which depicted them as intense information consumers.

14. This seeming unconcern with external events is neatly captured in the following exchange between the managing director of a manufacturing firm feeling the adverse effects of competition and a researcher: ‘Do you think, with hindsight, that had you had someone here keeping an eye on what was happening in Europe on what are now very awkward competitors, you might have been able to avoid the break-even situation in which you now find yourself?’ The reply, in part, of the managing director--‘I am sure we could. If we had realised what was being done, and that standardization was moving the way it was. we could also have brought out our own standard’. The quotations are from JOHNE, F.A. (1985). Industrial product innovation. London: Croom Helm. The issue appears to be one of deliberate information starvation derived from insular individual attitudes. To the layman it raises the question–how could any management be so short-sighted?


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