IRP/IRM methodologies

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ABSTRACT

Within the next 10 years, the social, psychological, behavioral, and managerial disciplines necessary to develop and support information resource planning (IRP) and its subsequent management (IRM) will be integrated into most corporations. The assimilation, and therefore, impact of these nontechnical disciplines will completely reshape the way organizations evaluate, acquire, and use technologies available to them.

More specifically—although the EDP industry has traditionally been the primary provider of information processing technologies—the most crucial challenge facing EDP professionals today is to broaden their exclusively technical focus to include the new disciplines and methodologies that support organizational requirements as a whole.

This paper will focus on defining what information resource planning is, who should be involved in the process, and the implied impact of IRP and IRM on organizations.
WHAT IS INFORMATION RESOURCE PLANNING

Information resource planning is the process of identifying the fundamental structure of data available to an organization from both internal and external sources. The process encompasses an evaluation of how that identified data must be accessed, formulated, and manipulated in order to support the operational requirements, tactical needs, and strategic goals of the organization. IRP seeks to discover the true structure and behavior of data within an organization. At a minimum, any IRP effort must result in a definitive assessment of how the data available to an organization can be organized to support its current operational information processing requirements. Any IRP effort falling short of this goal will result in a plan that does not support the most basic organizational needs.

Prerequisites of a Successful IRP Effort

For any IRP/planning effort to be successful, an organization must commit to performance of the following activities:

1. Defining the organization's reason and purpose for being
2. Defining the organization's industry and business environment
3. Defining the organization's short- and long-term goals and expectations
4. Identifying and analyzing existing organizational activities
5. Assessing the technological, social, and organizational impact of goals and expectations against the existing business practices and activities
6. Formulating detailed tactical plans to change existing business practices and activities to bring them into alignment with the organization's short- and long-term goals and expectations

Completion of all of these tasks implies a cohesive and highly goal-directed effort by an entire organization (not just DP or management).

IRP as a Methodology and Discipline

IRP's primary responsibility is to take the goals, expectations, and dreams formulated in the boardroom and turn them into operational reality. This planning cycle cannot be accomplished on a casual basis. A discipline that incorporates pragmatic, goal-directed, profit-oriented techniques must be adopted and integrated into an organization. The discipline/methodology used and defined for the organization must be understandable and applicable by everyone from the boardroom to the assembly line. The tools and techniques must promote the effective and efficient use of the human resource while allowing the exploitation of technological resources. The methodology must maintain employee focus on the organization's goals and expectations without sacrificing the individual need for self-actualization and positive personal experiences.

Relationship between IRP, Systems Development, and IRM Methodologies

Any systems development effort must presuppose that a certain level of commitment, interest, and involvement exists on the part of the organization requesting it. That presupposition also implies that the requesting organization understands what it expects from the new system and how the new system will affect the human and technological resources available to it. Unfortunately, systems development efforts seldom begin with such suppositions and implied understandings.

Furthermore, most development efforts are clouded with miscommunications, misdirection, poor documentation, confusion, and poor attitudes. The goal of the individuals within the organization, therefore, becomes self-preservation, and the momentum of the organization and its individuals is greatly reduced.

Although the data processing group in an organization cannot issue an ultimatum to management to adopt the organizational disciplines required to make all development efforts successful, it can incorporate certain disciplines into its suborganization that can slowly influence and encourage others in the organization to follow suit. Since DP has traditionally been charged with the task of successfully and efficiently servicing and managing the organization's information requirements, and because its area of influence transcends organizational boundaries, DP is perfectly positioned to assume the role of a change agent in an organization if DP is willing.

The Role of DP in the IRP and IRM Process

Traditionally, DP has been charged with the specification, design, implementation, and maintenance of the information processing requirements of an organization. Unfortunately,
DP has traditionally been ill-equipped to effectively execute the specification phase of the charter because data processing people’s background and training has been primarily technical in focus. During the 1950s and 1960s, this focus was acceptable and adequate. However, by the early 1970s the grace period of innovation was over and organizations had begun to realize that the data processing function was not keeping pace with the business requirements. Organizational management had also begun to realize that data processing cannot be a separate entity from the rest of the organization or have an unintelligible language. Data processing must be held at least as accountable to standard business practice as the rest of the organization.

The true problem is not technically related but rather people-related. Since DP has never been required to acquire and maintain any skills in interpersonal relationships, business administration, and business management, the ability of the MIS organization to communicate with the business and operational counterparts of the organization fell far short of management’s expectations. Since there was no common ground for communication, management seldom got what it wanted from data processing. While management lost confidence in DP’s skills and in DP’s ability to perform its responsibilities, DP regarded management as unreasonable and incompetent to discuss or decide information issues. Neither management nor DP has recognized that the problem is a behavioral one. Instead, more money and human resources have been spent in an attempt to improve the technological foundation of DP. The result has been a critical decline in processing productivity, as well as a decline in the productive use of the human resource. The electronic and technical revolutions of the 1980s have increased the awareness on the part of operational and business management personnel that to solve the information backlog, a shift must take place in how the human and technological resources are employed.

The concept that information is a resource, a tool, has emerged. Terms like decision support, corporate database, and fourth-generation environments dominate the literature. Even though organizations have begun to realize that resolving the information resource requirements of an organization requires more than just technological advances, the focus is still on more productive tools and products. Organizations are spending their capital and human resources on microcomputers, local area networks, information centers, fourth-generation languages, database management systems, and design methodologies, all in the hope of resolving problems that have taken 30 years to create. The sad fact is that all the tools in the world will not resolve a single organizational information resource problem if that problem is not quantitatively defined in terms of its value to and impact on the organization as a whole. To accomplish this quantitative definition, pragmatic and humanistic planning techniques must be employed. DP is most likely to be charged by operational management with the responsibility for acquiring the skills necessary to develop IRPs and to administer IRMs. This charter, however, has a time limit. If data processing does not adopt and become proficient in these planning techniques, the charter will be reissued to an emerging group in an organization.

Information Administration Group

The new organization will be known as the information administration group (IAG) and will report directly to the executive branch of the organization. The individuals involved in the information administration function will have a strong foundation in (1) behavior psychology, (2) organizational behavior, (3) management science, and (4) systems theory.

The information administration group will employ pragmatic planning and management methods, which require participation by both the staff and line personnel of the organization, to identify and define information resource management requirements. Their charter will be to implement the strategic plans of an organization through tactical and operational levels in a proactive manner. The IAG’s tools will include the following: (1) information resource planning methodology, (2) prototyping methodology, and (3) fourth-generation application development tools.

There is no doubt that this group of individuals will be firmly in place in most major organizations during the 1990s. The information center concept is evidence of the shift toward the IAG. The only questions are where this group will reside in the organization and to whom it will report. DP has until 1987 to provide leadership by implementing a plan to accomplish the information resource planning and management function, or, by default, have its role reduced to equipment operations and applications maintenance functions. Unfortunately, because it lacks the disciplines and attitude necessary to make the change, projections are that all new development and related maintenance will probably be removed from DP’s jurisdiction and control. In short, if DP does not shift its technological, self-preservation focus, its focus will become its negative legacy and therefore its downfall.

Information Resource Planning Methodologies and Benefits

For DP individuals and professionals to maintain control over their destiny, they must learn to assume the role of information resource planner and manager. In order to be successful, the DP industry must reassess the manner in which systems are currently developed. Traditionally, less than 7% of the development cycle is spent on planning of user’s expectations and needs. Approximately 70% of the development effort is spent in programming and testing. The remaining 23% is usually spent in some sort of design effort. As a result of the limited planning, definitive and quantifiable project scopes are never set in place. Since user organizational needs and expectations are poorly defined, the products developed meet with a less than favorable response from the organization. This in turn results in the deployment of tremendous effort and resources in maintenance, which is the remodeling, rebuilding, and reprogramming of systems that were inadequately specified to begin with.

Poor planning typically results in on-going system maintenance costs that often exceed the development costs by as much as 500% within the first five years of use. This standard
scenario could easily be avoided by reallocating the development dollar as follows: (1) 30%—information resource planning, (2) 50%—prototyping, and (3) 20%—packaging and fine-tuning.

By focusing 30% of the project effort on IRP, the following benefits accrue to the following:

The human resource: (1) users learn to take responsibility for their needs, (2) communication barriers are eliminated between management, users, and DP, and (3) definitive project scopes are set in place.

The financial resource: (1) project management costs are reduced by 50% or more and (2) overall project costs are reduced approximately 20%.

The technological resource: (1) focus of project shifts from individual applications to an overall organizational processing environment and (2) data relationships and behavior replace programming as primary system foundation.

As a direct result of performing the IRP phase, the documentation required for full support of a prototyping effort is produced. This documentation includes (1) measurable statements which define the impact of the new system on the existing environment, (2) quantitative statements as to why the existing environment requires change and what changes are required, (3) definitive models of how each activity included in the project is and will be performed, (4) a definitive model depicting the structural relationship or the data required to support the activities being changed, (5) a complete data dictionary, (6) a definitive model of what source documents and data, updates, and outputs are needed to successfully complete each activity, and (7) a complete understanding of the impact of any process on the environment and what preventive or monitoring processes must be included to ensure system integrity.

IRP Implementation—Prototyping

By using IRP documentation in conjunction with the fourth-generation application development tools available today, the following additional benefits are experienced: (1) 30% reduction in overall project cost and time (50% total), (2) 70% reduction in training costs, (3) 70% reduction in user and technical manual preparation costs, (4) ongoing maintenance costs of approximately 20% of original development cost over first 5 years of use, and (5) users whose expectations are aligned with the deliverables of the system installed.

The following example illustrates the dramatic cost savings available through the combined use of IRP and prototyping techniques, as opposed to more traditional development efforts:

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<tr>
<th>IRP/IRM Methodologies 347</th>
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<tr>
<th>Traditional Project Budgeted at $250,000</th>
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<tbody>
<tr>
<td>Planning costs</td>
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<tr>
<td>Requirements and design costs</td>
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<tr>
<td>Programming and testing</td>
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<tr>
<td>TOTAL</td>
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</tbody>
</table>

Subsequent maintenance cost over next 5 years $1,000,000.00
True System Cost $1,250,000.00

IRP and Prototyping Equivalent
Planning (IRP) $37,500.00
Prototyping 62,500.00
Packaging and finetuning 25,000.00
TOTAL $125,000.00
Subsequent maintenance cost over next 5 years 25,000.00
True System Cost 150,000.00
OVERALL COST SAVINGS $1,100,000.00

Although the savings appear to be extraordinary, they are indeed attainable. However, even factoring the IRP/prototyping cost example by 100% (i.e., development costs equal to traditional development costs), the reduction in ongoing maintenance costs is still substantial ($500,000).

IRP/IRM—The Human Factor

The above example offers a great deal of encouragement to organizations currently buried underneath the proverbial applications backlog. Most DP organizations, however, are emphatically opposed to any change in the approaches or the tools currently being used. On reflection, the reason for DP opposition becomes clear—fear of the unknown and fear of change. After all, the DP and MIS professionals employed by organizations are only human, like the users they serve. Why shouldn’t they react to change, especially radical change, in the same manner as anyone else? In short, technological change had a shocking impact on user organizations in the past; and now the shock of behavioral science, technology management theory, IRP/IRM methodologies, and technological changes is evidencing itself in DP. Management must commit itself to rebuilding organizational communication and productivity.

Pilot projects must be funded to build internal performance and achievement statistics (i.e., rebuild mutual credibilities). Mutual commitments must be secured from both DP and management to institutionalize IRP and prototyping methodologies. Programmers must be trained in systems and business analysis techniques. Strategies must be formulated so that they can be transferred from the labor environment and the cost-intensive procedural language environment to the high-productivity and human-resource-efficient information resource management environments.

CONCLUSION

This paper began by stating that the disciplines related to IRP and IRM will be actively in place in large organizations during the 1990s. This prediction is not motivated by desire but by the need for survival. The inertia of the productivity tools being developed today, along with the fast-increasing price of...
technology, will make painfully obvious the gross inadequacy of the traditional practices and approaches used to develop and manage effective information-resource environments.

The only question is who within an organization will be given the charter and responsibility for achieving such information-resource environments. Although DP departments will be given the first chance, their inability to cope with the demands of this newly emerging environment may result in a total demise of the DP organization and the emergence of a more humanistic and organizationally oriented group. There is no doubt that the waves of change are lashing at the breakwalls of the nation's organizations. Our success will lie in our ability to become adaptable and pliable enough to profit from it all.