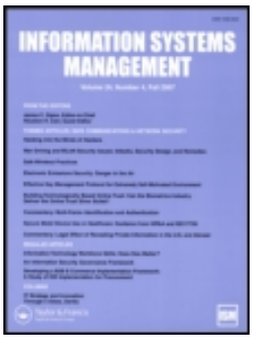

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INFORMATION RESOURCE MANAGEMENT: STEWARDS OF DATA

John van den Hoven

Information resource management is the professional administration, through planning, organizing, staffing, directing, and controlling, of significant items of knowledge so that the data resources of the enterprise can be drawn on and used effectively. Increasingly, IRM is being associated with the notion of stewardship, which is responsible for ensuring effective and efficient management and using the enterprise's data resources.

IN THIS FRAGMENTED AND fast-paced world, people and the enterprises they work for need to bring together data that is scattered throughout the enterprise, or at least to know what is available and where it can be accessed. There is a strong need to share data in a way that makes it easier for related work groups, divisions, and lines of business to use the data effectively. The objective is to better coordinate their activities around a common purpose and to provide users and teams with access to the data they need: when they need it, from wherever it exists, and in a form that they can use.

Besides the internal sharing of data, there is an increasing requirement to extend this sharing beyond the enterprise. Enterprises need to be able selectively to share data with customers, suppliers, and partners so they can do business more efficiently and effectively, thus the increasing importance of information resource management.

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IRM — STEWARDS OF THE DATA

Information resource management is an organizational function that focuses on managing the enterprise's data and the technology necessary to create, use, and manage that data effectively. The concept of information resource management (IRM) has been around for many years (originating in the mid-1970s) and also has been referred to as data resource management, information management, information resource planning, and various other names.

There are many definitions in use for IRM, reflecting the various perspectives on the scope and impact of the data resource. One such IRM definition can be derived by breaking up the term "information resource management" into its component parts. The *Oxford Dictionary* defines

- information as something told or items of knowledge
- resource as a stock or supply that can be drawn on
- management as the professional administration of business concerns

Information can be further defined as processed data, which is significant to a user. Information resource management also connotes professional management of a business asset through the application of one or more of the management processes such as planning, organizing, staffing, directing, and controlling.

Putting it all together, one can define information resource management as the professional administration through planning, organizing, staffing, directing, and controlling of significant items of knowledge so that the data resources of the enterprise can be drawn on and used effectively.

Increasingly, IRM is being associated with the notion of stewardship. The *Oxford Dictionary* defines a steward as a "person entrusted with management of another's property." A data steward is the person responsible for ensuring the effective and efficient

management and utilization of the enterprise's data resources. The data stewards for the enterprise's data resources are the IRM group.

DATA STEWARDSHIP PRINCIPLES

In general, the goal of IRM is to act in a stewardship capacity to maximize the quality, usability, and value of the enterprise's data resources by managing it as an enterprise resource to be shared across the enterprise. The quality of data resources is determined by the accuracy and consistency of the data. Its usability is enhanced through greater access to the data and by providing the data in a variety of useful formats. The value of the enterprise data is determined by its timeliness, relevance, and completeness. However, these data resources will not provide the maximum benefit unless they are shared throughout the enterprise to promote better coordination of enterprise activities and improved decision making.

The value of the enterprise data is determined by its timeliness, relevance, and completeness.

There are some key principles that help guide the enterprise's data stewardship efforts. These principles, which are fundamental truths that are used as a basis of reasoning, can be applied by the IRM group to the enterprise's data. These principles are associated with the life cycle of data — create, use, and manage — and are discussed under these headings.

Create

1. *Capture data once at source.* The goal of the enterprise should be to capture the data only once at the source. This should be as early as possible in the business process that creates the data. This has the effect of minimizing data redundancy and making the data available as soon as it is created.
2. *Capture data electronically.* The goal should be to capture data electronically in a common format that can be shared easily. This has the effect of making the data easier to manipulate and share, thereby making it a more useful and effective resource.
3. *Ensure data quality at source.* Data quality should be ensured at the source by checking it for correctness, completeness, and compliance with applicable standards, rules, and conventions. It is much easier and cheaper to catch and correct errors at the source where there is better context information available.

Use

1. *Maintain a directory of data resources.* The enterprise needs to maintain a directory of data resources. This directory (which also could be thought of as a catalog or the *Yellow Pages* for enterprise data) is a centralized inventory of available data. It meets the need to know what data exists and where it is located, as well as providing context information (such as descriptions, definitions, and documentation) for those using it.
2. *Make data easily accessible.* The enterprise's data needs to be made easily accessible both technically and organizationally. Technically, this means improving data accessibility and usability by putting it in useful formats to make it accessible in any way that makes business sense and by using common infrastructure and tools. Organizationally, access to information should be the rule, not the exception. The objective should be to minimize technical and organizational hurdles to make it easy to access required data.
3. *Establish common, shared data definitions.* For effective data management, it is necessary to establish common, shared data definitions. This standardization can occur through the use of common terminology, definitions, and identifiers across the enterprise. This improves consistency and makes it easier to understand and share data within the enterprise.
4. *Optimize data for use.* The data should be optimized to best support its intended use, such as operational or decision support. Operational systems contain detailed transactional data, which constantly is being updated but contains limited historical data. Decision support systems contain summarized read-only data but contain considerable historical data to represent the enterprise's performance over an extended period of time.

Manage

1. *Treat data as a valuable asset.* Data is a long-lived, valuable asset that must be managed as such. It is long-lived because, although the uses of data change over time, the structure of the data itself does not change very often. It is a valuable asset because it allows an enterprise to operate efficiently and effectively and to decide wisely. For these reasons, it is worth spending the time and money necessary to manage these enterprise data assets effectively.
2. *View data as an enterprise asset.* Data is an enterprise asset and must be managed as such. As an enterprise asset, enterprisewide considerations should take precedence over individual or department needs. Data should be managed as an enterprise resource by the IRM group, and not exist as islands of data under the control of individuals or departments.
3. *Provide senior management direction.* Senior management must provide long-term direction for the effective use of data in support of the mission, objectives, and processes of the enterprise. This requires a longer term strategic view instead of the more prevalent short-term operational and cost control view of the enterprise's data assets. The information asset (just like the enterprise's

financial and human resource assets) needs to be managed to achieve maximum value and return to the organization. Goal setting, assigning accountability, establishing policies, and monitoring and control are some of the key information resource management responsibilities of senior management.

4. *Identify, define, and assign data stewardship responsibility.* Senior management must identify the appropriate resources and define and assign data stewardship responsibilities to these resources. The IRM group (discussed further in IRM Resources) is the focal point for planning, communicating, and implementing data stewardship activities in the enterprise.
5. *Safeguard and secure data assets.* The enterprise must safeguard and secure its data assets through establishment and enforcement of appropriate administrative, technical, and physical means to protect the data resources from accidental or deliberate corruption, destruction, or unauthorized access. The goal is to ensure the availability of and timely access to current data, while securing it from unauthorized access. The scope of the effort depends on how valuable the data is to the company and to others who may want to access it and should be balanced with the cost to provide the protection.

IRM should have roles and responsibilities comparable to those used in managing financial or human resources.

IRM RESOURCES

IRM should have roles and responsibilities comparable to those used in managing financial or human resources. It is necessary to create a function that has the authority and responsibility to coordinate data management throughout the enterprise. A number of key roles are required in an effective IRM function including the chief information officer, data administrator, database administrator, and involved business users.

The chief information officer (CIO) provides the overall direction to the IRM function and ensures that the IRM objectives are aligned properly with and support the business objectives. The CIO is also the focal point for getting management attention and support for IRM.

The data administrator (DA) is a key contact between management and the business users and the technical staff. The data administrator gathers and analyzes business requirements, defines data structures, and defines standards, conventions, and policies for the data. The DA also identifies opportunities to share data and to use it effectively to realize business benefits. The administrative responsibilities include administering policies, procedures, plans, and practices for the definition, organization, protection, and usage of data within the enterprise.

The database administrator (DBA) has technical responsibilities for operation of the database management software and the physical data resources it manages. These responsibilities include managing, operating, and maintaining the enterprise's databases and the application data it contains and supporting the developers and business users.

The key participants from the user community include stakeholders — data owners and data users. Data owners help ensure that data is being collected, stored, and used properly. They help focus IRM efforts on high priority business needs and aid in the understanding of the data. Data owners help ensure data integrity and help resolve issues with the data (e.g., determining which data is most current). Data users help determine what data is needed and what formats are necessary for them to use the data effectively.

CONCLUSION

Data is a costly and valuable enterprise asset that requires the application of the same basic principles and approaches that now are applied by enterprises to their other major resources such as human resources, financial resources, and plant (facility and equipment) resources. Several key principles are introduced to help guide the enterprise's data stewardship efforts.

Underlying these principles is the requirement for enterprises to change the way they think about their data resources. This requires a change from the current thinking at many enterprises of data as an overhead or a cost of doing business to thinking of data as a vital resource that can be used as a strategic tool. Internally, this will enable enterprises to use their information resources effectively for problem solving, decision making, and creative thinking for improving products, processes, and services. Externally, this will enable enterprises to reach beyond their borders selectively to share data with customers, suppliers, and partners so they can do business more efficiently and effectively. ▲