IS Management in the Year 2000:

the Role of the CIO

Study Outline

Andersen Consulting CIO Program

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INPUT

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This outline summarizes a study being performed by INPUT in conjunction with the Andersen Consulting CIO Program. The objective is to identify general trends in business and technology, and predict how the role of the CIO will change as a result of these trends. In addition, the study will focus on how the CIO's role may differ from one industry to another.

The study will be based on interviews conducted by INPUT with CIOs, user executives, and industry experts. Interview candidates will be selected jointly by INPUT and Andersen Consulting, with the objective of tapping a wide range of thought across a broad spectrum of industries.

In addition to outlining the anticipated report and presentation, this document can also serve as an interview guide for discussing these issues with CIOs and others. There is no presumption that this outline presents a complete list of the relevant issues; rather, its objective is to stimulate thinking and discussion.

A

Business Trends

Basic evolutionary trends in the way companies do business will change the nature of their information processing requirements. Among these trends are:

- globalization of markets
- globalization of sourcing for products and services
- fragmentation of large organizations into individual lines of business
- increasing and continuous merger/acquisition/divestiture activity
- horizontal and vertical integration, both *within* and *between* organizations
  - inter-divisional contracts
  - consortia
  - strategic alliances
  - project teaming

- increasing acceptance and use of inter-company electronic communication (EDI)
- increasing development of "strategic" or "competitive advantage" systems
- increasing utilization of small, focussed work groups
  - transient
  - cross-functional
  - intercompany
- continuing use of technology to change basic operational practices (e.g., shift to JIT inventory systems)

B

Industry-Specific Operational Characteristics

The operational characteristics of specific industries also have a significant effect on the nature of their IS function. Consequently, the role of the future CIO will be determined at least in part by the nature of the industry. Examples of these industry-specific characteristics include:

Nature of the Firm's Output

- Information-oriented (no physical object is produced/delivered/modified)
  - banking/finance
  - insurance
  - telecommunications
- Service-oriented (physical objects are of secondary importance)
  - wholesale/retail
  - transportation
  - utilities
  - medical
- Product-oriented (physical objects are of primary importance)
  - discrete manufacturing
  - process manufacturing

Extent of Contact with Consumers

(parallels above structure: information-oriented - high
product-oriented - low)

Source of Transactions

(parallels above structure: information-oriented - mostly external to firm
product-oriented - primarily internal)

Capital/Labor-Intensiveness of Output
- Asset $/Employee
- Revenue $/Employee
- Revenue $/Asset $

Nature of Plant/Equipment
- Few/large/fixed location/high capital investment: manufacturing
- Many/small/easy to move/low capital investment: many service-oriented

Typical Organization Structure
- Functional
- Divisional/profit centered

Dispersion/Decentralization of Operations/Operational Controls
- High: information- and service-oriented industries in general
- Low: transportation (esp.airlines), manufacturing, utilities

Nature of Regulatory Environment
- Strong: information-oriented industries (banking/finance)
- Weaker: transportation, manufacturing, utilities

C

Evolution of Information Technology

In addition to industry-specific characteristics, certain technology trends will impact the future role of the CIO. These evolutionary trends will affect the nature of new systems, as well as the way in which these systems are developed. Examples include:
- trend towards integrated, enterprise-wide databases
- trend towards OLTP (on-line transaction processing)
- increasing user friendliness of applications -- e.g., graphics interfaces
- increasing ease of application development by end users and systems groups
- increasing application of expert systems in systems development and processing
- increasing quality/decreasing cost of hardware (processing/display/storage)
- trend towards open systems (platform independence/system connectivity)
- increasing availability of very high speed cost-effective communications facilities
  - local area (workgroup) networks; *intra-* and *inter-*enterprise links

By contrast with the evolutionary change suggested above, certain emerging technologies could cause major, revolutionary shifts in the nature of IS applications. These new technologies might include:

- voice recognition
- natural language processing
- self-teaching expert systems

D

Organizational Position and Responsibilities

This combination of business trends, industry-specific operational characteristics, and evolving information technology will change the nature of the firm's operations, as well as the role of the CIO. The organizational position and responsibilities of the CIO may be described by the following parameters:

- How is the firm organized and managed
  - functional
  - divisional/profit centered
  - matrix
- What level is the CIO
  - reports to whom
  - membership in managing/policy committees
  - who are peers, and what is their role
- What functions are covered by the position
  - data processing
  - telecommunications
  - clerical operations (back-office, information-processing, etc)
- What other associated functions
  - finance
  - human relations
  - general administration
  - core operations (other than clerical)
  - business segment management
  - strategic planning (corporate)
- What are key measurement/evaluation criteria for position
- What are key success factors for position

E

Staff Structure and Operational Responsibilities

The CIO will have various roles with respect to each of the functions identified above. The roles may be staff or line, direct or matrix, etc. These roles may be described in part by the following parameters or questions:

- Does the CIO have line or staff roles, or both; what is the underlying rationale

- For staff roles, do they involve
  - advisory/consultative support
  - policy-making/standards-setting
  - auditing

- For line roles, are they operated as
  - cost center
  - profit center
  - independent subsidiary

F

Role of CIO vs. "User" Executives

The role of the CIO will be related to the allocation of IS resources and services between centralized corporate groups and decentralized business units. What are the likely patterns and reasons for allocating the resources and control of the following basic items to either the CIO or a "User:"

- processing capability/operations
- systems development
- "ownership" of databases
- infrastructure/support services (e.g., networks)

More specifically, how do the CIO and "Users" share responsibility for:

- operation and maintenance of IS-related facilities/resources
- systems development/maintenance
- project management/audit/control
- management of personnel
- operating budgets
- strategic IS planning
- choice of technology/standards
- project prioritization/capital budgeting/resource allocation
- control of acquisitions (hardware/software/consulting/etc)

G

The CIO's Role in Enterprise Planning and Direction

In addition to a direct role in managing the use of the firm's IS resources, the CIO may have a role in planning or determining the strategic directions of the company. How does/should the CIO relate to other executives and participate in this arena with respect to:

- providing guidance/forecasts of technology trends
- educating management on the implications and uses of technology in the business
- determining corporate strategy
- determining business unit strategy
- establishing priorities and allocating corporate resources
- reviewing/evaluating/controlling the IS-related activities of other managers

H

The Role of Third Party Service Providers

Many firms are weighing the option of transferring responsibility for some or all of their systems activities to third party service providers, either through service bureau or facility management contracts. Systems integration is also becoming a major line of business for hardware vendors and large I.S. consulting organizations. Among the reasons often cited for this trend are:

- releases corporate resources to concentrate on strategic systems
- allows non-critical functions to be efficiently performed by specialists
- reduces hands-on management requirements
- reduces cost variances/overruns
- reduces operational and project risks

Are these valid issues and trends, and how do they affect the the CIO in terms of:

- size and scope of CIO's organization
- relationships with corporate management
- relationships with user organizations
- relationships with third parties