

TIQM and Business Organizational Roles and Stewardship

Work in the organization is carried out through people in specific role assignments that allow work to be performed in a standardized way, based on the nature of work and the skills required. This is true for the IQ Management function as well.

IQ Management Organizational Structure

The Mature IQ Management organization should have a number of IQ roles, depending on both the size of the enterprise and its maturity in the use of IQ management capabilities as a business management tool. Figure 3-6 provides an example of the roles in the IQ Management Team.



Figure 3-6. The Mature Information Quality Management Organization Roles

Standard IQ Management Job Positions

Chief Information Quality Officer (CIQO)

The Chief Information Quality Officer or Leader leads the enterprise in the implementation of an IQ culture and environment of continuous improvement of the information processes, in the same way that the Chief Quality Officer is expected to lead the enterprise into a Quality culture and environment of its production and service processes.

The CIQO must be a leader, a visionary and a change agent.

Accountabilities

- Establish the Vision and Charter of IQ Management



- Lead the enterprise in establishing a cultural transformation to proactive information quality management and information process improvement to increase business performance excellence and increase customer satisfaction
- Raise awareness of the costs of poor quality information, and the methods and techniques for eliminating or significantly reducing them
- Ensure that Information Product Specification data and Information Quality are measured, analyzed, and that processes are improved as required
- Provide analysis and feedback of information quality assessments
- Facilitate information quality problem root cause analysis and process improvement
- Propose process improvement recommendations for information and systems development and business processes
- Provide support and consulting to process owners to improve processes or facilitating process improvement projects
- Evaluate and select information quality software
- Provide support to managers for measuring costs of poor quality information
- Facilitate development of information quality standards
- Develop and coordinate information quality training

NOTE

If you cannot start this role at the top of the enterprise, place it with the most senior level that is possible. This is vital to have highest level of management driving the TIQM Initiative.

Information Quality Champion or Sponsor

The Information Quality Champion or Sponsor is a voluntary or appointed role of an executive, who will lead the enterprise in the establishment of an Information Quality culture and environment.

The IQ Champion is a surrogate role in the absence of a Chief Information Quality Officer in the enterprise. This appointed role performs essentially the role of the Chief Information Quality Officer, until that role is established.

Accountabilities

- Understand the strategic Information Quality principles and the business management transformation required for sustaining IQ as a part of the culture of the enterprise
- Liaise between the ELT and the IQ Team
- Liaise between the ELT and the Management Team (all non-executive managers) and the information stakeholders in the enterprise
- As a representative of the ELT, communicate to the enterprise the importance and the changes required for the enterprise to adopt IQ practices
- Assure the IQ Team has the resources needed to accomplish their objectives

Information Quality Management Leader

The Information Quality Management Leader oversees the operational activities of the IQ Management function.

This role is the Process Owner of the IQ Management, Assessment and Improvement processes, and is responsible for defining these as standard processes across the enterprise.



Accountabilities

- Define the Information Quality Management processes.
- Lead the implementation of the Fourteen Points of Information Quality Management for a sustainable IQ function and IQ culture throughout the enterprise
- Define and implement information quality assessment and improvement processes
- Develop and implement processes for documenting and resolving IQ issues
- Define and implement a process for measuring the costs of poor quality information
- Provide guidance for data corrective maintenance initiatives to minimize costs of data correction
- Evaluate the effectiveness of the Information Quality Management functions and make improvements as necessary

Information Resource Quality Specialist

The Information Resource Quality Specialist provides quality management principles and processes to the data definition, information modeling and database design processes as well as to the application development processes.

This role is accountable for developing the processes to assess data definition, information model and database design quality. This individual will facilitate improvements to the application and information resource development processes and will teach others how to conduct Information Resource Development process improvements.

Accountabilities

- Maintain the process to measure and analyze data definition, information model, and database design quality
- Measure and analyze data definition, information model, and database design quality
- Provide analysis and feedback of information architecture assessments
- Evaluate and recommend information architecture quality management software
- Facilitate process improvement initiatives to application and information resource development processes
- Provide information analysts and information architects with support and consulting as to how quality principles are applied to improving data definition, information modeling, and database design

Information Quality Analyst

The Information Quality Analyst conducts IQ assessments on information processes.

This role is accountable to assure that critical processes are assessed to assure they provide the quality of information consistently to knowledge workers or that they are in need of improvement.

Accountabilities

- Maintain information quality assessment processes for information
- Conduct information quality assessments in the Critical-to-Quality IQ Characteristics, including completeness, validity, accuracy, non-duplication, timeliness, presentation utility, and intuitiveness



- Provide feedback to Information Producers and knowledge workers that are stakeholders in the assessed information
- Recommend information quality assessment software
- Recommend remediation to overcome limitations of IQ assessment software
- Provide training in IQ assessment

Information Process Improvement Facilitator

The Information Process Improvement Facilitator oversees and facilitates process improvements to broken processes.

Accountabilities

- Facilitate root cause analysis workshops of information quality problems and process improvement definition
- Facilitate information process quality improvement *planning*
- Recommend best practices in information quality
- Provide consulting to business areas in process improvement
- Provide consulting to application and data development teams in quality principles
- Recommend information quality defect prevention software
- Conduct training in the process improvement process and techniques
- Maintain a shared knowledge base for Root-Cause Analysis and process improvement initiatives and Lessons Learned in Process Improvement initiatives

Data Movement Quality Control Specialist

The Data Movement Quality Control Specialist provides guidance when data needs to be propagated from a source databases to a downstream target database.

This role also is responsible for process improvements to maintain the equivalence of data in redundant databases.

Accountabilities

- Define and develop policies and guidelines for when data propagation is *required*
- Develop policies, guidelines and procedures for extracting data from the source, transforming it and loading (ETL) data to a target database
- Design and implement manual and automated edit and validation procedures for data transformation and propagation
- Assure data is equivalent and synchronized across all redundant data stores
- Evaluate and recommend Extract, Transform and Load software
- Recommend remediation to overcome limitations of ETL software
- Oversee and assure the effectiveness of data ETL activities
- Recommend areas for improvements to source ETL processes

Information Quality Education Coordinator

The Information Quality Education Coordinator oversees and manages the IQ Education function to all information stakeholders across the enterprise.

Accountabilities

- Identify specific audiences requiring information quality training
- Identify training needs of different audiences and establishing learning objectives
- Develop or secure information quality training and education
- Deliver, or coordinate delivery of, information quality training
- Evaluate the effectiveness of the Information Quality training events and program

Specialized Information Quality Roles

There are some additional specialty roles in IQ management.

Data Movement Quality Control Specialist

The Data Movement Quality Control Specialist develops controls in the applications required to move data from one data store to another to assure the data is handled and transformed properly.

This role is responsible for the quality of the data transformation and handling to assure data is extracted, transformed, and propagated to the target data store correctly and completely.

Accountabilities

- Ensure that there is a real business need for data movement before allowing creation of a redundant data store
- Design and develop applications that extract, transform, and propagate data with quality controls designed to assure correct data transformations and data handling
- Recommend ways to eliminate unnecessary data transformation and movement and increase data sharing from single-source databases

Web Content Quality Specialist

The Web Content Quality Specialist oversees and manages the quality of information in the external and internal web sites.

Accountabilities

- Lead Information Quality Assessments in Critical-to-Quality IQ Characteristics, in information content provided on the web sites
- Lead Information Process Improvements Initiatives to minimize information defects on the web
- Provide feedback to web content authors as to best practices and quality principles for web information quality

e-Business Information Quality Specialist

The e-Business Information Quality Specialist oversees and manages the quality of information gathered and shared through the e-Business processes.

Accountabilities

- Lead Information Quality Assessments in Critical-to-Quality IQ Characteristics, in the information provided to business partners through e-Business processes



- Lead Information Quality Assessments in Critical-to-Quality IQ Characteristics, in the information received from business partners or customers through e-Business processes
- Improve Information Process Quality to minimize information defects in shared information
- Provide feedback to internal Information Producers and external business partners as to best practices and quality principles for e-Business information

External Information Quality Coordinator

The External Information Quality Coordinator oversees and assures the quality of information purchased from information brokers or acquired through third parties or business partners.

Accountabilities

- Develop Quality Standards for information from Information Brokers and Third Parties
- Work with the legal or contracts departments to assure acceptable Information Quality Requirements for quality of information with remedies for non-compliance in Information Broker contracts
- Work with third parties to help them improve the quality of their information

Information Presentation Quality Specialist

The Information Presentation Quality Specialist oversees and facilitates process improvements to processes that present information, including graphical information, report layout design quality, screen format design quality and web-site design quality. This individual must be skilled in Human-Factors and ergonomics.

Accountabilities

- Define processes for Information Presentation Quality design
- Identify and document best practices in Information Presentation in relevant formats and media
- Facilitate process improvements in Information Media Design, Format, and Representation
- Provide training in Information Presentation Design to business and systems personnel

Ad Hoc Data Correction Team (Temporary)

A temporary ad hoc data correction team is set up for addressing data correction in a source database where processes that use data from that source are failing due to the defective data.

This includes assigning Information Producer personnel and Knowledge Workers who require the information to come together as an ad hoc task team to conduct a *one-time* data correction activity in the affected data store.

Accountabilities

- Identify defective data

- Identify the source for correcting the data
- Document the costs of data correction activities
- Document Lessons Learned and Methods that are transferable to other data correction activities

Business Information Quality Roles and Stewardship

Remember that the Information Quality Management team does not *do* Information Quality. They provide the capability, and implement principles, processes, methods and techniques to enable the enterprise to execute information quality work.

Peter Block provides the seminal definition of “Stewardship” as an *alternative* to Supervisory Management. He describes Stewardship as, “the willingness to be accountable for the well-being of the larger organization by operating in service of, rather than in control of those around us.”¹

People are good stewards when they perform their work in a way that benefits their Internal and External Customers (the larger organization), not just themselves or their department. Valuable workers understand how others depend on their work products, and *work to provide customer service*.²

Information Stewardship, then must be, “the willingness to be accountable for a set of information for the well-being of the larger organization by operating in service, rather than in control of those around us.”³

Business Information Stewardship Roles

There are nine business roles in Information Stewardship, natural to their relationship to information based upon their job function. Seven of the roles are natural to the generic work the individual performs. Only two are appointed or designated on individuals, based upon their authority and expertise in their field.

Knowledge Worker as “*Knowledge Steward*”

Knowledge workers are those who require and apply information to perform their work or make decisions. They must be good stewards of their knowledge, to apply it in ways that serve the best interests of their fellow workers and their end customers. Not only are they accountable for the outcomes of their work, they are also accountable for the protection of the information they use, complying with all policies and regulations that may restrict its usage.

Knowledge workers are interdependent on their Information Producers, transcriptionists or translators who create and input the data, as well as any information agents who extract and or prepare the information for them.

Information Producer as “*Operational Information Steward*”

Information producers are those who actually create the data or information content. As such they are accountable for the accuracy, completeness and timeliness of information production to their “information consumer” knowledge workers.

Information producers are interdependent on their managers for providing the resources and training they need to perform their work with quality, but they are also interdependent on the knowledge workers to understand their information quality requirements.



Data Entry Clerk as “*Information Transcription Steward*”

Transcriptionists are those who take information created by a “producer” and they “transcribe” it into an electronic format that becomes an enterprise sharable resource. They are accountable for the accurate transcribing of the information to the content created by the Information Producer. Where possible an organization should minimize the need for transcriptionists by empowering the producers to capture the information electronically and automatically where possible. When this is required, transcriptionists should become part of the quality assurance, identifying IQ problems and communicating back to the originating producer to improve processes to prevent defects.

They are interdependent on the Information Producer, especially when the information is hand written and to know their requirements of their information consumers.

Information Translator as “*Information Translation Steward*”

A variation of the transcriptionist, a translator is one who takes complex information, such as engineering data, such as engineering specs, blueprints or schematic drawings or medical records such as X-rays, EKG readings or physicians’ notes, and interprets them into an equivalent digital representation of the data. This role requires more knowledge in the knowledge domain of the Information Producer.

As with the transcriptionist, the translator is interdependent on the Information Producer and the way they create the original information, as well as to know their requirements of the information consumers.

Information Agent as “*Information Preparation Steward*”

An information agent is an intermediary between the Information Producers, transcriptionists and translators in the information production process, and the actual knowledge workers who will take the business action or make a decision, based on the information results.

An information agent is interdependent on the Information Producers, transcriptionists and translators, and the knowledge workers for whom they prepare the information. They must understand the technology for aggregating and presenting information in ways useful to the knowledge workers they serve.

Business Manager / Supervisor as “*Managerial Information Steward*”

A Business Manager or Supervisor is ultimately accountable for the work of his or her staff. Because Managers have control over the use of the money in a unit’s budget, they must be held accountable before producers, transcriptionists, translators and agents can be held accountable. Managers who have different performance measures than their staff have a potential conflict of interest situation, working to accomplish their own goals versus providing resources and training to Information Producers.

Managers have four basic Information Accountabilities:

- Accountable for the integrity of the processes performed under their charge and for the Quality of Information produced to meet the needs of all internal and downstream Information Consumers as well as to external Customers and end-Consumers
- Accountable for the Quality of Information created or updated by their staff to meet the needs of all Information Stakeholders
- Accountable for the proper use and protection of Information in their charge
- Accountable for assuring Information Policies are upheld



Managers are interdependent on their Management as well as on their Information Producer and Knowledge Worker staff. Following is a sample Information Accountability Statement for Managers:

SAMPLE MANAGEMENT ACCOUNTABILITY STATEMENT

Responsible for management, control and use of information. Ensure quality of information created or maintained within the process or department meets all information consumers' needs, internally, to other business areas and to customers and external stakeholders. Ensure information policy is understood and followed. Provide training of personnel in information quality principles and standards and provide resources to accomplish information quality goals.⁴

Process Definition Owner as “Process Steward”

Process Owners are Senior Business Managers or Executives who are appointed to define and control the standard definition of Core Business Value Circles. They are accountable for defining the process to be repeatable and optimized to minimize waste and to prevent defects.

Process Owners are interdependent on the ELT to provide the environment for cooperation and collaboration and upon the Business Subject Matter Experts who perform the processes for their knowledge to improve and streamline the processes.

Business Subject Expert as “Business Information Steward”

Subject Matter Experts who are knowledgeable in a specific set of domain knowledge are tapped to verify and assure the Quality of the Information Product Specification data. This includes Data Name and Definition, Valid Value sets or ranges and Specification of Business Rules, including Content Format Standards and Calculation Formulae for derived data.

Business Information Stewards are interdependent and all Information Stakeholders in the Information within their stewarding, to know and understand their Requirements, both Knowledge Workers and Producers. They are also dependent upon their management to make time available for them to perform their information definition work effectively, while performing their regular job work. Their Information Stewardship work should be included in the regular performance reviews.

Executive Business Leader as “Strategic Information Steward”

Executives generally are major consumers of information about a major resource. The Chief Financial Officer is a major consumer of financial information, so they can manage finances effectively. The Chief Operating Officer has a strong stake in product production or manufacturing and inventory information, so they can assure operational effectiveness, while the head of Marketing and Sales is dependent on customer information for effective customer relationship management.

Executives are accountable for:

- Overall performance of the enterprise for the good of all stakeholders
- Establishing authority for correct and clear definition of the information within their subject of interest
- Providing authority to business Information Stewards for accomplishing correct and clear definition of information within their expertise

Executives are dependent on each other to establish an ELT that creates effective performance measures that enable staff to work effectively and empower people to improve their processes.

NOTE AND CAUTION

Accountability for information must be implemented in a natural way for it to be sustainable. The only way is to let it be natural to the job position and its relationship to information. But there is a pre-requisite to implementing and holding people accountable for information quality—you must have processes, methods and training so people can actually accomplish the quality expectations of their customers.

Information Systems' Information Quality Roles and Stewardship

There are 19 major Information Systems roles that impact the capability of an enterprise to manage its information effectively. Information Systems accountabilities include:

Applications Development / Engineering Manager

This role oversees the development or acquisition of application systems that deliver just-in-time information to knowledge workers. Application development or engineering must be a repeatable process that delivers application systems which are intuitive, minimize non-value adding activities, and meet the business requirements of both Information Producers and knowledge workers.

The manager is accountable for:

- Delivering applications that (a) meet the Information Producers' need to capture all necessary information within their reach, and (b) meet *all* requirements of dependent knowledge workers, including downstream roles in other areas; and
- Developing an information systems and information development methodology that treats information as a strategic enterprise resource, and treats application systems as the “machinery” of the Information Age, in the same way manufacturing equipment are the machinery of the Industrial Age.

Application Project Manager

This role oversees application development projects.

Accountable for ensuring that:

- Work is performed in conformance to well-defined, valuable standards
- The application meets the needs of both direct application beneficiaries as well as downstream information consumers who depend on the information produced by the application

Systems Analyst / Engineer

This role analyzes business requirements for application systems, and translates them into requirements that can be developed into an information system that reengineers and automates work, and delivers the right information to its stakeholders.

This effort includes identifying the information required by downstream knowledge workers (who are also consumers of the information being produced within the processes that the application automates), even though they may be outside the business area that is sponsoring the application project.

Application Systems Designer / Engineer

This role designs the work and system flows of the application, and designs the application screens, reports, and forms.

The designer/engineer is accountable for ensuring that:

- Work flows do not have inefficiencies or error-inducing conditions
- Information within the knowledge of the Information Producers is captured in the originating form or screen design
- Screen, report, and form designs are intuitive for the Information Producers and knowledge workers

Computer Programmer

This role writes or develops computer code to implement the application logic for the data processing being performed, whether capturing and creating data, updating data, retrieving information to create other data, or retrieving and presenting information on a screen or report.

The programmer is accountable for ensuring that:

- Programming logic correctly implements the functional requirements of the application program
- Programming logic handles all types of errors in accordance to specifications
- The applications implement all appropriate edit and validation rules that may have been defined in a callable business rule repository to prevent validity defects.

Information Resource Management Leader

This role develops and establishes the Information Resource Management function as an enterprise-wide function to ensure the management of information consistently across the enterprise. This role also develops draft Information Policies, Information Standards, Information Modeling standards and guidelines, among others.

Management leaders are accountable for ensuring that:

- Information Standards promote data names and definitions that are intuitive and natural to the knowledge workers; and
- Information Model standards and guidelines, when applied, will create databases driven that are:
- Enterprise-strength, i.e., supports cross-organization information with the same names and definitions;
- Stable, i.e., can support new applications and information consumers with additive change only; and
- Flexible, i.e., can support business process reengineering with minimal modification to the Information Models and database designs

Information Architect / Modeler

This role develops enterprise-strength Information Models that are subject-oriented, i.e., designed around a fundamental business resource, such as Party (the larger Human Resource), Product, Facility, and Financial Resource.

Accountable for ensuring that:

- The Information Model supports the strong majority, if not all, of the facts that should be known about the resource being modeled
- The Information Model has attributes that are inherently characteristic of the entity-types to which they are associated

- The data names, definitions, valid value sets, value formats, and business rules conform to the Information Standards and Guidelines

Information Resource Analyst

This role ensures that all information requirements within an information modeling domain are discovered and defined according to Enterprise Information Standards and Guidelines.

Database Administration Manager

This role is responsible for planning and developing the physical databases that will house the enterprise's data.

The role is accountable for:

- Providing guidelines and processes to ensure that the physical database design is consistent with the detailed Business Information Models
- Providing physical database tuning guidelines using DBMS optimization techniques, application optimization techniques, etc., before compromising the Business Information Model structure

Database Designer

This role designs the physical databases, and is accountable for ensuring that:

- Database design is faithful to the conceptual Information Model and the inherent relationships represented in the Model
- All steps are taken to achieve optimum application response time before compromising the inherent structure represented in the Information Model
- Database is recoverable

Data Movement Quality Control Specialist

This role develops application programs or code that moves and sometimes transforms data from one data store to another.

The specialist is accountable for:

- Verifying that there is a real business need to move data, as opposed to sharing data from the source database
- Developing the program logic that ensures the completeness of the data extract
- Ensures that data transformation rules from source to target are defined and available in a business rules repository
- Developing the program logic that ensures the completeness of data loads
- Ensuring that the data extraction, transformation, and loading processes have appropriate audit and control mechanisms in place

Knowledge Management Leader

This role oversees the planning and management of the enterprise's intellectual assets, the Knowledge Management function. The role entails identifying, documenting, acquiring, and managing knowledge assets in a way that benefits the enterprise as a whole, to enable an Intelligent Learning Organization.

This role is often in the Business area as opposed to in the Information Systems organization.

The role is accountable for:

- Identifying the types of intellectual capital and knowledge that must be shared among the business areas
- Ensuring that the capabilities for capturing, storing, maintaining, and serving Intellectual and Knowledge Capital to Knowledge Workers

Business Intelligence / Strategic Information (Data Warehouse) Manager

This role oversees the planning, development, and deployment of data warehouse / business intelligence environments.

The role is accountable for:

- Ensuring the development of strategic databases (data warehouses, data marts, and data mining models) that are consistent with Information Standards
- Minimizing redundancy of information in the strategic information environments

Virtual Information (Web) Manager

This role is responsible for the development of the enterprise Internet and Intranet environments. This role is not responsible for web content, but instead is responsible for enabling the design of the internal and external web structures for content presentation.

This role is accountable for ensuring that:

- Design of the Internet / Intranet environments is intuitive to the audience
- e-Visitors have access to definitions of terms and data they find on the web site
- Technical terms or labels are consistent with Information Standards
- Data on the web sites are consistent with Enterprise Databases and there are no *unnecessary* data redundancies

Information Resource Data / Repository / Dictionary Manager

This role is responsible for planning and managing the enterprise's Information Resource Data (generally called Metadata) and is accountable for ensuring that all necessary Information Resource Data are modeled, managed, and accessible to Knowledge Workers and Information Systems Professionals who need it.

Information and Systems Security Officer

This role oversees the function that secures the information and intellectual assets of the enterprise. The role is accountable for ensuring that information and other intellectual assets are protected from unauthorized intrusion and destructive change.

Computer Operations Manager

This role is responsible for planning and overseeing the daily computer operations of the enterprise.

The role is accountable for:

- Reliability of the hardware, network, and systems software
- Ensuring that all components operate properly and do not introduce error
- Minimizing redundant technologies to minimize the cost of ownership of the information systems hardware and software

Chief Information Officer (CIO) as *Strategic Information Resource Steward*

This role leads the Information Technology or Information Systems organization, as well as the Information Management function.

The CIO is responsible for the Strategic Planning of information technology, and the development of application systems and databases that deliver information on a Just-In-Time basis to Knowledge Workers.

If the enterprise has only one CIO, that individual must also assume the accountabilities described in the Chief Business Information Officer Role below.

If the incumbent CIO is not able to perform the duties of the Chief Business Information Officer, the enterprise needs to create this position as a Co-CIO who works with the Chief Business Information Officer.

This role is accountable for:

- The overall performance of the information resource management and information systems development function;
- The performance of computer operations that automate business processes for daily operations, as well as providing information for strategic, tactical, and operational decision-making
- The management of data, information, and knowledge as strategic enterprise resources, not as departmental proprietary data stashes

Chief Business Information Officer (CIO or C BIO) as *Strategic Business Information Resource Steward*

Some enterprises have two co-CIOs. One co-CIO is accountable for the technical aspects of information management, storage, and application development that acquires, delivers, maintains, and disposes of information as a resource. The other co-CIO is a Business CIO responsible for the Resource Management of Information.

The Business CIO is required if the Systems CIO is responsible only for the Information Technology infrastructure and systems delivery with minimal consideration for the data and information as a strategic enterprise resource.

The Business CIO is accountable for:

- Planning, organizing, developing, and delivering Information Resources to Knowledge Workers
- Developing Information Policies that prescribe the manner by which information is managed (created, maintained, applied, secured, and disposed) as an *Enterprise Resource*

¹ Peter Block, *Stewardship: Choosing Service over Self-Interest*, San Francisco: Berrett-Koehler, 1993, p. xx.

² Larry. P. English, *Improving Data Warehouse and Business Information Quality*, New York: John Wiley & Sons, 1999, p. 402.

³ *Ibid.*

⁴ Adapted from English, *IDW&BIQ*, p. 407.