The MIT 2008 Information Quality Industry Symposium

Raising the Bar: DQ/IQ to "Enterprise IQ"
Presentation at MIT IQ Industry Symposium
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Objectives of this presentation

- Traditional Data Quality and Information Quality: Example DQ/IQ Evolution with BI
- From DQ/IQ to "Enterprise IQ" Considerations
  - Organizational Context
    - Complexities
    - Business Strategy/Goals
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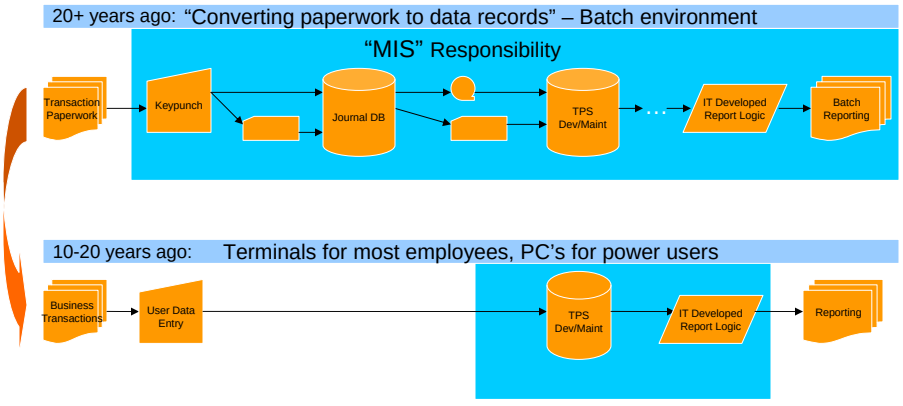
Example Systems DQ/IQ Evolution



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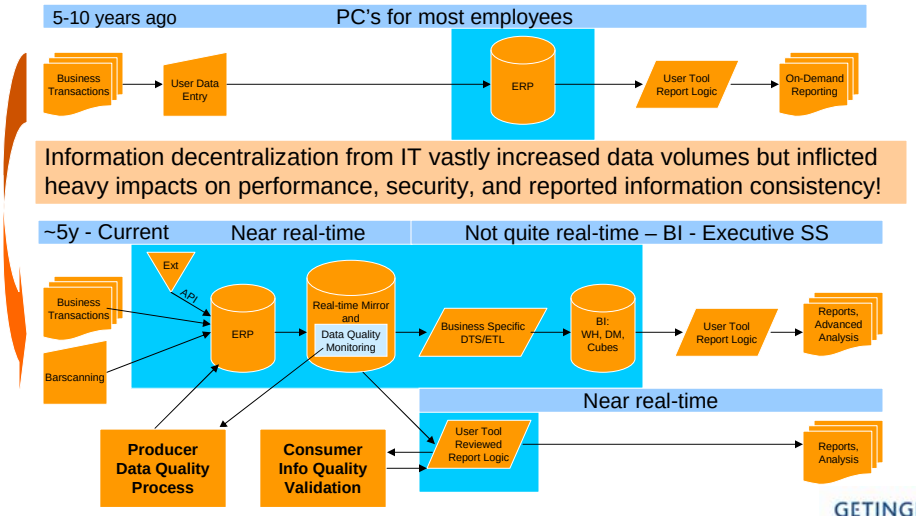
Example Systems DQ/IQ Evolution



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Why BI?

- Some Drivers behind (Getinge USA's) BI:
  - Centralized consistent information source and toolset.
  - One analytic view of the customer
  - Enhanced analysis: strategic advantage
  - Ability to "close the books" in record time
- Management embraced BI as a springboard towards a data/information quality culture.

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Why BI?

- Project significantly involved business management.
  - Required *analyzing* and *understanding* business processes.
  - Inter-relationships and complexities between information producers and consumers clarified.
- The BI project made it necessary: clean (scrubbed) source data…
  - Re-organize the business towards this goal.

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Why BI?

- Data Quality Review Board formed
  - Business Management (Data Stewards)
  - IT
- Continuous Improvement Process.
  - Identification or Hypothesizing of problems and areas for improvement.
  - Design and development of solution
  - Test then Implement
  - Monitor
  - Repeat

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Effective DQ/IQ Technical Mechanism

- Data Quality Monitoring: real-time alerts chosen instead of application edit modifications because of application re-validation requirements.
  - Alerts directly to data producer.
  - **Correction Deadline:** end of business day.
  - Data producers correct their own information
  - Management receives individual visibility and statistical summaries.
  - Managers assure compliance to alerts, devise corrective action such as training or discipline as necessary.

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Effective DQ/IQ Technical Mechanism

- For us, real-time alerts now robust
  - Mass "data scrubbing" is a thing of the past.
- For data consumer - there are two basic expectations:
  - "Realtime" – assume may not yet be scrubbed.
  - "BI" – assume information has been scrubbed.
- In the end: Data Quality is internalized as a normal daily business responsibility.

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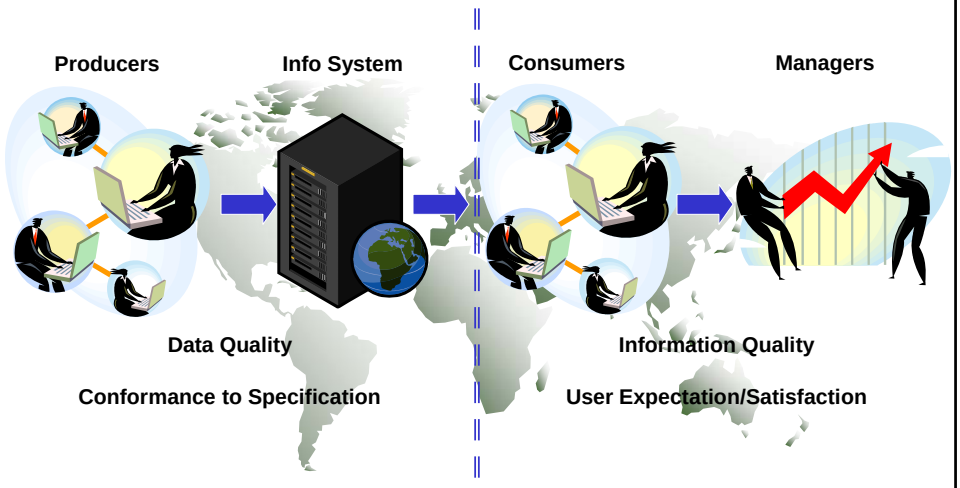
Traditional DQ/IQ



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Enterprise IQ (EIQ) – DQ/IQ Up a Notch

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Enterprise IQ (EIQ)

- Especially for complex corporate environments, there are added demands to information, for example:
  - Multiple divisions/business units/sister companies
  - Multi-National Corporations (MNC's)
  - Multiple product families and shared customers/suppliers
  - Combinations of the above!
- Information Shareholders in EIQ are beyond end-users; they include stockholders, group management, and customers/suppliers…

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Complexities - Real-World Example

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Extended Care | Infection Control | Medical Systems

ARJOHUNTLEIGH GETINGE MAQUET

2007 Global Revenue: ~$2.547B

(16,445 MSEK * 0.154875 {Dec-31-2007 USD exch rate})

Employees: 10,358

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2,866 Employees
26 Sales/Dist Companies
65 Dealer Network
12 Manufacturing Plants

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Complexity – BA and Customer Segments

Business Areas

EXTENDED CARE	INFECTION CONTROL	MEDICAL SYSTEMS
37 %	26 %	37 %

Elderly Care	Hospitals	Life Sciences
18 %	73 %	9 %

Customer Segments

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Complexity – Infrastructure

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Complexity - Multiple Applications

- ERP
- CRM
- Document Management
- HR
- QS
- BI/DW
- Budgeting

- Training Management
- CAPA
- NC
- Engineering
- Messaging/Collaboration
- Intra/Inter/Extranet
- eCommerce
- Legal

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Key: EIQ Alignment to Business Goals

Business Goals (examples):

- Top-quality deliverables to the customer, exceeding customer expectations?
- Increased Revenue?
- Increased Market Share?
- Reduce re-work and returns to minimize cost?
- Maximize return to investors?
- Increased Focus on Core Competencies?

- **Question:** where does information quality fit in with relation to your company's business goals?

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IC Strategic Cornerstones: Customers

COST LEADERSHIP

To utilize the business area's world-leading position to give cost-effective, good-value solutions to customers.

INTEGRATED SOLUTIONS

To be the best complete solution provider, where Getinge's broad product range and expertise will benefit customers.

SERVICE

To utilize Getinge's well-developed service network and the Getinge Academy to give customer superior service and optimal use of their investment.

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Strategy – Growth

Infection Control

- **Bolt-on acquisitions to add new technologies and to reach new geographies within existing product lines**
- **New product lines: Consumables**

Extended Care

- **Bolt-on acquisitions to add new technologies or to build critical mass in existing product lines**

Medical Systems

- **Bolt-on acquisitions to add new technologies and to reach new geographies within existing product lines**
- **New product lines: Cardiac surgery**

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		2006	2007
Infection Control	**Sterilization**	**no 1**	**no 1**
	Disinfection	**no 1**	**no 1**
Extended Care	**Patient Handling**	**no 1**	**no 1**
	Hygiene Systems	**no 1**	**no 1**
	Wound Care	**no 4**	**no 2**
	IPC / DVT	**-**	**no 1**
Medical Systems	**Surgical Tables**	**no 1**	**no 1**
	Surgical Lights	**no 1**	**no 1**
	Ceiling Pendants	**no 2**	**no 2**
	Cardiopulmonary	**no 3**	**no 3**
	Endoscopic vessel harvesting	**-**	**no 1**
	Beating heart surgery	**-**	**no 2**
	Anastomosis CABG	**-**	**no 1**
	Vascular grafts AAA, TAA	**-**	**no 1**
	Ventilation	**no 1**	**no 1**

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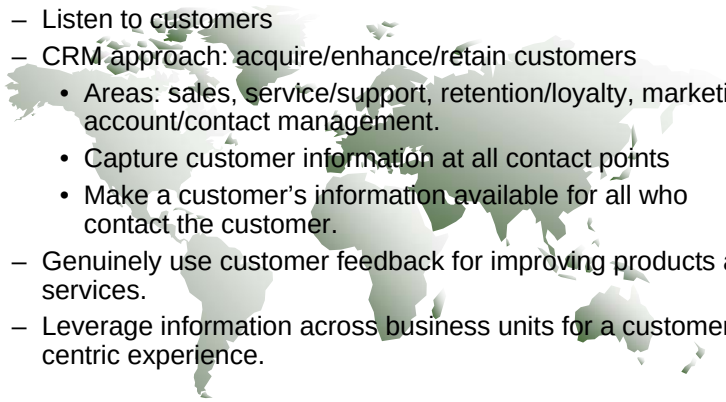
Leveraging Information for Growth

- Information for a customer-centric approach
  - Listen to customers
  - CRM approach: acquire/enhance/retain customers
    - Areas: sales, service/support, retention/loyalty, marketing, account/contact management.
      - Capture customer information at all contact points
      - Make a customer's information available for all who contact the customer.
  - Genuinely use customer feedback for improving products and services.
  - Leverage information across business units for a customer-centric experience.



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Regulatory - Environment

- Multitude of regulatory/governance factors:
  - Various ISO: 9001:2000, 13485:2003, 14001:2004…
  - FDA: CFR820/QS, 21CFR-part11
  - GMP, TQM
  - Corporate Governance (example: SOX)
  - Internal and External Audits (Finance/Accounting, Quality, Corporate Governance)

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Regulatory - Governance → IQ

Corporate Governance internal controls:

Objectives (CAVR):
- Completeness
- Accuracy
- Validity
- Restricted Access (Security)
- Segregation of Duties…

- Preventative/Detective
- Automated/Manual

Fin Stmt Assertions:
- Completeness
- Existence/Occurrence
- Validity/Accuracy
- Rights & Obligations
- Presentation/Disclosure…

Note some overlap with IQ-related dimensions (Wang, et al, 1997).

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Culture - Quality Maturity/Consistency

- Maturity level of Quality Culture influences where your company weighs:
  - **Balance** of Resources, Time, Cost, Risk, Urgency, …
- A company undergoing frequent corporate combinations needs additional focus on cultural integration.
  - Quality Culture must prevail.
  - Especially for combinations with dissimilar maturities.
  - MNC: differing interpretations of same standards between countries.

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Culture - Quality Maturity/Consistency

- Overall Business Maturity and Strategy impacts EIQ:
  - Business Culture
  - Continual Improvement/Learning Organization
  - Measurements -> Accountability
  - Organizational Alignment with Quality
  - Education/Training
  - Individual understanding how roles contribute to the organization as a whole
  - Company-Unique Factors

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QS/EIQ Positioning

Information Quality may be viewed as an essential element to organizational/operational success but…

Information Quality is a fundamental contributor to the larger goal of embracing business-wide Quality Systems and Principles.

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Summary

DQ/IQ:

- DQ/IQ can be reinforced in projects such as BI, via involvement of non-IT management.
- Re-organize around DQ/IQ and utilize stick and carrot.

EIQ:

- DQ/IQ and EIQ Information Stakeholders are different.
  - It's about the customer, suppliers, shareholders, group management…
- Associate DQ/IQ/EIQ to the larger picture of Quality Systems.
  - Organizations in regulatory/governance environments by nature must internalize elemental concepts of DQ/IQ.
- There are complex contributors towards the end-goal of EIQ.
- IT's role is to be aligned to the business and contribute to progression towards strategic goals (value-add).

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Thank You

Questions?

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