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ISO/TC184/SC4/WG13
Industrial Data Quality

ISO 8000 – Quality Standards for Data and Information

Presented by
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Information Logic



Agenda

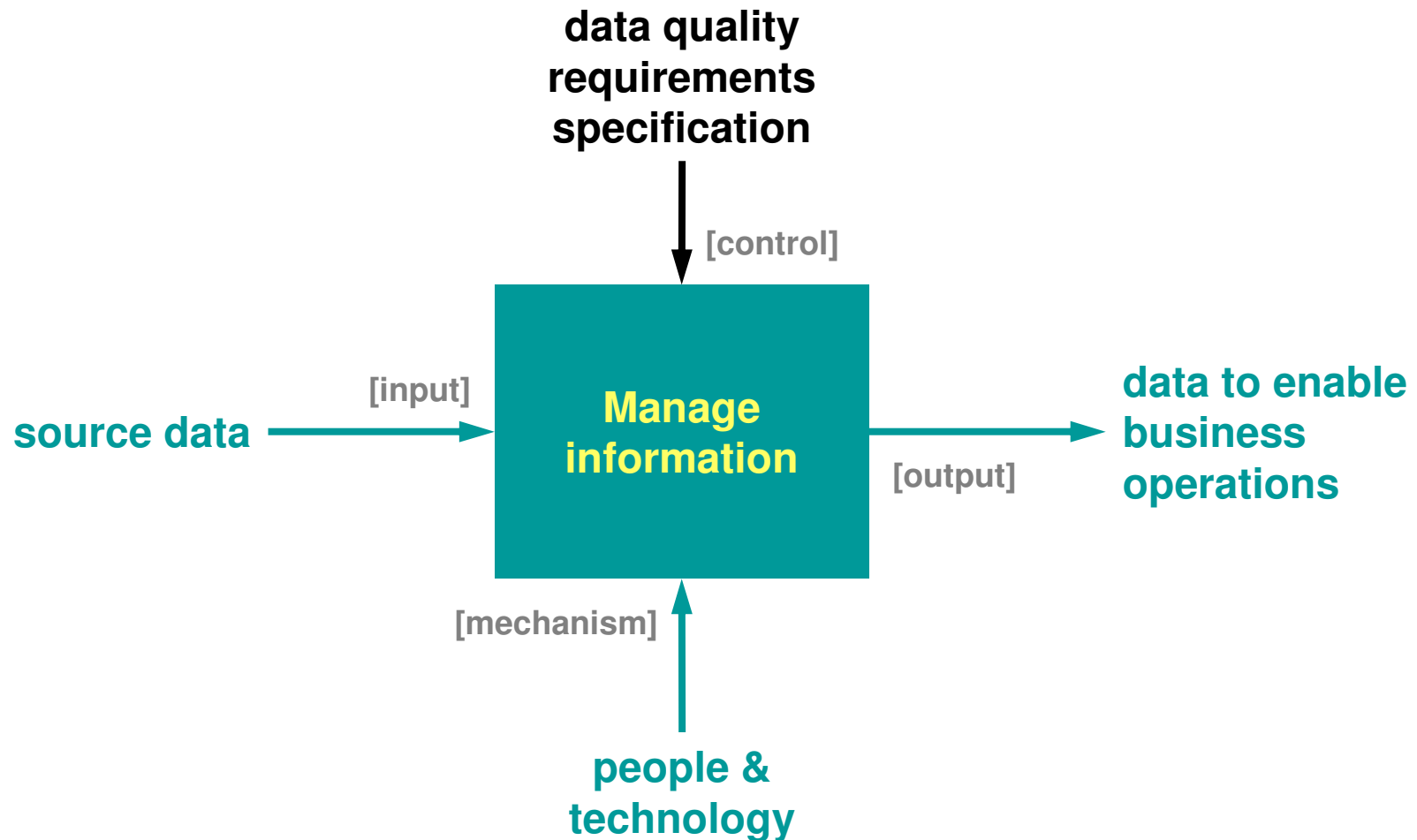
- An overview of ISO 8000 in general
- A look at ISO 8000 – 001 in particular



The core business requirement

- centrality of information
 - information enables decisions
 - decisions enable performance
- confidence in information
 - unknown data quality is risk
 - unmitigated risk has the potential to impact performance
 - ineffective & inefficient business operations
 - safety incidents
 - lost opportunities
 - re-work of poor quality data

The business context





Some example types of data quality problem

- unprocessable (unreadable) data
- data not understandable
- data not useful
 - not suitable for intended application
 - inaccessible
 - inaccurate (lacking fidelity)
 - unavailable
 - incomplete (against a specified list of required elements)
 - incorrect
 - no indication of context
 - imprecise
 - lacking provenance (traceability)
 - untimely
 - lack of trustworthiness
 - lack of visibility



Why an International Standard?

- information fuels the global market
- data quality is a global problem demanding a global best-practice solution
 - everyone can re-use the solution
- organizations can share the costs of standards development
- organizations can specify the use of the standard for information products
 - a single standard rather than one per company
- Governments typically cannot require compliance with a proprietary solution but can require compliance with International Standards
- enables conformance to be asserted



Why ISO/TC184/SC4?

- "Industrial data"
 - standardization of the definition, integration & quality management of information that is shared, exchanged & archived in the context of
 - the definition, description and classification of products & facilities throughout their lifecycle
 - industrial management & operations
 - other information requirements supporting automation systems
- 20+ years of expertise
- 573 published standards (as at June 2008)



Industrial data

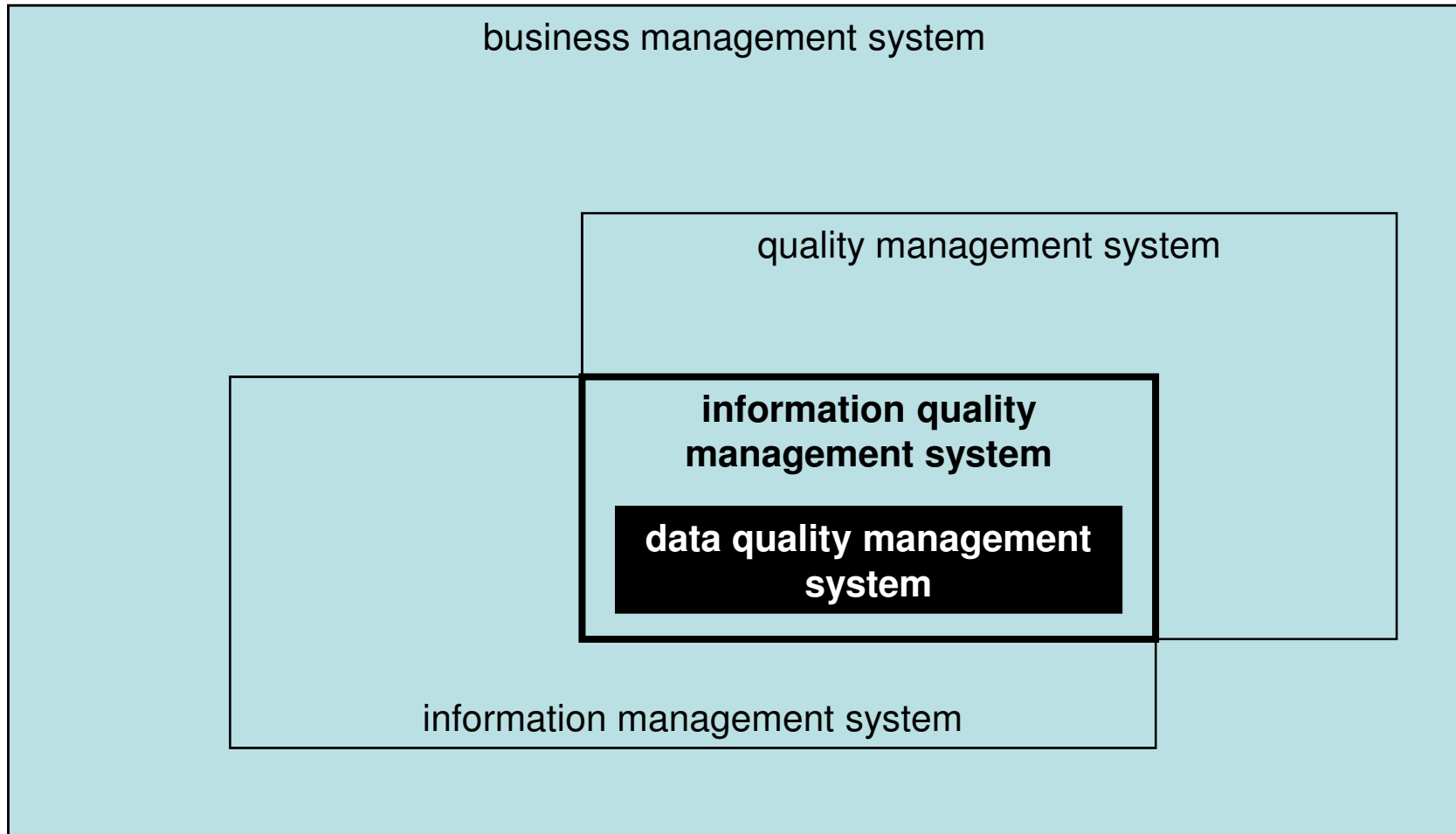
- multiple domains
 - product definition data (ISO 10303 "STEP")
 - long life span of 30 to 50 years
 - complex products requiring configuration management
 - data warehousing (ISO 15926)
 - data-driven, extensible model
 - component libraries & catalogues (ISO 13584, ISO 22745)
 - multiple views, including geometry & metadata
 - multiple forms of list, including explicit, algorithm-based, class-structured
 - manufacturing management data (ISO 15531)
 - factory resource and control
 - process specification (ISO 18629)
- underpinned by
 - integration approaches (ISO 18876)
 - quality & certification mechanisms (ISO 8000)



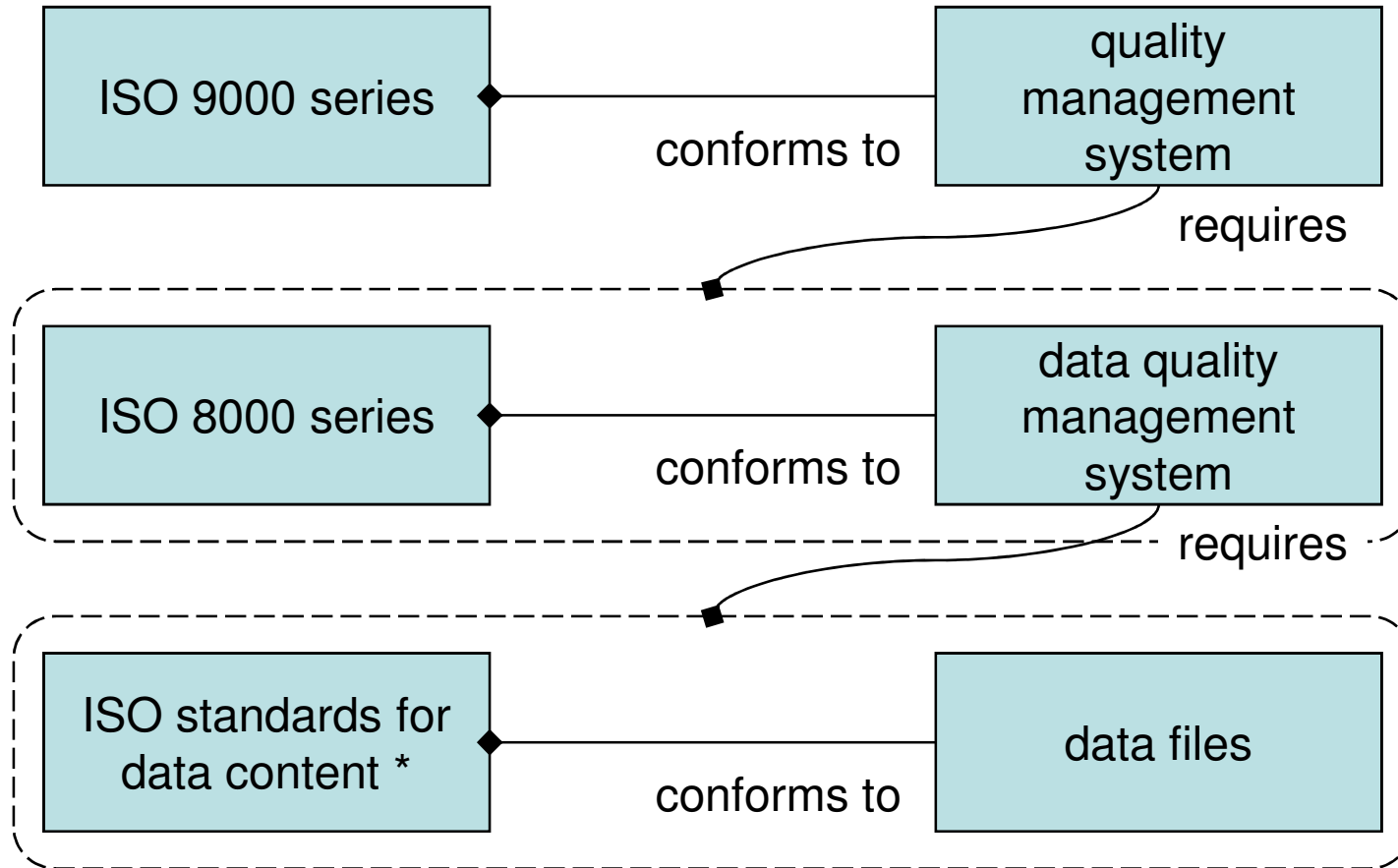
ISO 8000

- scope
 - data quality, including data quality activities, terminology, characteristics (criteria) & testing
- purpose
 - enable users efficiently to make optimum, safe decisions throughout the product or service life cycle because previously exchanged, shared or archived data serve as the basis for those decisions & meet requirements

The management system hierarchy



The quality stack



* e.g. ISO 10303, ISO 13584, ISO 15926, ISO 22745



Parallels with ISO 9000

- ISO 8000 can be used by internal and external parties, including certification bodies, to assess the organization's ability to meet customer, regulatory and the organization's own data requirements.



Who will use the Standard?

- suppliers of data
 - to understand their role & responsibilities
- receivers (customers) of data
 - to demand that suppliers fulfil their role & responsibilities
- suppliers & receivers (customers) of data
 - to assess the quality of a given data set



How will users implement the Standard?

- transform the data management process from "as is" (current problems) to "to be" (the Standard providing solutions)
 - results
 - capability to assess input data quality
 - capability to build in data quality through the process
 - capability to assure output data quality
 - appropriate reconfiguration of people, process & technology
 - removal of unnecessary complexity
 - establishing automation & optimization
 - including elements such as training, policy, methods & interfaces
 - taking account of risk & maturity in the transformation of the process
 - including a search for the root cause of all problems of data quality
- the "to be" state is paying the right price once for the right data at the right time



Current ISO 8000 status

- Part 1 (Working Draft)
 - Data quality: Overview
- Part 100 (Committee Draft, ready for ballot)
 - Master data: Exchange of characteristic data: Overview
- Part 102 (Working Draft)
 - Master data: Exchange of characteristic data: Terminology
- Part 110 (Technical Specification, published)
 - Master data: Exchange of characteristic data: Syntax, semantic encoding, and conformance to data specification
- Part 120 (Committee Draft, balloted)
 - Master data: Exchange of characteristic data: Provenance
- Part 130 (Working Draft)
 - Master data: Exchange of characteristic data: Accuracy
- Part 140 (Working Draft)
 - Master data: Exchange of characteristic data: Completeness



What will be the benefits of using the Standard?

- improved operational effectiveness
- improved operational efficiency
- optimized operational availability
- increased organization agility
- improved financial characteristics
 - decreased costs
 - increased profitability
 - improved return on investment
 - appropriate cost allocation
- reduced risk
- enhanced brand image
- increased safety
- increased regulatory compliance (legal, environmental and so on)
 - including improved traceability & accountability
- improved enterprise relationships
 - clarity of roles & responsibilities
 - sound foundation for mutually beneficial incentives (e.g. quality improvement & profit guarantees)
 - improved trust
- enhanced operation of the market
 - competitive distinction from certified data quality
 - information & data quality services as a market offering



Summary

- information is a strategic business enabler & a pervasive asset
- ISO 8000 provides mechanisms by which to assure data quality
- the result is to establish confidence in data internally & between enterprise partners

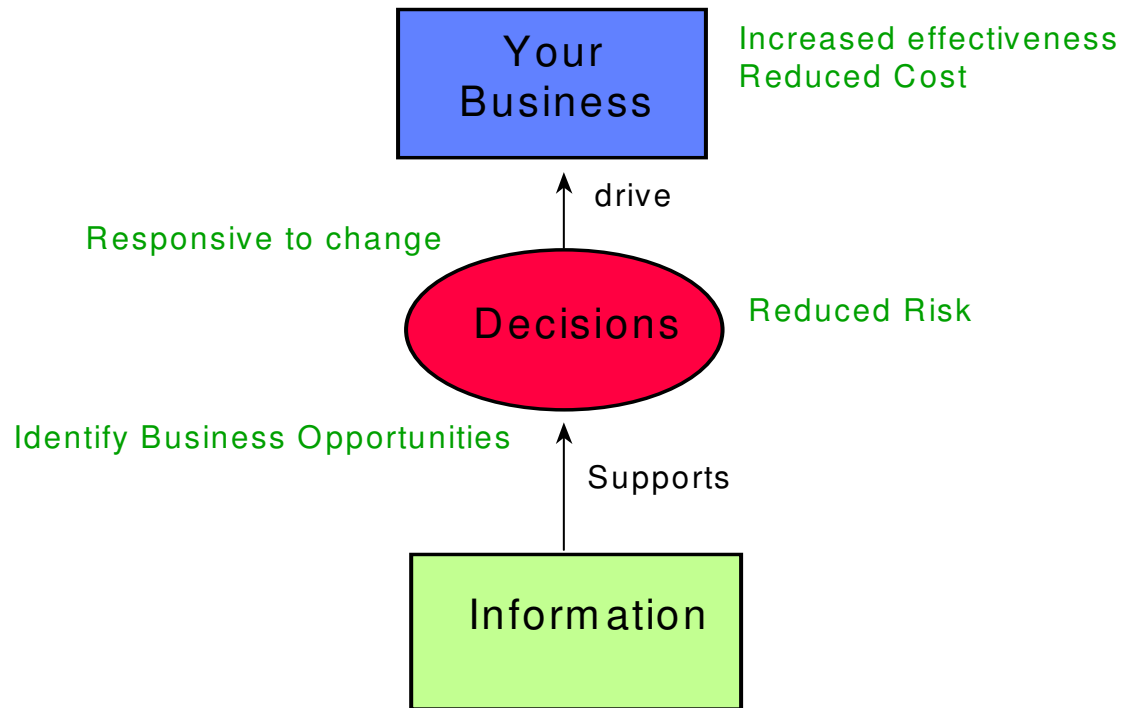


AN INTRODUCTION TO ISO 8000 – 001

Data and Information Quality – Overview

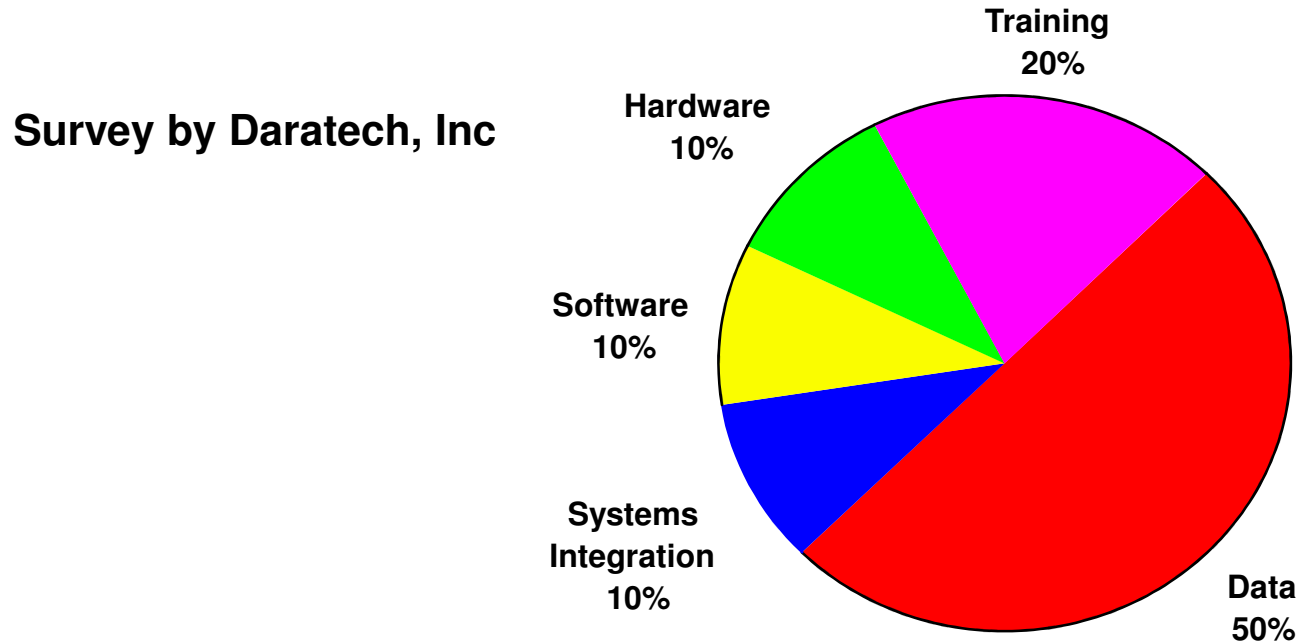


Why bother with Information?





What does an Information System cost?



Hardware: The cost of additional infrastructure required for the project.

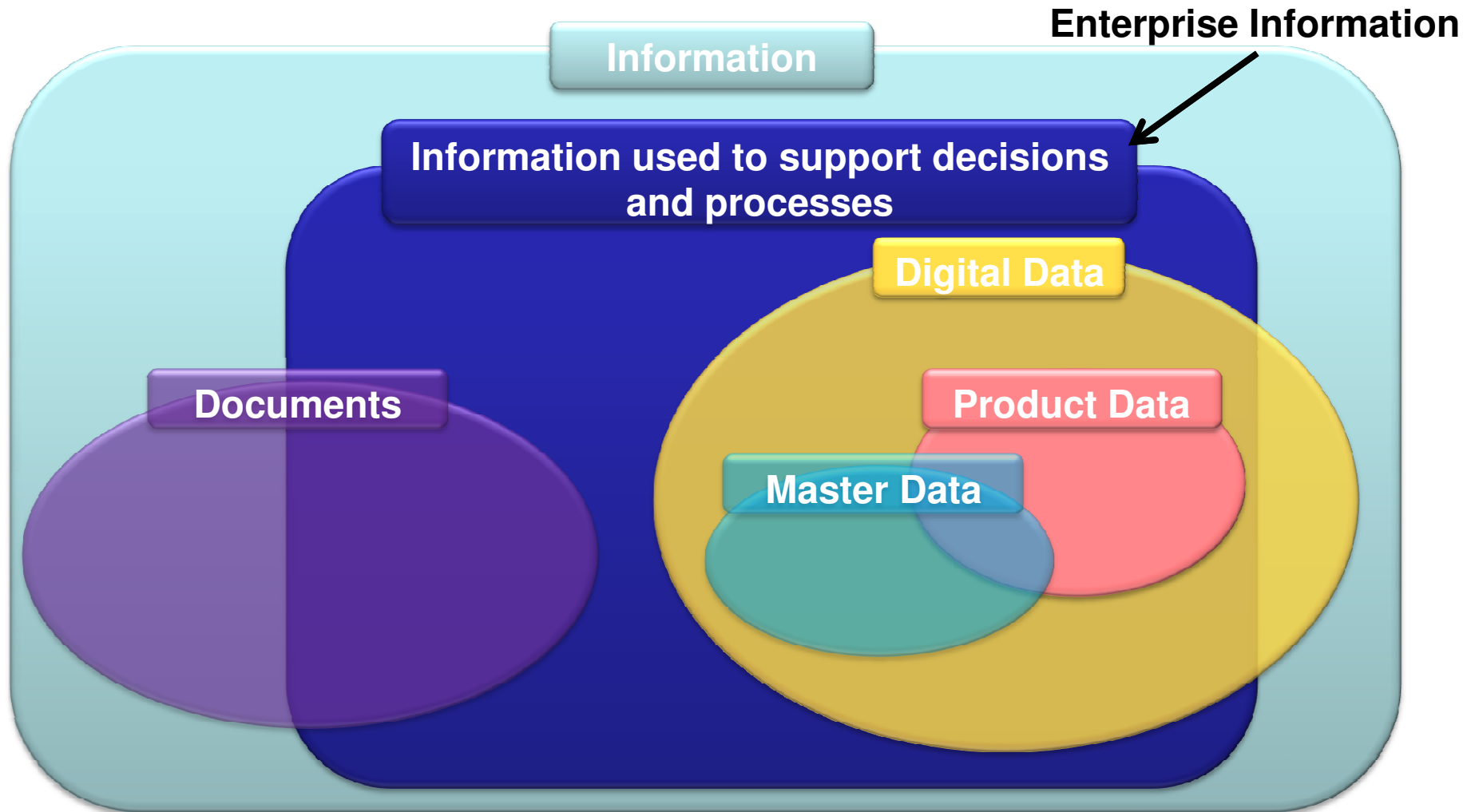
Software: The cost of licenses for the software used, or the cost of software developed.

Systems Integration: Cost of interfaces between applications in a system.

Data: The business cost of creating the data to configure and use a system.

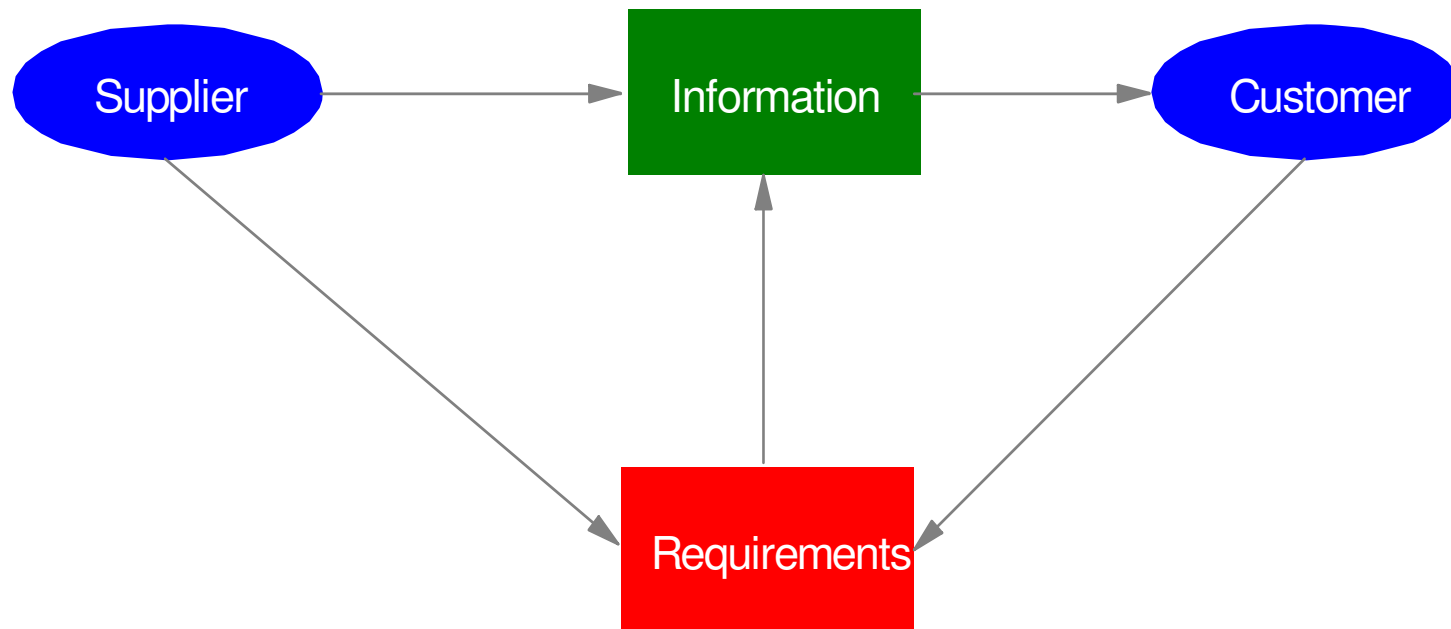
Training: Cost of training and the 'cost' of getting accustomed to a new system.

Focus and Scope





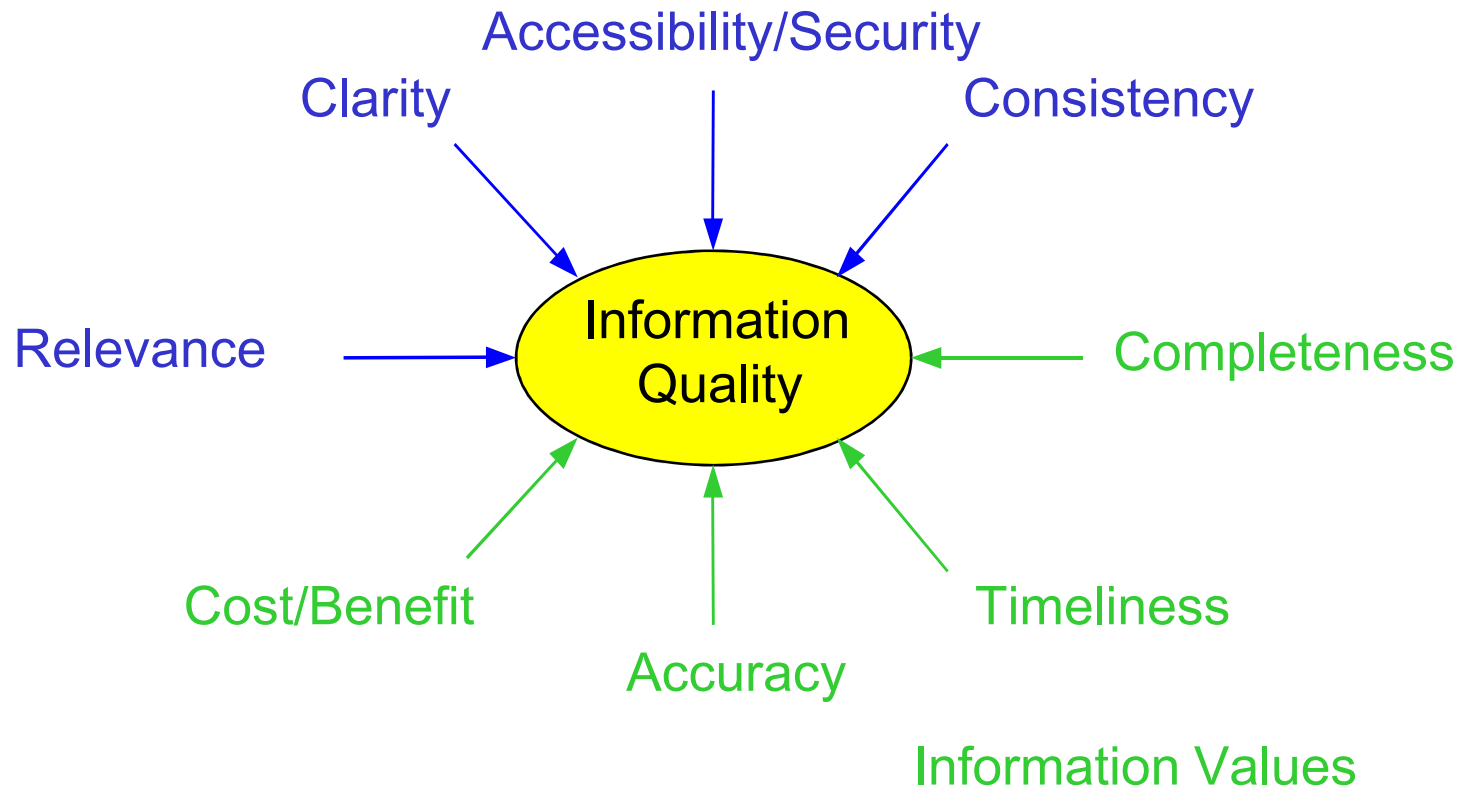
Information Quality





Key Properties of Quality

Information Definition



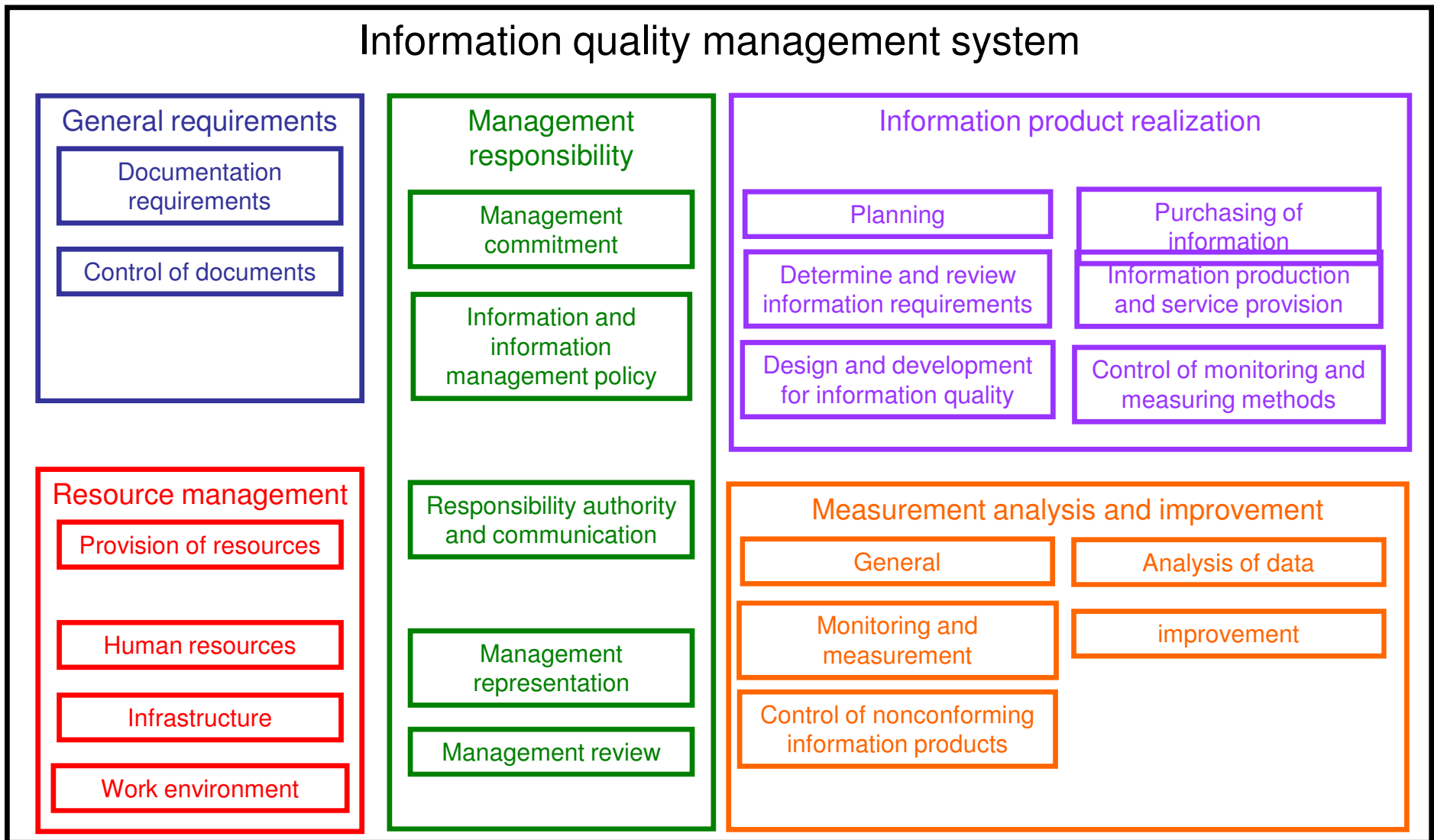


Two Approaches to Quality

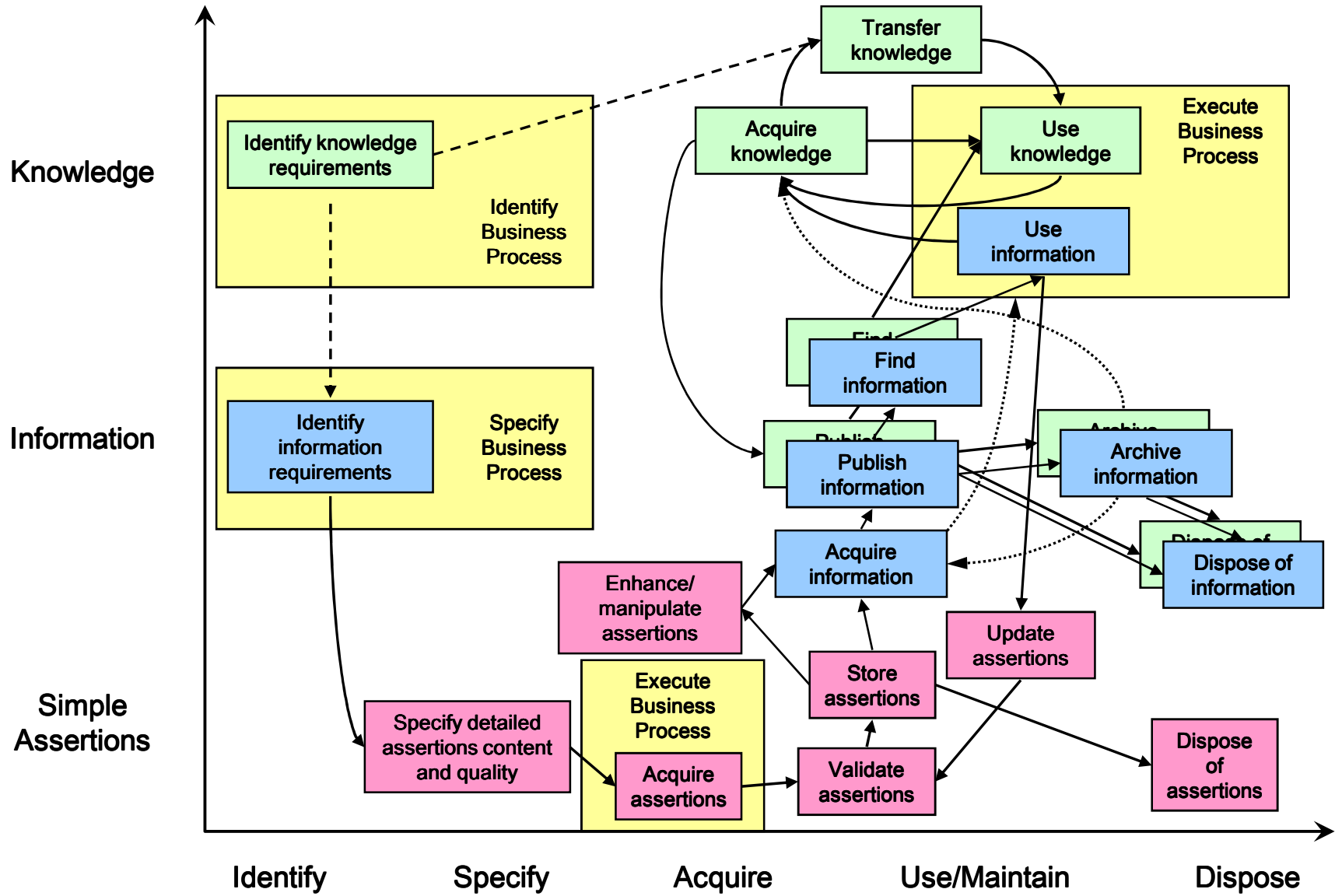
- Test Based
 - Measure product against specification
- For
 - (Relatively) cheap to implement
 - You have to start here anyway
 - Only choice when product produced by another enterprise
- Against
 - Results in waste and rework
 - Does not deliver process improvements
- Process Based
 - Quality achieved by process
 - Improvement process to ensure prevention of repeated defects
- For
 - Tackles quality systemically
 - Reduces waste and rework
 - Delivers improved processes
- Against
 - (Relatively) difficult, slow, and expensive to implement

Information quality management system

Information quality management system

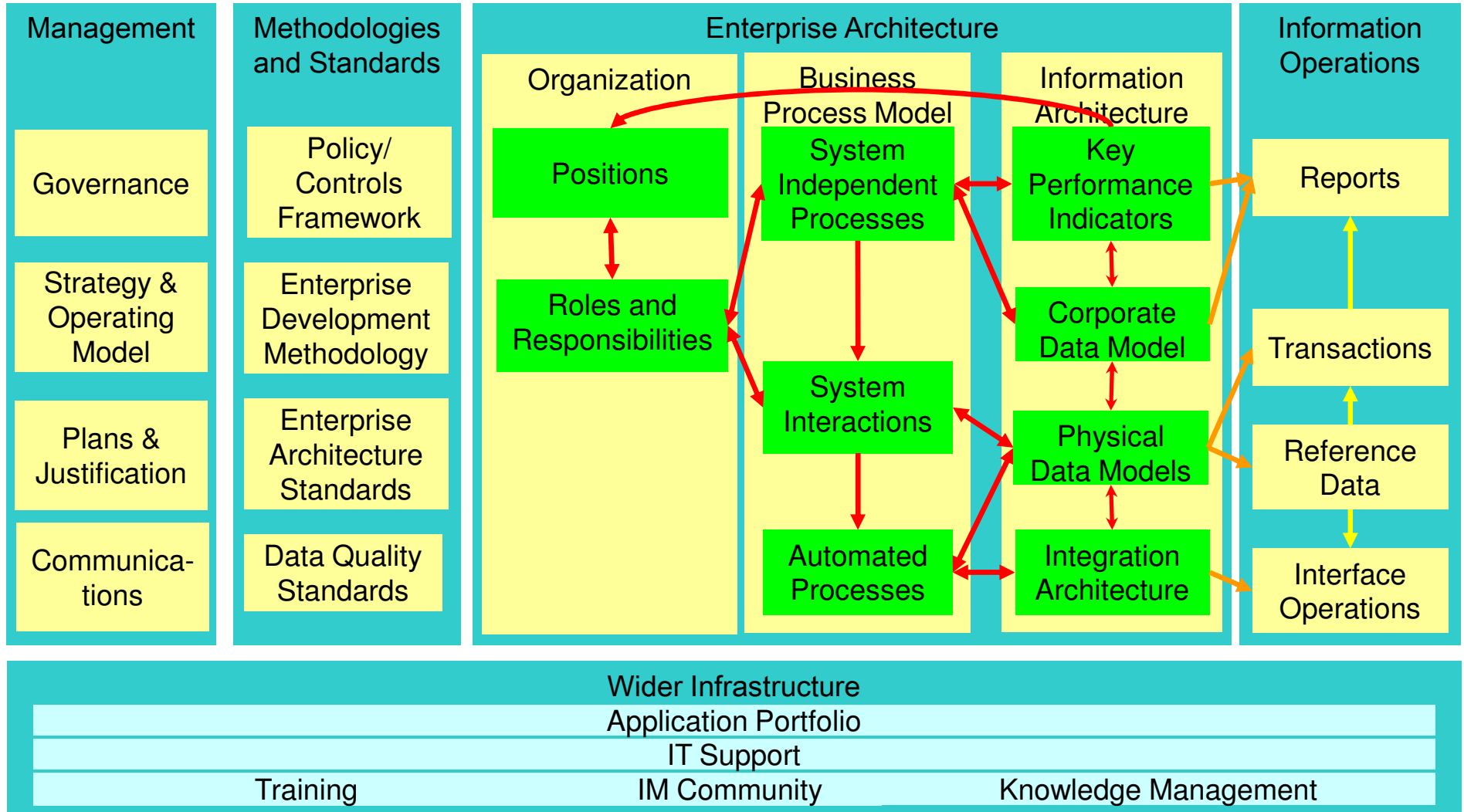


The information lifecycle





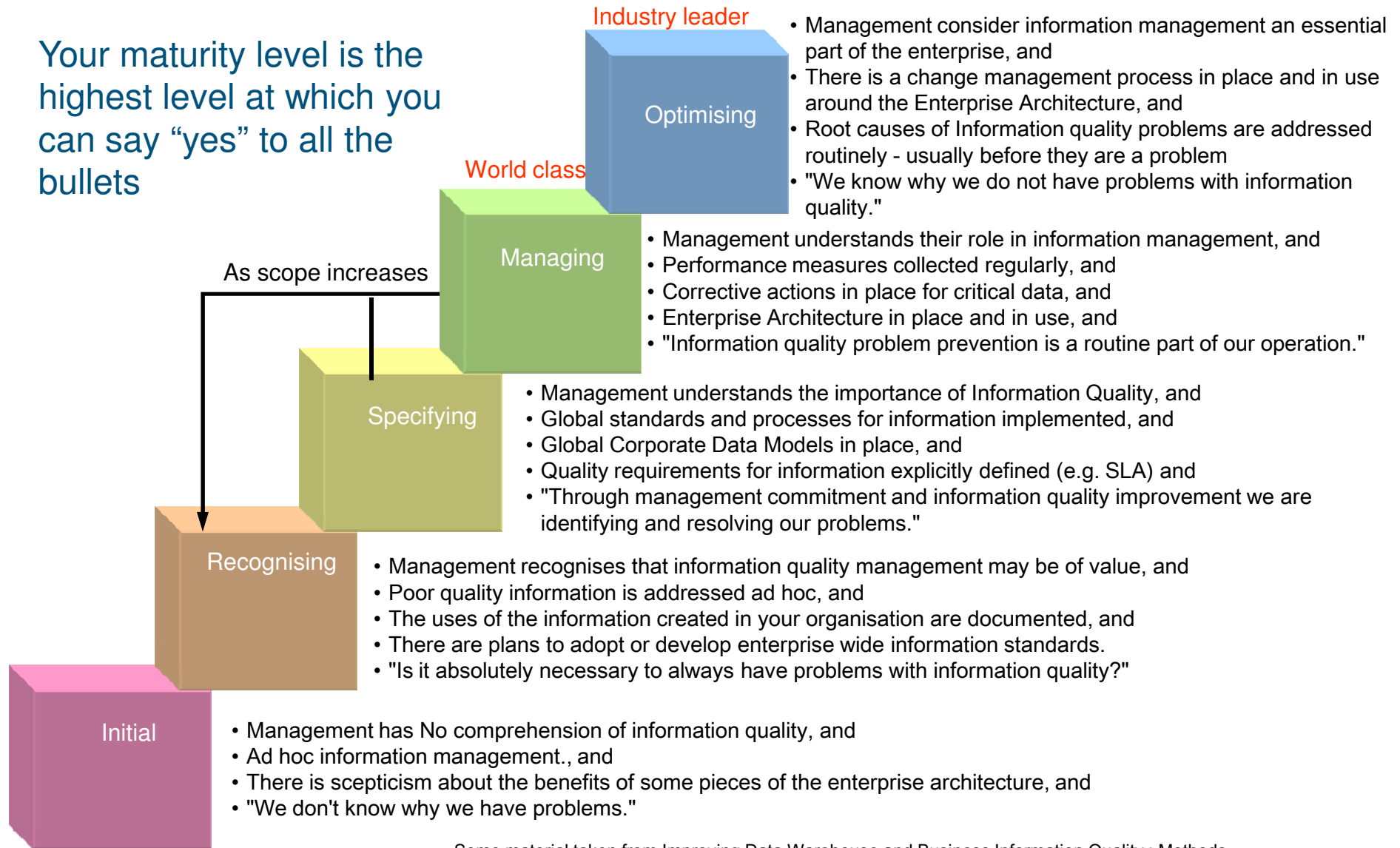
Enterprise Architecture: Elements Required to Support Data & Information Quality





Global Information Management Maturity

Your maturity level is the highest level at which you can say “yes” to all the bullets



Some material taken from Improving Data Warehouse and Business Information Quality : Methods for Reducing Costs and Increasing Profits by Larry P English



Conclusions

- ISO 8000 is coming over the next few years
- Do you want this to be a threat or an opportunity?
- Can you contribute to its development?



Questions?





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DM&IQ

Data Management & Information Quality Conference Europe 2008



Including a DW/BI Track

3-6 November 2008