ENVIRONMENTAL INFORMATION MANAGEMENT

IN PRACTICE,

USING PRINCIPLES OF TOTAL QUALITY MANAGEMENT

Raul Carlson and Ann-Christin Pålsson
IMI, Chalmers University of Technology, Göteborg, Sweden

Problematic issues

- Lack of credibility for environmental information
- Lack of consistency
- Lack of transparency

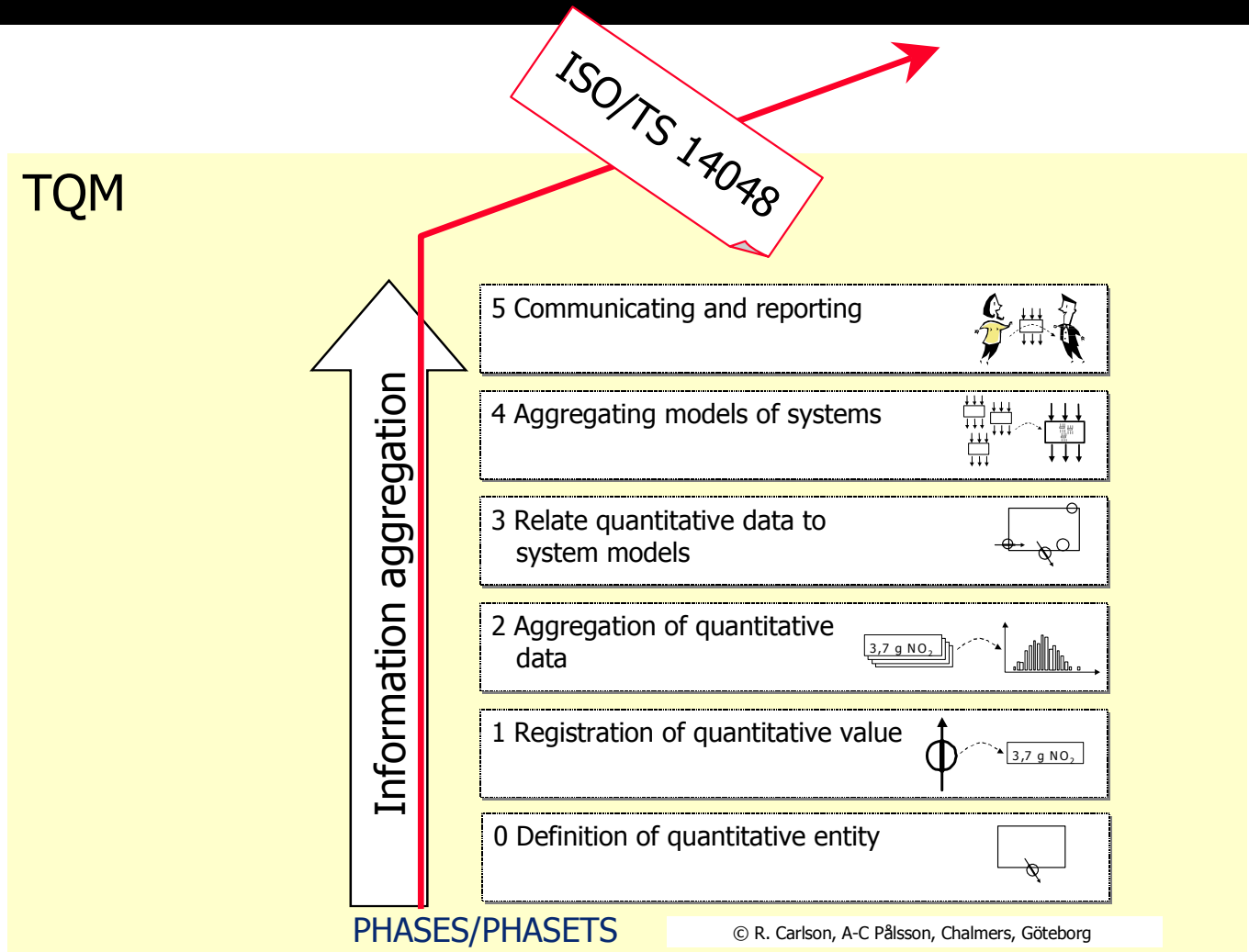
- "..due to an almost complete lack of verifiable reference data at system level, all … attempts have failed to establish faith in LCA results."

The approach

- "…environmental information quality management … is based on the same scientific principles as individual measurements, and … is applicable for industrial organizations, and … provide quality assurance to LCA:s, if applied in full."

The components

- Utilising an accepted approach: TQM – Total Quality Management
- Establishing a conceptual model and identification of core process steps – PHASES/PHASETS.
- Having a good definition of the information-product: ISO/TS 14048


ISO/TS 14048
TQM
Information aggregation
5 Communicating and reporting
4 Aggregating models of systems
3 Relate quantitative data to system models
2 Aggregation of quantitative data
3,7 g NO2
1 Registration of quantitative value
3,7 g NO2
0 Definition of quantitative entity
PHASES/PHASETS
© R. Carlson, A-C Pålsson, Chalmers, Göteborg

Practical route

- Starting with assessing the reporting needs (phase 5)
- Identifying the tools needed to generate the needed reporting (phase 4)
- Considering a model of a technical system i.e. the production plant (phase 3)
- Assessing the available measurement systems to ensure that the needed data can be acquired (phase 0)
- Acquire sample data from the measurement system (phase 1)
- Statistically treat sampled data (phase 2)
- Synthesise a model of the production plant, including statistical data from all relevant measured entities and indicators (phase 3)
- Perform necessary aggregation, e.g. yearly average (phase 4)
- Produce reporting in accordance with needs (phase 5)

Test results

- Early attempts (1997) were considered very promising, and resulted in:
- The Swedish pulp and paper industry performed a large-scale implementation into production-plants (1999 and 2001).
- During the early tests, the PHASETS model was used in the international CODATA Working Group on Environmental Life Cycle Inventories.
- PHASETS has been successfully used for educational purposes in industry to practically apply ISO/TS 14048 and forerunners, and as layout for a procedural guideline for handling of LCA data in the European CASCADE project(2002).

CONCLUSIONS

- The approach:
  - Has been proven successful in tests.
  - Is strategic and optimistic into the future.
  - Relies on sustainable development and faith that the industrial society will transform into the organizational forms needed for sustainability.
  - Is easy to integrate with real organizations.

  - Does not quickly solve problems for simplified LCAs
  - Does not improve data quality in existing databases or software.

- There is need for further case-studies within different industrial sectors.