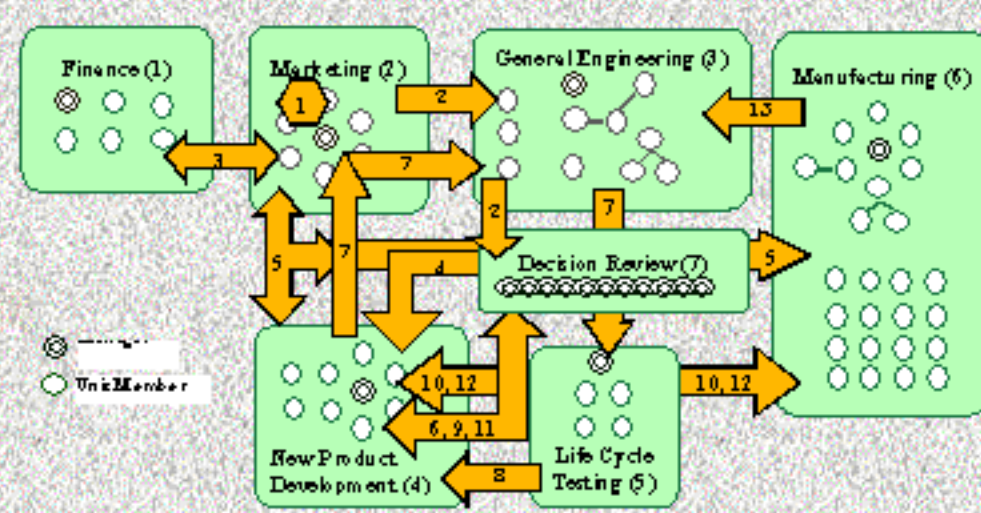


Jeffrey W. Herrmann, Peter A. Sandborn, Linda C. Schmidt

Decision Production Systems

Product design, manufacturing, and management processes are dynamic networks of individual decision-makers who communicate via many channels to share information and produce judgments.



Information flow in a typical product development process.

We call these networks **decision production systems**.

Components of a Decision Production System

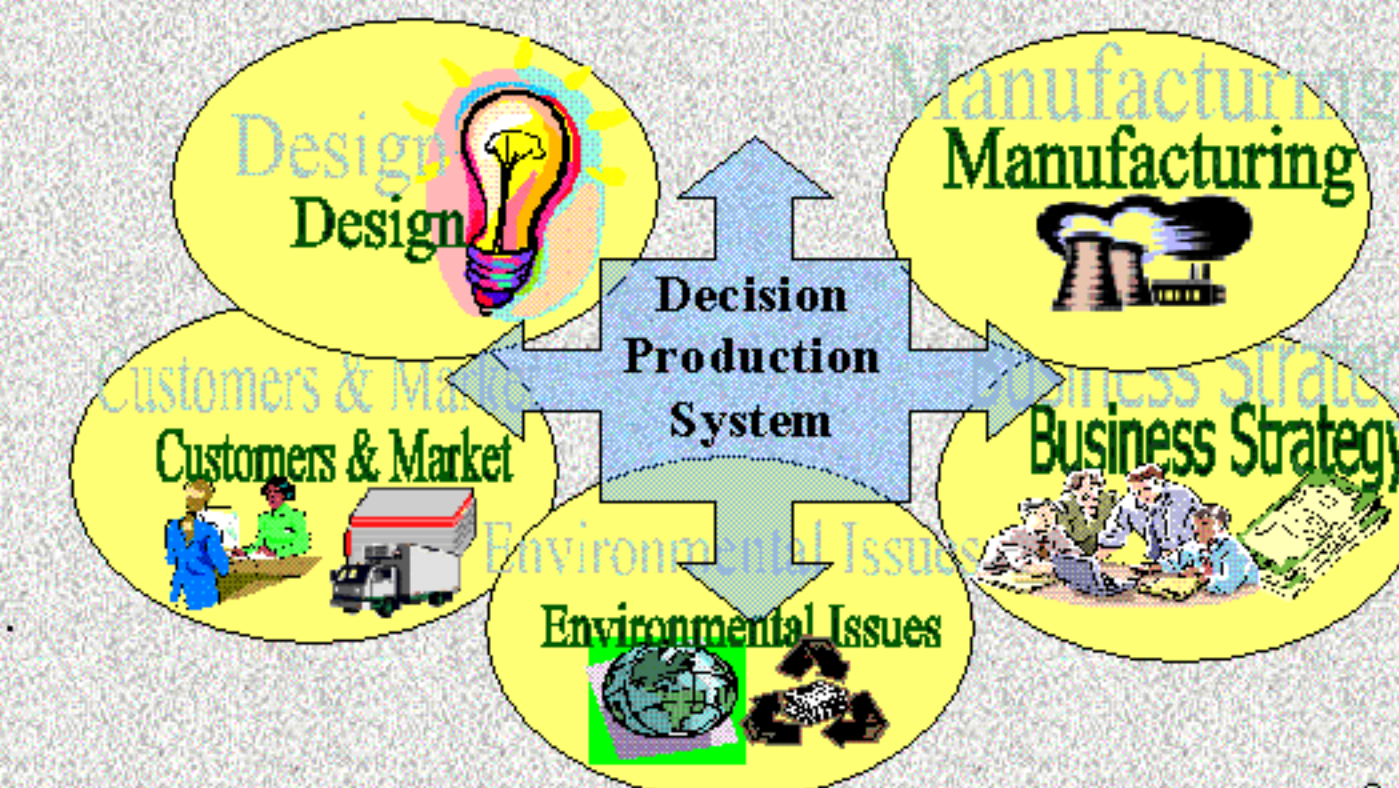
- Decision-makers
- Decisions
 - choices, objectives, constraints
 - amount and nature of uncertainty
 - information requirements and outputs (both tacit and explicit)
 - solution methodology, duration, frequency
- Information
 - contents, attributes, format, precision
 - source, media (paper, spreadsheet, image, ...)
 - age, reliability

Product Design and Decisions

Product development is an information flow governed by decision-makers who make decisions based on tradeoffs between multiple objectives under time and budget constraints.

Design and development occurs in a system just like product manufacturing does.

Thus, this system is a decision production system.



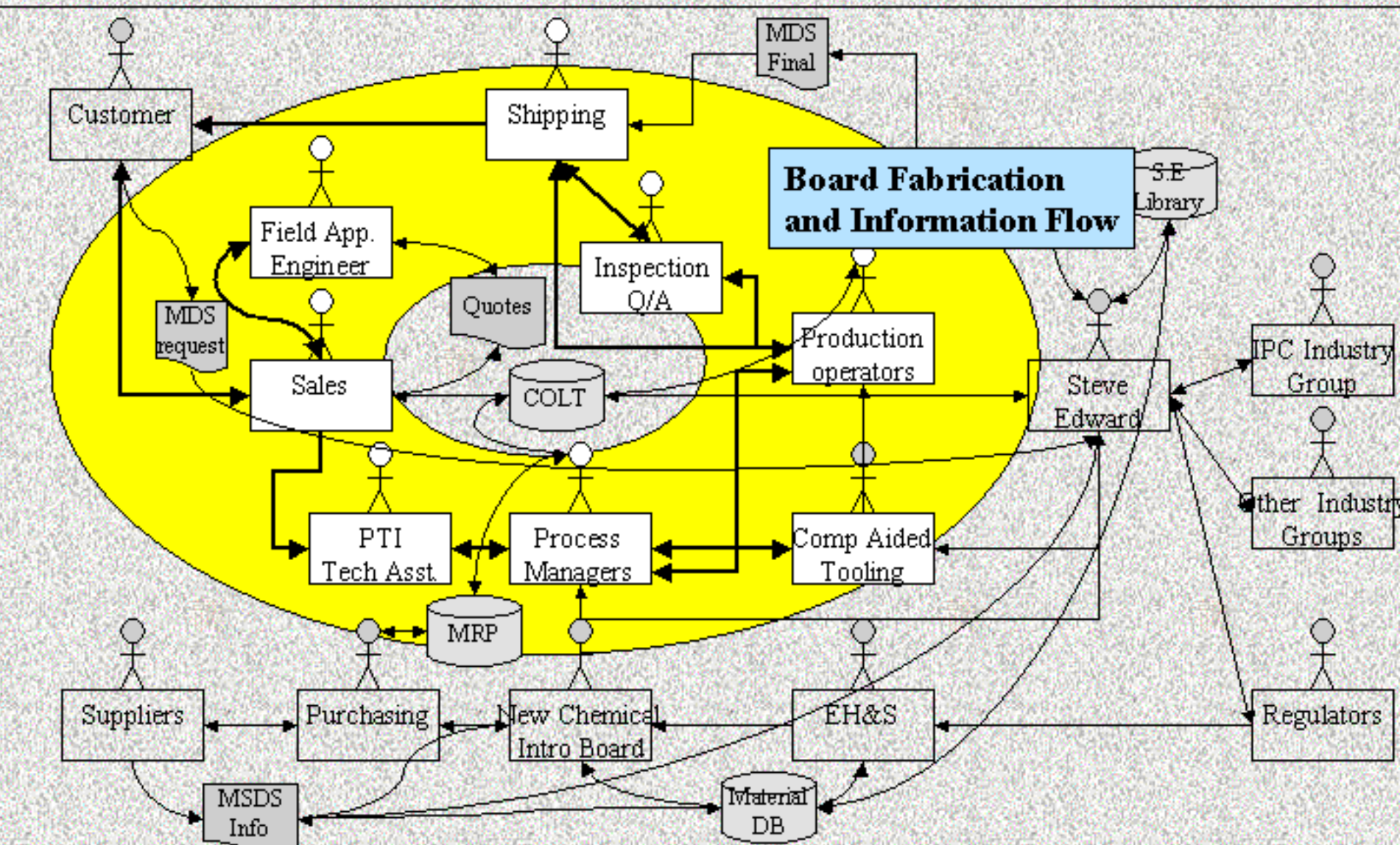
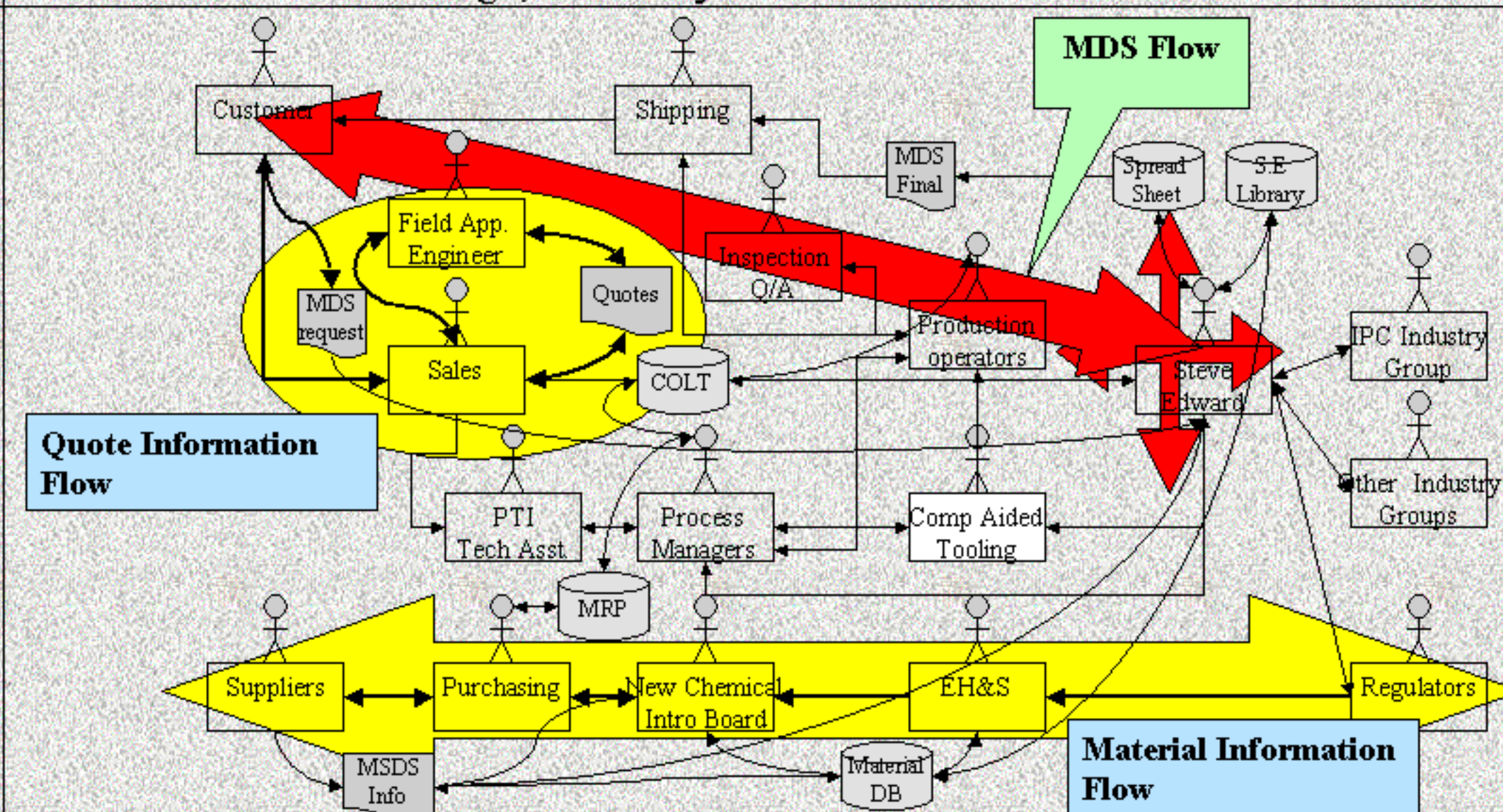
Current Work



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Collaborator: Merix (Forest Grove, Oregon)

Studying product development organizations and manufacturing firms to learn how they use environmental information, particularly to generate a material disclosure statement (MDS).

Models of information flow (shown at right) demonstrate gaps between existing processes and MDS generation process.

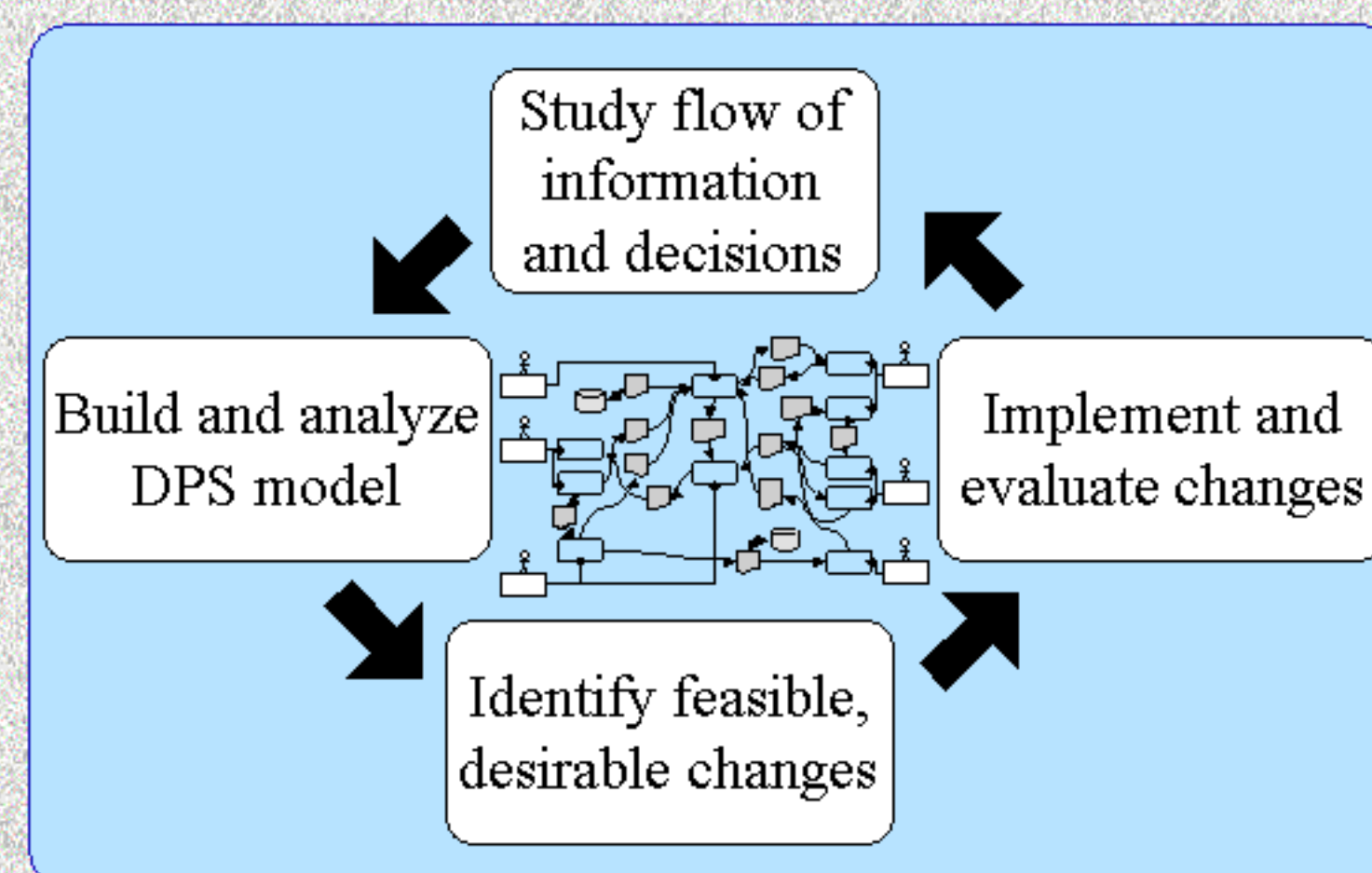


Other Applications

- R&D portfolio management
- Product development
- Production planning and scheduling
- Supply chain management



Improving Design and Manufacturing Organizations



Conclusions

Many activities are complex systems of decision-makers. Improving the performance of such a system requires understanding the individuals in the system, their objectives, the information flow among them, and the dynamic behavior. Analyzing models of a decision production system can help participants identify feasible, desirable changes.