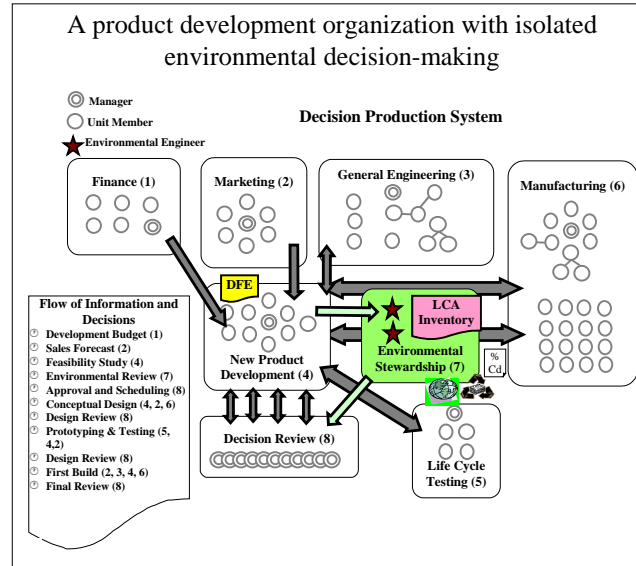


# Improving Decision-Making for Environmentally Responsible Product Development

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## Problem Situation

- Manufacturing firms increasingly need to consider the environmental performance of their products.
- Decisions made early in the product development process significantly influence a product's environmental impact, but the required information is not used effectively.
- Improving decision-making is difficult since the nature of this information varies from firm to firm.
- There is no system-level perspective through which to understand or improve the product development organization.



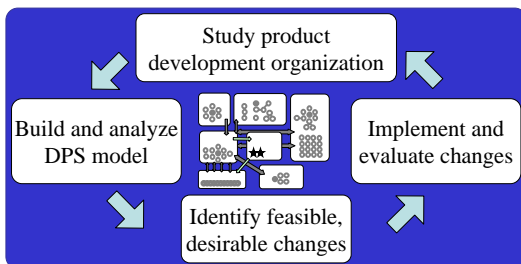
## A Systems Approach

- A product development organization is a dynamic network of individuals who share information and make decisions under time and budget constraints.
- We call this network a **decision production system** (DPS).
- Components of a DPS:

- Decision-makers
- Decisions
  - choices, objectives, constraints, uncertainty
  - information requirements, information generated (both tacit and explicit)
  - solution methodology, time required, frequency
- Information
  - contents, attributes, format, precision
  - source, media (paper, spreadsheet, image, ...)
  - age

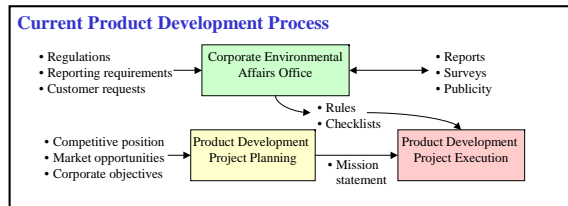
## Improving Product Development

- The DPS perspective is a useful and insightful approach for understanding and improving product development organizations.



## Design for Environment Application

- Product development teams need to measure and use product-level environmental information instead of simply following rules and checklists.
- Corporate environmental affairs office needs product-level metrics to respond to information requests.



## Results

- Identified corporate environmental objectives
- Defined relevant, feasible product-level environmental metrics.
- Based on DPS, created spreadsheet DFE tool (shown below) for product development teams.
- Now implementing and testing DFE tool at Black & Decker.

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