

Strategic Modelling for Enterprise Integration

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Modelling for Enterprise Integration

- It is well-recognized that many types of modelling are required to deal with the various aspects of enterprise, e.g.,
 - activity modelling
 - function modelling
 - resource modelling
 - information modelling
 - organization modelling
- e.g., CIMOSA, GERAM,...

Towards richer organization modelling

- How do we express and reason about
 - motivations
 - rewards
 - different ways for achieving objectives
 - understanding “*why*”
 - opportunities and vulnerabilities

... strategic business and social relationships

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Consider one very successful enterprise...

Customize Your Own Tastes at **IKEA**

Over 540 Combinations!



2
welcome to IKEA
Enter Sweden's favourite home furnishings store.



8
getting it home
Many of our products are easy to transport and assemble. So you can spend the night sleeping in a bed that you found earlier that afternoon.

- important organizational and social aspects are missing in conventional models

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Consider another very successful enterprise...

A NEW KIND OF WAL-MART HELPS MAKE HISTORY
WAL-MART
1999 ANNUAL REPORT

**WHO'S NO. 1?
THE CUSTOMER!**

The People Greeter's smile is just the beginning of our customer focus.

**Fine-tuned
Merchandising**

How do you best serve the customer? By knowing what the customer wants! That's where Wal-Mart's leading-edge information systems come in.

**Paul Harvey
Interview:**
An inside look
at Wal-Mart



- the differences are not only in workflow, information, resources, etc.,
- but also in organizational/social and strategic relationships among (internal) organizational actors and with (external) customers, suppliers, etc.

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Modelling Strategic Actor Relationships and Rationales

- the *i** modelling framework

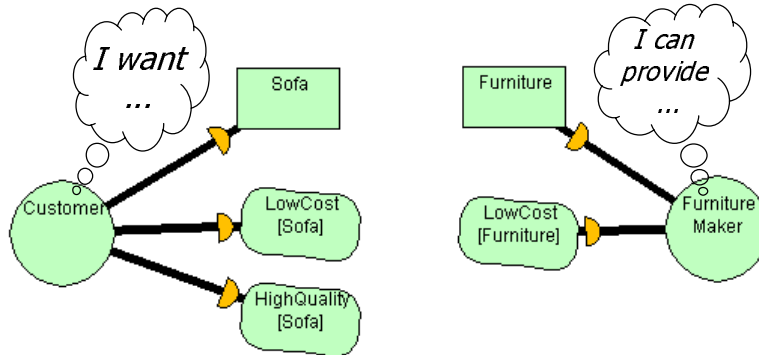
• Strategic Actors

- have goals, beliefs, abilities, commitments
- depend on each other for goals to be achieved, tasks to be performed, resources to be furnished
- are semi-autonomous -- not fully knowable / controllable

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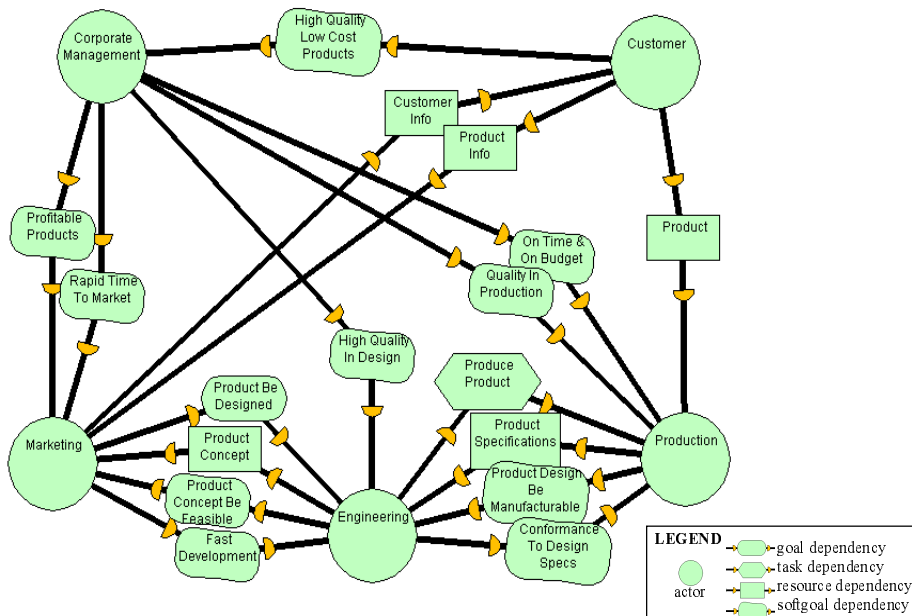
Wants and Abilities



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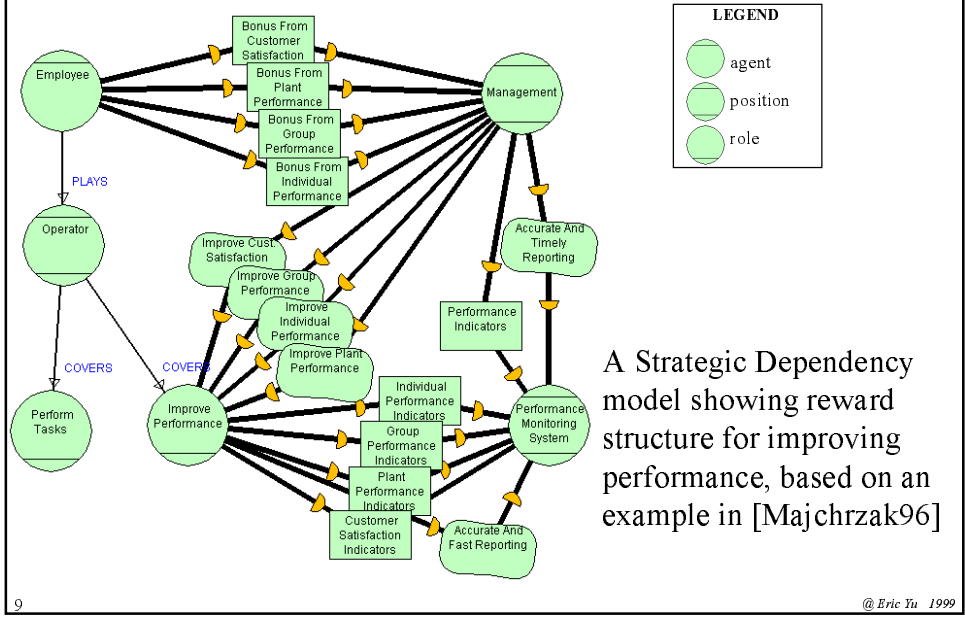
A Strategic Dependency Model



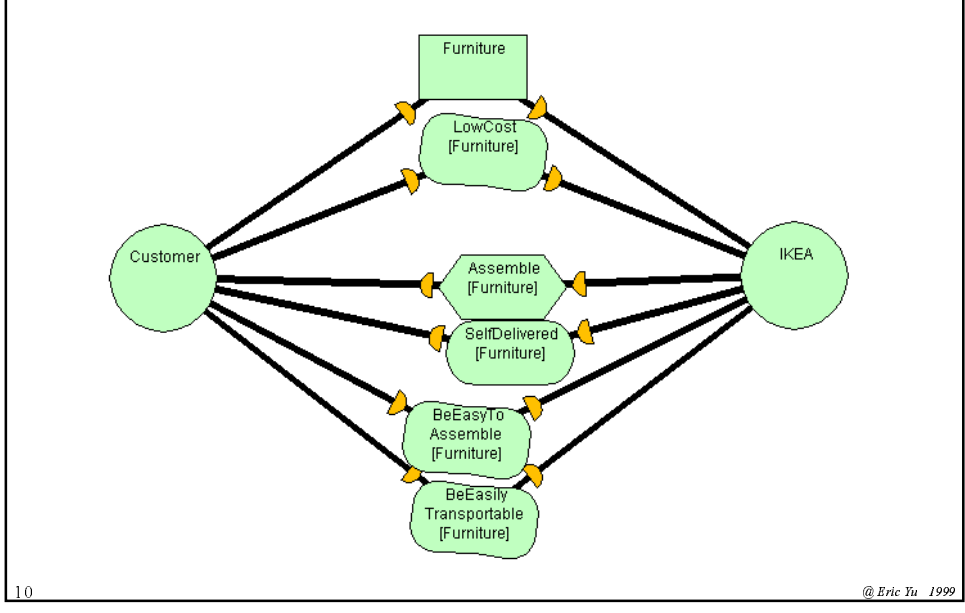
8

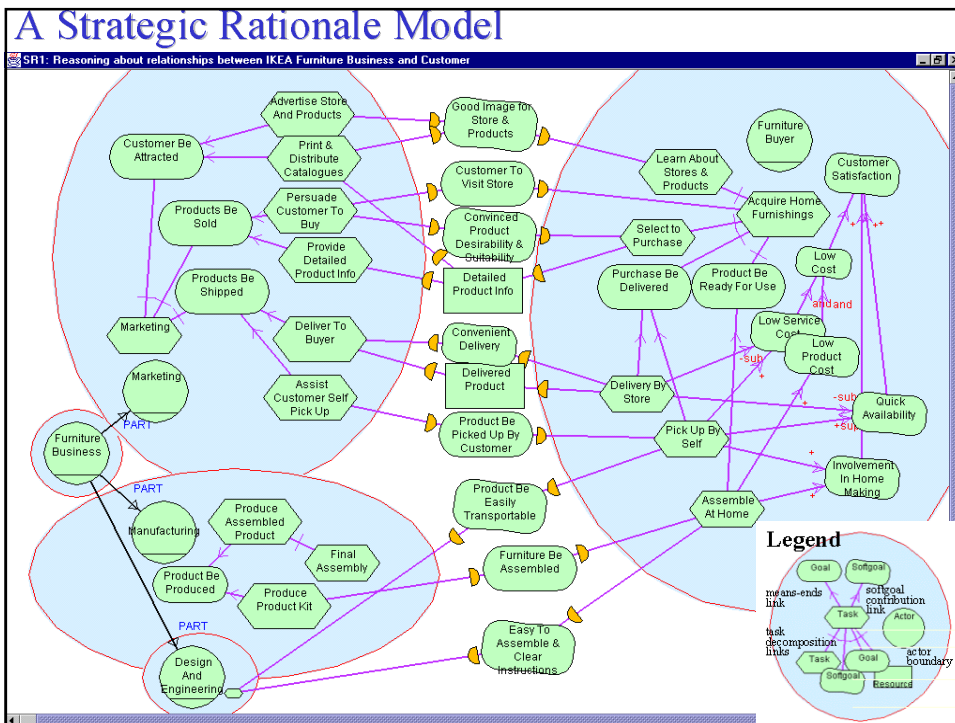
@ Eric Yu 1999

Roles, Positions, Agents



Some strategic dependencies between IKEA and its customers





Analysis and Design Support

- opportunities and vulnerabilities
 - ability, workability, viability, believability
 - insurance, assurance, enforceability
 - node and loop analysis [Yu ICEIMT'97]
- design issues
 - raising, evaluating, justifying, settling
 - based on qualitative reasoning
[Chung Nixon Yu Mylopoulos, forthcoming monograph]

Sample *i** representation for an actor (in *Telos*)

```

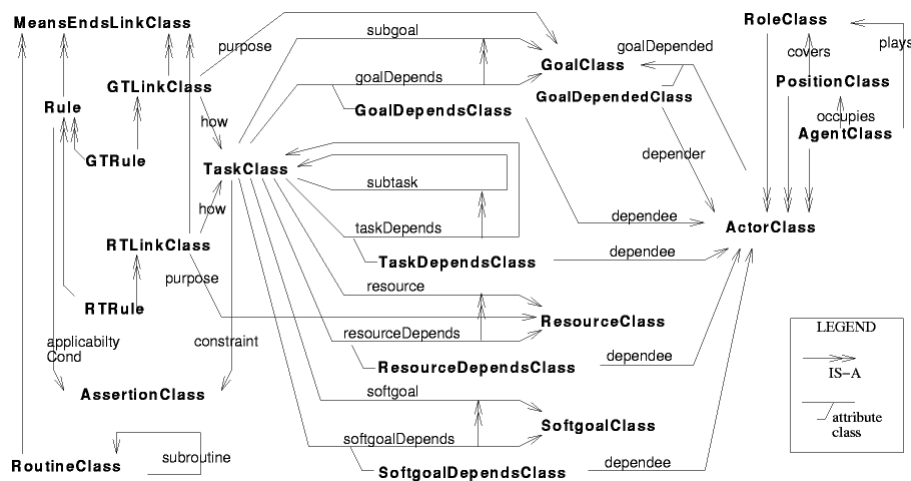
TELL Class Physician IN PositionClass
  ISA ProfessionalPosition WITH
  resDepends, committedTo
  fs: FeeForTreatment WITH
    dependee cm:ClaimsManager end
  goalDepended, commitsTo
  td: $Treated(p.injury)$ WITH
    depender p:Patient end
  taskDepends, committedTo
  tm: TakeMedication(p.med) WITH
    dependee p:Patient end
  covers
  tp: TreatingPatient(p)
  bi: Billing(p.insurCo)
  integrityConstraint
  correctClaimsManager:
    $cm=p.insurCo.claimsMgr$
end

```

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The Strategic Rationale Model - a partial schema



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Ongoing Work

- formal knowledge representation using a conceptual modelling language **Telos**
- tool building - GUI, repository support
- knowledge libraries
 - strategic knowhow
 - case-based reasoning
 - patterns
- case studies
- coordination with other modelling techniques

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Summary and Conclusions

- Need intentional modelling about strategic actors to deal with complex organizational, social aspects.
- Modelling ontologies may be adapted selectively from organization theories, artificial intelligence, requirements engineering, etc.
- Strategic modelling needs to be part of comprehensive framework for Enterprise Integration.

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