

Dialogue between Customer and Supplier

# Handshaking with Implementation Proposals

Paper 1, Fricker 2010

# Requirements communication problem

- Product managers unable to convey the desired meaning of requirements
  - Architects confronted with too fragmentary requirements (do not sounding like solution design)
  - No solutions for effective requirements communication
- 
- Development of handshaking with implementation proposals

# Good-enough requirements

- Project success highly dependent on requirements specification's quality
- Assumed that requirement specifications should be good enough and adapted to the situation at hand

## **Good-enough requirements criteria:**

- Valid
- Traceable back to the customer needs and company strategy
- Prioritization
- Stable for the targeted market release

Requirements quality -> moving target

# Handshaking with Implementation Proposals

Bidirectional communication process

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- **Product management:** customer role, controls the development result
- **Development team:** supplier role, proposing design and their impacts

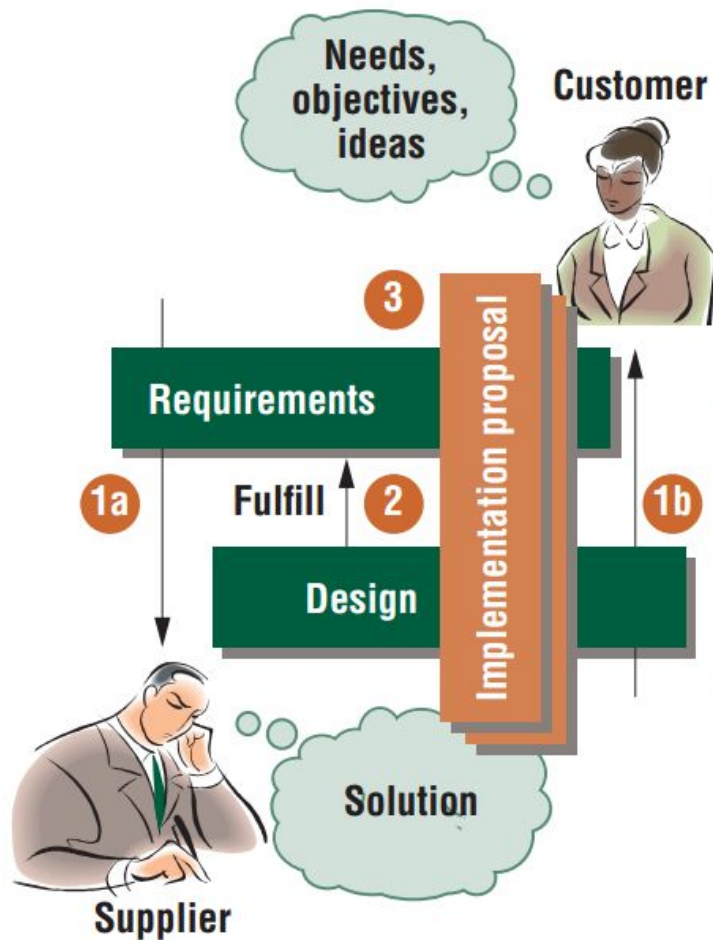
Requirements are “good-enough” if customer accepts the planned solution

Supplier generates rapid feedback by proposing the design for product themes that are critical

Theme: product feature, important part or subsystem, development increment

# Implementation Proposal Template

| Attribute group     | Attribute              |
|---------------------|------------------------|
| Basic attributes    | Title                  |
|                     | Requirements           |
|                     | Design                 |
| Negotiation support | Assumptions            |
|                     | Impact                 |
|                     | Dismissed alternatives |
|                     | Open issues            |
| Planning support    | Scope                  |
|                     | Necessary activities   |
|                     | Effort estimate        |



**1a** The customer communicates tailored requirements to the supplier.

**1b** The supplier shares intended design by communicating implementation proposals for selected themes to the customer.

**2** The customer and supplier negotiate the implementation proposals until they find an acceptable match between requirements and design.

**3** The customer and supplier update requirements and implementation proposals to document the reached agreement.

# Strengths and limitations

- + Handshaking improved requirements
- + Defect-related costs decreased by 40%
- + Enhance realized value of software
- + Deep requirements understanding and preparation for project
- + Reduction of project duration
- + 50 - 70% reduction of project planning errors
- Product managers did not always receive what they wanted
- Requirements which were good enough for the supplier were not necessarily understandable to practitioners

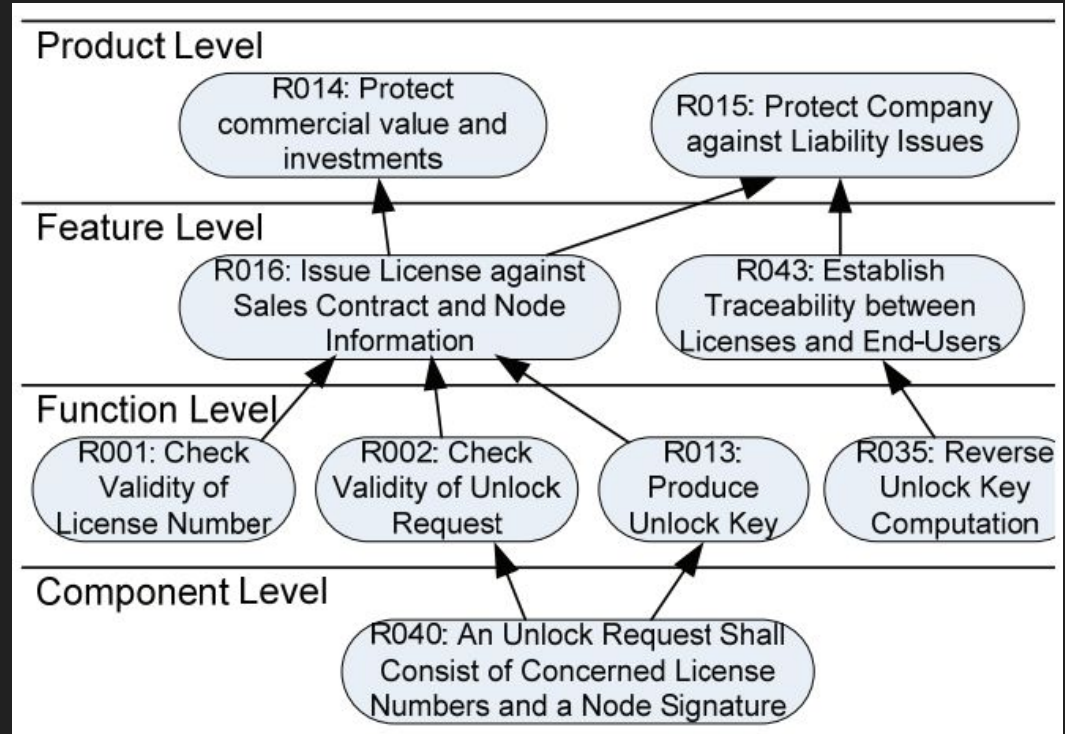
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# Comparison of Requirements Hand-Off, Analysis, and Negotiation

Paper 2, Fricker 2010

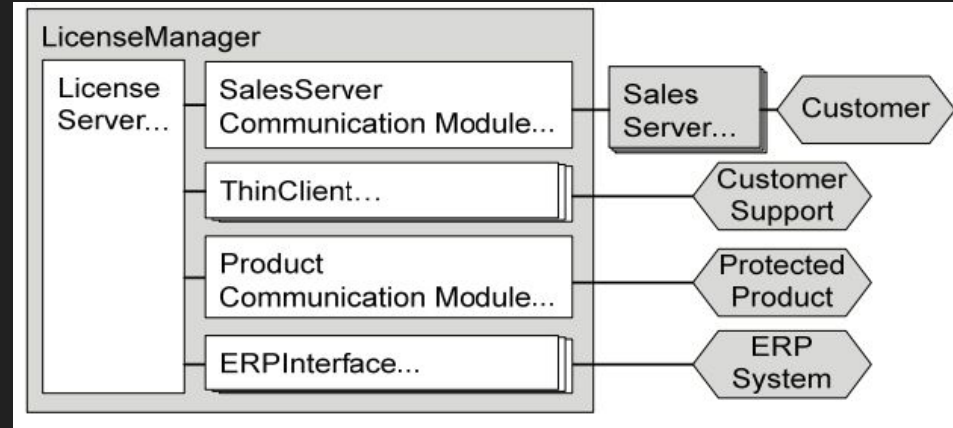
# Requirements abstraction Model (RAM)

- Goal modeling
- Abstraction levels
- Traceability



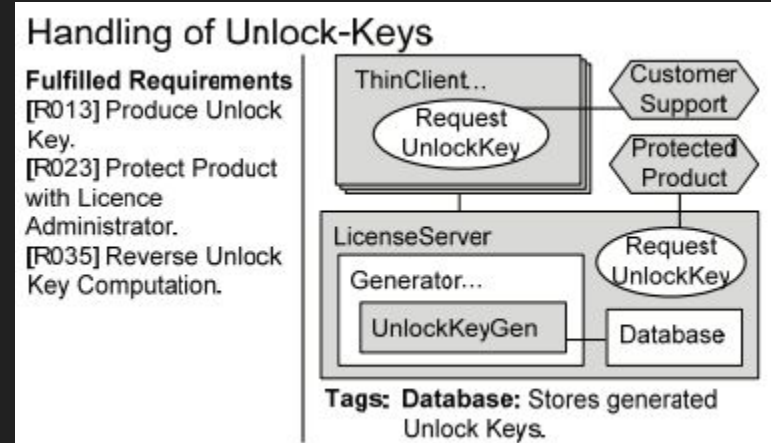
# ADORA

- System specification language
- Ensures specification consistency
- Functional, structural & behavioral aspects of the system



# Implementation Proposals (IP)

- Support requirements communication
- Capture tentative or decided agreements between product management and development
- Constructed by referring to RAM-based requirements and ADORA model fragments
- IP describes a preferred design and lists dismissed designs with reasons for design.



# Case Study

- Industrial software development project
- Product manager and solution architect followed Process:

| Phase                  | Treatment                                  |
|------------------------|--------------------------------------------|
| 1. Positioning 1 (PO1) | Product manager (PM) prepares requirements |
| 2. Hand-off (HO)       | PM hands requirements off to architect     |
| 3. Positioning 2 (PO2) | Architect analyzes requirements and system |
| 4. Negotiation (NE)    | Both negotiate requirements and design     |
| 5. Confirmation (CO)   | Both document negotiation results          |

# Results

- Design knowledge triggered requirement changes
- Changes in requirements understanding caused design changes
- Positioning 1 requirements accounted for only 59% requirement changes
- Negotiation phase 41% change → In only 2.4% of effort
  - Shows that product manager understands design by discussing IP
- Negotiation used less effort than typically specified in literature → Effectively prepared

| Phase | Invested Effort (hours) | Perceived Ability to Execute (Exec-Ability) |
|-------|-------------------------|---------------------------------------------|
| PO1   | 0h                      | 0%                                          |
| HO    | 1h                      | 20%                                         |
| PO2   | 64h                     | 55%                                         |
| NE    | 2h                      | 65%                                         |
| CO    | 4h                      | 70%                                         |

# Questions?