

An Analysis of the Life-Cycle Curtain Wall Process through Supply Chain Management

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Research Background and Objectives

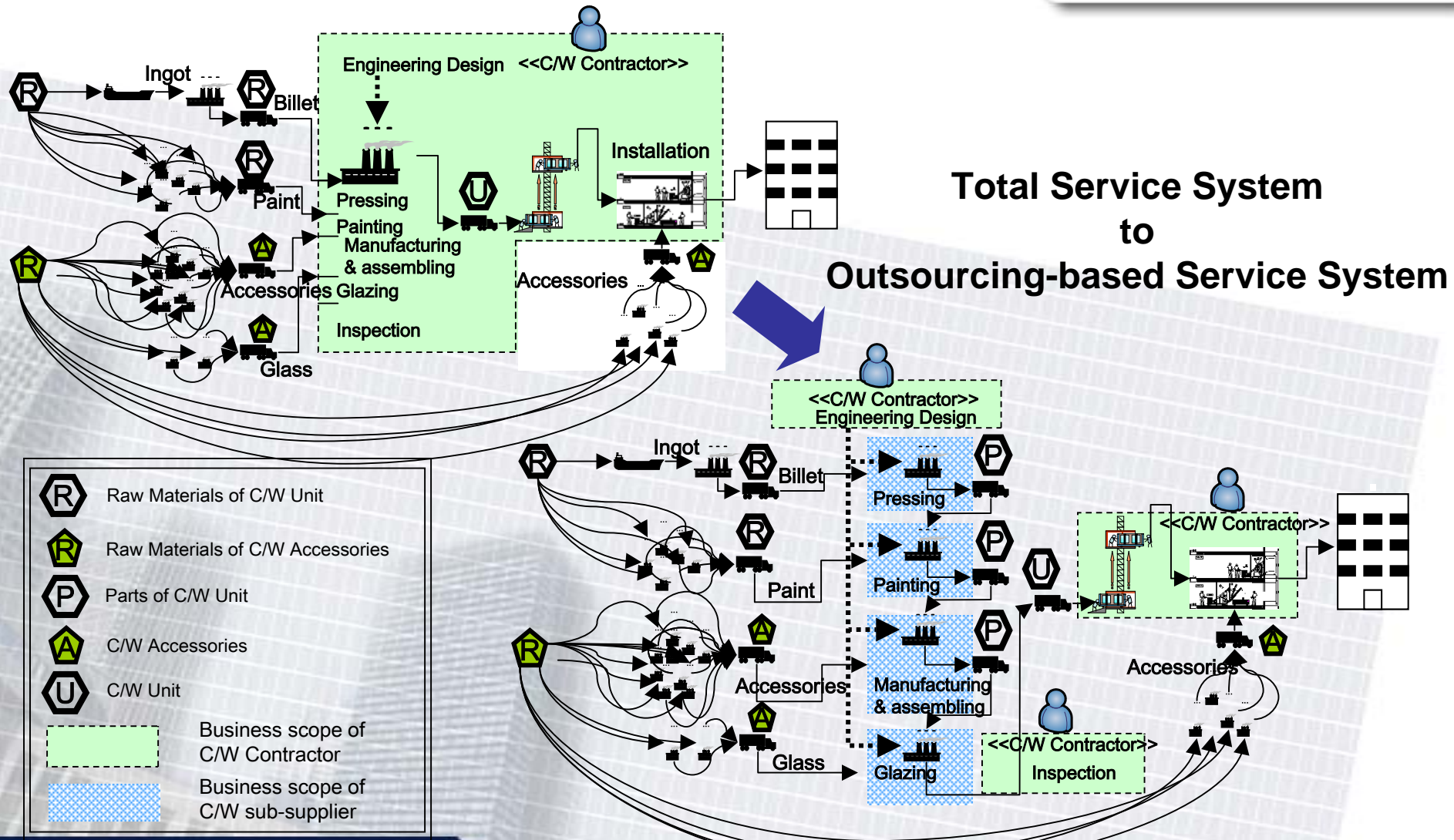
- **Background**

- Curtain wall in high-rise buildings
 - a key component for exterior wall system
 - 10-15% of total project cost
 - activities on the critical path
- The supply chain involves many participants during the project life-cycle.

- **Problem statements**

- *How can the curtain wall life-cycle process be improved through SCM? (the focus of this paper)*
- What information framework should be developed to support the process?
- Is there any other technology that can help improve the process?

Why the supply chain of curtain walls is so important?



Analysis of Curtain Wall Process under Outsourcing-based Service System

- **Analysis focus**

- What are the problems and waste in the life-cycle process?
- When do they occur? And what are the root causes?
- How can they be resolved or eliminated through SCM-based process?

- **Survey methods**

- Questionnaires and interviews with architects(2), manufacturers(2), consultants(3), and constructors(3)
- Construction site visits (2) and Case studies (10)
- Factory visits (2)

- **Analysis method**

- Modeling the life-cycle process using IDEF0
- Analysis based on 7 types of waste
- Document Analysis

Causes of Problems and waste in the C/W Process

- The followings are in common through the Life-Cycle
 - **Difficulties to involve right people at right time**
 - **Lack of standardization in design, parts, and components**
 - **Lack of information sharing and communication**
 - **Long lead time between activities in the process**
 - **Information loss particularly by fragmentation of the process**
 - **Redundancy and inaccuracy in information flow**
 - **Reworks, errors and missing information in documentation**

Conclusions: How can these causes be resolved or eliminated through SCM?

◆ Production Management

- definition and clarification of performance requirements for C/Ws
- reduction of design reworks through manufacturability and constructability review
- design considering standards in parts and units

◆ Organization Management

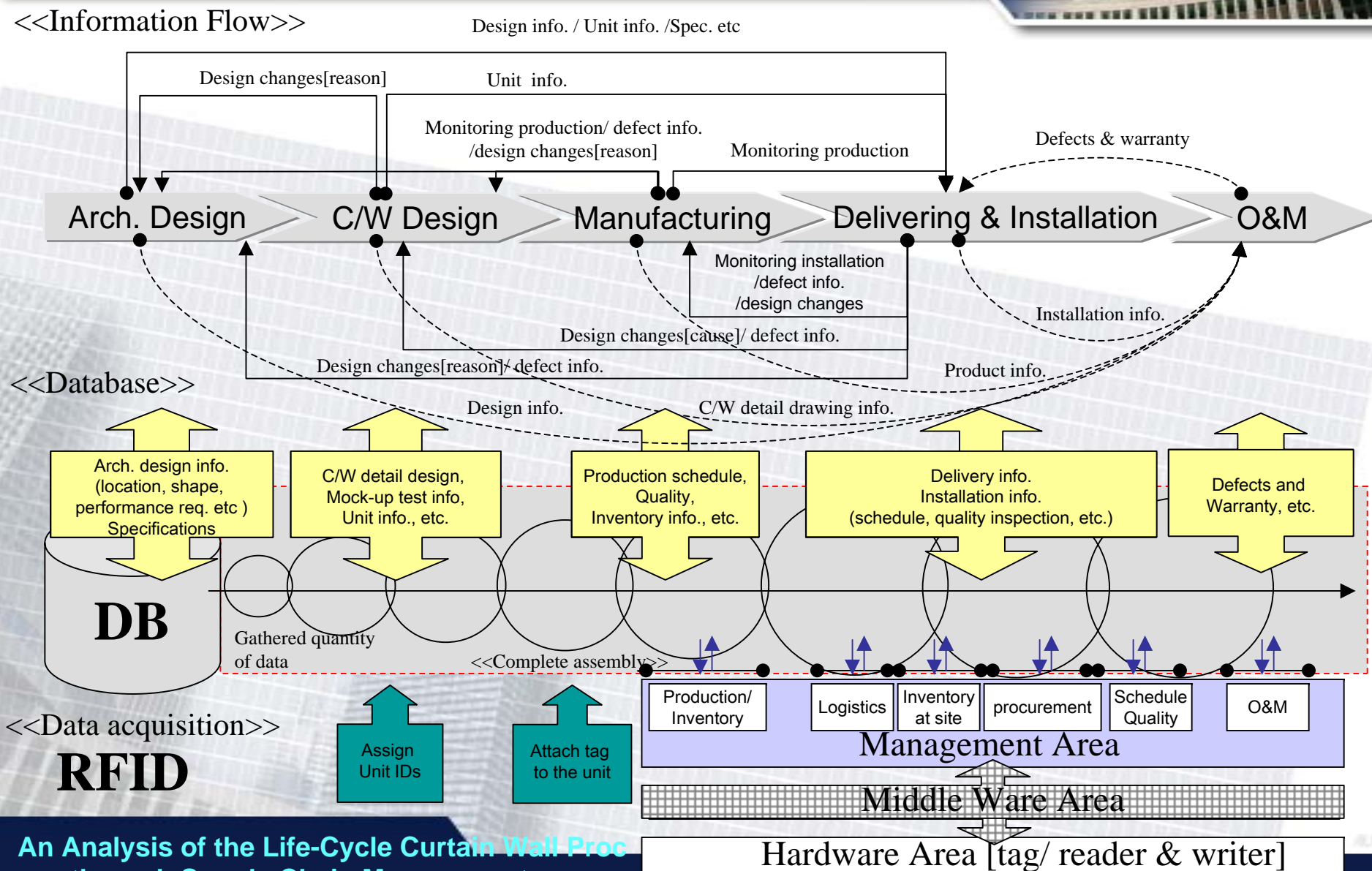
- appropriate contractual arrangement
- change of the owner's and architect's attitudes
- mutual understandings of both designers and manufacturers

◆ Information Management

- collaboration system through the life-cycle
- problem-alternative-solution based information management
- product and information flow management through the use of RFID (Radio Frequency Identification) in the manufacturing and on-site processes

**Supply
Chain
Management**

Future Directions: Vision of Information Framework



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Thank you!