

BPI

- Business Process based application Integration - and its application for Supply Chain Management System

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Why EAI now?

**Rapid Change in
Business Environment**

**Rapid Change in
Information Technology**

- **Business depends on information system and technology**
- **Business system becomes complex more and more**
- **But still, business style need to be changed...**

The Purpose of EAI:

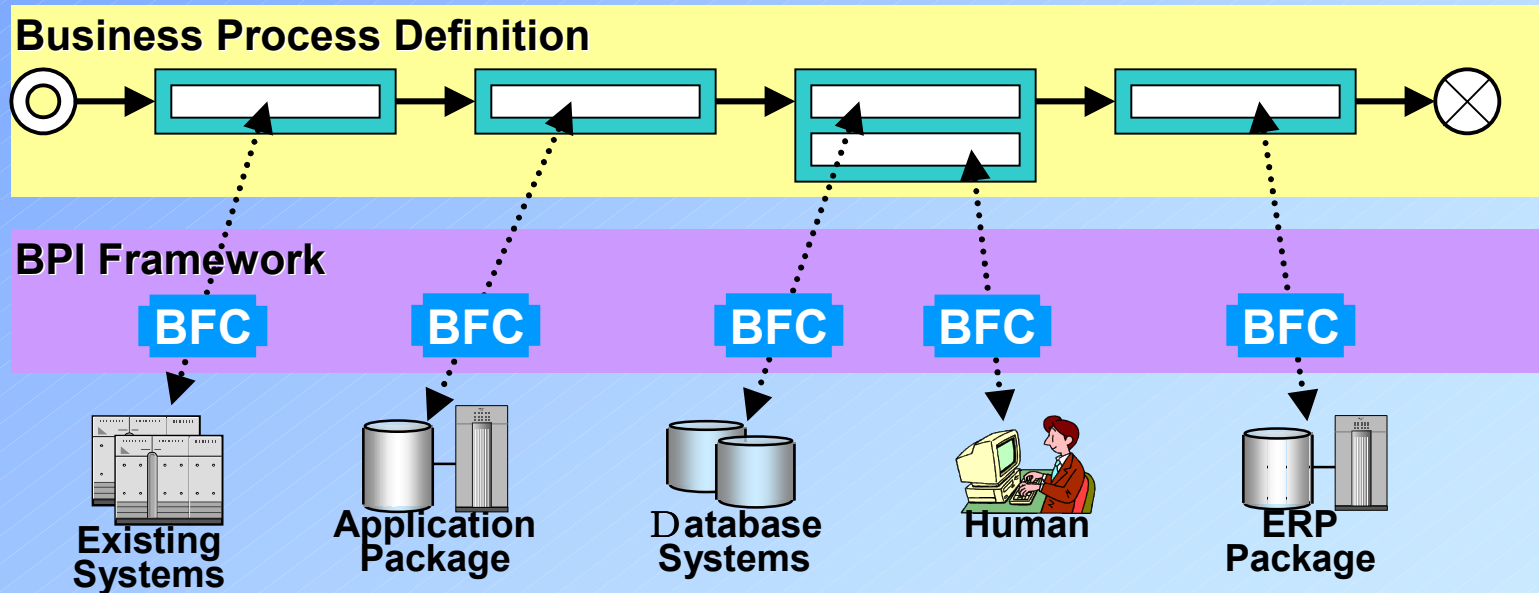
**To support improvement and progress of enterprise business systems
in order to keep up with the radical change of business environment**

But, how?...

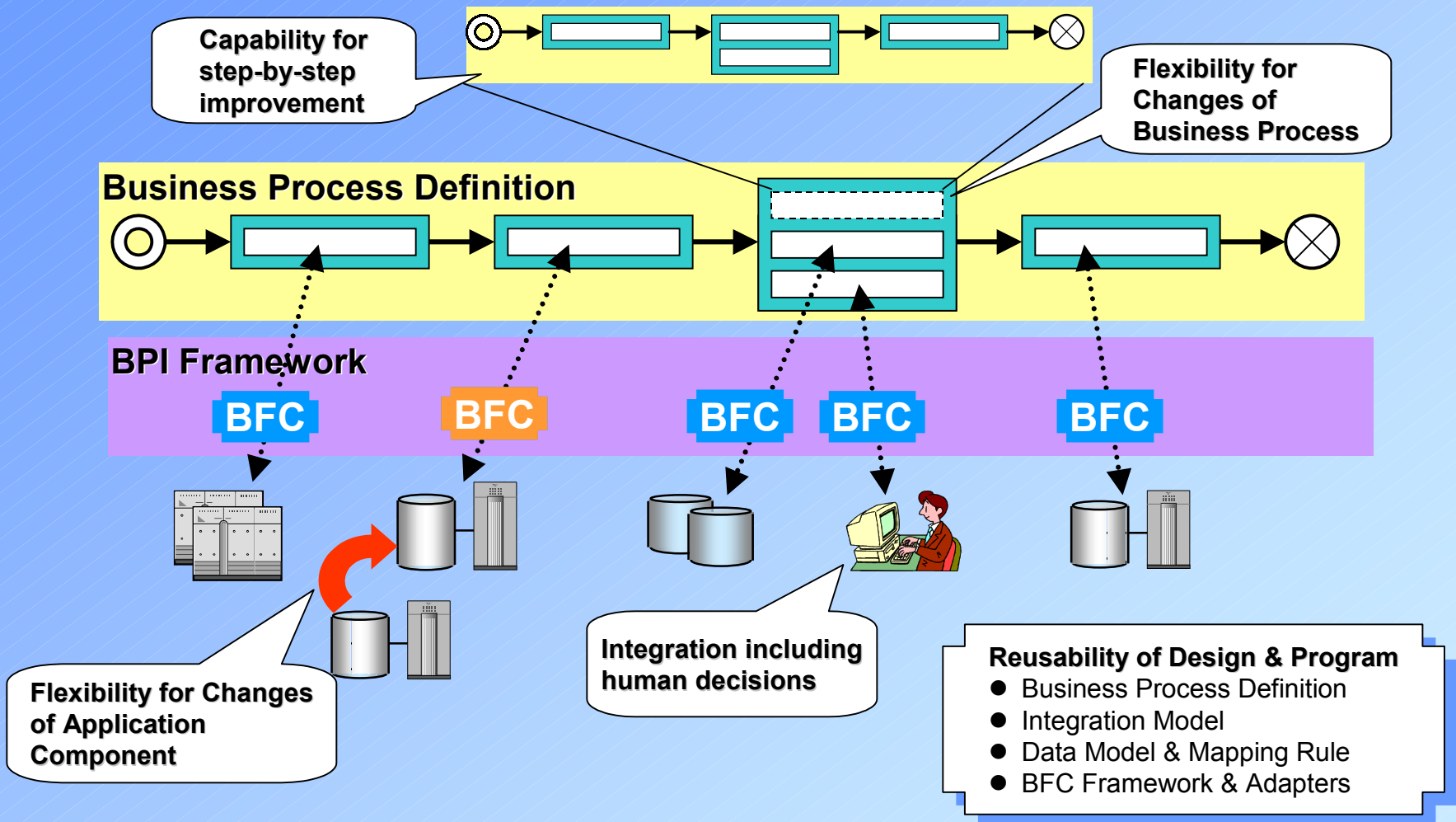
BPI
(Business Process based application Integration)

What is BPI?

- ✓ Business process definition is set as the core of the integration architecture
- ✓ Application components and business process are combined by BPI Framework Components (BFCs)



Features of BPI



WorkCoordinator

Hitachi's Workflow System specialized for Integration

WorkCoordinator Server

Support for variety of process model

Form-circulation business process

A predefined process

Collaborative business process

A Semi-predefined process in which operations are different for each process instance

Project-type business process

Ad-hoc process in which a work item is broken down at every step into smaller tasks

Open interface

CORBA based interface

A Semi-predefined process in which operations are different for each process instance

RDB data access

A Semi-predefined process in which operations are different for each process instance

Adaptability for changes

Changes at runtime

Changes of rules in business process definition such as conditions can be done at runtime

Process instance migration

Process instance migration utility is available to migrate process instances from an old business process definition into new ones.



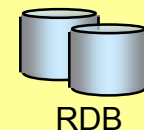
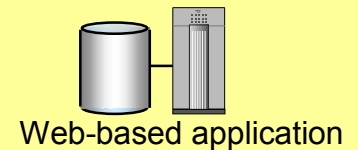
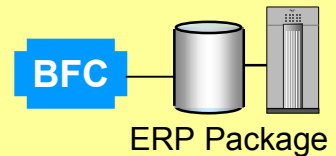
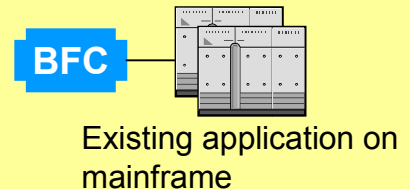
- Business Process Definition

WorkCoordinator Definer



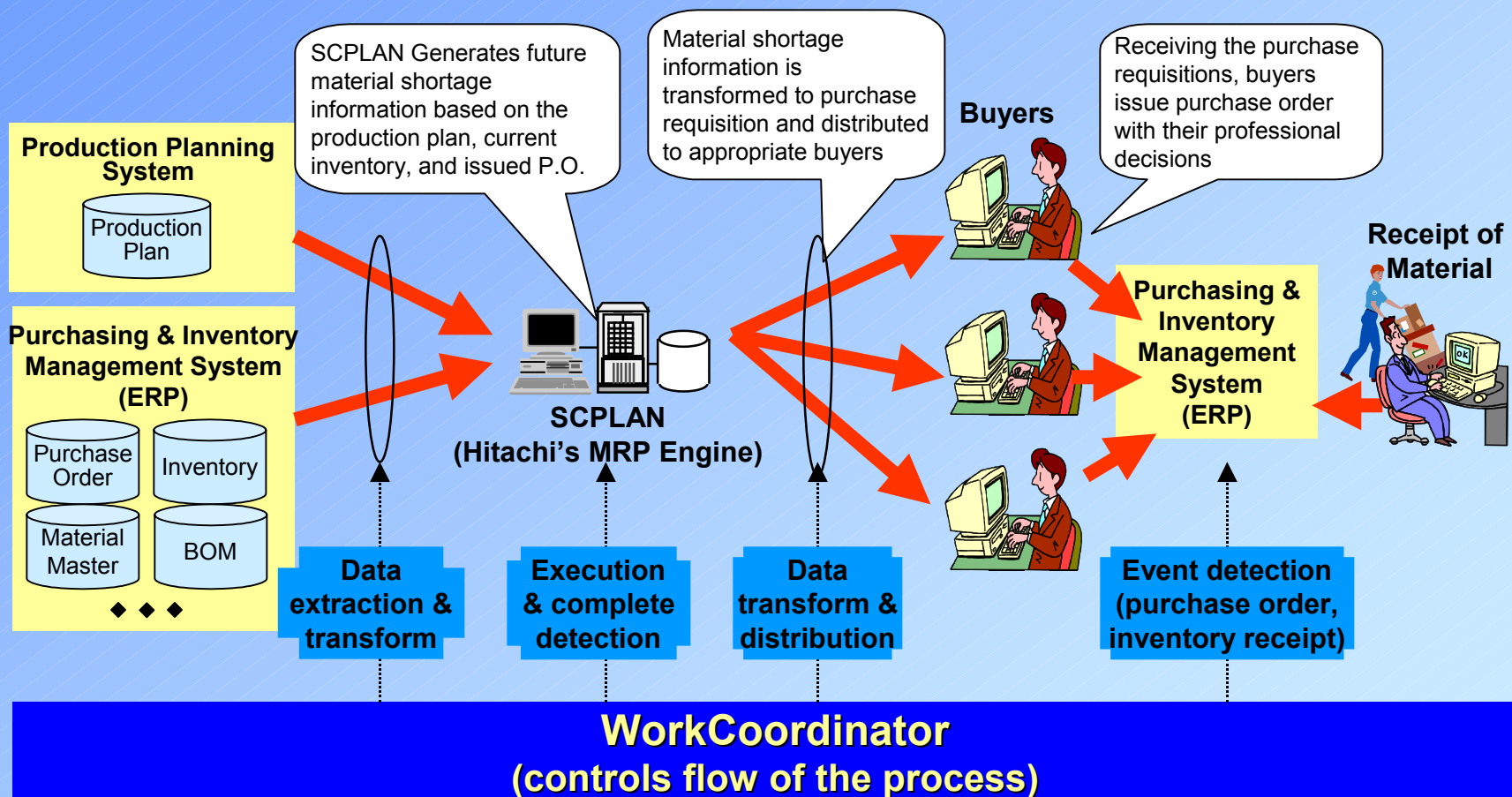
- Status Monitoring
- Administration of Process instances

WorkCoordinator Monitor

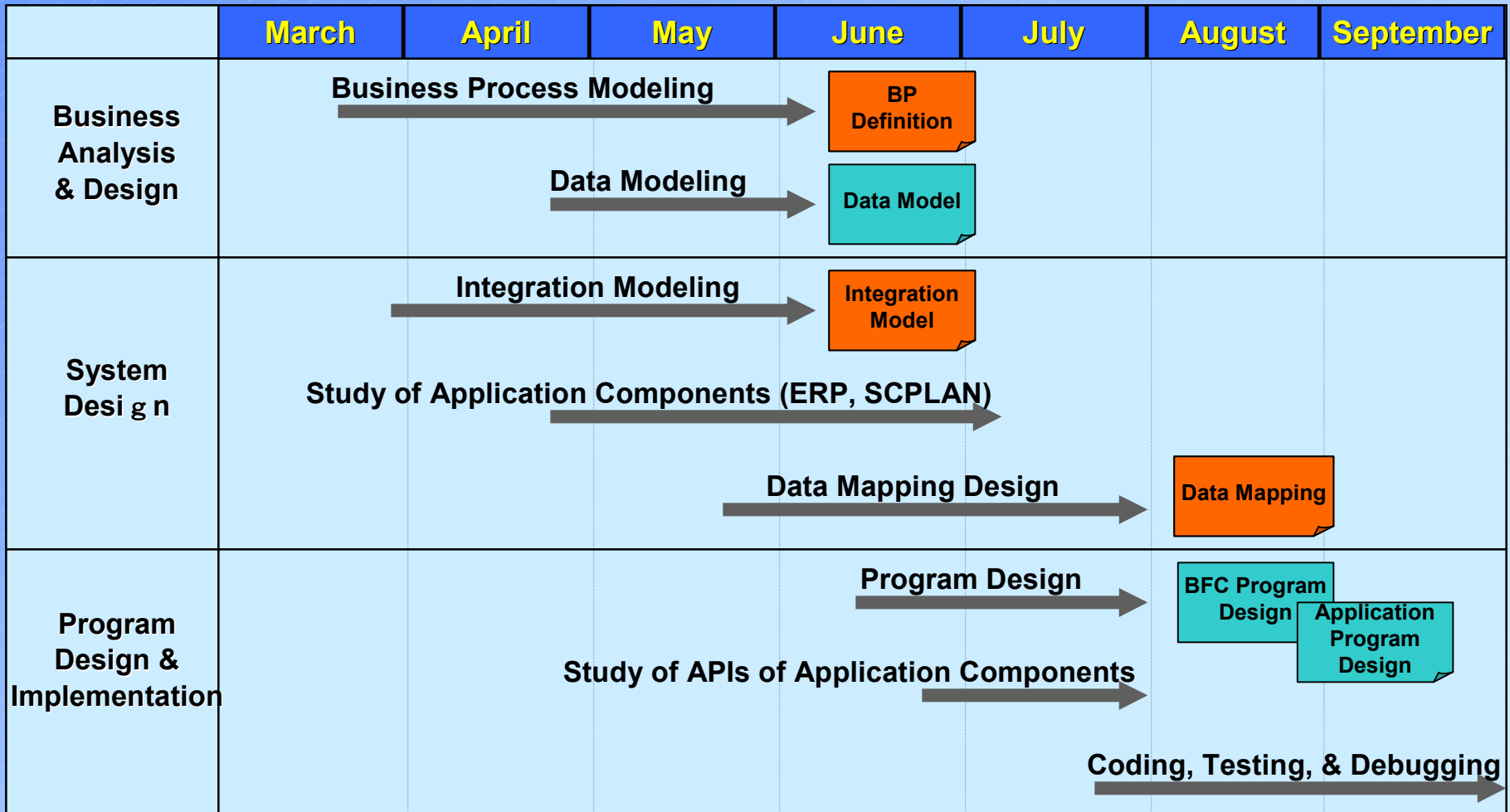


A Case Study - BPI application for SCM

Supply Chain Management (SCM) System for Acquisition Process of Manufacturer

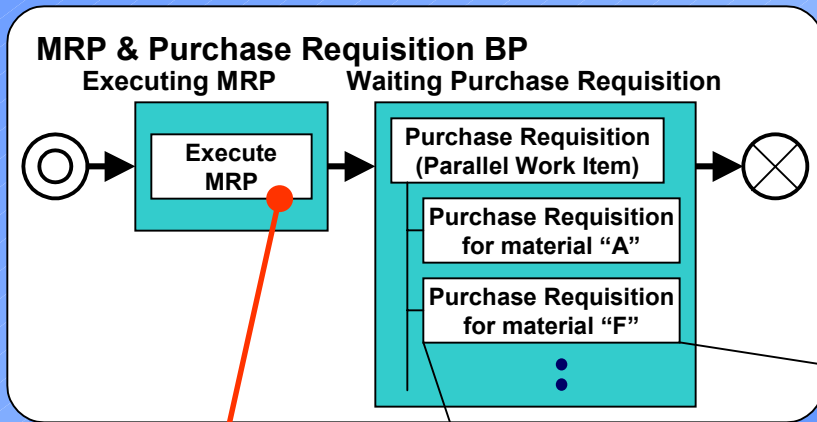


Integration Schedule and Outputs

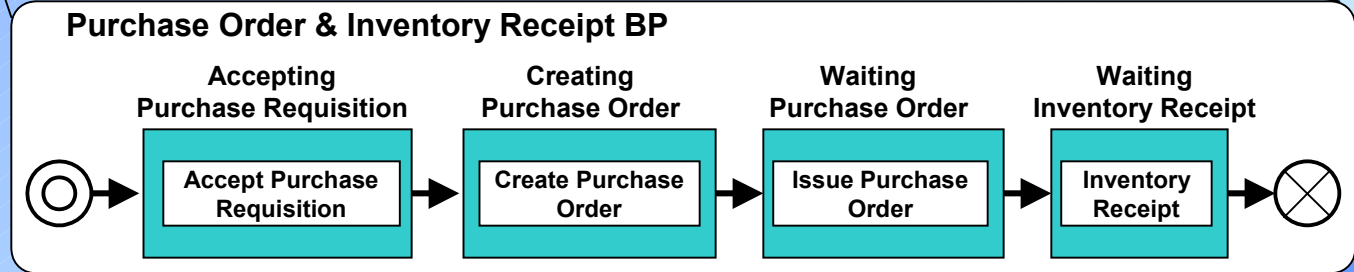


Examples of Design (1)

Business Level: Business Process Modeling



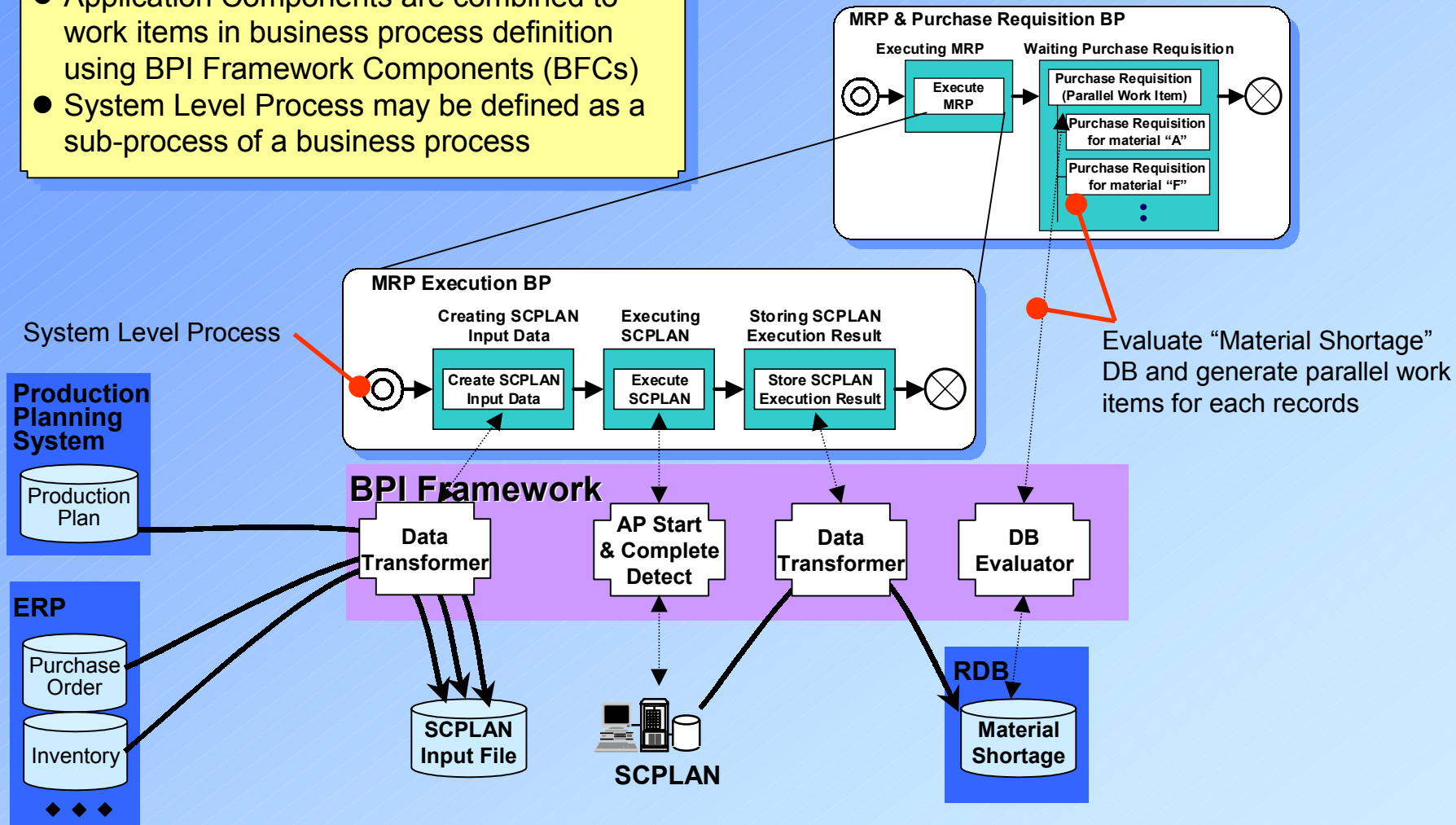
- Business processes and rules of processes are defined
- Application Components should be considered
- However, business process should not be designed closely dependent on the Application Components



Examples of Design (2)

System Level: Integration Modeling

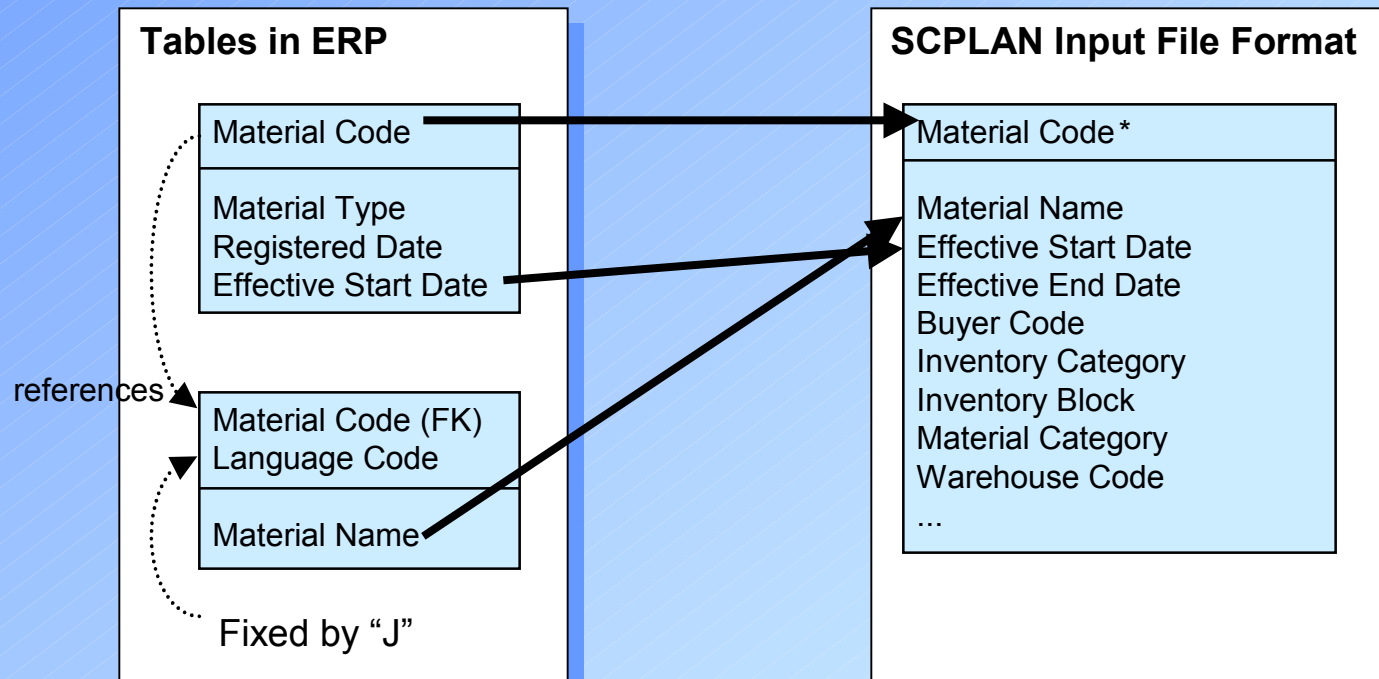
- Application Components are combined to work items in business process definition using BPI Framework Components (BFCs)
- System Level Process may be defined as a sub-process of a business process



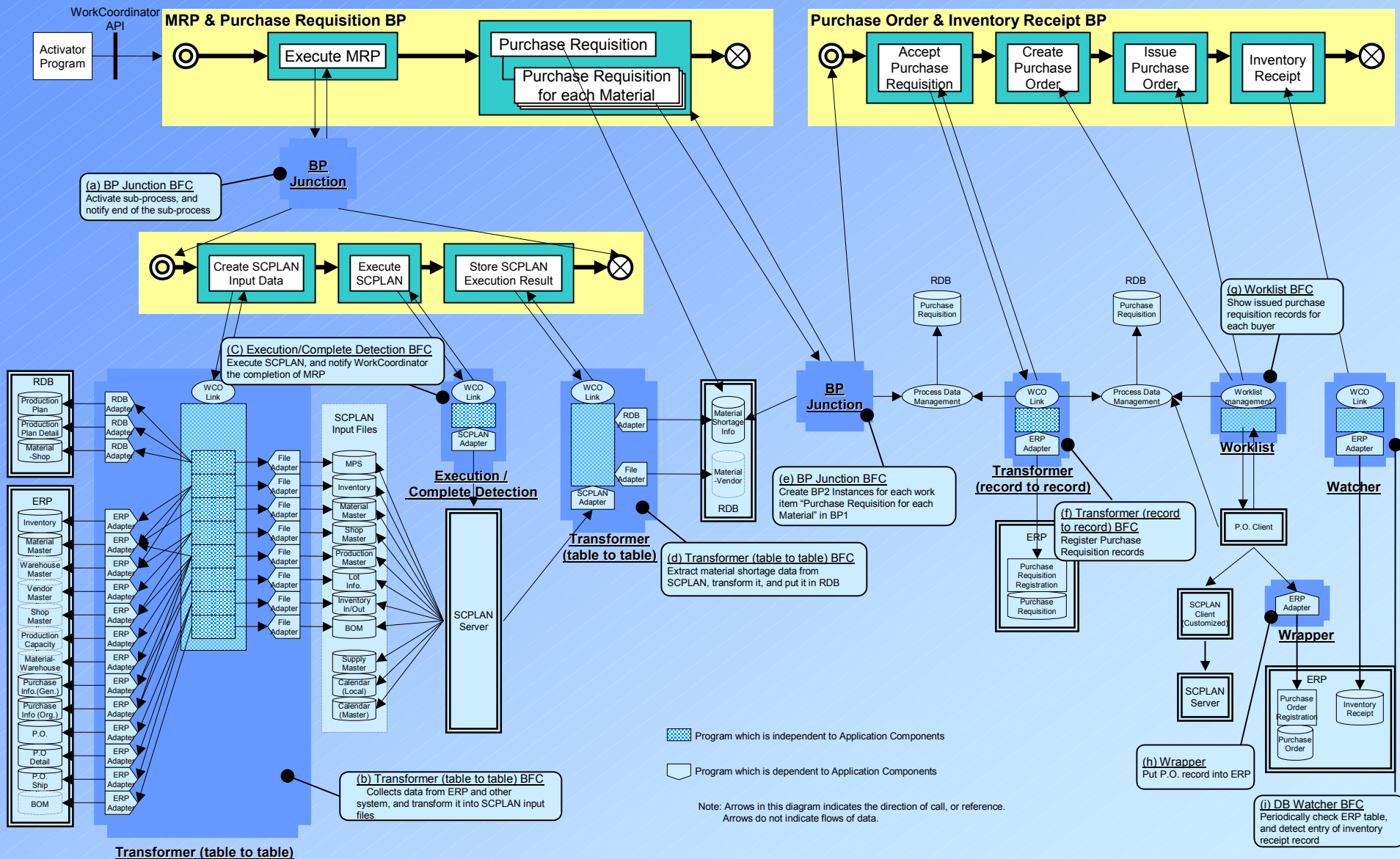
Examples of Design (3)

System Level: Data Mapping

- Data mapping rules between source and target Application Components are defined for each “Data Transformer” type BFC.
- Data Model developed at previous step makes this easier.



Overall Structure



Findings from the SCM Integration (1)

Types of BPI Framework Components

Execution / Complete Detection

Execute an application with parameters, detect completion, and notify the completion to the WorkCoordinator

Transformer (table to table)

Import data from multiple tables in source applications, transform the data, and put the data into target applications

Transformer (record to record)

Receive record data, transform the data and put the data into target application

BP Junction

Put process instance into a business process with passing parameters, and watch the status of the business process (e.g. completion of the process)

DB Watcher

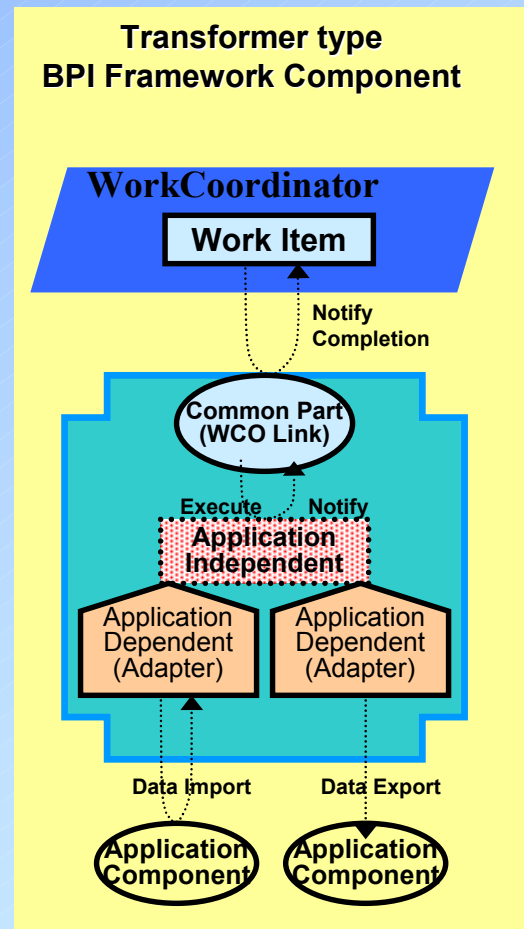
Check data in an application periodically, and notify the result to the WorkCoordinator when predefined condition occurs in the data

DB Evaluator

Check data in an application once, and notify the result to the WorkCoordinator

Worklist

Provide list of work items for each users, and activate appropriate application when the user select a work item on the list.



Findings from the SCM Integration (2)

Reusability of design and program

Cost for the integration/development (Human.Month)

	Scrap & build (estimated)	BPI without reusable templates	Generic part of BPI	BPI with templates (estimated)	
Business Analysis & Design	4	4 <ul style="list-style-type: none"> • Business Template (3) • Detail Design (1) 	3 <ul style="list-style-type: none"> • Business Template 	1	27.2%
System Design	12	12 <ul style="list-style-type: none"> • Integration Template (9) • Application dependent (3) 	9 <ul style="list-style-type: none"> • Integration Template 	3	
Program Design & Implementation	16 <ul style="list-style-type: none"> • Application program (10) • SCPLAN Integration (6) 	12 <ul style="list-style-type: none"> • Application program (2) • BPI Framework Component Generic (7.3) Customer dependent (2.7) 	7.3 <ul style="list-style-type: none"> • Generic part of BPI Framework Component 	4.7	64.7%
Total	32	28	19.3	8.7	87.5%

**Relative cost
using templates**

Our Challenges

Methods and Procedures

- Procedures for BPI
- BP Design for Integration
- Enhancement of BFC Model

BPI Methodology

Tools & Products

- Enhancement of WorkCoordinator
- BPI Design Support Tool
- BFC Toolkit

Application & Evaluation

- Template Development for Business Domains (SCM, CRM, ...)
- Application for Customer's Business System