

Development and Experimental Proof of Interworkflow Management System

Member:

Kanagawa Institute of Technology
Hitachi, Ltd.

TOSHIBA CORPORATION

Japan SIG, WfMC

Non-Member:

ARK Information Systems Inc.
NTT Software Corporation
Keio University

Today's Main Report

✧ I'd like to report :

- ◆ Development of Interworkflow Management System
 - This system is connected with two workflow products: Groupmax and InConcert
 - Inerworkflow management system is support technology of inter-operation among different WFMSs
- ◆ Report of Experimental Proof of Interworkflow Management System

Background

✧ Interworkflow Application Model: Tokyo Meeting (Feb. 1997)

The Design of Cross-Organizational Workflow Processes and Distributed Operations Management. WFMC-TC-2102

✧ JSA demonstrated an Interworkflow support system based on a prototype: Berlin Meeting (Feb. 1998)

✧ Our Proposal was Accepted: Vienna Meeting (Jan. 1999)

◆ “Development and Experimental proof of Interworkflow Management System”

◆ Information-technology Promotion Agency (IPA)
-- An extra-departmental body of MITI --

Project Partners:

Member

Kanagawa Institute of Technology

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Japan SIG, WfMC

Non-Member

Ark Information Inc.

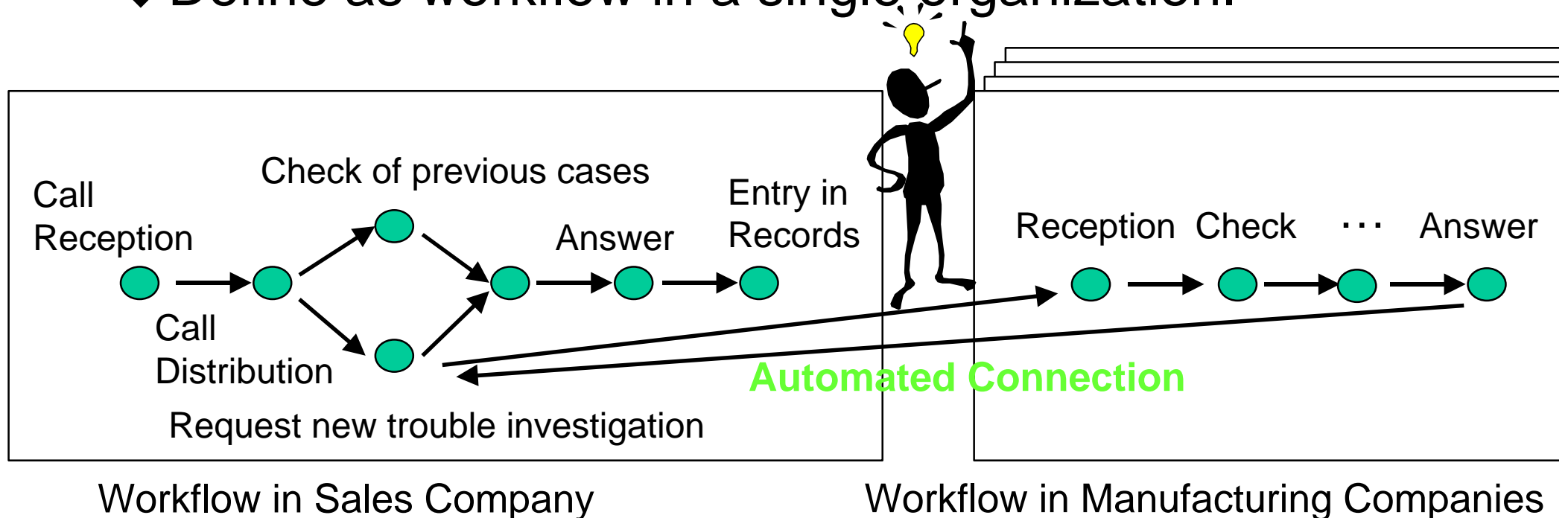
NTT Software Corporation

Keio University

Interworkflow Support Technologies

✧ Technologies for automating business processes across organizations (companies or divisions)

- ◆ Operate as workflow in a single organization.
- ◆ Define as workflow in a single organization.



Feature of Interworkflow

✧ Support of business process among multiple organizations

◆ Integration of business process among enterprises

◆ Business-to-Business E-commerce(B2B EC)

✧ Managing both Cooperation and Autonomy

◆ Linking Interface is decided strictly by discussion among organizations

On the contrary,

◆ Internal process in each organization is added by its own decision and is not open to the other organization

◆ Each organization uses particular information technology and machine

← *Issu2 ---- Support of Description*

← *Isse1 ---- Standardization*

Approach of Proposal Technology

✧ Definition of hierarchical business process

<Core of Proposal Technology>

- ◆ **Linking Interface** : Description by **Interworkflow Definition Tool**
 - ◆ Describe it by **Interworkflow Definition Tool** and each organization confirm it.
 - ◆ Convert to the process definition data in each organization by **Translator** and distribute it to each organization. We say process definition data **Skeleton**.
- ◆ **Internal process** : Each Organization adds and edits internal processing by process definition tool of WFMS in organization.

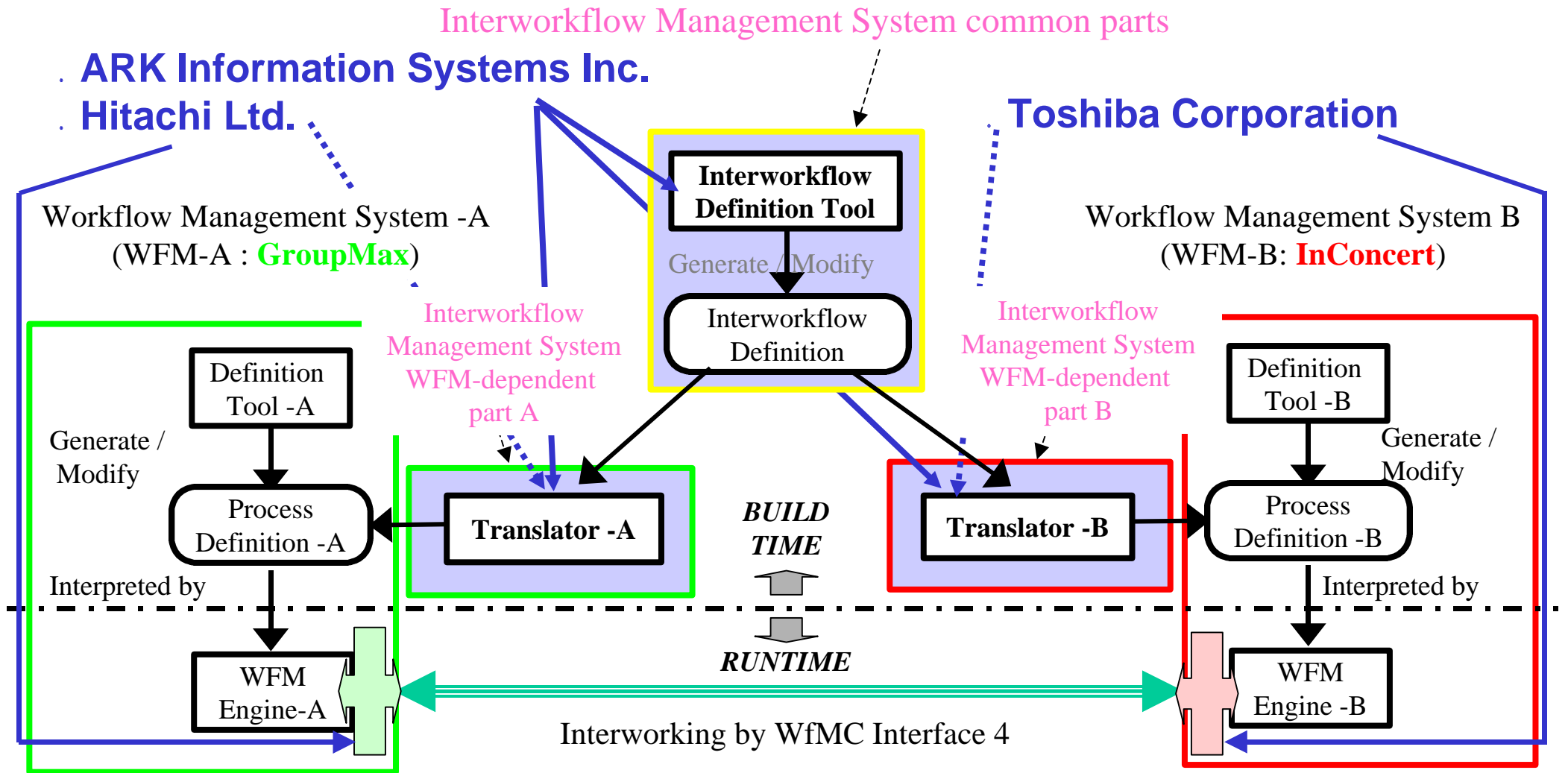
Issue2 ---- Support of Description

✧ Interoperability of different WFMS

<Result of Standardization>

Issue1 ---- Standardization

Configuration and Share



NTT Software Corporation : Experimental Proof

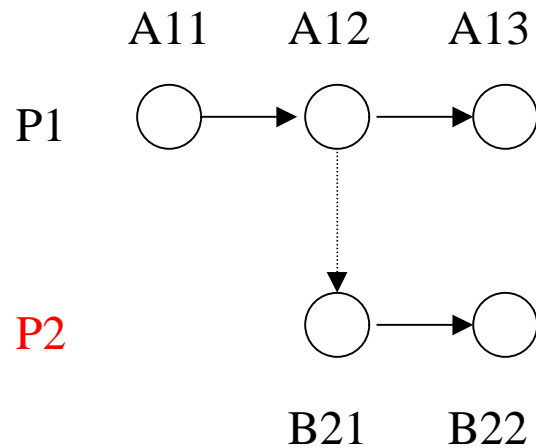
Special Feature of Interworkflow Definition Tool

- ✧ Table of **Interworkflow Resource Data**. --- Resource Editor
 - ◆ Interworkflow Resource Data:
Company Name, Organization Name, Participant Name,
E-Mail Address
 - ◆ Interworkflow Resource Data is registered and used by Uni-Table.
 - ◆ Interworkflow Resource Data become consistently.

- ✧ Description of **Interworkflow Process Definition Data**
--- Process Editor
 - ◆ Interworkflow Process Definition Data is that only linking interface that can be open to other organization is defined on one place.

Interworkflow Definition Tool

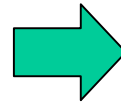
Definition by GUI of *Process Editor*



Definition by *Resource Editor* Interworkflow Resource Table

SourceNodeID	**
TargetNodeID	**
[TargetUserID]	**

ProcessDefinitionID **P2**
Profile chain

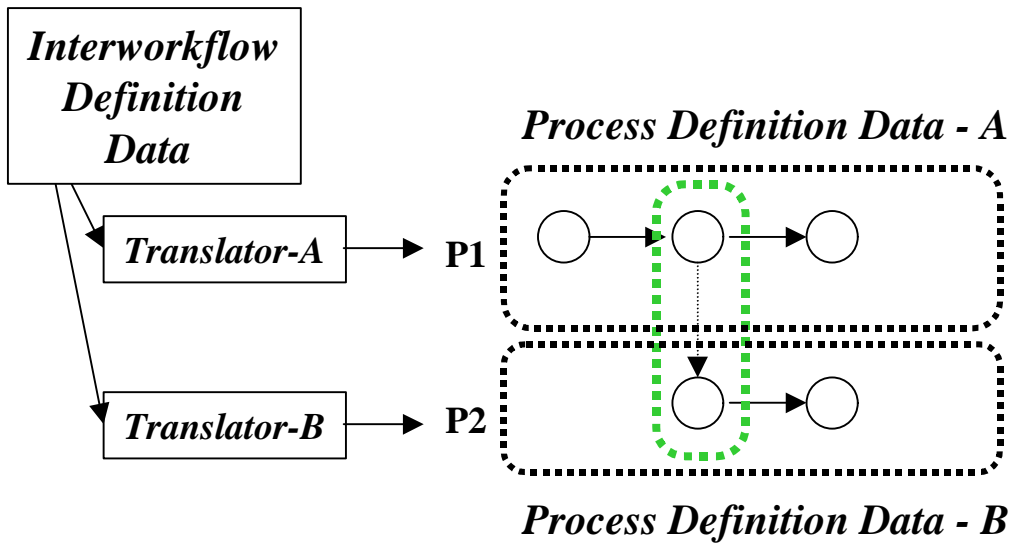


Interworkflow Definition Data

```
process P1 def {  
    interact P2 : INSTANCE;  
}  
process P2 def {  
    interact P1 : CREATOR;  
}  
  
process P1 body {  
    act [A11];  
    new P2;  
    act [A13]  
}  
  
process P2 body {  
    act [B21]  
    act [B22]  
}
```

Interworkflow Process Data

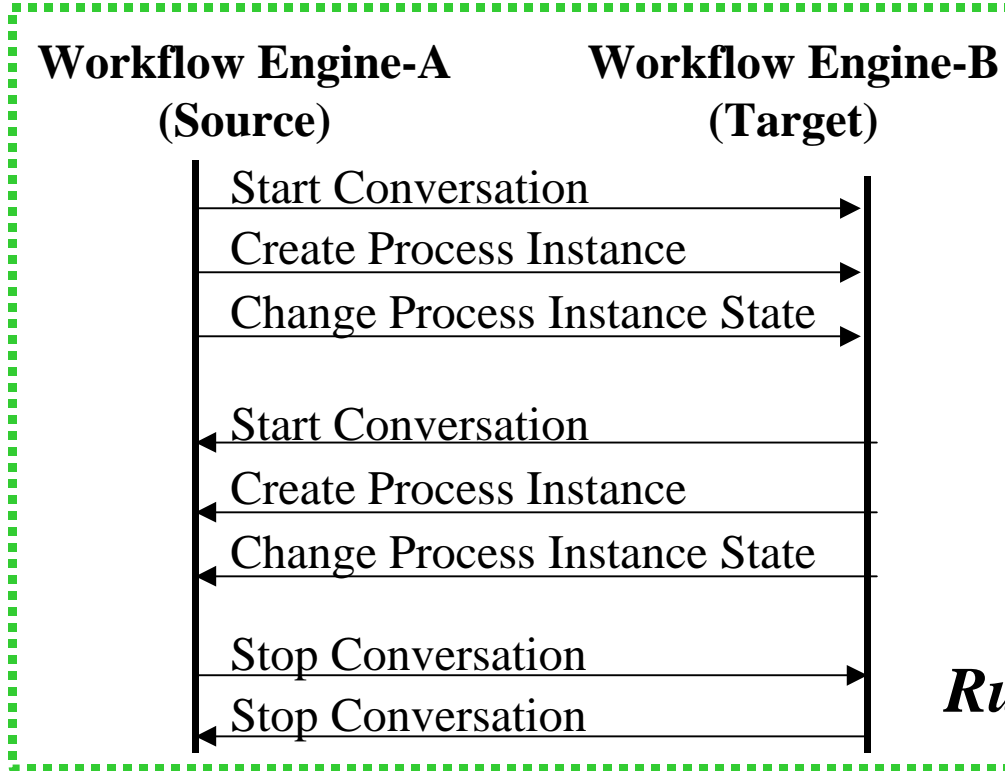
Interworkflow Resource Data



Start Conversation
Req.F. **ContractID**
SourceNodeID

Create Process Instance
Req.F. **ProcessDefinitionID**
Profile
[**SourceBDefName**]
[**TargetUserID**]

Change Process Instance State
Req.F. [**TargetUserID**]



Start Conversation
Res.F. **TargetNodeID**

Create Process Instance
Res.F. [**TargetBDefName**]

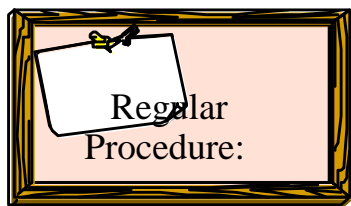
Change Process Instance State

Image of Procedure for Proposed Technology

Organizations to be linked decide the linking interface



Description of Interworkflow Definition



Interworkflow definitions

Workflows are implemented in each organization

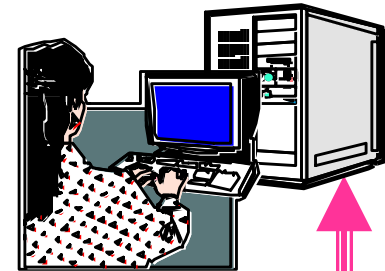


Semi-automatic conversion by translator + Contract ID + addition of internal work procedures in each organization



Process Definition Data

Work is carried out and managed



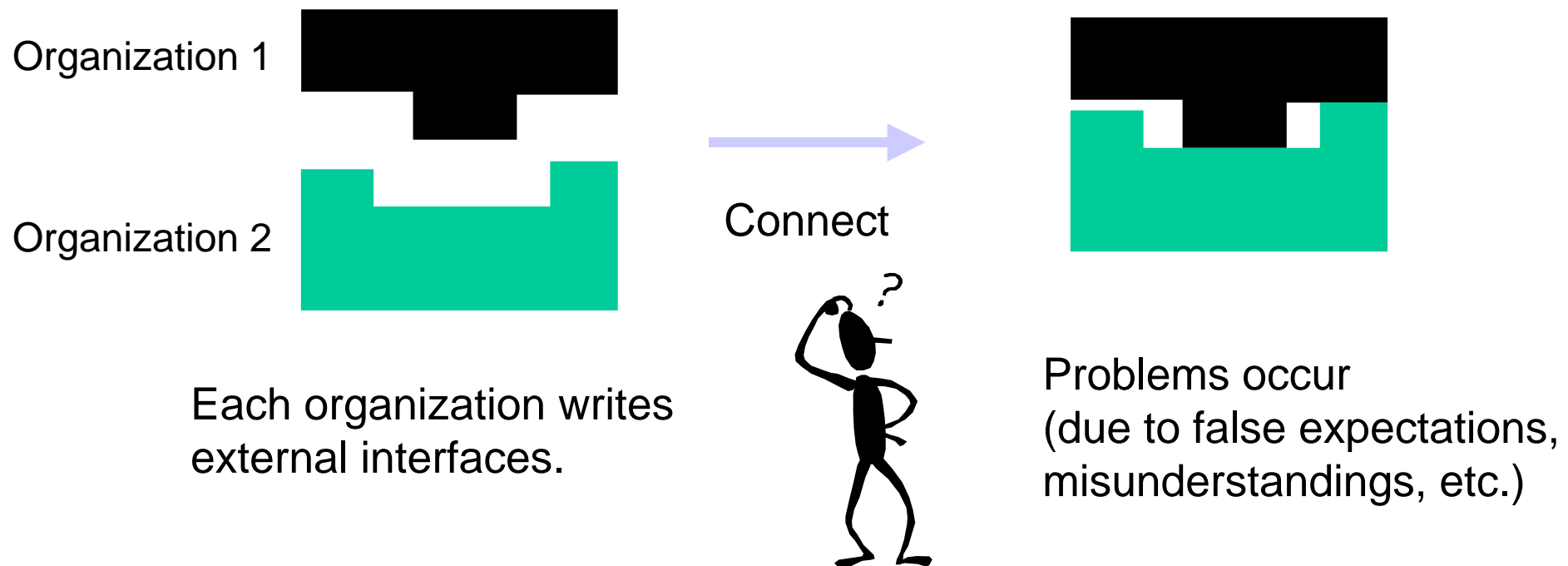
Operation of Interworkflow in inter-operating different WMS

WfMC Interface 4



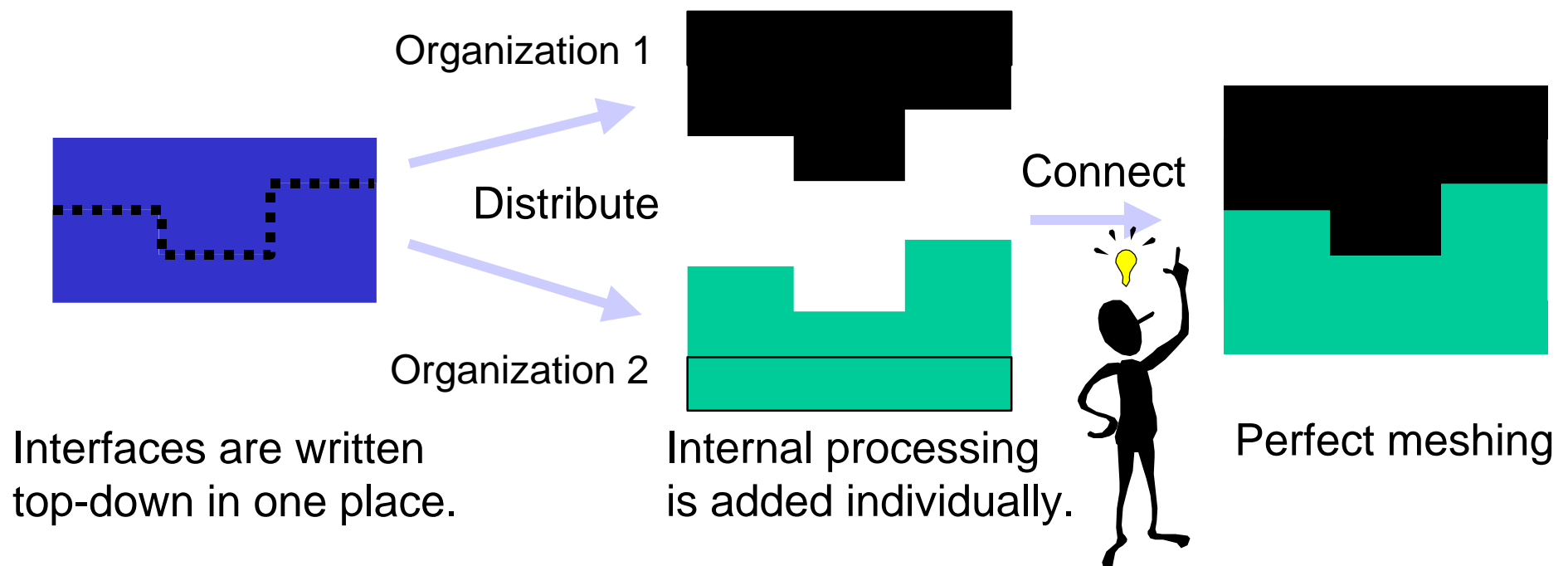
Without Interworkflow Definition Tool

- ✧ When each organization describes interworkflow separately,
- ✧ Problems frequently occur when systems are connected much time is spent on testing, and
- ✧ very large-scale linking interface may become unmanageable.



With Interworkflow Definition Tool

- ✧ Define interworkflow interfaces and distribute them to each organization.
- ✧ Each organization adds descriptions
- ✧ for its own internal processing.



Demonstration(1)

✧ The Nested Type(Two Organizations)

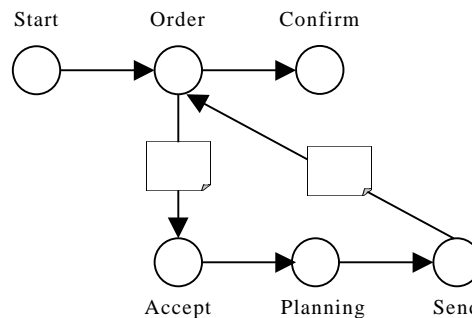
- ◆ Interworkflow Resource Data Definition by **Resource Editor**
- ◆ Interworkflow Process Definition by **Process Editor**
- ◆ Conversion by **Translator**
- ◆ Internal Process Definition in **Each WFMS Definition Tool**
- ◆ Operation in **Each WFMS Engine**(GroupMax & InConcert)



Org_1
Manufacture



Org_2
Transport



Demonstration (2)

✧ The Nested Type(Three Organizations)

- ◆ Interworkflow Resource Data Definition by **Resource Editor**
- ◆ Interworkflow Process Definition by **Process Editor**
- ◆ Conversion by **Translator**



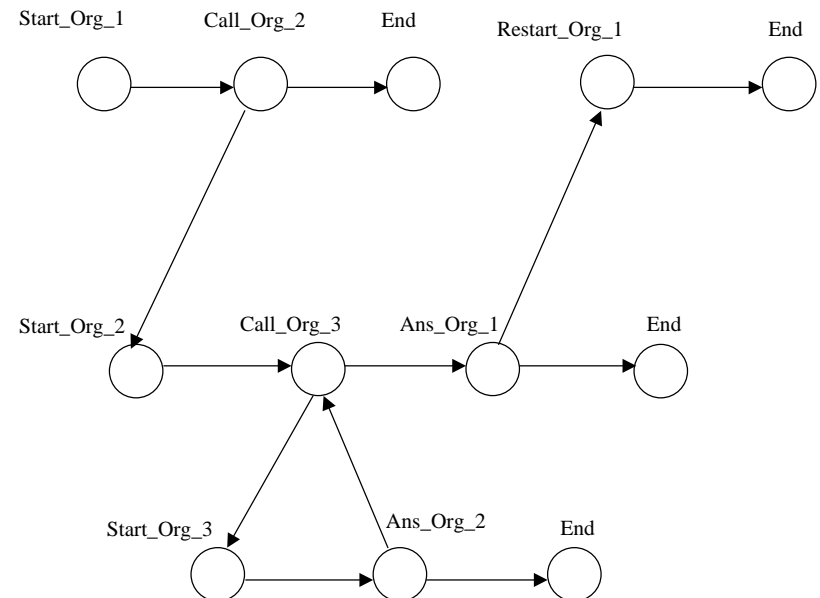
Org_1



Org_2



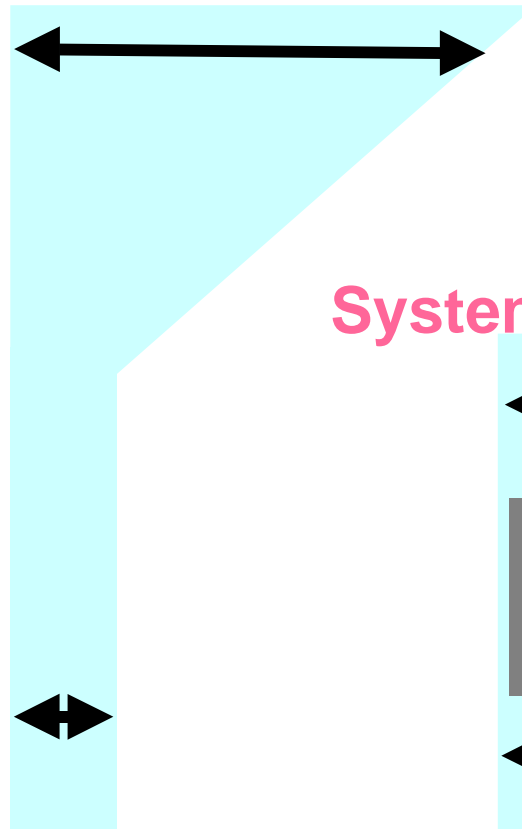
Org_3



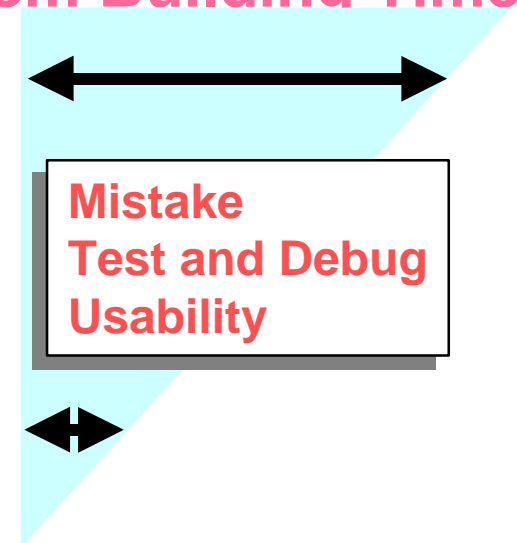
Experimental Proof

- **Individual Workflow**
- **Interconnection of Workflow**
 - **Individual definition**
- **Interconnection of Workflow**
 - **Interworkflow definition**

Execution Time of Operation

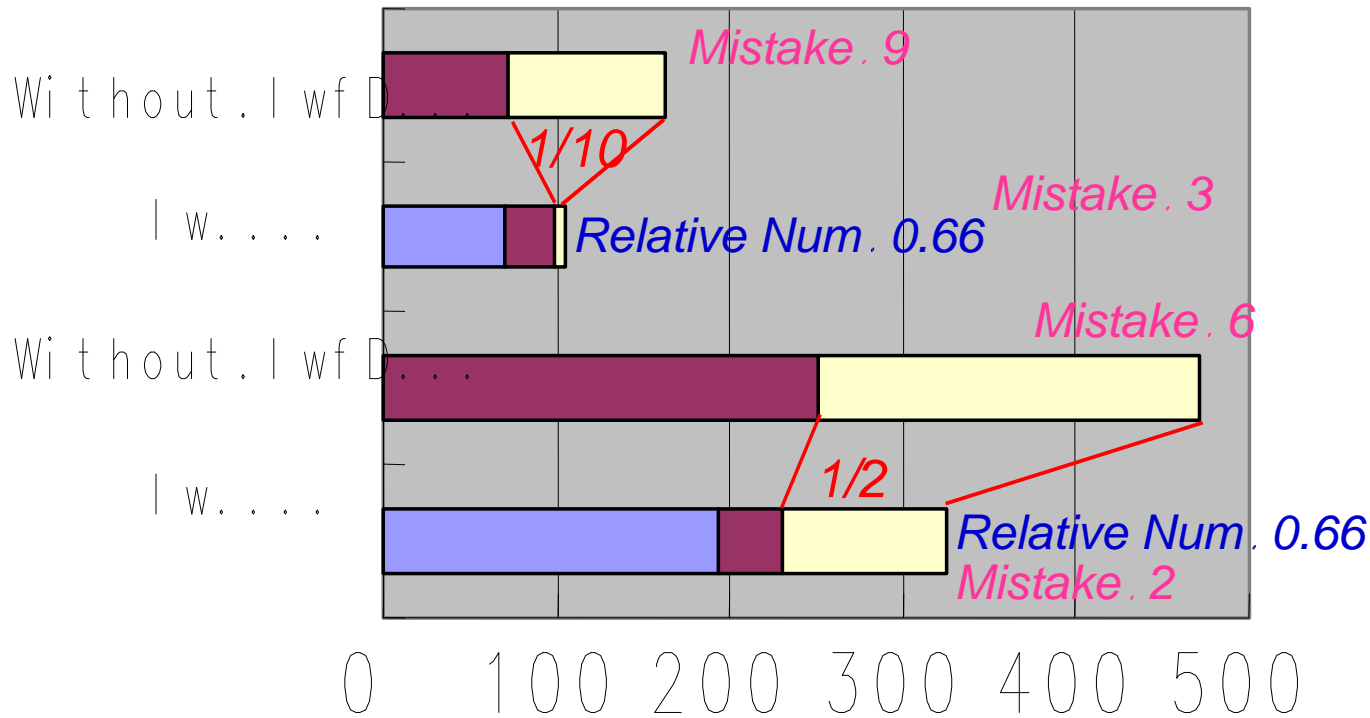


System Building Time



Report of Experimental Proof

Condition



Condition
IwfD. Iwf Definition Tool
(n). Number of organization

Time
■ Interworkflow. Defin
■ Individual. Definiti
■ Test. and. debug

Time. Min.)

Number of Mistake. 1/3
Time of Debug. 1/10. . /2
Building Time: 0.6. 0.7

Expectation

- ✧ Examinee reported that usability is not good.
 - ◆ System is not modified yet, because of first challenge.

If usability will be better,

- ◆ Time of Definition will decrease,
 - ◆ System building time will decrease, more.
- ✧ We think that the goal of Interworkflow Definition Tool will achieve.

Summary

- ✧ Development of Interworkflow Management System connected with two workflow products
- ✧ Report of experimental proof of our project

Thank you for your attention

Actual Demonstration will be held back side, Please see it!!