

JAMA

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JAMA STEP
 Association of
 Japanese Automobile Manufacturers
 Association

JAMA STEP JWG
 Takamasu Hanaka
 Nissan Motor Co., Ltd

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background of our activities

- current business environment is being shaped by
 - automotive industry is being shaped by
 - globalization
 - concurrent engineering approaches
 - shared suppliers among OEMs
 - partnership between companies
 -

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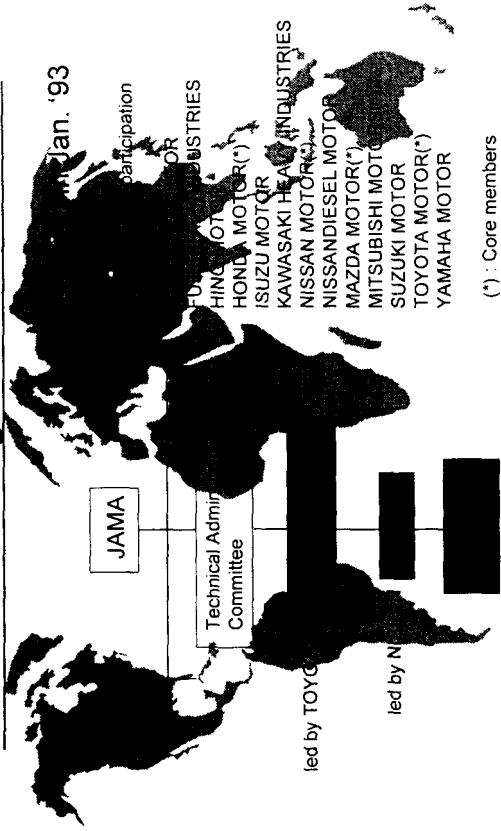
international

current trend on data exchange in automotive industry

rapidly growing number of participants
 exchange amount of data increases year by year

- ◆ new requirements from surface model, drawing to solid product structure, design interface in the future

STEP related organization in JAMA



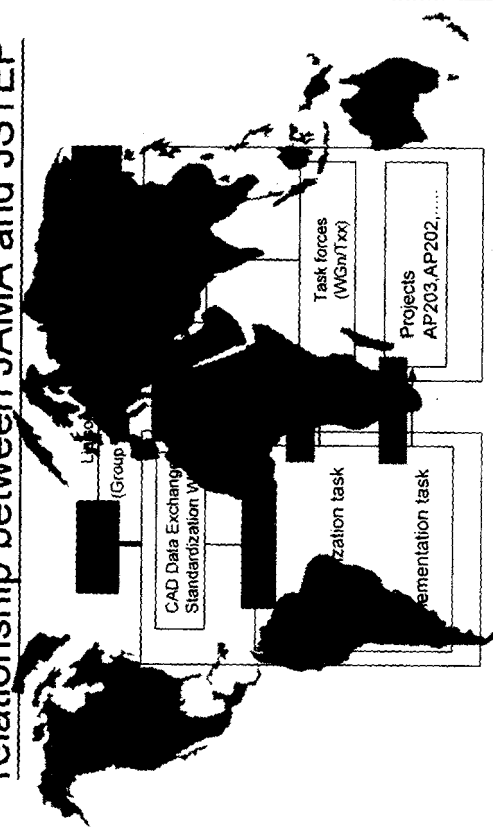
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Current activities for STEP



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relationship between JAMA and JSTEP





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AP214

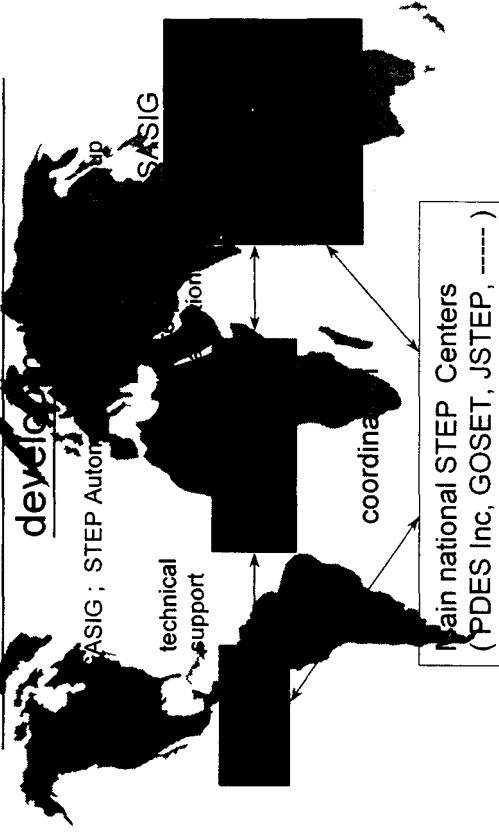
14 (Application for automotive processes)

◆ schedule

- 1997 : developme started
- 1998 : D1 ballot
- 1999 : CD2 ballot
- 1999 : DIS ballot
- 1999 : FDIS ballot, IS registration

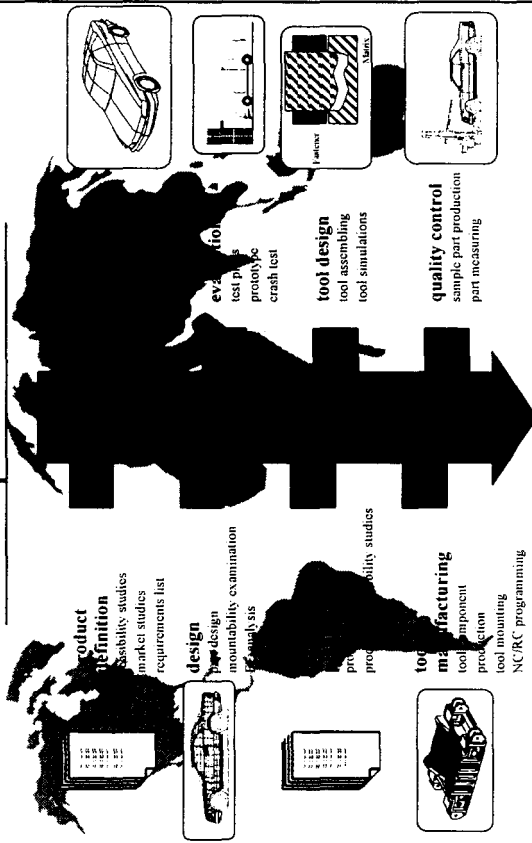
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international cooperation for AP214




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AP214 process chain



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STEP implementation




2003 CC2 (Shanghai) data exchange system

- ◆ AP203 6 (evaluation and evaluation)
- ◆ AP204 implementation (pilot) and evaluation

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JAMA's contribution to AP214 development



JAMA has taken part in the development of AP214 specification since 2003. JAMA provides user's requirements and validates AP214. JAMA takes part in technical discussions, workshops and IS meeting.

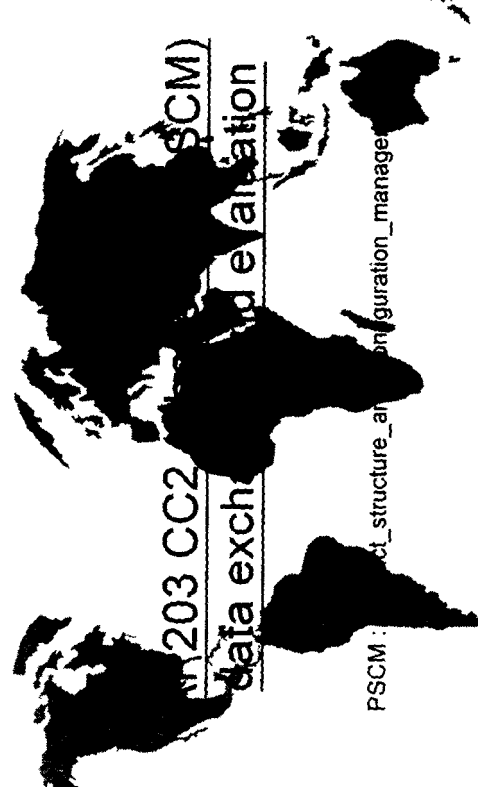
- has attended 214 technical workshops in Japan
- submit over 300 of issues and many of them have been incorporated

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AP203 CC2

data exchange and evaluation

PSCM: ..._structure_and_..._configuration_manager



Shape with PSCM data exchange JAMA

and evaluation


Purpose

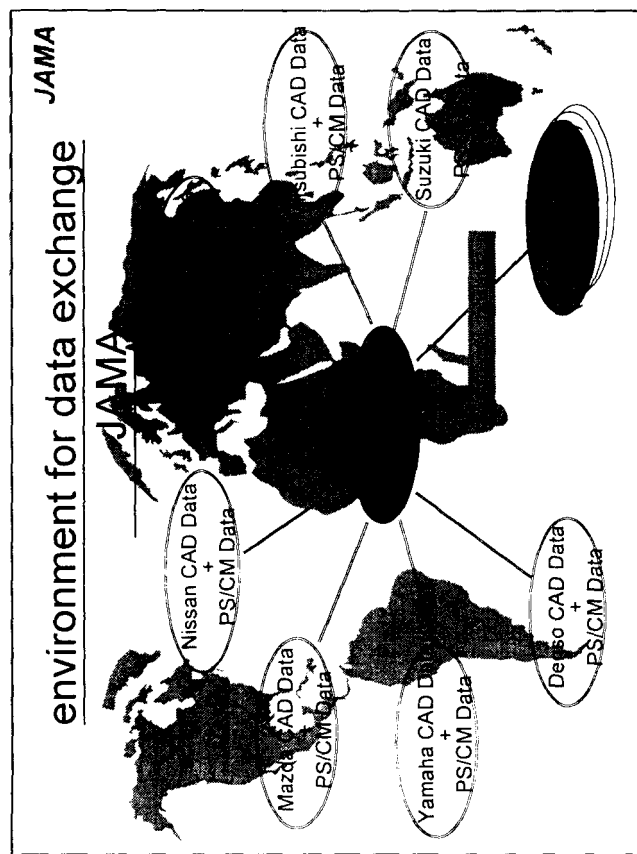
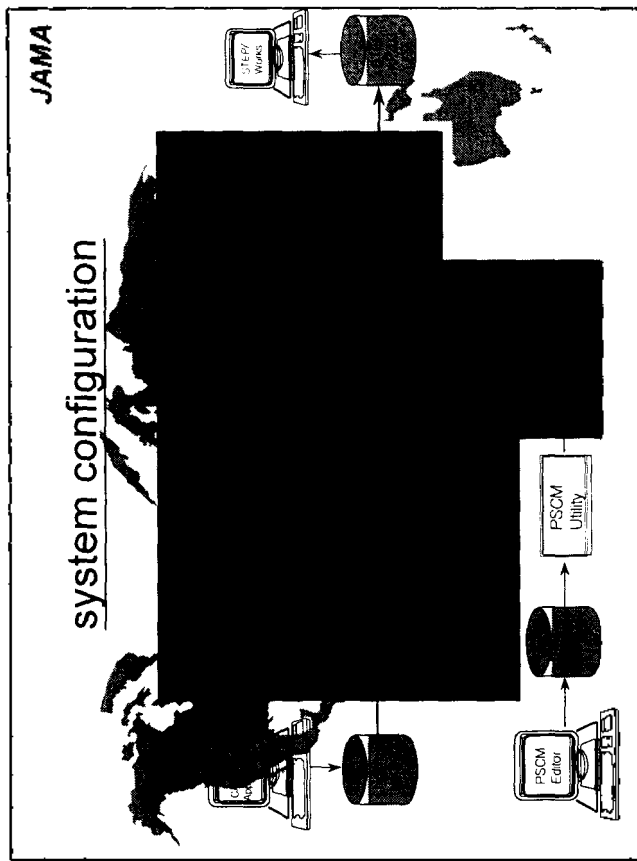
utilize data exchange at practical level

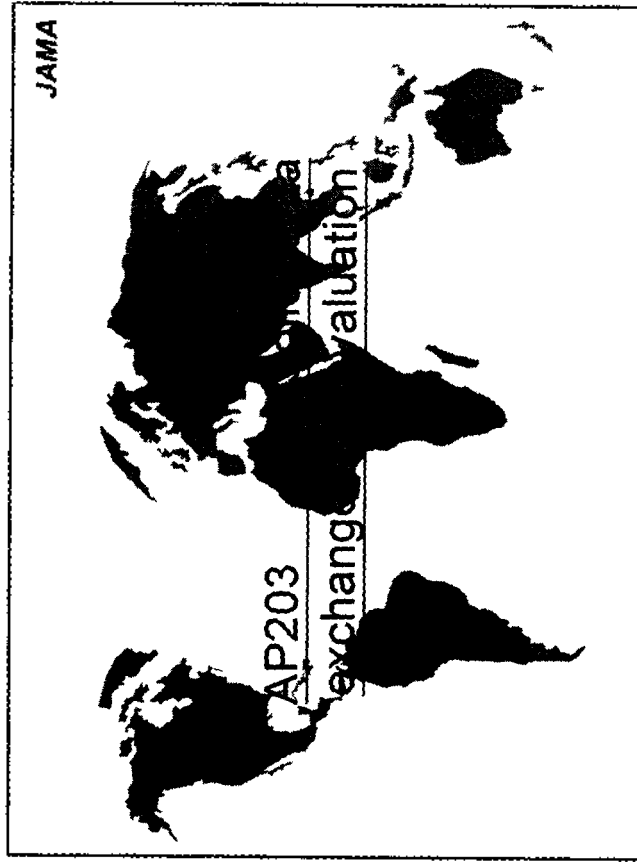
contribute to verification by conducting data exchange experiment

♦ area of implementation

- development of on proprietary systems of JAMA members
- PSCM data ; as CC1
- Shape data ; as CC2







JAMA PSCM editor (for processing CC1)

File Create Reports View Help

Part Information

1	111000-A	Sub-assembly 2
2	111000-1	Assembly base
3	111000-2	Sub-assembly 1
4	111000-3	Sub-assembly 2
5	111000-101	Assembly base
6	111000-1	Sub-assembly 1
7	111000-A	Sub-assembly 2

ECI Information

111000-A	Sub-assembly 2
111000-1	Assembly base
111000-2	Sub-assembly 1
111000-3	Sub-assembly 2
111000-101	Assembly base
111000-1	Sub-assembly 1
111000-A	Sub-assembly 2

Assembly Tree

```

111000-A
├── 111000-1
│   ├── 111000-2
│   └── 111000-3
└── 111000-101
    └── 111000-1
        └── 111000-A
            └── 111000-2
    
```

Tree Control

Production

Design New File

Export File

Back Assembly With Quantity

New Assembly

Product Definition In Assembly

Production Change

File Relationship View

Summary

Help

Log Settings

solid data exchange and evaluation

purpose

- realize solid data exchange systems
- start practice from '98
- ◆ evaluation of AP20 and C6 translators
- CATIA, I-DEAS, Digraphics, CADCEUS

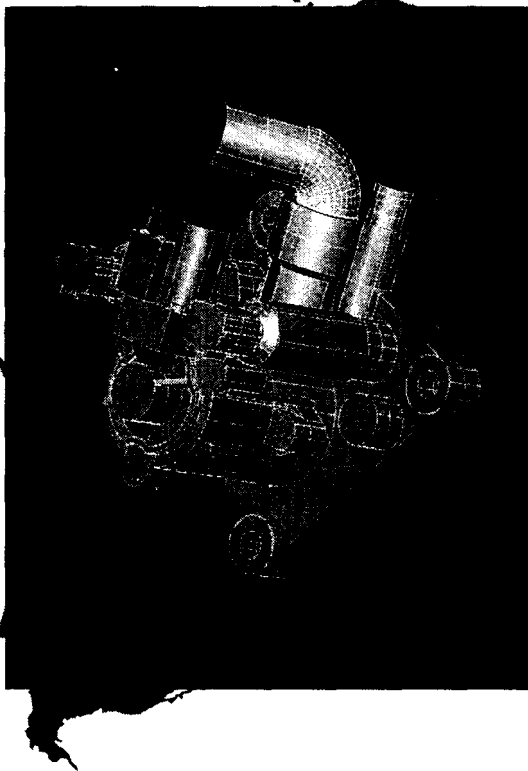
rating scale

- 1) no and post process elements transferred (<90%)
- 2) no solid, some elements transferred (> 90%)
- 3) no solid, but transferred surface model
- 4) all solid transferred, solid operation implemented on receiving system
- 5) all solid transferred, full volume and surface area, solid operation possible on receiving system

* based on ISAP rating scale

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example 1 (sending)



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results of data exchange

to	from	data name	#1	UG	CADCEUS
		AAC valve	5	5	3
		cover head	5	5	2
		press die	5	5	2
		governor cover	5	5	2
		door handle	5	0	2
		coat hanger	5	0	2
		manifold	5	4	0
		fork 1	5	5	5
		fork 2	5	5	5
		duct	2	2	5
		servo tank	2	2	5
		brake booth	2	3	2
		reservoir master	2	2	5
		in-manifold	2	0	2

example 3



summary (interim results)

cases : 72

combinational

ected problems

causes of prob


- translator functions, violations
- to a specification
- accuracy of geometrical entities, large
- amount of entities, discontinuity of patches/s
- specification difference between sending and receiving system

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solutions

improvement of traditional
 logical rules on
 support-tool for diagnosis
 rule valuator


- ♦ tax, local and global rules
- to check
- geometry_accuracy checker
 - ♦ search for tiny entities
 - ♦ search for gaps among entities
 - ♦ check for entity proximity



geometry accuracy/topology checker

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results of diagnosis



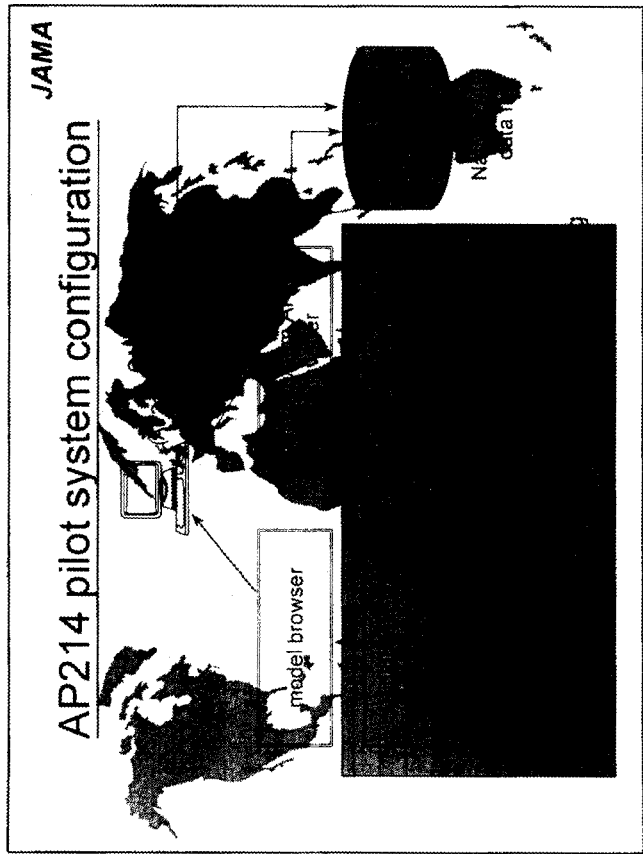


AP214 implementation and

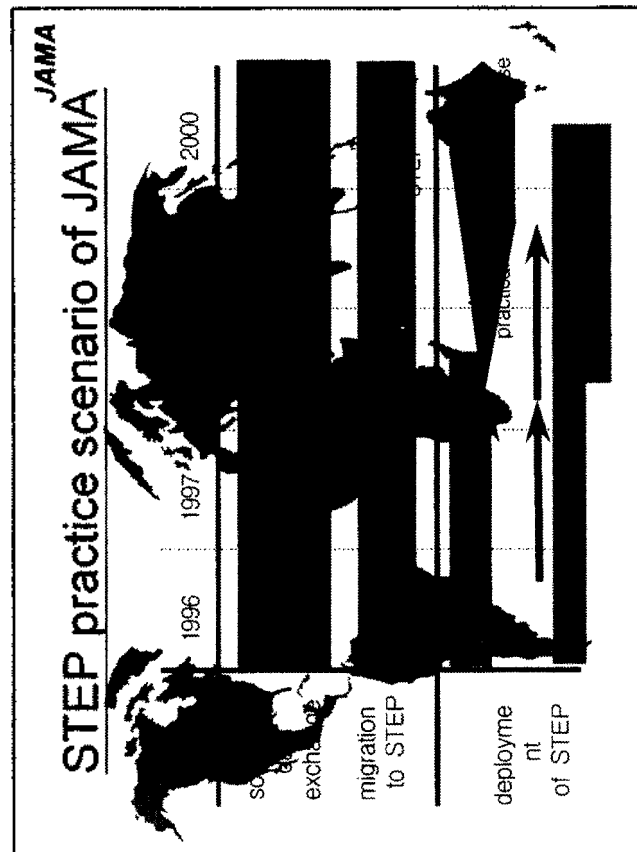
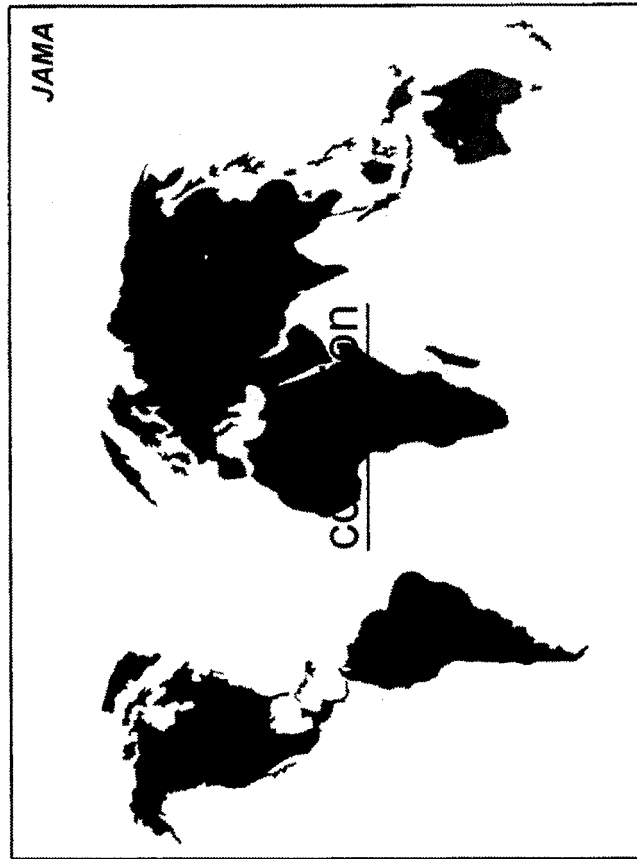
AP214 pilot system



- evaluate effectiveness of DAI
- evaluate effectiveness of data sharing
- evaluate environment for implementation from
- validate AP214 specification as implemented
- ◆ area of implementation
 - product management_data, assembly, geometry, presentation, form_feature, surface_condition, tolerance



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- ### HDAI functions
- manipulation of application objects
- ◆ functions
 - connect : ex. start session, create SDAI model
 - create : ex. createCircle
 - read : ex. readCircle
 - query : ex. get all items versions under an item
 - delete : ex. deleteCircle
 - update : ex. updateCircle



action items (4)



continuous support for AP214

WAP214 IS-re

◆ acquire STEP implementation

techniques through pilot development

◆ step-wise implementation of AP214

processor toward practical use

action items (2)



operation for STEP

prepare translators and

create practical data exchange

◆ international coordination and

cooperation in order to accelerate both

AP214 development and STEP practical

