

SEAJ "e" Business Model Study

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Understanding of EES by Equipment Manufacturers

Study Report on successful realization of EES in developing and continuing Win/Win scheme

Interim Report

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July 26, 2002

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1. EES Activities of SEAJ

	EES Business Issue Study
JEITA (Selete)	Establish Business Model in which Device Manufactures and Equipment Suppliers are both profitable.
	 Entrusts and Reports
SEAJ	Developing USAD with JEITA on Business Model in which Equipment Suppliers improve profitability.

1. EES Activities of SEAJ

Members of EES Committee

	JEITA		SEAJ	
Leader	Michio Honma	NEC	Yasutsugu Usami	Hitachi High-Technologies
Sub Leader	Giichi Inoue	Toshiba	Seiichi Nakazawa Shuichi Kono Kunio Ohishi	Fuji Research Institute Canon Ebara
Member	Shigeru Kobayashi Koji Kitajima Takao Katsuyama	Selete Toshiba NEC	Tatsuji Ohtai Takeshi Kawada Masahito Sawadaishi Toshiaki Sumitani Teruo Wajima Isao Kawata Hideo Ohta Junko Hirose Akihiko Endo Masami Suzuki Akio Umezawa Taro Matsuura Shinichi Yamamoto Akira Honryou Toshiyasu Okamoto Mikio Otani Kouji Ohyama Yuji Imai Yasutaka Horii Satoshi Morishige	Applied Materials Japan Applied Materials Japan Advantest Anelva Ebara Hitachi High-Technologies Hitachi Electronics Engineering Fuji Research Institute Tokyo Seimitsu Daifuku Ulvac Nikon Shibaura Dainippon Screen Mfg Murata Kikai Shinko Dainichi Shoji Nikon ITS Canon
Office	Tomoyuki Masui Masato Fujita	Selete Selete	Masashi Ikeda Tetsuji Shimizu	SEAJ SEAJ

2. Position of SEAJ

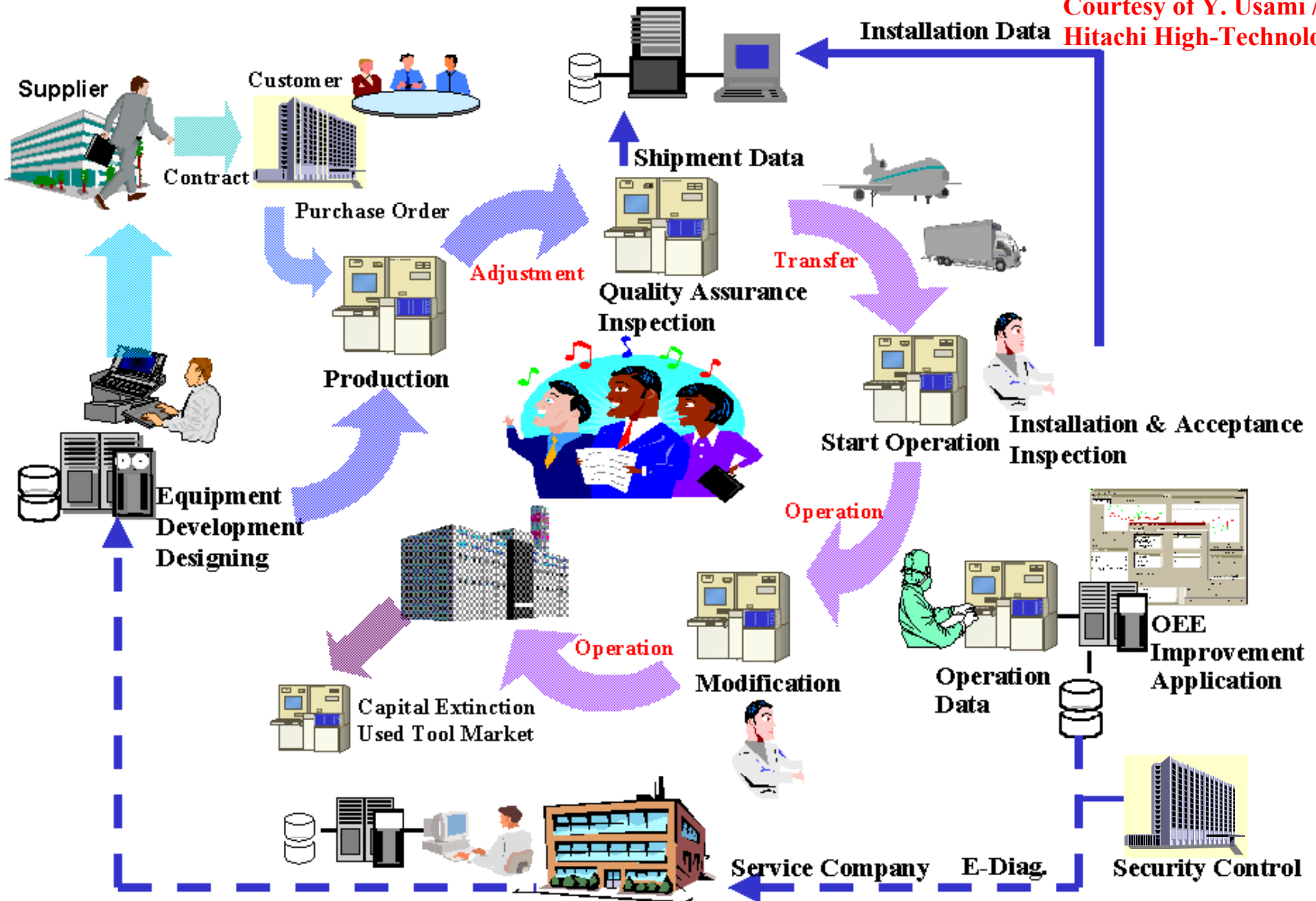
- **This is a study report on how the open architecture mentioned in EEC Guide Line is put into practice.**
- **SEAJ’s Stance**
 - **As Equipment Suppliers, SEAJ is studying a new job allotting scheme which will realize EES.**
 - **SEAJ is providing members with place to study.**
 - **SEAJ is preparing a set of subjects for discussion with Device Makers on EES implementation**
 - **Supplier’s benefit common to SEAJ members**
 - **Device Manufacturer’s benefit**

3. Methodology

- **Extraction of Issues from Member Companies**
- **Categorization of Issues**
 - **Lifecycle of Equipment**
 - **Service and Effectiveness**
 - **EES Development and Data Handling**
 - **Contract**
- **Questionnaire**
 - **Questionnaire was carried out on possible Services in EES**
- **Discussion on Service and Effectiveness**
 - **Matrix was made for Service and Effectiveness**
 - **Entities were categorized into 16 Services**

4. Life Cycle Model of Semiconductor Manufacturing Equipment

Courtesy of Y. Usami / Hitachi High-Technologies



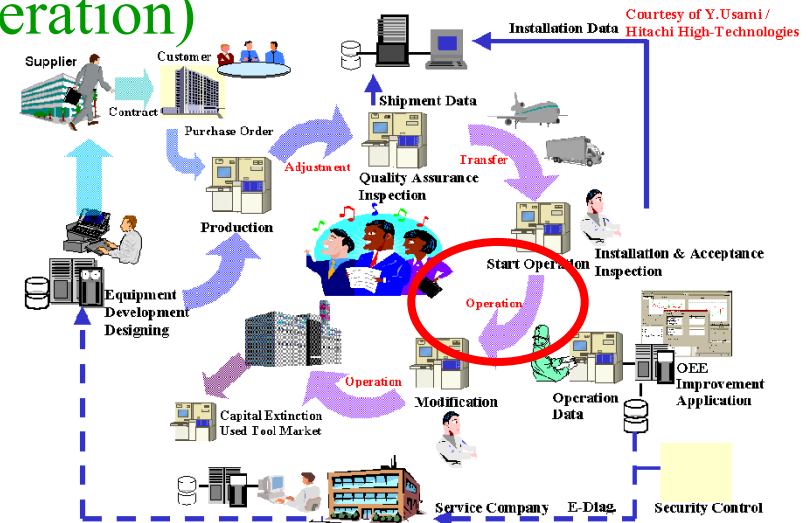
5. Open EE Capabilities being discussed (2)

• Process Performance Improvement and Maintaining Service (Operation)

- Reduce NPW
- Raise Yield
- Equipment Matching
- APC
- AEC, etc.

• e-Diagnostics Service (Operation)

- Alleviate Maintenance Work
- Improve Maintenance Personnel's Skill (e-Learning)
- Improve and Modify Equipment
- Improve Equipment Utilization, etc.



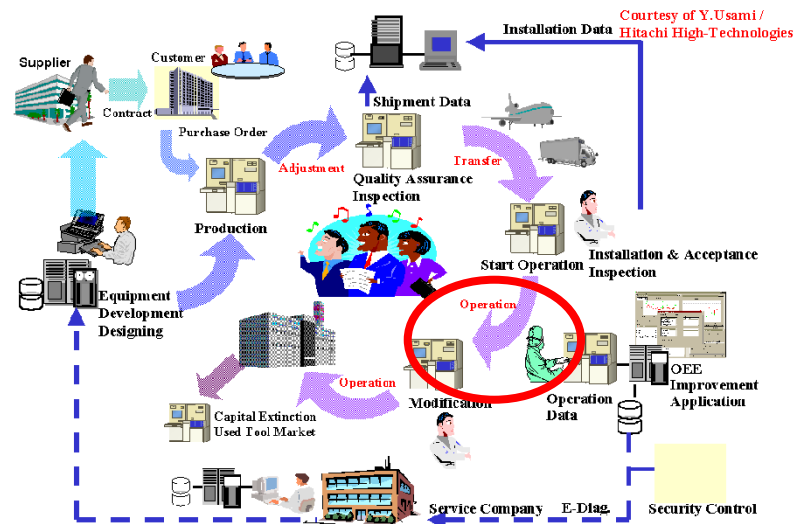
5. Open EE Capabilities being discussed (3)

- Preventive Maintenance Service (Operation)

- Improve MTBF
- Shorten MTTR
- Maintenance Planning Support, etc.

- Parts/Consumables Service (Operation)

- Parts/Consumables Inventory Control
- Replacement Timing Advisory Support, etc.



6. Case Study on the Realization of EES (1)

- Example of the Effectiveness of EE Capability
 - Case 1: Alleviate Maintenance Work

[Service Contents]

Equipment supplier can obtain sufficient EE Data to make accurate decision and advise maintenance personnel proper direction. This is especially needed in the case of equipment trouble.

[Gain expected for Equipment Supplier]

of service personnel can be reduced because unskilled personnel can do maintenance.

Training period for service personnel becomes short.

[Gain expected for Device Maker]

OEE improves owing to the shortened maintenance work.

of service personnel can be reduced because unskilled personnel can do maintenance.

Training period for service personnel becomes short.

[Issue]

Standardization is necessary for obtaining EE Data. Because, if data output method is defined individually, investment efficiency suffers.

6. Case Study on the Realization of EES (2)

- Example of the Effectiveness of EE Capability
- Case 2: Reduce NPW

[Service Contents]

Service of reducing NPW for Equipment condition optimization is provided.

[Gain expected for Equipment Supplier]

In middle term, increasing of sales may be expected due to the improvement of Customer Satisfaction. However, the Effectiveness can not be calculated or forecasted directly.

[Gain expected for Device Maker]

OEE improves.

NPW cost is reduced.

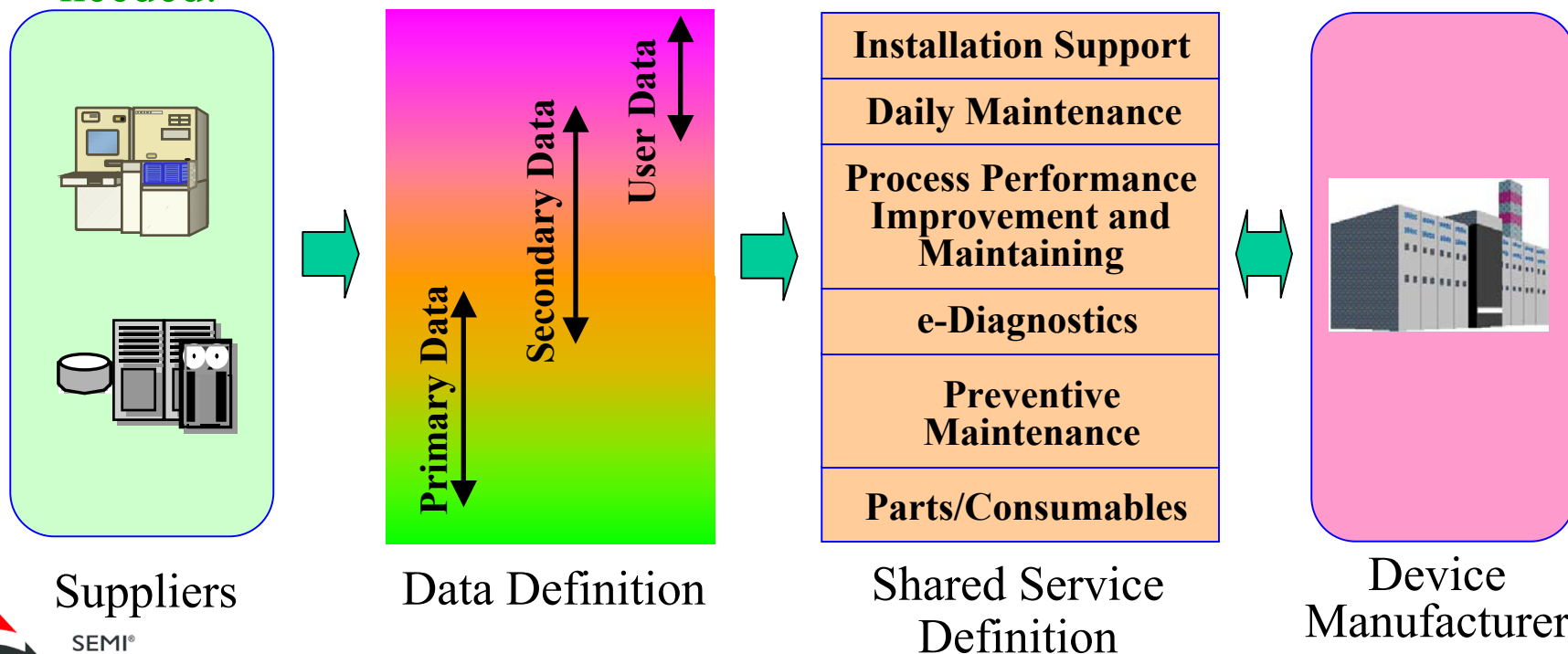
of engineer for equipment condition optimization is reduced.

6. Case Study on the Realization of EES (3)

- **Case 1:** If system is not standardized, Supplier’s investment increases. Thus, the investment to be born eventually by Device Manufacturer. This results in the decrease of investment efficiency.
- **Case 2:** Supplier’s advantage is less than that of Device Maker’s in short term. Thus, Suppliers have difficulty in establishing business.
- **Other cases have other issues individually.**
- **SEAJ will categorize cases and investigate possible business models**

7. Summary(1)

- Every service contains various problems respectively. In order to solve those issues, Device Manufacturers and Suppliers are to discuss Win-Win business models.
- Investigation of new task sharing scheme by the prototyping of EES System needed.



7. Summary -Action Items

- | | |
|---|-----------|
| 1) Report SEAJ's analysis to Extended JWG | Sep., '02 |
| 2) JWG to combine its own analysis | Mar., '03 |
| 3) Set up an open forum @ SEMICON Japan | Dec., '02 |
| 4) When to start dialogue with NA DMs | ? |