

Design and Development of a Generic Architecture

for

**APPAREL MANUFACTURING ARCHITECTURE**  
[Version 1.5]

**Volume II: The Function Model**

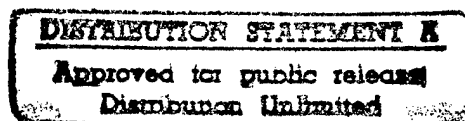
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| 13. ABSTRACT (Maximum 200 words)<br><br>Research has been carried out to design and develop a generic architecture for an apparel enterprise that can serve as a blueprint for a computer-integrated apparel enterprise (CIAE). The Apparel Manufacturing Architecture (AMA) -- the first comprehensive architecture for manufacturing -- has been developed and validated in close collaboration with the apparel industry. AMA consists of a set of models the core of which is the <i>information</i> model which defines the schema of the shared information base for an apparel enterprise. The <i>function</i> model component of the architecture specifies how the activities carried out in an apparel manufacturing enterprise interact with each other through the shared information base. The third component of AMA, the <i>dynamics</i> model, describes how the interactions among the enterprise activities take place over time. The Recruit Induction Center Architecture (RICA) models the uniform distribution process at the Recruit Induction Center (RIC).<br><br>Volume II documents the Function model. |                                                          |                                                                                                                                              |                                                 |                                                                                        |  |
| 19. SUBJECT TERMS<br>Apparel Manufacturing; Enterprise Architecture; Information Architecture; Computer-Integrated Manufacturing; Modeling; Information Systems; Integrated Databases;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                          |                                                                                                                                              |                                                 | 15. NUMBER OF PAGES<br><br>50                                                          |  |
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**Operate an Apparel Manufacturing Enterprise**

**Description:**

Design, manufacture and distribute garments. Also, carry out activities, that support garment production, viz., material procurement, engineering services, planning, production control, performance evaluation, hiring and training personnel.

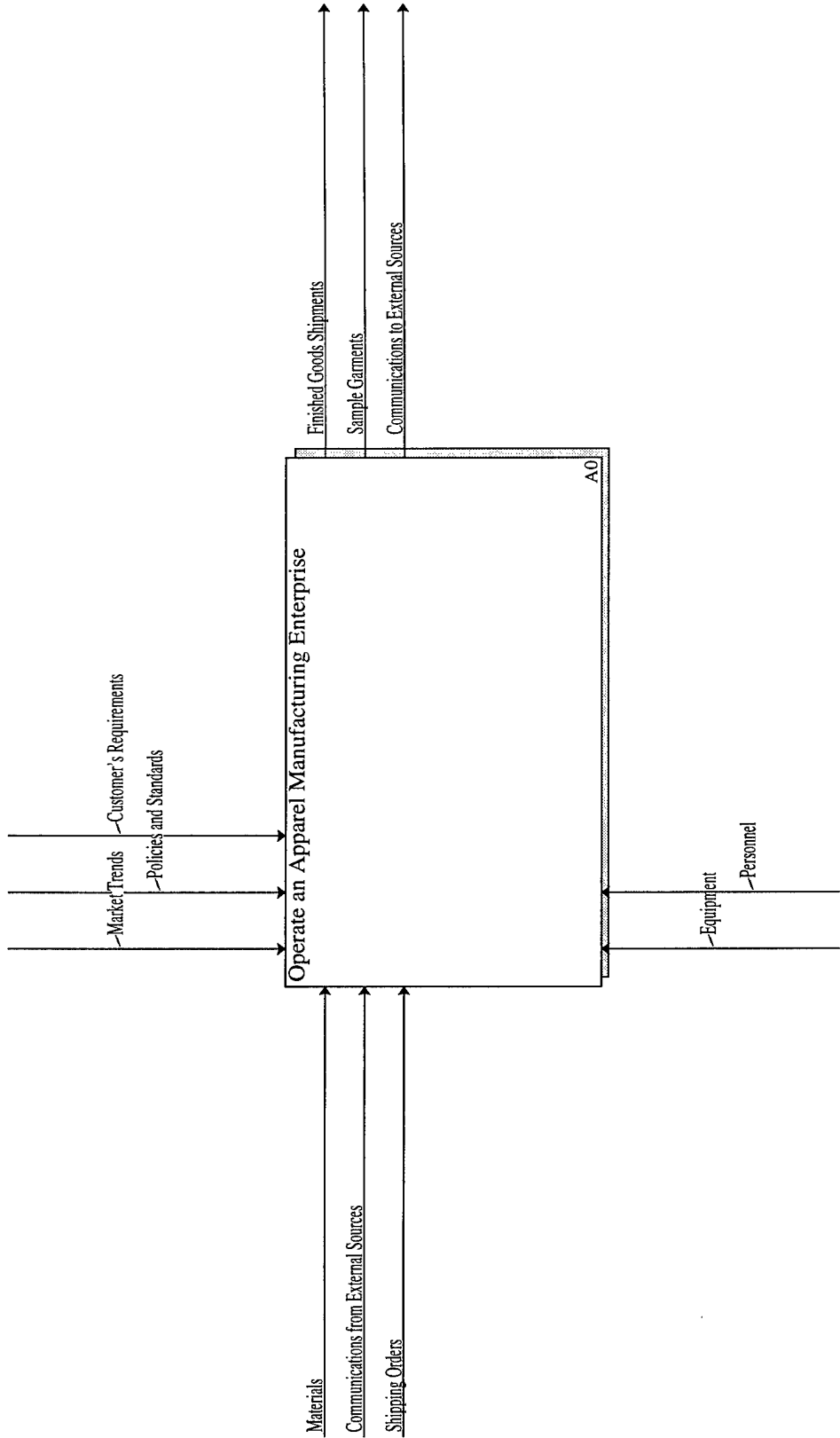
**Viewpoint:**

Managers responsible for day-to-day operations of an apparel enterprise.

**Purpose:**

Develop an architecture for the implementation of computer-integrated manufacturing in the apparel industry.

|                                                                                                                |                                                                          |                         |                                                |        |      |         |
|----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|-------------------------|------------------------------------------------|--------|------|---------|
| Used At:<br>School of Textile & Fiber Engineering<br>Georgia Institute of Technology<br>Atlanta, Georgia 30332 | Author: Cidambi/Ramesh<br>Project: Ama1_5<br>Notes: 1 2 3 4 5 6 7 8 9 10 | Date: 10/5/1995<br>Rev: | Working<br>Draft<br>Recommended<br>Publication | READER | DATE | Context |
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#### **Develop and Market Product Line**

##### Description:

Market new-style ideas to customers and develop garment styles based on customers' inputs.

Note: Customer can be a retailer or an individual end-user.

Consumer is an individual end-user only.

#### **Provide Enterprise Support Services**

##### Description:

Provide support services to the enterprise. The services include engineering, setting of quality standards, development of vendors, maintenance of manufacturing resource information, evaluation of new technology, evaluation of enterprise performance and hiring and training of personnel.

#### **Plan and Prepare for Manufacture**

##### Description:

Develop a sales plan and schedule production for this plan on the master production schedule. Identify the material requirements and other details of the plan.

#### **Monitor and Control Production Activities**

##### Description:

Monitor the production, distribution and material availability and release production orders to the manufacturing plants at the appropriate time to meet delivery schedules. This function also maintains constant contact with the customers and uses the latest information from them for controlling production and managing garment inventories.

#### **Manufacture Garments**

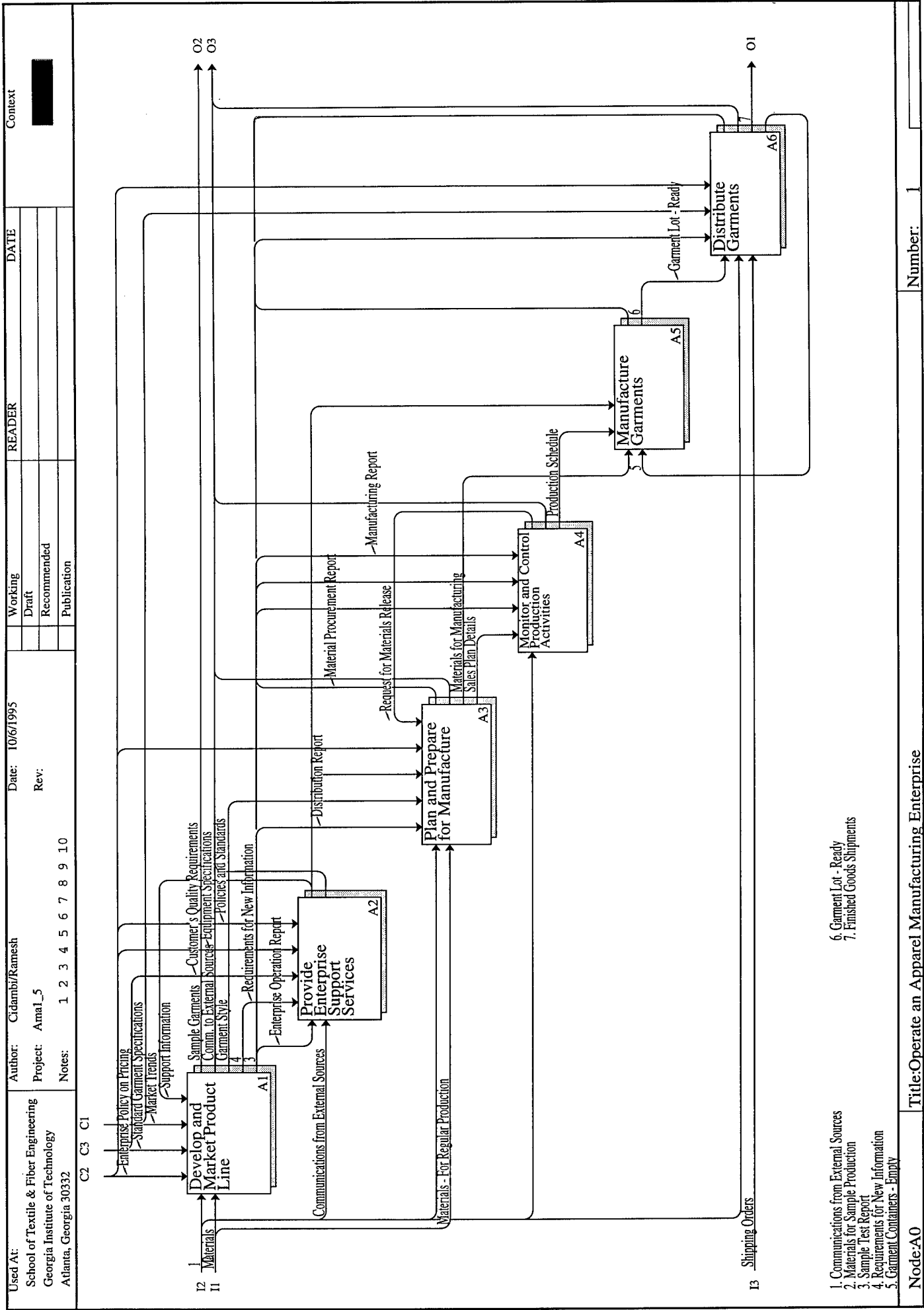
##### Description:

Convert fabric and other materials into finished garments. Manufacturing of garments involves cutting, sewing, finishing and post-manufacturing processing, such as attaching accessories. Quality control tests on garments are also carried out.

#### **Distribute Garments**

##### Description:

Hold garments in the warehouse and ship them to distribution centers or retail outlets based on shipping orders. In a true JIT scenario, the warehouse might be a truck.



**Create and Market Styles**

Description:

Market style ideas generated by the designers to the customers. Work with customers to identify ideas that would be further developed into garments for the customers. Note that customers could either be retailers or consumers.

**Develop Garment Style**

Description:

Develop a formal description of a garment style.

**Finalize Product Line**

Description:

Work out details of the style under development with the customer. For Private Label products, provide quotations, get samples made for the customer and request changes to the style based on customer's requirements. For Brand Name products, work with a focus group to finalize the product line.

**Provide Garment Samples**

Description:

Produce sample garments for the style under development.

**Prepare Process Plans**

Description:

Prepare the process plan for producing garments of this style. The process plan is described in terms of a sequence of operations to be performed; it does not refer to particular machines that would be used to carry out these operations.

Interface:

|     |                       |                     |
|-----|-----------------------|---------------------|
| C1: | Style - Validated;    | [E1{STYLE}]         |
| O1: | Style's Process Plan; | [E1{STYLE}]         |
| M1: | Staff - Engineering;  | [E94{SAL_EMPLOYEE}] |



### Create Style Portfolios

**Description:** Create new garment style concepts based on the fashion trends for the forthcoming season.

**Interface:**

|     |                            |                       |
|-----|----------------------------|-----------------------|
| CI: | Market Trends;             | [NONE]                |
| O1: | Style Concept - Portfolio; | [E109(STYLE_CONCEPT)] |
| M1: | Stylist;                   | [E94(SAL_EMPLOYEE)]   |

### Contact Potential Customers

**Description:** Contact potential customers and present the seasonal styles from the portfolios prepared by the stylists. This implies retailers for Private Label products and focus groups for Brand Name products.

**Interface:**

|     |                             |                       |
|-----|-----------------------------|-----------------------|
| CI: | Style Concepts - Portfolio; | [E109(STYLE_CONCEPT)] |
| O1: | Presentation to Customer;   | [E99(CUSTOMER_INQ)]   |
| M1: | Sales Executive;            | [E94(SAL_EMPLOYEE)]   |

### Market Style Concepts

**Description:** If customer's requirements are not met by one of the style concepts contained in the style portfolio, get customer's requirements translated into a new concept.

**Interface:**

|     |                            |                       |
|-----|----------------------------|-----------------------|
| II: | Initial Sales Inquiry;     | [E99(CUSTOMER_INQ)]   |
| CI: | Style Concept - Portfolio; | [E109(STYLE_CONCEPT)] |
| C2: | Style Concept - Customer;  | [E109(STYLE_CONCEPT)] |
| O1: | Sales Presentation;        | [E99(CUSTOMER_INQ)]   |
| O2: | Style Concept - Approved;  | [E109(STYLE_CONCEPT)] |
| O3: | Style Ideas from Customer; | [E109(STYLE_CONCEPT)] |
| M1: | Sales Executive;           | [E94(SAL_EMPLOYEE)]   |

### Develop Specific Style Concepts

**Description:** Develop a garment style concept based on customer's requirements. The developed concept may be a modification of an existing style from the portfolio.

**Interface:**

|     |                           |                       |
|-----|---------------------------|-----------------------|
| CI: | Style Idea from Customer; | [E109(STYLE_CONCEPT)] |
| O1: | Style Concept - Customer; | [E109(STYLE_CONCEPT)] |
| M1: | Stylist;                  | [E94(SAL_EMPLOYEE)]   |



**Control Style Development**

Description:

Initiate a new style and get its construction detail, fit and pattern developed as necessary. When the style under development is approved by the customer, finalize it.

Interface:

|     |                                  |                       |
|-----|----------------------------------|-----------------------|
| I1: | Style - Initiated;               | [E109{STYLE_CONCEPT}] |
| I2: | Request for Style Alteration;    | [E109{STYLE_CONCEPT}] |
| C1: | Style's Shape;                   | [E1{STYLE}]           |
| C2: | Style's Construction Detail;     | [E1{STYLE}]           |
| O1: | Style - Under Development;       | [E109{STYLE_CONCEPT}] |
| O2: | Request for Garment Shape;       | [E109{STYLE_CONCEPT}] |
| O3: | Request for Construction Detail; | [E109{STYLE_CONCEPT}] |
| O4: | Style - Validated;               | [E109{STYLE_CONCEPT}] |
| M1: | Staff - Product Development;     | [E94{SAL_EMPLOYEE}]   |

**Develop Construction Detail**

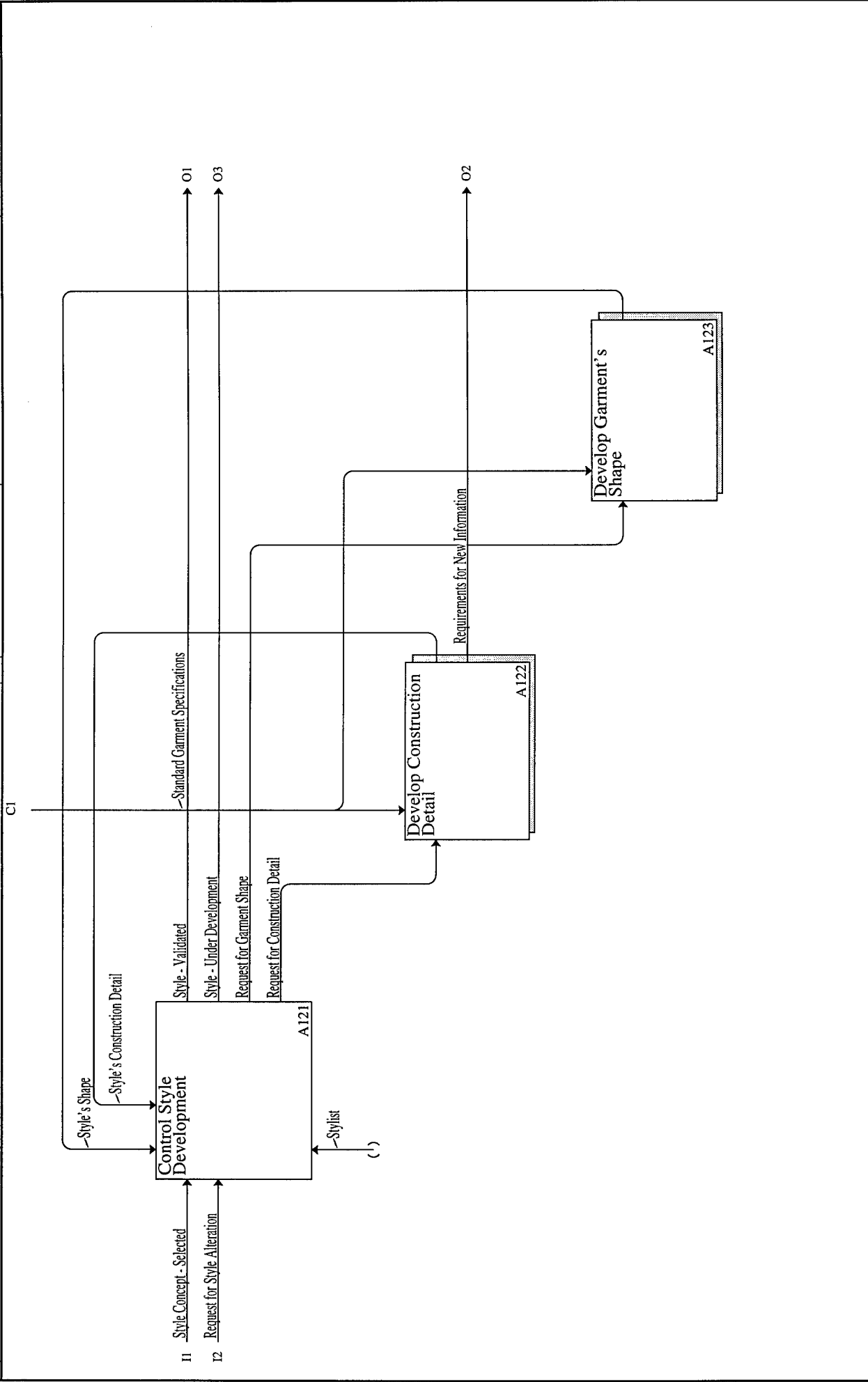
Description:

Develop a formal description of the features of a garment. This description is similar to the bill of materials.

**Develop Garment's Shape**

Description:

Develop the fit, pattern and rules to grade the pattern to different sizes for a garment style under development.



### Identify Garment Features

#### Description:

Identify the features that describe the construction of the garment. If the construction cannot be described completely by the available feature descriptions, specifications for new features are created.

#### Interface:

I1: Request for Construction Detail; [E109{STYLE\_CONCEPT}]  
 C1: Standard Garment Specifications; [E4{CUSTOMER}]  
 C2: Feature Description; [E18{CONSTR\_FEATURE}]  
 O1: New Feature Specifications; [E107{OPERATION}]  
 O2: Style's Construction Features; [E1{STYLE}]  
 M1: Staff - Product Development; [E94{SAL\_EMPLOYEE}]

### Assign Construction Materials

#### Description:

Assign materials to be used for producing the desired features on a garment. If suitable materials are not present in the material description database, make new entries to this database and inform the purchase department so that they can assign necessary information to complete the description of a new material and select vendors for supplying it.

#### Interface:

I1: Style's Construction Features; [E1{STYLE}]  
 I2: Request for Construction Detail; [E109{STYLE\_CONCEPT}]  
 C1: Material Description; [E34{MATERIAL\_VARIANT}]  
 O1: Style's Construction Detail; [E1{STYLE}]  
 O2: New Material Specifications; [E22{MATERIAL}]  
 M1: Staff - Product Development; [E94{SAL\_EMPLOYEE}]

### Develop Construction Features

#### Description:

Create new feature descriptions if the existing ones are insufficient for developing a new construction detail.

#### Interface:

C1: New Feature Specifications; [E107{OPERATION}]  
 O1: New Operation Requirement; [E107{OPERATION}]  
 O2: Feature Description; [E18{CONSTR\_FEATURE}]  
 M1: Staff - Product Development; [E94{SAL\_EMPLOYEE}]



#### Develop Garment's Fit

Description:  
Create and verify the measurements for a garment of the new style.

Interface:

|     |                                  |                       |
|-----|----------------------------------|-----------------------|
| I1: | Request for Garment Shape;       | [E109(STYLE_CONCEPT)] |
| C1: | Standard Garment Specifications; | [E4(CUSTOMER)]        |
| C2: | Style's Grade Table;             | [E2(FIT)]             |
| C3: | Style's Pattern;                 | [E1(STYLE)]           |
| O1: | Style's Shape;                   | [E1(STYLE)]           |
| O2: | Style's Fit;                     | [E2(FIT)]             |
| M1: | Pattern Maker;                   | [E94(SAL_EMPLOYEE)]   |

#### Develop Grade Rules

Description:  
Develop rules that will be used to grade the garment pattern. Grade rules are created after obtaining the measurements and recording them as garment fit.

Interface:

|     |                      |                     |
|-----|----------------------|---------------------|
| C1: | Style's Fit;         | [E2(FIT)]           |
| C2: | Style's Pattern;     | [E1(STYLE)]         |
| O1: | Style's Grade Table; | [E2(FIT)]           |
| M1: | Marker Maker;        | [E94(SAL_EMPLOYEE)] |

#### Develop Garment's Pattern

Description:  
Develop garment's pattern by modifying an existing matching pattern. If a matching pattern does not exist, get a new pattern created from scratch.

Interface:

|     |                             |                       |
|-----|-----------------------------|-----------------------|
| I1: | Request for Garment Shape;  | [E109(STYLE_CONCEPT)] |
| C1: | Style's Fit;                | [E2(FIT)]             |
| C2: | Pattern Descriptions;       | [E14(PATTERN)]        |
| O1: | Style's Pattern;            | [E1(STYLE)]           |
| O2: | New Pattern Specifications; | [E14(PATTERN)]        |
| M1: | Pattern Maker;              | [E94(SAL_EMPLOYEE)]   |

#### Create New Pattern

Description:  
If an existing pattern cannot be modified to meet the requirements of a new style, create a new pattern based on the specifications provided.

Interface:

|     |                             |                     |
|-----|-----------------------------|---------------------|
| C1: | New Pattern Specifications; | [E14(PATTERN)]      |
| O1: | Pattern Description;        | [E14(PATTERN)]      |
| M1: | Pattern Maker;              | [E94(SAL_EMPLOYEE)] |



### **Prepare Price Quote**

#### Description:

Provide price quotes to the customer on request.

#### Interface:

I1: Customer's Request for Quotations; [E99(CUSTOMER\_INQ)]  
 C1: Style - Under Development; [E109(STYLE\_CONCEPT)]  
 O1: Quotations to Customer; [NONE]  
 M1: Sales Executive; [E94(SAL\_EMPLOYEE)]

### **Determine Sample Requirements**

#### Description:

Get customer's requirements for samples and issue sample requests. In the case of Brand Name products the request for samples is issued by the focus group.

#### Interface:

I1: Customer's Request for Samples; [E99(CUSTOMER\_INQ)]  
 C1: Style - Under Development; [E109(STYLE\_CONCEPT)]  
 O1: Sample Request; [E8(SAMPLE\_REQ)]  
 M1: Sales Executive; [E94(SAL\_EMPLOYEE)]

### **Modify Style Concept**

#### Description:

Modify the style concept to reflect the changes desired by the customer, and request style alterations based on the modified concept. Cost information for the new style is generated here.

#### Interface:

I1: Modifications desired by the customer; [E99(CUSTOMER\_INQ)]  
 C1: Style - Under Development; [E109(STYLE\_CONCEPT)]  
 O1: Revised style to the Customer; [E99(CUSTOMER\_INQ)]  
 O2: Request for style alteration; [E109(STYLE\_CONCEPT)]  
 M1: Staff - Product development; [E94(SAL\_EMPLOYEE)]



#### **Control Sample Production**

Description: Schedule and release sample orders for production.

#### **Obtain Sample Garments**

Description: Produce garment samples and make alterations to them if the fit is not satisfactory.

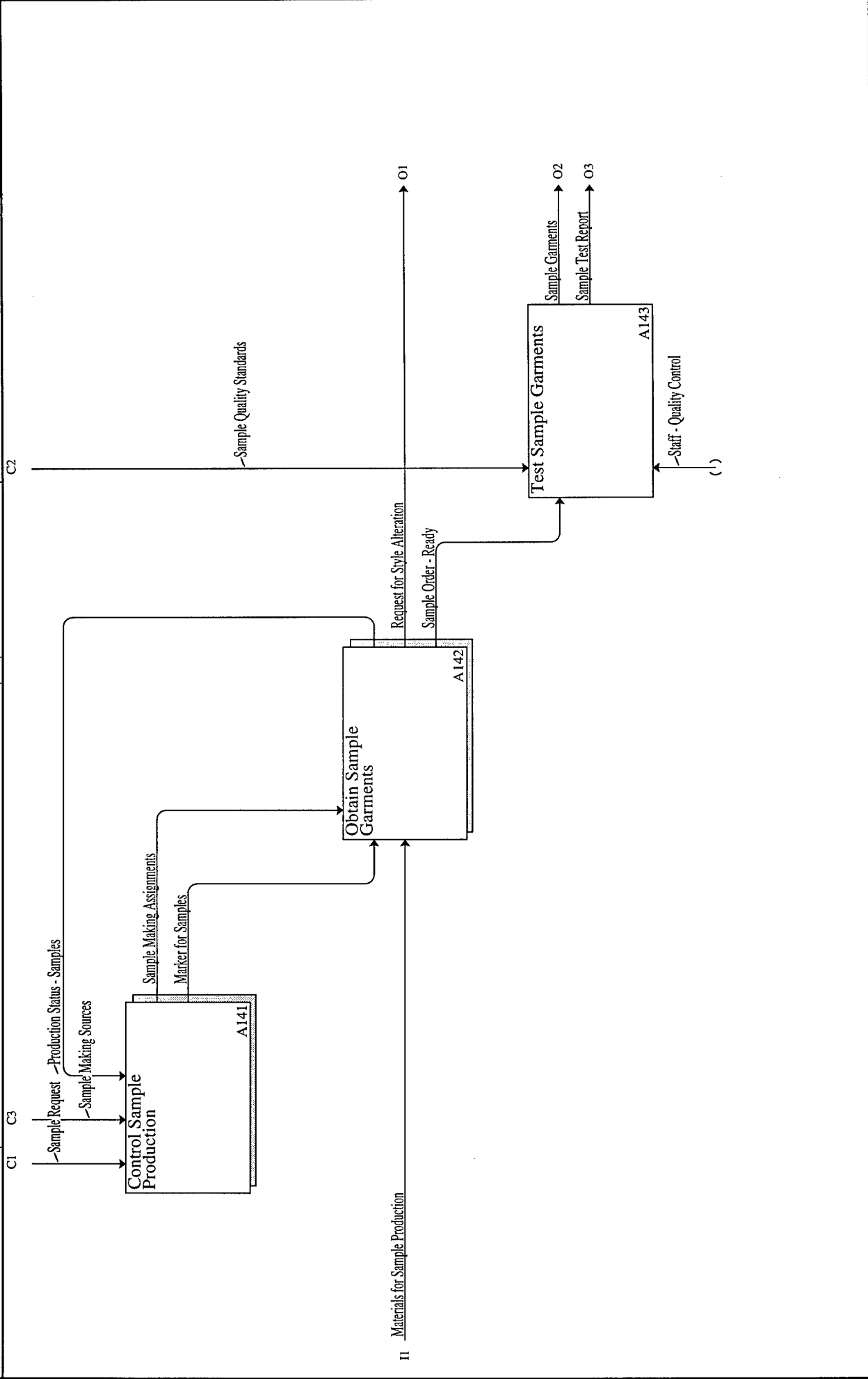
#### **Test Sample Garments**

Description: Perform quality testing on sample garments. A 'Sample Test Report' is generated which becomes part of the 'Enterprise Operation Report'.

##### Interface:

|     |                           |                     |
|-----|---------------------------|---------------------|
| I1: | Sample Garments Ready;    | [E8(SAMPLE_REQ)]    |
| C1: | Sample Quality Standards; | [E82(QC_PROCEDURE)] |
| O1: | Sample Garments;          | [E8(SAMPLE_REQ)]    |
| M1: | Staff - Quality Control;  | [E94(SAL_EMPLOYEE)] |

|                                                                                                                |                             |                 |             |        |      |         |
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|                                                                                                                |                             |                 | Publication |        |      |         |



### **Schedule Sample Production**

#### Description:

Schedule the production of sample garments, assign sample makers and issue instructions on how the samples are to be produced.

#### Interface:

|     |                             |                      |
|-----|-----------------------------|----------------------|
| C1: | Sample Order;               | [E8{SAMPLE_REQ}]     |
| O1: | Sample Production Schedule; | [E91{SAMP_DEPT_SCH}] |
| M1: | Manager - Sample Making;    | [E94{SAL_EMPLOYEE}]  |

### **Make Sample Marker**

#### Description:

Make markers for sample production.

#### Interface:

|     |                              |                     |
|-----|------------------------------|---------------------|
| C1: | Request for Sample Marker;   | [E8{SAMPLE_REQ}]    |
| O1: | Marker for Samples;          | [E8{SAMPLE_REQ}]    |
| M1: | Marker Maker;                | [E94{SAL_EMPLOYEE}] |
| M2: | Workstation - Marker Making; | [E62{WORKSTATION}]  |

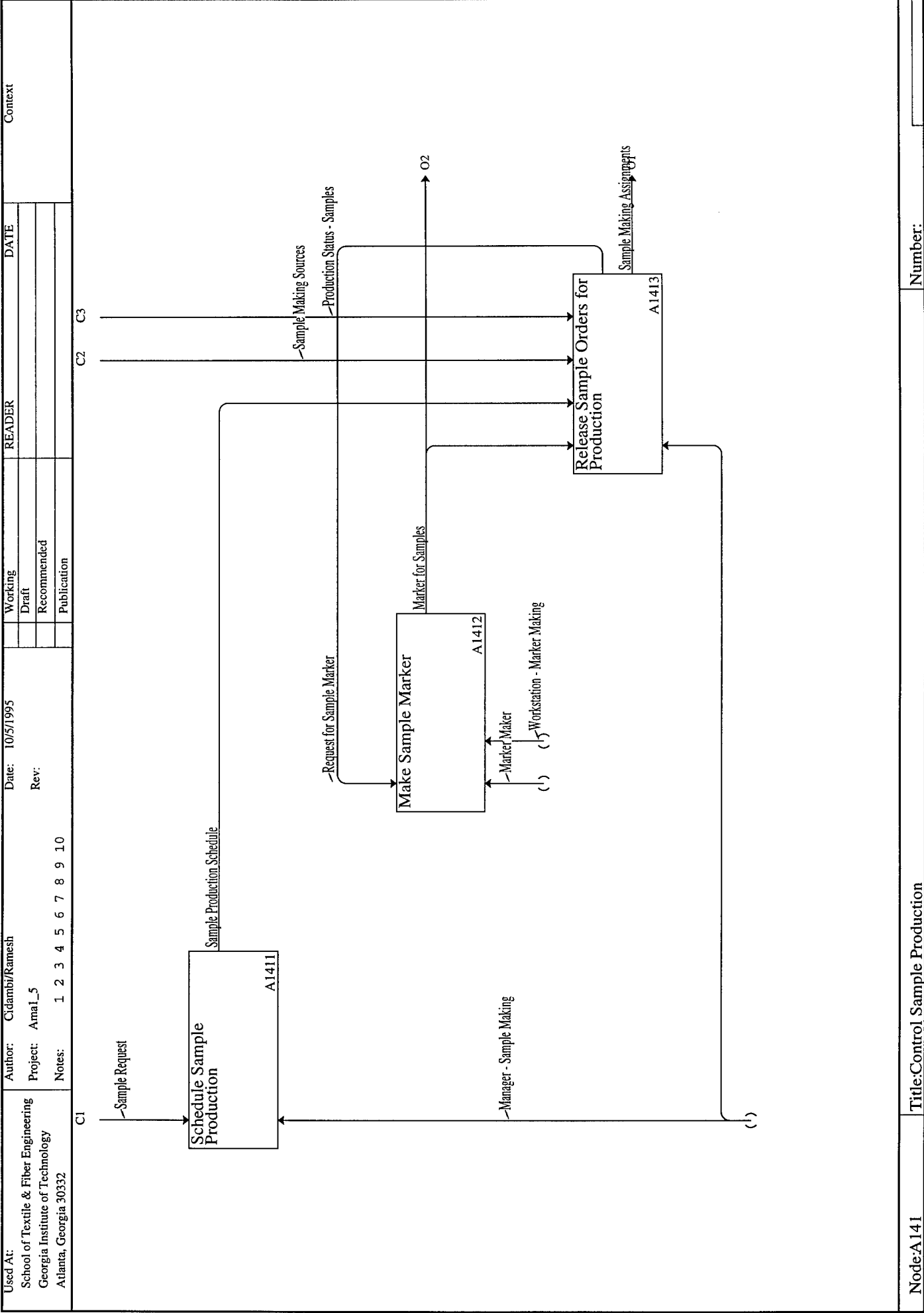
### **Release Sample Orders for Production**

#### Description:

Assign resources for scheduled sample orders and release them for production when markers are ready.

#### Interface:

|     |                              |                          |
|-----|------------------------------|--------------------------|
| C1: | Marker for Samples;          | [E8{SAMPLE_REQ}]         |
| C2: | Sample Production Schedule;  | [E91{SAMP_DEPT_SCH}]     |
| C3: | Production Status - Samples; | [E92{SAM_DEPT_SCH_ITEM}] |
| O1: | Request for Sample Marker;   | [E8{SAMPLE_REQ}]         |
| O2: | Sample Making Assignments;   | [E92{SAM_DEPT_SCH_ITEM}] |
| M1: | Manager - Sample Making;     | [E94{SAL_EMPLOYEE}]      |



**Cut Fabric**Description:

Cut fabric for sample production using the marker as a template.  
\*\*\*\*For Exposition Only\*\*\*\*

**Sew Sample Garments**Description:

Assemble sample garments from cut parts.  
\*\*\*\*For Exposition Only\*\*\*\*

**Examine Sample Garment Fitting**Description:

Examine construction of the garments belonging to a sample order.  
If any alterations are required, send the samples back to sample makers  
and request changes to the style.  
\*\*\*\*For Exposition Only\*\*\*\*

**Rework Sample Garments**Description:

Rework garment samples. All the garments in the order are  
reworked together.  
\*\*\*\*For Exposition Only\*\*\*\*



#### **Establish Quality Control Practices**

Description: Establish quality control practices for the enterprise. Set the standards for the quality of garments and materials, and develop test and inspection procedures to maintain these standards.

#### **Develop Suppliers**

Description: Evaluate and select vendors for supplying materials, samples and finished goods that the enterprise needs for manufacturing garments. Evaluation can be carried out using a BEST-like Index.

#### **Maintain Manufacturing Resource Data**

Description: Maintain information about the manufacturing resources available to the enterprise. This includes development of process details, identification of equipment and operators to perform new operations, and maintenance of plant capacities data.

#### **Evaluate New Technology**

Description: Compile information from vendors on new technologies pertinent to the functioning of the enterprise. Carry out preliminary evaluation and obtain, test and evaluate prototypes, if necessary. New technologies include processes, machinery, computer hardware and software and control systems.

#### **Evaluate Enterprise Performance**

Description: Evaluate the performance of all the departments and functions in the enterprise. Currently, only the evaluation of manufacturing, distribution and material procurement departments is shown. Also generate a BESTIndex for the enterprise.

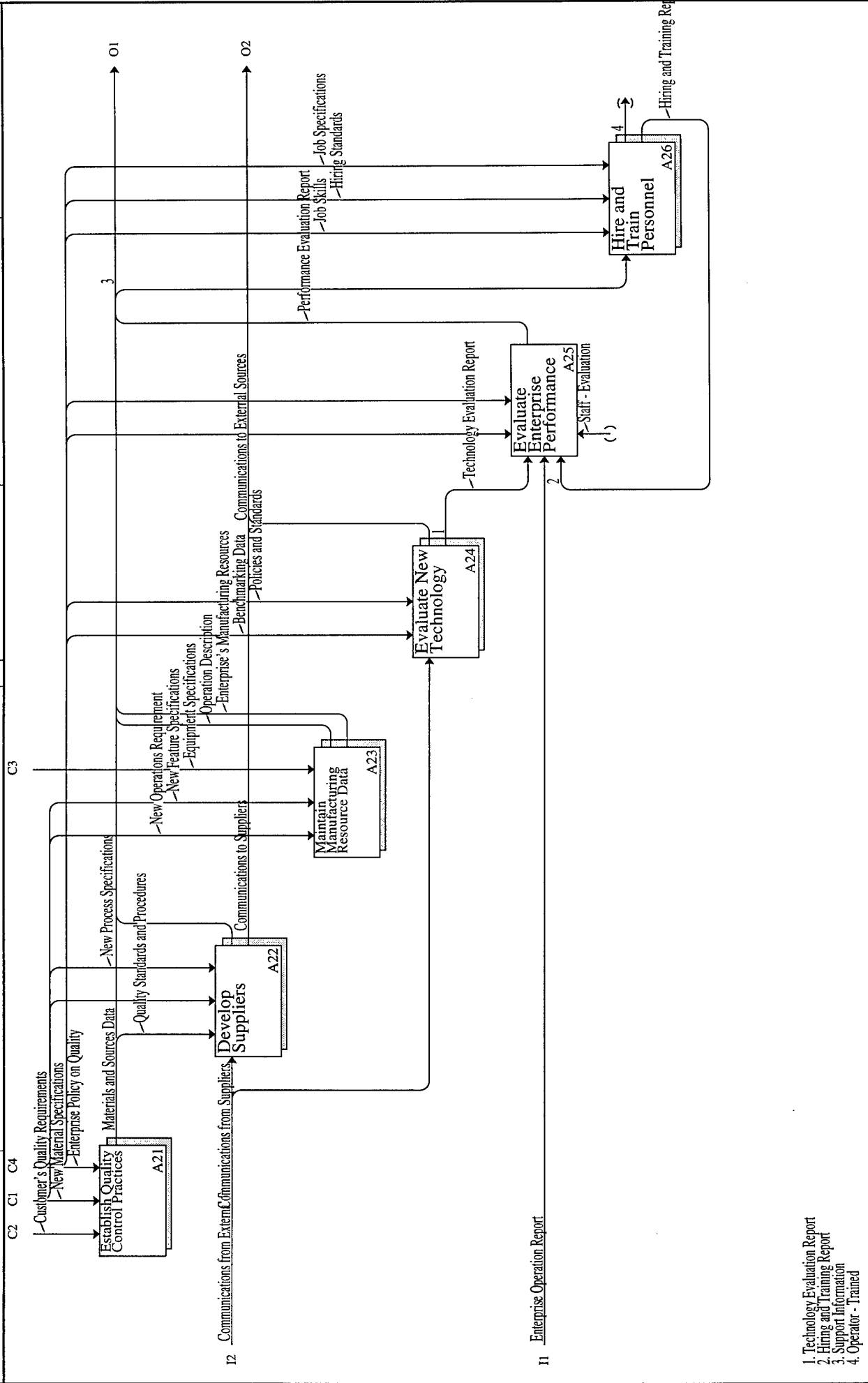
Interface:

|     |                                |                     |
|-----|--------------------------------|---------------------|
| I1: | Technology Evaluation Report;  | [E114(OP_REPORT)]   |
| I2: | Enterprise Operation Report;   | [COMPOSITE]         |
| I3: | Hiring and Training Report;    | [E114(OP_REPORT)]   |
| C1: | Enterprise Policy on Quality;  | [NONE]              |
| C2: | Benchmarking Data;             | [NONE]              |
| O1: | Performance Evaluation Report; | [E114(OP_REPORT)]   |
| M1: | Staff - Evaluation;            | [E94(SAL_EMPLOYEE)] |

#### **Hire and Train Personnel**

Description: Determine the need for personnel throughout the enterprise; hire and train them.

|                                                                                                                |          |                      |       |           |             |      |         |
|----------------------------------------------------------------------------------------------------------------|----------|----------------------|-------|-----------|-------------|------|---------|
| Used At:<br>School of Textile & Fiber Engineering<br>Georgia Institute of Technology<br>Atlanta, Georgia 30332 | Author:  | Cidambir/Ramesh      | Date: | 10/5/1995 | Reader      | DATE | Context |
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|                                                                                                                |          |                      |       |           | Recommended |      |         |
|                                                                                                                |          |                      |       |           | Publication |      |         |



#### **Establish Garment Quality Standards**

Description: Establish quality standards for garments based on customer's quality requirements.

Interface:

|     |                                  |                     |
|-----|----------------------------------|---------------------|
| C1: | Customer's Quality Requirements; | [NONE]              |
| C2: | Enterprise Policy on Quality;    | [NONE]              |
| O1: | Quality Standards;               | [E82{QC_PROCEDURE}] |
| M1: | Staff - Quality Control;         | [E94{SAL_EMPLOYEE}] |

#### **Establish Material Quality Standards**

Description: Establish quality standards for materials based on new material specifications. This includes standards for garment labels and UPC/bar code labels.

Interface:

|     |                               |                     |
|-----|-------------------------------|---------------------|
| C1: | Enterprise Policy on Quality; | [NONE]              |
| C2: | New Material Specifications;  | [E22{MATERIAL}]     |
| O1: | Quality Standards;            | [E82{QC_PROCEDURE}] |
| M1: | Staff - Quality Control;      | [E94{SAL_EMPLOYEE}] |

#### **Develop Test and Inspection Procedures**

Description: Develop sampling and testing/inspection procedures for evaluating the quality of materials and garments against the established standards.

Interface:

|     |                                   |                     |
|-----|-----------------------------------|---------------------|
| C1: | Quality Standards;                | [E82{QC_PROCEDURE}] |
| O1: | Quality Standards and Procedures; | [E82{QC_PROCEDURE}] |
| M1: | Staff - Quality Control;          | [E94{SAL_EMPLOYEE}] |



### **Develop Suppliers for Raw Materials**

#### Description:

Evaluate and select vendors for raw materials that the enterprise needs for manufacturing garments.

### **Develop Sources for Sample Making**

#### Description:

Evaluate and select external sources for sample making. The breakdown of this function is similar to that for A223.

#### Interface:

I1: Communications from Sample Makers; [E113{SOURCE}]  
 C1: Quality Standards and Procedures; [E82{QC\_PROCEDURE}]  
 C2: New Process Specifications; [E107{OPERATION}]  
 O1: Communications to Sample Makers; [E113{SOURCE}]  
 O2: Sample Making Sources; [E113{SOURCE}]  
 M1: Staff - Outsourcing; [E94{SAL\_EMPLOYEE}]

### **Develop Sources for Cutting**

#### Description:

Evaluate and select external sources for cutting.

### **Develop Sources for Sewing**

#### Description:

Evaluate and select external sources for sewing. The breakdown of this function is similar to that for A223.

#### Interface:

I1: Communications from Sewing Sources [E113{SOURCE}]  
 C1: New Process Specifications [E107{OPERATION}]  
 C2:  
 O1: Communications to Sewing Sources [E113{SOURCE}]  
 O2: Sewing Sources [E113{SOURCE}]  
 M1: Staff - Outsourcing [E94{SAL\_EMPLOYEE}]

### **Develop Sources for Finishing**

#### Description:

Evaluate and select external sources for performing finishing operations (e.g., Stone-washing) on the garments manufactured by the enterprise. The breakdown of this function is similar to that for A223.

#### Interface:

I1: Communications from Finishing Sources [E113{SOURCE}]  
 C1: Quality Standards and Procedures [E82{QC\_PROCEDURE}]  
 C2: New Process Specifications [E107{OPERATION}]  
 O1: Communications to Finishing Sources [E113{SOURCE}]  
 O2: Finishing Sources  
 M1: Staff - Outsourcing [E94{SAL\_EMPLOYEE}]



### Complete Material Description

Description: Complete and record relevant information (ID codes, possible variations of colors and sizes, standard costs, etc.) about a new material, and make it available to the users.

Interface:  
 Cl: New Material Specifications; [E22{MATERIAL}]  
 Ol: New Material Data; [E22{MATERIAL}]  
 Ml: Staff - Purchase; [E94{SAL\_EMPLOYEE}]

### Invite Bids for New Materials

Description: Invite bids from vendors for supplying the new material. The vendor is asked to submit samples, quotations and other supporting information.

Interface:  
 Cl: New Material Data; [E22{MATERIAL}]  
 Ol: Bid Invitation - Materials; [(Material;Deadline)]  
 Ml: Staff - Purchase; [E94{SAL\_EMPLOYEE}]

### Evaluate Bids

Description: Evaluate the bids submitted by the prospective vendors. The bids are evaluated on the basis of lead time, conformance to specifications of quality, on-time delivery, delivery performance, technical capability, Advance Shipment Notice (ASN) capability, vendor certification, product innovation and manufacturing capabilities of the vendors. A BEST-like Index is generated for each vendor.

Note: DSS is a decision-support system (similar to BEST) that can be developed for evaluating suppliers.

Interface:  
 Il: Bids from Vendors; [(Ref;Vendor;Descr)]  
 Cl: Bid Invitation - Materials; [(Material;Deadline)]  
 C2: Material Quality Standards; [E82{QC\_PROCEDURE}]  
 Ol: DSS Index; [E113{SOURCE}]  
 Ml: Staff - Purchase; [E94{SAL\_EMPLOYEE}]  
 M2: DSS; [E62{WORKSTATION}]

### Select Vendors

Description: Select vendors based on their BEST-Indexes. In the case of Private Label garments, the raw material suppliers may be specified by the customer (the retailer).

Interface:  
 Il: DSS Index; [E113{SOURCE}]  
 Cl: Material Quality Standards; [E82{QC\_PROCEDURE}]  
 Ol: Material Sources; [E92{MATERIAL\_SOURCE}]  
 Ml: Staff - Purchase; [E94{SAL\_EMPLOYEE}]



**Invite Bids**Description:

Invite bids from potential cutting sources. The vendor is asked to submit quotations and other supporting information required to generate a BEST-like Index.

\*\*\*\*For Exposition Only\*\*\*\*

**Evaluate Bids**Description:

Evaluate the bids submitted by prospective cutting sources. The bids are evaluated on the basis of lead time, conformance to specifications of quality, on-time delivery, delivery performance, technical capability, Advance Shipment Notice (ASN), vendor certification and product innovation. A BEST-like Index is generated for each source on the basis of the supplied information.

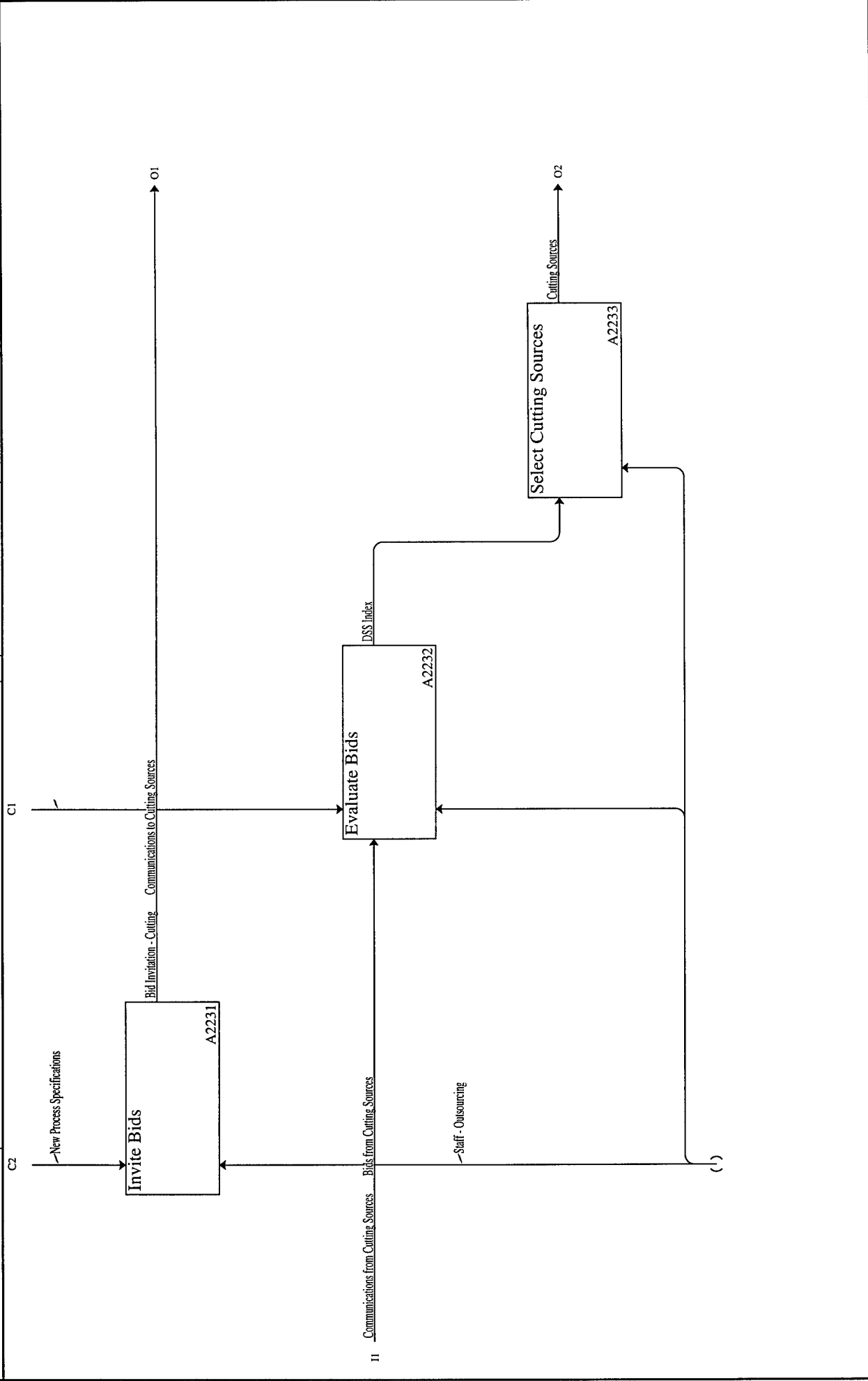
\*\*\*\*For Exposition Only\*\*\*\*

**Select Cutting Sources**Description:

Cutting sources are selected based on their BEST-like Indexes.

\*\*\*\*For Exposition Only\*\*\*\*

|                                                                                                                |                             |                            |             |        |      |         |
|----------------------------------------------------------------------------------------------------------------|-----------------------------|----------------------------|-------------|--------|------|---------|
| Used At:<br>School of Textile & Fiber Engineering<br>Georgia Institute of Technology<br>Atlanta, Georgia 30332 | Author: Cidambi/Ramesh      | Date: 10/6/1995<br>11:7:15 | Working     | READER | DATE | Context |
|                                                                                                                | Project: Ama1_5             | Rev:                       | Draft       |        |      |         |
|                                                                                                                | Notes: 1 2 3 4 5 6 7 8 9 10 |                            | Recommended |        |      |         |
|                                                                                                                |                             |                            | Publication |        |      |         |



### **Develop and Maintain Process Specifications**

#### Description:

Develop specifications for new manufacturing operations. The need for new specifications arises when new styles require operations that are currently not specified.

#### Interface:

C1: New Operations Requirement; [E107(OPERATION)]  
 C2: Enterprise Policies and Standards; [NONE]  
 O1: Operation Description; [E107(OPERATION)]  
 M1: Staff - Engineering; [E94(SAL\_EMPLOYEE)]

### **Maintain Equipment Capability Data**

#### Description:

Identify equipment that is capable of performing the newly specified manufacturing operations and create relevant details such as production rates, attainable precision, etc.

#### Interface:

C1: Operations Description; [E107(OPERATION)]  
 C2: Equipment Specifications; [E62(WORKSTATION)]  
 O1: Equipment Capabilities; [E63(WORKST\_CAPABILITY)]  
 M1: Staff - Engineering; [E94(SAL\_EMPLOYEE)]

### **Maintain Plant Capacity Data**

#### Description:

Based on equipment capabilities, determine plant capacities for producing new features used in development of garment styles and update plant capacity data.

#### Interface:

C1: Equipment Capabilities; [E63(WORKST\_CAPABILITY)]  
 C2: New Feature Specifications; [E18(CONSTR\_FEATURE)]  
 O1: Plant Capacities; [E43(PLANT\_CAPACITY)]  
 M1: Staff - Engineering; [E94(SAL\_EMPLOYEE)]

### **Maintain Operator Skills Data**

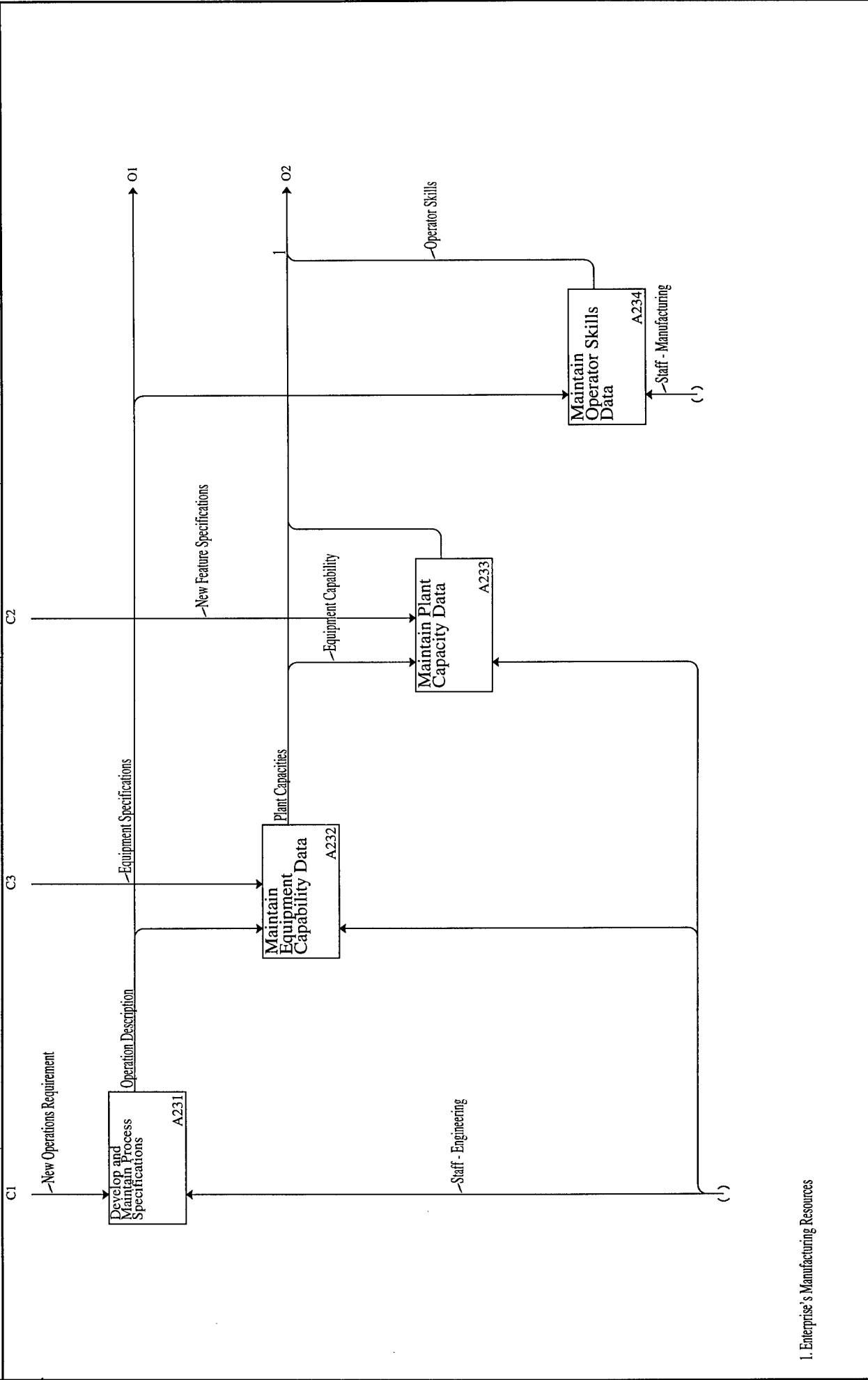
#### Description:

Identify operators who are suited for performing new operations and specify the training requirements for them based on their experience and skills.

#### Interface:

C1: Operation Description; [E107(OPERATION)]  
 O1: Operator Skills; [E64(OPERATOR)]  
 M1: Staff - Manufacturing; [E94(SAL\_EMPLOYEE)]

|                                                                                                                |                             |                 |             |        |      |         |
|----------------------------------------------------------------------------------------------------------------|-----------------------------|-----------------|-------------|--------|------|---------|
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|                                                                                                                | Project: Ama1_5             | Rev:            | Draft       |        |      |         |
|                                                                                                                | Notes: 1 2 3 4 5 6 7 8 9 10 |                 | Recommended |        |      |         |
|                                                                                                                |                             |                 | Publication |        |      |         |
|                                                                                                                |                             |                 |             |        |      |         |



1. Enterprise's Manufacturing Resources

#### **Compile Information on New Technologies**

##### Description:

Compile information on new technologies pertinent to the functioning of the enterprise from vendors, trade shows, magazines and technical literature.

##### Interface:

I1: Communications from Suppliers; [NONE]  
 C1: Policies and Standards; [NONE]  
 O1: Product Information; [NONE]  
 M1: Operator/User; [E64{OPERATOR}]

#### **Carry out Preliminary Evaluation**

##### Description:

Compare new technologies with existing ones and recommend prototype testing and evaluation, as necessary.

##### Interface:

I1: Product Information; [NONE]  
 C1: Policies and Standards; [NONE]  
 C2: Benchmarking Data; [NONE]  
 M1: Technology Evaluation Officer; [E94{SAL\_EMPLOYEE}]

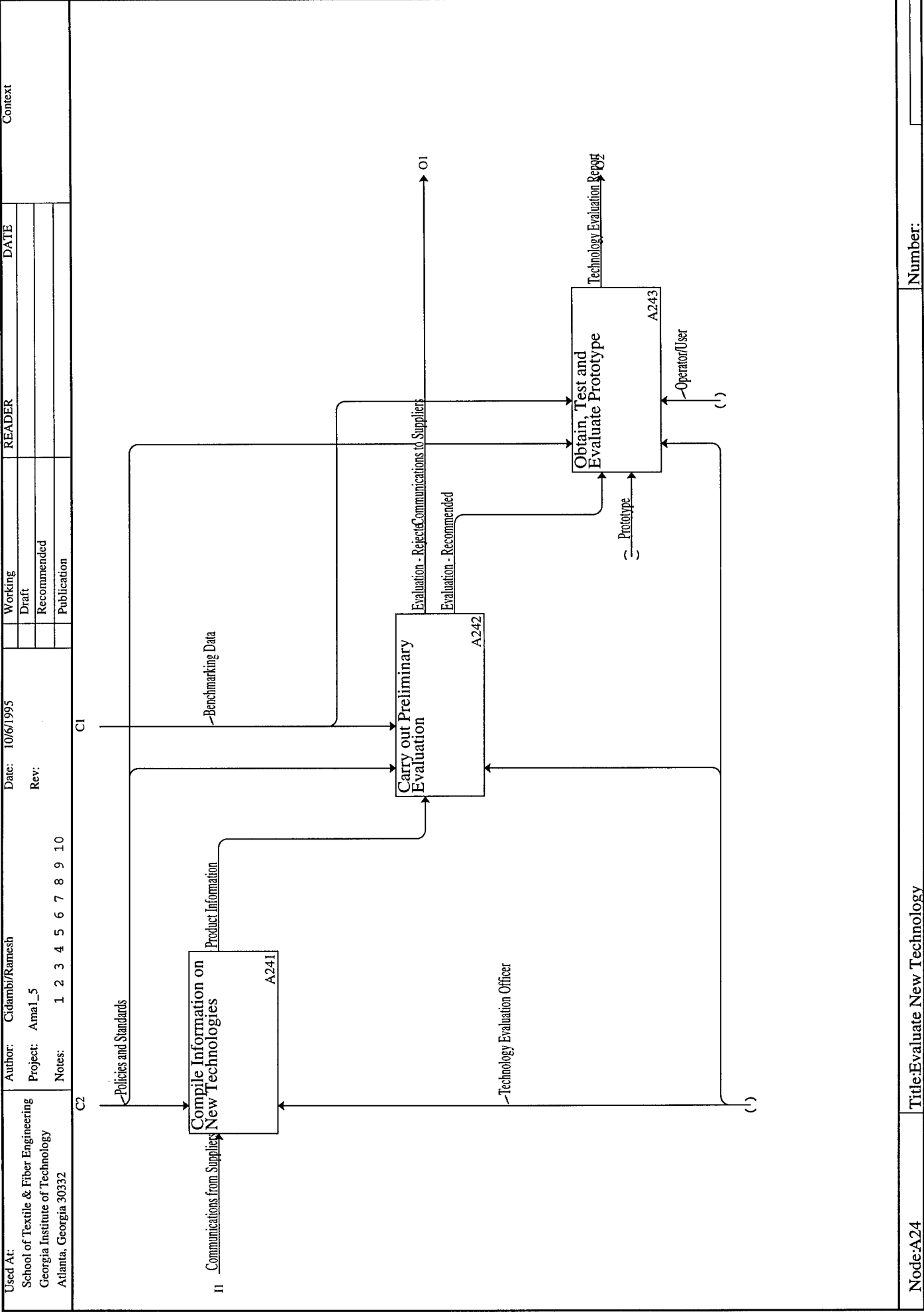
#### **Obtain, Test and Evaluate Prototype**

##### Description:

Obtain prototypes from vendors; test and evaluate the prototypes. After the evaluation is complete, prepare an evaluation report which includes recommendations for deployment of the technology.

##### Interface:

I1: Evaluation - Recommended; [(Item:Recommendation)]  
 I2: Prototype; [NONE]  
 C1: Policies and Standards; [NONE]  
 C2: Benchmarking Data; [NONE]  
 O1: Technology Evaluation Report; [E14{OP\_REPORT}]  
 M1: Technology Evaluation Officer; [E94{SAL\_EMPLOYEE}]  
 M2: Operator/User; [E64{OPERATOR}]



### Determine Need for Personnel

#### Description:

Determine the need for personnel throughout the enterprise. This includes the number of individuals, skill levels and dates when they will be needed.

#### Interface:

|     |                     |                     |
|-----|---------------------|---------------------|
| II: | Operator Skills;    | [E64{OPERATOR}]     |
| C1: | Job Specifications; | [NONE]              |
| O1: | Hiring Needs;       | [NONE]              |
| M1: | Hiring - Personnel; | [E94{SAL_EMPLOYEE}] |

### Interview and Hire Candidates

#### Description:

Interview and hire candidates as and when required.

#### Interface:

|     |                        |                     |
|-----|------------------------|---------------------|
| II: | Candidates;            | [NONE]              |
| C1: | Hiring Needs;          | [NONE]              |
| C2: | Hiring Standards;      | [NONE]              |
| O1: | Candidates - Rejected; | [NONE]              |
| O2: | Hiring Report;         | [E114{OP_REPORT}]   |
| O3: | Operator - Trainee;    | [E64{OPERATOR}]     |
| M1: | Hiring Personnel;      | [E94{SAL_EMPLOYEE}] |

### Train Personnel

#### Description:

Train the hired candidates.

#### Interface:

|     |                     |                   |
|-----|---------------------|-------------------|
| II: | Operator - Trainee; | [E64{OPERATOR}]   |
| C1: | Job Skills;         | [NONE]            |
| O1: | Training Report;    | [E114{OP_REPORT}] |
| O2: | Operator - Trained; | [E64{OPERATOR}]   |

[illegible]

#### **Develop and Confirm Sales Plan**

##### Description:

Initiate a new plan and confirm it after ensuring that delivery schedule can be met. For a Private Label product, it is triggered by a sales contract; for Brand Name products, the projected demand triggers the activity.

#### **Pre-Process Reorders**

##### Description:

If a plan is a reorder, copy all the relevant information from the referenced plan into the reorder plan.

##### Interface:

|     |                   |                     |
|-----|-------------------|---------------------|
| C1: | Plan - Confirmed; | [E45(SALES_PLAN)]   |
| O1: | Plan - Outline;   | [E45(SALES_PLAN)]   |
| M1: | Staff - Plans;    | [E94(SAL_EMPLOYEE)] |

#### **Complete and Release Sales Plan**

##### Description:

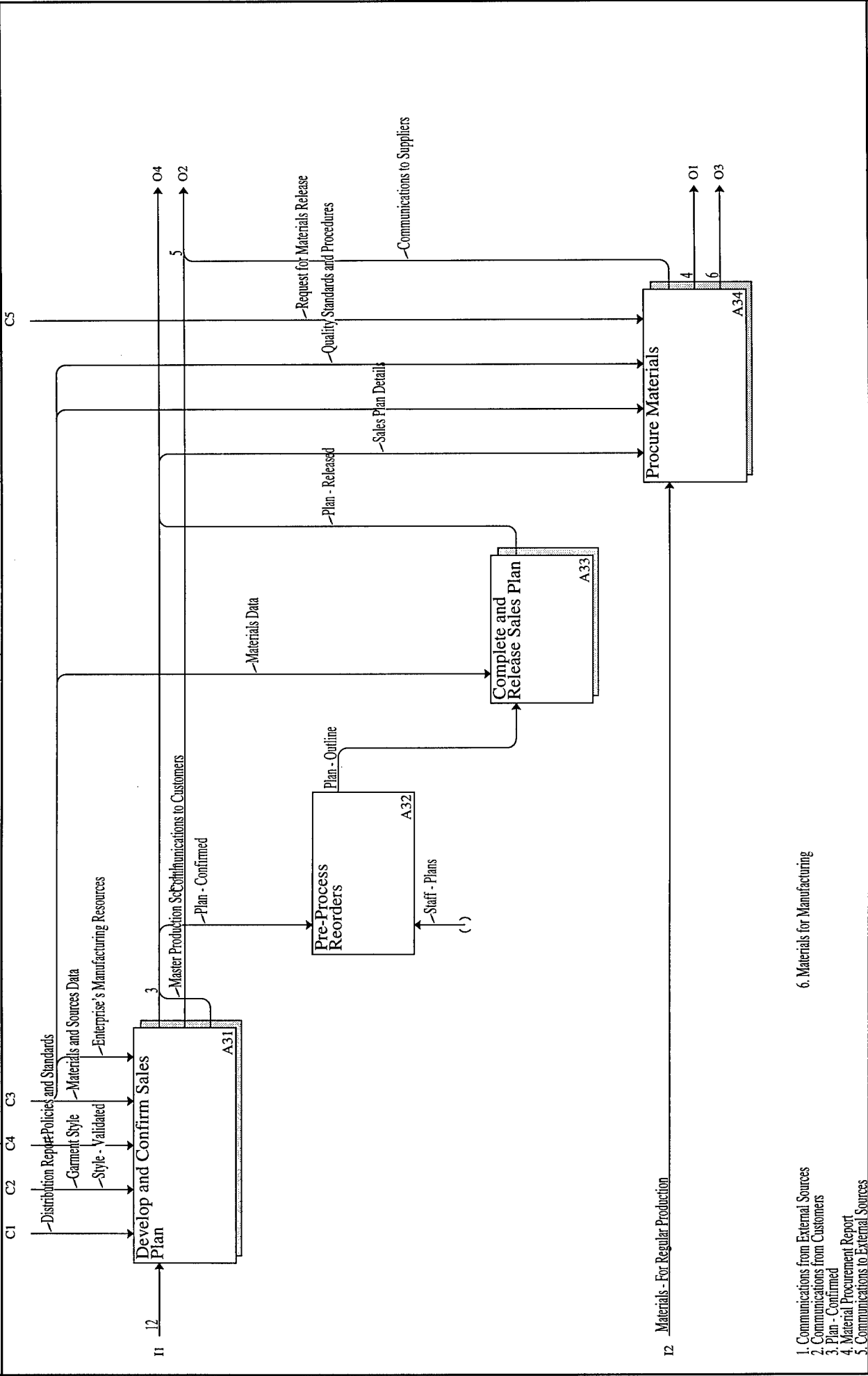
Fill in details about the sales plan, such as types of materials that are different, depending on the fabric.

#### **Procure Materials**

##### Description:

Procure and distribute raw materials for garment production. Procurement process involves determining material requirements, ordering materials, auditing received materials for quality and stocking materials till they are needed for production.

|                                                                                                                |                             |  |                 |  |                            |  |      |  |         |
|----------------------------------------------------------------------------------------------------------------|-----------------------------|--|-----------------|--|----------------------------|--|------|--|---------|
| Used At:<br>School of Textile & Fiber Engineering<br>Georgia Institute of Technology<br>Atlanta, Georgia 30332 | Author: Cidambi/Ramesh      |  | Date: 10/6/1995 |  | READER                     |  | DATE |  | Context |
|                                                                                                                | Project: Ama1_5             |  | Rev:            |  |                            |  |      |  |         |
|                                                                                                                | Notes: 1 2 3 4 5 6 7 8 9 10 |  |                 |  | Working<br>Draft           |  |      |  |         |
|                                                                                                                |                             |  |                 |  | Recommended<br>Publication |  |      |  |         |



|         |                                        |         |
|---------|----------------------------------------|---------|
| Node:A3 | Title:Plan and Prepare for Manufacture | Number: |
|---------|----------------------------------------|---------|

1. Communications from External Sources
2. Communications from Customers
3. Plan - Confirmed
4. Material Procurement Report
5. Communications to External Sources
6. Materials for Manufacturing

### **Initiate and Confirm Sales Plan**

#### Description:

Initiate and confirm a sales plan when a customer sends a contract. For a Private Label product, it is triggered by a sales contract; for Brand Name products, the projected demand triggers the activity. A plan is confirmed when production can be scheduled to meet the delivery schedule.

#### Interface:

|     |                                       |                        |
|-----|---------------------------------------|------------------------|
| II: | Sales Contract;                       | [E99(CUSTOMER_INQ)]    |
| C1: | Style - Validated;                    | [E1(STYLE)]            |
| C2: | Plan's Delivery Schedule - Tentative; | [E44(MASTER_SCH_ITEM)] |
| O1: | Sales Order Confirmation;             | [E99(CUSTOMER_INQ)]    |
| O2: | Plan - Confirmed;                     | [E45(SALES_PLAN)]      |
| O3: | Plan - Tentative;                     | [E45(SALES_PLAN)]      |
| M1: | Sales Executive;                      | [E94(SAL_EMPLOYEE)]    |

### **Forecast Sales and Project Demand**

#### Description:

Forecast sales and project demand for Brand Name products based on Point of Sale (POS) information. The projected demand is used to initiate and confirm the sales plan.

#### Interface:

|     |                         |                   |
|-----|-------------------------|-------------------|
| C1: | Distribution Report;    | [E114(OP_REPORT)] |
| C2: | Policies and Standards; | [NONE]            |
| O1: | Projected Demand;       | [NONE]            |

### **Select Manufacturing Location**

#### Description:

Select the manufacturing location for the plan based on the plant capabilities and available capacities for producing the features of the garment ordered. The BESTIndex of outside sources for cutting, sewing, etc., can be compared with the internal BESTIndex and a decision can be made about where the operations should be carried out.

#### Interface:

|     |                                |                        |
|-----|--------------------------------|------------------------|
| II: | Plan - Tentative;              | [E45(SALES_PLAN)]      |
| C1: | Plant Capacity;                | [E43(PLANT_CAPACITY)]  |
| C2: | Master Production Schedule;    | [E25(MASTER_SCHEDULE)] |
| O1: | Plan's Manufacturing Location; | [E42(PLANT)]           |
| M1: | Master Production Planner;     | [E94(SAL_EMPLOYEE)]    |

### **Post Plan on Master Production Schedule**

#### Description:

Determine suitable production periods for the selected plant and schedule the production for the plan during these periods.

#### Interface:

|     |                                |                        |
|-----|--------------------------------|------------------------|
| II: | Plan - Tentative;              | [E45(SALES_PLAN)]      |
| C1: | Plan's Manufacturing Location; | [E42(PLANT)]           |
| O1: | Plan's Delivery Schedule;      | [E44(MASTER_SCH_ITEM)] |
| O2: | Master Production Schedule;    | [E25(MASTER_SCHEDULE)] |
| M1: | Master Production Planner;     | [E94(SAL_EMPLOYEE)]    |



**Assign Fabrics**Description:

Assign fabrics for each garment item on the sales plan, based on fabric swatches or some other form of fabric description sent along with the sales plan.

Interface:

|     |                       |                         |
|-----|-----------------------|-------------------------|
| Il: | Plan - Outline;       | [E45(SALES_PLAN)]       |
| C1: | Material Description; | [E34(MATERIAL_VARIANT)] |
| O1: | Plan's Fabrics;       | [E79(PLAN_ITEM)]        |
| M1: | Staff - Plans;        | [E94(SAL_EMPLOYEE)]     |

**Assign Fabric-Specific Construction Materials**Description:

For each item in the plan, assign colors for trim, closures, accessories, etc., based on the fabric color.

Interface:

|     |                        |                         |
|-----|------------------------|-------------------------|
| C1: | Plan's Fabrics;        | [E46(PLAN_ITEM)]        |
| C2: | Material Descriptions; | [E34(MATERIAL_VARIANT)] |
| O1: | Plan's Materials;      | [E79(PLAN_MATERIAL)]    |
| M1: | Staff - Plans;         | [E94(SAL_EMPLOYEE)]     |

**Assign Style for Irregular Production**Description:

Assign a style for irregular production for a plan. If a suitable one is not found, create specifications for a new one.

Interface:

|     |                                     |                     |
|-----|-------------------------------------|---------------------|
| Il: | Plan - Outline;                     | [E45(SALES_PLAN)]   |
| C1: | Irregular Style Description;        | [E95(IRREG_STYLE)]  |
| O1: | Plan's Irregular Style;             | [E45(SALES_PLAN)]   |
| O2: | New Irregular Style Specifications; |                     |
|     |                                     | [E95(IRREG_STYLE)]  |
| M1: | Staff - Plans;                      | [E94(SAL_EMPLOYEE)] |

**Create Style Description for Irregular Production**Description:

Create a new irregular style description based on given specs.

Interface:

|     |                                     |                     |
|-----|-------------------------------------|---------------------|
| C1: | New Irregular Style Specifications; | [E95(IRREG_STYLE)]  |
| O1: | Irregular Style Description;        | [E95(IRREG_STYLE)]  |
| M1: | Staff - Product Development;        | [E94(SAL_EMPLOYEE)] |

**Release Plan**Description:

Collect the parts of the plan description, review the complete plan and release it for manufacturing;

Interface:

|     |                         |                      |
|-----|-------------------------|----------------------|
| Il: | Plan - Outline;         | [E45(SALES_PLAN)]    |
| C1: | Plan's Irregular Style; | [E45(SALES_PLAN)]    |
| C2: | Plan's Materials;       | [E79(PLAN_MATERIAL)] |
| O1: | Plan - Released;        | [E45(SALES_PLAN)]    |
| M1: | Staff - Plans;          | [E94(SAL_EMPLOYEE)]  |



**Purchase Materials**Description:

Determine the material requirements of the enterprise for a production period and issue purchase orders for the required materials.

**Receive Materials**Description:

Set the status of each item on the purchase order as it is received.

Interface:

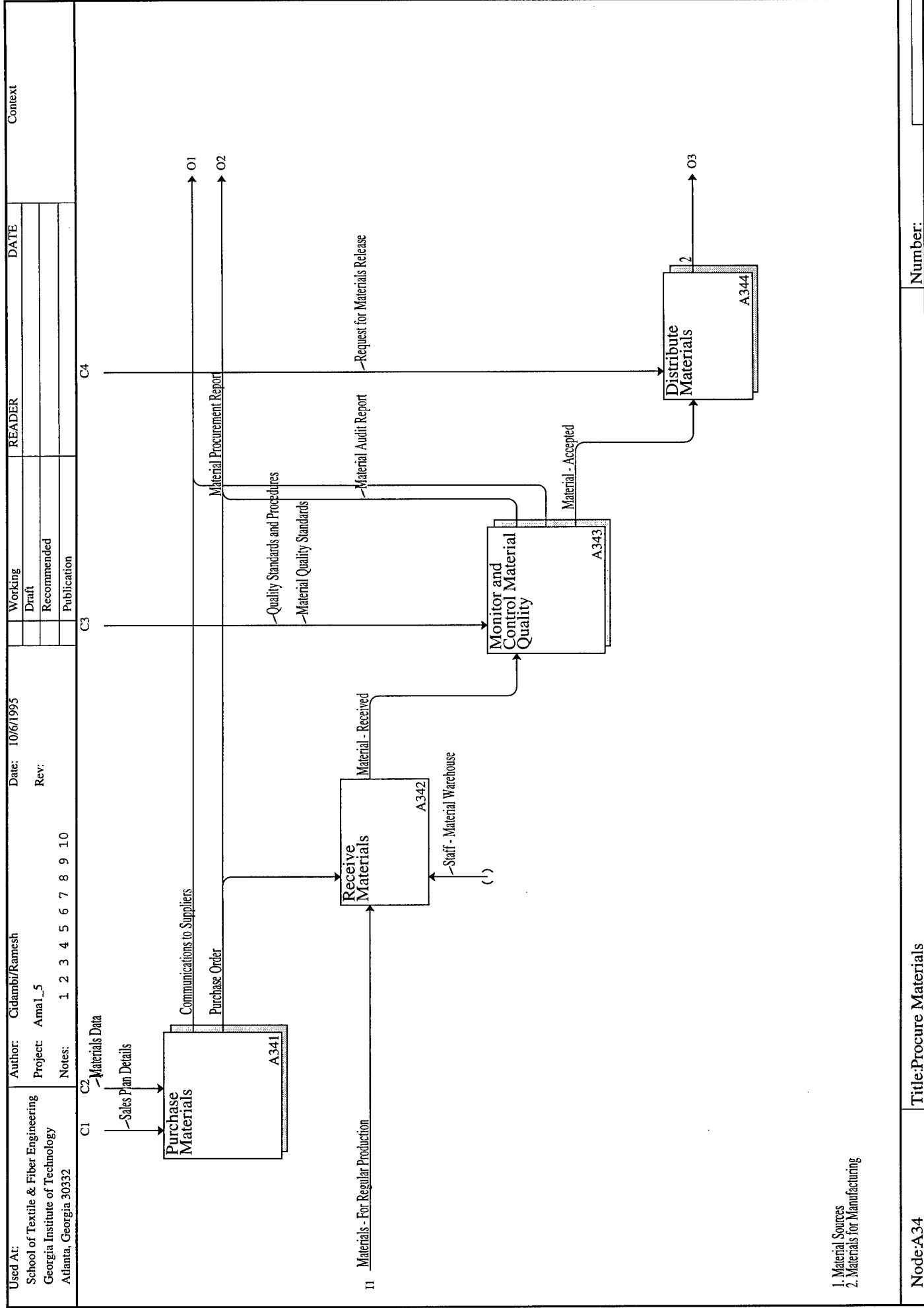
|     |                                     |                            |
|-----|-------------------------------------|----------------------------|
| Il: | Materials - For Regular Production; | [E33 (MAT_PO_ITEM)]        |
| C1: | Purchase Order;                     | [E32 (MAT_PURCHASE_ORDER)] |
| O1: | Material - Received;                | [E33 (MAT_PO_ITEM)]        |
| M1: | Staff - Material Warehouse;         | [E94 (SAL_EMPLOYEE)]       |

**Monitor and Control Material Quality**Description:

Audit the quality of received materials. When the material is received from certified suppliers, testing will be optional.

**Distribute Materials**Description:

Supply raw materials to the manufacturing plants as needed.



### **Determine Plan's Material Requirements**

#### Description:

Determine the quantities of each material required for producing garments for a plan.

#### Interface:

|     |                               |                     |
|-----|-------------------------------|---------------------|
| C1: | Plan - Released;              | [E45{SALES_PLAN}]   |
| O1: | Plan's Material Requirements; | [E46{PLAN_ITEM}]    |
| M1: | Staff - Purchase;             | [E94{SAL_EMPLOYEE}] |

### **Collate Material Requirements**

#### Description:

Determine total material requirement for the entire production scheduled on the master schedule for a time period. Issue purchase orders for these materials to selected vendors.

#### Interface:

|     |                               |                           |
|-----|-------------------------------|---------------------------|
| C1: | Plan's Material Requirements; | [E46{PLAN_ITEM}]          |
| C2: | Master Production Schedule;   | [E25{MASTER_SCHEDULE}]    |
| C3: | Selected Materials Vendor;    | [E93{MATERIAL_SOURCE}]    |
| O1: | Purchase Order;               | [E32{MAT_PURCHASE_ORDER}] |
| O2: | Materials to be purchased;    | [E33{MAT_PO_ITEM}]        |
| M1: | Staff - Purchase;             | [E94{SAL_EMPLOYEE}]       |

### **Select Material Source**

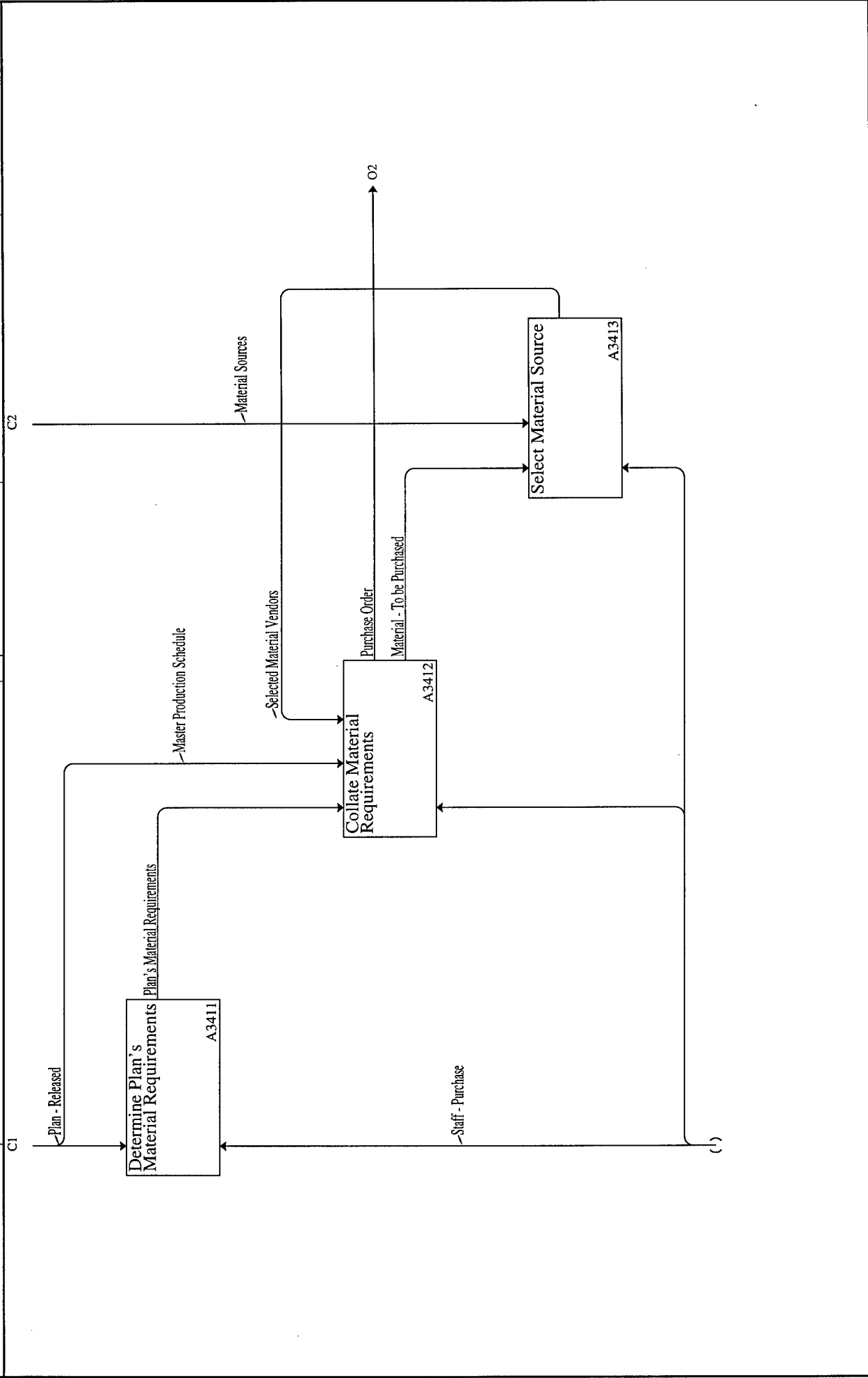
#### Description:

Select a vendor for each material to be ordered from the list of pre-approved sources for each material. In the case of Private Label garments, the material source may be determined by the customer.

#### Interface:

|     |                            |                           |
|-----|----------------------------|---------------------------|
| C1: | Materials to be Purchased; | [E33{MAT_PO_ITEM}]        |
| C2: | Material Sources;          | [E93{MATERIAL_SOURCE}]    |
| O1: | Purchase Orders;           | [E32{MAT_PURCHASE_ORDER}] |
| M1: | Staff - Purchase;          | [E94{SAL_EMPLOYEE}]       |

|                                                                                                                |                             |                 |             |        |      |
|----------------------------------------------------------------------------------------------------------------|-----------------------------|-----------------|-------------|--------|------|
| Used At:<br>School of Textile & Fiber Engineering<br>Georgia Institute of Technology<br>Atlanta, Georgia 30332 | Author: Cidambi/Ramesh      | Date: 10/6/1995 | Working     | READER | DATE |
|                                                                                                                | Project: Ama1_5             | Rev:            | Draft       |        |      |
|                                                                                                                | Notes: 1 2 3 4 5 6 7 8 9 10 |                 | Recommended |        |      |
|                                                                                                                |                             |                 | Publication |        |      |



### **Test and Inspect Material Samples**

#### Description:

Test and inspect received materials. When material is received from certified suppliers, testing will be optional.

#### Interface:

I1: Material - Received; [E33{MAT\_PO\_ITEM}]  
 C1: Material Quality Standards; [E82{QC\_PROCEDURE}]  
 O1: Material - Tested; [E33{MAT\_PO\_ITEM}]  
 O2: Material Audit Results; [E83{QUALITY\_REPORT}]  
 M1: QC Inspector; [E94{SAL\_EMPLOYEE}]

### **Analyze Material Quality**

#### Description:

Analyze the data collected during material testing and inspection and make decisions about the quality and acceptability of a material.

#### Interface:

C1: Material Audit Results; [E83{QUALITY\_REPORT}]  
 O1: Material Audit Report; [E83{QUALITY\_REPORT}]  
 M1: Staff - Quality Control; [E94{SAL\_EMPLOYEE}]

### **Release Material for Distribution**

#### Description:

Release materials that pass audit for storage. Recommend corrective action for the materials that failed.

#### Interface:

I1: Material - Tested; [E33{MAT\_PO\_ITEM}]  
 C1: Material Audit Report; [E83{QUALITY\_REPORT}]  
 O1: Material - Accepted; [E33{MAT\_PO\_ITEM}]  
 O2: Material - Rejected; [E33{MAT\_PO\_ITEM}]  
 M1: Staff - Quality Control; [E94{SAL\_EMPLOYEE}]

### **Take Corrective Action on Rejected Materials**

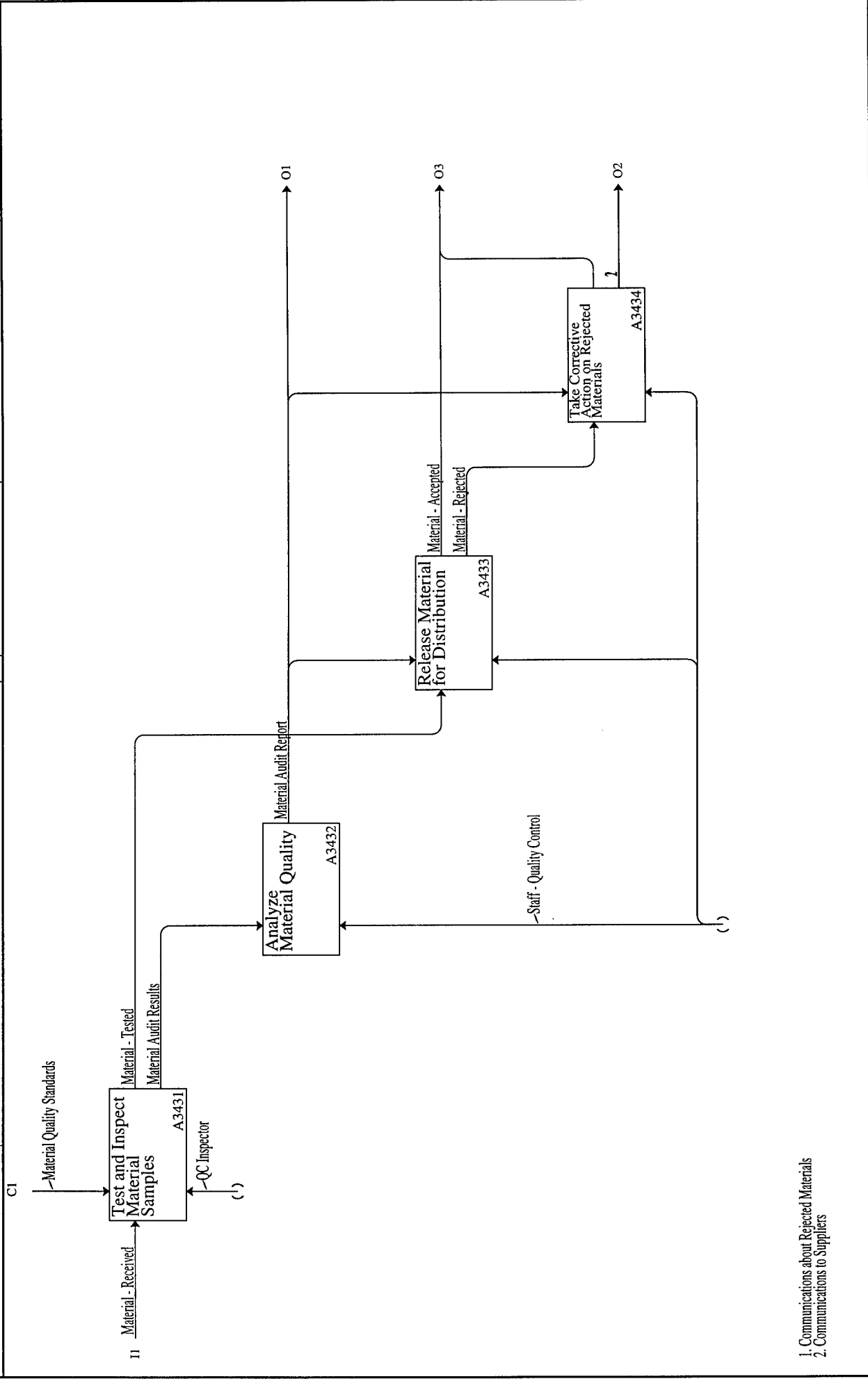
#### Description:

Communicate the results of the audit to the vendor and request appropriate action to be taken.

#### Interface:

I1: Material - Rejected; [E33{MAT\_PO\_ITEM}]  
 C1: Material Audit Report; [E83{QUALITY\_REPORT}]  
 O1: Material - Accepted; [E33{MAT\_PO\_ITEM}]  
 O2: Communications about Rejected Materials;  
 M1: Staff - Quality Control; [E94{SAL\_EMPLOYEE}]

|                                       |                             |           |             |      |         |
|---------------------------------------|-----------------------------|-----------|-------------|------|---------|
| Used At:                              | Author:                     | Date:     | READER      | DATE | Context |
| School of Textile & Fiber Engineering | Cidambir/Ramesh             | 10/6/1995 |             |      |         |
| Georgia Institute of Technology       | Project: Ama1_5             | Rev:      | Working     |      |         |
| Atlanta, Georgia 30332                | Notes: 1 2 3 4 5 6 7 8 9 10 |           | Draft       |      |         |
|                                       |                             |           | Recommended |      |         |
|                                       |                             |           | Publication |      |         |



1. Communications about Rejected Materials
2. Communications to Suppliers

|            |                                             |         |
|------------|---------------------------------------------|---------|
| Node: A343 | Title: Monitor and Control Material Quality | Number: |
|------------|---------------------------------------------|---------|

### Assign Storage Locations

#### Description:

Assign storage locations to the materials accepted. In a JIT scenario, the storage location might be a truck.

#### Interface:

|     |                               |                          |
|-----|-------------------------------|--------------------------|
| II: | Material - Accepted;          | [E33(MAT_PO_ITEM)]       |
| C1: | Material Storage - Available; | [E36(MATERIAL_LOCATION)] |
| O1: | Material - For Storage;       | [E35(STORED_ITEM)]       |
| O2: | Material Storage - Assigned;  | [E36(MATERIAL_LOCATION)] |
| M1: | Staff - Material Warehouse;   | [E94(SAL_EMPLOYEE)]      |

### Store Materials in Warehouse

#### Description:

Move the material to the storage area after a location has been assigned to it.

#### Interface:

|     |                                                   |                          |
|-----|---------------------------------------------------|--------------------------|
| II: | Material - For Storage;                           | [E35(STORED_ITEM)]       |
| C1: | Material Storage - Assigned;                      | [E36(MATERIAL_LOCATION)] |
| O1: | Material - Stored;                                | [E35(STORED_ITEM)]       |
| M1: | Operator - Material Warehouse;                    | [E64(OPERATOR)]          |
| M2: | Material Handling Equipment - Material Warehouse; |                          |
|     |                                                   | [E71(TRANSPORTER)]       |

### Select Materials for Retrieval

#### Description:

Select materials for release to manufacturing when requested.

#### Interface:

|     |                               |                         |
|-----|-------------------------------|-------------------------|
| II: | Material - Stored;            | [E35(STORED_ITEM)]      |
| C1: | Request for Material Release; | [E48(PRODUCTION_ORDER)] |
| O1: | Material - For Release;       | [E35(STORED_ITEM)]      |
| O2: | Material Release Summary;     | [E48(PRODUCTION_ORDER)] |
| M1: | Staff - Material Warehouse;   | [E94(SAL_EMPLOYEE)]     |

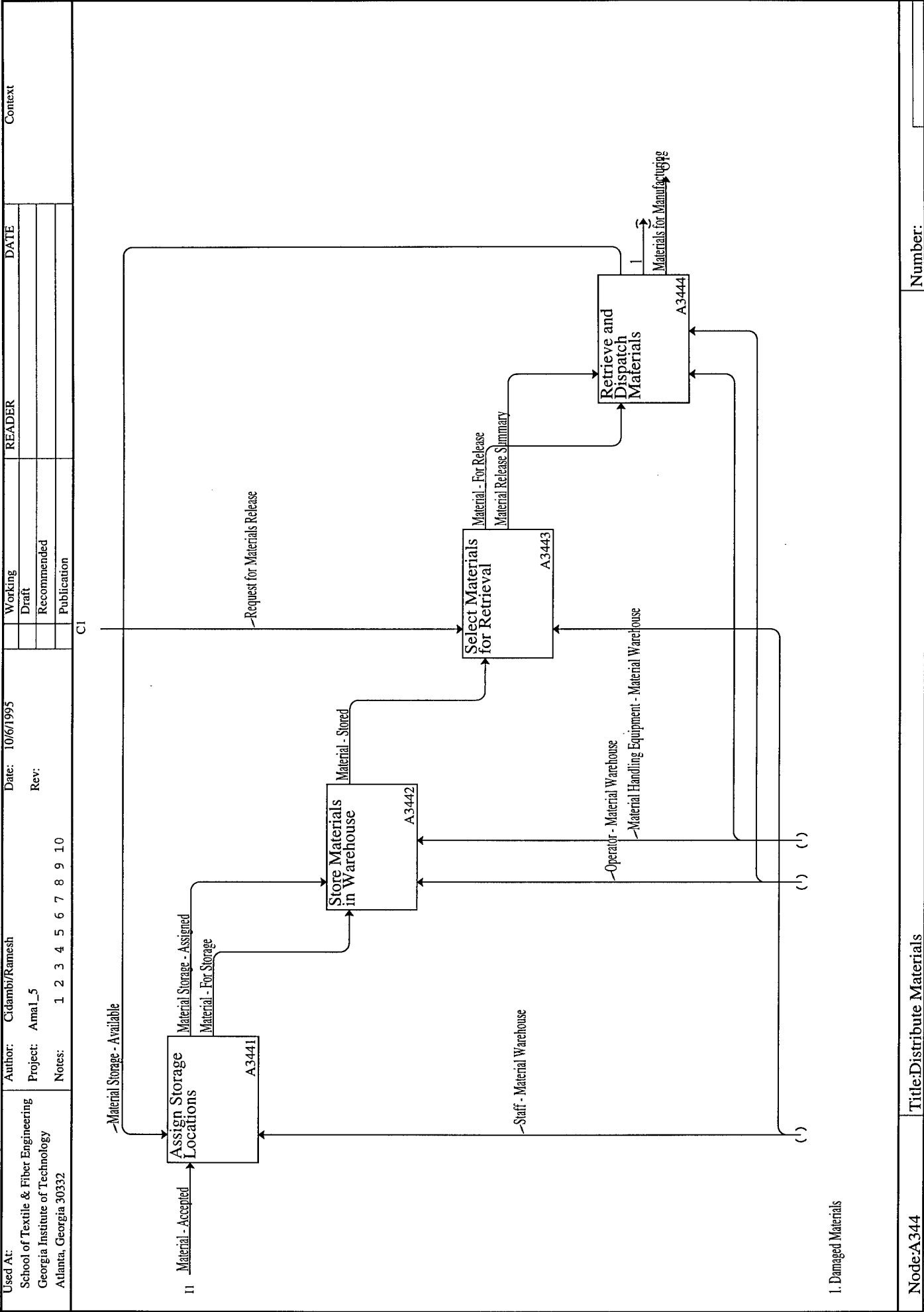
### Retrieve and Dispatch Materials

#### Description:

Retrieve materials marked for release from the storage area and dispatch them to manufacturing. Update inventory records after retrieving the materials. Check for warehouse damage and discard damaged materials.

#### Interface:

|     |                                                   |                          |
|-----|---------------------------------------------------|--------------------------|
| II: | Material - For Release;                           | [E35(STORED_ITEM)]       |
| C1: | Material Release Summary;                         | [E48(PRODUCTION_ORDER)]  |
| O1: | Material Storage - Available;                     | [E36(MATERIAL_LOCATION)] |
| O2: | Materials for Manufacturing;                      | [E48(PRODUCTION_ORDER)]  |
| M1: | Material Handling Equipment - Material Warehouse; |                          |
|     |                                                   | [E71(TRANSPORTER)]       |
| M2: | Operator - Material Warehouse;                    | [E64(OPERATOR)]          |



**Issue Production Orders**

**Description:**

Issue orders to the manufacturing plants to produce garments for the sales plan. Production for a plan may be completed through one or more production orders. The orders specify the exact color and size distribution of the garments to be produced. The customer is notified before a production order is actually issued. The feedback from the customer is used to determine the color and size distribution of the order.

**Plan Cutting & Spreading**

**Description:**

Create a marker and develop a spreading plan for the production order. The spreading plan is used while spreading to determine the number of layers of fabric to be spread under each section of the marker.

**Schedule Production**

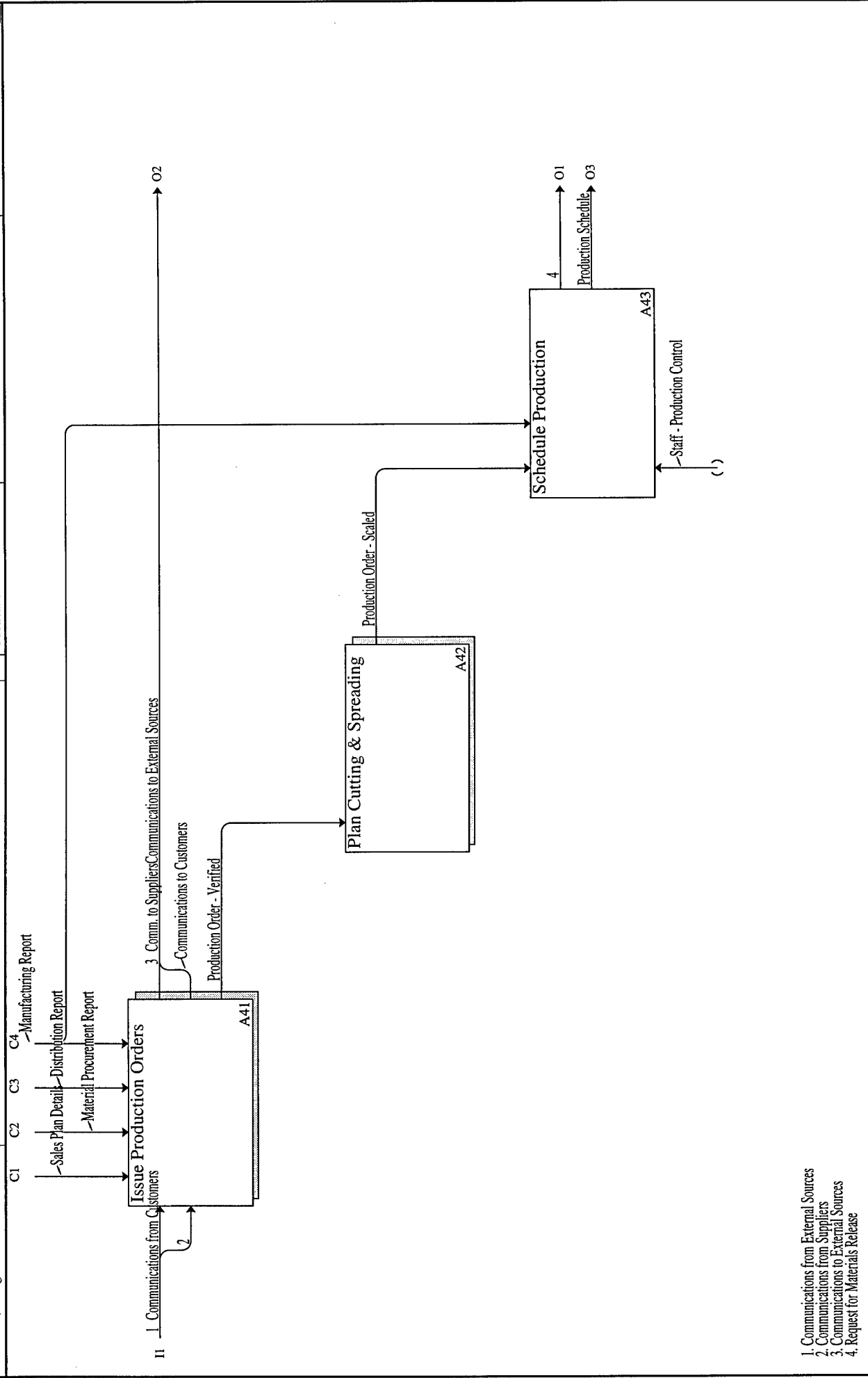
**Description:**

Schedule production orders for each manufacturing plant and release the plant schedules at the beginning of each manufacturing period. Also send a request for release of materials for each order scheduled.

**Interface:**

|     |                               |                         |
|-----|-------------------------------|-------------------------|
| C1: | Production Order - Scaled;    | [E48(PRODUCTION_ORDER)] |
| C2: | Manufacturing Report;         | [E48(PRODUCTION_ORDER)] |
| O1: | Request for Material Release; | [E48(PRODUCTION_ORDER)] |
| O2: | Production Schedule;          | [E75(PLANT_SCHEDULE)]   |
| M1: | Staff - Production Control;   | [E94(SAL_EMPLOYEE)]     |

|                                       |  |                             |           |             |        |      |         |
|---------------------------------------|--|-----------------------------|-----------|-------------|--------|------|---------|
| Used At:                              |  | Author:                     | Date:     | Working     | READER | DATE | Context |
| School of Textile & Fiber Engineering |  | Gidambi/Ramesh              | 10/6/1995 | Draft       |        |      |         |
| Georgia Institute of Technology       |  | Project: Ama1_5             | Rev:      | Recommended |        |      |         |
| Atlanta, Georgia 30332                |  | Notes: 1 2 3 4 5 6 7 8 9 10 |           | Publication |        |      |         |



1. Communications from External Sources
2. Communications from Suppliers
3. Communications to External Sources
4. Request for Materials Release

#### **Issue Production Notification to Customer**

##### Description:

For a Private Label product, notify customer about the beginning of actual production for a sales plan. Information necessary for determining the size-scale can be furnished at this point.

##### Interface:

|     |                                          |                        |
|-----|------------------------------------------|------------------------|
| C1: | Master Production Schedule;              | [E25(MASTER_SCHEDULE)] |
| O1: | Production Notification to the Customer; | [E99(CUSTOMER_INQ)]    |
| O2: | Plan - Notified;                         | [E44(MASTER_SCH_ITEM)] |
| M1: | Staff - Production Control;              | [E94(SAL_EMPLOYEE)]    |

#### **Determine Size-Scale**

##### Description:

Size-Scale information for the production plan is determined based on communications from customers and details of the sales plan. In the case of Brand Name products, Point-of-Sale (POS) data is used to determine the size-scale information.

##### Interface:

|     |                             |                     |
|-----|-----------------------------|---------------------|
| I1: | POS Data;                   | [NONE]              |
| C1: | Sales Plan Details;         | [COMPOSITE]         |
| O1: | Size Scale Information;     | [E99(CUSTOMER_INQ)] |
| M1: | Staff - Production Control; | [E94(SAL_EMPLOYEE)] |

#### **Initiate Production Orders**

##### Description:

Initiate a production order for a sales plan after the customer acknowledges the production notification.

##### Interface:

|     |                               |                         |
|-----|-------------------------------|-------------------------|
| I1: | Size Scale Information;       | [E99(CUSTOMER_INQ)]     |
| C1: | Plan - Notified;              | [E44(MASTER_SCH_ITEM)]  |
| C2: | Distribution Report;          | [E114(OP_REPORT)]       |
| C3: | Manufacturing Report;         | [E48(PRODUCTION_ORDER)] |
| O1: | Production Order - Initiated; | [E48(PRODUCTION_ORDER)] |
| M1: | Staff - Production Control;   | [E94(SAL_EMPLOYEE)]     |

#### **Verify Material Availability**

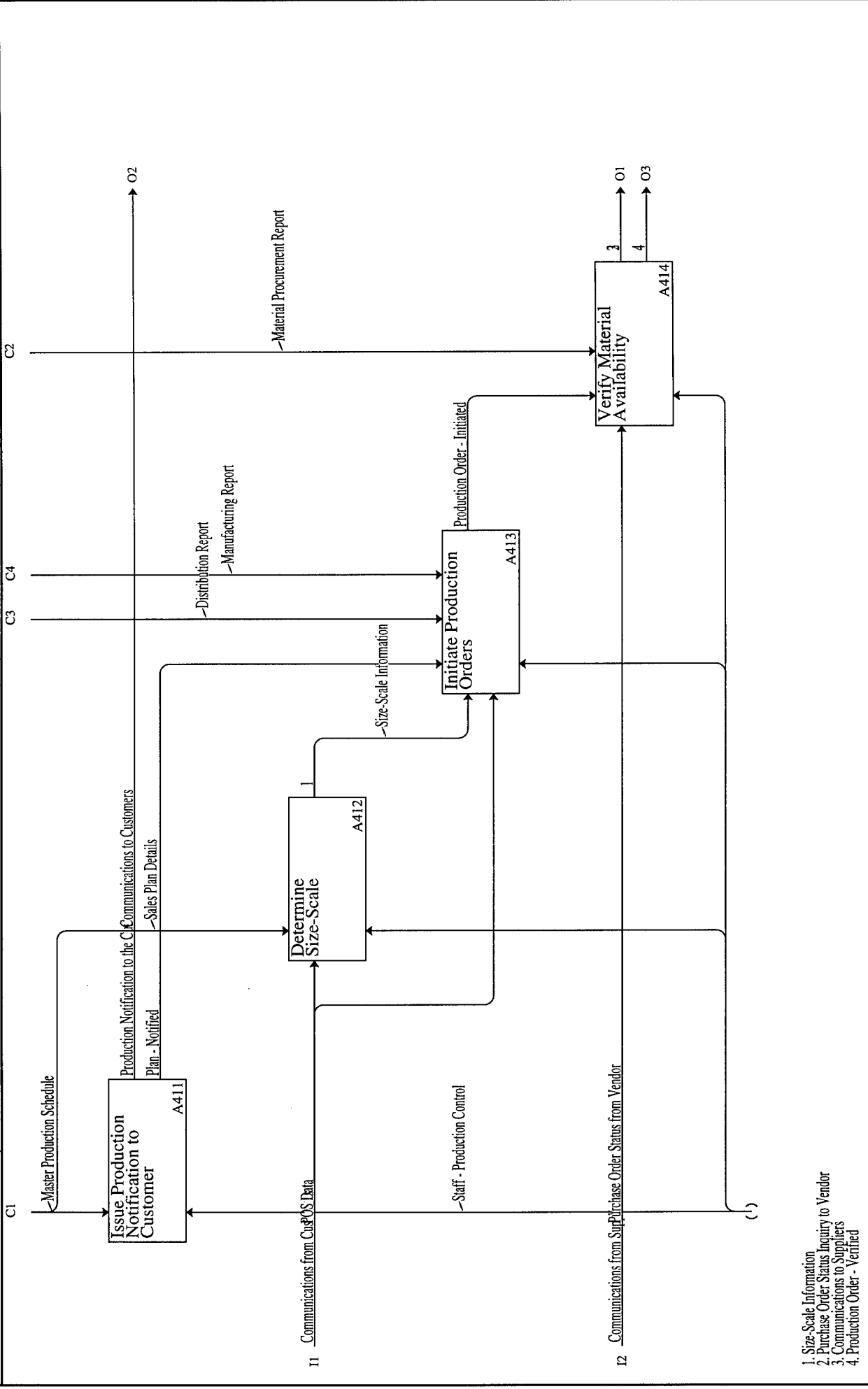
##### Description:

Ensure that materials required for executing the production order will be available at the right time. The availability status of the ordered materials is checked with the vendors.

##### Interface:

|     |                                          |                           |
|-----|------------------------------------------|---------------------------|
| I1: | Purchase Order Status from Vendor;       | [E32(MAT_PURCHASE_ORDER)] |
| C1: | Production Order - Initiated;            | [E48(PRODUCTION_ORDER)]   |
| C2: | Material Procurement Report;             | [E32(MAT_PURCHASE_ORDER)] |
| O1: | Purchase Order Status Inquiry to Vendor; | [E32(MAT_PURCHASE_ORDER)] |
| O2: | Production Order - Verified;             | [E48(PRODUCTION_ORDER)]   |
| M1: | Staff - Production Control;              | [E94(SAL_EMPLOYEE)]       |

|                                                                                                                |                             |                 |             |        |      |         |
|----------------------------------------------------------------------------------------------------------------|-----------------------------|-----------------|-------------|--------|------|---------|
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|                                                                                                                | Project: Ama1_5             | Rev:            | Draft       |        |      |         |
|                                                                                                                | Notes: 1 2 3 4 5 6 7 8 9 10 |                 | Recommended |        |      |         |
|                                                                                                                |                             |                 | Publication |        |      |         |



- 1. Size-Scale Information
- 2. Purchase Order Status Inquiry to Vendor
- 3. Communications to Suppliers
- 4. Production Order - Verified

**Determine Marker Sections**

Description:  
Grade the pattern to various sizes and prepare marker sections by packing graded patterns into the section boundary.

Interface:  
C1: Marker's Pattern, Grade Rules and Width;  
[E51(MARKER)]  
O1: Marker Sections;  
[E52(SCALED\_SECTION)]  
M1: Workstation - Marker Making;  
[E62(WORKSTATION)]  
M2: Marker Maker;  
[E94(SAL\_EMPLOYEE)]

**Prepare Marker**

Description:  
Initiate a marker for a production order and specify what sizes of garments will go in each section of a marker.

Interface:  
C1: Production Order - Verified;  
[E48(PRODUCTION\_ORDER)]  
C2: Marker Section;  
[E52(SCALED\_SECTION)]  
O1: Marker's Pattern, Grade Rules and Width;  
[E51(MARKER)]  
O2: Production Order's Marker;  
[E48(PRODUCTION\_ORDER)]  
M1: Marker Maker;  
[E94(SAL\_EMPLOYEE)]

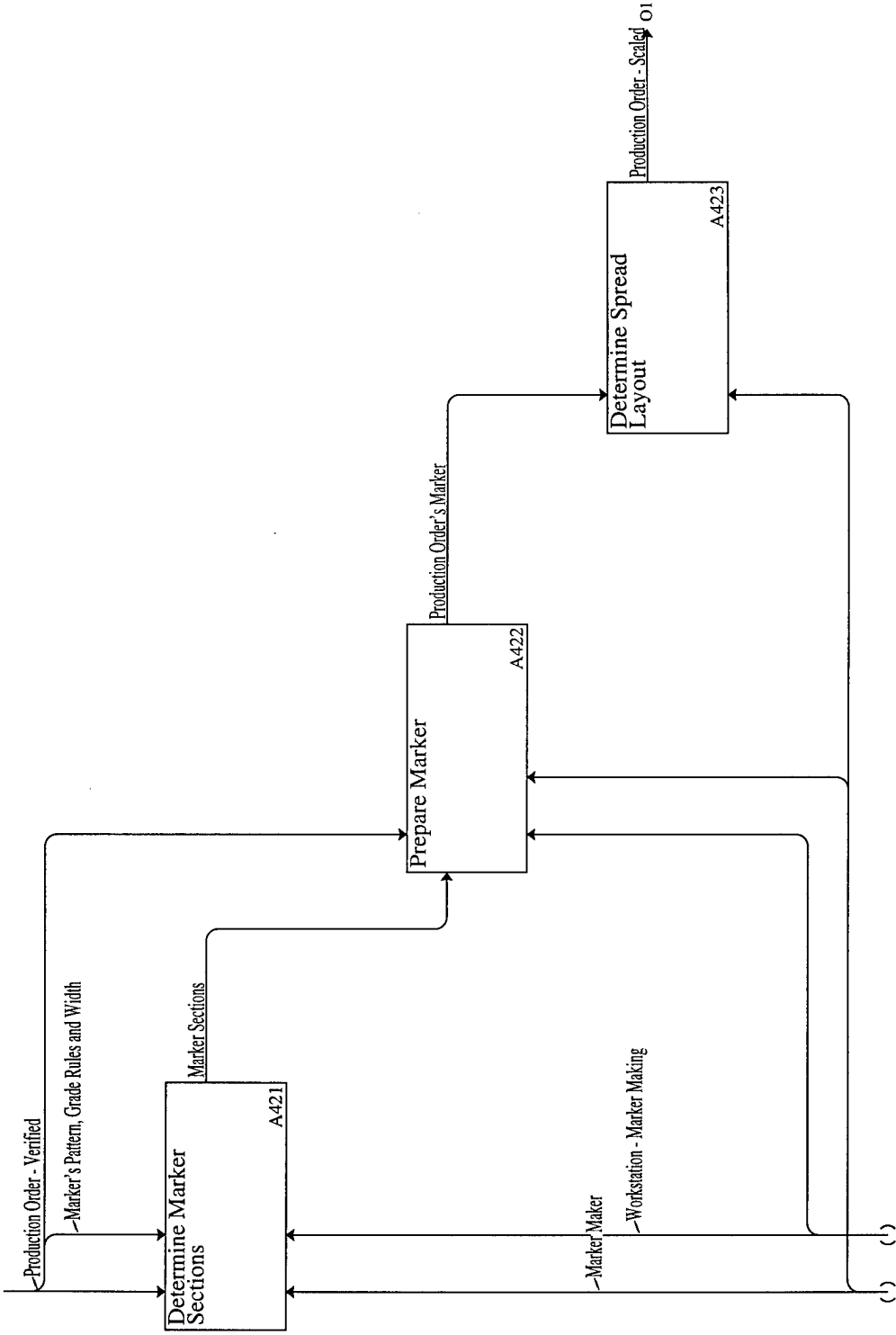
**Determine Spread Layout**

Description:  
Determine the number of layers of fabric that should be spread under each marker section to obtain the desired quantity of garments and their correct size distribution.

Interface:  
C1: Production Order's Marker;  
[E48(PRODUCTION\_ORDER)]  
O1: Production Order - Scaled;  
[E48(PRODUCTION\_ORDER)]  
M1: Marker Maker;  
[E94(SAL\_EMPLOYEE)]

|                                                                                                                |                                                                          |                 |                                                |        |      |         |
|----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|-----------------|------------------------------------------------|--------|------|---------|
| Used At:<br>School of Textile & Fiber Engineering<br>Georgia Institute of Technology<br>Atlanta, Georgia 30332 | Author: Cidambi/Ramesh<br>Project: Ama1_5<br>Notes: 1 2 3 4 5 6 7 8 9 10 | Date: 10/6/1995 | Working<br>Draft<br>Recommended<br>Publication | READER | DATE | Context |
|                                                                                                                |                                                                          | Rev:            |                                                |        |      |         |
|                                                                                                                |                                                                          |                 |                                                |        |      |         |
|                                                                                                                |                                                                          |                 |                                                |        |      |         |

C1



#### **Cut Fabric and Collect Garment Parts**

##### Description:

Cut fabric into garment parts. Collect fabric parts and all other materials (trim, accessories, closures, tags, etc.) required to produce garments for a production order together into a cut package. Ship this package to the sewing and finishing plant. Cutting is done centrally for more than one sewing and finishing plants.

#### **Distribute Production Schedule to Plants**

##### Description:

Release the production schedule to each manufacturing plant.

##### Interface:

|     |                                 |                       |
|-----|---------------------------------|-----------------------|
| Cl: | Production Schedule;            | [E75{PLANT_SCHEDULE}] |
| Ol: | Production Schedule for Plants; | [E75{PLANT_SCHEDULE}] |
| Ml: | Staff - Production Control;     | [E94{SAL_EMPLOYEE}]   |

#### **Produce Garments**

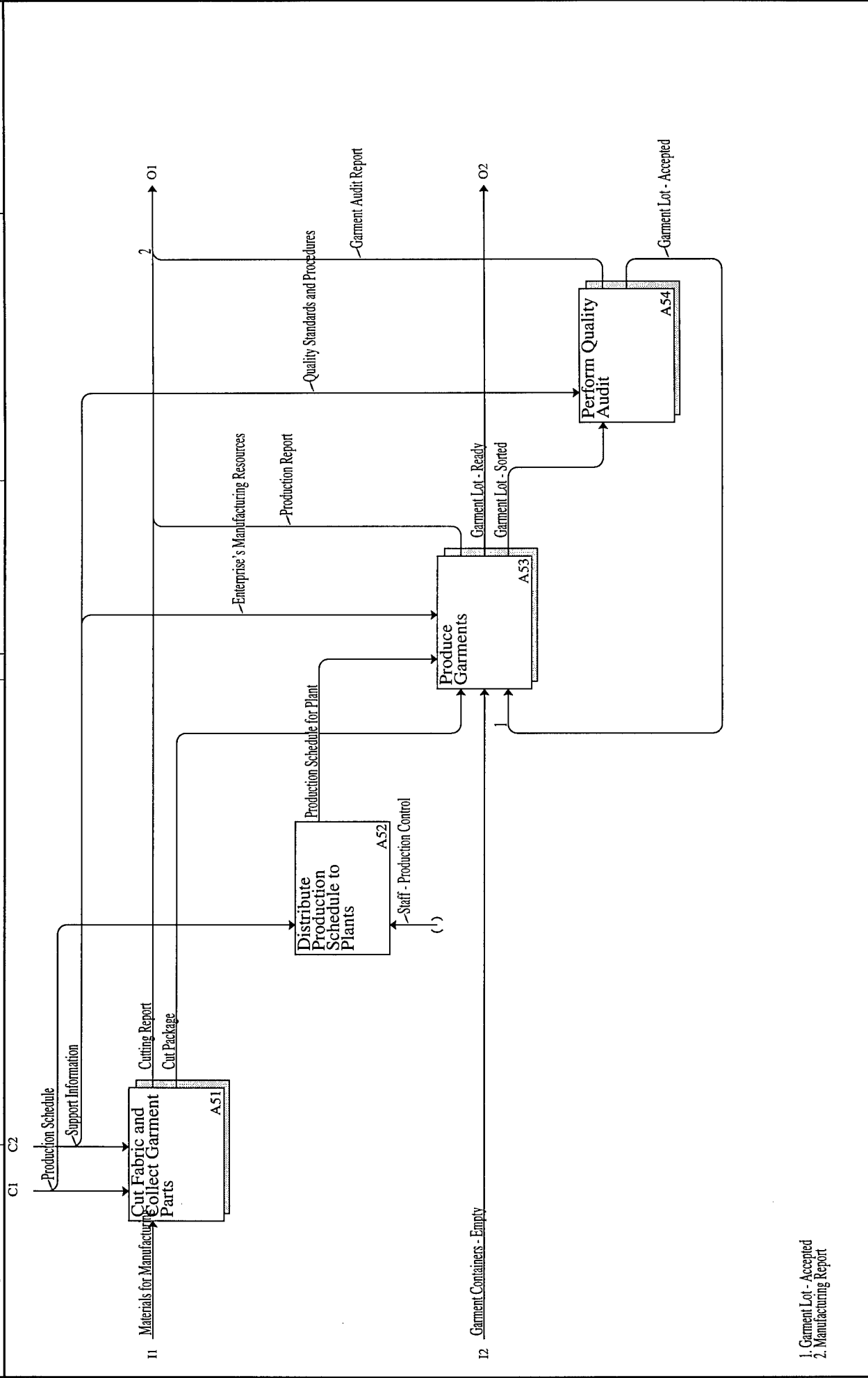
##### Description:

Convert materials and parts from the cut package into garments.

#### **Perform Quality Audit**

##### Description:

Inspect a sample of garments from the produced lot for fabric, sewing and finishing defects and determine whether the lot is of acceptable quality. If the lot fails the quality audit, take appropriate action, such as removal of defective garments through 100% inspection or downgrading of the quality of the lot to irregular.



1. Garment Lot - Accepted  
2. Manufacturing Report

#### **Schedule Cutting Production**

##### Description:

After a production schedule has been issued, prepare a schedule for cutting fabric for all the orders on the production schedule.

##### Interface:

C1: Production Schedule; [E75(PLANT\_SCHEDULE)]  
 O1: Cutting Schedule; [E67(CUT\_RM\_SCHEDULE)]  
 M1: Staff - Cutting; [E94(SAL\_EMPLOYEE)]

#### **Assign Resources and Release Cutting Jobs**

##### Description:

At the beginning of each cutting period, assign equipment and operators to each order scheduled during that period and release these orders for cutting.

##### Interface:

C1: Cutting Schedule; [E67(CUT\_RM\_SCHEDULE)]  
 C2: Enterprise's Manufacturing Resources; [COMPOSITE]  
 O1: Production Order - For Cutting; [E48(PRODUCTION\_ORDER)]  
 M1: Staff - Cutting; [E94(SAL\_EMPLOYEE)]

#### **Produce Cut Parts**

##### Description:

Convert fabric into cut garment parts.

#### **Audit and Ship Cut Package**

##### Description:

Audit cutting production and ship cut packages, consisting of fabric parts and other construction materials, to manufacturing plants.



**Spread Fabric**Description:

Spread fabric according to the spreading plan.

**Cut Fabric**Description:

Cut the spread fabric into garment parts. Cut waste is not a primary output of the enterprise, hence it is not shown at higher levels.

Interface:

|     |                           |                         |
|-----|---------------------------|-------------------------|
| I1: | Fabric - Spread Sections; | [E98{SPREAD_SECTION}]   |
| C1: | Cutting Assignments;      | [E67{CUT_RM_SCHEDULE}]  |
| O1: | Cutting Status;           | [E48{PRODUCTION_ORDER}] |
| O2: | Fabric - Cut Parts;       | [E98{SPREAD_SECTION}]   |
| M1: | Operator - Cutting;       | [E64{OPERATOR}]         |
| M2: | Cutting Machine;          | [E62{WORKSTATION}]      |

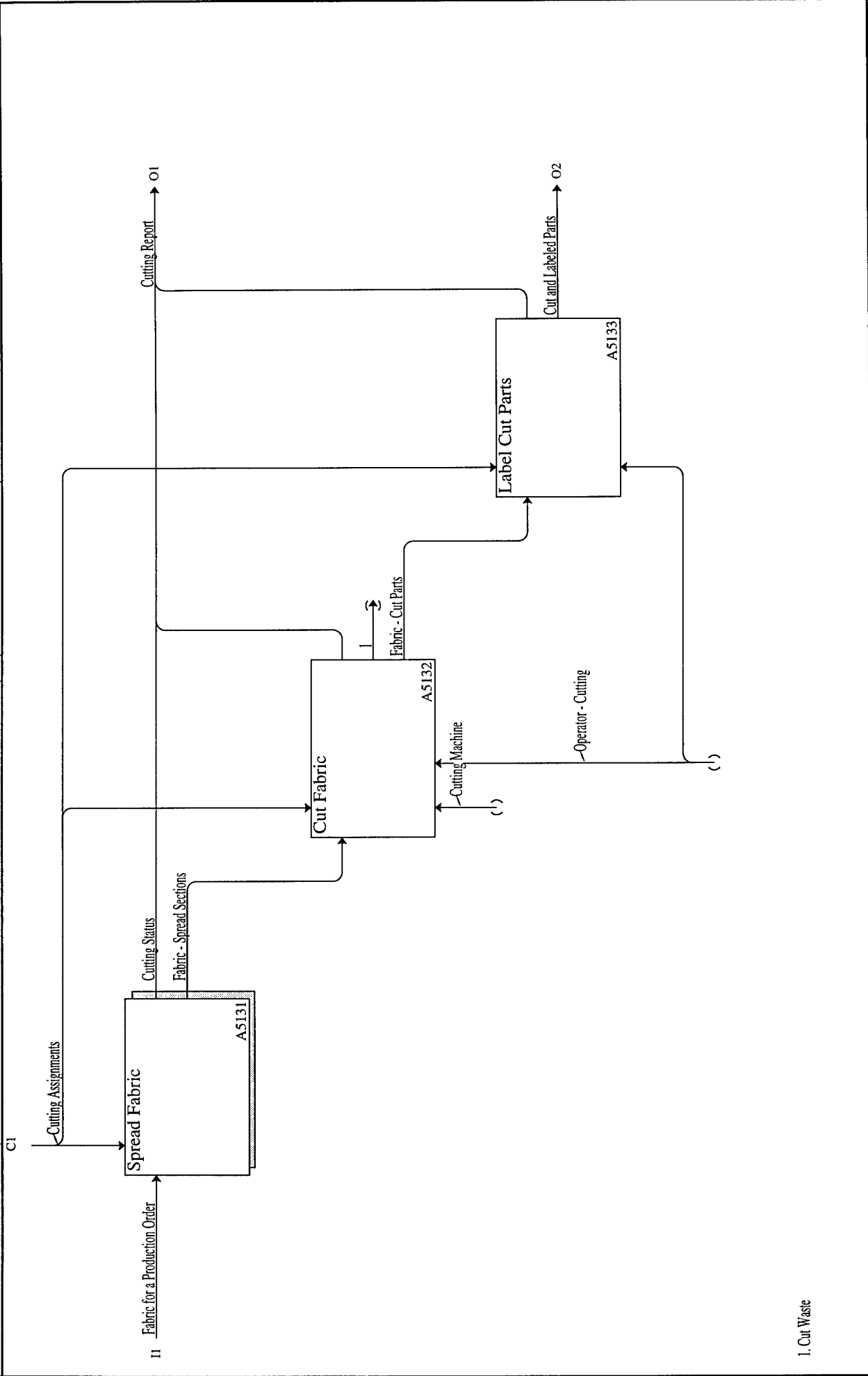
**Label Cut Parts**Description:

Label cut parts with their process codes and group parts by collecting together all parts that go into a single garment. In the case of bundles, only the bundles are typically numbered instead of individual parts.

Interface:

|     |                        |                         |
|-----|------------------------|-------------------------|
| I1: | Fabric - Cut Parts;    | [E98{SPREAD_SECTION}]   |
| C1: | Cutting Assignments;   | [E67{CUT_RM_SCHEDULE}]  |
| O1: | Cutting Status;        | [E48{PRODUCTION_ORDER}] |
| O2: | Cut and Labeled Parts; | [E100{GAR_SUBASSEMBLY}] |
| M1: | Operator - Cutting;    | [E64{OPERATOR}]         |

|                                                                                                                |                             |                 |             |      |         |
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|                                                                                                                | Project: Ama1_5             | Rev:            | Draft       |      |         |
|                                                                                                                | Notes: 1 2 3 4 5 6 7 8 9 10 |                 | Recommended |      |         |
|                                                                                                                |                             |                 | Publication |      |         |



1. Cut Waste

**Lay Fabric**Description:

Lay Fabric in layers on the spreading table according to the spreading plan.

\*\*\*\* For Exposition Only \*\*\*\*

**Stop and Process Defects**Description:

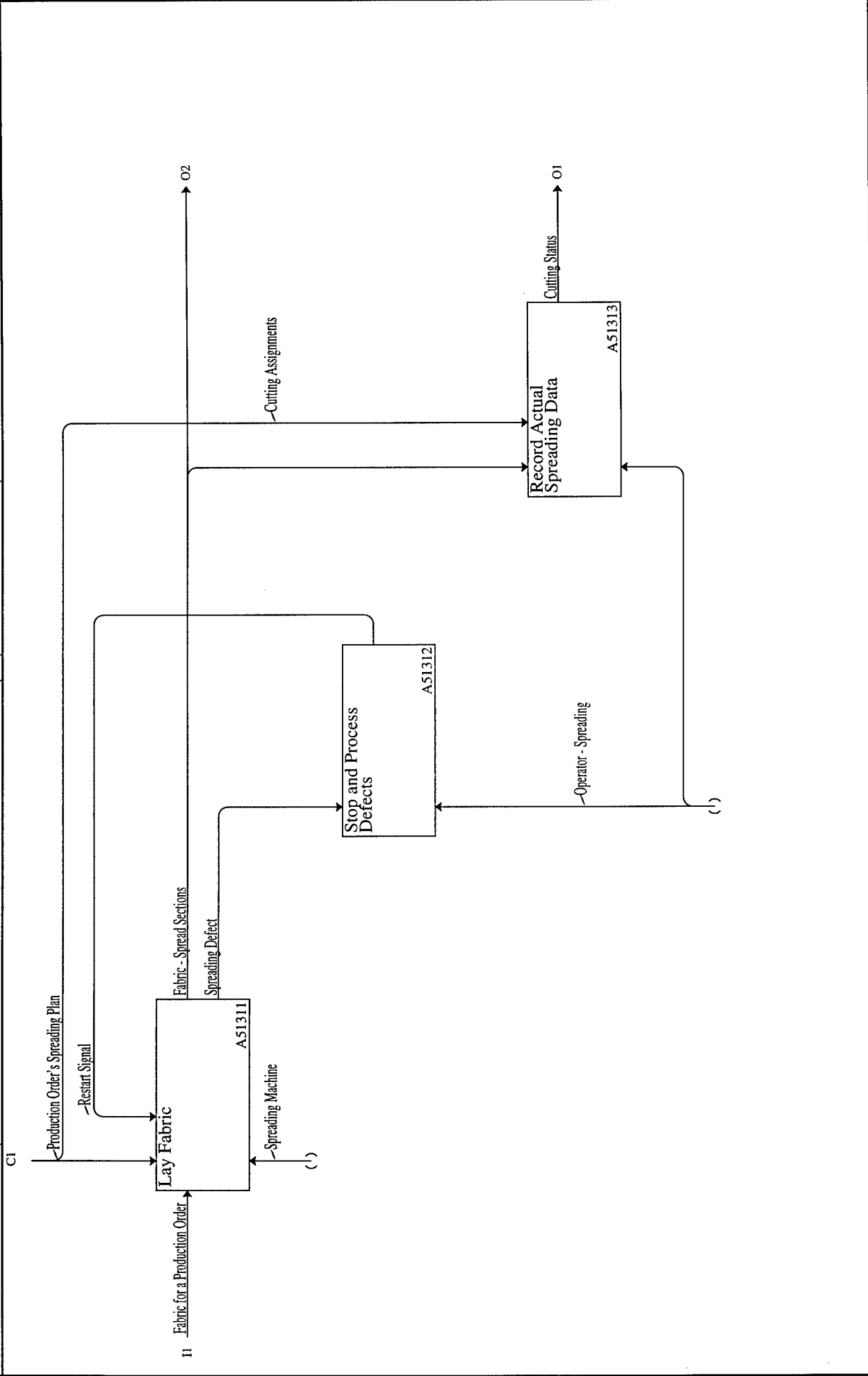
Take corrective action, such as removing defective portion of fabric, correction of edge alignment, etc., when a defect is detected.

\*\*\*\* For Exposition Only\*\*\*\*

**Record Actual Spreading Data**Description:

After spreading, record the actual number of layers of fabric spread in each section. The actual layers spread may differ from what is given in the spreading plan due to the unavailability of exact quantity of fabric.

\*\*\*\*For Exposition Only\*\*\*\*



**Inspect Cut Package**Description:

Inspect cut parts for cutting quality, correctness of labels, etc.

Interface:

|     |                                   |                         |
|-----|-----------------------------------|-------------------------|
| II: | Cut and Labeled Parts;            | [E100(GAR_SUBASSEMBLY)] |
| CI: | Quality Standards and Procedures; | [E82(QC_PROCEDURE)]     |
| O1: | Cut Audit Report;                 | [E48(PRODUCTION_ORDER)] |
| O2: | Cut - Rejected;                   | [E48(PRODUCTION_ORDER)] |
| O3: | Cut - Accepted;                   | [E48(PRODUCTION_ORDER)] |
| M1: | Staff - Quality Control;          | [E94(SAL_EMPLOYEE)]     |

**Take Corrective Action**Description:

Take corrective action on a cut to eliminate the defects that caused the cut to fail quality audit.

Interface:

|     |                         |                         |
|-----|-------------------------|-------------------------|
| II: | Cut - Rejected;         | [E48(PRODUCTION_ORDER)] |
| CI: | Cutting Assignments;    | [E67(CUT_RM_SCHEDULE)]  |
| O1: | Cut Package - Accepted; | [E48(PRODUCTION_ORDER)] |
| M1: | Operator - Cutting;     | [E64(OPERATOR)]         |

**Deliver Cut Package**Description:

Deliver cut package to the assembly and finishing plant after it has passed the quality audit.

Interface:

|     |                                                |                         |
|-----|------------------------------------------------|-------------------------|
| II: | Cut - Accepted;                                | [E48(PRODUCTION_ORDER)] |
| I2: | Construction Materials for a Production Order; | [E48(PRODUCTION_ORDER)] |
| CI: | Cutting Assignments;                           | [E67(CUT_RM_SCHEDULE)]  |
| O1: | Cut Package;                                   | [E48(PRODUCTION_ORDER)] |
| O2: | Cutting Report;                                | [E48(PRODUCTION_ORDER)] |
| M1: | Operator - Cutting;                            | [E64(OPERATOR)]         |



#### **Assign Production Resources**

##### Description:

Assign equipment and operators for sewing, finishing and auxiliary processing of garments for production orders on the schedule.

##### Interface:

C1: Production Schedule for Plant; [E75{PLANT\_SCHEDULE}]  
 C2: Enterprise Manufacturing Resources; [COMPOSITE]  
 C3: Production Status; [E48{PRODUCTION\_ORDER}]  
 O1: Production Report; [E48{PRODUCTION\_ORDER}]  
 O2: Assignments - Plant Resources; [E75{PLANT\_SCHEDULE}]  
 M1: Staff - Manufacturing; [E94{SAL\_EMPLOYEE}]

#### **Sew and Finish Garments**

##### Description:

Sew and finish garments for a production order.

#### **Classify and Sort Garments**

##### Description:

Classify garments according to their quality and sort them by size and quality grade.

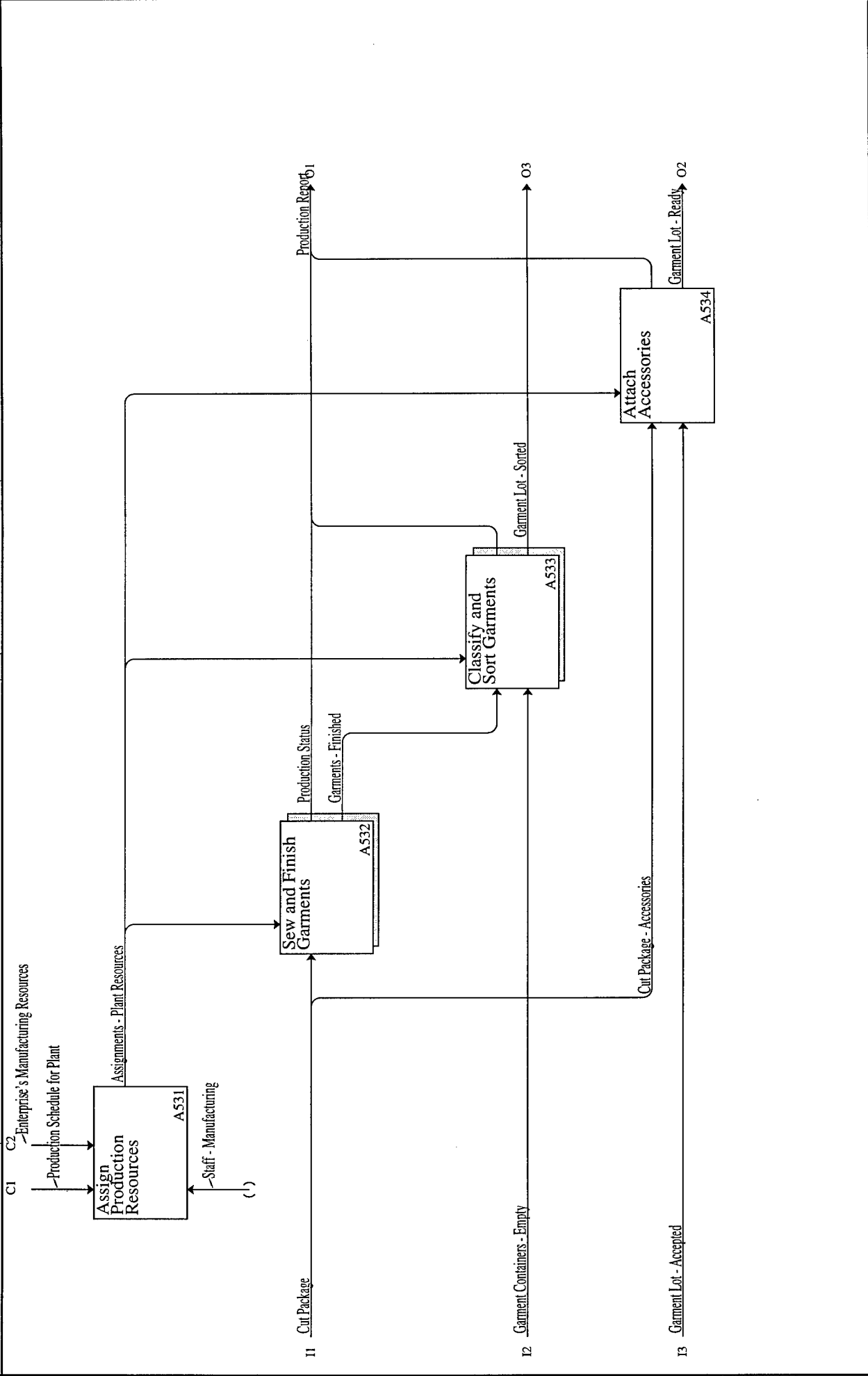
#### **Attach Accessories**

##### Description:

Attach belts, hangers, etc. to the garments; additional accessories are attached in the case where the garments have to be made floor-ready. Accessories are attached after the production order has been audited.

##### Interface:

I1: Garment Lot - Accepted; [E48{PRODUCTION\_ORDER}]  
 C1: Assignments - Plant Resources; [E75{PLANT\_SCHEDULE}]  
 O1: Production Status; [E48{PRODUCTION\_ORDER}]  
 O2: Garment Lot - Ready; [E57{FG\_CARTON}]  
 M1: Operator - Manufacturing; [E64{OPERATOR}]



### **Control Sewing and Finishing Production**

#### Description:

Control the real-time operation of sewing/finishing lines or modules. Move each garment unit through the entire sequence of process steps and track its status all along. Also ensure that the process steps are performed in the correct sequence given on the process plan.

#### Interface:

|     |                                 |                         |
|-----|---------------------------------|-------------------------|
| C1: | Assignments - Plant Resources;  | [E75(PLANT_SCHEDULE)]   |
| C2: | Sewing & Finishing Status;      | [E77(ASSIGNED_EQUIP)]   |
| C3: | Work-In-Process Status;         | [E100(GAR_SUBASSEMBLY)] |
| O1: | Production Status;              | [E48(PRODUCTION_ORDER)] |
| O2: | Sewing & Finishing Assignments; | [E77(ASSIGNED_EQUIP)]   |
| O3: | Sub-Assembly Release Order;     | [E100(GAR_SUBASSEMBLY)] |

### **Hold Garment Sub-Assemblies**

#### Description:

Hold the garment sub-assemblies in process between process steps. Update the location of each garment sub-assembly received in the buffer.

#### Interface:

|     |                                      |                         |
|-----|--------------------------------------|-------------------------|
| I1: | Cut Package;                         | [E48(PRODUCTION_ORDER)] |
| I2: | Sub-Assemblies - For Storage;        | [E100(GAR_SUBASSEMBLY)] |
| C1: | Sub-Assembly Release Order;          | [E100(GAR_SUBASSEMBLY)] |
| O1: | Work-In-Process Status;              | [E100(GAR_SUBASSEMBLY)] |
| O2: | Garment - Finished;                  | [E78(GARMENT_UNIT)]     |
| O3: | Sub-Assemblies - For Transportation; | [E100(GAR_SUBASSEMBLY)] |
| M1: | Storage Buffer;                      | [E30(BUFFER)]           |

### **Transport Garment Sub-Assemblies**

#### Description:

Move garment sub-assemblies between storage buffer and processing units.

#### Interface:

|     |                                      |                         |
|-----|--------------------------------------|-------------------------|
| I1: | Sub-Assemblies - For Transportation; | [E100(GAR_SUBASSEMBLY)] |
| I2: | Sub-Assemblies - Processed;          | [E100(GAR_SUBASSEMBLY)] |
| C1: | Sewing & Finishing Assignments;      | [E77(ASSIGNED_EQUIP)]   |
| O1: | Sub-Assemblies - For Processing;     | [E100(GAR_SUBASSEMBLY)] |
| O2: | Sub-Assemblies - To Buffer;          | [E100(GAR_SUBASSEMBLY)] |
| M1: | Transporter;                         | [E71(TRANSPORTER)]      |

### **Process Garment Sub-Assemblies**

#### Description:

Perform a set of sewing or finishing operations on garment sub-assemblies in a manufacturing module. Ensure that the operations have been performed correctly before releasing the assemblies for further processing.



### **Set Up Sewing/Finishing Unit**

#### Description:

Set up a sewing/finishing unit for production and instruct each operator about the task assigned to the unit.

#### Interface:

|     |                                |                       |
|-----|--------------------------------|-----------------------|
| C1: | Sewing & Finishing Assignment; | [E77{ASSIGNED_EQUIP}] |
| C2: | Sewing & Finishing Status;     | [E77{ASSIGNED_EQUIP}] |
| O1: | Operator Assignments;          | [E77{ASSIGNED_EQUIP}] |
| M1: | Manufacturing Module;          | [E29{EQUIP_GROUP}]    |

### **Perform Sewing/Finishing Operations**

#### Description:

Perform sewing/finishing operations assigned to this unit on a garment sub-assembly.

#### Interface:

|     |                                  |                         |
|-----|----------------------------------|-------------------------|
| I1: | Sub-Assemblies - For Processing; | [E100{GAR_SUBASSEMBLY}] |
| C1: | Operator Assignments;            | [E77{ASSIGNED_EQUIP}]   |
| O1: | Sub-Assembly - For Inspection;   | [E100{GAR_SUBASSEMBLY}] |
| M1: | Workstation - Manufacturing;     | [E62{WORKSTATION}]      |
| M2: | Operator - Manufacturing;        | [E64{OPERATOR}]         |

### **Inspect Garment Sub-Assembly**

#### Description:

Inspect the garment sub-assembly for defects in processing after completing a set of processing operations on it.

#### Interface:

|     |                                 |                         |
|-----|---------------------------------|-------------------------|
| I1: | Sub-Assembly - For Inspection;  | [E100{GAR_SUBASSEMBLY}] |
| I2: | Sub-Assembly - Reworked;        | [E100{GAR_SUBASSEMBLY}] |
| C1: | Sewing & Finishing Assignments; | [E77{ASSIGNED_EQUIP}]   |
| O1: | Sewing & Finishing Status;      | [E77{ASSIGNED_EQUIP}]   |
| O2: | Sub-Assembly - Processed;       | [E100{GAR_SUBASSEMBLY}] |
| O3: | Sub-Assembly - For Rework;      | [E100{GAR_SUBASSEMBLY}] |
| M1: | Operator - Manufacturing;       | [E64{OPERATOR}]         |

### **Re-Work Garment Sub-Assembly**

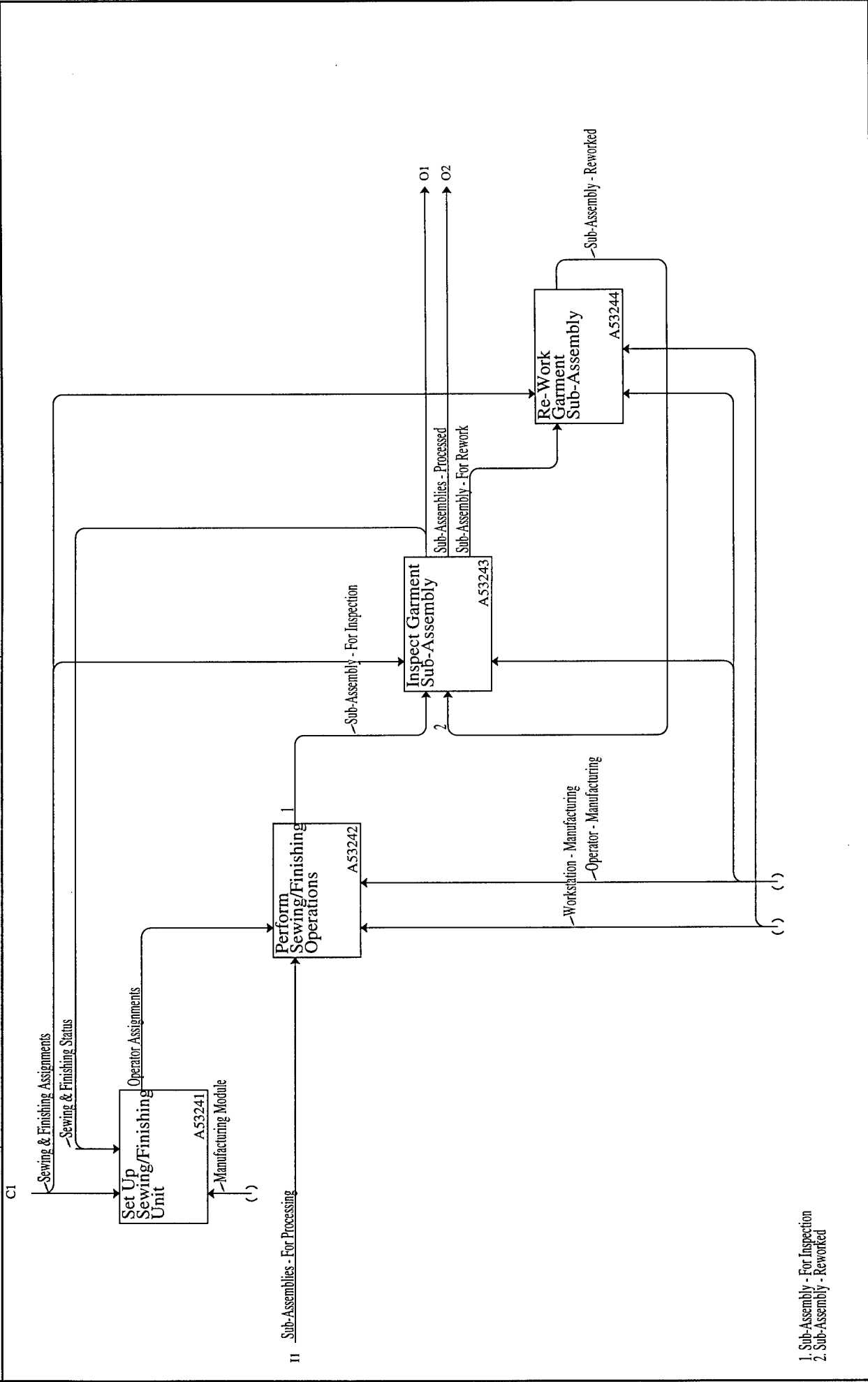
#### Description:

Re-work garment sub-assemblies that are found to be defective during inspection.

#### Interface:

|     |                                 |                         |
|-----|---------------------------------|-------------------------|
| I1: | Sub-Assembly - For Rework;      | [E100{GAR_SUBASSEMBLY}] |
| C1: | Sewing & Finishing Assignments; | [E77{ASSIGNED_EQUIP}]   |
| O1: | Sub-Assembly - Reworked;        | [E100{GAR_SUBASSEMBLY}] |
| M1: | Operator - Manufacturing;       | [E64{OPERATOR}]         |
| M2: | Workstation - Manufacturing;    | [E62{WORKSTATION}]      |

|                                                                                                                |                             |                 |             |        |      |         |
|----------------------------------------------------------------------------------------------------------------|-----------------------------|-----------------|-------------|--------|------|---------|
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|                                                                                                                | Notes: 1 2 3 4 5 6 7 8 9 10 |                 | Recommended |        |      |         |
|                                                                                                                |                             |                 | Publication |        |      |         |



### Assess Garment Quality

#### Description:

Examine each garment in the production order and assign a quality assessment rating to it. If a garment needs minor repairs, get the repairs done before assessment.

#### Interface:

|     |                                |                         |
|-----|--------------------------------|-------------------------|
| I1: | Garments - Finished;           | [E78{GARMENT_UNIT}]     |
| I2: | Garments - Repaired;           | [E78{GARMENT_UNIT}]     |
| C1: | Assignments - Plant Resources; | [E75{PLANT_SCHEDULE}]   |
| O1: | Production Status;             | [E48{PRODUCTION_ORDER}] |
| O2: | Garments - Assessed;           | [E78{GARMENT_UNIT}]     |
| O3: | Garments - Repairable;         | [E78{GARMENT_UNIT}]     |
| M1: | Operator - Manufacturing;      | [E64{OPERATOR}]         |

### Carry Out Minor Repairs

#### Description:

Carry out minor repairs such as removing light soil marks, attaching missing buttons, etc.

#### Interface:

|     |                                |                       |
|-----|--------------------------------|-----------------------|
| I1: | Garments - Repairable;         | [E78{GARMENT_UNIT}]   |
| C1: | Assignments - Plant Resources; | [E75{PLANT_SCHEDULE}] |
| O1: | Garments - Repaired;           | [E78{GARMENT_UNIT}]   |
| M1: | Operator - Manufacturing;      | [E64{OPERATOR}]       |
| M2: | Workstation - Manufacturing;   | [E62{WORKSTATION}]    |

### Pack Garments in Storage Containers

#### Description:

Sort garments belonging to a production order by size and quality. Pack the sorted garments in storage containers in which they would be shipped to the distribution center.

#### Interface:

|     |                                |                         |
|-----|--------------------------------|-------------------------|
| I1: | Garments - Graded;             | [E78{GARMENT_UNIT}]     |
| I2: | Garment Containers - Empty;    | [E57{FG_CARTON}]        |
| C1: | Assignments - Plant Resources; | [E75{PLANT_SCHEDULE}]   |
| O1: | Production Status;             | [E48{PRODUCTION_ORDER}] |
| O2: | Garment Lot - Sorted;          | [E57{FG_CARTON}]        |
| M1: | Operator - Manufacturing;      | [E64{OPERATOR}]         |



#### **Inspect Finished Garments**

##### Description:

Inspect finished garments for quality according to auditing standards.

##### Interface:

|     |                            |                         |
|-----|----------------------------|-------------------------|
| Il: | Garment Lot - Sorted;      | [E57{FG_CARTON}]        |
| C1: | Garment Quality Standards; | [E82{QC_PROCEDURE}]     |
| O1: | Garment Lot - Audited;     | [E57{FG_CARTON}]        |
| O2: | Garment Audit Results;     | [E48{PRODUCTION_ORDER}] |
| M1: | QC Inspector;              | [E94{SAL_EMPLOYEE}]     |

#### **Analyze Finished Goods Audit Report**

##### Description:

Analyze the results of quality inspection and determine whether produced garments are of acceptable quality.

##### Interface:

|     |                          |                         |
|-----|--------------------------|-------------------------|
| C1: | Garment Audit Results;   | [E48{PRODUCTION_ORDER}] |
| O1: | Garment Audit Report;    | [E48{PRODUCTION_ORDER}] |
| M1: | Staff - Quality Control; | [E94{SAL_EMPLOYEE}]     |

#### **Release Finished Garments**

##### Description:

Release production orders after they have been audited.

##### Interface:

|     |                            |                         |
|-----|----------------------------|-------------------------|
| Il: | Garment Lot - Audited;     | [E48{PRODUCTION_ORDER}] |
| I2: | Garment Lot - Re-assessed; | [E48{PRODUCTION_ORDER}] |
| C1: | Garment Audit Report;      | [E48{PRODUCTION_ORDER}] |
| O1: | Garment Lot - Accepted;    | [E48{PRODUCTION_ORDER}] |
| O2: | Garment Lot - Rejected;    | [E48{PRODUCTION_ORDER}] |
| M1: | Staff - Quality Control;   | [E94{SAL_EMPLOYEE}]     |

#### **Re-Assess Garments**

##### Description:

If a production order fails audit, classify the defective garments as irregular. The remaining first quality garments then meet the audit standards. In the extreme case where all the garments are defective, the whole production is marked irregular.

##### Interface:

|     |                            |                         |
|-----|----------------------------|-------------------------|
| Il: | Garment Lot - Rejected;    | [E48{PRODUCTION_ORDER}] |
| C1: | Garment Audit Report;      | [E48{PRODUCTION_ORDER}] |
| O1: | Garment Lot - Re-assessed; | [E48{PRODUCTION_ORDER}] |
| M1: | Operator - Manufacturing;  | [E64{OPERATOR}]         |



#### **Receive and Stock Garments**

##### Description:

Receive garments in the warehouse. After all the garments belonging to a production order have been received, send the regular quality garments to storage and the irregular ones for disposal. In a JIT scenario, the goods may go to 'Shipping' instead of 'Storage'.

#### **Dispose Irregular Garments**

##### Description:

Ship irregular garments to a contractor.

##### Interface:

|     |                                      |                        |
|-----|--------------------------------------|------------------------|
| Il: | Garments - Irregular;                | [E57{FG_CARTON}]       |
| C1: | Irregular Disposal Policy;           | [NONE]                 |
| Ol: | Finished Goods Shipment - Irregular; | [E96{IRREG_FG_CARTON}] |
| M1: | Staff - Distribution;                | [E94{SAL_EMPLOYEE}]    |

#### **Prepare Shipping Order**

##### Description:

For Brand Name products, prepare a shipping order based on POS

##### data.

##### Interface:

|     |                        |                       |
|-----|------------------------|-----------------------|
| C1: | POS Data;              | [NONE]                |
| Ol: | Shipping Orders;       | [E58{SHIPPING_ORDER}] |
| M1: | Staff - Merchandising; | [E94{SAL_EMPLOYEE}]   |

#### **Receive and Consolidate Shipping Orders**

##### Description:

Receive shipping orders from the customer for Private Label products and check if they can be shipped on time. Consolidate similar shipping orders (same sales plan and close delivery dates) into packing orders that can be scheduled for packing.

##### Interface:

|     |                       |                         |
|-----|-----------------------|-------------------------|
| Il: | Shipping Orders;      | [E58{SHIPPING_ORDER}]   |
| C1: | Manufacturing Report; | [E48{PRODUCTION_ORDER}] |
| C2: | Distribution Report;  | [E58{SHIPPING_ORDER}]   |
| Ol: | Packing Orders;       | [E101{CONS_SHIP_ORDER}] |
| M1: | Staff - Distribution; | [E94{SAL_EMPLOYEE}]     |

#### **Pack and Ship Garments**

##### Description:

Pack garments stored in the warehouse and ship them to the specified locations. This is done according to customer specifications in the case of Private Label products and according to the Merchandising Department specifications in the case of Brand Name Products. Shipping of the packed garments is done on the basis of the enterprise's shipping policy.



**Receive Garments in Warehouse**Description:

Receive the garment containers belonging to a production order in the garment warehouse. Separate the irregular garments from the regular production. Send the regular garments for stocking. Cutting report informs warehouse-receiving what to expect (e.g., number, size, color, etc.)

Interface:

|     |                       |                         |
|-----|-----------------------|-------------------------|
| I1: | Garment Lot - Ready;  | [E57(FG_CARTON)]        |
| C1: | Cutting Report;       | [E48(PRODUCTION_ORDER)] |
| O1: | Garments - Irregular; | [E57(FG_CARTON)]        |
| O2: | Garments - Regular;   | [E57(FG_CARTON)]        |
| M1: | Staff - Distribution; | [E94(SAL_EMPLOYEE)]     |

**Assign Storage Locations**Description:

Assign suitable storage locations to the received garment containers.

Interface:

|     |                              |                       |
|-----|------------------------------|-----------------------|
| I1: | Garments - Regular;          | [E57(FG_CARTON)]      |
| C1: | Garment Storage - Available; | [E56(FG_STORAGE_LOC)] |
| O1: | Garment Storage - Assigned;  | [E56(FG_STORAGE_LOC)] |
| O2: | Garments - For Storage;      | [E57(FG_CARTON)]      |
| M1: | Staff - Distribution;        | [E94(SAL_EMPLOYEE)]   |

**Move Garments to Storage**Description:

Move garment containers to the storage racks assigned to them.

Interface:

|     |                                          |                       |
|-----|------------------------------------------|-----------------------|
| I1: | Garments - For Storage;                  | [E57(FG_CARTON)]      |
| C1: | Garment Storage - Assigned;              | [E56(FG_STORAGE_LOC)] |
| O1: | Garments - Stored;                       | [E57(FG_CARTON)]      |
| M1: | Material Handling System - Distribution; | [E71(TRANSPORTER)]    |

**Restock Leftovers from Packing**Description:

Update garment inventory records after packing. Return leftover garments for storing. Free empty garment containers for reuse. This function may be applicable for coordinated ensembles.

Interface:

|     |                                |                       |
|-----|--------------------------------|-----------------------|
| I1: | Garment Containers - Returned; | [E57(FG_CARTON)]      |
| C1: | Garment Storage - Assigned;    | [E56(FG_STORAGE_LOC)] |
| O1: | Garment Storage - Available;   | [E56(FG_STORAGE_LOC)] |
| O2: | Garments - For Storage;        | [E57(FG_CARTON)]      |
| O3: | Garment Containers - Empty;    | [E57(FG_CARTON)]      |



### **Schedule and Control Packing Operations**

#### Description:

Schedule a packing order for packing; assign resources and select garments for executing this order.

### **Collect Garments**

#### Description:

Collect garments for each shipping order.

#### Interface:

|     |                                    |                                         |
|-----|------------------------------------|-----------------------------------------|
| I1: | Garment Inventory - Selected;      | [E57{FG_CARTON}]                        |
| C1: | Advance Shipping Notice - Packing; |                                         |
| O1: | Garments - For Packing;            | [E112{SHIPPING_NOTICE}]                 |
| M1: | Staff - Distribution;              | [E57{FG_CARTON}]<br>[E94{SAL_EMPLOYEE}] |

### **Pack and Seal Garments**

#### Description:

Pack garments for each shipping order in shipping cartons, seal and label these cartons, and sort them by carrier. Garments are now ready to be shipped to specified locations.

#### Interface:

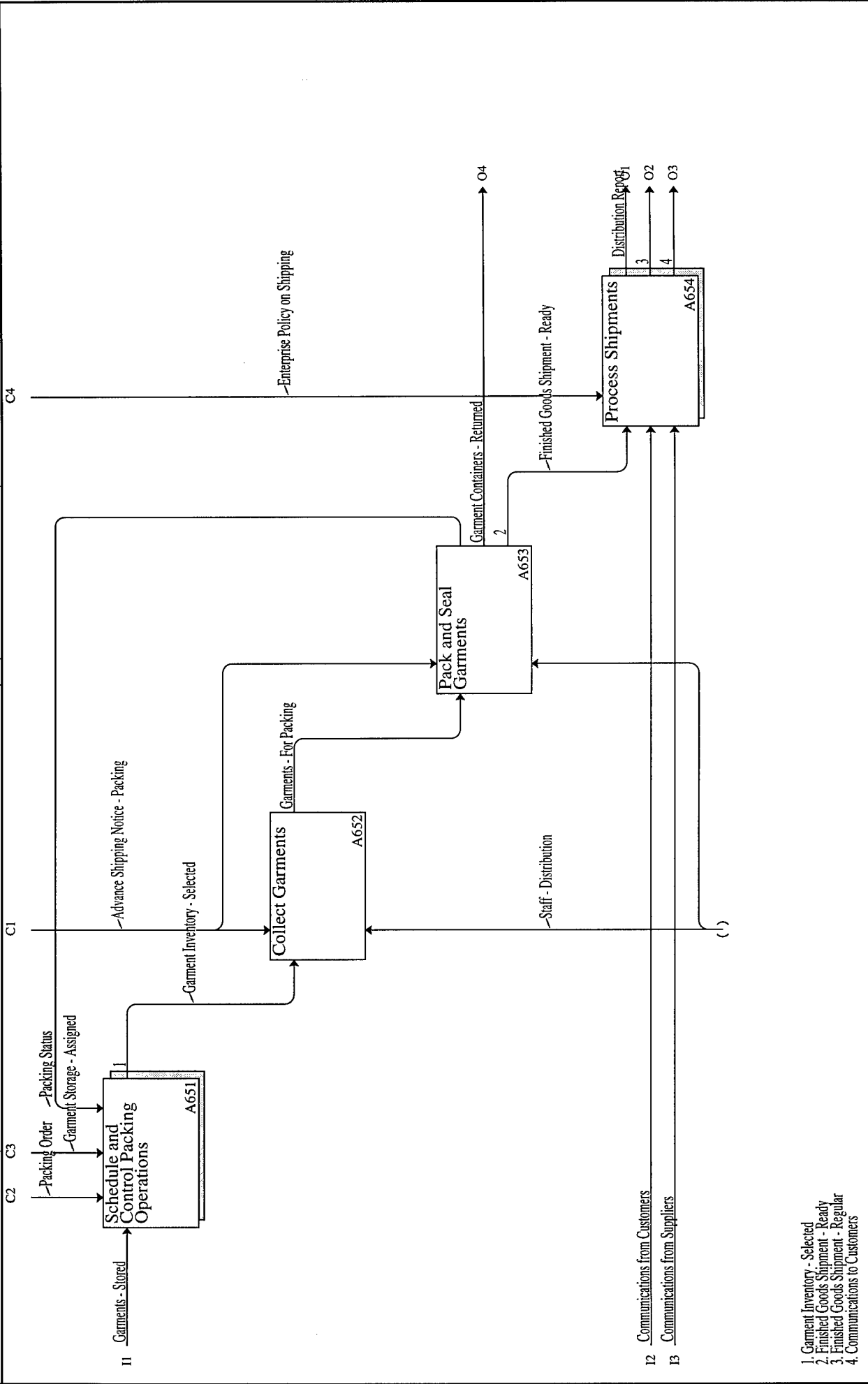
|     |                                    |                                                |
|-----|------------------------------------|------------------------------------------------|
| I1: | Garments - For Packing;            | [E57{FG_CARTON}]                               |
| C1: | Advance Shipping Notice - Packing; |                                                |
| O1: | Packing Status;                    | [E112{SHIPPING_NOTICE}]                        |
| O2: | Garment Containers - Returned;     | [E103{PACK_SCH_ITEM}]                          |
| O3: | Finished Goods Shipment - Ready;   | [E57{FG_CARTON}]                               |
| M1: | Staff - Distribution;              | [E101{CONS_SHIP_ORDER}]<br>[E94{SAL_EMPLOYEE}] |

### **Process Shipments**

#### Description:

Release ready goods for shipment to customers after determining the shipping mode and billing the customer. Generate a distribution report.

|                                                                                                                |                             |                 |             |        |      |         |
|----------------------------------------------------------------------------------------------------------------|-----------------------------|-----------------|-------------|--------|------|---------|
| Used At:<br>School of Textile & Fiber Engineering<br>Georgia Institute of Technology<br>Atlanta, Georgia 30332 | Author: Cidambi/Ramesh      | Date: 10/6/1995 | Working     | READER | DATE | Context |
|                                                                                                                | Project: Ama1_5             | Rev:            | Draft       |        |      |         |
|                                                                                                                | Notes: 1 2 3 4 5 6 7 8 9 10 |                 | Recommended |        |      |         |
|                                                                                                                |                             |                 | Publication |        |      |         |



1. Garment Inventory - Selected
2. Finished Goods Shipment - Ready
3. Finished Goods Shipment - Regular
4. Communications to Customers

#### **Prepare Packing Schedule**

##### Description:

Schedule shipping orders for packing after they have been consolidated into packing orders.

##### Interface:

|     |                       |                         |
|-----|-----------------------|-------------------------|
| C1: | Packing Order;        | [E101(CONS_SHIP_ORDER)] |
| O1: | Packing Schedule;     | [E102(PACK_SCHEDULE)]   |
| M1: | Staff - Distribution; | [E94(SAL_EMPLOYEE)]     |

#### **Assign Resources**

##### Description:

At the beginning of each packing period, assign workstations and workers for execution of each packing order scheduled during that period and initiate packing for these orders.

##### Interface:

|     |                       |                       |
|-----|-----------------------|-----------------------|
| C1: | Packing Schedule;     | [E102(PACK_SCHEDULE)] |
| C2: | Packing Status;       | [E103(PACK_SCH_ITEM)] |
| O1: | Packing Assignments;  | [E102(PACK_SCHEDULE)] |
| M1: | Staff - Distribution; | [E94(SAL_EMPLOYEE)]   |

#### **Select Garments for Packing**

##### Description:

Select garments from the stock and assign them to packing.

##### Interface:

|     |                               |                       |
|-----|-------------------------------|-----------------------|
| C1: | Packing Schedule;             | [E102(PACK_SCHEDULE)] |
| C2: | Garment Storage - Assigned;   | [E56(FG_STORAGE_LOC)] |
| O1: | Garment Inventory - Selected; | [E57(FG_CARTON)]      |
| M1: | Staff - Distribution;         | [E94(SAL_EMPLOYEE)]   |

|                                                                                                                |                                                                           |                 |                                                |        |      |         |
|----------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|-----------------|------------------------------------------------|--------|------|---------|
| Used At:<br>School of Textile & Fiber Engineering<br>Georgia Institute of Technology<br>Atlanta, Georgia 30332 | Author: Cidambir/Ramesh<br>Project: Amal_5<br>Notes: 1 2 3 4 5 6 7 8 9 10 | Date: 10/6/1995 | Working<br>Draft<br>Recommended<br>Publication | READER | DATE | Context |
|                                                                                                                |                                                                           | Rev:            |                                                |        |      |         |
|                                                                                                                |                                                                           |                 |                                                |        |      |         |
|                                                                                                                |                                                                           |                 |                                                |        |      |         |

C1

→ Packing Order

Prepare Packing Schedule  
A6511

← Packing Status

C3

Assign Resources  
A6512

← Staff - Distribution

C2

← Garment Storage - Assigned

Select Garments for Packing  
A6513

← Garment Inventory - Selected

I1 Garments - Stored

(1)

**Determine Shipping Mode**Description:

Determine the mode of shipping Finished Goods based on customer specifications, shipping costs as provided by the supplier, and the enterprise's shipping policy.

Interface:

I1: Shipping Rates; [E58(SHIPPING\_ORDER)]  
 I2: Communications from Customers; [E99(CUSTOMER\_INQ)]  
 C1: Enterprise Policy on Shipping; [NONE]  
 O1: Shipping Mode; [E58(SHIPPING\_ORDER)]  
 M1: Staff - Distribution; [E94(SAL\_EMPLOYEE)]

**Release Regular Shipment**Description:

Release packed and billed cartons on request from the customer. Generate an invoice and an Advance Shipping Notice (ASN) to customer prior to shipping. Prepare distribution report.

Interface:

I1: Communications from Customers; [E99(CUSTOMER\_INQ)]  
 I2: Finished Goods Shipment - Ready; [E101(CONS\_SHIP\_ORDER)]  
 C1: Shipping Mode; [E58(SHIPPING\_ORDER)]  
 O1: Advance Shipping Notice - Customer; [E112(SHIPPING\_NOTICE)]  
 O2: Invoice - Release Shipment; [(Customer;Shipping Order)]  
 O3: Finished Goods Shipment - Regular; [E97(REG\_FG\_CARTON)]  
 M1: Staff - Distribution; [E94(SAL\_EMPLOYEE)]

**Bill and Hold Shipment**Description:

Bill the customer and hold packed garments, if the customer so requests. Generate an invoice in such a case.

Interface:

I1: Communications from Customer; [E99(CUSTOMER\_INQ)]  
 I2: Finished Goods Shipment - Ready; [E101(CONS\_SHIP\_ORDER)]  
 O1: Invoice - Hold Shipment; [(Customer;Shipping Order)]  
 O2: Billed Goods - For Storage; [E58(SHIPPING\_ORDER)]  
 M1: Staff - Distribution; [E94(SAL\_EMPLOYEE)]

**Store Finished Goods**Description:

Hold billed cartons in Finished Goods Storage Buffer, as per the customer's request.

Interface:

I1: Billed Goods - For Storage; [E58(SHIPPING\_ORDER)]  
 I2: Communications from Customer; [E99(CUSTOMER\_INQ)]  
 O1: Billed Goods - For Shipping; [E58(SHIPPING\_ORDER)]  
 M1: Finished Goods Storage Buffer; [E30(BUFFER)]

**Ship Finished Goods**Description:

Release stored cartons; generate an invoice, and an Advance Shipping Notice (ASN) to the customer. Prepare distribution report.

Interface:

I1: Billed Goods - For Shipping; [E58(SHIPPING\_ORDER)]  
 C1: Shipping Mode; [E58(SHIPPING\_ORDER)]  
 O1: Advance Shipping Notice - Customer; [E112(SHIPPING\_NOTICE)]  
 O2: Finished Goods Shipment - Regular; [E97(REG\_FG\_CARTON)]  
 O3: Distribution Report; [E58(SHIPPING\_ORDER)]  
 M1: Staff - Distribution; [E94(SAL\_EMPLOYEE)]



# AMA GLOSSARY

## **Advance Shipping Notice - Customer**

Type: S/P

Structure:

E112{SHIPPING\_NOTICE};

Description:

Notification to the customer from the enterprise prior to releasing finished goods shipment.

## **Advance Shipping Notice - Packing**

Type: S/T

Structure:

E112{SHIPPING\_NOTICE};

Description:

Notification sent to initiate packing, as and when shipping orders are received from customers.

## **Assignments - Plant Resources**

Type: S/P

Structure:

E75{PLANT\_SCHEDULE};

Description:

Plant resources reserved for assembly, finishing and post-processing of garments belonging to a particular order. Equipment selection would vary according to the assembly system and plant layout. In unit production, a whole line may be reserved while in modular production, one or more modules consisting of multiple machines may be reserved.

## **Benchmarking Data**

Type: F/P

Structure:

None

Description:

Information about the products and practices of the competition used to evaluate new technologies and enterprise performance.

## **Bid Invitation - Cutting**

Type: S/P

Structure:

(Production Order; Deadline);

Description:

Detailed information about the resources required by the enterprise to carry-out cutting operations. The vendors submit their bids based on this information.

**Bid Invitation - Materials**

Type: S/P

Structure:

(Material; Deadline);

Description:

Detailed information about new raw materials required by the enterprise. The vendors submit their bids based on this information.

**Bids from Vendors**

Type: S/P

Structure:

(Ref; Vendor; Descr);

Description:

Samples, quotations and information about manufacturing capabilities from prospective vendors. Vendors are evaluated as potential sources for a new material based on their bids.

**Billed Goods - For Shipping**

Type: S/P

Structure:

E58{SHIPPING\_ORDER};

Description:

Finished goods for which the customers have already been billed. It is released by the Finished Goods Storage Buffer after billing.

**Billed Goods - For Storage**

Type: S/P

Structure:

E58{SHIPPING\_ORDER};

Description:

Finished goods sent to the Finished Goods Storage Buffer, for holding, on request from the customer.

**Candidates**

Type: F/P

Structure:

None

Description:

Candidates interviewed by the hiring and training center.

**Candidates - Rejected**

Type: F/P

Structure:

None

Description:

Candidates who failed to pass the interview.

**Communications about Rejected Materials**

Type: S/P

Structure:

E33{MAT\_PO\_ITEM};

Description:

Communications to material vendor regarding rejected materials. The vendor may take the rejected materials back or take other appropriate actions to deal with the rejects.

**Communications from Customers**

Type: S/P

Structure:

E99{CUSTOMER\_INQ};

Description:

Inquiries from customers regarding style development, sales orders, etc.

**Communications from Cutting Sources**

Type: S/P

Structure:

E113{SOURCE};

Description:

Communication received from external cutting sources in terms of quotations and other support information that may be required to generate a BEST-like index \*.

**Communications from External Sources**

Type: F/P

Structure:

None

Description:

Communications received from customers and vendors.

---

\*BEST is a knowledge-based decision support system developed and successfully field tested for evaluating the capabilities of an apparel enterprise. [Narayanan94]

**Communications from Finishing Sources**

Type: S/P

Structure:

E113{SOURCE};

Description:

Communication received from external sources willing to carry-out finishing operations for garments manufactured by the enterprise.

**Communications from Raw Material Suppliers**

Type: S/P

Structure:

E31{MATERIAL\_VENDOR};

Description:

Communication received from prospective vendors in terms of quotations and other support information that may be required to generate a BEST-like index

**Communications from Sample Makers**

Type: S/P

Structure:

E113{SOURCE};

Description:

Communication received from prospective sample makers willing to carry out sample making operations for garments manufactured by the enterprise.

**Communications from Suppliers**

Type: S/P

Structure:

E31{MATERIAL\_VENDOR};

Description:

Communications received from the vendors.

**Communications to Customers**

Type: S/P

Structure:

E99{CUSTOMER\_INQ};

Description:

Communications sent to customers regarding style development, sales orders, quotations, etc.

**Communications to Cutting Sources**

Type: S/P

Structure:

E113{SOURCE};

Description:

Information sent by the enterprise to cutting sources selected based on their bid quotations and BEST-like indexes.

**Communications to External Sources**

Type: F/P

Structure:

Composite

Description:

Communications sent to customers, vendors and other sources.

**Communications to Finishing Sources**

Type: S/P

Structure:

E113{SOURCE};

Description:

Information sent by the enterprise to finishing sources selected based on their bid quotations and BEST-like indexes.

**Communications to Raw Material Suppliers**

Type: S/P

Structure:

E31{MATERIAL\_VENDOR};

Description:

Communications sent to vendors regarding materials to be purchased. Includes specifications for new materials and purchase orders.

**Communications to Sample Makers**

Type: S/P

Structure:

E113{SOURCE};

Description:

Information sent by the enterprise to external sample making sources selected based on their bid quotations and BEST-like indexes.

**Communications to Sewing Sources**

Type: S/P

Structure:

E113{SOURCE};

Description:

Information sent by the enterprise to external sewing sources selected based on their bid quotations and BEST-like indexes.

**Communications to Suppliers**

Type: S/P

Structure:

E113{SOURCE};

Description:

Communications sent to vendors and other external sources regarding materials to be purchased. Includes specifications for new materials and purchase orders.

**Construction Materials for a Production Order**

Type: S/P

Structure:

E48{PRODUCTION\_ORDER};

Description:

Trim, labels, tags and accessories used in the production of garments for an order.

**Construction Materials for Samples**

Type: S/P

Structure:

E8{SAMPLE\_REQ};

Description:

Materials other than fabric, used for construction of sample garments. Trim, lining, thread, buttons, etc. are examples of construction materials. Adequate quantities of commonly used materials are stocked by the sample making department. Special materials are usually provided by the customer.

**Customer**

Type: S/P

Structure:

E4{CUSTOMER};

Description:

Customer can be a retailer or an individual end-user.

**Customer's Quality Requirements**

Type: F/P

Structure:

None

Description:

Quality requirements of a customer. Most big buyers of garments have written standards for their quality requirements.

**Customer's Request for Quotation**

Type: S/P

Structure:

E99{CUSTOMER\_INQ};

Description:

Request from the customer for price quote. The customer usually provides an estimate of the quantity and size distribution of the prospective order.

**Customer's Request for Samples**

Type: S/P

Structure:

E99{CUSTOMER\_INQ};

Description:

Customer furnished details about the garment samples to be prepared. Customer would usually provide the quantity and the sizes of the sample garments.

**Customer's Requirements**

Type: F/P

Structure:

None

Description:

Requirements of customers related to quality, garment construction, etc.

**Customer's Sales Trends**

Type: F/P

Structure:

None

Description:

Information derived from customer's point-of-sale data. This information provides vital clues for determining the quantities, size and color distribution, and timing of production orders.

**Customer's Shipping Locations**

Type: S/P

Structure:

E4{CUSTOMER};

Description:

Information derived from customer's point-of-sale data. This information provides vital clues for determining the quantities, size and color distribution, and timing of production orders.

**Cut - Accepted**

Type: S/P

Structure:

E48{PRODUCTION\_ORDER};

Description:

A collection of cut parts that passes quality audit and is cleared for shipment to assembly plant.

**Cut - Rejected**

Type: S/P

Structure:

E48{PRODUCTION\_ORDER};

Description:

A collection of cut parts found unacceptable in audit.

**Cut and Labeled Parts**

Type: S/P

Structure:

E100{GAR\_SUBASSEMBLY};

Description:

Collection of cut fabric parts from which garments for an order are assembled.

**Cut Audit Report**

Type: S/P

Structure:

E48{PRODUCTION\_ORDER};

Description:

Results of cut package audit.

**Cut Package**

Type: S/P

Structure:

E48{PRODUCTION\_ORDER};

Description:

Shipment of cut fabric parts and construction materials from which garments for an order are assembled. A cut package is audited prior to shipment to the plant where assembly and finishing are carried out.

**Cut Package - Accessories**

Type: S/P

Structure:

E41{ACCESSORY};

Description:

Includes belts, hangers, and other accessories which are attached to the garments. After attachment of these accessories, the garments are ready and can be sent to the warehouse for packing and shipping.

**Cut Package - Floor Ready Materials**

Type: F/P

Structure:

None

Description:

Additional accessories like tags, attached to garments to make them floor-ready.

**Cut Waste**

Type: F/P

Structure:

None

Description:

A collection of cut fabric parts that have been rejected as waste.

**Cutting Assignments**

Type: S/P

Structure:

E67{CUT\_RM\_SCHEDULE};

Description:

Workstations and operators assigned to carry out cutting room tasks, such as spreading, cutting, packaging and shipping.

**Cutting Machine**

Type: S/P

Structure:

E62{WORKSTATION};

Description:

Machine used for cutting fabric.

**Cutting Report**

Type: S/P

Structure:

E114{OP\_REPORT};

Description:

Report giving the actual spreading and cutting information for a production order. Since the number of garments cut may differ slightly from what is specified in the size scale, the exact quantity and size distribution of garments in a production order become known only after cutting.

**Cutting Schedule**

Type: S/P

Structure:

E67{CUT\_RM\_SCHEDULE};

Description:

Production schedule of the cutting department.

**Cutting Sources**

Type: S/P

Structure:

E113{SOURCE};

Description:

External sources willing to carry out cutting operations for the garments manufactured by the enterprise.

**Cutting Status**

Type: S/P

Structure:

E48{PRODUCTION\_ORDER};

Description:

Status of production orders scheduled for cutting.

**Damaged Materials**

Type: F/P

Structure:

None

Description:

Materials damaged during manufacture.

**Distribution Report**

Type: S/P

Structure:

E114{OP\_REPORT};

Description:

Report on status of packing orders processed in the distribution center.

**DSS**

Type: S/P

Structure:

E62{WORKSTATION};

Description:

Decision-support system used to generate the DSS - Index.

**DSS - Index**

Type: S/P

Structure:

E113{SOURCE};

Description:

An index is generated using a decision-support system. This index is used to evaluate and select suppliers and vendors.

**Enterprise Operation Report**

Type: F/P

Structure:

Composite

Description:

Report on the performance of the various departments and their activities in an enterprise.

**Enterprise Policy on Pricing**

Type: F/P

Structure:

None

Description:

The policy of the enterprise on pricing that is based on its marketing strategy, and other factors such as, cost of raw materials, competitor's prices, etc.

**Enterprise Policy on Quality**

Type: F/P

Structure:

None

Description:

The policy of the enterprise on quality that is based on its marketing strategy and other factors, such as requirements of the processing equipment, etc.

**Enterprise Policy on Shipping**

Type: F/P

Structure:

None

Description:

The policy of the enterprise on shipping that is based on shipping mode, costs, and other factors like customer requirements, etc.

**Enterprise's Manufacturing Resources**

Type: S/P

Structure:

Composite

Description:

Detailed information on equipment and human resources available to the enterprise.

**Equipment**

Type: S/P

Structure:

Composite

Description:

Equipment used by the enterprise for garment production (including equipment for planning, design and other auxiliary activities).

**Equipment Capability**

Type: S/P

Structure:

E63{WORKST\_CAPABILITY};

Description:

Data on available equipment and its capabilities.

**Equipment Specifications**

Type: S/P

Structure:

E62{WORKSTATION};

Description:

Manufacturer supplied data on manufacturing equipment.

**Evaluation - Recommended**

Type: S/P

Structure:

(Item; Recommendation);

Description:

Recommendation of new technologies for prototype testing, after comparison and evaluation with existing technologies.

**Evaluation - Rejected**

Type: S/P

Structure:

(Item; Rejection);

Description:

New technologies that have been rejected after technology evaluation.

**Fabric - Cut Parts**

Type: S/P

Structure:

E98{SPREAD\_SECTION};

Description:

Spread fabric that has been cut into garment parts.

**Fabric - Spread Sections**

Type: S/P

Structure:

E98{SPREAD\_SECTION};

Description:

Sections of fabric layers spread for cutting.

**Fabric for a Production Order**

Type: S/P

Structure:

E50{PROD\_ORDER\_ITEM};

Description:

Fabric from which the garment parts for the production order are cut.

**Fabric for Samples**

Type: S/P

Structure:

E8{SAMPLE\_REQ};

Description:

Fabric used for making garment samples. This fabric may be locally available or provided by the customer through the salesperson.

**Feature Description**

Type: S/P

Structure:

E18{CONSTR\_FEATURE}

Description:

Description of a part of a garment, e.g., front pocket, waist band, etc. A set of features describes the construction of the complete garment.

**Finished Goods Shipment - Irregular**

Type: F/P

Structure:

E96{IRREG\_FG\_CARTON};

Description:

Shipments of irregular goods collected over a period of time to contractors.

**Finished Goods Shipment - Ready**

Type: S/P

Structure:

E101{CONS\_SHIP\_ORDER};

Description:

Finished Goods ready to be picked up by shipment carriers.

**Finished Goods Shipment - Regular**

Type: S/P

Structure:

E97{REG\_FG\_CARTON};

Description:

Regular finished goods release to shipment carrier.

**Finished Goods Shipments**

Type: S/P

Structure:

Composite

Description:

Shipments of finished goods sent to customers.

**Finished Goods Storage Buffer**

Type: F/P

Structure:

E30{BUFFER};

Description:

Holding place for finished goods, after they have been billed.

**Finishing Sources**

Type: S/P

Structure:

E113{SOURCE};

Description:

External sources willing to undertake finishing operations for garments manufactured by the enterprise.

**Floor-Ready Garments**

Type: S/P

Structure:

E78{GARMENT\_UNIT};

Description:

Garments to which additional accessories like hangers, tags, etc., are attached to make them floor-ready.

**Garment Audit Report**

Type: S/P

Structure:

E48{PRODUCTION\_ORDER};

Description:

Analysis of the quality audit performed on finished garments.

**Garment Audit Results**

Type: S/P

Structure:

E48{PRODUCTION\_ORDER};

Description:

Data gathered from audit inspection of finished garments.

**Garment Containers - Empty**

Type: S/P

Structure:

E57{FG\_CARTON};

Description:

Containers emptied after all garments have been removed from them for packing. These containers are sent back to the plants for reuse.

**Garment Containers - Returned**

Type: S/P

Structure:

E57{FG\_CARTON};

Description:

Garment containers returned from packing after garments have been removed from them for packing. Completely empty containers are set aside for reuse while the ones with leftover garments are returned to the warehouse.

**Garment Inventory - Selected**

Type: S/P

Structure:

E57{FG\_CARTON};

Description:

Garment inventory assigned to packing. Complete containers are assigned. Containers that have been received in the warehouse can be assigned irrespective of their current location.

**Garment Lot - Accepted**

Type: S/P

Structure:

E48{PRODUCTION\_ORDER};

Description:

Garments belonging to a production order that has passed audit.

**Garment Lot - Audited**

Type: S/P

Structure:

E48{PRODUCTION\_ORDER};

Description:

Garments that have been audited by the quality auditors.

**Garment Lot - Re-assessed**

Type: S/P

Structure:

E48{PRODUCTION\_ORDER};

Description:

Garments, after their quality assessment has been altered.

**Garment Lot - Ready**

Type: S/P

Structure:

E57{FG\_CARTON};

Description:

Ready garments received in the distribution center. The received garments are packed in storage containers. Garments in a container belong to same garment type. Irregular garments are packed together irrespective of their type.

**Garment Lot - Rejected**

Type: S/P

Structure:

E48{PRODUCTION\_ORDER};

Description:

Garments belonging to a production order that has failed audit.

**Garment Lot - Sorted**

Type: S/P

Structure:

E57{FG\_CARTON};

Description:

Boxes of graded and sorted garments belonging to a production order.

**Garment Quality Standards**

Type: S/P

Structure:

E82{QC\_PROCEDURE};

Description:

Details of a quality test or inspection procedure for finished garments. Includes sampling procedure and acceptance standards.

**Garment Storage - Assigned**

Type: S/P

Structure:

E56{FG\_STORAGE\_LOC};

Description:

Location of finished goods in the warehouse.

**Garment Storage - Available**

Type: S/P

Structure:

E56{FG\_STORAGE\_LOC};

Description:

Storage locations that become available after finished goods containers are removed for packing. Only the containers that are emptied are removed from the inventory records. The records of the containers with leftover garments are retained in the inventory with updated information.

**Garment Style**

Type: S/P

Structure:

E1{STYLE};

Description:

A complete description of a garment including its construction detail, pattern, fit and process plan.

**Garments - Assessed**

Type: S/P

Structure:

E78{GARMENT\_UNIT};

Description:

Garments with quality grade assigned.

**Garments - Finished**

Type: S/P

Structure:

E78{GARMENT\_UNIT};

Description:

Completely assembled and finished garments.

**Garments - For Packing**

Type: S/P

Structure:

E57{FG\_CARTON};

Description:

Garment containers moved from the storage area to the packing area.

**Garments - For Picking**

Type: S/P

Structure:

E78{GARMENT\_UNIT};

Description:

Garment units loaded into the picking slots.

**Garments - For Storage**

Type: S/P

Structure:

E57{FG\_CARTON};

Description:

Garment containers awaiting storage on the racks.

**Garments - Graded**

Type: S/P

Structure:

E78{GARMENT\_UNIT};

Description:

Garments with quality grade assigned.

**Garments - Irregular**

Type: S/P

Structure:

E57{FG\_CARTON};

Description:

Irregular garments belonging to the production order. The irregulars are collected and shipped to a contractor for disposal.

**Garments - Leftover**

Type: S/P

Structure:

E78{GARMENT\_UNIT};

Description:

Garments left in the slots after packing for all the shipping orders on a packing order has been finished.

**Garments - Picked**

Type: S/P

Structure:

E58{SHIPPING\_ORDER};

Description:

Boxes containing garments specified on a shipping order. Appropriate shipping label is also placed on each box.

**Garments - Regular**

Type: S/P

Structure:

E57{FG\_CARTON};

Description:

Garments accepted for stocking in the finished goods warehouse. Only regular garments are accepted. The irregulars are collected and shipped to a contractor for disposal.

**Garments - Repairable**

Type: S/P

Structure:

E78{GARMENT\_UNIT};

Description:

Garments with soil marks or other minor defects that can be readily removed.

**Garments - Repaired**

Type: S/P

Structure:

E78{GARMENT\_UNIT};

Description:

Garments on which minor repairs have been performed.

**Garments - Stored**

Type: S/P

Structure:

E57{FG\_CARTON};

Description:

Garment containers stored on the racks in the warehouse.

**Hiring and Training Report**

Type: S/P

Structure:

E114{OP\_REPORT};

Description:

Report on the candidates interviewed and those selected, interviewing techniques, and other activities carried out the hiring center.

**Hiring Needs**

Type: F/P

Structure:

None

Description:

Information regarding the hiring requirements of the enterprise. Includes information about the number of employees, skill levels and dates by when the candidates should be hired.

**Hiring Personnel**

Type: S/P

Structure:

E94{SAL\_EMPLOYEE};

Description:

Personnel whose function is to interview and hire candidates who meet the job requirements of the enterprise.

**Hiring Report**

Type: S/P

Structure:

E114{OP\_REPORT};

Description:

Report on the status of hiring candidates.

**Hiring Standards**

Type: F/P

Structure:

None

Description:

Standards based on enterprise's policies and standards used in hiring personnel.

**Hiring/Training Personnel**

Type: S/P

Structure:

E94{SAL\_EMPLOYEE};

Description:

Personnel who hire and train candidates.

**Initial Sales Inquiry**

Type: S/P

Structure:

E99{CUSTOMER\_INQ};

Description:

Customer's requirements in terms of a sketch, verbal or written description, or reference to an earlier style.

**Invoice - Hold Shipment**

Type: S/P

Structure:

(Customer; Shipping Order);

Description:

Invoice sent to the customer for finished goods that have been held at the customer's behest.

**Invoice - Release Shipment**

Type: S/P

Structure:

(Customer; Shipping Order);

Description:

Invoice sent out to the customer when finished goods, ready for dispatch, are at the point where they can be shipped to the customer.

**Irregular Disposal Policy**

Type: F/P

Structure:

None

Description:

Contracts governing disposal of off-quality garments. The contract provides information on the irregular styles to be shipped, shipment size and locations to which the shipments are to be sent.

**Irregular Style Descriptions**

Type: S/P

Structure:

E95{IRREG\_STYLE};

Description:

Style to which unacceptable quality production belongs. A small number of irregular styles exists to broadly classify garments. For example, all ladies dress trousers of unacceptable quality belong to the same irregular style.

**Job Skills**

Type: F/P

Structure:

None

Description:

Basic skills required to perform a specific task efficiently.

**Job Specifications**

Type: F/P

Structure:

None

Description:

Description of functions that are required to carry out a specific task.

**Manager - Distribution**

Type: S/P

Structure:

E94{SAL\_EMPLOYEE};

Description:

Manager of the distribution department.

**Manager - Sample Making**

Type: S/P

Structure:

E94{SAL\_EMPLOYEE};

Description:

Manager of the sample making department.

**Manufacturing Module**

Type: S/P

Structure:

E29{EQUIP\_GROUP};

Description:

A collection of equipment for performing sewing/finishing operations on garment sub-assemblies.

**Manufacturing Report**

Type: S/P

Structure:

E114{OP\_REPORT};

Description:

Report on the status of each production order in the manufacturing system.

**Marker for Samples**

Type: S/P;

Structure:

E8{SAMPLE\_REQ};

Description:

Collection of graded pattern parts that serve as a template for cutting fabric for garments in a sample order.

**Marker Maker**

Type: S/P

Structure:

E94{SAL\_EMPLOYEE};

Description:

Person responsible for making markers for cutting fabric parts.

**Marker Sections**

Type: S/P

Structure:

E52{SCALED\_SECTION};

Description:

A section of a marker on which graded pattern parts of garment of one or more sizes are packed.

**Marker's Pattern, Grade Rules and Width**

Type: S/P

Structure:

E51{MARKER};

Description:

Information needed for preparing marker sections for a production order. Includes pattern, grade rules and fabric width.

**Market Trends**

Type: F/P

Structure:

None;

Description:

Fashion trends for the season.

**Master Production Planner**

Type: S/P

Structure:

E94{SAL\_EMPLOYEE};

Description:

Person responsible for master production planning.

**Master Production Schedule**

Type: S/P

Structure:

E25{MASTER\_SCHEDULE};

Description:

Master schedule for the enterprise on which sales orders are scheduled for production at various plant locations.

**Material - Accepted**

Type: S/P

Structure:

E33{MAT\_PO\_ITEM};

Description:

Materials that pass quality inspection and are marked for stocking in the materials warehouse.

**Material - For Storage**

Type: S/P

Structure:

E35{STORED\_ITEM};

Description:

Materials waiting to be stored after storage locations have been assigned.

**Material - Received**

Type: S/P

Structure:

E33{MAT\_PO\_ITEM};

Description:

Materials received in the stores. These materials undergo testing and inspection before they are accepted and stocked.

**Material - Rejected**

Type: S/P

Structure:

E33{MAT\_PO\_ITEM};

Description:

Materials that failed quality inspections and are marked for return to the vendor for appropriate action.

**Material - Stored**

Type: S/P

Structure:

F35{STORED\_ITEM};

Description:

Materials stored in the materials warehouse.

**Material - Tested**

Type: S/P

Structure:

E33{MAT\_PO\_ITEM};

Description:

Materials on which quality testing and inspection have been carried out.

**Material Audit Report**

Type: S/P

Structure:

E83{QUALITY\_REPORT};

Description:

Results of material testing and inspection, and recommendations for further action.

**Material Audit Results**

Type: S/P

Structure:

E83{QUALITY\_REPORT};

Description:

Data gathered from inspection and testing of materials.

**Material Description**

Type: S/P

Structure:

E34{MATERIAL\_VARIANT};

Description:

Description of materials used in garment production. The description includes identification codes, available colors and sizes, etc.

**Material Handling Equipment - Material Warehouse**

Type: S/P

Structure:

E71{TRANSPORTER};

Description:

Equipment used to move materials to and from storage.

**Material Handling System - Distribution**

Type: S/P

Structure:

E71{TRANSPORTER};

Description:

Equipment used to move finished goods to and from storage in the distribution warehouse.

**Material Procurement Report**

Type: S/P

Structure:

E32{MAT\_PURCHASE\_ORDER};

Description:

Report on availability and acceptance status of the purchased materials.

**Material Quality Standards**

Type: S/P

Structure:

E82{QC\_PROCEDURE};

Description:

Details of a quality test or inspection procedure for materials; includes sampling procedure and acceptance standards.

**Material Release Summary**

Type: S/P

Structure:

E48{PRODUCTION\_ORDER};

Description:

Summary of materials to be released for a production order.

**Material Sources**

Type: S/P

Structure:

E93{MATERIAL\_SOURCE};

Description:

Vendors for various materials.

**Material Storage - Assigned**

Type: S/P

Structure:

E36{MATERIAL\_LOCATION};

Description:

Storage locations of materials in the materials warehouse.

**Material Storage - Available**

Type: S/P

Structure:

E36{MATERIAL\_LOCATION};

Description:

Available storage capacity in the materials warehouse.

**Materials**

Type: S/P

Structure:

Composite;

Description:

Materials from supplier.

**Materials - For Regular Production**

Type: S/P

Structure:

E33{MAT\_PO\_ITEM};

Description:

Materials received from suppliers for full-scale production of garments.

**Materials and Sources Data**

Type: F/P

Structure:

(Material; Source);

Description:

Data on materials and sources required to carry out garment manufacturing activities of the enterprise. The data includes BEST-like indexes, standard costs, availability, vendors, etc.

**Materials Data**

Type: S/P

Structure:

E22{MATERIAL};

Description:

Data on materials used in garment production. The data include identification codes, standard costs, available colors and sizes, suppliers, etc.

**Materials for Manufacturing**

Type: S/P

Structure:

E48{PRODUCTION\_ORDER};

Description:

Materials released to manufacturing. The warehouse only ships cartons and bolts of material. Therefore the actual quantity shipped could be more than what is requested. If a storage unit containing more than the requested quantity is released, the remaining material is still considered available. Such an item is marked "RELOCATED" instead of "EXHAUSTED".

**Materials for Release**

Type: S/P

Structure:

E35{STORED\_ITEM};

Description:

Materials marked for release to manufacturing. Since complete storage units are marked for release, quantity released may exceed the quantity requested. The units from which only partial quantity is assigned are marked 'RELOCATED' instead of 'EXHAUSTED'. The records for 'EXHAUSTED' units are deleted after the material has been removed from storage. For example, bolts of fabric containing 1000 yards each are storage units. If a request for 1500 yards comes, two bolts are marked for release. One is marked 'EXHAUSTED' whereas the other, from which only 500 yards will be used, is marked 'RELOCATED' after updating the remaining quantity.

**Materials for Sample Production**

Type: S/P

Structure:

E8{SAMPLE\_REQ};

Description:

Materials used for making sample garments for prospective customers.

**Materials to be Purchased**

Type: S/P

Structure:

E33{MAT\_PO\_ITEM};

Description:

Cumulative quantities of materials to be ordered for a production period.

**Merchandising Manager**

Type: S/P

Structure:

Description:

Manager of merchandising.

**Modifications Desired by the Customer**

Type: S/P

Structure:

E99{CUSTOMER\_INQ};

Description:

Modifications to the style desired by the customer either to bring the price down or on the basis of sample analysis. The customer indicates approval of the style if no changes are necessary.

**New Feature Specifications**

Type: S/P

Structure:

E18{CONSTR\_FEATURE};

Description:

Information on the basis of which new features are developed if existing ones are not suitable for describing the construction of a garment.

**New Irregular Style Specifications**

Type: S/P

Structure:

E95{IRREG\_STYLE};

Description:

Specifications based on which a new irregular style is created.

**New Material Data**

Type: S/P

Structure:

E22{MATERIAL};

Description:

Data describing new material. Includes codes, standard costs, color and size variants, etc.

**New Material Specifications**

Type: S/P

Structure:

E22{MATERIAL};

Description:

Specifications for a new material based on which a complete description of the new material is developed.

**New Operations Requirement**

Type: S/P

Structure:

E107{OPERATION};

Description:

Requirements for a new unit operation, based on which a complete description of the operation is developed.

**New Pattern Specifications**

Type: S/P

Structure:

E14{PATTERN};

Description:

Specifications based on which a new pattern is created; it is often a copy of a closely matching existing pattern along with instructions about the desired changes.

**Operation Description**

Type: S/P

Structure:

E107{OPERATION};

Description:

Specifications of unit operations involved in the construction of garments.

**Operator - Cutting**

Type: S/P

Structure:

E64{OPERATOR};

Description:

Operator in the cutting department. Works on spreading, cutting or cut package preparation.

**Operator - Manufacturing**

Type: S/P

Structure:

E64{OPERATOR};

Description:

Operator in the manufacturing plant.

**Operator - Material Warehouse**

Type: S/P

Structure:

E64{OPERATOR};

Description:

A worker in the material warehouse.

**Operator - Packing**

Type: S/P

Structure:

E64{OPERATOR};

Description:

A worker in the distribution department.

**Operator - Spreading**

Type: S/P

Structure:

E64{OPERATOR};

Description:

Operator in the spreading department whose function is to process defects and record actual spreading data.

**Operator - Trained**

Type: S/P

Structure:

E64{OPERATOR};

Description:

Selected candidates who have been trained for a particular task.

**Operator - Trainee**

Type: S/P

Structure:

E64{OPERATOR};

Description:

Selected candidates who require training for specific tasks.

**Operator Assignments**

Type: S/P

Structure:

E77{ASSIGNED\_EQUIP};

Description:

Job assigned to each operator in the production unit.

**Operator Skills**

Type: S/P

Structure:

E64{OPERATOR};

Description:

Available operators and their skills. Operators are assigned jobs based on their skills and availability.

**Operator/User**

Type: S/P

Structure:

E64{OPERATOR};

Description:

Operator or user of a particular equipment or machinery.

**Packing Assignments**

Type: S/P

Structure:

E102{PACK\_SCHEDULE};

Description:

Workstation and operator assignments for a packing order on the schedule.

**Packing Order**

Type: S/P

Structure:

E101{CONS\_SHIP\_ORDER};

Description:

Consolidated shipping orders released for distribution.

**Packing Schedule**

Type: S/P

Structure:

E103{PACK\_SCHEDULE};

Description:

Schedule for a packing order.

**Packing Status**

Type: S/P

Structure:

E103{PACK\_SCH\_ITEM};

Description:

Completion status of the packing order for which packing is in progress.

**Pattern Description**

Type: S/P

Structure:

E14{PATTERN};

Description:

Complete description of a pattern. Includes its base type, its version number, shape and identification codes for each part, and average area of the pattern.

**Pattern Maker**

Type: S/P

Structure:

E94{SAL\_EMPLOYEE};

Description:

Person responsible for making garment patterns.

**Performance Evaluation Report**

Type: S/P

Structure:

E114{OP\_REPORT};

Description:

Report on the actual performance of all departments and functions of the enterprise.

**Personnel**

Type: S/P

Structure:

Composite;

Description:

Managers, supervisors and operators employed by the enterprise to carry out its functions.

**Plan - Complete**

Type: S/P

Structure:

E45{SALES\_PLAN};

Description:

Completed sales plan used to forecast sales and project demand.

**Plan - Confirmed**

Type: S/P

Structure:

E45{SALES\_PLAN};

Description:

Description of a new sales order listing various items ordered and their quantities.

**Plan - Notified**

Type: S/P

Structure:

E44{MASTER\_SCH\_ITEM};

Description:

Plan for which the customer has been notified about beginning of actual production.

**Plan - Outline**

Type: S/P

Structure:

E45{SALES\_PLAN};

Description:

Style, fabrics and construction materials associated with a sales plan.

**Plan - Released**

Type: S/P

Structure:

E45{SALES\_PLAN};

Description:

Completed and checked sales plan. Checking is done to remove any inconsistencies in the construction detail of the plan's style.

**Plan - Tentative**

Type: S/P

Structure:

E45{SALES\_PLAN};

Description:

Plan that is yet to be confirmed. A plan is confirmed after it has been suitably scheduled for production on the master production schedule.

**Plan Status**

Type: S/P

Structure:

E45{SALES\_PLAN};

Description:

Status of sales plan drawn to meet forecasted demand and projected sales.

**Plan's Delivery Schedule**

Type: S/P

Structure:

E44{MASTER\_SCH\_ITEM};

Description:

Delivery schedule for the plan. If the desired schedule is not feasible, best possible alternative is returned. If the schedule is feasible, the plan is confirmed.

**Plan's Fabrics**

Type: S/P

Structure:

E46{PLAN\_MATERIAL};

Description:

Fabric types for each item on the sales plan.

**Plan's Irregular Style**

Type: S/P

Structure:

E45{SALES\_PLAN};

Description:

Style to which unacceptable quality production of this plan belongs. A small number of irregular styles exist to broadly classify garments. For example, all ladies dress trousers of unacceptable quality belong to the same irregular style.

**Plan's Manufacturing Location**

Type: S/P

Structure:

E42{PLANT};

Description:

Plant where the plan can be scheduled. This selection is based on the plant's capability to produce the style associated with the plan and availability of production capacity.

**Plan's Material Requirements**

Type: S/P

Structure:

E46{PROG\_ITEM};

Description:

Quantities of materials to be ordered for the sales plan.

**Plan's Materials**

Type: S/P

Structure:

E46{PROG\_ITEM};

Description:

Fabric-specific materials assigned to a plan.

**Plant Capacities**

Type: S/P

Structure:

E43{PLANT\_CAPACITY};

Description:

Capacities for producing various garment features at a plant.

**Policies and Standards**

Type: F/P

Structure:

None;

Description:

Policies and standards governing various aspects of enterprise's operations. Includes policies and standards from enterprise's management, standards provided by the customers and standards applicable to the industry in general.

**POS Data**

Type: F/P

Structure:

None

Description:

Point of Sale data generated at the instance a sale has been made.

**Price Quote**

Type: F/P

Structure:

None

Description:

Price per unit garment for the style under development quoted to the customer.

**Product Information**

Type: F/P

Structure:

None

Description:

Information compiled on new products compiled from vendors, trade shows and other sources.

**Production Notification to the Customer**

Type: F/P

Structure:

E99{CUSTOMER\_INQ};

Description:

Notification sent to the customer regarding beginning of production for the plan. On receiving this notification, the customer sends information about size and color distribution.

**Production Order - Closed**

Type: S/P

Structure:

E48{PRODUCTION\_ORDER};

Description:

A production order for which all the garments have been received in the warehouse.

**Production Order - Initiated**

Type: S/P

Structure:

E48{PRODUCTION\_ORDER};

Description:

Initiated production order on which size distribution of the garments has been specified as a proportion of the total quantity. The total quantity is finalized after checking material availability.

**Production Order - Released**

Type: S/P

Structure:

E48{PRODUCTION\_ORDER};

Description:

A production order that has been released for production.

**Production Order - Scaled**

Type: S/P

Structure:

E48{PRODUCTION\_ORDER};

Description:

Production order with spreading information and marker attached.

**Production Order - Verified**

Type: S/P

Structure:

E48{PRODUCTION\_ORDER};

Description:

Production order for which material availability has been verified.

**Production Order's Marker**

Type: S/P

Structure:

E48{PRODUCTION\_ORDER};

Description:

Marker for a production order. The cutting process is controlled by this data. It provides the length of each section, relative arrangement of the sections and the cutter path.

**Production Order's Spreading Plan**

Type: S/P

Structure:

E48{PRODUCTION\_ORDER};

Description:

Plan of the fabric spread that provides the lengths and relative positions of sections to be spread, and the number of layers of each type of fabric in each section.

**Production Report**

Type: S/P

Structure:

E114{OP\_REPORT};

Description:

Current status of production orders in the manufacturing system. This report is used to track the progress of orders through the system.

**Production Schedule**

Type: S/P

Structure:

E75{PLANT\_SCHEDULE};

Description:

Schedule for production (assembly and finishing) plants for a particular production period.

**Production Schedule for Plant**

Type: S/P

Structure:

E75{PLANT\_SCHEDULE};

Description:

Production schedule released for each sewing and finishing plant.

**Production Status**

Type: S/P

Structure:

E48{PRODUCTION\_ORDER};

Description:

Status of the production orders being processed in the sewing and finishing plant.

**Production Status - Samples**

Type: S/P

Structure:

E92{SAM\_DEP\_SCH\_ITEM};

Description:

Status of the sample order scheduled for production.

**Production Unit**

Type: S/P

Structure:

E29{EQUIP\_GROUP};

Description:

A production line or module.

**Projected Demand**

Type: F/P

Structure:

None

Description:

Demand for a particular style predicted based in POS data used for initiation of production.

**Prototype**

Type: F/P

Structure:

None

Description:

A prototype tested to evaluate a new technology.

**Purchase Order**

Type: S/P

Structure:

E32{MAT\_PURCHASE\_ORDER};

Description:

Purchase orders issued for procuring raw materials.

**Purchase Order Status from Vendor**

Type: S/P

Structure:

E32{MAT\_PURCHASE\_ORDER};

Description:

Replies to inquiries about material purchase orders.

**Purchase Order Status Inquiry to Vendor**

Type: S/P

Structure:

E32{MAT\_PURCHASE\_ORDER};

Description:

Inquiry made with the material vendor to follow up on purchase orders.

**QC Inspector**

Type: S/P

Structure:

E64{OPERATOR};

Description:

Quality control inspector.

**Quality Standards**

Type: S/P

Structure:

E82{QC\_PROCEDURE};

Description:

Quality standards that materials and garments are required to meet.

**Quality Standards and Procedures**

Type: S/P

Structure:

E82{QC\_PROCEDURE};

Description:

Quality standards, including sampling, testing and inspection procedures, for materials and garments.

**Quotation to Customer**

Type: F/P

Structure:

None

Description:

Price per unit garment for the style under development quoted to the customer.

**Request for Construction Detail**

Type: S/P

Structure:

E109{STYLE\_CONCEPT};

Description:

Request sent to product development for developing a construction detail for a style under development. This request is sent if an existing construction detail cannot be assigned to a style.

**Request for Garment Shape**

Type: S/P

Structure:

E109{STYLE\_CONCEPT};

Description:

Request for development of the shape for the garment style. Fit, pattern and grading rules are developed in response to this request.

**Request for Materials Release**

Type: S/P

Structure:

E48{PRODUCTION\_ORDER};

Description:

Request sent to the materials warehouse to release materials to manufacturing.

**Request for Sample Marker**

Type: S/P

Structure:

E8{SAMPLE\_REQ};

Description:

Request for marker to cut fabric for a sample order.

**Request for Style Alteration**

Type: S/P

Structure:

E109{STYLE\_CONCEPT};

Description:

Request sent to product development to carry out style changes based on feedback from customer and/or sample testing.

**Requirements for New Information**

Type: F/P

Structure:

Composite

Description:

Requirements for new information, such as data on materials, construction operations, etc. A new material or operation is added to the existing database based on these requirements.

**Restart Signal**

Type: S/T

Structure:

(Workstation);

Description:

Signal sent to a spreader to restart operation after the defect condition that caused the stoppage has been rectified.

**Revised Style to Customer**

Type S/P

Structure:

E99{CUSTOMER\_INQ};

Description:

Feedback on style modifications to the customer.

**Sales Contract**

Type: S/P

Structure:

E99{CUSTOMER\_INQ};

Description:

A document containing all the details, including the term, conditions, delivery schedule and quantity of the sales order.

**Sales Executive**

Type: S/P

Structure:

E94{SAL\_EMPLOYEE};

Description:

Sales executives responsible for getting garment orders from the customers.

**Sales Order Confirmation**

Type: S/P

Structure:

E99{CUSTOMER\_INQ}

Description:

Notification sent to the customer confirming a sales order. It is usually a signed copy of the sales contract.

**Sales Plan Details**

Type: S/P

Structure:

Composite

Description:

All information related to production plans that have been instituted in response to orders from customers.

**Sales Presentation**

Type: S/P

Structure:

E99{CUSTOMER\_INQ};

Description:

Presentations made to customers by the sales executives to solicit orders.

**Sample Cutter**

Type: S/P

Structure:

E94{SAL\_EMPLOYEE};

Description:

Person who cuts fabric for samples.

**Sample Garment - Altered**

Type: S/P

Structure:

E8{SAMPLE\_REQ};

Description:

Altered sample garments.

**Sample Garment - Parts**

Type: S/P;

Structure:

E9{SAM\_REQ\_ITEM};

Description:

Cut fabric parts for making a sample garment.

**Sample Garments**

Type: S/P

Structure:

E8{SAMPLE\_REQ};

Description:

Sample garments ready for delivery to customers.

**Sample Garments - For Alteration**

Type: S/P

Structure:

E8{SAMPLE\_REQ}

Description:

Sample garments that require alteration after testing for fit.

**Sample Garments - Sewn**

Type: S/P

Structure:

E8{SAMPLE\_REQ};

Description:

Sewn sample garments.

**Sample Maker**

Type: S/P

Structure:

E94{SAL\_EMPLOYEE};

Description:

Person who sews sample garments.

**Sample Making Assignments**

Type: S/P

Structure:

E92{SAM\_DEP\_SCH\_ITEM};

Description:

Jobs assigned to sample makers.

**Sample Making Sources**

Type: S/P

Structure:

E113{SOURCE};

Description:

External sources willing to carry out sample making operations for the enterprise.

**Sample Request**

Type: S/P

Structure:

E8{SAMPLE\_REQ};

Description:

Request for samples, accompanied by all the details provided by the customer, sent by the sales personnel to the sample making department.

**Sample Request - Ready**

Type: S/P

Structure:

E8{SAMPLE\_REQ};

Description:

Sample garments belonging to a sample order.

**Sample Production Schedule**

Type: S/P

Structure:

E91{SAMP\_DEPT\_SCH};

Description:

Production schedule for the sample department.

**Sample Quality Standards**

Type: S/P

Structure:

E82{QC\_PROCEDURE};

Description:

A complete description of a test or inspection procedure for evaluating the quality of a sample garment.

**Sample Request**

Type: S/P

Structure:

E8{SAMPLE\_REQ};

Description:

Request for samples, accompanied by all the details provided by the customer, sent by the sales personnel to the sample making department.

**Sample Supplier Information**

Type: S/P

Structure:

E113{SOURCE};

Description:

Information on sample suppliers which includes their BEST-like indexes and other details.

**Sample Test Report**

Type: S/P

Structure:

E114{OP\_REPORT};

Description:

Results of quality testing and inspection, and recommendations for further action.

**Selected Material Vendors**

Type: S/P

Structure:

E93{MATERIAL\_SOURCE};

Description:

Selected vendors for each of the materials to be ordered.

**Sewing & Finishing Assignments**

Type: S/P

Structure:

E77{ASSIGNED\_EQUIP};

Description:

Tasks assigned to specific sewing/finishing units. A unit may be an individual workstation, a line or a module.

**Sewing & Finishing Status**

Type: S/P

Structure:

E77{ASSIGNED\_EQUIP};

Description:

Status of sewing/finishing tasks assigned to a production unit.

**Sewing Sources**

Type: S/P

Structure:

E113{SOURCE};

Description:

External sources willing to carry out sewing operations for garments manufactured by the enterprise.

**Shipping Mode**

Type: S/P

Structure:

E58{SHIPPING\_ORDER};

Description:

Mode of shipping finished goods to the customer. This is determined based on costs, customer requirements, and enterprise policy on shipping.

**Shipping Orders**

Type: S/P

Structure:

E58{SHIPPING\_ORDER};

Description:

Shipping orders sent by the customer. These are in customer's format and have to be structured into enterprise's internal format.

**Shipping Rates**

Type: S/P

Structure:

E58{SHIPPING\_ORDER};

Description:

Rates for shipping finished goods to the customer. This is determined based on the shipping mode.

**Size Scale Information**

Type: S/P

Structure:

E99{CUSTOMER\_INQ};

Description:

Information from the customer regarding the distribution of garment size and color in the orders. Some customers provide their point-of-sale data from which this information is deduced.

**Spreading Defect**

Type: S/T

Structure:

(Workstation; Defect);

Description:

A defect detected by the spreading machine in the spreading process.

**Spreading Machine**

Type: S/P

Structure:

E62{WORKSTATION};

Description:

Equipment used to spread fabric for cutting.

**Staff - Cutting**

Type: S/P

Structure:

E94{SAL\_EMPLOYEE};

Description:

Supervisory staff in the cutting department.

**Staff - Distribution**

Type: S/P

Structure:

F94{SAL\_EMPLOYEE};

Description:

Supervisory staff in the distribution center.

**Staff - Engineering**

Type: S/P

Structure:

E94{SAL\_EMPLOYEE};

Description:

Staff in the engineering departments.

**Staff - Evaluation**

Type: S/P

Structure:

E94{SAL\_EMPLOYEE};

Description:

Supervisory staff in the evaluation department.

**Staff - Manufacturing**

Type: S/P

Structure:

E94{SAL\_EMPLOYEE};

Description:

Supervisory staff in the manufacturing plant.

**Staff - Material Warehouse**

Type: S/P

Structure:

E94{SAL\_EMPLOYEE};

Description:

Supervisory staff in the material warehouse.

**Staff - Merchandising**

Type: S/P

Structure:

E94{SAL\_EMPLOYEE};

Description:

Staff in the merchandising department.

**Staff - Outsourcing**

Type: S/P

Structure:

E94{SAL\_EMPLOYEE};

Description:

Employees in the outsourcing department.

**Staff - Plans**

Type: S/P

Structure:

E94{SAL\_EMPLOYEE};

Description:

Staff in the production planning department.

**Staff - Product Development**

Type: S/P

Structure:

E94{SAL\_EMPLOYEE};

Description:

Employees of the product development department.

**Staff - Production Control**

Type: S/P

Structure:

E94{SAL\_EMPLOYEE};

Description:

Employees in the production control department.

**Staff - Purchase**

Type: S/P

Structure:

E94{SAL\_EMPLOYEE};

Description:

Employee responsible for purchasing raw materials.

**Staff - Quality Control**

Type: S/P

Structure:

E94{SAL\_EMPLOYEE};

Description:

Staff in the quality control department.

**Standard Garment Specifications**

Type: S/P

Structure:

E4{CUSTOMER};

Description:

Specifications on types of materials to be used for garment construction. Example: MIL standard on utility trousers. Such specifications may be provided by customers to provide all the details that are standard and are not explicitly provided during garment development.

**Storage Buffer**

Type: S/P

Structure:

E30{BUFFER};

Description:

Holding place for work-in-process.

**Style - For Validation**

Type: S/P

Structure:

E1{STYLE};

Description:

A garment style that has been approved by the customer. The status of this style and its elements have to be set to 'FINAL' so that the style may not be altered any further.

**Style - Initiated**

Type: S/P

Structure:

E109{STYLE\_CONCEPT};

Description:

A newly created style for a garment. Existing style information (construction detail, pattern or fit) referred to in the description of the corresponding concept is assigned to a new style.

**Style - Under Development**

Type: S/P

Structure:

E109{STYLE\_CONCEPT};

Description:

Style of a garment that is still under development. A style is developed from the informal description of the garment present in the form of a style concept. Development of style involves development of garment's construction and shape details.

**Style - Validated**

Type: S/P

Structure:

E1{STYLE};

Description:

A style that has been finalized after being approved by the customer. An approved style does not undergo any additional changes. Garment orders are placed for approved styles.

**Style Concept - Customer**

Type: S/P

Structure:

E109{STYLE\_CONCEPT};

Description:

A style concept developed for the customer based on customer's requirements. It could be a modification of an existing concept.

**Style Concept - Portfolio**

Type: S/P

Structure:

E109{STYLE\_CONCEPT};

Description:

A sketch and a general description of a new garment prepared by garment designers.

**Style Concept - Selected**

Type: S/P

Structure:

E109{STYLE\_CONCEPT};

Description:

A style concept selected by the customer for further development into a garment style. The selected concept is sent to the product development personnel for development into a formal description (style) of the garment.

**Style Ideas from Customer**

Type: S/P

Structure:

E109{STYLE\_CONCEPT};

Description:

Description of the desired style obtained from the customer. The stylist develops the style concepts further based on this information.

**Style's Construction Detail**

Type: S/P

Structure:

E1{STYLE};

Description:

Construction detail associated with a style.

**Style's Construction Features**

Type: S/P

Structure:

E1{STYLE};

Description:

A set of features that describes the construction of a garment style.

**Style's Grade Table**

Type: S/P

Structure:

E2{FIT};

Description:

Grade table associated with style's fit. A grade table provides the rules used to scale pattern parts for different sizes.

**Style's Pattern**

Type: S/P

Structure:

E1{STYLE};

Description:

Pattern associated with a style.

**Style's Process Plan**

Type: S/P

Structure:

E1{STYLE};

Description:

A sequence of processing steps involved in the production of a garment. Each processing step requires that the steps preceding it be completed. Completion of a step is denoted by assigning a process state to a garment sub-assembly affected by that step.

**Style's Shape**

Type: S/P

Structure:

E1{STYLE};

Description:

All information related to garment shape. Includes data on patterns, fits and grading.

**Stylist**

Type: S/P

Structure:

E94{SAL\_EMPLOYEE};

Description:

Garment designer responsible for creating new styles based on fashion trends and ideas from customers.

**Sub-Assemblies - For Processing**

Type: S/P

Structure:

E100{GAR\_SUBASSEMBLY};

Description:

Garment Sub-assemblies awaiting processing at a sewing or finishing unit.

**Sub-Assemblies - For Storage**

Type: S/P

Structure:

E100{GAR\_SUBASSEMBLY};

Description:

Garment Sub-assemblies for temporary storage in the buffers.

**Sub-Assemblies - For Transportation**

Type: S/P

Structure:

E100{GAR\_SUBASSEMBLY};

Description:

Garment sub-assemblies awaiting transportation to the next processing station.

**Sub-Assemblies - In Process**

Type: S/P

Structure:

E100{GAR\_SUBASSEMBLY};

Description:

Garment sub-assemblies on which processing is in progress.

**Sub-Assemblies - Processed**

Type: S/P

Structure:

E100{GAR\_SUBASSEMBLY};

Description:

Garment sub-assemblies on which a set of sewing/finishing operations have been completed.

**Sub-Assembly - For Inspection**

Type: S/P

Structure:

E100{GAR\_SUBASSEMBLY};

Description:

Garment sub-assembly awaiting inspection prior to its release from the processing unit.

**Sub-Assembly - For Rework**

Type: S/P

Structure:

E100{GAR\_SUBASSEMBLY};

Description:

Garment sub-assembly on which some rework is required.

**Sub-Assembly - Reworked**

Type: S/P

Structure:

E100{GAR\_SUBASSEMBLY};

Description:

Garment sub-assembly on which repair has been performed.

**Sub-Assembly Release Order**

Type: S/T

Structure:

E100{GAR\_SUBASSEMBLY};

Description:

Order from the controller to release sub-assemblies from work-in-process inventory for further processing. The controller issues the release order when all the sub-assemblies required for further processing are available in the buffer.

**Support Information**

Type: S/P

Structure:

Composite

Description:

Information on quality procedures, material specifications and sources, and available manufacturing resources. This information is generated and maintained by the service departments and used by design, planning, manufacturing and distribution functions.

**Target Market Demographics**

Type: F/P

Structure:

None

Description:

Demographic data used to identify consumer markets.

**Technology Evaluation Officer**

Type: S/P

Structure:

E94{SAL\_EMPLOYEE};

Description:

Individual concerned with evaluating and recommending new technologies.

**Technology Evaluation Report**

Type: S/P

Structure:

E114{OP\_REPORT};

Description:

Results of prototype testing and evaluation, and recommendations for further action.

**Training Report**

Type: S/P

Structure:

E114{OP\_REPORT};

Description:

Report of training given to candidates hired by the enterprise, prior to undertaking officially assigned tasks.

**Transporter**

Type: S/P

Structure:

E71{TRANSPORTER};

Description:

Equipment used to move goods from one location to another.

**Vendor Evaluation**

Type: S/T;P

Structure:

(Ref; Vendor; Descr);

Description:

Results of the bid evaluation process based on which vendors are selected.

**Work-In-Process Status**

Type: S/P

Structure:

E100{GAR\_SUBASSEMBLY};

Description:

Processing status of the garment sub-assemblies on which sewing and finishing operations are in progress. All the processing units return the processed sub-assemblies to the storage buffer from where the work-in-process status is reported to the manufacturing system controller.

**Workstation - Manufacturing**

Type: S/P

Structure:

E62{WORKSTATION};

Description:

Sewing and finishing equipment in the manufacturing plants.

**Workstation - Marker Making**

Type: S/P

Structure:

E62{WORKSTATION};

Description:

Computer workstation used for marker making.

**Workstation - Packing**

Type: S/P

Structure:

E62{WORKSTATION};

Description:

Work area, including picking slots, packing tables, etc., used for packing.

**Workstation - Sample Cutting**

Type: S/P

Structure:

E62{WORKSTATION};

Description:

Equipment used for cutting fabric for sample garments.

**Workstation - Sample Sewing**

Type: S/P

Structure:

E62{WORKSTATION};

Description:

Sewing machines in the sample production department.