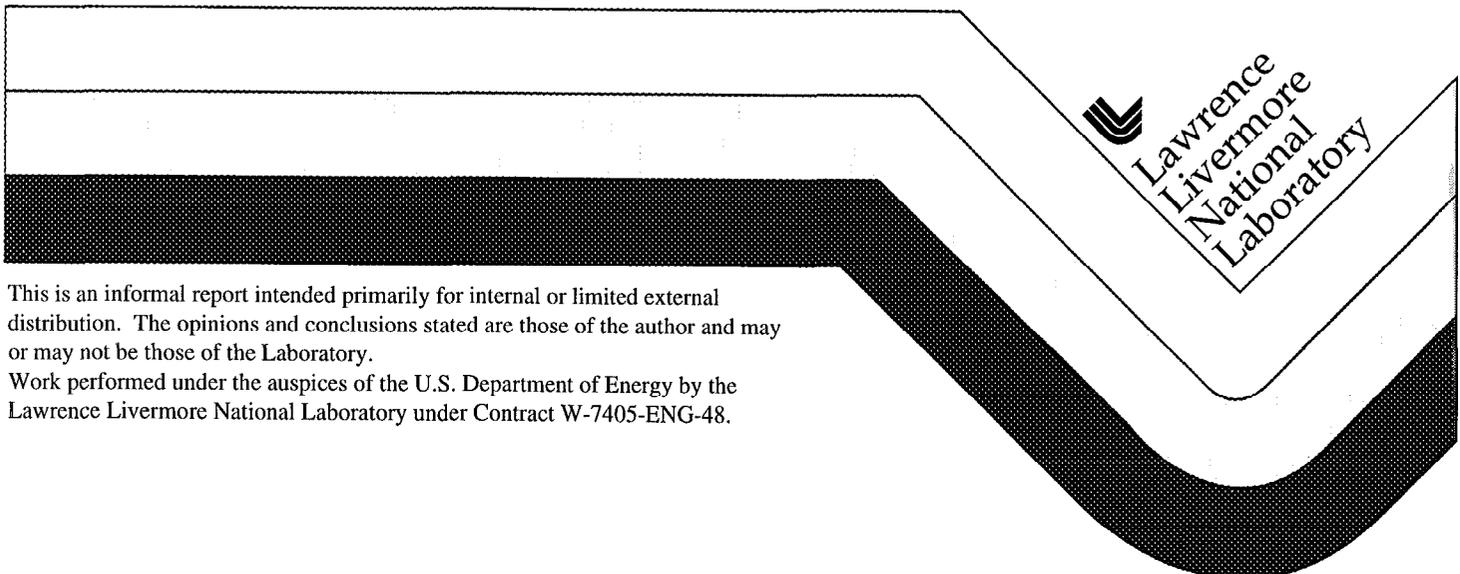


Current Information Technology Needs of Small to Medium Sized Apparel Manufacturers and Contractors

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April 1998



 Lawrence
Livermore
National
Laboratory

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Demand Activated
Manufacturing
Architecture Project

Current Information Technology Needs of Small to Medium Sized Apparel Manufacturers and Contractors

Version 2.0

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Demand Activated Manufacturing Architecture Project

The American Textile Partnership

AMTEX™

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Company	Contact ¹
A&Z Industries, Ltd	Antoine J. ElChaar, President & CEO
All States Apparel Inc.	George Gromov
Ashmore Sportswear	Dennis H. Ashcroft, Vice-President/Marketing Selina Ashcroft, Sales & Customer Service Manager
CMT Knitting	Jonathan Pruski, President
Craig Industries	Larry Crolley Ronnie Nixon Debra Reynolds
G.S. Dunbar & Co. Inc.	Esther Dunbar Gary Dunbar
Encore Textiles, Inc.	Daniel E. Bulluck, President and CEO Terry Bulluck
Granite Knitwear, Inc.	Michael R. Jones, President
Hamrick Industries	Michael Hamrick
Hemingway Apparel Inc.	Jack L. Marsh, CEO
JP Sportswear, Inc.	Paul Shechet, President
Lebanon Apparel	Jeoff Bodenhorst, President Marc Camnitz, Executive Vice President Dan Vipperman, Vice President Operations for Lebanon Plant
continued on next page	

¹ The contacts' company positions were included where known. Where no title was included, the contact's position was not provided to DAMA.

Company	Contact ¹
Liz Claiborne	Dennis Morelli, VP, Technical Services
Lord West	Shimmy Cohen, VP Manufacturing & Operations Howard Ziplow, CFO
Loungewear Manufacturing Corp.	David Miller, President Larry Miller, Vice President
Lynn Manufacturing, Division of Courtland	David Caldwell
New Chock's Enterprises	Mary Yeung
Pattern Design Unlimited, Inc.	Gale Zorian, Vice-President
Royal Sportswear	William Jacobs
Stitches, Inc.	Robert Reed
Swansea Manufacturing Co.	Harvey Hellman
The KYM Company	Mark C. Kapiloff, President
Todd Rutkin, Inc.	Jan Rutkin
Virginia Apparel Corporation	Thomas W. Mason, President

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1 Introduction

This report documents recent efforts of the American Textile Partnership (AMTEX™) Demand Activated Manufacturing Architecture (DAMA) Project to identify opportunities for cost effective enhanced information technology use by small² to medium sized³ apparel manufacturers and contractors. Background on the AMTEX/DAMA project and objectives for the specific DAMA Small and Medium Enterprise (SME) effort are discussed in this section. The approach used to gather information about current opportunities or needs is outlined in Section 2 Approach, and relevant findings are identified and a brief analysis of the information gathered is presented in Section 3 Findings. Recommendations based on the analysis, are offered in Section 4 Recommendations, and plans are suggested for DAMA follow-on in Section 5 Future Plans. Trip reports for each of the companies visited are contained in 11 Appendix E - Company Trip Reports. These individual reports contain the data upon which the analysis presented in Section 3 Findings is based.

1.1 Background

1.1.1 AMTEX/DAMA

The AMTEX™ program consists of a set of projects to assist United States based facilities in what has come to be called the United States Integrated Textile Complex (i.e., the US ITC). The program is a partnership, established in 1993, by the U.S. Department of Energy (DOE) and the US ITC. Its goal is to use DOE technologies to improve the industry's competitiveness in the world market. The flagship project within AMTEX is called Demand Activated Manufacturing Architecture (DAMA). This project focuses on applying information technology to facilitate US ITC trading partner cooperation and thereby improve the efficiency of the textile supply chain. The DAMA project team consists of members from industry, universities and DOE laboratories.

The impetus for the AMTEX program and its DAMA Project is the US ITC's domestic loss of marketshare. During the 26 year period ending in 1996, U. S. employment in the textile and apparel industries declined from over 2.3 million in 1970 to 1.4 million in 1996. This 30% decline is distinct when noting that the decrease among other manufacturing sectors has been about 1%, and that overall, the rise in employment among all workers over the same period has been about 58%.⁴

² 7 Appendix A - US Small Business Administration (SBA) Definition of Small Business gives the U. S. Government's Small Business Administration's current guidelines for qualifying as a small business.

³ 8 Appendix B - Organization for Economic Cooperation and Development (OECD) Definition of SME gives the Organization for Economic Cooperation and Development's definition of a Small and Medium-sized Enterprise.

⁴ Source: DAMA FY98 Project Plan, DAMA-I-8 97, September, 1997, Version 1.0

1.1.2 Typical DAMA Industry Membership

About 30 of the nation's leading companies are committed partners in DAMA. In addition to companies in the traditional formal US ITC supply chain of fiber producers, textile mills, apparel manufacturers, and retailers, DAMA partner companies include technological organizations whose contribution may be vital to the successful implementation of the results of work carried out in the national laboratories. However, DAMA US ITC partner companies are much too large to be considered small or medium-sized enterprises.

1.1.3 Prior Work with SMEs

A meeting of representatives from several US ITC Small and Medium-sized Enterprises (SMEs) took place in Cary, North Carolina, on May 1 and 2, 1995. The purpose of the meeting was to obtain input from SMEs for the DAMA project in the specific areas of communication and information systems. While a report documenting the events of the meeting was published, no specific conclusions or recommendations for follow-on activities were included. DAMA funding uncertainties surfaced immediately following this meeting, leading to no further specifically SME oriented activities being engaged in until those reported herein.

1.2 Purpose

Crucial to the success of the DAMA project is representation from and participation of all sizes and types of companies, ranging from Fortune 500 companies to SMEs. DAMA has from its inception had as part of its charter the gaining of an understanding and the addressing of the issues of SMEs in the US ITC. This report, the activities that went into the collection of its information, and future activities that will follow, represent DAMA's focused effort to:

1. identify and understand the information technology opportunities of this vital component of the ITC
2. apply DAMA expertise and technology to benefit these and similar companies

2 Approach

As part of this effort to understand and address the issues of SMEs, representatives from DAMA industry partners and the DOE Laboratories visited 23 SME companies and one SME customer in a set of visits which took place from July 1997 through January 1998. The purpose of these visits was to gain an understanding of each company's business and to gather input from the leaders of these companies on needs that DAMA might help address.

Initially the leadership of two prominent apparel manufacturers and contractors organizations, American Apparel Producers' Network (AAPN), formerly American Apparel Contractor's Association (AACCA) and Southeastern Apparel Manufacturers &

Suppliers Association (SEAMS), were approached to apprise them of DAMA's efforts and its desire to visit particular SMEs. At these meetings, the organizations' leadership worked with DAMA representatives to identify specific companies as candidates to be included in this study. The candidate companies were grouped by organization and by geographic location. Sets of these companies, though not all of the identified companies, were visited in June through August of 1997. Subsequently representatives of the Garment Contractors Association of Southern California (GCA) and the Garment Industry Development Corporation (GIDC) were consulted to obtain recommendations for further companies to visit and two sets of visits were conducted utilizing these recommendations. Arrangements were made in all the sets of visits to see as many companies as possible in a given week in order to minimize travel costs. The travel costs were significant since, in most cases, coast to coast travel by one or more DAMA representatives was required.

Visits occurred in five separate weeks. The first set of visits occurred the week of June 23, 1997 and focused on AAPN (AACCA) members that could easily be reached in the Atlanta and Charlotte areas. The second set of visits was conducted the week of July 21, 1997 to AAPN members located in Pennsylvania and Virginia. The third set of visits took place the week of August 25, 1997, focused on members of SEAMS and included one company in Virginia, and several companies in South Carolina. The two subsequent sets of visits were engaged in mainly to determine if there were regional differences in SMEs particularly in higher density vs. lower density regions. The first of these subsequent sets was conducted the week of November 3, 1997 and was to GCA members in the Los Angeles area. The second of the subsequent sets occurred the week of January 19, 1998 and was to AAPN and GIDC members in the New York City area. In this latter set, one major SME customer was also visited.

Despite the cost of conducting a number of visits over an extended period of time, the approach of directly visiting targeted companies was considered the most effective from the perspective of the DAMA participants. This approach offered the following benefits:

1. active participation from each company was ensured
2. key company personnel were more likely to attend
3. minimal impact on company productivity was incurred

An alternative approach of holding a single meeting in a fixed location would have imposed a greater hardship on companies who wished to participate, since it would have required key personnel to be away from their plant for at least a full day.

The DAMA participants in this study found that visiting companies at their locations was essential for gaining a better understanding of the broader issues they face. Meeting with company officials in their own environment afforded first hand visibility into the scope of the operation and the levels of manufacturing and information technologies in

place. Many of these visits included a tour of a manufacturing facility, which revealed the company's production methods and product lines.

The visits were conducted informally. They normally were attended by the company president or a vice president and usually one or more other key individuals. The focus of each visit was to identify the information technology (e.g. computers, networks, software, databases) in use, and to "brainstorm" about ways current and advanced information technology could be utilized to benefit the company in question. It was clearly communicated to each company that DAMA was not in the position to provide funds, and that DAMA could only offer solutions that have broad impact on this sector of the ITC.

Additional visits may be made as opportunity or need occurs.

3 Findings

3.1 General SME Situation

US apparel SMEs do not in general appear to be taking full advantage of cost effective information technology. While computer technology is used to varying extents by many SMEs, no dominant software suppliers have emerged and integration of software capabilities is behind other industries. A wide range of very different, and in some geographical regions usually custom, software is used at these companies for conducting business, e.g., tracking work in progress, managing payroll, etc. This situation does not allow for economies of scale (i.e., low cost software products whose development is written off over a large number of sales) nor ready paths for integration. Dynamic changes have been and continue to occur in the apparel sector. Many of the current trends are leading to situations where information technology could be an increasingly valuable competitive weapon. Therefore failure to take greater advantage of the technology may be ever more costly to U. S. SME competitiveness.

The gamut of business approaches to producing and selling garments include extremes such as one company purchasing all the materials, internally producing the garment and internally making it ready for a retailer's shelf, to a company contracting with other companies for all production and store readying, with each of the distinct steps carried out at a different company or set of companies. A number of trends in the sector are now in motion. One such trend is for greater responsibility to be pushed from the customers to their suppliers. For example, companies that might previously have been taking responsibility only for cutting customer supplied fabric and assembling it into garments, are now being asked, or find it prudent, to purchase the fabric and provide store ready garments. Another trend is for companies which previously only produced other

companies' brands to now attempt to produce and sell their own brands. What also may be the beginning of trends are:

1. an increase in the practice of a company that is producing for a third party directly shipping the garments to a retailer (i.e., what is called "direct shipping")
2. customers expecting more timely knowledge of the status of their orders
3. an increasing emphasis by domestic companies on their ability to respond rapidly to their domestic customers' changing delivery needs

The trends are in part being caused by the severe impact of foreign competition (see Appendix C)⁵. The majority of SMEs which have been in existence for a number of years have had to make staff cutbacks in the face of this competition, though some, particularly those engaged in certain specialty product areas, have not been appreciably affected. New companies continue to come into being, particularly those owned by recent immigrants, ready to respond to what they perceive as opportunities within the challenged U.S. apparel sector. Despite deep cuts in apparel personnel over the last decades, there are signs that some stabilization has been occurring, e.g., the number of New York city garment workers increased (slightly) in 1997 for the first time since its peak in the 1970's.

The fiercely competitive situation that most SMEs find themselves in has in general left them with little cash reserves. Further, the concentration on the core aspects of their businesses, together with the backgrounds of the people in these businesses, has left the SMEs as a whole behind in their knowledge of information technology. Cash reserves, cash flow levels and deficiencies in computer knowledge remain obstacles to further effective information technology use. Therefore, DAMA efforts aimed at having a widespread beneficial impact on the apparel SME community must take cost and lack of computer knowledge strongly into account in order to have a chance of being successful. In many cases expenditure requirements that are mainly a function of usage rather than up front expenditures will be more satisfactory for apparel SMEs.

3.2 Areas of Interest

Areas of interest which are included in this subsection are limited to those which can be affected by information technology. Those areas deemed of potential benefit by some of the companies participating in this study, are briefly described immediately below.

⁵ The liberalization of trade as represented by the North American Free Trade Agreement (NAFTA) and the latest rounds of the General Agreement on Tariffs and Trade (GATT) has increased the difficulties of dealing with foreign competition. The current difficulties in Asia, which have reduced Asian labor rates in U.S. dollar terms, have not yet had a major impact. However one SME customer has slowed its efforts to bring production back to the Western Hemisphere because decreasing Asian prices have made some moves economically invariable. Possibly on the horizon is liberalization of trade with Africa which could provide another source of foreign competition.

1. **Low-Cost EDI.** The ability to communicate American National Standards Institute (ANSI) X12 Electronic Data Interchange (EDI) transactions with other companies, primarily customers or potential customers, at significantly less cost than is readily available today from commercial software vendors and Value Added Networks (VANs). Many companies that expressed interest in low-cost EDI had no immediate need for it, but thought such a capability would enhance their ability to attract and do business with potential large new customers. At least one company indicated that it may be forced to use EDI by one or more of its customers. Simple EDI exchange with multiple customers is also of interest. However a number of companies were unaware of what EDI is.
2. **Sourcing.** Using information technology tools to find information of interest to the company and for providing information about the company to potential customers.
 - a) **Finding Information** - The particular example of this most mentioned by the companies was the ability to find information about fabrics that are available for immediate purchase from a manufacturer or other fabric source. Such information would include amount, color, width, components, weave, and other specifications of a given fabric. This example assumes that fabric providers collect such information and would share it in an electronic form.
 - b) **Providing Information** - A particular example mentioned was a web accessible database providing information about listed companies' production and other capabilities (like the existing DAMA National Sourcing Database or the AAPN database) which provides mechanisms for limiting inquirers to those with manufacturing needs in volumes that are in keeping with listed companies' business requirements⁶.
3. **Communication with Customers, Suppliers.** Any mechanism (beyond EDI) that would improve and ease the current task of communicating with external entities. The most frequent issues here are with multiple trading partners, each of which require the same type of information but in different formats. Currently, most communication is done by fax and phone. In at least one instance, interest was expressed in making sure such communication was secure.
4. **Electronic Communication Education for Users (Internet, EDI, etc.).** Seminars, tutorials, materials and/or demonstrations that focus on ways small businesses can capitalize on the ready availability of the Internet and other means of electronic communication.
5. **Production Planning.** A tool to automate production planning and scheduling. Many companies are now faced with producing a much larger number of stock keeping units (SKUs) than ever before. Primary contributors to this increase include a larger number of available colors, sizes, and options on a given garment style, along with smaller runs than were previously the norm. This explosion of SKUs has led to

⁶ Current inquiries resulting from listings in existing web accessible databases apparently tend to be from people wanting extremely small quantities, e.g., from people with an idea who have not been in the apparel business before.

significantly increased complexity in production floor planning and scheduling. In addition, products which require many production steps lead to a complex operator assignment problem when operators are trained for multiple production steps and have varying skill levels from step to step. One company indicated the desirability of a tool to handle the daily assignment of operators.

6. **Automated Order Processing.** A mechanism for translating incoming orders into a format that could be used for production planning and scheduling. Features include determining critical path, generating cut ticket, trim sheet, marker layout, and instruction list for operators.
7. **New Product Development.** A means of showing new products which reduces the need to transport actual physical samples. Possibilities range from simply sharing images of products to a full collaborative development environment. The current product development cycle is much longer than desired, and an appropriate set of tools to simplify or enhance the process should cut the time dramatically.
8. **Quality Tracking.** An enhanced bundle tracking system to include information about the stations a garment has passed through, the time the garment was at each particular station, the operator(s) at each station at the time the garment passed through, etc., to assist when tracking down and correcting production errors.
9. **In-process Inventory Tracking.** A tool to quantify and locate in-process inventory.
10. **Raw Materials Inventory Tracking.** An automated tool for tracking and inventorying incoming raw materials.
11. **Electronic Product Catalog⁷.** A mechanism for publishing a list of products, perhaps with photos and specifications, in an electronic form, perhaps utilizing the Internet. Such a catalog would:
 - a) be more quickly available
 - b) be more likely to be up-to-date
 - c) have broader availability than publishing exclusively on paper

A number of companies indicated they would be interested in receiving training and attending seminars on various subjects particularly those mentioned in item 4 above. One company suggested that for the very small contractors that it uses, video tape based training would be most valuable.

⁷ This is a special type of the class of sourcing systems described in 2b above. Such catalog capabilities are currently available on a commercial basis from companies such as ITI in NYC, but may not have the convenience of use or the cost that would be most desirable.

Table 1: Areas of Interest Quantified by Area depicts the number of companies visited that expressed an interest in each area.

Area of Interest	Number of Interested Companies
1. Low-Cost EDI	✓✓✓✓✓✓✓✓
2. Sourcing	
• Current, short-term capabilities, equipment and capacity	✓✓✓✓✓
• General company capabilities	✓
• Small lot fabrics	✓✓✓✓✓
• Available fabrics	✓✓✓✓✓✓
• Fabric development plans	✓✓
3. Communication with Customers, Suppliers	✓✓✓✓✓✓✓✓
4. Electronic Communication Education for Users (Internet, EDI, etc.)	✓✓✓✓✓
5. Production Planning	✓✓✓✓✓
6. Automated Order Processing	✓✓✓
7. New Product Development	✓✓
8. Quality Tracking	✓
9. In-process Inventory Tracking	✓✓✓✓✓
10. Raw Materials Inventory Tracking	✓
11. Electronic Product Catalog	✓

Table 1: Areas of Interest Quantified by Area

Table 2: Areas of Interest Organized by Company Name shows the areas of interest expressed by each company

Company	Areas of Interest:										
	1	2 ^a	3	4	5	6	7	8	9	10	11
A&Z Industries, Ltd	✓	✓					✓				
All States Apparel									✓		
Ashmore Sportswear			✓						✓		
Craig Industries			✓								
CMT Knitting	✓	✓									
Encore Textiles, Inc.	✓				✓	✓			✓		
Granite Knitwear, Inc.			✓								
G.S. Dunbar & Co. Inc.		✓		✓							
Hamrick Industries											
Hemingway Apparel Inc.			✓		✓						
JP Sportswear, Inc.		✓		✓							✓
Lebanon Apparel			✓		✓						
Lord West	✓				✓				✓		
Loungewear Manufacturing Corp.	✓	✓								✓	
Lynn Manufacturing, Division of Courtland		✓									
New Chock's Enterprises		✓		✓							
Pattern Design Unlimited, Inc.		✓	✓				✓				
Royal Sportswear									✓		
Stitches, Inc.		✓	✓	✓							
Swansea Manufacturing Co.	✓				✓	✓					
The KYM Company		✓				✓		✓			
Todd Rutkin, Inc.				✓							
Virginia Apparel Corporation	✓	✓									

Table 2: Areas of Interest Organized by Company Name

Liz Claiborne, the SME customer visited, was not included in the above tables. Claiborne indicated that it required its contractors to be able to receive CAD (Computer Aided Design) data and, while not required, would find useful any increased knowledge of the progress of its orders at its contractors. While Claiborne has implemented EDI for communication with its retail customers, it doesn't require EDI capability of its contractors. A follow-up telephone conversation with another large SME customer

^a A company checked in this column may have expressed an interest in more than one of the subclasses of sourcing listed in Table 1: Areas of Interest Quantified by Area.

discovered that that customer was providing systems to some of its contractors to allow it to automatically receive certain information about the progress of its orders.

3.3 Terminology

The US Apparel Sector utilizes a somewhat esoteric terminology. Further, many individual terms have multiple meanings which depend upon the user and the circumstances of their usage. A set of terms to describe the types of business that an apparel sector company engages in is provided in 10 Appendix D - Terminology. Below in the body of this report we utilize the terms manufacturer, contractor, and full packager in noting significant comments made by personnel of the companies we visited. We discuss these terms in this subsection (as well as define them in the Appendix) in the context of their usage relative to apparel SMEs.

Traditionally apparel manufacturers carried out some, if not all, of the production steps for garments carrying their brand. A trend has been for manufacturers to utilize contractors for an increasing amount of this production. Some companies which have their own brands have carried this trend to the point where they use contractors to carry out all the production steps on some or all of their branded garments. These companies have continued to be referred to as manufacturers. Consistent with this, companies that sell their own brand even if they have never carried out any of the production steps are referred to as manufacturers. Thus a manufacturer is a company that has its own brand which it sells to retailers or direct to the consumer. A contractor is a company that carries out one or more of the production steps for another company. A contractor may produce a private label, i.e., a retailer's brand, or a manufacturer's brand or carry out a subset of the production steps for a private label or a manufacturer's brand.

A common practice has been for a manufacturer to purchase the fabric and other major garment materials required by its contractors and not give its contractors full responsibility for the production of the garments. The trend of putting more responsibility on contractors has led to the increased practice of requiring contractors to be "packagers" or "full packagers" Here the term packager means a contractor who takes full responsibility for production of a completed garment including its store readiness. The term full packager means a packager who takes ownership of all the materials that it processes.

3.4 General Observations

Some interesting comments surfaced during these visits, many of which were repeated at more than one company. Some of these comments did not have direct bearing on information technology needs or solutions, but they are worthy of note in this report and are noted below in this subsection.

- Some companies are making the transition from pure contractor to contractor/manufacturer while others are considering such a transition
- Some still refuse to hold or cannot purchase fabric or finished goods inventory
 - the risk vs. gain of such purchases is now too great though they may soon become necessary since “full packaging is probably the wave of the future” according to one company
- The ability to purchase small amounts of fabrics is key to flexibility and, in many cases, customer response
 - one company noted this will be the key to success or failure in a transition to a contractor/manufacturer
- Some fabric producers are unwilling to sell small amounts
- Flexibility is key to survival
- Some companies are willing to take on "odd jobs," while others are sticking strictly to their traditional business
- The claimed ability to rapidly respond to orders is being used by some companies as a selling tool
- Direct shipping to retailers is practiced by some contractors and may be on the increase.
- NAFTA is having significant impact, removing from US companies work such as
 - stock items, such as plain white t-shirts
 - low-complexity work that has few SKUs and few steps to produce
 - items not requiring a high level of quality
 - high volume orders
- Many companies are taking on fill-in work for replenishment of orders that originally went to other countries
- Cash reserves are slim to none in these classes of companies except for those engaged in high value added work
- The perceived need for enhanced customer communication tools (beyond the phone and fax) is apparently not as great in the NYC and Los Angeles area where in many cases customers are geographically close to contractors and may also be closer in their business relationships
- US, Japanese, and German customers pay more for higher-quality US-made products
- Customer demands are increasing in areas of on-time delivery and quality
- A wide range of operator wages is paid, directly influenced by local competition
- A wide-spread problem is getting on-time delivery of quality goods from suppliers
- Contracts are one-sided: buyer may pull out with no notice leaving contractor with unplanned available capacity; customer may expect that deadlines for finished products will not slip when customer-supplied piece goods arrive late

4 Recommendations

The DAMA Project considers these visits and the information they have brought to light as invaluable. It appears that there are definite opportunities that DAMA has the capability to address. It is recognized however that this study did not cover what might be termed a statistically meaningful sample of apparel SMEs, though it is considered unlikely that the opportunities in the overall SME community will differ markedly from those uncovered in these visits.

The first recommendation is to develop a prototype and/or initiate a pilot which take(s) into consideration some of the areas of interest listed in Subsection 3.2 Areas of Interest. Particularly the prototype/pilot should consider customer/supplier communications with an emphasis on Low-Cost EDI but, at least in a prototype case, with the provision for other forms of Internet based communication. The prototype/pilot should demonstrate the integration of the communication capability with company-centric systems. DAMA work in the areas of Internet EDI and other secure trading partner communication may be drawn upon in carrying out this recommendation.

The second recommendation is to explore the business requirements and business willingness to meet such requirements for a fabric sourcing system. Technically, producing a web based sourcing system with features that assist in maintaining current data and in communications among suppliers and prospective customers is feasible. The work in developing the DAMA National Sourcing Database (NSDB) and approaches considered for enhancing the NSDB could be built upon to provide a fabric sourcing database that would meet the apparent needs of the industry. The willingness of the fabric suppliers and SMEs to cooperate in developing a meaningful classification of fabrics, in maintaining current data in the database, and responding to database generated inquiries will determine whether such a database would be a widely used tool.

The first two recommendations address the most frequently expressed cross-company systems oriented needs of this study group, i.e., Low Cost EDI, Sourcing, and Communication with Customers, Suppliers. The third recommendation deals with education, particularly education concerning systems possibilities to enhance business capabilities for dealing with current and prospective customers and suppliers. The recommendation is that DAMA utilize our contacts with the industry trade organizations to provide educational materials, seminars, and demonstrations to SME management to acquaint them with these opportunities. DAMA has done this for its larger US ITC partners in the past and could shape this to the needs of the smaller apparel SMEs. The Garment Contractors Association of Southern California has already asked that DAMA consider providing such training to a group of its members and it is anticipated that other trade organizations might also be interested in such efforts⁹.

⁹ GIDC plans to survey a portion of its membership on the memberships' desire to receive such training.

The fourth and final recommendation is to take the opportunities that come from other DAMA-related travel and from laboratory geographical location to meet with other SMEs and major SME customers. The result of such meetings would be used to update this report and to fine tune the above recommended work.

5 Future Plans

Companies that expressed interest in the areas to be worked upon will be given the opportunity to work with DAMA developers to refine the scope, requirements, and goals of the work. Software vendors with products that have the applicable functionality and cost will be approached to determine if their products should be used within the prototype and/or pilot. Our interactions with trade organizations will increase as we seek to define both prototype/pilot requirements and worthwhile SME education activities. Opportunities for further "low cost" visits to SMEs and SME customers will be taken advantage of to refine our knowledge of their operations, problems and opportunities.

Ideally, pilots will be implemented which engage companies who are part of this study, along with some of their trading partners, who may also be DAMA member companies. Such pilots would likely involve the introduction of new technology or mechanisms into the participating companies and operate for some extended period of time. Successfully piloted technologies would become candidates for commercialization, which would make them available to the entire industry as commercial products.

It is also hoped that the relationships formed as a result of this study, along with the introduction and utilization of new technology, will lead to stronger and more cooperative relationships among the study and pilot participants and eventually throughout the industry. Several of the participants in this study have noted that the industry, now faced with new challenges from the government and from abroad, must work cooperatively to survive. The introduction of new technology can only serve to facilitate some of the cultural and operational changes needed to enable this cooperation; it cannot cause them. However, broadcasting the success stories achieved through this work will help foster new partnerships throughout the industry.

6 Contact Information

Jim Lovejoy	Carolyn Wimple	Leonard Brewington	Bill Grimmell
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7 Appendix A - US Small Business Administration (SBA) Definition of Small Business

SIZE STANDARDS BY SIC INDUSTRY 3/96

SIC	DESCRIPTION	SIZE
		STANDARDS
		IN NUMBER
	(N.E.C. = NOT ELSEWHERE CLASSIFIED)	OF EMPLOYEES
		OR MILLIONS
		OF DOLLARS

DIVISION D**MANUFACTURING2

MAJOR GROUP 23**APPAREL AND OTHER FINISHED PRODUCTS
MADE FROM FABRICS AND SIMILAR MATERIALS

2311	Men's and Boys' Suits, Coats and Overcoats	500
2321	Men's and Boys' Shirts, Except Work Shirts	500
2322	Men's and Boys' Underwear and Nightwear	500
2323	Men's and Boys' Neckwear	500
2325	Men's and Boys' Separate Trousers and Slacks	500
2326	Men's and Boys' Work Clothing	500
2329	Men's and Boys' Clothing, N.E.C.	500
2331	Women's, Misses', and Juniors' Blouses and Shirts	500
2335	Women's, Misses', and Juniors' Dresses	500
2337	Women's, Misses', and Juniors' Suits, Skirts, and Coats	500
2339	Women's, Misses', and Juniors' Outerwear, N.E.C.	500
2341	Women's, Misses', Children's, and Infants' Underwear and Nightwear	500
2342	Brassieres, Girdles, and Allied Garments	500
2353	Hats, Caps, and Millinery	500
2361	Girls', Children's, and Infants' Dresses, Blouses, and Shirts	500
2369	Girls', Children's, and Infants' Outerwear, N.E.C.	500
2371	Fur Goods	500
2381	Dress and Work Gloves, Except Knit and All-Leather	500
2384	Robes and Dressing Gowns	500
2385	Waterproof Outerwear	500
2386	Leather and Sheep-Lined Clothing	500
2387	Apparel Belts	500
2389	Apparel and Accessories, N.E.C.	500
2391	Curtains and Draperies	500
2392	Housefurnishings, Except Curtains and Draperies	500
2393	Textile Bags	500
2394	Canvas and Related Products	500
2395	Pleating, Decorative and Novelty Stitching, and Tucking for the Trade	500
2396	Automotive Trimmings, Apparel Findings, and Related Products	500
2397	Schiffli Machine Embroideries	500
2399	Fabricated Textile Products, N.E.C.	500

8 Appendix B - Organization for Economic Cooperation and Development (OECD) Definition of SME

Small and Medium-sized Enterprises

What is a Small and Medium-sized Enterprise (SME)?

The term **SME** covers a wide variety of definitions and measures and there is no official or universally accepted definition of an SME. The definitions and their basis vary widely among countries, but the most common definitional basis in OECD countries is employment -- in general an SME has less than 500 employees, although many countries use a lower cut-off, say 300 or 100 employees.

Some countries differentiate between manufacturing and services SMEs -- with a services SME usually defined to be smaller than a manufacturing one. Some countries distinguish between autonomous SMEs and those SMEs that are connected to a larger enterprise or group, or identify an SME in terms of management structure (personal involvement of the owner or family-owned, for example). Finally, statistical definitions of SMEs often differ from those used for policy implementation purposes; for example although a firm with 600 employees may not be regarded as an SME for statistical purposes, it may still be able to gain access to public support programmes designed for SMEs.

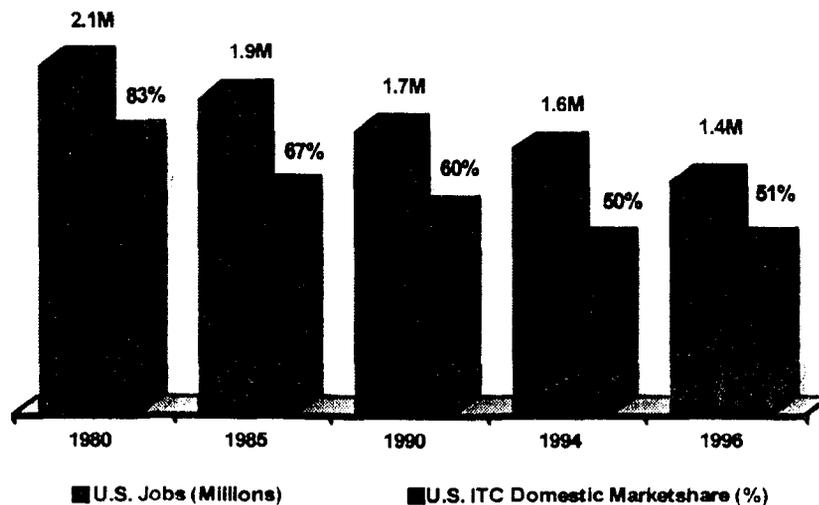
The main feature of an SME is that it is "not large", in the sense that an SME is not in the core of the largest 10 or 20 per cent of firms in that market or industry. This leads to a rough convention for categorising SMEs:

- **micro:** 1 - 4 employees;
- **very small:** 5 - 19 employees;
- **small:** 20 - 99 employees; and
- **medium:** 100 - 500 employees.

<http://www.oecd.org/dsti/sme/21def.html>

9 Appendix C - US ITC Jobs and Marketshare 1980 - 1996¹⁰

The decline in US ITC jobs and market share in the period from 1980 through 1996 is illustrated in Figure 1: US ITC Job and Marketshare Trends. During that period over 622,000 textile and apparel manufacturing jobs were lost as a direct result of foreign imports and the US ITC share of the U. S. market went from 83% to 51%. Furthermore, US ITC job losses appear to have been increasing in the latter portion of the period, as 186,000 jobs were lost between 1994 and 1996. The associated shrinking marketshare has caused follow-on losses across the industry because of interdependencies among the industry's production components (fiber, textile, manufactured goods, and apparel) and equipment suppliers.



Source: ATMI and Bureau of Labor Statistics
Figure 1: US ITC Job and Marketshare Trends

The labor-intensive U.S. apparel sector (accounting for about 21,450 small- and medium-sized companies) lags behind the same sector in developing countries in output per unit of costs. There is an 8:1 differential in total wages between those of the U. S. and Mexico, and a 4:1 differential in total wages between the U. S. and the average wage in the Pacific Rim countries¹¹. This differential in manufacturing costs and the differential costs of

¹⁰ Source: DAMA FY98 Project Plan, DAMA-I-8 97, September, 1997, Version 1.0

¹¹ This does not reflect changed exchange rates resulting from the current Asian economic crisis. These will make the Pacific Rim ratio even higher.

meeting regulatory requirements provide have led to the majority of job and domestic marketshare losses.

10 Appendix D - Terminology

Standardization of terms used to describe work performed at SMEs has not come to pass. There apparently are regional differences, differences from association to association and differences among individual SMEs, SME customers and SME suppliers. Further the terminology continues to evolve as the nature of the business engaged in by apparel sector companies evolves to meet the changing business climate.

Consistent terminology is however required to properly convey the information intended for inclusion in this report and for DAMA discussions of the direction of further SME oriented work. Consequently, we provide below definitions of a set of terms (with key terms underlined>) to describe the type of businesses that an apparel sector company may engage in.

These definitions follow common usage, to the extent that such usage exists, while providing for necessary distinctions of the type of businesses that we visited or otherwise became aware of. Footnotes are included to note significant variations of meaning of these terms. The included discussion of the definitions provides a description of some aspects of the apparel sector.

As a prelude to the definition of terms, the steps in the production of an apparel item and in making it ready for consumer purchase are enumerated. We will refer below to all of these steps as production steps. However not all production steps are required for every type of garment.

Production Steps:

1. cutting - fabric (piece goods) is cut into cut parts
2. cut part processing - any adding of value to the cut parts before they are assembled into a garment; particularly decoration such as embroidery or printing on the cut parts
3. sewing - cut parts are assembled into garments and trim (e.g. buttons, labels) is sewn onto the garment
4. finishing - additional steps, such as screen printing, washing, treating to make wrinklefree, pressing, and folding that are carried out upon the assembled garment
5. store readying - providing store readiness to the garment by adding removable items such as tags, hangers, cardboard and/or providing unit packaging to make the garment ready to be placed upon a store shelf or rack or to be packaged for shipping to the consumer

A manufacturer is a company that has its own brand which it sells to retailers or direct to the consumer¹². A contractor is a company that carries out one or more of the above steps for another company. A contractor may produce a private label, i.e., a retailer's brand, or a manufacturer's brand or carry out a subset of the production steps for a private label or a manufacturer's brand. The following should be noted:

1. A manufacturer may carry out all, a subset of, or none the production steps. It may have all, some or none of these steps carried out by a contractor(s). Traditionally manufacturers carried out some, if not all, of the production steps for their branded garments. A trend has been for manufacturers to utilize contractors for an increasing amount of their production. Some companies that formally were traditional manufacturers have carried this trend to the point where they have contractors carry out all the production steps on some or all of their branded garments. These companies have continued to be referred to as manufacturers. Consistent with this, companies that sell their own brand even if they have never carried out any of the production steps are referred to as manufacturers.
2. A company may be both a manufacturer and a contractor, that is it may have its own brand(s) but also carry out all or a subset of the production steps for another manufacturer's brand(s) or a private label(s), i.e., retailer brand(s).
3. A contractor may utilize other contractors. For example, a contractor may take on responsibility for the cutting and sewing of a manufacturer's brand and then have another contractor (its subcontractor) carry out the cutting operation¹³ (frequently the use of subcontractors requires the permission of the company for whom the work is being done).
4. A retailer with a private label is effectively a manufacturer of that private label though below we will continue to distinguish the retailer from the other type of manufacturer.¹²

Another distinguishing characteristic of an apparel operation is the ownership of the materials which are being processed. A contractor may or may not own these materials (typically a manufacturer or retailer owns the materials and contracts for its processing, though a contractor sometimes is asked/required by the manufacturer or retailer to purchase materials). An example of a typical case is one in which a manufacturer buys

¹² Many companies that produce garments but do not put their own brand on them like to refer to themselves as manufacturers and some people accept such use of the term manufacturer (the definitions below of a packager and full packager may be relevant to these companies). Yet a clear distinction is made between those who do have their own brand and those who produce garments branded with another companies brands. This distinction was usually made to us during our visits by reserving the term manufacturer for a company which has its own brand whether or not it carried out production steps. A further distinction was however made between retailers who had their own brands, referred to as private labels, and non retailers who had their own brands.

¹³ There are many other types of contractor/subcontractor arrangements, with one particular type being a contractor performing one production step but also employing a subcontractor to help with that production step, e.g., a contractor may assemble some of the garments for an order and have a subcontractor assemble the rest of the garments for that order (i.e., the contractor is using another contractor to help in the assembly step).

the fabric and all the elements of the "trim package" (e.g. buttons and labels, etc.) and utilizes a contractor to cut the fabric and assemble the garment (including the trim).

A cutter¹⁴ is a contractor who only cuts fabric. Its input is piece goods and output is cut parts. It does not take ownership of the materials it processes. Its customers are normally manufacturers or other contractors (though they might be retailers when private labels are involved).

An embroiderer¹⁵ is a contractor who embroiders patterns on garment parts or a garment. Usually the embroidery is done on cut parts before any assembly. Its input is garment parts (or a garment). Its output is embroidered garment parts (or an embroidered garment). It does not usually take ownership of the materials it processes. Its customers are normally manufacturers or other contractors (though they might be retailers when private labels are involved).

A sewer is a contractor who assembles garments (including the trim). It may also embroider the cut parts if embroidery is required and normally will press the garment if pressing is the only finishing step. Its input is cut parts and a trim package and output is an assembled (possibly pressed) garment. It may also store ready the garment. It normally does not take ownership of the materials it processes. Its customers are normally manufacturers or other contractors or retailers¹⁶ when a private label is involved.

A cut and sewer is a contractor who does both the cutter and sewer production steps. Its input is fabric and a trim package. It normally does not take ownership of the materials it processes. Its customers are normally manufacturers or other contractors or retailers when a private label is involved.

A finisher is a contractor who performs one or more finishing steps on an assembled garment. Its input is assembled garments and output is finished (or partially finished) assembled garments. It normally does not take ownership of the materials it processes.

¹⁴ The term is widely used with other meanings, e.g. it is commonly used to refer to any company which does some garment assembly. One American Apparel Manufacturers Association (AAMA) committee uses it to distinguish AAMA regular members, who normally do some assembly, from its associate members, who normally are suppliers of its regular members. The term "contract cutter" is sometimes used to designate what is defined above as a cutter, in order to distinguish such a company from one referred to with the "slang" designation of "cutter". Companies that only cut fabric into parts for assembly however apparently refer to themselves as cutters and in at least one region of the country the term cutter is reserved for a company such as described in the above definition.

¹⁵ We have not found a term from within the sector terminology nor a conveniently borrowable term from outside the sector to describe the class of contractors who add value to cut parts before they are assembled into garments. Consequently we singled out embroiderers, the currently most prominent contractor type from this class, for definition as an example of a contractor from this class.

¹⁶ This type of contractor may also be involved in directly shipping garments to retailers though the contractor's customers are third parties from whom the garments are purchased by the retailers.

Its customers are normally manufacturers or other contractors or retailers when a private label is involved¹⁷.

A packager is a contractor who takes full responsibility for production of a completed garment including its store readiness. Its input is fabric, trim package, and store readiness material. Its output is a garment which has store readiness. It normally does not take ownership of the materials it processes. Its customers are normally manufacturers or retailers when a private label is involved.

A full packager is a packager who takes ownership of all the materials that it processes.¹⁸

A service provider is someone who does not process material but provides some other service to companies in the apparel sector that affects the garment that will be produced. Pattern makers, marker makers, graders, and designers are examples of service providers.

Notes:

1. A company can be a number of things simultaneously, e.g. a full packager for some brands, and a cut and sewer for others (and as noted above both a contractor and manufacturer).
2. A cut and sewer is both a cutter and sewer but the term "cut and sew" is so frequently used that "cut and sewer" was specifically defined above. The term CMT (cut, make, and trim)¹⁹ is sometimes used as a synonym for cut and sew, i.e., a company that is a CMT is a cut and sewer.
3. Terminology defined above may be expected to continue to evolve as new businesses paradigms emerge and are adopted within the industry.

Table 3: Summary of Certain Contractor Types, summarizes below a number of the terms defined above.

¹⁷ Finishers and processors of cut parts prior to their assembly are sometimes referred to as "specialty contractors" These include in addition to the embroiders, screen printers, laundries, fancy stitchers, etc.

¹⁸ Sometimes the term packager is used when referring to a full packager, which blurs the distinction between two types of operating approaches. Also the term "private label manufacturer" is sometimes used to refer to a full packager.

¹⁹ The T in CMT is sometimes considered to stand for thread in which case a CMT is thought of as someone who cuts, makes, i.e., assembles and trims, and supplies the thread (most sewers and cut and sewers do supply the thread except when the thread is a specialty item).

Business Type	Normal Input	Normal Output	Normal Customer	Purchases Materials
Cutter	Piece Goods	Cut Parts	Manufacturer, Other Contractor	No
Embroiderer	Cut Parts	Embroidered Cut Parts	Manufacturer, Other Contractor	No
Sewer	Cut Parts (Possibly Embroidered), Trim Package	Assembled Garment - Possibly Pressed	Manufacturer, Other Contractor	No
Cut and Sewer	Piece Goods, Trim Package	Assembled Garment- Possibly Pressed	Manufacturer, Other Contractor, Retailer	No
Finisher	Assembled Garment	Finished Assembled Garment	Manufacturer, Other Contractor	No
Packager	Piece Goods, Trim Package, Tags etc.	Shelf Ready Assembled Garment	Retailer, Manufacturer	No
Full Packager	Piece Goods, Trim Package Tags etc.	Shelf Ready Assembled Garment	Retailer, Manufacturer	Yes

Table 3: Summary of Certain Contractor Types

11 Appendix E - Company Trip Reports

-----A&Z Industries, LTD-----

SME Visit Report

Date: July 23, 1997
Time: 9:00am
Location: Allentown, PA
Attendees: Tony ElChaar, President & CEO A&Z Industries, LTD
Leonard Brewington, Milliken & Company
Ernest Vosti, LLNL
Carolyn Wimple, LLNL

Company Background:

Company Name: A&Z Industries, LTD
Primary Business: Manufacturer of fashion products
Size: 300 employees, 125 at Allentown facility
Contractor Organization: AAMA
Company Type: Manufacturer
Product Line: Fashion clothing, dresses, jackets
Customer Types: Private Label Retailers

Computer/Network Usage

E-mail: elchaar@aol.com
Web Site:
Computers: PCs on Windows 95, Gerber software
EDI: They have two customers on two different VANs that require EDI. It costs Tony \$1000/mo per VAN.

Needs

1. The product development cycle is currently 6+ weeks. Tony would like to see if DAMA technology could be applied to reduce the product development time. He envisions a system that would allow the designer, the manufacturer, and the fabric maker to collaborate electronically to share design information, fabric specifications, prices, etc. The potential is to reduce the product development time to approximately three weeks, cutting 3+ weeks of time. Potential companies that would participate in a pilot are small to medium sized private label retailers. Any pilot that would be developed would have to start small so that it would not require a lot of investment by the retailer to participate and would have a higher probability of success.
2. He sees a need to interact with fabric vendors on-line. He would like to see the Apparel Exchange concept extended to include more detail about the products that are available.

Miscellaneous Notes

1. Some companies have gone to Mexico to produce fashion products. There are quality problems with these products, although quality is improving.
2. We discussed at some length the cultural issue in the textile industry whereby companies are very reluctant to share information even though it is commonly known or can easily be derived from other data. This is a major hurdle that would have to be crossed in any collaborative pilot within this industry.

3. Tony sees EDI as costly and of no advantage to him.
4. A&Z performed an internal study that showed that the actual work processes to develop a product only amount to about 3 weeks. The rest of the 6+ weeks is wasted time waited for FedEx's, phone calls, fax's, travel to meetings, etc.

-----**All States Apparel Inc.**-----
SME Visit Report

Date: January 21, 1998
Time: 2:00 P.M.
Location: Brooklyn NY (Sunset Park area of Brooklyn)
Attendees: George Gromov (and others) All States Apparel
Leonard Brewington (Milliken/DAMA project)
Bill Grimmell (ORNL/DAMA project)

=====
Company Background:

Company Name: All States Apparel Inc.
Primary Business: CMT Contractor
Size: about 110 employees
Contractor Organization: AAPN
Company Type: Cut and Sew Contractor with some Packager and Full
Packager Business
Product Line: Sportswear, Bodywear, Swimwear; Both basics and fashion
Customer Types: Primarily Manufacturers -e.g. Sarah Lee, American Standard
Apparel, Speedo, Spalding
Other Info: Established in 1992 - Currently occupy about 26,000 square
feet which is part of an older industrial building

=====
Computer/Network Usage

E-mail: Yes
Web Site: No
Computers: 1 or 2 PC's
EDI: No
Other: Use a bundle ticket software package from Painless Computer for tracking work,
maintaining records of work done by employees for payroll purposes and for generating
weekly "efficiency reports"

=====
Needs:

1. More timely tracking of work (currently work done is entered into PC via bar-coded bundle tickets submitted by operators with entry of this information requiring of the order of six hours per week - looking at touch screens that could be out on manufacturing floor for more timely entry).
2. Maintenance of information in system after lot is "closed out" (current system deletes information about a lot after it is closed out).
3. BOM's, fabric inventory, customer shipments in system.
4. If company gets into manufacturing, would need warehousing and distribution system capabilities.

=====
Miscellaneous Notes:

1. Customer information requirements depend upon type of work - full package responsibility work usually only requires delivering within delivery window, however CMT work lead to providing frequent information about status of work (this information is not currently maintained within the computer system). Phone is the dominant communication means.

2. Considering doing some manufacturing.
3. Currently buy some fabric but are apparently primarily obtaining fabric from customers.
4. Fabric sourcing, delivery and awareness of when deliveries will take place is not a problem.
5. Great majority of business (probably over 90%) is with three customers (two of which are Sarah Lee, American Standard Apparel).
6. Utilize ability to provide rapid response as a means to obtain business.
7. Apparently have invested 10's of thousands of dollars in computer system.

-----**Ashmore Sportswear**-----

SME Visit Report

Date: July 22, 1997
Time: 9:00am
Location: Akron, PA
Attendees: Dennis Ashcroft, Ashmore Sportswear
Selina Ashcroft, Ashmore Sportswear
Leonard Brewington, Milliken & Company
Ernest Vosti, LLNL
Carolyn Wimple, LLNL

=====
Company Background:

Company Name: Ashmore Sportswear
Primary Business: T-shirt Manufacturer
Size: ~300 employees
Contractor Organization: AAPN (AACCA)
Company Type: Primarily private label manufacturer. Knits common sizes (60%) in-house, 40% contracted out. Originally only a knitting plant
Product Line: T-shirts and other similar knit tops
Customer Types: Two primary customers, several large sports apparel companies, and 18 very small companies

=====
Computer/Network Usage

E-mail: 7585625@mcimail.com
Web Site: www.ashmore-sportswear.com
Computers: Have PCs, not networked, use fax and e-mail, heavy Lotus use. Planning to modernize systems and install network, improve usage
EDI: See no current need for EDI since they don't deal with retailers

=====
Needs

1. Looking for software to "de-skill" positions; make accurate decisions for an operator. Software must be user-friendly, not requiring expert computer background.
2. Looking for seminars focused on planners, schedulers, not just targeted at executives.

=====
Miscellaneous Notes

1. Originally a knitting plant, then added cut and sew in 1981.
2. All work in process is made to order; rarely make to stock; when do make to stock, it is targeted at largest customers.
3. 45 days from yarn in thru knit, dye, manufacture and ship.
4. All manufacturing is done domestically.
5. 3 production facilities - 2 in PA, 1 in VA.
6. Does not sell directly to retailers - only private label.
7. Customer demands are greater now than they used to be, e.g. last year 2 weeks late was ok, now 1 day is a big deal.
8. Customers are now requiring nearly 100% on time correct shipment. A year ago 90% was acceptable.
9. Quality issues and delays have major impact.
10. One major problem is with the quality of incoming yarn. Poor yarn in causes problems down the line.

11. Would prefer better information flow from suppliers. Poor information flow is probably due to suppliers' smaller margins and decreased staff.
12. Ashmore is probably also providing poor and/or un-timely information to its customers
13. Timely deliveries is a problem.
14. Previously just produced blank shirts; as of 6 months ago is now coordinating printing of shirts and packaging for customers.
15. Now entering in the business of sourcing customers who ask for work Ashmore doesn't do to other AAPN members.

-----**CMT Knitwear**-----

SME Visit Report

Date: January 22, 1998
Time: 9:00 A.M.
Location: Brooklyn, New York (Downtown Section)
Attendees: Jonathan Pruski (CMT Knitwear), President
Leonard Brewington (Milliken/DAMA project)
Bill Grimmell (ORNL/DAMA project)
Bruce Herman (GIDC)
Janet Paszkiewicz (GIDC)

=====
Company Background:

Company Name: CMT Knitwear
Primary Business: Knitwear
Size: 50-75 employees depending upon season
Contractor Organization: AAPN
Company Type: Cut and Sew Contractor
Product Line: Children's, Women's and Men's Knitwear
Customer Types: Manufacturer's mainly in NYC area (however has done work for companies such as Talbots and Eddie Bauer)
Other: Occupies floor of older industrial building - moved into present location 5 years ago

=====
Computer/Network Usage

E-mail: Yes
Web Site: No, but listed on AAPN web site (and has obtained some business from this listing)
Computers: 2 PC's
EDI: No
Other: Production software package by Entel Systems to record worker production.

=====
Needs:

1. "Serious database" to be listed in which leads to inquiries only from organizations needing production in quantities commensurate with CMT Knitwear's business (most inquiries that are now received from AAPN listing are from people with an "idea" not established organizations).
2. Would have additional needs if CMT Knitwear gets into manufacturing:
 - a) means to rapidly locate fabric would be primary need
 - b) means to locate trim would also be needed
3. EDI would be valuable but "is too expensive" when implemented in traditional way.

=====
Miscellaneous Notes:

1. Most communication with customers is by phone and fax.
2. Little customer communication about status of orders is required.
3. Fabric availability has at times been a problem when customer(s) don't receive expected fabric deliveries and aren't notified well in advance that deliveries will not be made on time.
4. Does some direct ship to retailers (e.g. Bradlees) for a customer based in Conn. (who is a children's and ladies wear manufacturer).

5. Would like to be considered for an EDI over the Internet pilot involving the customer noted in item 4 immediately above.
6. Attempts to develop concept of "quality at source" by explaining to operators the increased costs associated with correcting problems that have to be discovered after the work leaves the station where it is done.
7. Mr. Pruski, prior to starting CMT, worked for Tweeds inspecting Tweeds' contractors.
8. Sees full package manufacturing as the wave of the future but at present the capital requirements to do it are too great given the current profit/loss potential.
9. Would expect increased customer communication requirements if CMT gets into manufacturing.

-----**Craig Industries**-----
SME Visit Report

Date: August 28, 1997
Time: 2:00pm
Location: Lamar, SC
Attendees: Larry Crolley, Craig Industries
Ronnie Nixon, Craig Industries
Debra Reynolds, Craig Industries
Steve Freudenthal, Milliken & Company
Bill Grimmell, ORNL
Carolyn Wimple, LLNL

=====
Company Background:

Company Name: Craig Industries
Primary Business: Golf shirts and t-shirts
Size: 300 employees in 3 plants
Contractor Organization: SEAMS
Company Type: Contracting only
Product Line: Golf shirts and t-shirts
Customer Types: 6-8 primary customers: through Sunrise Apparel, products are sold to Sears, JCPenney, Dillard's, Casual Mill, Kmart; through Willow Point, sell printables to private label customers, Impressions, and South Carolina T's

=====
Computer/Network Usage

E-mail: none
Web Site: none
Computers: have a few non-networked 486s which have access to a main server running Theos. This server runs a customized system written specifically for Craig.
EDI: Was requested once by Liz Claiborne, but no longer needed

=====
Needs

1. Interested in sharing information electronically with customers. See information sharing and cooperation as a way to help the industry.
2. Would like to cut fabric for 807 companies and could use assistance in finding customers.

=====
Miscellaneous Notes

1. Looking for big growth in Germany and Japan. These countries have higher base wages.
2. Expect 20% of product to be sold to Japan in 97-98. Japan highly values "made in USA." They use Craig's products in Catholic school uniforms, corporate work, and purchase through Brooks Bros.
3. Have a lot of higher technology in new sewing machines.
4. Craig is proactive about interacting with and helping their customers.
5. It is easier to service a \$7-20M company than a \$100M company.
6. Use computer-generated (not bar-code) bundle tickets. Numbers are entered by hand then transmitted to their Payroll system.
7. Computer programming support is contracted out.
8. Inventory, work in progress, cut work, shipped orders are recorded on computers.
9. Information can be downloaded from main server to PCs.

10. Customers provide a cutting ticket which allows Craig to cut fabric when fabric arrives.
This is all planned in advance with the customer.
11. Have no need to source fabrics.
12. Craig likes to do projects other companies don't like to do.
13. Craig enjoys the challenge of doing odd lots; does not see the added planning complexity as a problem.
14. Would benefit from availability of shorter runs from mills.
15. Operators are paid a base wage plus piece work, average \$7.00/hr.

-----**Encore Textile**-----
SME Visit Report

Date: June 25, 1997
Time: 9:00am
Location: Monroe, NC
Attendees: Dan Bulluck, Encore Textiles
Nancy Bulluck, Encore Textiles
Skip Forbes, Milliken & Company
Ernest Vosti, LLNL
Carolyn Wimple, LLNL

=====
Company Background:

Company Name: Encore Textiles
Primary Business: T-shirt Contractor, includes some private-label manufacturing
Size: ~125 employees, ~\$6 million
Contractor Organization: AAPN (AACAA)
Company Type: Cut and Sew Contractor, 50% private-label manufacturing
Product Line: T-shirts, and other similar knit tops (no placket)
Customer Types: Primarily higher-end name brands, including Cal Cru (Granite Knitwear), Levi, Hanes, Adiddas, Calvin Klein, Jerzees (Russell)

=====
Computer/Network Usage

E-mail: debulluck@aol.com; personal only, none used by company
Web Site: Utilizes AAPN pages
Computers: Utilizes some PCs for business applications, MS Office
EDI: None, sees this as a handicap, but is reluctant to employ multiple different EDI systems to satisfy different new customers

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Needs

1. Need help working with large retailers. They're not big enough to do EDI and respond to their demands.
2. Would like a system to track in-process inventory.
3. Would like a system to explode incoming orders; determine critical path.
4. Would like a system that does capacity analysis.
5. Need to compete with big manufacturers to service big retailers.
6. Would be interested in doing EDI flexibly so they can do EDI with anyone, even if as part of a consortium with other companies.
7. Need assistance with inventory control for seconds.
8. Need expertise, not money.
9. Sees a niche for sharing special types of data such as photo scans, spec sheets, etc.
10. Could use a system to help automate bundle tracking and/or completion and payroll. Currently, the piece ticket on a bundle is hand-written and glued to a sheet when an operator completes her task on a bundle. The sheet of tickets is later analyzed to count the number of pieces completed and calculate payroll. A bar code on the ticket rather than hand written notes might help.
11. Computer-based tool to help with production planning would be helpful.

=====
Miscellaneous Notes

1. Process 5000-6000 dozen/week.
2. Keeps no inventory. All work in process is already sold.
3. Contracts and purchases yarn that is knit into fabric.
4. 50% of private label work goes to catalog business.
5. Cut and Sew industry doesn't really know what its capabilities are with respect to production planning. A computer-based tool would help with this.
6. Cut and Sew is a very labor-intensive industry, as opposed to textile production which is capital intensive. It has very little automation, very little capital.
7. Constantly fighting their customers' trend to hire offshore contractors to survive. Used to make 10K dozen white or ash plain T-shirts for Sara Lee, but all this simple business went off shore.
8. Now does ~15 styles/week + ~38 colors. Greatly increases complexity of production planning.
9. Average lot size is 100 doz. and 5 sizes; ~20 doz. of an SKU.
10. ~20% of business is in "+" sizes - XXXXL, as fill ins from off-shore production
11. US manufacturers are primarily doing high-end work -- high cost.
12. Private label makes this company more vulnerable. Much capital and inventory is tied up, and it takes 30-60 days to get paid for their product.
13. A major dilemma is what percentage of his business should be private label vs. volume production to maximize profit.
14. Workforce is paid hourly and by throughput, avg. payroll is \$8.68/hr.
15. Provides good benefits to workers - health, dental, education.
16. Company strengths: short lead time and small lot sizes.
17. Gets a few hits/calls per day from AAPN web site. AAPN has a close-outs section in its web.
18. There is a service available that would track production for a fee.

-----Granite Knitwear-----

SME Visit Report

Date: June 25, 1997
Time: 1:00pm
Location: Granite Quarry, NC
Attendees: Mike Jones, Granite Knitwear
Skip Forbes, Milliken & Company
Ernest Vosti, LLNL
Carolyn Wimple, LLNL

=====
Company Background:

Company Name: Granite Knitwear
Primary Business: T-shirt Manufacturer
Size: ~150 employees, ~\$6 million
Contractor Organization: AAPN (AACAA)
Company Type: Primarily Manufacturer (Cal Cru label) and other "private labels" for artists and screen printers
Product Line: T-shirts, and other similar knit tops (some with placket)
Customer Types: Primarily screen printers and T-shirt artists, embroiderer who prints/appliques on plain fabric

=====
Computer/Network Usage

E-mail: calcru@mail.interpath.net; corporate account, received one e-mail product order in Nov. 1996
Web Site: Does not utilize AAPN pages; plans to have web site in fall 1997
Computers: Has "mainframe" (Kato Kontil (?)) for AP, AR, Payroll (Byte SW, Greenville, SC), Billing
Corporate network of PCs doing internal e-mail, word processing, spreadsheets
EDI: None

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Needs

1. Needs better ways to forecast its sales.
2. Would like to reduce its 8-week lead-time.
3. Would like to get order status from suppliers.

=====
Miscellaneous Notes

1. Sales via catalog and sales reps on the road.
2. Increase of exported work lowers price of goods to prices lower than Granite can meet.
3. Has much unsold inventory; replenishes this inventory from orders.
4. Throughput is 5000 doz. per week.
5. Produces 200-500 SKUs.
6. Inventory control and production planning systems use data entered by hand from received goods and filled orders.

-----**G.S. Dunbar & Co. Inc.**-----
SME Visit Report

Date: November 5, 1997
Time: 9:00am
Location: Montebello, CA
Attendees: Esther Dunbar, G.S. Dunbar & Co. Inc.
Gary Dunbar, G.S. Dunbar & Co. Inc.
Leonard Brewington, Milliken & Company
Ernest Vosti, LLNL
Carolyn Wimple, LLNL

=====
Company Background:

Company Name: G.S. Dunbar & Co. Inc.
Primary Business: Uniforms
Size: 150 - 200 employees
Contractor Organization: GCA, ACAC
Company Type: Contractor (CMT)
Product Line: Uniforms for health care, government (new), fashion items
Customer Types: Strategic Partners (Cherokee), Mr. Remo, US DoD Defense
Logistics Agency

=====
Computer/Network Usage

E-mail: gsdunbar@earthlink.net
Web Site: <http://www.apparellink.com/dunbar/>
Computers: Have Internet connectivity, but don't use it much. Plan to network Gerber unit production system with office computers. Plan to automate collection of operator time
EDI: Setting up a leased EDI capability for Government orders. Working with Coleman Sachs to obtain production processing software

=====
Needs

1. Interested in reducing paperwork with Government.
2. Would like to access RFPs and potential contracts via the Internet.
3. Would like to market overseas (e.g. Japan, China).
4. Need education on using the Internet. Suggest a seminar in downtown LA (Cal Poly is too far).
5. Need broader sourcing base for getting new work. Are willing to publish available upcoming capacity.
6. Would someone to offer "certification" of a contractor's capabilities so potential customers can make informed sourcing decisions.
7. Would like a way to hold customers to their orders, as with a contract. Sometimes customers cancel at the drop of a hat, leaving the contractor with all the loss.

=====
Miscellaneous Notes

1. Dunbar family has a long history in the apparel business. Gary is a pattern maker, Esther and other siblings are graders.
2. Difficult to hire operators; the area has many entry-level jobs that pay as well or better.
3. 150-200 employees.
4. Will graduate from 8A status on 11-15-97.

5. Formerly produced fashion items, but weren't getting a good price for the product. Now into uniforms, which is a more consistent, year-round product line. Looking to find new product line(s), something that will not likely be moved to Mexico.
6. Primary customer is Strategic Partners (label is Cherokee), with whom Dunbar is contracted to make uniforms.
7. Have new contract to manufacture coveralls for the military. Had to purchase fabric for these coveralls (outside normal contractor modus operandi).
8. Will be doing a military contract with Cal Poly ATRC.
9. Very difficult to supply military due to their many specific requirements
10. Communicate with customers primarily via FAX.
11. Discouraged about the prospect of improving communication; customers are not likely to support the culture change necessary for this improvement.
12. Customers are not willing to pay for Quick Response, but contractors must do QR to survive.
13. Under constant pressure to reduce costs. Need to reduce personnel.
14. Have a Gerber Mover Unit Production System. Also use bundle system; planning to replace with more UPSs.

-----**Hamrick Industries**-----
SME Visit Report

Date: August 27, 1997
Time: 9:00am
Location: Gaffney, SC
Attendees: Michael Hamrick, Hamrick Industries
Steve Freudenthal, Milliken & Company
Bill Grimmell, ORNL
Carolyn Wimple, LLNL

=====
Company Background:

Company Name: Hamrick Industries
Primary Business: Clothing retail, and women's clothing manufacturing
Size: ~2500 employees (216 sewing operators)
Contractor Organization: SEAMS
Company Type: Primarily retail. Manufacturing primarily for Hamrick's retail stores, some private label contracting. Also has a dying/finishing plant, a knitting plant.
Product Line: Women's/Misses knit and woven fashion clothing
Customer Types: Approximately 2000 smaller wholesale companies

=====
Computer/Network Usage

E-mail: none
Web Site: none
Computers: Have several networked and remote PCs and AS400, 7 AS400 programmers, 2 PC network programmers. Use internally-developed software. Remote PCs in plants access AS400 data via dial-up connection to upload payroll information. Buyers also have PCs. Some buyers may share files - not sure.
EDI: See no current need for EDI, no demand for it from customers

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Needs

1. Looking for more software.
2. Looking for help with evaluating and migrating to new software.
3. May be interested in software to assist with production management.

=====
Miscellaneous Notes

1. Its employees manufacture ~25% of its own retail product.
2. 35-40% of its total production is done internally, the rest is contracted out to places in NY.
3. Produce many styles, including knit tops.
4. Styles are constantly changing - it holds no stock items.
5. Most production occurs in advance of the season, and it does some replenishment.
6. Use primarily domestic fabric, although it does use some micro denier from Japan
7. It has 16 sales people to support its customer base.
8. It contracts with some plants in Mexico, one of which does work for JCPenney.
9. It has been using bar-codes (not UPC) in its plants since 1986-87 to control inventory and assist with retail re-order.
10. It is currently upgrading its retail software systems.
11. Hamrick's has 25 stores in the Carolinas and Tennessee, six manufacturing plants, one knitting, one dye/finish plant.

12. Patterns are created by hand, markers are computerized, cutting done manually.
13. Production manager must currently look at reports to formulate production decisions.
14. For sourcing fabric, buyers visit known vendors in NY and other areas.
15. Not interested in getting small amounts of fabrics from jobbers or textile mill overruns. Need to order goods in large amounts. Color matching is very important.
16. Drawbacks of electronic fabric sourcing - inaccuracy of color, unable to touch fabric (hand).
17. Sales force uses books produced via CAD for showing/selling prototypes to customers.
18. Prefer not to hold finished inventory for customers; will sometimes hold fabric.
19. Subcontractor leads are obtained by word-of-mouth, based on reputation of contractor and a good recommendation from a trusted party.
20. It is not pursuing larger companies for customers; would like to pursue mid-sized chains.
21. It is difficult to stay in manufacturing because it is difficult to find skilled people at its pay level, easy to find other jobs that pay better.

-----**Hemingway Apparel**-----

SME Visit Report

Date: August 28, 1997
Time: 9:00am
Location: Hemingway, SC
Attendees: Jack Marsh (and others), Hemingway Apparel
Steve Freudenthal, Milliken & Company
Bill Grimmell, ORNL
Carolyn Wimple, LLNL

=====
Company Background:

Company Name: Hemingway Apparel
Primary Business: Women's and children's underwear and intimate apparel
Size: 280 employees in 1 plant (down from 330 3 years ago)
Contractor Organization: SEAMS
Company Type: Contracting only
Product Line: high-quality regular and flat-seam knit, woven, tricot, velour
sleepwear, some lingerie
Customer Types: Manufacturers that market to JCPenney, Dillards, Victoria's
Secret, Gap, Banana Republic, Belk's, Wal-Mart

=====
Computer/Network Usage

E-mail: 2 accounts via uunet (addresses?)
Web Site: in progress
Computers: Have 8 PCs, most are in the front office; one is used for time and attendance
and is tied into the payroll PC. Payroll PC can access subset of information
on Accountant's PC. Another PC is used to record bundle tickets, and is
connected to a computer in the engineer's office. Administrative systems
are stand-alone, use primarily office productivity tools. Also have a 386
running SCO UNIX which is used for order entry, manufacturing and
inventory tracking
EDI: Not currently done; direct customers do not require. Might need EDI if
partnership were formed with a retailer.

=====
Needs

1. Need inexpensive, flexible, user-configurable method to better communicate info in various formats to various customers.
2. Interested in flexible production planning tool that would interface with their existing system.

=====
Miscellaneous Notes

1. Capacity is typically over-booked 20%. This work is sub-contracted out.
2. Plant has been in operation since 1963, under current ownership since 1978. A second plant was opened in 1989 and subsequently closed in 1995.
3. Current focus is on becoming more agile - taking on new product lines (e.g. Men's Activeware) and working with customers to develop prototype products that may ultimately be taken offshore for production.
4. No current plans for products with Hemingway label - prefer to stay with known contract-type business.
5. Optimistic about eventual return of much contracting work to domestic soil.
6. Tend to use larger sub-contractors, not 'mom & pops' or 'sweat shops.'

7. Customers sometimes deliver materials late but still expect on-time delivery of final product. This makes scheduling difficult.
8. Difficult to deliver information to customers - nearly all customers want the same information but in different formats, e.g. general reports, invoices.
9. Hemingway doesn't advertise. In the process of developing a web page.
10. Current customers selected Hemingway based on the company's long-standing reputation.
11. Employees are paid on piece rate. At 80% of maximum, operator gets minimum wage.
12. Average wage = \$7.50/hour on stable products (e.g. panties, t-shirts), \$5.50 or more on dynamic product lines (e.g. ladies' sleepwear).
13. Not much outside competition for employees any more (previously were losing people to Tupperware).
14. Use computerized inventory tracking system for fabric inventory.
15. Larger customers are most concerned about format of provided information. Data at Hemingway is stored in a spreadsheet and manually manipulated to generate shortage reports, packing slips, invoices, etc. All reports are delivered to customers via fax.
16. Each customer's inventory is stored separately to satisfy customer reporting needs. These are ~30 relational flat files (no keywords).
17. Have one computer service person on the payroll. He has developed much custom software for Hemingway. The closest commercial approximation of this custom software is called Satellite Plus, which is AS400-based with a PC interface. It costs ~\$300k - too expensive.

-----**JP Sportswear, Inc.**-----
SME Visit Report

Date: November 5, 1997
Time: 11:30am
Location: Los Angeles, CA
Attendees: Paul Shechet, JP Sportswear, Inc.
Leonard Brewington, Milliken & Company
Ernest Vosti, LLNL
Carolyn Wimple, LLNL

=====
Company Background:

Company Name: JP Sportswear, Inc.
Primary Business: Activewear
Size: ~150 employees
Contractor Organization: GCA
Company Type: CMT Contractor
Product Line: Fashion knit activewear such as bicycle shorts, tops, etc.
Customer Types: Activewear manufacturers, e.g., ASICS, North Face,
Trek USA, etc.

=====
Computer/Network Usage

E-mail: Use e-mail occasionally for business
Web Site: Utilizes GCA pages
Computers: Use PCs for business applications, networked to a UNIX server
EDI: Do not use EDI now, but are interested in learning more about it.

=====
Needs

1. Sourcing is a big problem for them. They will be increasingly interested in being able to source fabric as they move their business toward private label work.
2. Sourcing was also discussed in the context of making their services and products known to potential customers. There was discussion of a "central database" for the L.A. area that would identify companies that needed work (excess capacity) and companies that were looking for work (insufficient capacity to meet customers' demand). One key issue with this central database concept is that the data must always be current and that the process for updating the database should be automatic. If the data becomes out-of-date or incorrect, then no one will use the system. Also, if the system is to be maintained, it should be done automatically, so the burden on already limited administrative resources will be minimized.
3. Mr. Shechet stated that electronic communications of some sort might help him with the problem of knowing the status of his orders for fabric from the mills. The mills deal with middlemen he called "factors" who check the credit level for fabric buyers and complete the order once credit has been OK'd. His problem is that he doesn't know status of his order at any given time, i.e., has the mill processed the order, has the factor received the order, has credit been approved, are the goods being shipped?
4. Would like to learn more about EDI and how it might help their business.
5. Might be interested in collaborating on an electronic catalog of products with other apparel manufacturers.

Miscellaneous Notes

1. They are interested in moving their business toward private label manufacturers.
2. It is much easier to do business with small to medium manufacturers (\$10-30M/year) than large manufacturers because the large manufacturers have many rules, regulations, and procedures that increase administrative costs.
3. Big problem with late component deliveries for jobs with a fixed deadline. Contracts are all one-sided; customer has no liability.

-----**Lebanon Apparel**-----
SME Visit Report

Date: July 24, 1997
Time: 8:30am
Location: Lebanon, VA
Attendees: Jeoff Bodenhorst, President, Lebanon Apparel
Dan Vipperman, VP Operations for Lebanon Plant
Marc Camnitz, Executive VP
Leonard Brewington, Milliken & Company
Ernest Vosti, LLNL
Carolyn Wimple, LLNL

=====
Company Background:

Company Name: Lebanon Apparel
Primary Business: Uniforms and Sportswear
Size: 650 employees
Contractor Organization: AAPN (AACA)
Company Type: Contractor of uniforms for healthcare and fast-food industries, sportswear
Product Line: Uniforms, smocks, shirts, pants, outerwear
Customer Types: Crest, McDonalds

=====
Computer/Network Usage

E-mail: jeoffbb@compunet.net
Web Site: <http://www.usawear.org/lebanon/>
Computers: PCs on Windows 95
EDI: No capability now. They use fax for their "Quick response" orders.

=====
Needs

1. It would like to see a customer-driven work (production) planning system. To meet this need, it is currently thinking about having its large customer, Crest, have one of its employees at Lebanon's facility to help optimize the production process to meet Crest's needs in the most efficient way. If this function were computerized, it would require the customer to lay out the delivery schedule in more detail than it currently does; in other words, more granularity in its customer orders. This would involve closer collaboration with its customers' planners. Jeoff envisions a GUI that looks like an air traffic control screen that would give a quick vision check on how orders are progressing through its plant(s).
2. Better communication in the industry.
3. Jeoff also envisions "multifunctional manufacturing" where a module could perform all the functions to produce that product: cut, sew, and finish.

=====
Miscellaneous Notes

1. Lebanon Apparel has worked very hard to reduce the production time in its plant. It boasts 3-4 day turn-around for simple products. This has become one of its competitive advantages.
2. It is currently 40% modular, 60% traditional production line.
3. Lebanon is interested in moving to be a manufacturer.

-----Liz Claiborne-----
SME Customer Visit Report

Date: January 22, 1998
Time: 1:00 P.M.
Location: North Bergen, New Jersey
Attendees: Dennis Morelli (Liz Claiborne)
Leonard Brewington (Milliken/DAMA project)
Bill Grimmell (ORNL/DAMA project)
Janet Paszkiewicz (GIDC)

=====
Company Background:

Company Name: Liz Claiborne
Primary Business: Design and Marketing of Apparel
Size: 7100
Contractor Organization: AAMA
Company Type: Manufacturer/Retailer
Product Line: Women's Sportswear, Men's Casualwear/Sportswear,
Accessories
Customer Types: Department Stores, Consumer

=====
Computer/Network Usage

E-mail: Yes
Web Site: No
Computers: AS400 and apparently many PC's
EDI: Yes
=====

Notes:

1. Does not do any manufacturing for normal sales. However does have mini-plants that makes apparel for divisional shows.
2. Have computerized tracking systems for internal production, which track pattern flow through computer grading/marketing & cutting departments.
3. Are in process of reducing number of factories and countries that supply Liz Claiborne, and are attempting to move additional garment manufacturing to the western hemisphere.
4. Some types of production, e.g. soft fabric handworking, still appears to be done better in the eastern countries - skill levels required have yet to be achieved in west.
5. Require all supplier factories to be able to provide FOB or LDP packages.
6. Will continue to do some fabric sourcing but would like to have factories handle fabric sourcing as well.
7. Carry out a certification process for factories that will supply Liz Claiborne.
8. Will require all supplier factories to be able to receive and communicate CAD data.
9. Don't like factories to use subcontractors; will allow it but want to be told when factories do use subs and want to be able to inspect those subcontractors.
10. Don't require factories to exclusively produce for Liz Claiborne.
11. Don't set any minimum size requirements for factories used (have some with about 100 people).
12. Are in midst of three year process to enhance systems capability. Will be moving to an Oracle database with HP Unix system.

13. Currently have factories on email.
14. See system that provides "window into factories", i.e. which allows Liz Claiborne to know status of inventories and production, as something that would be a valuable tool.
15. Not sure how much value in mBone type video from factories since currently have means for transmitting required images, i.e., "still video", and use it to see quality problems.
16. Have used SGI system for video conferencing within own company (Hong Kong & U.S.).
17. Have worked with banks to have banks provide needed financing to potential domestic suppliers. However responsibility for loans then becomes exclusively the suppliers, i.e., the financing arrangement is only between a bank and the supplier.

-----**Lord West**-----

SME Visit Report

Date: January 23, 1998
Time: 8:00 A.M.
Location: Queens, New York (Woodside section)
Attendees: Shimmy Cohen (Lord West), VP Manufacturing & Operations
Howard Ziplow (Lord West), CFO
Leonard Brewington (Milliken/DAMA project)
Bill Grimmell (ORNL/DAMA project)
Janet Paszkiewicz (GIDC)

=====
Company Background:

Company Name: Lord West
Primary Business: Men's Formal Wear
Size: About 350 people
Contractor Organization: GIDC
Company Type: Manufacturer
Product Line: Tuxedos
Customer Types: Retailer and Rental Firms, e.g. Brooks Brothers, Barney's, Lord & Taylor, Dayton Hudson
Other: Company is about 78 years old. Operates in own relatively modern building. Has a formalwear accessories division in Pennsylvania.

=====
Computer/Network Usage

E-mail: Yes
Web Site: Not yet
Computers: IBM36, Wang, 5 PCs (will be implementing system including a package called ABS on AS400 - this will supersede systems on an IBM, Wang and a PC)
EDI: No (but will be included in system being implemented)

=====
Needs:

1. Features that are missing in current computer systems but will be provided in new system including, bills of materials, EDI, integration of functions that are now on IBM36, Wang and a PC.
2. System that provides greater knowledge of what is happening on the manufacturing floor. Currently use bar codes which allow a system to know when a garment enters production. Have recently setup so system can know when a garment is completed. However "in process status" isn't available within a system.
3. Sophisticated scheduling and operator assignments to come closer to optimal scheduling of the plant.

=====
Miscellaneous Notes:

1. Garments that Lord West produces require a large number of production steps, normally well over 100, so time in process is longer and scheduling complexity is far greater than in a typical apparel manufacturing operation.
2. Product line includes wide range of sizes and styles.
3. Rental market is about 80% of business and retail about 20%.

4. Have found that forecasting sales of various styles is extremely difficult. Therefore would like to be able to quickly react.
5. Garments for rental market must be of more rugged materials than for retail market. (Rugged materials that appear softer or finer than those currently used for rental market are perceived by some as not suitable for the rental market).
6. Fabric sourcing and availability has not been a problem, probably because fabrics used are reasonably common. As effort to reduce inventory continues, could possibility lead to some fabric availability problems (given uncertainties of forecasts and variability of production defect rate).
7. Have been reducing WIP also and are trying to continue the WIP reduction.
8. Lord West is doing well overall but recognizes that it can do even better. Previous management (current owners) had not developed a real comfort with computers but current management is convinced that computers when properly used can improve effectiveness.
9. Pennsylvania based division has used ABS software package on AS400. AS400 has been moved to Queens location we visited and will serve both divisions. First module for Queens has been implemented and full system is scheduled for completion this coming July.
10. Anticipate computers will be moving to the production floor to improve communication to shop floor management and workers.
11. Lord West recognizes that its people will have to be educated concerning the need for maintaining a high degree of discipline when utilizing computer systems in running the business (e.g. careful maintenance of up to date bills of materials). This may possibly be more difficult in apparel companies than in other industries (e.g., pharmaceuticals) because of the relatively low educational levels of personnel (both operators and supervisors and to some degree managers - two VP's at Lord West have MBA's but are only ones with advanced degrees).
12. Have recently invested hundreds of thousand's of dollars in telephone and computer systems. As part of the process of deciding whether to make potential investments, such as this one, returns on investment (ROI's) are calculated and must be sufficient to justify the investment.
13. Customers are not yet demanding EDI, but expectation is that they will in the future. Lord West understands the benefits of EDI so will be implementing it even though customers have yet to demand it. Ability to provide it over the Internet for cost reduction purposes is of interest to Lord West.
14. Would like to have ability to dynamically simulate production operations. Believe that scheduling is so complicated that developing a program to automatically create an optimal schedule is probably not possible. However, being able to relatively rapidly run simulations would provide the means for a scheduler to come up with something near an optimal schedule. See coupling such scheduling capability with software which maintains the status of production and with software for communicating schedule, production status and other relevant information to customers (and possibly suppliers) would provide huge benefits. (However determination of whether to invest in such capability would have to rest on ROI analysis).
15. Would also like program that could assign operators at the beginning of the work day to the positions which would lead to best assignment of available personnel. Each operator is trained in more than one skill and operators have different efficiency levels in each skill area. Since absences are not predictable the best assignments of the group that is available each day has to be done at the beginning of the work day. An attempt to develop such a program was underway by a person in Philadelphia who died before he could complete the program.
16. Have customer service department which handles most communication with customers. Customer service personnel use two way radios to communicate with warehouse (to verify accuracy of inventory on hand).

-----**Loungewear Manufacturing Corp.**-----

SME Visit Report

Date: July 22, 1997
Time: 1:00pm
Location: Ephrata, PA
Attendees: David Miller, President Loungewear Manufacturing Corp.
Larry Miller, Loungewear Manufacturing Corp.
Leonard Brewington, Milliken & Company
Ernest Vosti, LLNL
Carolyn Wimple, LLNL

=====
Company Background:

Company Name: Loungewear Manufacturing Corp.
Primary Business: Women's and children's sleepwear and robes
Size: ~140 employees, 1 plant
Contractor Organization: AAPN (AACAA)
Company Type: Primarily contracting, trying to expand into manufacturing
Product Line: Wide variety of Women's and Children's Sleepwear and robes, expanding into Computer Bags.
Customer Types: ~12 Name Brand manufacturers

=====
Computer/Network Usage

E-mail:
Web Site: none
Computers: Have networked PCs, utilized primarily for payroll, accounting. Unit production system downloads production into payroll; traditional production tracked via bar codes
EDI: Has done EDI with a Kmart supplier.

=====
Needs

1. Would benefit from a generic EDI package that would help it do EDI with a variety of retailers.
2. Need raw materials (fabric in) inventory on computer.
3. Could benefit from a useful sourcing database for trim and fabric. Takes too much time on the phone to track down good sources; too hard to get small amounts and promotional stuff. Difficult to find what he needs when he needs it
4. A common web site or service for multiple jobbers and fabric manufacturers to post current fabric availability so fabric buyers have one place to go to find small amounts of new fabric would be great. Doesn't have such a problem with notions (buttons, zippers, etc.). This would help LMC do more manufacturing in small lots (100 doz.). This could also help companies like Milliken to unload overrun fabric at prices better than they currently get from jobbers.

=====
Miscellaneous Notes

1. Uses unit production system and traditional bundle system
2. Capacity: 2000 doz./week.
3. Some customers are EDI capable and LMC would become more valuable to them if it could do EDI. Current EDI solutions are too expensive.
4. Receives orders via fax on Mondays, can turn order in about a week if cloth is in house or in delivery.

5. **Manufacturer** sources fabric; when LMC is the manufacturer, it sources fabric
6. **Administration** of 10+ styles/week is very complex.
7. **Business** is going offshore, forcing LMC to smaller runs. Last year lost 5000 doz./\$300K of work to Asia.
8. Is not cost effective to manufacturer to go overseas for small-medium lot orders of items that cost less than \$20/doz. - overhead cost to track progress, delivery, quality offsets potential savings.
9. Has capability to computer-generate work in process reports off unit production system.

-----**Lynn Division of Courtland Manufacturing**-----
SME Visit Report

Date: August 26, 1997
Time: 8:45 a.m.
Location: Lynchburg, Va.
Attendees: Leonard Brewington
David Caldwell
Bruce Campbell
Bill Grimmell
Perry ?

=====
Company Background:

Company Name: Lynn Division of Courtland Manufacturing
Primary Business: Women's and Children's Wear
Size: About 400 employees (total Courtland Manufacturing)
Organization: SEAMS and AAPN (AACCA)
Company Type: Manufacturer and Contractor (also use subcontractors)
Product Line: Dresses, Slacks, Cheerleader Outfits etc.
Customer Types: Lynn Bryant, Penneys, Limited etc.

=====
Computer/Network Usage:

E-mail: Have email (apparently at Courtland headquarters in Appomatox Va.)
Web Site: Apparently none
Computers: AS400 at headquarters. Of the order of 50 PCs throughout Courtland. Six at Lynchburg site are networked and have access to headquarters AS400. Have computerized marker layout system.
EDI: Apparently do some EDI with Penneys

=====
Needs:

1. More rapid means to estimate material costs for rapid response to requests for quotation.
2. Would benefit from improved ease of use (in some areas) of shop floor control system (note this system was put together by two programmers who are no longer available to the firm and apparently runs on the AS400).
3. Would benefit by being able to rapidly determine externally available equipment and capacity.
4. Would benefit by knowing about fabric developments at mills (Leonard noted that Milliken tries to keep retailers aware of fabric developments).

=====
Miscellaneous Notes:

1. Use a subcontractor in El Salvador and are starting a Mexican venture.
2. Has gotten business through email inquiries but not significant business through this means - Has one line, where original contact was an email inquiry that is about break even now but is hoped will grow.
3. Has two computer type people who maintain AS400 systems and will help with problems that occur in P.C. usage.
4. Many subcontractors that Courtland uses are very small (most probably have a computer but are not hooked up to the Internet). Unlikely such subcontractors belong to a trade association. Suggestion was made that providing such organizations with instructional videos would be feasible way of communicating how technology could be

useful to them (they wouldn't go to other sites for instruction). Trust and reputation are essential elements of relationships with such subcontractors.

5. With regard to need 1, indicated that web fabric availability could be very useful if information could be kept up to date and fabric descriptions were sufficiently meaningful. Wondered if mills would provide full information on fabric that was available.
6. With regard to need 3, thought that maybe availability should be by code rather than name of company.

-----**New Chock's Enterprises**-----
SME Visit Report

Date: November 5, 1997
Time: 2:30pm
Location: Los Angeles, CA
Attendees: Mary Yeung, New Chock's Enterprises
Leonard Brewington, Milliken & Company
Ernest Vosti, LLNL
Carolyn Wimple, LLNL

=====
Company Background:

Company Name: New Chock's Enterprises
Primary Business: Sewing of knits
Size: 75-130 employees
Contractor Organization: GCA
Company Type: Contractor, sewing only (looking into CMT)
Product Line: Primarily knit fashion apparel, sportswear
Customer Types: 5 manufacturers, primarily small ones local to L.A. including private label supplier to Nike and Disney, Quicksilver

=====
Computer/Network Usage

E-mail: adding e-mail capability
Web Site: Uses GCA's pages; in process of publishing New Chock's site
Computers: Has Windows95 PCs in the offices, uses Apparel Management Program to print cut tickets
EDI: None - customers are not requesting it

=====
Needs

1. Needs to learn how to source fabric and trims to become a packager.
2. Would like to see contractor associations working together.
3. Needs education on Internet use.

=====
Miscellaneous Notes

1. Packaging requires financial backing
Two types of Packaging:
 1. Buy your own fabric for retailer
 2. Manufacturer buys fabric for you ("package contractor")Ms. Yeung would prefer New Chock's to be of type 2.
2. Could use more computers, better systems.
3. Quicksilver had taken their contracting work to Mexico, but has returned.
4. Other countries are looking for US made products, e.g. Japan, China
5. Customers are not interested in EDI or e-mail.
6. Receive cut tickets with incoming cut goods, manually enter information into Apparel Management System. This manual entry does not seem to introduce a processing delay.

-----**Pattern Design Unlimited**-----
SME Visit Report

Date: July 22, 1997
Time: 11:00am
Location: Reinholds, PA
Attendees: Gale Zorian, Vice President Pattern Design Unlimited
Leonard Brewington, Milliken & Company
Ernest Vosti, LLNL
Carolyn Wimple, LLNL

=====
Company Background:

Company Name: Pattern Design Unlimited
Primary Business: Design development services
Size: <10 employees
Contractor Organization: AAPN (AACA)
Company Type: Service Provider of "front end" work: designs, patterns,
markers, samples are products
Product Line: Men's, women's and children's fashion clothing, hats, doll
clothing
Customer Types: Customers include Disney (got this business through web),
Binner, Esprit, Liz Claiborne, Jones of NY, Susan Dunn,
Ge Williker, Gap, Transamerica, Nordic Gear

=====
Computer/Network Usage

E-mail: patternd@ptdprolog.net
Web Site: www.apparelex.com/patternd and www.usawear.org/design
Computers: Have PCs on Windows 95, use sophisticated Gerber software for pattern
making, grading, and marker making.
EDI: Not needed for its business.

=====
Needs

1. Would like to see more detail in ITC web sites. Today, it is mostly generic information about the company and products. What it wants is more detail about products: detailed specifications, availability, lead times, styles, etc.

=====
Miscellaneous Notes

1. Has received lots of contacts through its web site (including Disney). Most of these contacts have been start-up companies looking for a package they can take overseas for manufacturing (knock-offs).
2. Disney is outsourcing much of its product development; it's too expensive to maintain development facilities and sample rooms.

-----**Royal Sportswear**-----

SME Visit Report

Date: January 21, 1998
Time: 4:00 P.M.
Location: Brooklyn, New York (Williamsburg section)
Attendees: William Jacobs (Royal Sportswear)
Leonard Brewington (Milliken/DAMA project)
Bill Grimmell (ORNL/DAMA project)

=====
Company Background:

Company Name: Royal Sportswear
Primary Business: Sportswear
Size: 75-100
Contractor Organization: AAPN, SEAMS
Company Type: Sewer
Product Line: Children's and Women's wear
Customer Types: Manufacturers
Other: Occupy floor of an older industrial building

=====
Computer/Network Usage

E-mail: Yes
Web Site: No
Computers: One PC
EDI: No
Other: Bulk Ticket System (BTS) by Multa Inc.
Use Excel for daily information on production status (BTS provides weekly information)

=====
Needs:

1. Program to track where materials are relative to need.
2. Updated BTS (current system runs under DOS and there is a problem with the bar code printer interface when one tries to run it under Windows 95 - supplier suggests getting a new more expensive system it supplies to run under Windows 95).
3. System needs all deal with internal running of the business

=====
Miscellaneous Notes:

1. Do not purchase or locate fabric
2. Have two or three main customers apparently all in NYC area.
3. Major customer communication is primarily via telephone and is currently fully satisfactory.
4. Have used Internet to try to obtain new customers.
5. Customers don't require status information during manufacture of an order but do ask for quality report.
6. Company has recently moved from Manhattan because rents in Manhattan have become prohibitive for a small manufacturing company.
7. Probably would not want to invest more than a few thousands of dollars in computer systems.

-----**Stitches, Inc.**-----
SME Visit Report

Date: November 6, 1997
Time: 11:00am
Location: Commerce, CA
Attendees: Robert Reed, Stitches, Inc.
Walter Colgan, Milliken & Company
Ernest Vosti, LLNL
Carolyn Wimple, LLNL

=====
Company Background:

Company Name: Stitches, Inc.
Primary Business: fashion apparel
Size: 125 employees
Contractor Organization: GCA
Company Type: CMT Contractor
Product Line: knit and stretch activewear, tights, bike shorts, etc.
Customer Types: Garment manufacturers, e.g., Swat

=====
Computer/Network Usage

E-mail: yes
Web Site: Utilizes GCA pages, plans a Stitches page in the future
Computers: Windows95 PCs with Internet connectivity
EDI: Do not use EDI now, but are interested in learning more about it.

=====
Needs

1. Would like to learn more about EDI.
2. Interested in improving communication with customers.
3. Would like a forum for posting available capacity.
4. Will need to source fabrics when Stitches moves to packages. Will have to do patterns and markers.

=====
Miscellaneous Notes

1. Difficult to operate in an environment of apparently arbitrary retail sourcing decisions.
2. The future appears to be in working directly with retailers.
3. Difficult to know whether retailers value domestic (CA) contractors
4. Weekly unannounced labor compliance audits add to stress levels.
5. Would like to have more customers. Customer turnover has been frequent.

-----**Swansea Manufacturing Company, Inc.**-----

SME Visit Report

Date: August 27, 1997
Time: 2:30pm
Location: Swansea, SC
Attendees: Harvey Hellman, Swansea Manufacturing Company, Inc.
Steve Freudenthal, Milliken & Company
Bill Grimmell, ORNL
Carolyn Wimple, LLNL

=====
Company Background:

Company Name: Swansea Manufacturing Company, Inc.
Primary Business: Sportswear, knits and wovens
Size: ~100 employees in 2 plants (down from 250)
Contractor Organization: SEAMS
Company Type: Primarily contracting; currently moving into manufacturing
Product Line: Sports apparel, Real Tuf (Swansea private label) soccer and
volleyball uniforms (new this year)
Customer Types: e.g. L.L. Bean, Umbro, Lands' End

=====
Computer/Network Usage

E-mail: swanseamfg@pbtcomm.net
Web Site: www.realtuf.com
Computers: Have some PCs, most are networked.
EDI: Not currently using EDI

=====
Needs

1. Need help with production planning/forecasting for odd combination orders and small lot orders of soccer line - broad # of SKUs, many colors, men's and women's and children's sizes. Question - How much data needs to be collected to do forecasting?
2. Interested in automated order processing that would generate:
 - a) Cutting ticket
 - b) Trim sheet - items needed to make garment (bill of materials)
 - c) Marker layout (currently looking at Scanvec [~\$15K], others are too expensive)
3. Interested in low-cost EDI with large customers.

=====
Miscellaneous Notes

1. Soccer line is difficult to manage with 2-4 week turnaround and very small orders (e.g. 11).
2. Must pay a premium for piece goods to construct orders for soccer line because orders are too small for mills' minimums.
3. Soccer product line has no history.
4. Doesn't want to carry inventory.
5. Difficult for small manufacturer to have suppliers deliver orders on time. Its orders are often delayed in favor of larger customer orders. Greatest difficulty is getting custom order collars.
6. Is doing some custom-made uniforms for customers who want to mix Swansea's pre-defined styles.
7. Can't tell whether web site has generated any orders. Order processing is disconnected from the order's origin. Most come in via fax.
8. Business is seasonal. difficult to rehire laborers after Summer layoffs

9. Employees can work up to 54hrs/week.
10. Hard to keep employees - McDonalds pays more.
11. Operators are paid by piece work, average \$6.30/hr.
12. Tried using modules, and while employees liked working in teams, they were reluctant to frequently change product lines. Harvey would like to try modules again because it produced high-quality products and team spirit.

-----**The KYM Company**-----
SME Visit Report

Date: 6/24/97
Time: 12:00
Location: Jackson, GA
Attendees: Mark Kapiloff, The KYM Company
Richard Kapiloff, The KYM Company
Ernie Vosti, LLNL
Carolyn Wimple, LLNL
Sue Strickland, AAPN (AACAA)

=====
Company Background:

Company Name: The KYM Company
Primary Business: Uniform pants
Size: 70 operators
Contractor Organization: AAPN (AACAA)
Company Type: Cut and sew contractor
Product Line: Pants for uniforms and special applications
Customer Types: Disney Corporation, Yves St. Laurent

=====
Computer/Network Usage

E-mail: rekapp@aol.com
Web Site: <http://www.usawear.org/kym.htm>
Computers: Uses a computer for accounting and basic business applications. Uses CAD system for making some complex markers (Richard primarily uses this system)
EDI: None

=====
Needs

1. Could really use a low-cost software application that would allow him to track the production process. They currently use "the list" which is a hand-typed, very detailed report that itemizes exactly how each order should be produced. The list is created weekly primarily by Mark. A software package would be very useful to reduce errors and speed the process of creating the list of instructions for the operators.
2. Would like a system something like what [TC]² has that will create a marker along with instructions for producing the garment. The perceived system would accumulate orders and models and produce instructions that would optimize spreading, cutting, sewing.
3. Needs access to small lots of cloth. The big mills (e.g., Milliken) will only sell in very large lots. There used to be lots of "jobbers" who would buy from the big mills and sell in smaller quantities to the contractors. There are only a few jobbers left. Fisher Textiles is a mill that will do small runs.
4. E-mail would help him. He has a WWW presence through AAPN, but has had no business yet.

=====
Miscellaneous Notes

1. KYM produces approximately 4,000 pairs/week and 70,000 dozen per year.
2. Its business has gotten more complex over the years: 20 years ago, it produced 4 times the volume they do today, but only had 1/10th the number of customers.
3. Its largest customer is the Disney Corporation.

4. Most of its business is "fill-in" for work that is done off-shore. Example: Yves St. Laurent contracts most of its work off-shore and uses KYM (and presumably other contractors) when there is an error in the quantity or style/color mix.
5. Employees are primarily female, minority, and without high school education. Many of the employees are single parents.
6. Uses [TC]² training system to train its one engineer (who is also the VP of the company). It also has its operators take the training (without the tests) so they can become more familiar with the machines they use. Mark stated that this training system is the most valuable equipment investment he has ever made.
7. A year ago, KYM announced it was going out of business. Disney and several of its key customers basically said "what would it take to keep you in business?" When he named his price, they said "OK." He is apparently one of the most expensive contractors, but has loyal customers because of KYM's high level of service.
8. Mark will only do business with companies that will allow him to meet the person who signs the check.
9. Disney does everything JIT.

-----**Todd Rutkin, Inc.**-----
SME Visit Report

Date: November 6, 1997
Time: 8:30am
Location: Los Angeles, CA
Attendees: Jan Rutkin, Todd Rutkin, Inc.
Walter Colgan, Milliken & Company
Ernest Vosti, LLNL
Carolyn Wimple, LLNL

=====
Company Background:

Company Name: Todd Rutkin, Inc.
Primary Business: textile cutting
Size: ~100 employees
Contractor Organization: GCA
Company Type: Cutter
Product Line: None
Customer Types: Garment manufacturers, e.g., Patagonia, NIKE

=====
Computer/Network Usage

E-mail: Use e-mail occasionally for business
Web Site: Utilizes GCA pages
Computers: Gerber cutter machines have their own Lantastic network connected to AccuMark Marker system, the office computers use a Novell LAN. They have plans to us Windows NT for networking in the future. Use MS Excel to track inventory, MS Access DBMS for tracking jobs, customers, WIP, etc. Have Internet connectivity.
EDI: Do not use EDI now, but are interested in learning more about it.

=====
Needs

1. Would like to investigate using the Internet to find new business out of state.
2. Are interested in receiving bill of materials, and pattern information from their customers. They already receive pattern data from Patagonia via e-mail.
3. Would like to learn more about EDI and how it might help their business. Would be interested in attending a one-day seminar on computers, the Internet, and EDI if available through GCA/DAMA.

=====
Miscellaneous Notes

1. They use HyperAccess, a PC-based communications product, to transfer files from their customers.
2. Have recently opened a new cutting plant in Mexico. This plant was established to meet their customers' needs to use Asian cloth that is restricted from import into the U.S. The cut cloth is then sewn in Mexico. They are interested in using Internet technologies (e-mail, etc.) for communicating with this plant.

-----**Virginia Apparel Corp.**-----
SME Visit Report

Date: July 24, 1997
Time: 2:30pm
Location: Rocky Mount, VA
Attendees: Tom Mason, President Virginia Apparel Corp.
Gene Willis, VP Finance Virginia Apparel Corp.
Ernest Vosti, LLNL
Carolyn Wimple, LLNL

=====
Company Background:

Company Name: Virginia Apparel Corp.
Primary Business: Woven men's and women's bottoms
Size: ~250 employees, 1 plant, 4 retail stores
Contractor Organization: AAPN (AACA)
Company Type: Primarily contracting, manufacturer (Back Creek label)
Product Line: Men and Women's woven bottoms (slacks, shorts, skirts), rarely unconstructed tops
Customer Types: Catalog sales, name brands, including Lands' End, L.L. Bean, Calvin Klein, and Nike

=====
Computer/Network Usage

E-mail: vacorp@cablenet-va.com
Web Site: usawear.org/virginia
Computers: Have Novell-networked PCs on Windows 3.1; utilize Byte Systems Manufacturing Software
EDI: Is EDI capable, currently exchanging 830, 852, 832 w/Lands' End

=====
Needs

1. Wants to get his hands on ARMS ASAP to show to L.L. Bean Buyers at meeting in August.
2. Would benefit from less costly EDI solution. Will be expanding EDI transmissions to Lands' End and would benefit from reduced transmission costs. (L.L. Bean pays for EDI traffic both directions).
3. Would benefit from assistance in sourcing fabric, especially in production of Back Creek products.

=====
Miscellaneous Notes

1. Tom was on original DAMA committee at [TC]². He became disenchanted early on because DAMA appeared to be focusing on larger companies. Seemed like Govt. was throwing a bone to the industry while scuttling it by implementing NAFTA.
2. VA is a privately held corporation founded in 1971 by Tom's father
3. Specializes in private label manufacturing; sells packaged product to catalog retailers
 - VA makes turnkey patterns, buys all materials, cuts, makes, launders, and wrinkle-frees fabrics
 - Customers provide sketches with some details
 - Handles woven fabrics only; knits and fleece require different equipment
 - focus on quality
4. Customers source fabrics themselves.

5. 3-5 years ago, emphasis from customers was on value - what is customer getting for the money. Priorities were 1. quality, 2. service, 3. on-time delivery, 4. price. Now, priorities are 1. price, 2. quality, 3. service, 4. on-time delivery.
6. L.L. Bean says that now quality has a price component.
7. Quality of garment manufacturers in Mexico is getting better, but wages there are not increasing.
8. VA's average hourly wage is ~\$8/hour; difficult to find workers interested in sewing.
9. US manufacturers must pay wages based on local/regional market forces.
10. Spent \$100K in equipment, ongoing \$200/month w/Advantis for EDI. They send work in process info to Lands' End. Took 6-7 months to hammer out content of buy plan info exchange.
11. VA wants to sell Back Creek globally, is looking for assistance with finding an easy way to do this.
12. Doesn't have capital to develop new markets; requires hiring someone.
13. Lands' End and L.L. Bean want suppliers to be global to avoid shipping costs in their new global markets. Lands' End is opening new DCs in Australia, Japan, UK.
14. Most of Lands' End's products are made in US, but are drifting offshore.
15. VA recently lost major business from Lands' End and L.L. Bean offshore.
16. NAFTA accelerated movement of production to offshore.
17. Bottom line issue is cost to make a product.
18. Has instituted motion-based system of job complexity evaluation and compensation which is less subjective than before. Has resulted in some reduction in wage expense (no layoffs) and has achieved 15-30% improvement in throughput.

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