

**The Value of Training:
An Assessment of Manufacturing-Related Training from
Georgia Tech's Economic Development Institute**

Jan Youtie

Georgia Tech Economic Development Institute
Atlanta, GA 30332-0640, USA
jan.youtie@edi.gatech.edu

and

Philip Shapira

School of Public Policy
Georgia Institute of Technology
Atlanta, GA 30332-0345, USA
ps25@prism.gatech.edu

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This study was undertaken as part of the evaluation element of the Georgia Manufacturing Extension Partnership. The views expressed in the report are the responsibility of the authors, and are not necessarily those of the Georgia Tech Economic Development Institute or the Georgia Manufacturing Extension Partnership (GaMEP).

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Executive Summary

This report examines staff and participant views of manufacturing-based training programs offered by Georgia Tech's Economic Development Institute (EDI) through the Georgia Manufacturing Extension Partnership and associated EDI centers. An assessment is made of the impact and value of these training programs, particularly from the view of company participants. While most participants report beneficial impacts from participation, some recommendations for improvement are offered.

The report is based on surveys of coordinators of 124 EDI training programs and long-term follow-up interviews with 39 training course participants. Acknowledging the small number of course participants responding to our follow-up survey, the report also draws on data on the training interests and needs of Georgia manufacturers reported in the most recent Georgia manufacturing technology survey.

One of the reasons for undertaking this study was to better understand the resources that are involved in mounting manufacturing-related training and the kinds of outcomes that result. Within the economic development and manufacturing extension communities, training activities have received far less long-term evaluation than individual projects. This study develops applicable methodologies and presents baseline data that can be used for further follow-up assessments of manufacturing-related training initiatives.

The principal findings contained in the report are summarized below:

EDI Course Characteristics

- Quality-related courses offered by EDI's Center for International Standards and Quality (CISQ) accounted for more than half of EDI's 1997 course offerings. Information Technology courses offered by EDI's Center for Manufacturing Information Technology (CMIT) accounted for nearly 30 percent of 1997 course offerings.
- EDI's portfolio of training programs was compared with what the Georgia manufacturing survey said about manufacturer interests in training. We found that EDI offered more quality-related courses, roughly an equivalent amount of information technology and lean manufacturing courses, and fewer courses in human resources, energy and environmental management, and marketing and business management.
- Attracting companies to undertake follow-on technical assistance projects, generating fee revenue, fulfilling individual or office work plans, and serving a large number of firms relatively inexpensively were the most common objectives of EDI staff in offering manufacturing-related training.
- Most courses were offered before, and the average course had been previously offered four times. Information technology and lean manufacturing courses were developed and

offered more recently than those in the quality area. (Quality courses are revised annually).

- About 70 percent of the courses were offered in Atlanta.
- The typical (median) course had 12 participants from six companies. In all, 1,174 participants representing 612 companies attended the training activities profiled in this report.
- To conduct these courses, nearly 1,600 EDI staff hours were involved. For every training participant, EDI staff put in 1.3 hours of work, on average. CMIT training required the most EDI staff hours per participant; CISQ training required the least staff hours per participant. Contract courses required more effort than open enrollment, conferences, or network groups.
- EDI's out-of-pocket expenses (excluding staff costs) for training in 1997 were around \$132,000 (mostly from CISQ-delivered courses). This total expense figure includes more than \$56,000 returned to Georgia Tech's Distance Learning and Continuing Education Department.
- Total program revenues exceeded \$393,000 and a gross program income of nearly \$261,000 was reported. However, if staff hours (valued at \$280 per hour) are included, the cost of EDI's manufacturing training events—both contract courses conducted for individual firms and open enrollment courses—significantly exceeded revenues. This does not necessarily mean that EDI's investment in training is not worthwhile from a program or economic development perspective. Nor does this accounting consider the full tangible and intangible benefits and costs to the firms themselves associated with their participation in EDI training.
- Many courses involve individuals or organizations outside of Georgia Tech; the most common functions for these individuals or organizations is to make presentations or, less frequently, to support marketing.

Participant Perspectives – Views from Company Attendees at Training Events

- The most common reasons for participants taking courses were that they were requested by a supervisor or required by an employer, or they had a personal desire to learn a new skill. Certification required by the company was an important motivation for taking quality-related courses.
- Participants enrolled in the particular EDI course because it met their needs and because of Georgia Tech's reputation.
- Referrals from supervisors or co-workers, direct mail from Georgia Tech, and Georgia Tech field staff word-of-mouth were the most common ways that participants found out about the course.
- Nearly two-thirds of participants were somewhat familiar with the subject matter prior to taking the course.

Knowledge, Job-Related, and Business Impacts Reported by Participants

- EDI staff use a broad range of customized end-of-session forms to obtain participant evaluations, making cross-course comparisons difficult without directly surveying participants. However, based on our own direct follow-up survey of participants, 62 percent of participants were very satisfied with the course overall, and nearly half said they gained a great deal of knowledge as a result of the course. Participants in quality-related courses were most likely to be very satisfied and report gaining a great deal of knowledge.

- Most participants found courses useful to their job (55 percent), used what they learned often (67 percent), and found it easy to apply what they learned to their job (59 percent). Quality-related courses were more likely to be rated very useful (81 percent), to be used often (75 percent), and to be easy to apply (80 percent).
- Most participants believed that the training resulted in improvement in certain areas of operation and business performance. The average participant identified eight areas improved, including improved quality (59 percent), improved shop floor processes (51 percent), changes in business or management strategy (49 percent), and improved employee skills (46 percent). Training courses tended to have impacts in expected areas related to their subject matter.
- Only four participants were able to assign a monetary value to benefits, and 23 participants were able to monetarize costs. Quality-related courses appeared to have the highest company costs.
- Although most EDI staff do not track follow-on requests for information and projects, 41 percent of participants reported requesting technical assistance, 26 percent reported requesting additional training courses, and 13 percent reported requesting assistance from another organization to which they were introduced through the training course.
- If the course had not been offered from Georgia Tech/EDI, 21 percent said they would have not taken the training without the Georgia Tech course, and 62 percent of respondents said they would have attended a similar course offered by another institute or vendor. Manufacturing conference attendees were somewhat more likely to suggest that they would not have taken the training without the Georgia Tech conference.

Insights and Recommendations

- EDI's manufacturing-related training is too concentrated in quality and information technology areas. EDI should pursue opportunities to develop course offerings in additional areas of interest to manufacturers, such as marketing, lean manufacturing, and environmental/energy. In 1998 for example, EDI developed three energy-related certificate courses. In some cases, EDI may wish to jointly sponsor these training initiatives.
- From a fee-generation standpoint, training is an important area for EDI. Training involves 12 percent of EDI's business and industry budget, but it generates nearly 40 percent of revenues. Because of its importance in fee generation, EDI should look more carefully at the value-pricing of its training programs. In particular, there may be opportunities to increase prices, although this would need to be weighed against potential declines in participation and comparisons with similar private and public sector training fees.
- Company respondents most consistently indicated that they valued EDI's quality programs. Training in the quality area follows an effective model consisting of more intensive training, well-conceived curricula, goal-orientation, group service delivery, systematic utilization of resources, intensive marketing, and utilization of a cadre of effective trainers. Drawing on the positive feedback reported on EDI's quality training programs, it may be useful for EDI to promote more cross-disciplinary exchanges between different training areas to disseminate insights and effective practices.
- The information technology training area received less consistent indications of value from company respondents. EDI's information technology initiatives are newer and more experimental and the training curricula change very rapidly with the current fast pace of information technology development. In addition, information technology courses have far fewer internal resources allocated to them. The information technology area should either adopt the key features of the model of training used in the quality area or explicitly run training using the minimal amount of resources necessary to attract requests for tech-

nical assistance. The loss leader approach might require simpler "overview" course offerings, less internal staff time allocated to training, and more emphasis on technical assistance service marketing.

- It is worthwhile for EDI to host its Manufacturing Conference or another major event once a year.
- In marketing EDI's manufacturing services, the Georgia Tech name is important to manufacturers. Regardless of the unit offering the course, marketing should emphasize the Georgia Tech name. In addition, marketing approaches should account for participation from more than one person in a company, the use of referrals of course information from company supervisors, and the fact that most participants have some knowledge of the subject matter prior to taking the course.
- EDI needs to develop more consistent and effective procedures through which data on training events and participation (and links, where appropriate, with follow-on projects) can not only be recorded, but also retrieved and analyzed. Consistent end-of-session evaluation procedures and protocols would also aid the cross-program analysis of training initiatives.

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1. Overview

This report examines staff and participant views of manufacturing-based training programs offered by Georgia Tech's Economic Development Institute (EDI) through the Georgia Manufacturing Extension Partnership (GaMEP) and associated EDI centers.¹ An assessment is made of the impact and value of these training programs, particularly from the view of company participants. While most participants report beneficial impacts from participation, some recommendations for improvement are offered.

The report is based on surveys of coordinators of 124 EDI training programs and long-term follow-up with 39 training course participants. The report also draws on data on the training interests and needs of Georgia manufacturers reported in the most recent (1996) Georgia manufacturing technology survey.

One of the reasons for undertaking this study was to better understand the resources are involved in mounting manufacturing-related training and the kinds of outcomes that result. Within the economic development and manufacturing extension communities, training activities have received far less long-term evaluation than individual projects. This study develops applicable methodologies and presents baseline data that can be used for further follow-up assessments of manufacturing-related training initiatives.²

The report is organized into three parts. The first part profiles EDI's manufacturing-based courses using information gathered from EDI course coordinators about the seminars and workshops conducted by EDI units in calendar year 1997. It includes coordinator perceptions of course objectives, information about company and staff participation in courses, estimates of revenues and expenses associated with courses, and the role of third party organizations.

The second and third parts of the report summarize the results of a telephone survey conducted in May 1998 of 39 participants in 14 courses held in the fourth quarter of 1997. The second part includes accounts of why participants took the training and how they found out about it. The following part of the report examines participant satisfaction ratings, the degree

¹ The Georgia Tech Economic Development Institute (EDI) is a unit of Georgia Institute of Technology. EDI provides industrial extension and technology deployment services to the state's 10,000+ small and mid-sized manufacturers, as well as services in the areas of technology business incubation and community economic development. EDI sponsors the Georgia Manufacturing Extension Partnership (GaMEP), an affiliate of the Manufacturing Extension Partnership of the National Institute of Standards and Technology. In 1998, GaMEP became the program name for what was previously known as the Georgia Manufacturing Extension Alliance. For further information on EDI, see <<http://www.edi.gatech.edu/>>.

² As a follow-on activity, we would like to work with other states and national organizations to establish a second-generation methodology to obtain comparative information on the value of manufacturing-related training activities. Contact the authors for details.

to which participants used what they learned in their jobs, the impact of the training on company manufacturing practice adoption and financial situations, and the use of other Georgia Tech/EDI services.

2. Profile of EDI Manufacturing Training

EDI's 1997 Training Portfolio

In early 1998 we began to gather information about EDI's manufacturing-related seminars and workshops conducting in calendar year 1997. Due to personnel changes and changes in Protrac, EDI did not have the information we desired in a centralized database or paper file. We contacted Georgia Tech's Distance Learning and Continuing Education Department because they handle registration and other aspects for many – though not all – of EDI's training. They sent us a list of all EDI seminars and workshops from which we requested rosters and evaluation forms for the manufacturing-related ones. We gathered additional information about the seminars and workshops by surveying all EDI seminar and workshop coordinators, using the form in Appendix A. Through this process, we learned that some of the information supplied by Continuing Education was incorrect or incomplete, so we adjusted and updated our data set accordingly. However, we relied heavily on the information given to us by course coordinators, so to the extent that this information is valid, our results are valid.

In total 158 training activities were identified during 1997, 34 of which were subsequently canceled.³ Of the remaining 124, two were "network groups" involved in the Center for International Standards and Quality (CISQ) Implementation Program (CIP) groups #6 and #7, 39 were contract courses conducted for particular companies, one was for a major "Manufacturing Excellence" conference, and the rest were traditional open enrollment courses. CISQ and the Center for Manufacturing Information Technology (CMIT) held more than 86 percent of all EDI's manufacturing-related training in 1997. (See Table 1.) Relative to what the Georgia manufacturers survey said about manufacturer interests in training, we offered more quality-related courses, roughly an equivalent amount of information technology and lean manufacturing courses, and fewer courses in human resources, energy and environmental management, and marketing and business management. (See Table 2.)

**Table 1. Manufacturing Related Training by Subject Area
(Georgia Tech Economic Development Institute)
January to December 1997**

Subject area	Number of courses
Quality (CISQ)	69
Information technology (CMIT)	38
Lean manufacturing	5
Human resources	3
Product development	2
Welding, finishing	2
Other	5
Total	124

Source: Georgia Tech Distance Learning and Continuing Education, March 1998; survey of contract course administrators, September 1998.

³ 25 of these canceled courses were CMIT courses and eight were CISQ courses.

Table 2. Percentage of Manufacturers Interested in Training from Georgia Tech
(Georgia Manufacturing Survey 1996)

Training area	All Respondents
Information technology (e.g., Internet, barcoding, EDI)	46%
Human resources (e.g., team building, supervisor development)	38%
Energy, safety, environmental	37%
Marketing, management	36%
Lean manufacturing, just-in-time inventory systems	30%
Quality (e.g., ISO, QS certification)	24%
Product development, rapid prototyping	15%
Materials joining, plastics/laser welding	8%
Other	3%
Not interested in training	26%

*1996 Georgia Manufacturing Survey. Based on weighted responses from 1,000 manufacturers with 10 or more employees. See J. Youtie and P. Shapira, *Manufacturing Needs, Practices and Performance in Georgia: 1994-1998*, GMEA Evaluation Paper E9703, Atlanta, GA: School of Public Policy and Economic Development Institute, Georgia Institute of Technology, 1997. Available through <<http://www.cherry.gatech.edu/mod>>.

EDI Training Objectives

We asked EDI training coordinators to indicate the objectives in conducting or sponsoring the seminars and workshops. Table 3 shows that the most common training objective was to attract companies to undertake follow-on technical assistance projects. More than 70 percent of courses had this objective. The next most common objective was to generate fee revenue, followed by to fulfill individual or office work plan, and to serve a large number of firms relatively inexpensively. Somewhat less frequently, coordinators mentioned offering training to fulfill state expectations or to publicize the office. EDI manufacturing training was also less likely to be offered to launch a new training program, launch a new product or service, or fulfill a grant requirement.

By subject area, CMIT training tended to be offered to provide service to firms and/or support the unit (i.e., attract companies to undertake follow-on projects, generate fee revenue, fulfill office work plan, serve a large number of companies inexpensively, fulfill state expectations). CISQ training tended to have similar objectives but with the added aim of publicizing the center and bolstering partnerships. Two lean manufacturing courses were designed to launch the new product, along with attracting companies to undertake follow-on projects and generating fee revenue. The other training tended to emphasize the publicity objective along with generating fee revenue and follow-on projects.

Course Characteristics

Twenty percent of the manufacturing courses were offered for the first time. (See Figure 1.) Most of these new courses were in information technology and lean manufacturing areas. The remaining courses had been offered previously, although one-third of the previously offered courses was developed in the past year (another third was developed before 1995). Again, information technology and lean manufacturing accounted for almost all of the recent repeat courses developed in 1997. The median number of times a repeat course was offered was four--some courses were offered only once before, whereas one course was offered 45 times before. Atlanta was the location of more than 70 percent of the courses. Other locations in-

cluded Jasper, Savannah, Carrolton, Athens, Augusta, Dalton, Gainesville, and Rome. The average training course lasted a day.

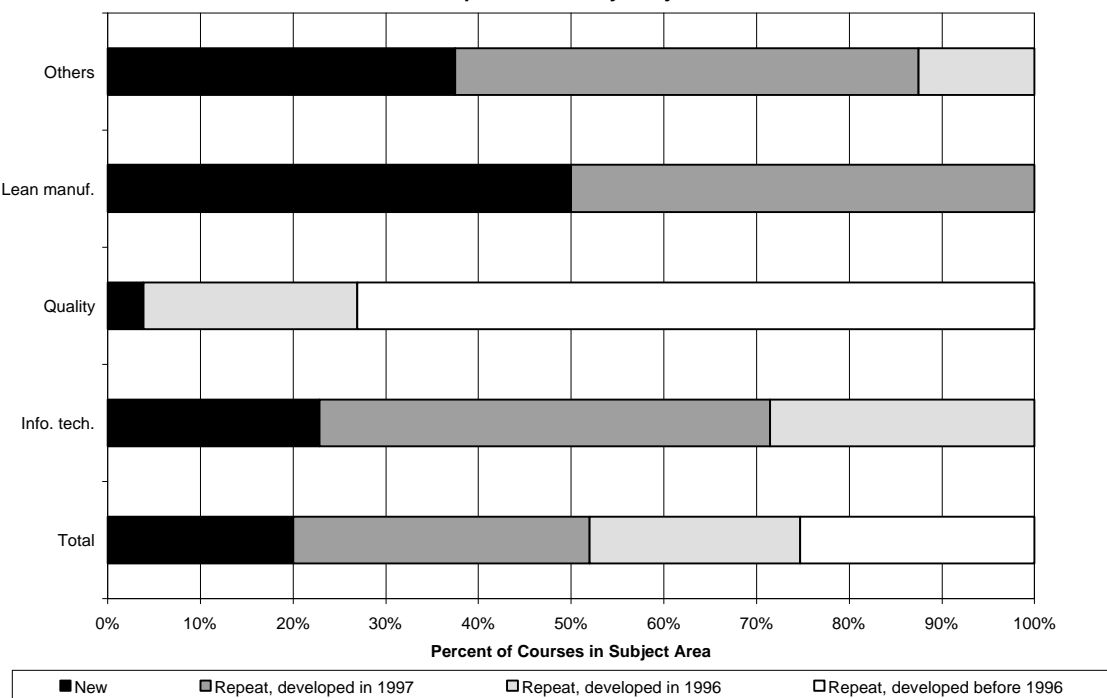
Table 3. EDI Training Objective by Subject Area

Training objective	Subject area				
	Total	Info. tech.	Quality	Lean manuf.	Others
Attract companies to undertake follow-on technical assistance projects.	71%	97%	61%	40%	42%
Generate fee revenue in excess of seminar/workshop costs	65%	81%	57%	40%	58%
Fulfill individual or office work plan/objective	60%	86%	61%	0%	0%
Serve large numbers of firms at a relatively low unit cost.	54%	97%	35%	0%	17%
Fulfill state expectations/requirements	46%	86%	30%	0%	8%
Publicize the center/office	30%	0%	50%	0%	58%
Bolster partnership with outside organization	18%	0%	35%	0%	17%
Launch new training	8%	14%	7%	0%	0%
Launch new product/service	3%	0%	2%	20%	8%
Fulfill grant requirement	3%	6%	0%	0%	8%
Other (please describe) – adds credibility, license	31%	0%	61%	40%	8%

Source: Survey of EDI training coordinators, 1998.

Almost all the training had some type of reference material for participants. Virtually all had manuals (92%), and web sites (45%), standards (40%), and diskettes/CDs (32%) were sometimes provided. All but seven courses did not administer tests to participants at the conclusion of the course.

**Figure 1
New vs. Repeat Courses by Subject Area**



Participation, Revenues, and Costs

In all, 2,181 participants representing 858 companies attended the training activities profiled in this report. The median course had 12 participants from six companies. This level of participation required a substantial commitment of EDI resources. Based on responses from course coordinators (along with project team estimates of preparation time for quality-related courses), 3,000 EDI staff hours were involved in preparing, presenting and following up with participants. For every training participant, EDI staff put in 1.4 hours of preparation, presentation, and follow-up. CMIT training required the most EDI staff hours per participant; CISQ training required the least staff hours per participant. These differences in staff hours may reflect the development time required for new CMIT courses and differential usage rates of external resources. (See Table 4.) In addition, contract courses for particular companies seem to require more EDI staff hours per participant than do open enrollment courses, groups, or conferences. This does not represent a full accounting of all staff hours associated with courses.

Course coordinators also provided us with written information or budget sheets from Georgia Tech's Distance Learning and Continuing Education Department about expenses and revenues. Out-of-pocket expenses (excluding staff costs) for training in 1997 were around \$132,000, including more than \$56,000 returned to Georgia Tech's Distance Learning and Continuing Education Department. In virtually all cases, EDI coordinators did not report paying for outside speakers. Total course revenues exceeded \$393,000 and a gross program income of nearly \$261,000 was reported. However, if staff hours (estimated at \$280 per hour) are included, the net expense of EDI's manufacturing training events exceeded gross program income—both for contract courses offered to individual firms and for open enrollment courses. CISQ training accounted for 78 percent of out-of-pocket costs, 74 percent of total revenues, and 71 percent of gross income (before the value of staff hours is included). Per participant, CISQ training brought in the most revenue. CMIT training accounted for 14 percent of the gross income (before the value of staff hours are included), but only 6 percent of out-of-pocket expenses. (See Table 5.)

**Table 4. Company and EDI Staff Participation,
by Subject Area and Type of Training, 1997**

	Total number of				EDI staff hours per participant hour	EDI staff hours per participant
	Partici- pants	Companies	EDI staff hours	Participant hours		
All	2,181	858	3,000	3,858	0.8	1.4
Subject area						
Quality*	1,007	246	1,402	2,744	0.5	1.4
Info. Tech.	679	429	1,302	999	1.3	1.9
Lean Man.	95	20	120	32	3.8	1.3
Other	400	163	176	83	2.1	0.4
Delivery type						
Open	856	476	713	1,542	0.5	0.8
Contract	715	39	1,257	3,145	0.4	1.8
Group	90	30	24	336	0.1	0.3
Conference	211	92	N/A	16	N/A	N/A

*The number of quality-related EDI staff hours has been multiplied by 2 on the assumption that 1 contact hour usually requires at least one preparation hour; all other hours include preparation and travel time.

Source: Survey of EDI training coordinators, 1998.

**Table 5. Revenues and Expenses by Subject Area:
Open Enrollment vs. Contract Courses***

Revenues and Expenses by Delivery Type	Total	Quality	Information technology	Lean manuf.	Other
Open Enrollment, Group, Conference					
Speaker fees	\$1,000	\$ -	\$ -	\$ -	\$ 1,000
Marketing	37,776	30,853	-	200	6,723
Other costs	37,407	30,839	3,230	650	2,688
Fees to GT-CE	40,579	26,857	4,040	1,799	7,883
Course revenues	237,349	139,786	39,098	8,995	49,470
Gross program income (revenue less out- of-pocket expenses)	120,587	51,237	31,828	6,346	31,176
Value of staff time (\$280/hour)	487,760	98,560	306,320	33,600	49,280
Net expense (net program income less value of staff time)	(325,920)	(6,360)	(274,494)	(26,959)	(18,107)
Contract					
Fees to GT-CE	\$ 15,576	\$ 14,936	\$ 640	\$ -	\$ -
Course revenues	155,756	149,356	6,400	-	-
Gross program income (revenue less out- of-pocket expenses)	466,100	134,420	5,760	-	-
Value of staff time (\$280/hour)	352,044	294,000	58,044	-	-
Net expense (net program income less value of staff time)	114,056	(159,580)	(52,284)	-	-
Total					
Expenses (including Fees to GT-CE)	\$132,337	\$103,484	\$7,910	\$2,649	\$18,294
Course revenues	393,105	289,142	45,498	8,995	49,470
Gross program income (revenue less out- of-pocket expenses)	260,768	185,658	37,588	6,346	31,176
Value of staff time (\$280/hour)	839,804	392,560	364,364	33,600	49,280
Net expense (net program income less value of staff time)	(579,036)	(206,902)	(326,776)	(27,254)	(18,104)

*Estimates of value of staff time do not include overhead.

Source: Survey of EDI training coordinators, 1998.

Follow-on Requests

One of the complementary objectives of EDI's manufacturing training activities is to stimulate follow-on requests by companies for additional information and project services. Only seven coordinators provided information about follow-on requests for information and projects. These seven coordinators believed that more companies requested information than requested project assistance. Nearly forty companies were estimated to have requested information, and nine companies requested technical assistance projects subsequent to attending an EDI manufacturing seminar or workshop. (As discussed later in this report, participant information suggests a higher level of company follow-on requests than reported by training organizers.)

Role of Partners

In addition to serving clients and generating fee revenues, training can also be directed at bolstering partnerships with outside organizations. EDI coordinators were asked to list outside organizations involved as partners and trainers and describe their contributions to the course. Table 6 lists the types of organizations or individuals that sponsored or provided training expertise to EDI's manufacturing training activities. Most of these participants were individuals. Educational institutions, private corporations, Georgia Power, other Georgia Tech units, industry association, government agencies, economic development groups, and one private nonprofit research institute made important contributions to EDI's courses. The most common way these organizations and individuals participated was as a trainer making a presentation. Next most often mentioned were marketing (e.g., providing mailing labels or brochures) and providing a room for the seminar or workshop. In-kind contributions were much more common than direct financial contributions.

Table 6. Outside Organizations Involved as Sponsors and Trainers

Organization	Number of times mentioned
Type of outside organization	
Individual expert	34
Educational institution	6
Private corporation	5
Georgia Power	5
Other Georgia Tech unit	3
Industry association	2
Government (local, state, federal)	2
Economic development group	2
Private nonprofit	1
Role or contribution	
Presentation	39
Marketing	13
Facility	7
Booth sponsor and financial contribution	3
In-kind (all except teaching)	3
Materials	2

Source: Survey of EDI training coordinators, 1998.

End-of Session Participant Evaluations

Usually, most trainers provide an opportunity for trainees to complete a participant evaluation form at the end of the training session to obtain valuable feedback. We were able to obtain results from 38 evaluation forms. EDI staff use a broad range of custom forms to obtain participant evaluations, making cross-course comparisons difficult. For example 12 forms asked participants whether the training exceeded/met/did not meet expectations, whereas 26 forms asked participants about overall satisfaction based on a rating scale. The scales used in these questions widely differed as well; 21 forms used five-point scales, 10 forms used three-point scales, six forms used four-point scales, and one form used a 10-point scale. As such, one cannot say in aggregate how satisfied participants were with EDI's training without administering another uniform questionnaire. It appears that most participants were fairly satisfied with the training they received. Nearly one-third of the participants gave EDI's manufacturing training the top rating possible.

3. Participant Survey

In May 1998, the project team conducted a telephone survey of participants of EDI manufacturing-related training held in October, November, and December 1997. The objective of the survey was to follow up with participants after several months to learn why they took training from EDI, what they learned from the training, how they have used the training, and what impacts the training had on company operations. (The interview form can be found in Appendix B.) Participants in 14 courses were contacted by calling from a roster at a random point in the listing. Thirty-nine completed interviews were conducted out of 161 attempted interviews. Table 7 describes the disposition of these interviews. The most common reason for non-response was that a call was not answered or a message was not returned. Because of this small sample size, generalizations should be

Table 7. Participant Survey – Interview Outcomes

Interview outcome	Percentage of attempted interviews
Interview completed	35%
Telephone not answered, message not returned	48%
No longer at firm	6%
Already interviewed about another course	5%
Disconnected/wrong number	3%
On leave/out	2%
Refused	1%
Total	100%

By employment size, the median respondent company had 145 employees. One-fourth of the respondents employed 50 or fewer workers. A broad range of industries was represented, with nearly 30 percent coming from industrial machinery and electronics sectors, and 10 percent from the textile sector. Twenty percent of respondents fell outside the manufacturing sectors. More than half of the respondents were supervisors or managers; fifteen percent were presidents or vice presidents; and ten percent were engineers. Only two respondents were Georgia Tech alumni. Only six companies could report how much their company spends on training as a percentage of sales. However, 80 percent of the participants reported that they had taken other training courses than the one we targeted in our survey, including other

training from Georgia Tech (36 percent), the private sector (28 percent), and less often from professional societies/trade associations (18 percent), other educational institutions (13 percent), and internal company training courses (13 percent).

Of the 39 participants, 16 took quality-related courses, 11 took information technology-related courses, eight attended the manufacturing conference, and four attended a demonstration or course on lean manufacturing. We use these categories to report results. We acknowledge that few participants are associated with manufacturing conference and lean manufacturing courses, however, we desired to include these as separate categories because they represent distinctive and new products for EDI. We also recognize that this small number of respondents does not fully represent the course curriculum in each area. For example, several information technology course areas, such as the Microsoft Access series, are not reflected in our participant responses.

Why Participants Took Training

Why did participants take Georgia Tech/EDI training? The most common reasons were that they were requested by the supervisor or required by the company and because they had a personal desire to learn a new skill. (See Table 8.) Certification required by the company comes into play mostly for quality-related courses. The most frequently mentioned reason for taking the particular Georgia Tech/EDI course (referred to by 44 percent of respondents) was that it matched the respondents needs. Twenty-one percent of respondents, those attending quality courses or the manufacturing conference, referred to Georgia Tech's reputation as the primary reason for taking the particular course at Georgia Tech. (See Table 9.) Forty-four percent of respondents reported that they found out about the course through a manager or another employee at their company. Eighteen percent received a direct mailing from Georgia Tech, and 15 percent learned of the course through word-of-mouth from a Georgia Tech field engineer.

Table 8. Reasons for Taking Course

	All	Percent of participants taking course in			
		Info. tech.	Lean manuf.	Man. conf.	Quality
Reasons why participants took this course/subject matter					
Requested by supervisor or required by company	41%	36%	25%	38%	50%
Personal desire to learn a new skill that would help present job	41%	55%	75%	25%	31%
Necessary to obtain a certification required by the company (e.g. ISO)	15%	0%	0%	0%	13%
Necessary to obtain an individual certification (e.g. professional continuing education credits)	5%	0%	0%	13%	31%
Customer requirement or recommendation	3%	0%	0%	0%	6%
Personal desire to learn a new skill that would help in a new or future job	0%	0%	0%	0%	0%
Reasons for enrolling in particular course					
Curriculum matched my needs	44%	64%	50%	25%	38%
Georgia Tech reputation	21%	0%	0%	50%	25%
Date or time schedule was convenient	18%	27%	0%	0%	19%
Course offered close to where I live or work	18%	9%	25%	38%	13%
Low cost of the course	3%	0%	25%	0%	0%
Association with the NIST Manufacturing Extension Partnership	0%	0%	0%	0%	0%
Number of Participants Responding	39	11	4	8	16

Source: Survey of EDI manufacturing-related training participants, 1998.

Note small sample for lean manufacturing, and the inability to represent the full range of course offerings delivered in an area because of small sample sizes.

Table 9. How Participants Found Out About the Course

How participant found out about course	All	Percent of participants taking course in			
		Info. tech.	Lean manuf.	Man. conf.	Quality
Recommendation by a manager or another employee at your company	44%	55%	25%	50%	38%
Direct mailing or marketing materials from Georgia Tech	18%	18%	25%	25%	13%
Word of mouth or contact from a Georgia Tech field agent or staff member	15%	0%	25%	25%	19%
Recommendation by a customer, supplier, or other business contact	8%	9%	0%	0%	13%
Information from a chamber of commerce, business assistance group, other educational institution	3%	0%	0%	0%	6%
Through the worldwide web or internet	0%	0%	0%	0%	0%
Number of Participants Responding	39	11	4	8	16

Source: Survey of EDI manufacturing-related training participants, 1998.

Note small sample for lean manufacturing, and the inability to represent the full range of course offerings delivered in an area because of small sample sizes.

Participant Familiarity with Subject Matter

Most respondents were somewhat familiar with the subject matter prior to taking the course. (See Table 10.) Sixty-two percent of respondents said they were somewhat familiar with the subject matter, 26 percent said they were very familiar, and 13 percent said they were not familiar with the subject matter. Of the five respondents not very familiar with the subject matter, three were taking information technology courses and two were taking quality-related courses.

Table 10. Prior Familiarity with Subject Matter

Prior familiarity with subject matter	All	Percent of participants taking course in			
		Info tech	Lean manuf.	Man. conf.	Quality
Very familiar	26%	18%	50%	25%	25%
Somewhat familiar	62%	55%	50%	75%	63%
Not at all familiar	13%	27%	0%	0%	13%
	100%	100%	100%	100%	100%
Number of Participants Responding	39	11	4	8	16

Source: Survey of EDI manufacturing-related training participants, 1998.

Note small sample for lean manufacturing, and the inability to represent the full range of course offerings delivered in an area because of small sample sizes.

Company Participation

For the majority of courses, more than one individual in the company attended the course. (See Table 11.) Forty-one percent of respondents were the only ones from the company to attend the course. Twenty-two percent of respondents reported that one other person took the course in addition to himself or herself. Four courses attracted 10 or more attendees from a

company, including a lean manufacturing demonstration attended by 31 participants from a company.

Table 11. Number of Employees per Company Attending Training

Number of employees taking course	All	Percent of participants taking course in			
		Info tech	Lean manuf.	Man. conf.	Quality
1	43%	10%	50%	38%	67%
2	22%	20%	25%	38%	13%
3-5	14%	20%	0%	25%	7%
6-10	11%	20%	0%	0%	13%
11-31	11%	30%	25%	0%	0%
	100%	100%	100%	100%	100%
Number of Participants Responding	4	10	4	8	15

Source: Survey of EDI manufacturing-related training participants, 1998.

Note small sample for lean manufacturing, and the inability to represent the full range of course offerings delivered in an area because of small sample sizes.

4. Knowledge, Job-Related, and Business Impacts Reported by Participants

In the telephone interview survey with EDI manufacturing-related training participants, we asked a series of questions about satisfaction with the course and subsequent knowledge, job-related, and business impacts.

Satisfaction, Course Usefulness, and Knowledge Gained

The survey asked several questions about participant satisfaction and usefulness and application of course knowledge and learning to the participant's job. Table 12 summarizes the results. Sixty-two percent of the respondents said they were very satisfied with the course overall. One-third reported being somewhat satisfied and only two respondents were somewhat dissatisfied. All but two of the quality-related course participants said they were very satisfied with the course. Eight of the information technology course participants (73 percent) were somewhat satisfied, two were very satisfied, and one was somewhat dissatisfied. Nearly half of the respondents said they gained a great deal of knowledge as a result of the course, 46 percent said they gained some knowledge, and only 5 percent (two respondents) said they gained no knowledge. Again, almost all of the quality-related course participants (14 of 16) said they gained a great deal of knowledge. Most of the information-technology course participants (nine of 11) reported that they gained some knowledge as a result of the course.

The next set of questions examined the usefulness of the course. Fifty-five percent of respondents rated the course very useful, 37 percent rated it somewhat useful, and 8 percent (three respondents) said it was not useful. Two-thirds of respondents report using what they learned in the course often (26 percent said they used what they learned seldom and 8 percent said they never used what they learned.) It was easy to apply what they learned in the course to their job according to 59 percent of respondents, and difficult to apply what they learned according to 41 percent of respondents. Again, quality-related courses were more likely to be rated very useful (81 percent), to be used often (75 percent), and to be easy to apply (80 percent).

Table 12. Satisfaction, Usefulness of Course, and Knowledge Gained

	All	Participants taking courses in			
		Info tech	Lean manuf.	Man. conf.	Quality
Satisfaction rating					
Very satisfied	62%	18%	100%	50%	88%
Somewhat satisfied	33%	73%	0%	38%	13%
Somewhat dissatisfied	5%	9%	0%	13%	0%
Very dissatisfied	0%	0%	0%	0%	0%
	100%	100%	100%	100%	100%
Number of Participants Responding	39	11	4	8	16
Knowledge gained from course					
A great deal of new knowledge	49%	9%	50%	25%	88%
Some new knowledge	46%	82%	50%	63%	13%
No significant change in knowledge	5%	9%	0%	13%	0%
	100%	100%	100%	100%	100%
Number of Participants Responding	39	11	4	8	16
Usefulness of course*					
Very useful	55%	30%	0%	13%	81%
Somewhat useful	37%	70%	100%	50%	19%
Not useful	8%	0%	0%	38%	0%
	100%	100%	100%	100%	100%
Number of Participants Responding	38	10	4	8	16
Use of knowledge gained*					
Often	67%	46%	100%	63%	75%
Seldom	26%	46%	0%	13%	25%
Never	8%	9%	0%	25%	0%
	100%	100%	100%	100%	100%
Number of Participants Responding	39	11	4	8	16
Ease of applying course learning*					
Easy	44%	18%	50%	13%	75%
Difficult	31%	27%	50%	50%	19%
No knowledge/skill gained	5%	0%	0%	25%	0%
Unable to say	21%	55%	0%	13%	6%
	100%	100%	100%	100%	100%
Number of Participants Responding	39	11	4	8	16
Participants discussed course with					
Managers or supervisors	95%	100%	100%	88%	94%
Co-workers or employees	92%	100%	100%	88%	88%
Other participants in the course	51%	82%	50%	25%	44%
Customers or suppliers	28%	18%	25%	13%	44%

Source: Survey of EDI manufacturing-related training participants, 1998. *In reference to participant's job. Note small sample for lean manufacturing, and the inability to represent the full range of course offerings delivered in an area because of small sample sizes.

Since taking the course, virtually all respondents discussed what they learned with managers or supervisors (95 percent) and co-workers or employees (92 percent). More than half (52 percent) discussed what they learned with other participants in the course. Twenty-eight percent discussed what they learned with customers. Quality-related courses were most likely to lead to interaction with other participants and customers.

Impact of Training on Company

The next set of questions had to do with the impact of the training on areas and operations within the company. The survey asked whether or not, as a result of the course, a series of areas at the company were improved. Ninety percent of respondents identified at least one area improved as a result of the training course, and the average respondent identified eight areas improved. Table 13 shows that the most frequently reported improved areas were improved quality (59 percent), improved shop floor processes (51 percent), changes in business or management strategy (49 percent), and improved employee skills (46 percent).

These results show that training courses tended to have impacts in areas one would expect based on their subject matter. Information technology courses had the strongest link to increased use of computers. Quality courses were most likely to be associated with improved quality and ISO registration. The manufacturing conference and lean manufacturing courses were associated with improved knowledge of manufacturing trends and changes in business and management strategy (although these courses are difficult to evaluate given the small number of participants responding). Quality, lean manufacturing, and manufacturing conference participants tended to identify more areas improved than did information technology participants.

Quantitative Impacts

One of the aims of the study was to pilot test some questions and approaches that promise to be useful in assessing the monetary business costs and benefits from participating in training programs. We recognize that while training and knowledge development is critical to corporate competitiveness, it is generally rather hard for companies to quantify specific business benefits from participation in individual training programs – although it may be somewhat easier to assess costs.

Four respondents were able to monetarize benefits. With the exception of one respondent who estimated the value of the course at \$500, estimates of the dollar value of the course to the company ranged from \$25,000 to \$60,000. Twenty-three respondents were able to estimate the total company costs of course attendance. Company cost estimates ranged from \$100 to \$100,000 with a median of \$3,500. Differences by type of course are not statistically significant (in part because of small sample sizes), however, quality-related courses appear have the highest total company costs (mean of more than \$27,000).

Table 13. Business Improvements as a Result of Course

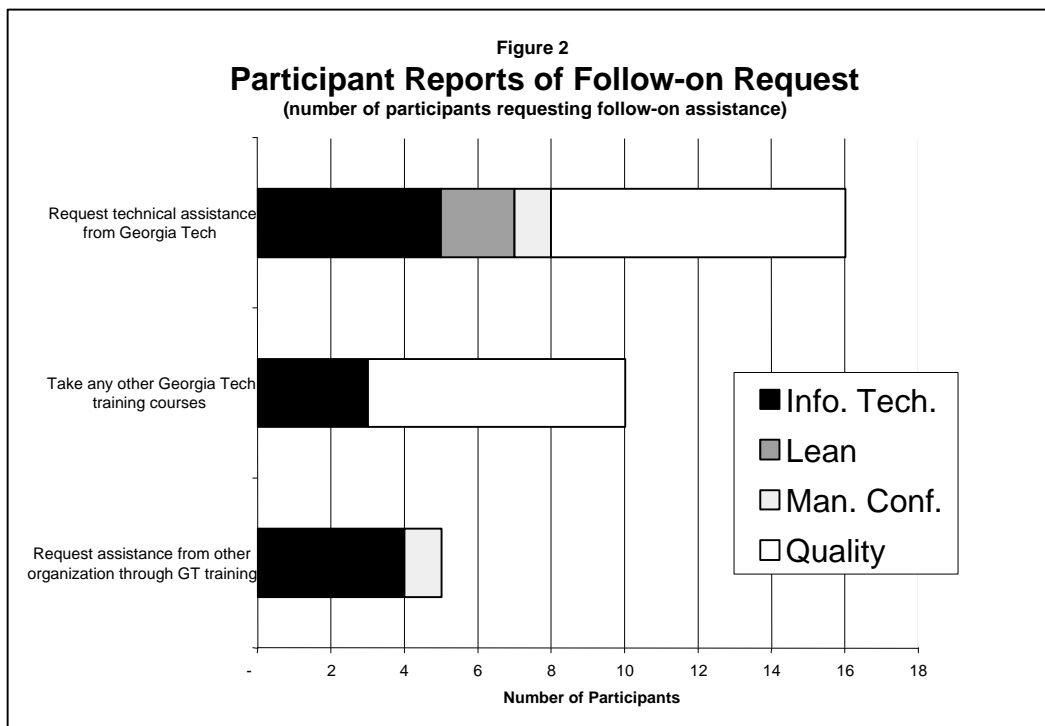
Impact area	All	Participants taking courses in			
		Info tech	Lean manuf.	Man. conf.	Quality
Management					
Changes in business or management strategy	49%	27%	100%	38%	25%
Employee skills	46%	36%	75%	50%	44%
Greater flexibility or team orientation of employees	39%	46%	75%	25%	31%
Management skills	36%	18%	75%	38%	38%
Awareness of manufacturing trends	18%	36%	75%	75%	38%
New marketing efforts directed towards international business	18%	10%	0%	0%	38%
Processes					
Improved quality	59%	18%	75%	50%	88%
Shop floor processes	51%	36%	75%	43%	63%
Better management of manufacturing information	41%	27%	50%	38%	50%
Inventory management	41%	36%	1%	50%	25%
ISO 9000 registration	41%	9%	25%	0%	88%
Business and office processes	39%	27%	25%	13%	63%
Use of computers	28%	55%	0%	13%	25%
Increased productivity	26%	9%	75%	38%	19%
Improved environmental performance	23%	0%	0%	50%	31%
Better use of the internet and electronic commerce	15%	18%	0%	13%	19%
New product design or development	15%	0%	0%	13%	31%
ISO 14000 registration	8%	0%	0%	0%	19%
Business Performance					
Costs savings or expenses avoided	39%	27%	100%	63%	19%
New investments in equipment	31%	18%	25%	38%	38%
Improved profitability	28%	18%	75%	38%	19%
New purchases of software	21%	27%	0%	25%	19%
Shorter lead times to meet customer orders	21%	9%	50%	0%	33%
Improved supplier relationships	21%	9%	0%	25%	31%
Increase in management or owners' earnings or salaries	13%	0%	25%	38%	6%
Increases in employee wages or salaries	10%	0%	25%	25%	6%
Company sales	8%	0%	0%	13%	13%
Number of Participants Responding	39	11	4	8	16

Source: Survey of EDI manufacturing-related training participants, 1998

Note small sample for lean manufacturing, and the inability to represent the full range of course offerings delivered in an area because of small sample sizes.

Participant Reports of Follow-on Requests

We also asked respondents to indicate whether they had obtained other types of services from Georgia Tech/EDI, including attending other training courses or requesting technical assistance. (See Figure 2.) More than a quarter of respondents reported taking other Georgia Tech/EDI training courses. Forty-one percent said they requested technical assistance from Georgia Tech/EDI. Thirteen percent requested assistance from another organization to which they were introduced through the Georgia Tech/EDI training course. Quality and, to a lesser extent, information technology course participants comprised nearly all the follow-on requests for other courses and one-on-one technical assistance.



Alternative Training Options

Another consideration in assessing the value of training is what participants would have done if the course had not been offered from Georgia Tech/EDI. According to Table 14, 62 percent of respondents said they would have attended a similar course offered by another institute or vendor, compared to only 21 percent that said they would have not taken the training without the Georgia Tech course. Manufacturing conference attendees were somewhat more likely to suggest that they would not have taken the training without the Georgia Tech conference.

Table 14. What Respondent Would Have Done Without Georgia Tech Course, by Subject Area

What respondent would have done without Georgia Tech course	All	Participants taking courses in			
		Info tech	Lean manuf.	Man. conf.	Quality
Attend a similar course offered by another institution or vendor	62%	55%	75%	38%	75%
Would have not taken training	21%	18%	25%	38%	13%
Pursue self-study of the necessary materials	3%	0%	0%	13%	0%
Attend or develop own (in-house, in-company) course	3%	0%	0%	13%	0%
Would have postponed training until an alternative was found	0%	0%	0%	0%	0%
Would have asked Georgia Tech to develop a customized training project for my company	0%	0%	0%	0%	0%
Total	100%	100%	100%	100%	100%

Source: Survey of EDI manufacturing-related training participants, 1998

Note small sample for lean manufacturing, and the inability to represent the full range of course offerings delivered in an area because of small sample sizes.

5. Insights and Recommendations

In interpreting the results of this follow-up study of EDI's manufacturing-related training activities, we are mindful of the constraints of the small sample size on our participant survey and also the lack of information about EDI training programs not reported through Georgia Tech's Distance Learning and Continuing Education Department. At the same time, our study makes available – perhaps for the first time – an information base on the profile and impacts of manufacturing-related training events. In this section, we consider the findings from our assessment to make some observations and propose recommendations for management and improvement.

- **The mix of training offerings**

Quality and information technology training account for more than 80 percent of EDI's manufacturing-related training. This concentration overlooks important needs and demands for training in other areas, as suggested by the Georgia Manufacturing Survey, and exposes EDI to potential shifts in manufacturers' demand in its two areas of concentration. We suggest that EDI maintain its current level of quality training but consider supplementing or even reducing its information technology offerings in favor of new courses in other areas, such as marketing, lean manufacturing, and environmental/energy. In 1998 for example, EDI developed three energy-related certificate courses. It would be useful for EDI to develop an integrated strategy for its planned training activities, taking into account available information and market analysis of potential manufacturing training gaps, new opportunities, and EDI competencies.

It is worthwhile for EDI to host the Manufacturing Conference or other major event once a year. The Manufacturing Conference attracted some participants who would not have received the information they learned at the conference any other way. Furthermore, Manufacturing Conference participants reported that a broad range of operating and business performance areas were improved as a result of their attendance at the conference.

- **Pricing and fee generation**

EDI's training generates a substantial amount of revenue. More than \$393,000 was generated from EDI's training courses in 1997, or 39 percent of the more than \$1 million in revenue EDI generated from private sources in 1997. In comparison, expenses associated with training were slightly more than \$972,000, or 12 percent of EDI's total business and industry budget of \$8.2 million.

To further fee generation potential, EDI should look into opportunities to value-price its training courses. Comparative charges of similar private or public sector training should be examined, balancing potential revenue gains against possible drop-offs in enrollment. Efforts to increase the typical number of participants per class (the current median is 12) by at least 3 to 5, while reviewing the number of course offerings to avoid duplication could increase fee generation per course and lower some overhead costs.

In tracking and budgeting the costs of its training initiatives, EDI should incorporate the expense of staff time incurred. This will lead to a more accurate picture of expenses, and aid decision-making on staff time commitments and in-house v. outside purchase of training capabilities.

- **Curricula, Delivery, and Training Practices**

Training in the quality area consistently received high marks from manufacturers in terms of participant satisfaction ratings and usefulness of training to the company. It also generates high levels of revenues. CISQ has developed an effective model for training that could be implemented in other areas. The model consists of elements such as intensive training, well-conceived curriculum, goal-orientation, group service delivery, systematic utilization of internal resources, intensive marketing, and utilization of a cadre of trainers. By comparison, the information technology area received relatively lower customer satisfaction and usefulness ratings from manufacturing participants. It also required a substantial amount of internal staff resources. Thus, while Georgia manufacturers indicate (in the recent Georgia manufacturing survey) that information technology is a priority area of training interest, respondents to the survey are not quite finding that EDI's offerings in this area are meeting their needs.

In part, this finding needs to be placed in the context of the important differences between the information technology and quality areas at EDI. The quality program is long established, can draw on the considerable resources and experience of CISQ, and – particularly for the ISO 9000 area – has a relatively stable curriculum. In contrast, EDI's information technology initiatives are newer and more experimental and the training curricula change very rapidly with the current fast pace of information technology development. Information technology courses also have far fewer resources allocated to them and these resources also have other substantial responsibilities such as project work and operating the demonstration facility. Nonetheless, EDI should consider two strategies to improve training in the information technology area: (1) adopt key features of the model of training used in the quality area – to develop higher level programs and more consistent delivery. This would require additional resource commitments. Or, (2) explicitly run training using the minimal amount of resources necessary to offer short yet up-to-date informational workshops, with the major underlying aim of attracting follow-on requests for technical assistance. This “loss leader” approach would require overview short course offerings, less internal staff time allocated to training, and more emphasis on technical-assistance service and project marketing.

Drawing on the positive feedback reported on EDI's quality training programs, it may also be useful for EDI to promote more cross-disciplinary exchanges between personnel in different training areas to disseminate insights and effective practices.

- **Outreach and Marketing**

Different units within EDI (as well as Georgia Tech's distance learning program) market EDI's training programs. However, the survey strongly indicated that the Georgia Tech name is most important to manufacturers. Regardless of the unit offering the course, marketing should emphasize the Georgia Tech name. (The recently produced brochure of EDI's training products is a good example of consolidated marketing, that builds on Georgia Tech's reputation.)

In addition, marketing approaches need account for participation from more than one person in a company, referrals from company supervisors, and the existing level of knowledge that participants have of the subject matter prior to taking the course (62 percent of respondents were somewhat familiar with the subject matter prior to taking the course). For example, direct mail and word-of-mouth methods should be designed to reach more than one individual within a company (within the limits of overburdening companies with marketing material).

Marketing communications on EDI's training programs can be pitched at a level that assumes subject matter knowledge. Indeed, consideration might be given to more up-front emphasis in marketing materials on the level of the course, the prior knowledge required, and the new knowledge to be gained. This could help in better matching participant needs with particular training programs. Communications might also be targeted towards senior managers, indicating how particular programs would benefit their employees (since recommendations by other company personnel are major factors prompting participation in EDI's courses).

Word-of-mouth by Georgia Tech field personnel or other EDI staff is a significant source of information about EDI training events – meaning that it is important to ensure good internal communication to EDI staff about upcoming training programs which they can recommend to their business contacts. As yet, electronic methods such as the worldwide web do not substantively aid marketing of training programs, although this may change in the future.

In the respondent sample, there were surprisingly few Georgia Tech alumnae represented. It could prove worthwhile to conduct focused marketing to this group, perhaps in conjunction with the university's alumnae association.

- **Information Systems and Evaluation**

Currently, special efforts (such as separate information collection, special analysis, and surveys) are required to develop systematic information on the range of EDI's training activities. EDI needs to develop more consistent and effective procedures through which data on training events and participation can not only be recorded, but also retrieved and analyzed. Consistent end-of-session evaluation procedures and protocols would also aid the cross-program analysis of training initiatives. For training aimed at attracting follow-on projects, the generation of new projects should be tracked as part of this evaluation.

Appendix A

Georgia Tech/Economic Development Institute Training Coordinator Survey

Assessing the Value of Training

This project examines the outcomes of EDI's manufacturing-based training programs by gathering information about the seminars and workshops conducted by EDI units in 1997, for a telephone survey of students. Please complete a form for EACH seminar, workshop, or course you conducted between 1/1/97 and 12/17/97. Please direct any questions to Jan Youtie (phone: 404-894-6111; fax: 404-894-0069; e-mail jan.youtie@edi.gatech.edu). **Thanks for your help!**

Date: _____ **Seminar/Workshop Title** _____

1. What were your/EDI's objectives in conducting/sponsoring this seminar/workshop?

(Check all that apply)

- Serve large numbers of firms at a relatively low unit cost.
 - Attract companies to undertake follow-on technical assistance projects.
 - Generate fee revenue in excess of seminar/workshop costs
 - Launch new training
 - Launch new product/service
 - Publicize the center/office
 - Fulfill grant requirement
 - Fulfill individual or office work plan/objective
 - Bolster partnership with outside organization
 - Fulfill state expectations/requirements
 - Other (please describe) _____
-

2. Please describe the seminars and workshops:

- a. New Program, or Repeat Program

When was it first developed?(month/year) _____

How many times has it been offered prior to this one? _____

- b. Location of training course _____

- c. Length of course (*in instructional hours*) _____

- d. Was reference material was distributed at the workshop?

No Yes, if yes please describe (*check all that apply*)

Diskette

Website

Literature from organization (e.g. list of new regulations from EPA)

Article

Book

Other (*please describe*) _____

- e. Was there a test administered at the conclusion of the course? No Yes

- f. Did any manufacturers speak at the seminar/workshop? No Yes

3. How many attendees participated in this seminar/workshop? How many companies were represented?

Number of attendees _____ Number of companies represented _____

4. Please estimate the cost of conducting this seminar/workshop. (You may attach a budget sheet)

EDI staff hours involved in preparation, presentation, follow-up	
Speaker fees, reimbursable expenses	\$
Marketing	\$
Room rental, food, notebooks, other	\$
Fees paid to Georgia Tech's Distance Learning/ Continuing Education Group	\$
Total Revenue	\$
Total Profits	\$

5. Please list outside organizations involved as sponsors and trainers of this seminar/workshop, and describe what each did.

Name Role/Contribution

6. How did your attendees rate the seminar/workshop? (Please attach summary of post-seminar/workshop surveys, or copies of individual surveys if no summary is available)

7. How many attendees requested further information about EDI: _____?
(Optional: please list or attach the names of attendees who requested information.)

8. How many projects resulted from the seminar/workshop: _____?
(Optional: please list or attach names of attendees and companies for which projects were done.)

Appendix B

Georgia Tech Training Participant Survey 1998

**Georgia Tech Training Participant Survey 1998
Participant Survey Record**

Training Course ID	
Participant Name	
Company	
Telephone Number (s)	

SURVEY TRACKING RECORD

CALL NO.	#1	#2	#3	#4	#5
Date					
By					
RESULT					
Reached participant					
Successful interview					
Registered for course, but did not attend					
Refused to participate					
Faxed survey					
Rescheduled interview (include new date)					
Left voice mail					
Participant no longer works at company					
Telephone not answered					
Telephone disconnected					
Other					

**Georgia Tech Training Participant Survey 1998
Interview Script**

Hello. [IS THIS COMPANY NAME]? May I speak with [TRAINING PARTICIPANT]?

A. IF TRAINING PARTICIPANT IS REACHED

- My name is ___ and I am a research associate with Georgia Tech. Could I speak with you for about 10 minutes to complete a short confidential follow-up survey about a course you recently took through Georgia Tech?
-
- (FOR MORE INFORMATION) We would like to obtain your views so that we can improve our services to companies.
- IF **YES**, Our records show that you most recently participated in a Georgia Tech course entitled (COURSE TITLE) on (DATE) 1997. GO TO Q1
- IF **DID NOT TAKE COURSE**, PROBE: DID SOMEONE ELSE AT YOUR COMPANY TAKE THIS COURSE?
- IF **NO**, ASK: May I schedule a time in the future that would be convenient for you?

DATE AND TIME _____

Thank you. I will call you back at DATE AND TIME ABOVE. Can I get your direct phone number, please?

- IF PREFER TO RECEIVE OR VIEW **SURVEY BY FAX**

Thank you. Please let me have your fax number and I will fax this form to you.

FAX NUMBER () _____

B. IF INTERVIEWER REACHES VOICE MAIL

- My name is ___ and I am a research associate with Georgia Tech. I'm trying to reach [TRAINING PARTICIPANT] at [COMPANY NAME]. We are conducting a brief, confidential customer follow-up survey with companies that have received training from Georgia Tech. We would like to obtain your views so that we can improve our services to companies. May I schedule a time that would be convenient for you to participate in this short survey? Please call 404-894-xxxx and indicate the best time for us to call you, or, an interviewer will call back in a few days. Thanks for your help.

MORE OPTIONS NEXT PAGE

C. IF PARTICIPANT NO LONGER APPEARS TO WORK FOR COMPANY, BUT INTERVIEWER REACHES ANOTHER COMPANY STAFF MEMBER

- My name is ___ and I am a research associate with Georgia Tech. We are conducting a brief, confidential customer follow-up survey with companies that have received training from Georgia Tech and our records show that [TRAINING PARTICIPANT] took one of our courses. I'm trying to reach [TRAINING PARTICIPANT] – may I ask if he /she continues to work with your company or whether he/she is working somewhere else.
- If participant continues to work with company, ask:
Can you please give me his/her phone number?
- If participant no longer works with the company, say:
Thank you. I appreciate your help.

**Georgia Tech Training Participant Survey 1998
Interview Protocol**

1. **First of all, why did you take this course?**
(DO NOT READ LIST, BUT CHECK ALL THAT ARE MENTIONED)

Reasons	Check if mentioned
Requested by supervisor or required by company	
Customer requirement or recommendation	
Personal desire to learn a new skill that would help PRESENT JOB	
Personal desire to learn a new skill that would help in a NEW OR FUTURE JOB	
Necessary to obtain an individual certification (e.g. professional continuing education credits)	
Necessary to obtain a certification required by the company (e.g. ISO)	
Other	

2. **How did you first find out about the course?**
(DO NOT READ LIST, BUT CHECK ALL THAT ARE MENTIONED)

How found out about course	Check if mentioned
Word of mouth or contact from a Georgia Tech field agent or staff member	
Direct mailing or marketing materials from Georgia Tech	
Through the worldwide web or internet	
Recommendation by a manager or another employee at your company	
Recommendation by a customer, supplier, or other business contact	
Information from a chamber of commerce, business assistance group, other educational institution	
Other	

3. **Why did you select this particular course to learn about (COURSE TITLE)**
(DO NOT READ LIST, BUT CHECK ALL THAT ARE MENTIONED)

Reasons	Check if mentioned
Date or time schedule was convenient	
Course offered close to where I live or work	
Low cost of the course	
Curriculum matched my needs	
Georgia Tech reputation	
Association with the NIST Manufacturing Extension Partnership	
Other	

4. **If this course had not been offered by Georgia Tech, what would you have done?**
(DO NOT READ LIST, BUT CHECK ALL THAT ARE MENTIONED)

Reasons	Check if mentioned
Attend a similar course offered by another institution or vendor	
Attend or develop own (in-house, in-company) course	
Pursue self-study of the necessary materials	
Would have asked Georgia Tech to develop a customized training project for my company	
Would have not taken training	
Would have postponed training until an alternative was found	
Other	

5. **Prior to attending the course, how familiar were you with the subject matter? Were you [READ LIST]?**

	CHECK RESPONSE
Very familiar	
Somewhat familiar	
Not at all familiar	

6. **How many other members of your company also attended this course?**

7. **As a result of participating in the course, would you say that:**
[READ LIST]

- You gained a great deal of new knowledge
- You gained some new knowledge
- There was no significant change in knowledge
- (DON'T READ) Respondent unable to answer

8. **Overall, how satisfied were you with the course? Were you**

- Very satisfied
- Somewhat satisfied
- Somewhat dissatisfied
- Very dissatisfied
- (DON'T READ) Respondent cannot recall

If respondent was somewhat or very dissatisfied, please ask why

Now, we would like to talk about your experience since you attended the course.

9a. Has it been difficult or easy to apply what you learned in the course to your job? (DON'T READ LIST)

- Difficult
- Easy
- No knowledge or skill gained
- Unable to say

9b. Has the course been: (READ LIST)

- Very useful
- Somewhat useful
- Not useful to your job

(DON'T READ)

- No knowledge or skill gained
- Unable to say

9c. How frequently have you used what you learned in the course? (READ LIST)

- Often
- Seldom
- Never

(DON'T READ)

- No knowledge or skill gained
- Unable to say

10. Since taking the course, have you discussed what you learned with

- Co-workers or employees
- Managers or supervisors
- Other participants in the course
- Customers or suppliers

11. As a result of the course, have the following been improved at your company?

Management skills	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unable to say
Employee skills	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unable to say
Greater flexibility or team orientation of employees	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unable to say
Changes in business or management strategy	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unable to say
Awareness of manufacturing trends	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unable to say
New marketing efforts directed towards international business	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unable to say

13. And, as a result of the course, have the following been improved at your company?

Use of computers	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unable to say
Better management of manufacturing information (IF NEEDED SAY: for example, information about orders, supplies)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unable to say
Better use of the internet and electronic commerce	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unable to say
Inventory management (IF NEEDED SAY for example, Just in time inventory management)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unable to say
Shop floor processes (IF NEEDED SAY, for example, manufacturing cells, preventive maintenance)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unable to say
Business and office processes (IF NEEDED SAY, for example, accounting, billing, word processing)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unable to say
Increased productivity	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unable to say
Improved quality (READ IF QUESTIONS for example, through reductions in reject or scrap rates)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unable to say
ISO 9000 registration (IF QUESTIONS...a quality standard)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unable to say
New product design or development	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unable to say
Improved environmental performance (READ IF QUESTIONS for example, through reduced environmental waste or emissions)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unable to say
ISO 14000 registration (IF QUESTIONS...an environmental management standard)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unable to say

14. And finally, as a result of the course, have the following been improved at your company?

Company sales	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unable to say
Costs savings or expenses avoided	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unable to say
New investments in equipment	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unable to say
New purchases of software	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unable to say
Shorter lead times to meet customer orders	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unable to say
Improved supplier relationships	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unable to say
Improved profitability	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unable to say
Increase in management or owners' earnings or salaries	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unable to say
Increases in employee wages or salaries	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unable to say

15. As a result of participating in the training course, did you

Take any other Georgia Tech training courses?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unable to say
Did you request technical assistance from Georgia Tech? (TECHNICAL ASSISTANCE = ONE-ON-ONE SERVICES WITH GT PROFESSIONAL)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unable to say
Did you request assistance from another organization to which you were introduced through the course? (e.g., PICKENS TECH, GEORGIA POWER)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unable to say

16. Considering all the **benefits** you identified, *but not the costs*, what is your estimate of the dollar value of your company's involvement in the course, including added sales, cost savings, expenses avoided or reduced

TOTAL BENEFITS	TOTAL BENEFITS
	\$

17. What have been the approximate **costs**, to date, of your company's involvement in the training course? Such as travel, employee costs to participate in the course, and costs to implement new ways of doing business.

TOTAL COSTS	TOTAL COSTS
	\$

18. In the past two years, have you taken other training courses?

- NO (SKIP TO Q20)
 YES

19. Who offered these other courses? (DON'T READ LIST):

- Internal company training
- Supplier or customer training programs
- Training provided by other private vendors, consultants, or trainers
- Professional society or trade association
- Other Georgia Tech training
- Training provided by educational institutions and colleges other than Georgia Tech

- Respondent cannot recall

19. What percentage of sales at this location was spent on training for managers and employees in the last year:

_____ %

- Unable to answer

I just have some final questions – we will be finished shortly.

19. About how many people work at this location including yourself?

20. What are the main products or activities of your company at this location?

21. What is your position with the company?

22. Are you a Georgia Tech alum?

- Yes
- No

23. Finally, are there any additional comments or observations about the training program that you would like to mention?

Thank you for your time and assistance. That's all the questions we have.