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13. ABSTRACT (Maximum 200 words)
This document discusses the implementation of *(TQM)* by *(DLSC)*. It includes TQM concepts, methodology, goals, milestones and a description of ongoing improvement efforts. DLSC has identified three necessary elements to apply the TQM philosophy: (1) mission, plans and goals; (2) processes, costs and measures; (3) customers and suppliers. The DLSC TQM approach addresses two distinct quality concerns - continuous process improvement and adherence to regulatory guidance. *(SI-UT)*
Total Quality Management!

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TOTAL QUALITY MANAGEMENT PLAN



June 1989

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Our customers demand only the highest quality services from us or they will turn elsewhere to fill their needs. Total Quality Management (TQM) is the future - it is the only way we will survive! Once we commit to TQM, the benefits will become obvious. As employees gain increased control over the processes that exist in DLSC, pride of ownership and participation will increase as will the quality of work, customer satisfaction, and productivity. Teamwork is the key ingredient. TQM requires cooperation not competition. I pledge my support to you as we proceed on our exciting, open ended journey on the TQM road to continuous process improvement.

*Commitment from
the top*

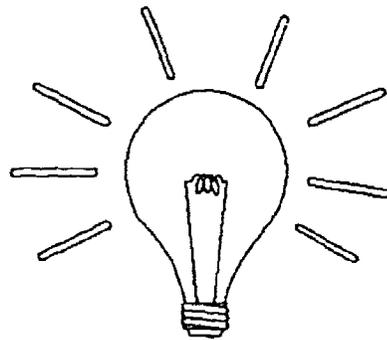


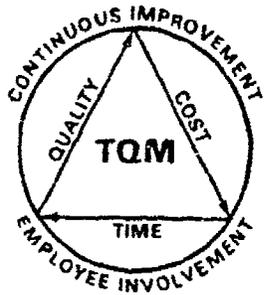
Geo Kobernus
GEORGE M. KOBERNUS
Colonel, USAF
Commander

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TQM CONCEPT





DLSC TOTAL QUALITY MANAGEMENT



Continuous Process Analysis and Improvement

Quality Attitude and Philosophy

Commitment of All Employees

Guidance from the Top Down

Execution from the Bottom Up

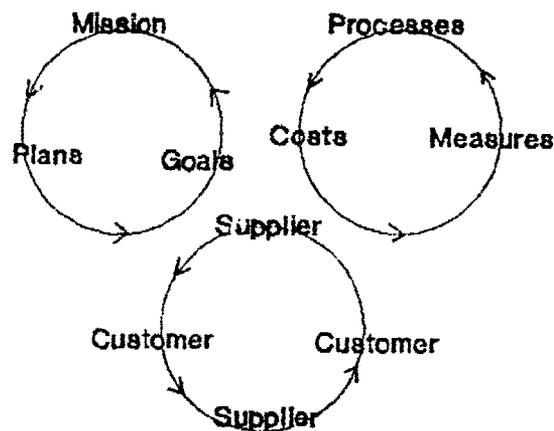
Application of Measurement Techniques

Customer and Supplier Partnership

Effectiveness

Efficiency

Defense Readiness



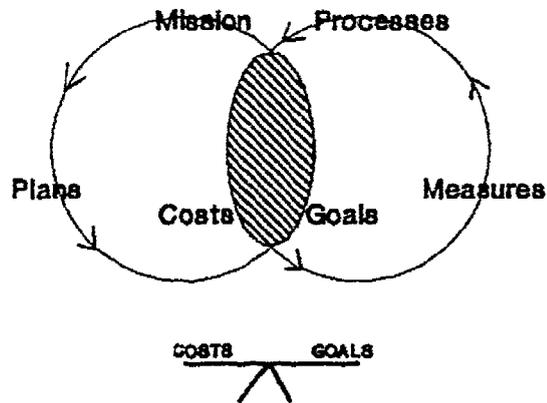
The Defense Logistics Services Center (DLSC) is a service organization dedicated to providing logistics information to our customers. In our efforts to apply the Total Quality Management (TQM) philosophy to our mission we have identified three necessary elements:

(1) Mission, Plans and Goals. Every organization has a mission. The organization develops plans and goals to support the mission.

(2) Processes, Costs and Measures. The mission is divided into processes and functions. To manage the available resources, the organization needs to measure the operating cost and efficiency of each process.

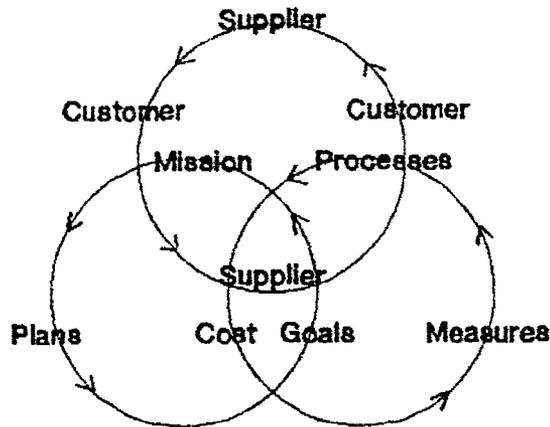
(3) Customers and Suppliers. Every organization has customers and suppliers. Every organization and everyone working for the organization is both a customer and a supplier. For example, your secretary is your customer, because if you do not provide her with the appropriate information to type, you will not receive the product you need.

Elements of TQM



*Cost-benefit analysis
is critical*

There is a critical need to balance the cost of the processes and the goals and plans used to achieve the organizational mission. If the cost of the process is excessive, the organization is not achieving the mission in the most cost efficient manner. The organization must either change the goal or reduce the cost of pursuing the goal.



Meeting customer requirements

An optimum relationship between the elements of TQM ensures that the organization provides and receives a product or service that meets the customer requirements in the most cost efficient manner.

Improvement tools

The DLSC TQM implementation approach addresses two distinct quality concerns, continuous process improvement and adherence to regulatory guidance.

Pulse points are identified to establish performance indicators for each of DLSC's key processes. Units of measurement are identified to evaluate each key process by analyzing the performance of each pulse point. Statistical Process Control (SPC) is a mathematical technique used to evaluate historical performance of key processes by measuring the performance of each pulse point.

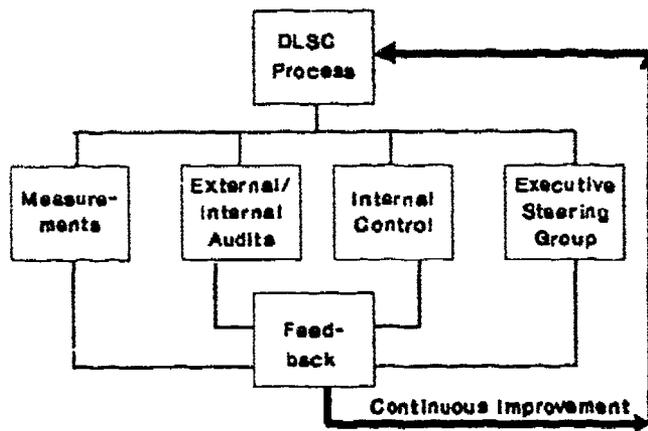
TQM Checklists (see sample at Appendix, page III) are used to ensure compliance with regulatory guidelines. Internal Management Controls are used to ensure that obligations and costs are in compliance with applicable law and to safeguard assets against waste, loss, unauthorized use, or misappropriation. Management Control Reviews, Internal Audits and External Audits/Inspections (IG/GAO) are audits conducted to identify noncompliance with regulatory guidance.

TQM MECHANISMS

The figure on the next page depicts the mechanisms used to ensure continuous review and improvement of DLSC's processes. DLSC uses Statistical Process Control (SPC) to monitor and measure processes. SPC enables DLSC to identify problems by examining process characteristics such as

turnaround time and defects. External and internal auditors identify problems and recommend improvements. DLSC has a follow-up program to ensure the correction of problems as identified by these auditors. The Internal Control Program ensures that the obligations and costs for operating DLSC's processes are in accordance with applicable law and that these processes are safeguarded from waste, fraud and abuse. The Executive Steering Group reviews the progress of TQM efforts and resolves major multi-directorate problems.

Feedback improves processes



TQM relationships

An EXAMPLE of the relationships between these TQM mechanisms for a specific process is provided as follows:

Key Process: System Maintenance

Pulse Point: System Change Request (SCR)

Unit of Measure: Number of DAYS turnaround time

SPC Observation: Number of days turnaround time exceeds standard.

TQM Checklist Control:

- Are time frames being met?
- Have IOPs been developed?

Internal Management Control Review: Management conducted a review of SCR Processing and identified a problem with the approval authority for an SCR. Currently, an SCR can be initiated by the subject application manager, by Service/Agency SCR requests and/or by recommendations embodied in SCRs associated with attendant applications (i.e., a data base change recommended for inclusion into a publication output). Management's recommended solution is that before any action takes place on a suggested SCR, an IOM from the Program Manager be forwarded authorizing the change. This will insure coordination/concurrence on the

part of the application Program Manager before the change is initiated.

Internal Audit: The auditors found that controls over SCR documentation were not adequate. Controls over documentation have been improving over the last year. Further improvements need to be made to ensure documentation is consistent and complies with the requirements of DLSC-4190.1 and 4700.2. IOPs need to be developed and implemented.

IG/GAO Inspection/Audit: The processing of SCRs to the Defense Integrated Data System (DIDS) is being delayed by excessive coordination between users and DLSC.

*TQM mechanisms
define problems*

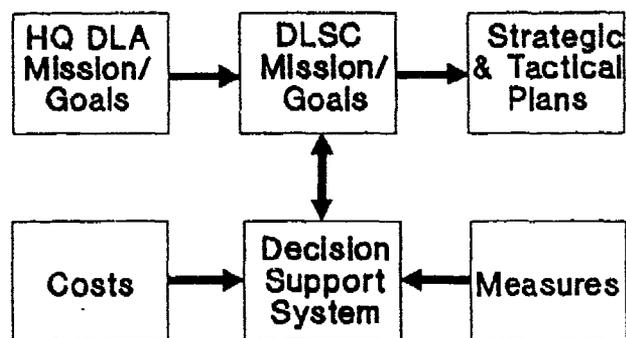
MANAGEMENT INFORMATION

Managers need information about their operations to make effective decisions so they may support their mission the best way possible. This information helps them decide their strategic, or long range plans, and the supporting tactical, or short range plans to achieve their organizational goals. DLSC has developed an automated Decision Support System (DSS) accessible to all managers which stores information on DLSC's individual processes. The two key ingredients are the average monthly costs and the measurements used by

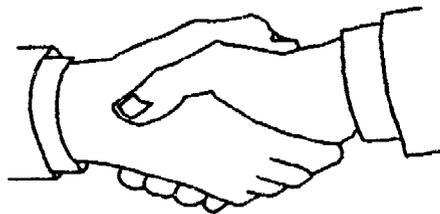
*Good information
leads to good decisions*

*What works?
What doesn't?
Why?
How will we fix?*

managers to determine how well their processes are working. Processes are color coded to indicate their health, with red as the worst condition and blue as the best. The coding is based on pre-established criteria determined by the manager of the process. Supporting statistical charts are maintained to show the costs and measurements at a monthly "How Goes It?" meeting chaired by the commander and attended by top management. The managers review and explain what is working, what is not, why and what corrective action is being taken. These meetings have become effective management reviews of decision-making information, primarily due to their tone. Managers now understand that it is acceptable to have problems and to discuss them openly, as long as efforts are being made to correct them. Future plans are to more fully automate this system so that the backup statistical data for each process is electronically merged into the macro cost and measurement data currently available.



METHODOLOGY



TQM STRUCTURE

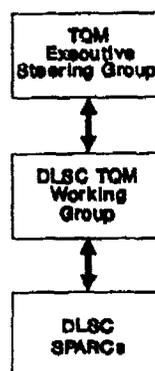
The DLSC TQM Organizational Structure is comprised of the following:

1. The TQM Executive Steering Group consists of the Commander, Deputy, Deputy Commander, the Directors, the Chief of the Quality Assurance Division, and the local union leadership. The Executive Steering Group establishes the DLSC vision/goals, oversees TQM, resolves impasses from the TQM Working Group, and eliminates barriers to TQM.

2. The TQM Working Group consists of the Facilitators, Directorate Focal Points, and a local union representative. The Working Group implements process improvements in the Functional Areas, monitors TQM implementation, and identifies barriers to TQM.

3. Each Special Process Action Review Committee (SPARC) consists of the Process Owner, Receiver(s), Supplier(s) and Focal Point. A Facilitator from the Quality Assurance Division is assigned to each SPARC. The SPARCs recommend process improvements within a Functional Area or within a process crossing two or more Functional Areas.

Ideas flow up and down



DLSC SPARCs

Teamwork and communication are vital

- Facilitator: Quality Assurance Personnel
- Members: Process Owners/Suppliers/Receivers/TQM Focal Points
- Team Responsibilities
 - Flow processes
 - Make Improvements
 - Implement measurements

Special Process Action Review Committees are comprised of process owners, suppliers, receivers and directorate focal points. A facilitator from the Quality Assurance division trains the process owner to analyze, measure, and improve their process. Process owners are responsible for communicating their requirements to their supplier. Process receivers are responsible for communicating their requirements to the process owner. Each directorate focal point ensures that all efforts are coordinated and are progressing.

DLSC has developed a set of procedures for building SPARCs and analyzing processes (see Appendix, pages IV through VII). These standardized requirements will ensure that all SPARCs know what to do and how to report and implement recommended improvements. The initial step necessary after a process has been selected is to identify and develop the team responsible for review. This includes assessing the skills of each member and training those who need help.

SPARCs procedures

Flow charts are necessary to define a process. DLSC uses software called "EasyFlow" for this task. All individual processes in DLSC currently have flow charts to provide a baseline for our future modernized environment. Seven processes have been selected for the initial SPARC reviews. SPARCs will identify existing data and conduct interviews to evaluate the current performance of the process. Then a plan of action will be developed.

After the SPARC has analyzed the process and developed recommendations for improvement, members must determine the approval level. The objective is to approve changes at the lowest level possible. Any impasses will be elevated to the next level for resolution and possible implementation. Approved recommendations will be submitted to the Model Installation Program to give team members recognition and appropriate reward.

The final step will ensure that changes are implemented, savings are documented and the process is monitored to ensure continued stability. DLSC will adopt tools currently used in our external audit program, such as a centralized data base and a monthly follow - up record of any action taken during the month to implement changes. After implementation, the SPARC will prepare a final report and make a presentation to the TQM Executive Steering Group on benefits, savings and lessons learned. Finally, monthly

Follow-up is essential

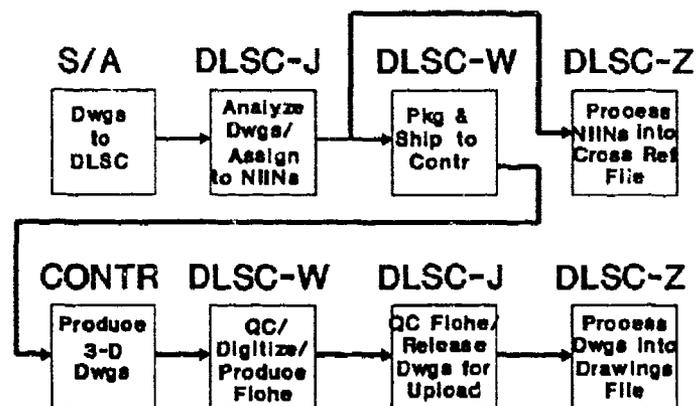
*Previous studies led
the way to TQM*

monitoring of the process will ensure that problems are detected early. Even after the study is completed, the SPARC will meet periodically to reassess the process and look for opportunities to make enhancements such as through new technology.

IL DRAWINGS PROCESS

DLSC had conducted many quality studies in the past with a less formal team approach. In 1987 we studied the Identification List drawings process. Figure 7 shows a macro flow chart of the process. The internal and external customers as well as the customer/supplier relationships are easily identified upon viewing the chart. For example, Service/Agency (S/A) and Contractor (Contr) are external customers and DLSC-J, DLSC-W, and DLSC-Z are internal customers. Also, a S/A is a supplier to DLSC-J; DLSC-J is a supplier to DLSC-W; DLSC-W is the customer of DLSC-J and so forth. It is important to identify

IL DRAWINGS



7

customers and relationships when reviewing a process so that customer requirements/satisfaction can be addressed.

After reviewing the process and making some improvements, two areas (DLSC-Z blocks) were chosen to be monitored using Statistical Process Control (SPC) charts. Those areas were:

- 1) Processing National Item Identification Numbers (NIINs) into the Cross Reference File
- 2) Processing drawings into the Drawings File

At Appendix, page VIII, is a P-chart showing the percent of rejects for NIINs processed into the Cross Reference File. The upper and lower control limits are based on plus or minus three standard deviations. In other words, if the rejects go beyond the upper control limits, the process is considered to be out of control. On defect charts, it is acceptable to go beyond the lower control limit because your ultimate goal is to get as close to zero rejects as possible. As seen on this chart, except for the month of June, the process remained in control throughout 1988. One out of control point does not necessarily mean that there is a major problem. Usually the cause is an unusual circumstance, such as a new person assigned to the job who needed additional training.

The chart at Appendix, page IX shows that this process remained in control throughout 1988. In fact, the process routinely had little or no errors, resulting in thousands of dollars of savings. The process error rate dropped from over eight percent in 1987 to less than half a percent in 1988.

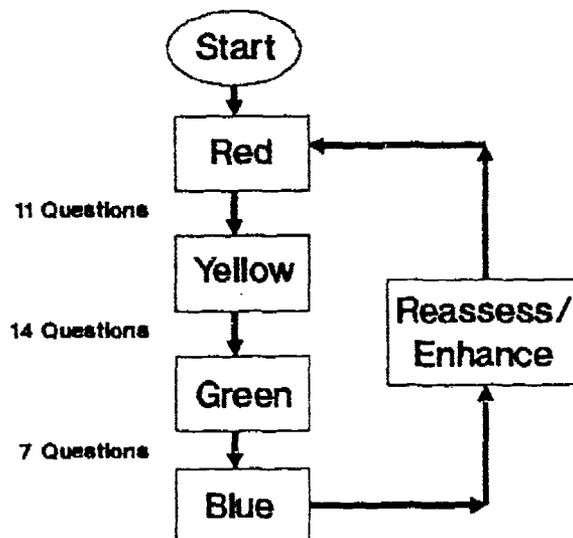
Measurements identify possible problems

Reducing errors saves money

Assessing and documenting process improvements shows TQM works

DLSC has developed a method for assessing the health of a process under review. Since DLSC's Decision Support System (DSS) is based on color coding, these levels and questions will eventually lead to the integration of TQM evaluations into the DSS.

Basic questions about the process and any deficiencies cited by external audits or weaknesses discovered internally lead the SPARC to place a process in a color category from RED (major uncontrolled areas) to BLUE (customers expressing satisfaction). This will help document improvements and prove the value of TQM. The SPARC must continue to meet and reassess the process for further enhancements even after the problems have been corrected.



PROCESS ANALYSIS SHEET		DLSC COMPONENT								
<table border="1"> <tr><td>Inputs</td></tr> <tr><td>Supplier</td></tr> <tr><td>Requirements</td></tr> </table>	Inputs	Supplier	Requirements	<table border="1"> <tr><td>Process</td></tr> <tr><td>Measurement</td></tr> </table>	Process	Measurement	<table border="1"> <tr><td>Outputs</td></tr> <tr><td>Customer</td></tr> <tr><td>Requirements</td></tr> </table>	Outputs	Customer	Requirements
Inputs										
Supplier										
Requirements										
Process										
Measurement										
Outputs										
Customer										
Requirements										
PREPARED BY	EXTENSION	DATE								

SPARCs analyze customer needs

PROCESS ANALYSIS SHEET DEFINITIONS

INPUTS: Transactions/Data
 Letters
 Money
 Materials/Supplies

SUPPLIER/CUSTOMER: Internal (Within organization)
 External (Services/Agencies, Industry, etc.)

OUTPUTS: Transactions/Data
 Letters
 Publications

Feedback
Reports

REQUIREMENTS: Mutually agreed on by all members of process

Cost
Level of quality
Timeframes

PROCESS: A systematic approach to accomplishing tasks which support the mission

MEASUREMENT: The basis for evaluating the performance of a process

KEY ELEMENTS

Investment

- **Software**
- **Internal/external training**
- **Development of techniques**
- **Publications/documents**

DLSC has purchased approximately 70 packages of Quality Analyst and EasyFlow software to provide each first line area the capability of implementing Statistical Process Control (SPC) and flow charting techniques in every process. Hands-on training was conducted to ensure that this software could be used effectively. DLSC has obtained some external training, such as TQM Awareness Training from the Federal Quality Institute for upper management, but has mostly developed internal training. DLSC has spent many hours

developing techniques such as checklists, flowcharting, SPC, and group dynamics. A TQM library comprised of books and publications by internationally recognized authorities on quality is being established.

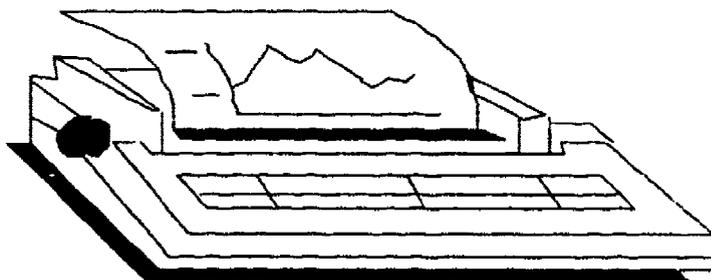
KEY ELEMENTS

- More new work done
- Increased customer satisfaction
- Increased employee participation

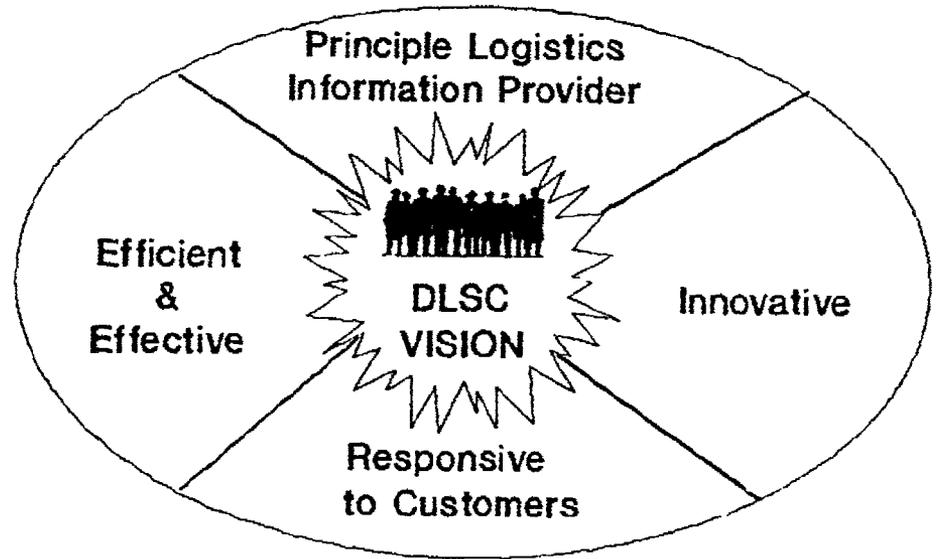
As a result of the investment in TQM, DLSC expects to accomplish more new work. In some areas rework has already been eliminated and other areas where turnaround time can be reduced have been identified. If DLSC can identify what the customer requirements are and provide them, then the customer will make greater use of our services and provide us with additional workload. Finally, increased employee participation will lead to more creativity and ideas for further improved processes.

Return

GOALS



DLSC VISION



A quality vision maps the journey

A vision of organizational expectations for quality is needed to ensure that the Total Quality Management journey progresses in a forward direction. DLSC's upper management has defined the DLSC vision as follows (graphic display can be seen above):

- 1) To be the principle logistics information provider

DLSC's customers always prefer receiving information

from us rather than other providers.

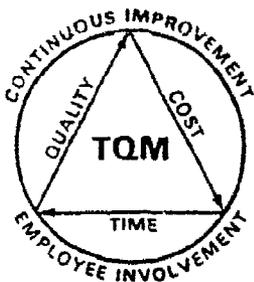
2) To be efficient and effective

DLSC employees continuously strive to provide products and services that are free from defects and meet customer requirements 100%.

3) To be responsive to customers -- A readiness multiplier
DLSC employees continuously strive to support our military and civilian customers in their efforts to keep our nation strong.

4) To be innovative

DLSC employees continuously strive to be innovative and creative in satisfying customer requirements in the most cost efficient manner.



DLSC GOALS



I

Ensure appropriate distribution of products and services necessary to meet weapon system readiness and sustainability needs.

II

Make the best use of technology to deliver the needed products and services.

III

Provide the tools and opportunity for all personnel to achieve their maximum potential and ensure increased productivity.

IV

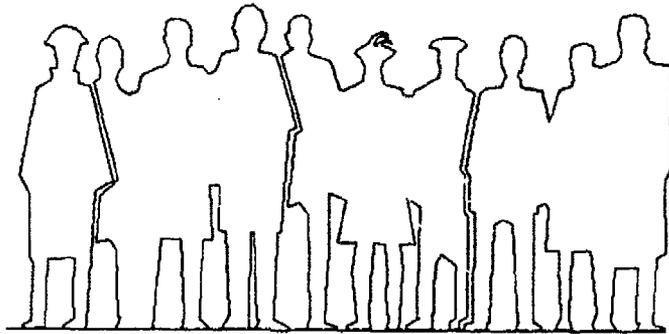
Create a workplace that demonstrates concern for each person through improved facilities and human services.

Effectiveness

Efficiency

Defense Readiness

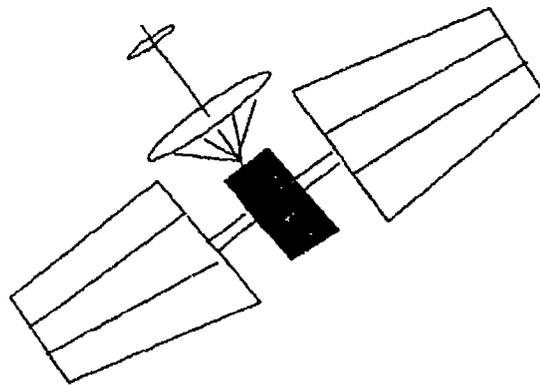
EXECUTION



MILESTONES FOR DLSC'S IMPLEMENTATION PLAN			Calendar Year				1989				1990				1991				1992				1993				1994			
			Quarter				1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
6.B.	1.	Self Inspection Checklists					C																							
6.B.	2.	Identify Pulse Points for Key Process					C																							
6.B.	3.	Establish SPARCs					C																							
C.B.	4.	Baselining and Clean Up																												
6.B.	4.a.	Pulse Point Flow Charts								C																				
6.B.	4.b.	Measurements and Monitoring								s																				
6.B.	4.c.	Major Process SPARCs									s																			
6.B.	5.	System Refinement/Problem Resolution					O																							
6.B.	5.a.	Lessons Learned					O																							
7.B.	5.b.	Enhancements					O																							
6.B.	6.	Modernization Concept Teams					S																							
6.B.	7.	Quality Circles					O																							
6.B.	8.	Model Installation Program					O																							
6.B.	9	FCS TQM Plan					S																							
6.B.	10.	SPARCs on Customer Visits								s																				
6.B.	11.	Quality of Life					O																							
6.B.	12.	Develop Program Logic to Define Processes and Generate Process Flow Charts								s																				
6.B.	13.	Mainframe Generated SPC Charts									s																			
6.B.	14.	MEDALS					C																							
6.B.	15.	FEDLOG					C																							
7.	HARMONIZE DIRECTIVES AND REGULATIONS						S																							
8.	TQM AS A WAY OF LIFE						O																							

LEGEND: s SCHEDULED START c SCHEDULED COMPLETION
 S STARTED C COMPLETED O ONGOING

INITIATIVES



*Customers define re-
quirements*

CUSTOMER VISITS

DLSC conducts visits to customers to provide technical assistance and to determine how well we are meeting their requirements. A new feature of these visits will be adding DLSC TQM facilitators, focal points and process owners for selected processes under review. They will meet with external suppliers and customers of that process to define requirements, inputs and outputs and make recommendations for improvements. Initial SPARC meetings will take place at DLA Supply Centers, who are major customers of DLSC's products and are familiar with the TQM concept.

MAINFRAME GENERATED SPC CHARTS

The Quality Analyst software which DLSC purchased has batch processing capability to perform mathematical routines automatically. DLSC plans to use this capability to system generate SPC charts from data maintained on the data base known as the Total Item Record. This capability will provide information on transaction - oriented processes without manual intervention.

*Reducing manual
input*

*MIPs make things
better*

MODEL INSTALLATION PROGRAM (MIP)

Since its inception in Sep 87, participation in DLSC's Model Installation Program has been excellent. In response to a Jun 88 revision of procedures and command emphasis on the MIP, average monthly submittals increased 77 percent and remained at the higher rate throughout the remainder of CY 88. Our overall approval rate is 70 percent.

Many of DLSC employees' outstanding MIP proposals submitted deal with automation of previously manual work processes utilizing the Zenith personal computers (PCs) and the DMINS. These included development and testing of the Automated Identification List Guide Input System; development of PC programs to automate processes related to maintaining and updating information in the DIDS data base; and implementation of data entry system for preparation and input of cataloging transactions for National Stock Number assignment in the International Codification Division. These and the many other DLSC MIP proposals will result in tangible savings of approximately \$370,000 when fully implemented.

QUALITY CIRCLES

DLSC continued to have a very strong and successful Quality Circles Program with 13 percent of the work force participating at the end of 1988. A new feature added last year was the establishment of end user circles to work on automation projects. Some of the successes of these groups included a user-friendly handbook for more efficient keystroking and automation of a major DLSC report provided to Service/Agency customers. Minutes of DLSC's Quality Circles Board were put on DMINS and other QC news will soon be available on that system. Another new effort initiated was a survey of all projects implemented since 1985 to determine if the improvements made were still in effect. The results indicated that over 87 percent of the ideas implemented are still in place. Some reasons for those not in effect included changes in functions or the fact that the idea was a one-time event, such as a survey. This indicates that the circles program continues to be a viable and productive force in DLSC.

Circles remain strong

Responding to customer needs

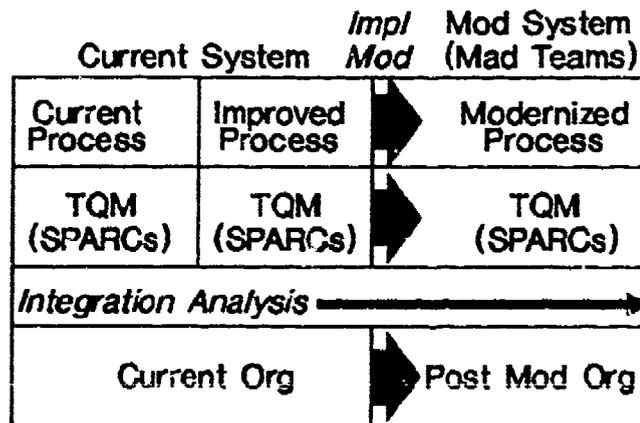
DLSC MODERNIZATION

DLSC modernization efforts will replace aging computer equipment and programs. Modernization is necessary to meet both current and future needs including:

- o Improved data quality and integrity
- o Increased user productivity
- o Additional remote terminal access
- o Increased flexibility to rapidly incorporate changes
- o Timely data access
- o Growth in file contents
- o Tailored data inputs and outputs

In May 88, DLSC received approval by the Office of the Assistant Secretary of Defense for the second major milestone. With this approval DLSC completed the definition and design phase of modernization and received permission to continue acquisition and system development actions. A request for proposal, which includes specifications for the new equipment and software was released to industry in FY 89 and submitted proposals are under review.

TQM TODAY AND TOMORROW



FEDERAL CATALOG SYSTEM (FCS)

TOTAL QUALITY MANAGEMENT (TQM) PLAN

The quality of information contained in the FCS has been an area of concern for many years. While DLSC has been successful in ensuring the compatibility of FCS data through edits and reviews after the data has been submitted, an approach was needed to emphasize the accuracy of data prior to submittal. During FY88, DLSC initiated an effort under the sponsorship of DLA to develop an FCS Total Quality Management Plan (TQM). This plan will include proposed short, mid, and long-term initiatives necessary to continuously improve the FCS, such as the use of statistical process control as the primary measurement tool for monitoring quality. The plan will highlight the various efforts currently underway at DLA and DLSC to improve the FCS. These initiatives include the Three Tier Goals Plan, FIIG Futures, Reference Number Challenge through MEDALS, Non-approved Item Name (NAIN) Challenge and the DIDS Modernization.

TQM improves accuracy of catalog data

*Making data more
accessible*

MILITARY ENGINEERING DATA ASSET LOCATOR SYSTEM (MEDALS)

MEDALS recently became operational one year ahead of schedule, and when fully loaded, will contain locator information for about 90 million engineering drawings maintained by DoD engineering drawing (technical data) repositories. This system will help engineers, equipment specialists, item managers, catalogers and provisioning specialists locate technical data in a timely manner.

The MEDALS data base interfaces with the DIDS data base at the time an engineering drawing is entered into MEDALS. Many times, the drawing's identification number is also a reference number in a DIDS item record. Consequently, MEDALS interrogates DIDS' reference numbers to exact matches. When a match is found, the corresponding DIDS National Item Identification Number (NIIN) is added to the MEDALS item record. This additional information facilitates users in identifying potential vendors and in researching item management data such as source of supply and approximate unit price.

During FY 88 over 4 million MEDALS drawings numbers entering the MEDALS data base were matched with over 26 thousand reference or part numbers in DIDS. These reference numbers were associated with close to 10 thousand NIINs and expanded the visibility of the related DIDS item records to the logistics community.

FEDERAL LOGISTICS DATA ON COMPACT DISC
(FEDLOG)

DLSC developed a prototype effort to provide selected FCS information to our customers using Compact Disc - Read Only Memory (CD-ROM). Through the use of personal computers with the appropriate disc drives, data equivalent to approximately 270,000 printed pages can be contained on one 4.75 inch disc. The current version of FED LOG includes such information as the Item Name, Commercial and Government Entity Code data, Part Number, Characteristic, Management, Interchangeability and Substitutability, and a variety of other data including service unique data from the Air Force, Army, and Navy.

Currently, 250 sets of FED LOG are being issued as an interim capability. A competitive acquisition is underway.

Improving information media

Using new technologies to support customers

EXPERT SYSTEMS

In May 1987, DLSC purchased an expert system shell program called "GURU" for use on a personal computer. Training in knowledge engineering began in September 1987. Small prototype projects have been completed. Under Modernization, DLSC will move out of the prototype arena into the production environment with the capability to create mainframe expert systems that solve problems in prediction, interpretation, diagnosis, design, planning, control, repair, instruction, debugging and monitoring.

IOP TUTORIAL

DLSC plans to develop a system using menus and prompts based on the logic needed by an individual to develop an Internal Operating Procedure (IOP) with the assistance of a personal computer. A narrative and a flow chart of the procedure based on the answers to the logic prompts and menu selections will be generated. This tutorial will facilitate process definition and provide for standardized language and inter/intra process documentation to be used for identifying risk areas.

*Automating process
review*

Centralizing and automating to improve problem solving

PROBLEM TRENDING DATABASE

A Centralized Automated Problem Trending Database was implemented Mar 89 for tracking closed problem reports. This data base has made it possible for information trended to be provided to management in a more timely and efficient matter. The Consolidated Problem Report Form (DLSC-Forms 1202s and 481s) is completed and has been used since Apr 89. DLSC Problem Identification and Reporting was streamlined and training on the new problem reporting system was held in Jun 89.

QUALITY OF LIFE

DLSC's Quality of Life program strives to provide employees with a clean, comfortable, and efficient work place and at the same time take into consideration their personal needs.

One of the major efforts of the program is the installation of systems furniture. Over 300 new modular work stations have already been installed in DLSC. Along with the work stations; drapes, ceilings, and lights are being upgraded.

Our executive conference room is also being upgraded. A new executive table and modern audio visual equipment, including a Barco video projector, have been installed. By fall 1989, strategically placed microphones for voice communication will be in place.

In conjunction with DLSC's desire for a smoke-free environment for our personnel, smoking and nonsmoking break rooms have been established on all floors. Both types of break rooms are equipped with comfortable furniture, and the smoking rooms also have air purifiers. Microwaves and refrigerators are provided where needed.

A commitment to healthy life-styles is evidenced by the development of a fitness center located on the premises. The center's up-to-date equipment has been well received and is available for use by all employees. Biweekly fitness classes are also offered. Lastly, walking has become popular at DLSC. Walkers use the grounds outside in nice weather and

*Making a better life for
all employees*

Taking care of the future: Our children

the tunnels beneath our building are suitable for walking anytime.

Enhancing communication of both internal and community events is of importance here. Therefore, a quality circle recommendation to install an electronic bulletin board was heartily approved. MIP (Model Installation Program) winners, beneficial suggestion participants, and local community events are some of the items shown regularly on this board.

A significant concern to DLSC's working parents is quality day care. In 1984 our on-site day care helped to fill this need with accommodations for 35 children up to age 6. The program has been successful, therefore plans for upgrade and expansion of the current facilities are underway. Expansion of the building to allow for the care of 60-70 children (including those over age 6) is expected to be completed by third quarter FY90.

These and other Quality of Life efforts contribute to DLSC's progress toward creating a nurturing environment for all.

APPENDIX

TERMS

Central Line is a line representing the average or expected value of the statistic being measured.

Checklist is a control technique used to ensure compliance with regulatory guidance and to identify unnecessary requirements.

Control Chart is a graphic representation of a characteristic of a process, showing plotted values of some statistic gathered from that characteristic, and one or two control limits. It has two basic uses--as a judgement to determine if a process was in control, and as an aid in achieving and maintaining statistical control.

Control Limits are lines on a control chart that are used to judge whether a set of data does or does not indicate a lack of control. Variation beyond a control limit indicates that special causes are affecting the process.

Decision Support System is a management information system used to evaluate the operational effectiveness and efficiency of DLSC processes.

Flow Chart is a pictorial representation of all the steps in a process.

Measurement is a basis for evaluating or comparing the performance of a process.

Pareto Chart is a bar chart used to determine the importance of all possible problems or conditions attributed to

process performance.

Productivity is the efficiency with which resources are used to produce a service or product at certain levels of quality and timeliness.

Pulse Point is a performance indicator for major process.

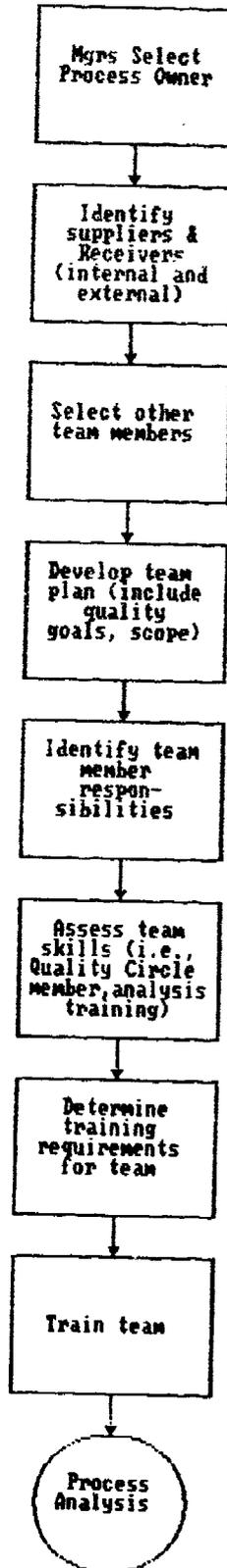
Quality is the extent to which a product or service meets customer requirements.

Special Process Action Review Committees are teams which are formed as needed for those TQM initiatives which address improvements to processes.

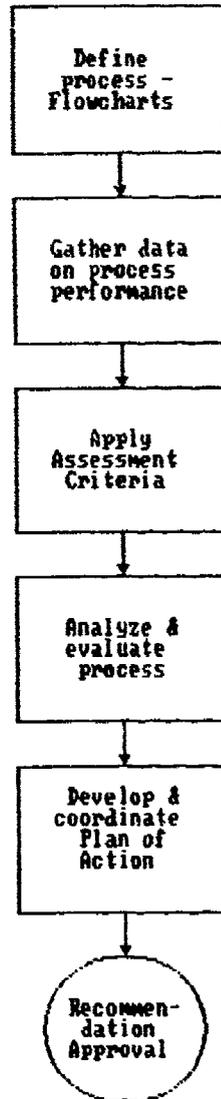
Statistical Process Control is a measurement method for assessing the performance of process.

TQM CHECKLIST		PAGE 1 OF 1 PAGES		
TITLE		OPR	DATE	
SYSTEM CHANGE REQUESTS PROCESSING		J3	12/88	
NO.	ITEM	YES	NO	N/A
1.	<u>REFERENCE DOCUMENTS</u> IOP, Volume XII, Chapter 3 IOP, Volume XII, Chapter 11 IOP, Volume XII, Chapter 12 HSI, DLSC-R 4190.1			
2.	<u>CHECKLIST ITEMS</u> 1. Is there a Functional Analyst assigned? 2. Has a Job Order Number been obtained? 3. Has the System Change Request been developed? 4. Has the DLSC Form 880's been requested? 5. Has the Point Paper been prepared? 6. Has the Cost Benefit Analysis been prepared? 7. Have you received Security Certification? 8. Does this SCR need HQ DLA Approval/Scheduling? 9. Has Acceptance Testing been accomplished? 10. Are the time frames being met? 11. Is analysis being conducted to determine the adequacy of the functional problem statement/problem resolution (i.e. number of rewrites/revisions, number of follow on SCR's, number of Problem Reports on subject programs)			
COMMENTS:				
PREPARED BY		DATE	APPROVING AUTHORITY	DATE

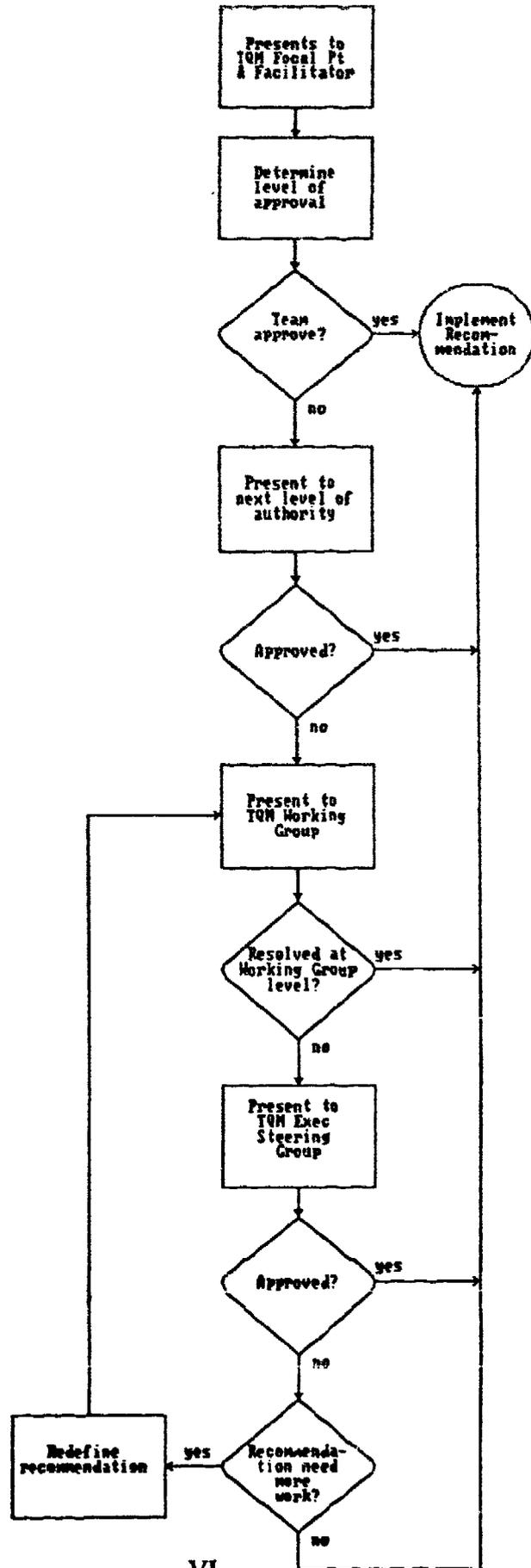
SPARC Initiation



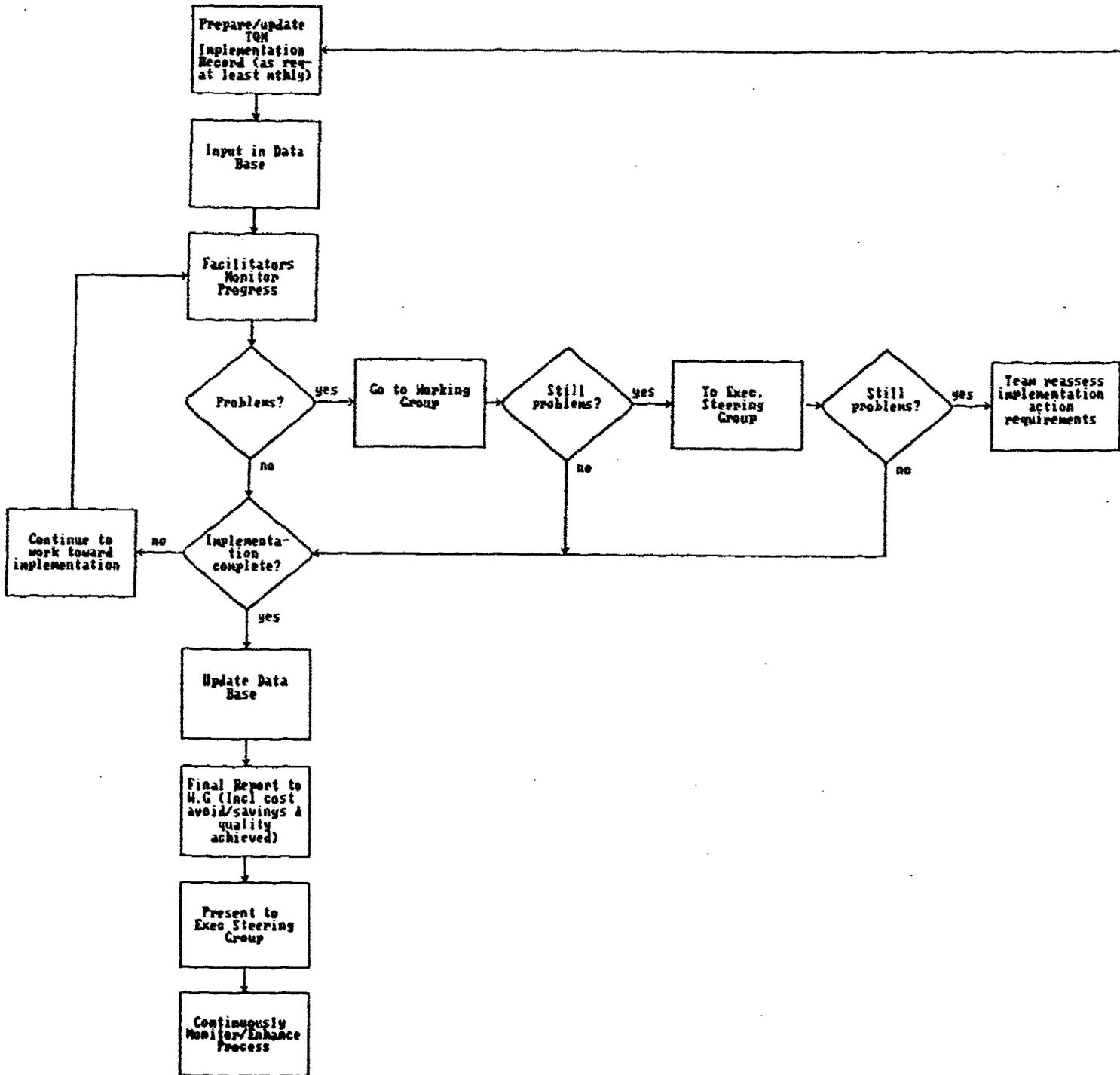
Process Analysis



Recommendation Approval

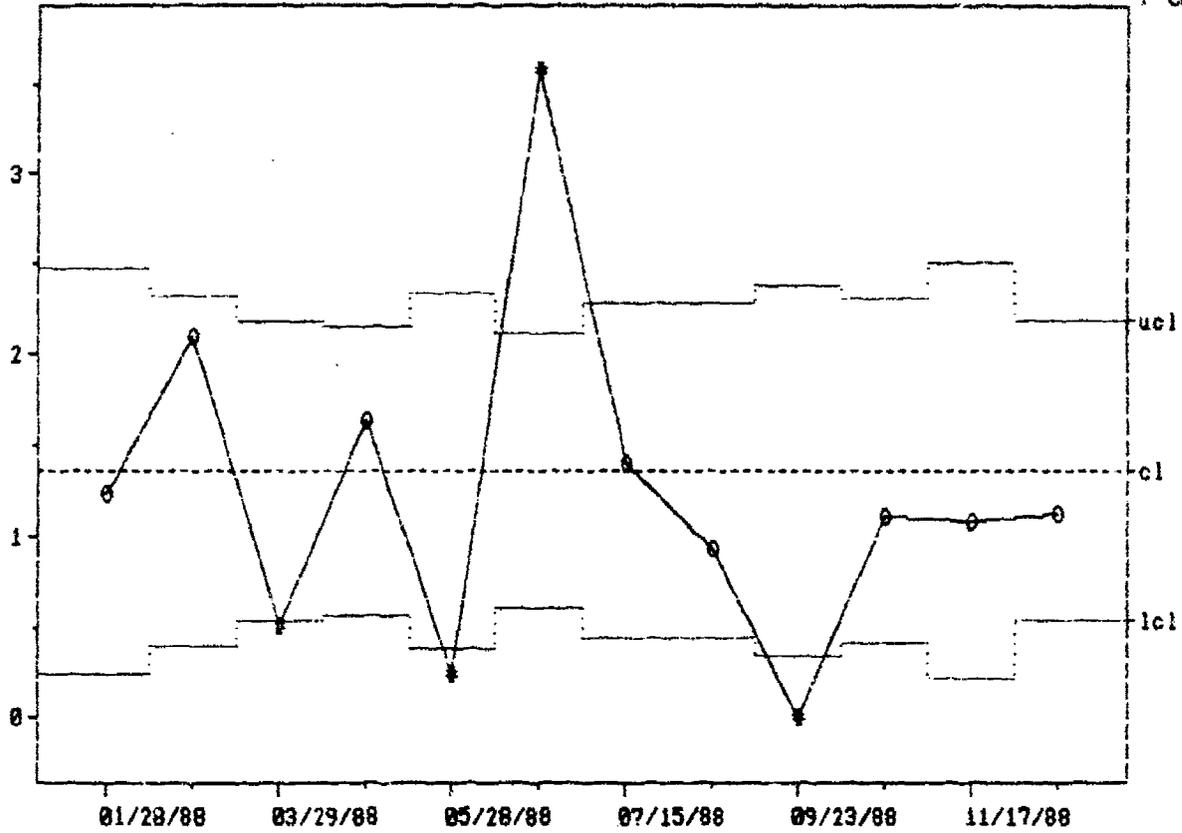


Implementation Process



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P-CHART

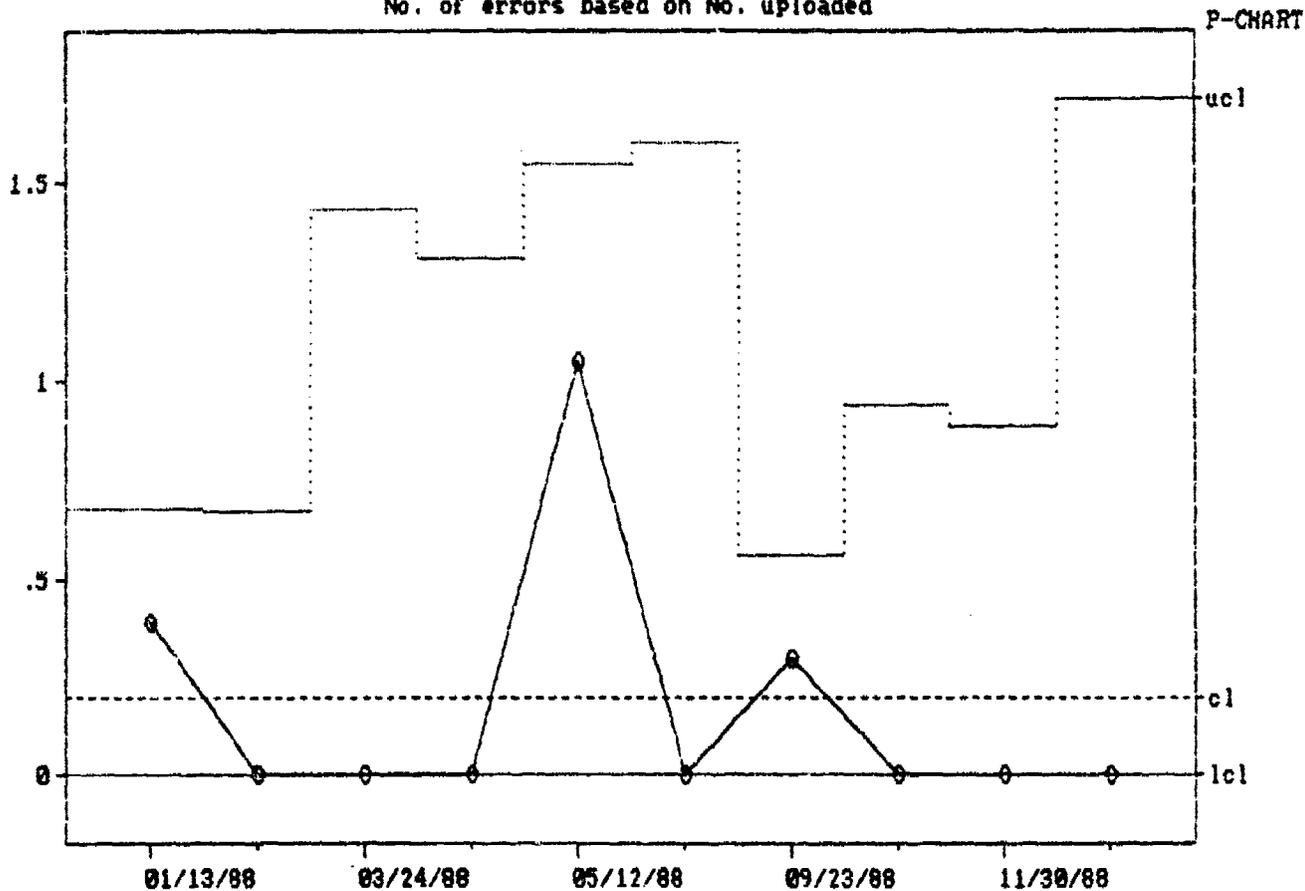


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2:	02/26/88	1290	27	11	16	0	0	0
3:	03/29/88	1778	9	1	6	0	2	0
4:	04/30/88	1893	31	25	5	1	0	0
5:	05/28/88	1258	3	0	3	0	0	0
6:	06/29/88	2121	76	37	39	0	0	0
7:	07/15/88	1433	20	14	5	0	1	0
8:	08/13/88	1413	13	0	10	2	1	0
9:	09/23/88	1155	0	0	0	0	0	0
10:	10/21/88	1350	15	8	7	0	0	0
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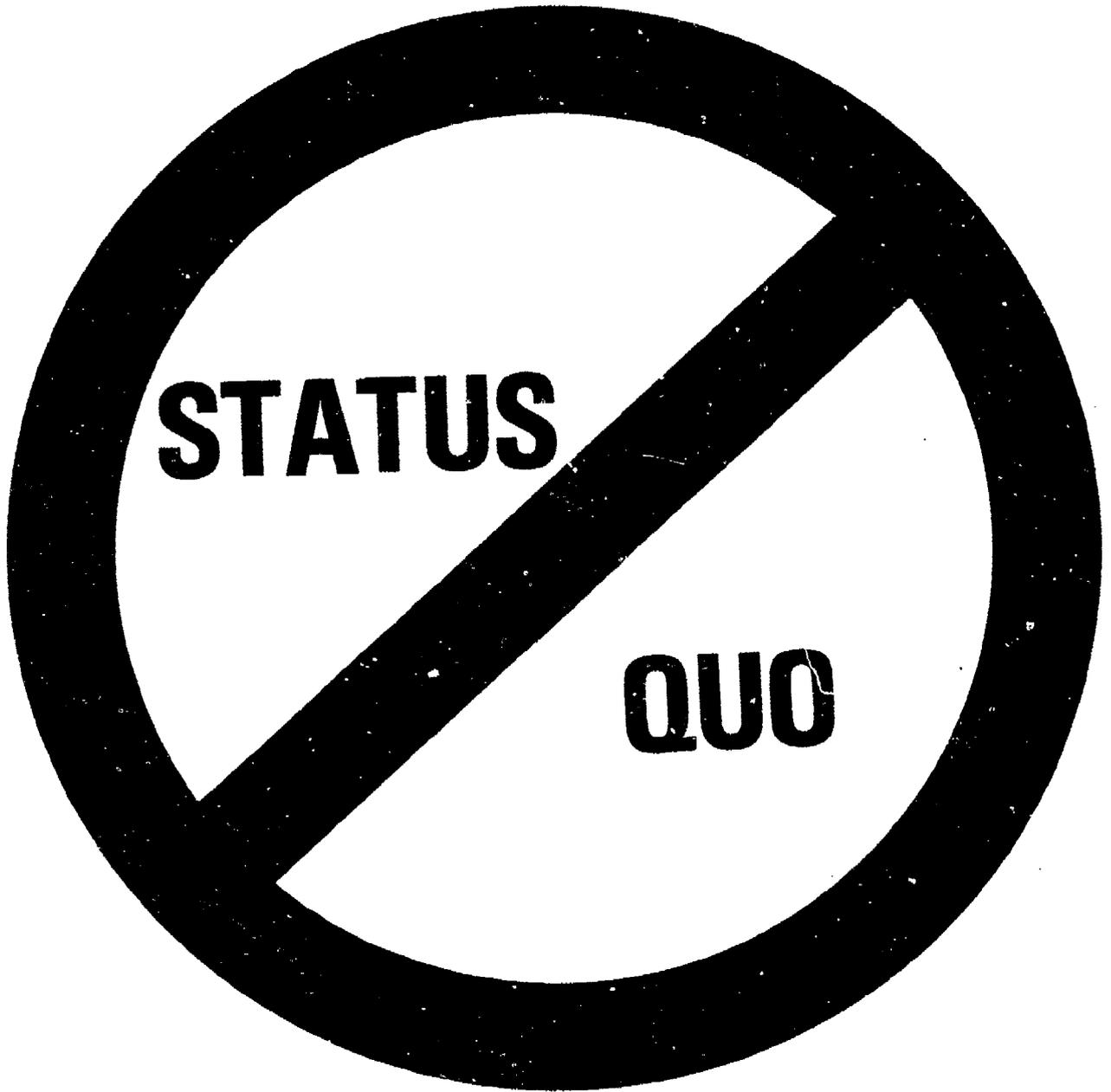
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3:	03/24/88	115	0	0	0	0	0
4:	03/30/88	142	0	0	0	0	0
5:	05/12/88	96	1	1	0	0	0
6:	07/15/88	89	0	0	0	0	0
7:	09/23/88	1336	4	2	1	0	1
8:	10/27/88	316	0	0	0	0	0
9:	11/30/88	373	0	0	0	0	0
10:	12/30/88	76	0	0	0	0	0



**"IF YOU ALWAYS DO WHAT YOU ALWAYS DID,
YOU WILL ALWAYS GET WHAT YOU ALWAYS GOT".**