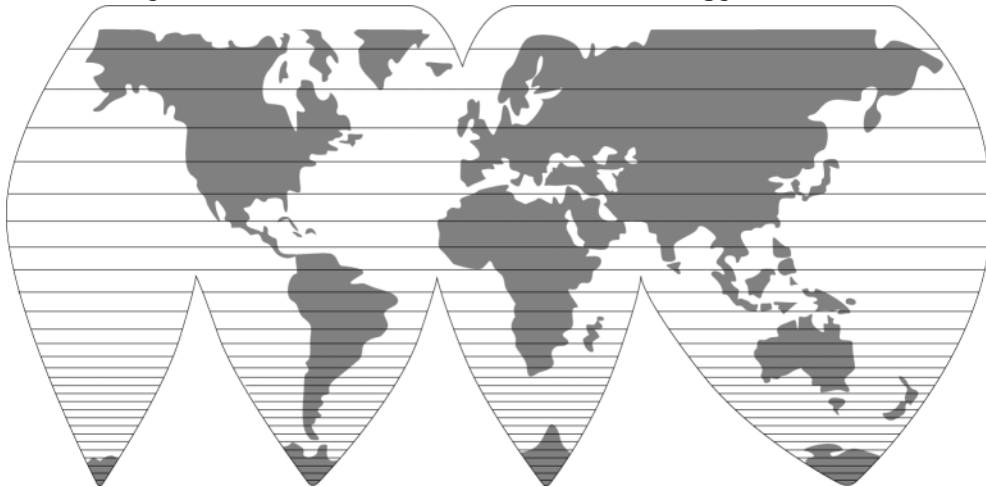


systran



Systems for International Technology Transfer

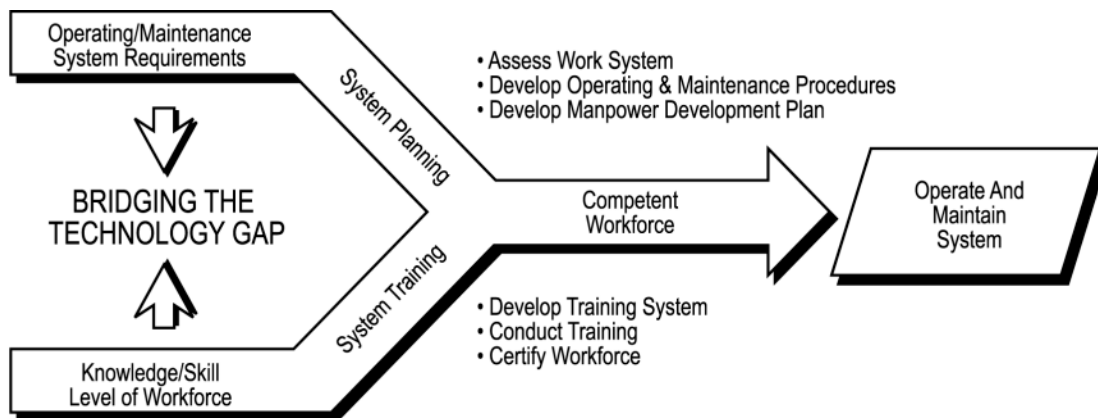


SYSTRAN

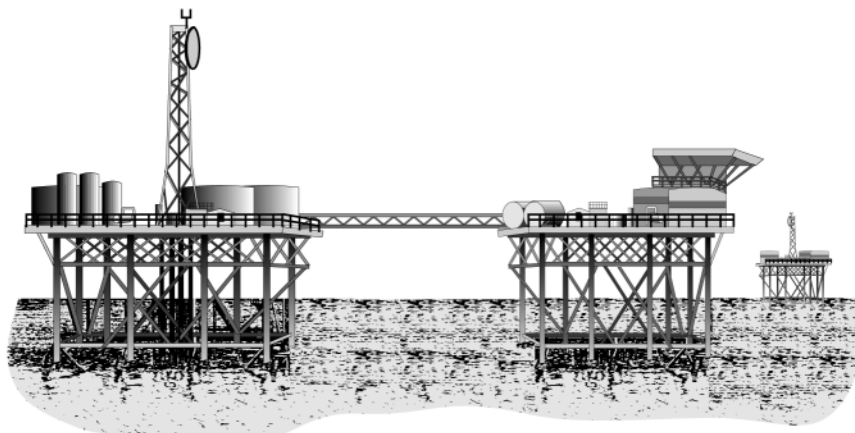
SYSTEMS FOR INTERNATIONAL TECHNOLOGY TRANSFER

In recent years, a highly competitive business environment has increased the demand for greater efficiency and productivity. To meet this challenge, businesses are modernizing their equipment and installing sophisticated technology to optimize production and reduce operating costs. Improving employee performance is a major factor in the successful management, operation, and maintenance of modern technology.

Systran uses a systems engineering approach to define the equipment specifications, employee knowledge, and skill requirements essential to efficient process operations and maintenance (O&M) work performance. The resulting information is the basis for custom development of commissioning and start-up plans, operating and maintenance procedures, training curriculum, and technical training. Systran delivers each of these elements separately or in the combination necessary to meet specific client requirements.



Systran bridges the “Technology Gap” between the technical expertise required to operate and maintain modern technology and the knowledge and skills of the work force.



SYSTRAN TECHNICAL SERVICES

COMMISSIONING AND START-UP PLANNING & STAFFING

Systran's commissioning process involves the analysis of new equipment specifications and process information required to develop a comprehensive commissioning and start-up plan. The plan contains a complete item checkoff lists, and procedures for the commissioning a unit or facility, and its eventual start-up. The start-up checkoff lists identify pre-start-up valve positions, blind locations, instrumentation checklists, and purging, etc. The plan also identifies special material requirements, such as nitrogen, and safety procedures for work permits and valve tagging. The plan is based on the process description, unit/facility design, equipment operating specifications, maintenance requirements and safety regulations. It also provides the necessary management controls to proceed from construction completion to a stable operating condition in a safe and efficient manner. Throughout this process, the Systran project manager and his team, (in conjunction with E&C and company representatives), monitor the activation of the equipment to ensure a safe and successful start-up.

DEVELOP PROCESS MANUALS/OPERATING PROCEDURES

Systran develops process manuals and operating procedures that promote safe and efficient unit operations and increase throughput and profitability. Employees require reliable operating manuals that accurately describe the process, equipment, safety and economic requirements of the unit. Systran operating manuals are written by trained operators for operators, and are easy to use and understand. They describe the process, the equipment and instrumentation and how they relate to unit efficiency and product quality. They also contain the procedures to start-up, monitor and shutdown the unit under of both normal and emergency conditions. The format, level of detail and complexity vary depending upon specific client needs. The following is an example of the content:

Equipment Start-up and Shutdown

Defines routine prestart, start-up and shutdown procedures.

Equipment Upset and Emergency Handling

Defines special procedures and step-by-step activities to avoid loss of life or destruction of equipment during upset conditions and emergencies.

Equipment Operation and Monitoring

Defines procedures for operating and monitoring actual equipment to improve efficiency, observation and identification of upset or emergency conditions, logging and reporting.

Strategy

Defines procedures to optimize equipment operation, product quality, throughput, and minimize energy use.

Safety

Defines general safety requirements, potential hazards from exposure to feedstock, products and by-products, permit requirements, tag out procedures and other safety related housekeeping items.

Process Variables

Defines instrumentation and process variables. Identification of independent and dependent variables, describes their relationship and the appropriate control strategies for efficient operation.

MANPOWER PLANNING AND DEVELOPMENT

INSTRUCTIONAL SYSTEMS DEVELOPMENT

Systran has successfully used the Instructional Systems Development (ISD) approach to analyze training needs, develop and implement solutions to training problems, and assess the long term affect of training on employee work performance. This ISD model has three phases as shown in the Plan of Action that presents an overview of the Analysis, Development, and Implementation of training systems. Quality control is continuous throughout the process from initial planning to execution.

COMPETENCY BASED TRAINING

Unlike traditional methods, Competency-Based Training features a work-based, multilevel, manpower development system. Training is conducted in either the individualized, self-directed mode or in small groups facilitated by unit trainers intimately familiar with the employee's job. Trainers are responsible for preparing employees for certification of job competency by their Unit Supervisor.

Competency-Based Training minimizes the impact of individual learning differences by providing training that focuses on correcting specific deficiencies in employee knowledge, performance and work habits. Competency-Based Training recognizes the demonstration of work competence as the only criteria for job certification.

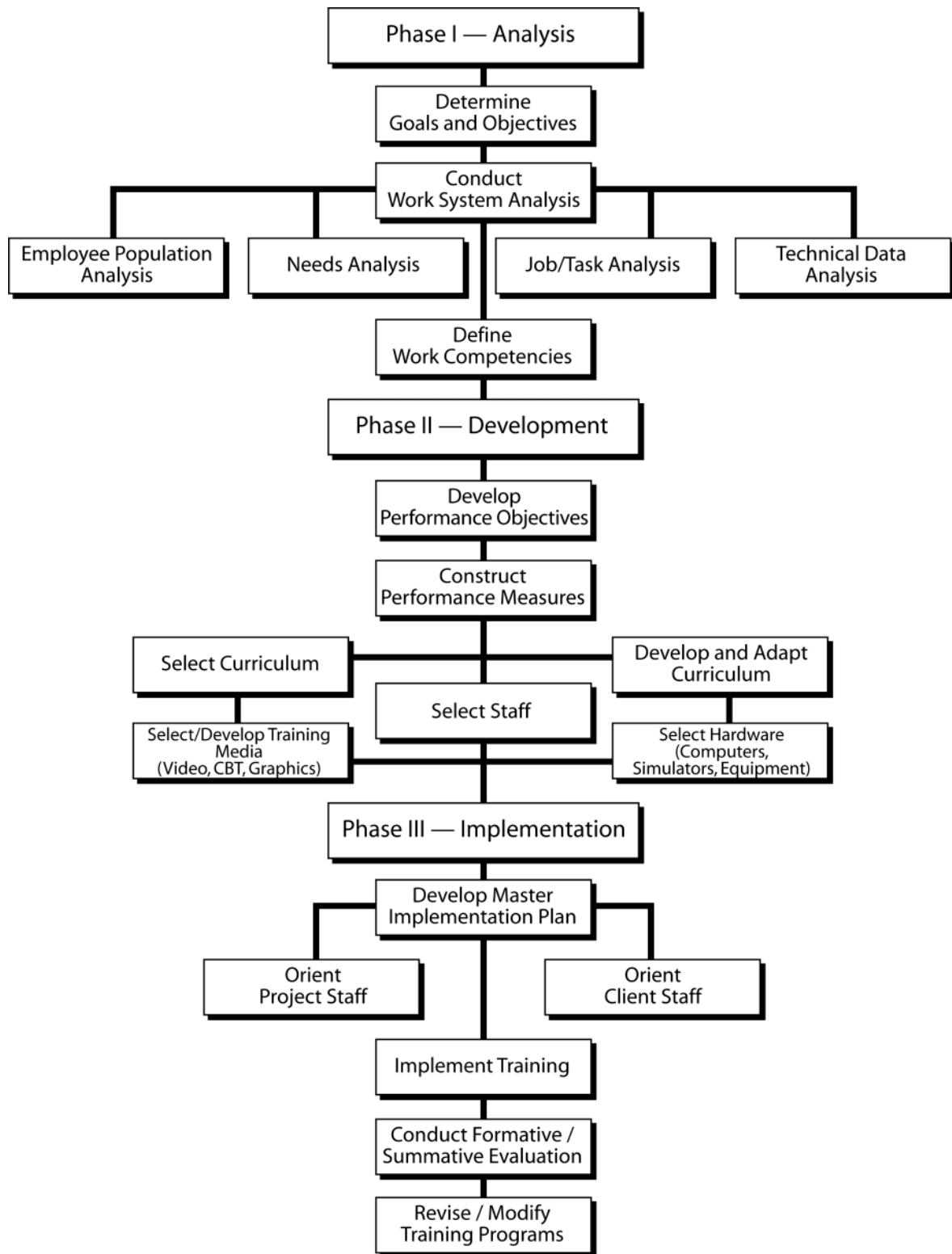
Employees are qualified for the job requirements by successfully completing a knowledge assessment and performance evaluation for each training module. The result is a higher level of achievement by the overwhelming majority of employees, rather than just a few who are "Competent," a somewhat larger group who are "Barely Competent" and an unacceptably large group who are "not acceptable at all."

The Systran method produces competent employees quicker than traditional methods and reduces training costs.

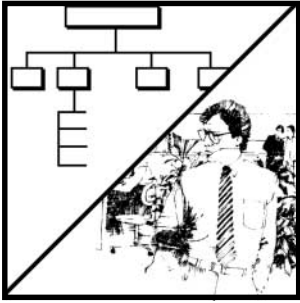
SIMULATION TRAINING

Systran has developed computer simulation exercises and integrated them within the Competency-Based Training process. Computer simulation is a valuable tool for introducing employees to a variety of operating conditions. Employees have an opportunity to practice identifying, evaluating, and responding to normal and emergency conditions in a no-risk environment. Critical operations such as equipment failure, emergency shutdown, and hot start-up can be practiced to correct improper employee responses and to reduce reaction time. Simulation enables operators to better understand the process dynamics and advanced control systems found in many processing facilities today.

SYSTRAN'S PLAN OF ACTION



SYSTRAN EXPERIENCE SUMMARY



Manpower Planning & Development

TRAINING NEEDS ANALYSIS AND PROGRAM DESIGN

Systran conducted a complete training needs and job-task analysis, and designed and executed a project to train field production and gas processing plant operators. The analysis and program design included:

- *Trainee Population Analysis*
- *Analysis of Technical Documentation*
- *Development of Job Performance Standards*
- *Evaluation of Training Facilities and Equipment*
- *Development of Resource and Staffing Plan*
- *Development of Master Training & Evaluation Plan*
- *Procurement/Development of Curriculums*



Aerospace

DESIGN AND DEVELOPMENT

Using the Instructional Systems Development model, Systran designed and developed a curriculum of 10 carefully sequenced programs of instruction, consisting of 460 modules, to train operators for a petrochemical manufacturing facility. Each program of instruction module represented a separate and critical task for the trainees to learn by using a hands-on method of skills training. Each program of instruction contained an instructor guide and trainee classroom and on the job training (OJT) learning materials. The modules were supported by Systran produced overhead transparencies, videotapes, slide tapes, and wall charts.

TECHNICAL ENGLISH, BASIC SKILLS, VOCATIONAL/TECHNICAL SKILLS INSTRUCTION

This project required instruction in General English, Technical English, Basic Skills, Vocational/Technical Skills (in basic and specialized areas), and Process Plant Operator training for methanol synthesis and MTBE petrochemical plant operators and maintenance personnel. The instruction in each of the components was based on the best of competency-based training which featured open entry-open progression and vocational skills achievement. Audiovisual support, computer-based training and process operations simulators proved to be an effective combination for training and certifying process operators.



Process Control

INSTRUCTOR TRAINING

Systran conducted a part program including General and Technical English language training, technical instruction, and instructor training to prepare trainees to be electronic and mechanical vocational instructors. Systran used a Competency-Based Individualized and Mediated (CBIM) approach to training which matched the approach used in their vocational schools.

SUPERVISOR AND MANAGEMENT TRAINING

Systran conducted a Business Management Training Course for managers and supervisors of a major foreign airline. The course included basic management principles, organizing, planning, directing, coordinating, and controlling - along with business writing. The course included application of human relations, communications and team-building skills. Trainees also participated in practical problem solving exercises directly related to their jobs.

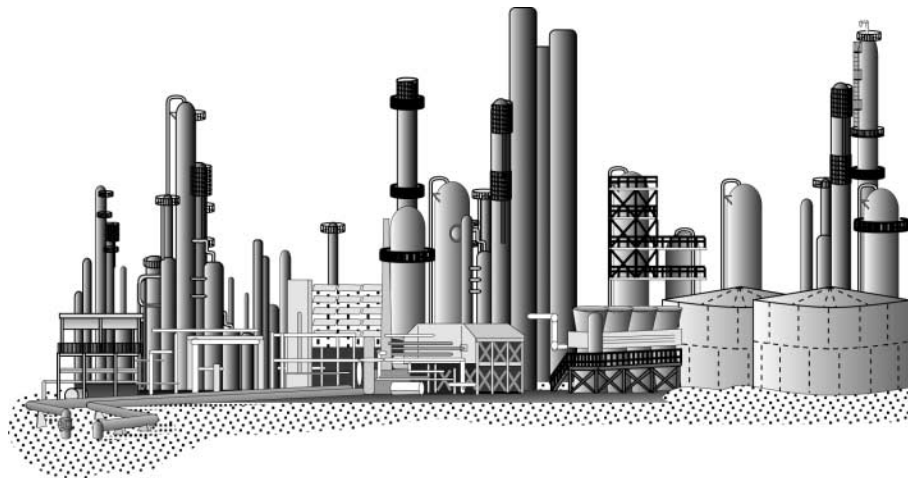


Manufacturing

SYSTRAN'S CLIENT LIST

SYSTRAN HAS PROVIDED SERVICES TO THE FOLLOWING CLIENTS

Abbott laboratories
Abu Dhabi Air Force
AIG Consultants, Inc.
Al-Jubail Petrochemical Company (Kemya)
ALCOA
AMIDEAST
Anadarko/Sonatrach Algeria
Arabian Petrochemical Company (Petrokemya)
Aramco Services Company
Armco Steel Company
Atlantic Methanol Producing Company
Bell Helicopter
Boeing Computer Services Company
Celanese Chemical Company
Center Chemical Process Safety (AIChE)
Central Missouri State University
Champion International Corporation
CMS Energy Corporation
Coastal Aruba Refining Company
Coastal Eagle Point Refining Company
Columbia Gas Pipeline Company
Control Data Corporation
Dow Chemical Company
Duke Energy
Enron Gas Pipeline Company
E-Systems Corporation
Esso Eastern Malaysia
First National Bank of Chicago
General Electric Corporation
General Motors Corporation
Getty Oil Company
Heliflight Systems, Inc.
H.B.H. Company
Hydril Corporation
Imperial Sugar Company
International Harvester
Lamar University
Lockheed Martin Aerospace Company
Marathon Oil
Mobil Oil Corporation
Mobil Producing Nigeria
National Methanol Company (Ibn Sina)
Omni Flow Computers, Inc.
Pratt & Whitney Aircraft Company
Raytheon Middle East Systems Company
Raytheon Engineering & Construction Company
Reynolds International Inc.
Riyadh Oil Refinery
Saudi Arabian Airlines
Saudi Arabian Basic Industries Corporation
Saudi Arabian Educational Mission
Saudi Iron & Steel Company (Hadeed)
Saudi Petrochemical Company (Sadaf)
Saudi Yanbu Petrochemical Company (Yanpet)
S.C. Johnson & Sons
Science Applications, Inc.
Shell Western Exploration & Production Company
Solar Turbine
Sperry Rand Corporation
Tektronics, Inc.
Tenneco Gas Pipeline Corporation
U.S. Department of Labor
Texaco Corporation
Texas Eastern Pipeline Company
Union Carbide Corporation
U.S. Geological Survey
U.S. Navy
U.S. Peace Corps
Van Camp Seafood Company
Zhongyuan Petroleum Company





Systems for International Technology Transfer



SYSTRAN INSTRUCTIONAL PROGRAMS

Systran conducts instructional programs to ensure that employees realize their performance potential. These programs include:



English Language Training

Prepares students for entrance into U.S. Universities, colleges, and technical schools leading to scientific, business, and technical careers.



Fundamental Skills Training

Prepares students to continue their technical training progress. Topics include mathematics, physical science, basic electronics, basic shop skills.



Technical Training

Prepares students for successful entry into client work-force. Training supports industrial and military skilled specialties in operations, mechanical maintenance, instrumentation and electronics.



Train-the-Trainer

Prepares client personnel to conduct Needs Assessment, Job-Task Analysis, Instructional Systems Development, and Instructor Training.

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