

2003

Celebrating 15 Years

National Institute of Standards and Technology
Technology Administration • Department of Commerce
Baldrige National Quality Program



GeoOrb Polymers, North America Case Study

2003

Celebrating 15 Years

Baldrige National Quality Program



GeoOrb Polymers, North America Case Study

The GeoOrb Polymers, North America Case Study was prepared for use in the 2003 Malcolm Baldrige National Quality Award Examiner Preparation Course. The GeoOrb Polymers, North America Case Study describes a fictitious manufacturing organization providing polymer products. There is no connection between the fictitious GeoOrb Polymers, North America and any other organization, either named GeoOrb Polymers, North America or otherwise. Other organizations cited in the case study also are fictitious, with the exception of several national organizations. Because the case study is developed for educational use and appreciation of the possible content of an actual Baldrige application, there are areas in the case study where Criteria requirements are not addressed.

GeoOrb Polymers, North America scored in band 4, showing that the organization demonstrates effective, systematic approaches to the overall requirements of the Items, but deployment may vary in some areas or work units. In addition, fact-based evaluation and improvement address the efficiency and effectiveness of key processes. Results address key customer/stakeholder, market, and process requirements, and they demonstrate some areas of strength and/or good performance.

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Malcolm Baldrige National Quality Award**I. Applicant**Official Name GeoOrb Polymers, North AmericaOther Name N/APrior Name Calmay Chemicals, Polymers Division

Headquarters Address _____

100 Kitty Hawk HighwayBaton Rouge, Louisiana 70805-3525**2. Highest-Ranking Official** Mr. Mrs. Ms. Dr.Name Liam A. BerlinTitle PresidentApplicant Name GeoOrb Polymers, North AmericaTelephone No. 225-888-2003E-mail labeledlin@qtt.netAddress 100 Kitty Hawk HighwayBaton Rouge, Louisiana 70805-3525Fax No. 225-888-2002**3. Eligibility Contact Point** Mr. Mrs. Ms. Dr.Name Thomas R. WhartonTitle Vice President, Total QualityApplicant Name GeoOrb Polymers, North AmericaTelephone No. 225-888-1901Fax No. 225-888-1953E-mail trwharton@qtt.netAddress 100 Kitty Hawk HighwayBaton Rouge, Louisiana 70805-3525

Overnight Mailing Address (Do not use a P.O. Box number.) _____

100 Kitty Hawk HighwayBuilding 18Baton Rouge, Louisiana 70805-3525**4. Alternate Eligibility Contact Point** Mr. Mrs. Ms. Dr.Name Jenn AustenTelephone No. 225-888-1987Fax. No. 225-888-2005**5. Applicant Status** *(Check one.)*

Has the applicant officially or legally existed for at least one year, or prior to April 15, 2002?

 Yes No**OMB Clearance #0693-0006—Expiration Date: October 31, 2003.***This form may be copied and attached to, or bound with, other application materials.*

If you are unable to answer any question or answer any question "No,"
please contact the Baldrige Program Office at (800) 898-4506 before submitting your form.

Malcolm Baldrige National Quality Award

6. Certification Fee

Enclose a \$150 nonrefundable fee to cover the cost of the eligibility certification process. Make check or money order payable to **The Malcolm Baldrige National Quality Award.**

You also may pay by VISA, MasterCard, or American Express. Please indicate method of payment below:

Check or money order (enclosed)

VISA MasterCard American Express

Card Number _____

Signature _____

Exp. Date _____

Today's Date _____

7. Award Category and For-Profit/Not-For-Profit Designation *(Check as appropriate.)*

- | | | |
|---|---|---|
| <input checked="" type="checkbox"/> Manufacturing (For-Profit Only) | <input type="checkbox"/> Education | <input type="checkbox"/> Health Care |
| <input type="checkbox"/> Service (For-Profit Only) | <input type="checkbox"/> For-Profit | <input type="checkbox"/> For-Profit |
| <input type="checkbox"/> Small Business (For-Profit Only) | <input type="checkbox"/> Not-For-Profit | <input type="checkbox"/> Not-For-Profit |

Criteria being used: *(Check one.)*

- Business Education Health Care

(For-profit education and health care organizations may also choose to use the Business Criteria and apply in the service or small business categories.)

8. Industrial Classification

List up to three of the most descriptive three- or four-digit NAICS codes. *(See page 21 of this booklet or the PDF version of the Baldrige Award Application Forms at www.quality.nist.gov/Award_Application.htm.)*

a. 325 b. _____ c. _____

9. Size and Location of Applicant

- a. Total number of
- employees (business) 978
 - faculty/staff (education) _____
 - staff (health care) _____
- b. For the preceding fiscal year,
- Check one financial descriptor: Sales Revenues Budgets
 - Check amount: 0-\$1M \$1M-\$10M \$10M-\$100M \$100M-\$500M \$500M-\$1B More than \$1B
- c. Number of sites: U.S./Territories 1 Overseas 0
- d. Percentage of employees: U.S./Territories 100 Overseas 0
- e. Percentage of physical assets: U.S./Territories 100 Overseas 0

If you are unable to answer any question or answer any question "No," please contact the Baldrige Program Office at (800) 898-4506 before submitting your form.

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- f. If some activities are performed outside the applicant's organization (e.g., by an overseas component of the applicant, the parent organization, or its other subunits), will the applicant, if selected for a site visit, make available in the United States sufficient personnel, documentation, and facilities to allow full examination of its operational practices for all major functions of its worldwide operations?

Yes No Not Applicable

- g. In the event the applicant receives an Award, can the applicant make available sufficient personnel and documentation to share its practices at the Quest for Excellence Conference and at its U.S. facilities?

Yes No Not Applicable

- h. Attach a line and box organization chart for the applicant. In each box, include the name of each unit/division and its head.

10. Subunits *(If the applicant is not a subunit as defined on pages 6–7, please proceed to question 11.)*

- a. Is the applicant _____ a larger parent or system? *(Check all that apply.)*

a subsidiary of a unit of a school of
 a division of a like organization of owned by
 controlled by administered by

- b. Parent Organization

Name GeoOrb Plastics Corporation

Highest-Ranking Official _____

Address 18-21, Shimbaski 1-chome, Chuo-ku

Name Ukye Mori

Osaka, 550-8591, Japan

Title Chief Executive Officer

Number of worldwide employees of the parent 4670

- c. Is the applicant the only subunit of the parent organization intending to apply? *(Check one.)*

Yes No *(Briefly explain.)* Do Not Know

- d. Briefly describe the major functions provided to the applicant by the parent or by other subunits of the parent. Examples of such functions include but are not limited to strategic planning, business acquisition, research and development, data gathering and analysis, human resources, legal services, finance or accounting, sales/marketing, supply chain management, global expansion, information and knowledge management, education/training programs, information systems and technology services, curriculum and instruction, and academic program coordination/development.

GeoOrb Polymers, North America (G-ORB) is a member of the Polyolefins Business Group, one of three Business Groups within the GeoOrb Plastics Corporation, which recommends strategies to the corporation's Management Committee for worldwide growth, structure, technology, and development. Additionally, the Business Group leverages synergies for its markets and customers and has established mature Communities of Practice to speed technology and operational enhancements. The Polyolefins Business Group provides strategic direction to the segment business units within its group, including G-ORB.

Corporate Services, the shared services unit within GeoOrb Plastics Corporation, establishes directions and best practices in the areas of finance, regional marketing and sales, strategic purchasing, accounting, computing support, logistics, legal, health, safety, environmental, and human resources. It also provides guidance on the corporation's standards and reporting requirements.

If you are unable to answer any question or answer any question "No," please contact the Baldrige Program Office at (800) 898-4506 before submitting your form.

Malcolm Baldrige National Quality Award**10. Subunits—continued**

e. Is the applicant self-sufficient enough to respond to all seven Baldrige Criteria Categories?

Yes No (*Briefly explain.*)

f. Provide the name and date of the official document (e.g., annual report, organization literature, press release) supporting the subunit designation. Attach relevant portions of the document showing clear definition of the applicant as a discrete entity.

Name GeoOrb Plastics Corporation Annual Report Date January 2002

g. Briefly describe the organizational structure and relationship to the parent.

GeoOrb Polymers, North America (G-ORB) is a single-site organization providing polymer products and services to customers primarily in the Americas. G-ORB has full profit and loss responsibility and is a member of the Polyolefins Business Group, one of the three Business Groups within the GeoOrb Plastics Corporation (GPC). The other Business Groups are Ethylene-Propylene Rubber (EPDM) and Fabrication. Liam Berlin, President of G-ORB, directly reports to Jason Fujimo, President of the Polyolefins Business Group. Jason Fujimo reports to Ukye Mori, who serves as Chief Executive Officer of the Management Committee for GPC. Ukye Mori reports to Naofumi Sugai, Chair of the Board of Directors for GPC. The GPC Board of Directors is composed of eight external, independent directors and four internal directors, and it has four standing committees: Nominating, Compensation, Audit, and Litigation. The GPC Management Committee also has four standing committees: Human Resources; Strategic Materials; Ethics; and Safety, Health, and Environmental. The Polyolefins Business Group recommends strategies to the corporation's Management Committee for worldwide growth, structure, technology, and development. The Business Group also leverages synergies for its markets and customers and has established mature Communities of Practice to speed technology and operational enhancements. The Polyolefins Business Group provides strategic direction to the segment business units within its group, including G-ORB.

Corporate Services is responsible for providing effective and low-cost shared services to GPC's three Business Groups and their manufacturing sites in the areas of finance, regional marketing and sales, strategic purchasing, accounting, computing support, logistics, legal, safety, health, environmental, and human resources. Additionally, it provides guidance on the corporation's standards and reporting requirements. Jo Jukodo is the Director of Corporate Services and reports to Ukye Mori, Chief Executive Officer. GeoOrb Plastics Services USA (GPS-USA) is the regional unit providing service support for U.S. operations, including G-ORB, and is a major interface with a joint venture and the U.S. government. Dorothy Clifford is the Regional Manager of GPS-USA, reporting to Jo Jukodo.

Attach line and box organization chart(s) showing the relationship of the applicant to the highest management level of the parent, including all intervening levels. In each box, include the name of the unit/division and its head.

See pages x and xi.

h. Is the applicant's product or service unique within the parent organization? (*Check one.*)

Yes No

If you are unable to answer any question or answer any question "No," please contact the Baldrige Program Office at (800) 898-4506 before submitting your form.

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10. Subunits—continued

If “No,” do other units within the parent provide the same products or services to a different customer base? (*Check one.*)

Yes No

If neither of the boxes in “h” is checked “Yes,” complete 1, 2, and 3 below.

(1) Provide a brief description of how the market and product(s) or service(s) are similar.

(2) Indicate the organizational relationships of all units that provide similar or identical products or services, including the approximate sales, revenues, or budgets for each.

(3) Describe how the applicant is different from its parent and the other subunits of the organization (e.g., market, location, name).

i. **Manufacturing and service subunits of parents with >500 employees, only.** Are more than 50 percent of the applicant’s products or services sold or provided directly to customers outside the applicant’s organization, the parent organization, and organizations controlled by the applicant or the parent?

Yes No

j. **Manufacturing and service subunits of parents with >500 employees, only.** (*Check all that apply.*)

• Does the applicant have more than 500 employees?

Yes No

• Do the applicant’s employees make up more than 25 percent of the worldwide employees of the parent?

Yes No

k. **All business subunits, regardless of parent size.** Was the applicant independent prior to being acquired, and does it continue to operate independently under its own identity?

Yes No

Note: If self-certification is based on the subunit being independent prior to being acquired and continuing to operate independently under its own identity, provide a copy of an official document to support this response.

Note: If all answers to “j” and “k” are “No,” contact the Baldrige Program Office at (800) 898-4506.

If you are unable to answer any question or answer any question “No,” please contact the Baldrige Program Office at (800) 898-4506 before submitting your form.

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II. Supplemental Sections *(Check one.)*

- The applicant has (a) a single performance system that supports all of its product and/or service lines and (b) products or services that are essentially similar in terms of customers/users, technology, types of employees, and planning.
- The applicant has (a) multiple performance systems that support all of its product and/or service lines and (b) products or services that are essentially similar in terms of customers/users, technology, types of employees, and planning.

If you checked this box, please describe briefly the differences among the multiple performance systems of your organizations in terms of customers, types of employees, technology, planning, and quality systems.

Note: The applicant's Eligibility Contact Point will be contacted if the second option is checked. Applicants may have two or more diverse product and/or service lines (i.e., in different NAICS codes) with customers, types of employees, technology, planning, and quality systems that are so different that the application report alone does not allow sufficient detail for a fair examination. Such applicants may submit one or more supplemental sections in addition to the application report. The use of supplemental sections must be approved during the eligibility certification process and is mandatory once approved.

12. Self-Certification Statement, Signature of the Highest-Ranking Official

I state and attest that

- (1) I have reviewed the information provided by my organization in this Eligibility Certification Package.
- (2) To the best of my knowledge,
 - no untrue statement of a material fact is contained in this Eligibility Certification Package, and
 - no omission of a material fact has been made in this package.
- (3) Based on the information herein and the current eligibility requirements for the Malcolm Baldrige National Quality Award, my organization is eligible to apply.
- (4) I understand that at any time during the 2003 Award Process cycle, if the information is found not to support eligibility, my organization will no longer receive consideration for the Award and will receive only a feedback report.

February 14, 2003
Date



Signature of Highest-Ranking Official

Liam A. Berlin

Printed Name

If you are unable to answer any question or answer any question "No," please contact the Baldrige Program Office at (800) 898-4506 before submitting your form.

One senior member from each organization whose Eligibility Certification Package is **postmarked on or before March 14, 2003**, may become a member of the 2003 Board of Examiners. The opportunity to learn and the required commitment of time are substantial. The time commitment is a minimum of 110 hours between April and December (including approximately 40 hours in April/May to complete prework for the Examiner preparation course, 4 days in May to attend the Examiner preparation course, and another 40 hours in June to complete a Stage 1 Independent Review). Participation in the Stage 2 Consensus Review and Stage 3 Site Visit Review is optional but would require an additional time commitment of approximately 20 hours and 9 days, respectively.

Thomas R. Wharton _____ will serve on the 2003 Board of Examiners from our organization.
Name of Senior Member Nominee

Nominee's contact information:

Mr. Mrs. Ms. Dr.

Title Vice President, Total Quality _____

Work Address 100 Kitty Hawk Highway _____

Baton Rouge, Louisiana 70805-3525 _____

Work Phone 225-888-1901 _____

Work Fax 225-888-1953 _____

E-mail Address trwharton@qtt.net _____

Home Address 38 Bayou Drive _____

Baton Rouge, Louisiana 70813-1063 _____

Home Phone 225-888-1991 _____

Home Fax 225-888-1999 _____

If you are unable to answer any question or answer any question "No," please contact the Baldrige Program Office at (800) 898-4506 before submitting your form.

Malcolm Baldrige National Quality Award

The following information is needed by the Malcolm Baldrige National Quality Award Program Office to avoid conflicts of interest when assigning Examiners to evaluate your application and by Examiners in performing their evaluation.

I. Site Listing and Descriptors

Please refer to the instructions on page 16 of this booklet or the PDF version of *Baldrige Award Application Forms* at www.quality.nist.gov/Award_Application.htm to complete this Site Listing and Descriptors form. It is important that the totals for the number of employees, faculty, and/or staff; percentage of sales, revenues, and budgets; and sites on this form match the totals provided in response to questions 9a, 9b, and 9c on page 2 of the 2003 Eligibility Certification Form. For example, if you report 600 employees in response to question 9a, the total number of employees provided in the Site Listing and Descriptors form should be 600. Duplicate the Site Listing and Descriptors page if all sites can not be listed on a single page.

Address of Site(s)	Number Employees, Faculty, and/or Staff	Percentage <input checked="" type="checkbox"/> Sales <input type="checkbox"/> Revenues <input type="checkbox"/> Budgets	Description of Products, Services, and/or Technologies for each Site
100 Kitty Hawk Highway Baton Rouge, Louisiana 70805-3525	978	100%	High-density polyethylene (HDPE), linear low-density polyethylene (LLDPE), and polypropylene (PP) plastic raw materials produced in continuous processes, including reactor operations and extrusion. An on-site Technology Center develops process technology and catalyst technology.

Provide all the information for each site, except where multiple sites produce similar products or services. For multiple site cases, refer to “c” under item 9, Size and Location of Applicant, on page 2 of the Eligibility Certification Form. Also, see 2003 Eligibility Form—Instructions on page 8 of this booklet or the PDF version of *Baldrige Award Application Forms* at www.quality.nist.gov/Award_Application.htm.

Use as many additional copies of this form as needed to include all sites.

If you are unable to answer any question or answer any question “No,” please contact the Baldrige Program Office at (800) 898-4506 before submitting your form.

Malcolm Baldrige National Quality Award**2. Key Business/Organization Factors**

List, briefly describe, or identify the following key organization factors. Be as specific as possible to help us avoid real or perceived conflicts of interest when assigning Examiners to evaluate your application. “Key” means those organizations that constitute 5 percent or greater of the applicant’s competitors, customers/users, or suppliers.

A. List of key competitors

AustinFuller Chemical	Butera Industries
EstesMarlowe Chemical	Dolan Uby Chemical
Sego Chemical	

B. List of key customers/users

G-ORB produces plastic raw materials—polymers—that are, in turn, processed into finished products by customers.

Largest volume customers include

Keeler Industries
Summit Plastics
UniPlastics

C. List of key suppliers

Suppliers are critical to G-ORB’s ability to satisfy customer needs and expectations. G-ORB’s suppliers number about 500. Of these, 60 provide critical raw material or services. G-ORB’s major categories of suppliers include

Ethylene and propylene monomer suppliers
JMK Chemical Industries/GeoOrb Plastics
Corporation Joint Venture
Southfield, Inc.
Butera Industries

Maintenance, repair, and operational material suppliers
Kent Materials Management
MKM Extruder Technologies, Inc.
Bannor Valves & Pumps

Contractors (maintenance, engineering, etc.)
JAM International
EP Tech Group

Catalyst and additive suppliers
C&W Catalyst, Inc.
NBX Additive Industries

Logistics suppliers

Sovereign Rail, Inc.
AB Shipping
Macro Transporters, Inc.

D. Description of the applicant’s major markets (local, regional, national, and international)

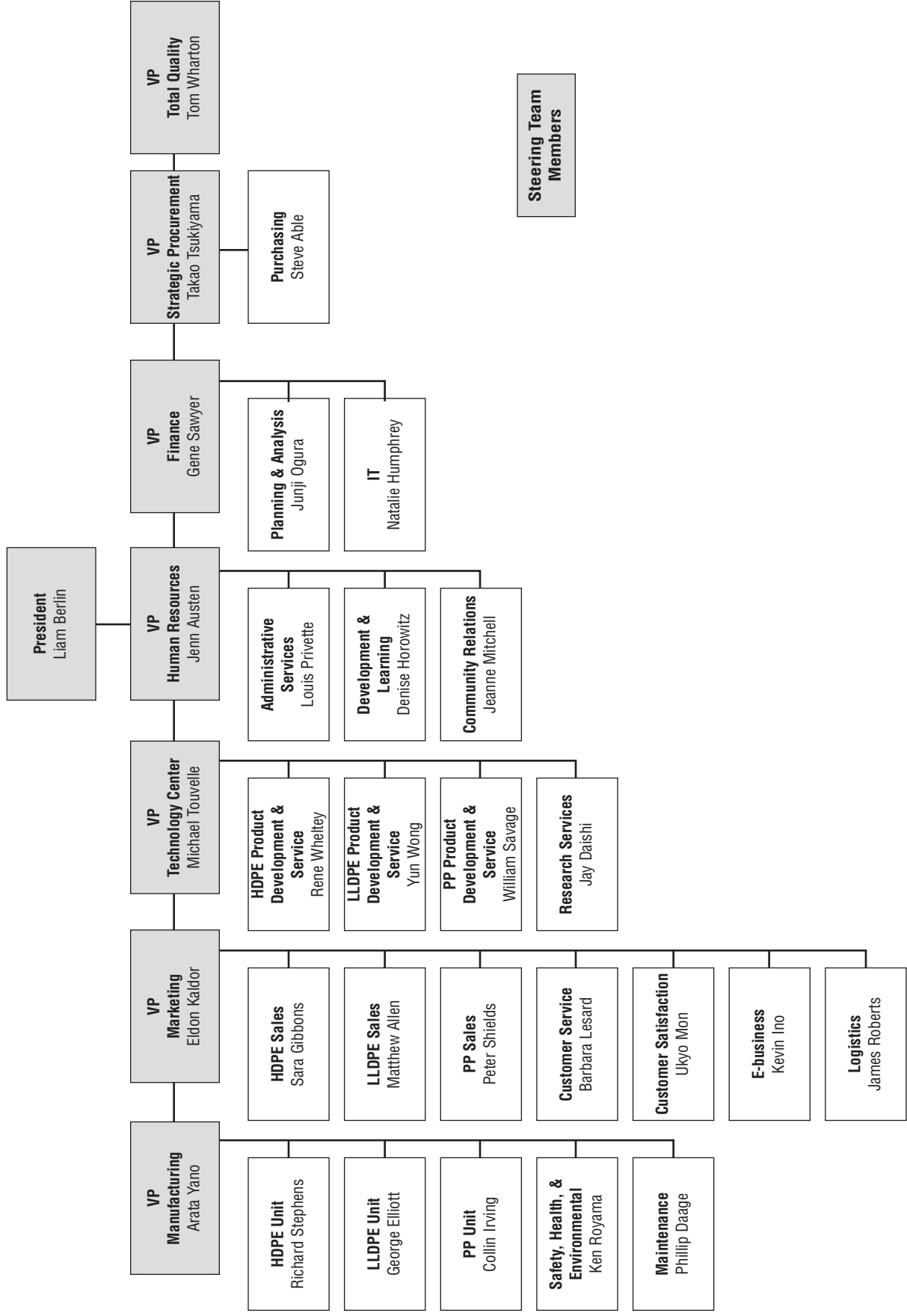
United States: 75%; Canada, Mexico, and the Caribbean: 15%; South America: 10%

E. The name of the organization’s financial auditor

Kennet-Blates & Associates

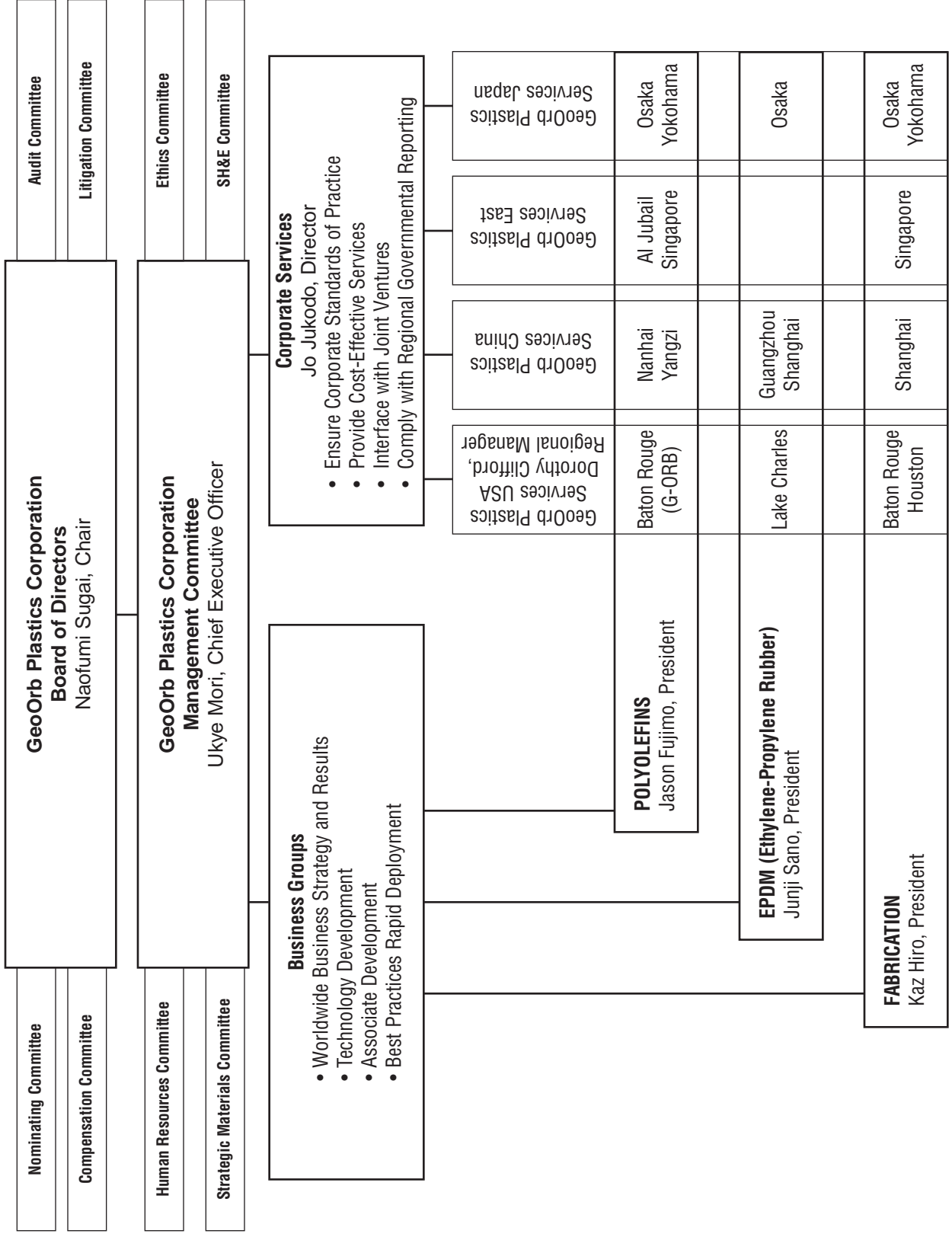
If you are unable to answer any question or answer any question “No,” please contact the Baldrige Program Office at (800) 898-4506 before submitting your form.

GeoOrb Polymers, North America (G-ORB) Leadership Team



GeoOrb Plastics Corporation (GPC)

Structure and Governance System



Malcolm Baldrige National Quality Award

Provide all information requested. A copy of the 2003 Application Form must be included in each of the 25 copies of the application report, as described on pages 22–23.

1. Applicant

Applicant Name GeoOrb Polymers, North America

Mailing Address 100 Kitty Hawk Highway

Baton Rouge, Louisiana

70805-3525

2. Award Category (Check one.)

- Manufacturing Service Small Business
 Education Health Care

For small businesses, indicate whether the larger percentage of sales is in service or manufacturing. (Check one.)

- Manufacturing Service

Criteria being used (Check one.)

- Business Education Health Care

3. Official Contact Point

- Mr. Mrs. Ms. Dr.

Name Thomas R. Wharton

Title Vice President, Total Quality

Mailing Address 100 Kitty Hawk Highway

Baton Rouge, Louisiana 70805-3525

Overnight Mailing Address
(Do not use P.O. Box number.)

100 Kitty Hawk Highway, Building 18

Baton Rouge, Louisiana 70805-3525

Telephone No. 225-888-1901

Fax No. 225-888-1953

4. Alternate Official Contact Point

- Mr. Mrs. Ms. Dr.

Name Jenn Austen

Telephone No. 225-888-1987

Fax No. 225-888-2005

5. Release and Ethics Statements

Release Statement

We understand that this application will be reviewed by members of the Board of Examiners.

Should our organization be selected for a site visit, we agree to host the site visit and to facilitate an open and unbiased examination. We understand that our organization must pay reasonable costs associated with a site visit. The site visit fees range from \$1,500–\$35,000 depending on the type of applicant. (The fees are shown on page 4).

If our organization is selected to receive an Award, we agree to share nonproprietary information on our successful performance excellence strategies with other U.S. organizations.

Ethics Statement and Signature of the Highest-Ranking Official

I state and attest that

- (1) I have reviewed the information provided by my organization in this Application Package.
- (2) To the best of my knowledge,
 - no untrue statement of a material fact is contained in this Application Package, and
 - no omission of a material fact that I am legally permitted to disclose and that affects my organization's ethical and legal practices has been made. This includes but is not limited to sanctions and ethical breaches.

Date May 21, 2003

Signature 

- Mr. Mrs. Ms. Dr.

Name Liam A. Berlin

Social Security No. 000-00-0000

Title President

Mailing Address 100 Kitty Hawk Highway

Baton Rouge, Louisiana 70805-3525

Telephone No. 225-888-2003

Fax No. 225-888-2002

Malcolm Baldrige National Quality Award

6. Application Fees (See page 26 for instructions.)

Enclosed is \$ 5000 to cover one application report and 0 supplemental sections.

Make check or money order payable to

The Malcolm Baldrige National Quality Award.

You may also pay by VISA, MasterCard, or American Express. Please indicate method of payment below.

- Check or money order (enclosed)
- VISA MasterCard American Express

Card Number _____

Exp. Date _____

Printed Name _____

Signature _____

Today's Date _____

7. Submission

Complete Award Application Packages must be postmarked or consigned to an overnight delivery service no later than May 29, 2003, for delivery to

Malcolm Baldrige National Quality Award
c/o ASQ—Baldrige Award Administration
600 North Plankinton Avenue
Milwaukee, WI 53203
(414) 298-8789, extension 7205

OMB Clearance #0693-0006
Expiration Date: October 31, 2003

This form may be copied and attached to, or bound with, other application materials.

Glossary of Terms and Abbreviations

APC

Advanced Process Control

BDT

Business Development Team

BP

Best Practices

C&PD

Catalyst and Process Development Group

CAP

Customer Account Plan

CAPP

Corporate Active Prevention Process

CAR

Customer Action Report

CAT

Customer Account Team

CDA

Customer Dissatisfaction Alert

CDP

Cartography Design Process

CEO

Chief Executive Officer

CGC

Committee for Green Chemistry

CHEM-ERS

Chemical Enterprise Resource Software

CMS

Complaint Management System

COP

Community of Practice

Cpk

Process Capability Index

CPRI

Compass Point Research, Incorporated

CSII

Customer Satisfaction Institute Index

CWC

Chemical World Clearinghouse

DART

Days Away, Restricted, or Transferred

D&L

Development and Learning

DCS

Distributed Control System

DLM

Development and Learning Map

EAGLE

Eliminating Accidents Gives Lessons in Excellence

EPA

Environmental Protection Agency

ERT

Emergency Response Team

FDA

Food and Drug Administration

GCC

Gyroscope Constant Calibration

G-ORB

GeoOrb Polymers, North America

GPC

GeoOrb Plastics Corporation

GPS

Gyroscope Planning System

GPS-USA

GeoOrb Plastics Services USA

GSAC

Gyroscope Semi-Annual Calibration

HDPE

High-Density Polyethylene

Hoshin Kanri

Four-step management philosophy, which means in Japanese, “managing with a compass needle pointing the way”

ICS

International Chemical Society

IDL

Individual Development and Learning Map

ISO

International Organization for Standardization

IT

Information Technology

JCGF

Japanese Corporate Governance Forum

Kaizen

Continuous improvement in all aspects of work and life

KAIZEN

Team-based continuous improvement

kaizen

Individual-based continuous improvement

KTBG

Knowledge Transfer and Benchmarking Group

LDNR

Louisiana Department of Natural Resources

LLDPE

Linear Low-Density Polyethylene

MBNQA

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MFI

Melt Flow Index

MI

Melt Index

MID

Ministry of International Development, Japan

Monomer

Small molecule that joins with other similar molecules to make a polymer. Propylene and ethylene, the base monomers for G-ORB, are gases at room temperature. When propylene or ethylene monomers are linked together through polymerization, they form polymers. Polymerization requires high temperatures, pressure, and a catalyst.

MRO

Maintenance, repair, and operational

MSI

Minority Serving Institution

OSHA

Occupational Safety and Health Administration

PAF

Project Analysis Form

PAR

Problem Analysis Report

PBG

Polyolefins Business Group

PDA

Personal Data Assistant

PD&S

Product Development and Service

PEC

Performance Excellence Clearinghouse

PIF

Project Initiation Form

PII

Polymer Industry Institute

Polymer

Very large organic compounds made of repeating units. A tough, flexible plastic material with a wide range of uses.

Polyolefin

Generic term for a family of polymers derived from a group of petroleum-based chemicals called olefins.

PP

Polypropylene

Ppk

Process Performance Index

PST

Production Shift Team

QFD

Quality Function Deployment

R&D

Research and Development

RIA

Recycle Institute of America

RITP

Research Institution for the Planet

ROCE

Return on Capital Employed

RONA

Return on Net Assets

SARA

Superfund Amendment and Reauthorization Act

SH&E

Safety, Health, and Environmental

SIS

Safety Improvement Sheet

SPC

Statistical Process Control

SWOT

Strengths, Weaknesses, Opportunities, and Threats

TCIR

Total Case Incidence Rate

TDLM

Team Development and Learning Map

TQM

Total Quality Management

VP

Vice President

Organizational Profile

P.1 Organizational Description

GeoOrb Polymers, North America (G-ORB), located in Baton Rouge, Louisiana, is a manufacturer of high-density polyethylene (HDPE), linear low-density polyethylene (LLDPE), and polypropylene (PP) plastic raw materials, serving primarily a North American market. G-ORB provides high-quality polymers *that make customers more competitive*. The company is devoted to serving its customers, expanding its knowledge of polymers, and contributing to its local and global community. G-ORB values its associates and believes that successful people create successful organizations. The company is committed to designing and deploying efficient, world-class business practices, enabling it to be a low-cost producer, which is essential for performing well in its industry. G-ORB's single site is one of the largest manufacturing facilities of its kind in North America.

G-ORB began operations in 1957 as a division of Calmay Chemicals. In 1995, GeoOrb Plastics Corporation (GPC), a worldwide, \$8 billion chemical company traded on the Tokyo Stock Exchange, acquired and upgraded the facility. GPC is an 80-year-old organization comprising three worldwide Business Groups—Polyolefins (50% of revenues), EPDM (Ethylene-Propylene Rubber) (25% of revenues), and Fabrication (25% of revenues)—with manufacturing sites in Singapore, China, Saudi Arabia, Japan, and the United States. GPC also has a Corporate Services operation that provides shared services globally to the three Business Groups by region.

G-ORB is a member of the Polyolefins Business Group, which recommends strategies to the corporation's Management Committee for worldwide growth, structure, technology, and development. Additionally, the Business Group leverages synergies for its markets and customers and has established mature knowledge communities, called Communities of Practice (COPs), to speed technology and operational enhancements. The Polyolefins Business Group provides strategic direction to the segment business units within its group, including G-ORB.

Corporate Services is responsible for providing effective and low-cost shared services to the three GPC Business Groups and 17 manufacturing sites in the areas of finance, marketing and sales, purchasing, computing support, logistics, legal, safety, health, and environmental, as well as human resources. Additionally, it provides guidance on the corporation's standards and reporting requirements. GeoOrb Plastics Services USA (GPS-USA) is the regional unit providing shared services support for all U.S. operations, including G-ORB, and is the major interface with a joint venture and the U.S. government.

Liam Berlin, G-ORB President, reports to Jason Fujimo, President of the Polyolefins Business Group. With Fujimo,

Berlin and his Polyolefin Business Group counterparts make up the Polyolefins Group Executive Council. Berlin is also a member of the GPS-USA board.

G-ORB manufactures and markets HDPE, LLDPE, and PP plastic raw materials for a select number of customers whose businesses require high-quality and newly emerging plastic raw materials for the expanding polymers market. Net sales were \$1.97 billion (34% HDPE, 30% LLDPE, and 36% PP) in 2001 and were \$2.5 billion in 2002. Annual current capacity for each product line is approximately 2.25 billion pounds.

Values and Mission

Operating within an industry with much larger, integrated oil and chemical companies, G-ORB must differentiate itself to be competitive. GPC's Vision is "skilled associates developing and delivering plastics for a healthy planet." It also has three guiding Principles: *Support Communities, Achieve Highest Ethical Standards, and Invest in a Future Society*. The Vision and Principles serve as the foundation for G-ORB's Mission, Values, and Strategic Goal. The integrated framework of these elements, shown in Figure 1.1-1, provides the organizational focus for all G-ORB associates.

Employees

In the spirit of teamwork, G-ORB calls all its employees "associates," regardless of their positions or levels. G-ORB employs 978 full-time associates in a nonunion environment. G-ORB's workforce reflects the diversity of the greater Baton Rouge community. G-ORB supplements its workforce with 300 full-time contract associates, primarily in maintenance functions. Contractors are common within the chemical industry. Contract associates, like their G-ORB counterparts, are offered operational and safety training and participation in preventive programs. All associates (G-ORB and contractor) are included in G-ORB's productivity base and tracking of safety performance. Manufacturing and Quality Control (QC) associates (about 50% of G-ORB's associates) work a rotating, 12-hour shift.

A major advantage for G-ORB is the education level and experience of its associates. All G-ORB associates have a high school education, 12% hold associate's degrees, 31% have undergraduate degrees, and 15% have advanced degrees. Forty percent of associates have more than 20 years with G-ORB. The nature of the chemical business and sophistication of G-ORB operations require significant technical competencies and experience. Shift operators, engineers, and field sales associates are just a few of the job classifications.

Major Technologies, Equipment, and Facilities

G-ORB's Mission to provide high-quality polymers to make customers more competitive drives G-ORB's technology capabilities. G-ORB must produce high-quality raw materials that customers demand and build new capabilities (polymer

ranges and grades) that allow movement into new niche product areas (e.g., aseptic packaging, electronics, and medical applications).

Three kinds of technologies are important to the vitality of G-ORB's business: polyolefin process technology and equipment, catalyst technology, and computer technology. Continued improvement in polyolefin processes and catalyst technologies allows for the production of broad ranges of products and grades that increase the utility of G-ORB polymers in the marketplace. An on-site Technology Center permits 100 resident engineers, chemists, and technicians to develop critical technologies, as well as links G-ORB to sister GPC technology labs and external technology partners.

Polyolefin Process Technology and Equipment—All of G-ORB processes (HDPE, LLDPE, and PP) are continuous. Each includes chemical (reactor) and finishing (extrusion) steps. In the HDPE and LLDPE units, a gas-phase fluid bed process allows G-ORB to alternate LLDPE and HDPE capacity to meet changing market demands. In PP, G-ORB uses a gas-phase process employing a super high-yield catalyst. Currently, nine (three for HDPE, three for LLDPE, and three for PP) production lines, commonly called “trains,” operate at the Baton Rouge facility.

Catalyst Technology—New metallocene and emerging catalysts allow precise control of molecular properties, enabling products to be tailored specifically to match desired performance.

Computer Technology—Used in automated operating systems (for control and plant performance information) and development (for modeling and high-throughput experiments), computer technology is also the backbone for speeding technology and operational enhancements across GPC's knowledge communities to drive competitiveness. Recently, GPC has engaged in a joint venture with three other chemical firms and ChemTie, Inc., to establish an e-market for chemical products.

Regulatory Environment

Although G-ORB's products are relatively benign compared to other chemical materials, the company's processes require a high level of diligence and control to ensure the safety of G-ORB's associates and protection of the environment. Mishandling of hazardous materials could lead to severe safety or environmental consequences. The corporation's *Invest in a Future Society* Principle is paramount in all operations.

GPC uses the International Chemical Society (ICS) Corporate Active Prevention Process (CAPP) guidelines for operational and environmental accountability. These guidelines address safely handling products from inception to manufacturing and distribution to ultimate disposal, going above and beyond what is legally required. G-ORB was a charter business partner in the establishment of Louisiana's first Clean Cities program in Baton Rouge, as well as a

sponsor for Louisiana Industries of the Future and Rebuild America.

Many of G-ORB's products must meet Food and Drug Administration (FDA) regulations for food contact use. G-ORB is subject to oversight by the Occupational Safety and Health Administration (OSHA) and the Louisiana Department of Natural Resources (LDNR), and it reports Superfund Amendment and Reauthorization Act (SARA) 313 emissions to the Environmental Protection Agency (EPA). Product liability also is an issue for certain end-use applications, such as automotive fuel tanks.

Organizational Structure and Governance System

GPC's structure and governance system are shown on the GPC organizational chart on page xi. The corporation's Board of Directors (eight external and independent, plus four internal), chaired by Naofumi Sugai, has four standing committees that help ensure the corporation is true to its Principle, *Achieve Highest Ethical Standards*. GPC's Management Committee, chaired by Ukye Mori, ensures that the business is strategically positioned to serve its stakeholders through the three Business Groups and Corporate Services. The Management Committee's four standing committees (Ethics; Safety, Health, and Environmental [SH&E]; Human Resources; and Strategic Materials) and Corporate Services provide strong guidance to the Business Groups and their operating units, including G-ORB, on the corporation's Standards of Practices.

Customers and Markets

G-ORB's sales are primarily to the domestic U.S. market (75% of sales), with the remainder to Canada, Mexico, and the Caribbean (15% of sales) and to South America (10% of sales).

G-ORB produces plastic raw materials—polymers—that are, in turn, processed into finished products by customers. G-ORB makes no consumer products, but its materials are used in the following markets: packaging (60% of sales), construction (12% of sales), automotive applications, and myriad other consumer and industry applications. Major HDPE markets are food packaging (e.g., milk, juice, and water containers), household chemical containers (e.g., for detergents and shampoos), and pipe and telecommunications conduits. Ultrahigh molecular weight polyethylene is used to make fibers that are so strong they have replaced Kevlar for use in bulletproof vests. LLDPE major markets include rotational molding (e.g., for toys, tanks, and municipal trash containers) and plastic film. PP markets include compounding, fibers, automotive parts, and injection molding.

Customers are primarily repeat buyers. Large customers (25% of sales) purchase about 100 million pounds per year, medium customers (50% of sales) purchase 25–35 million pounds per year, and small customers (25% of sales) purchase about 10 million pounds per year. Customers buy in increments of 1–10 rail cars weekly, making continuous sales

and service contact vital. It is a common practice in the industry to sell products through distributors. G-ORB has five distributors that account for about 2% of total sales, most to very small accounts.

Field and Technology Center associates are in close contact with customer product development leaders, the Polyolefins Business Group, and GPC Research and Development (R&D) so that early opportunities in technology quickly can be matched to potential new or niche products that could expand customers' product offerings.

Key customer requirements have been identified through G-ORB's customer surveys and interviews, validated by third-party surveys, and verified by several external studies of this or similar commodity businesses. Of more than 40 defined attributes, all customers have identified three critical quality and service requirements:

- *Product quality*—having properties both to process well and to make a finished part that will perform through its useful product life. Examples of the latter include tensile strength and impact resistance.
- *Product consistency*—minimum variation in processing characteristics, both within a specific batch (lot) of materials and over time across lots. A measure of viscosity (called Melt Index [MI] for HDPE and LLDPE and Melt Flow Index [MFI] for PP) is commonly used to quantify this property.
- *On-time product delivery*—a key customer satisfaction requirement. Therefore, logistics (the delivery of G-ORB products to customer sites) is a key business process. A single site provides a logistics advantage: one location from which to coordinate delivery processes and modes (e.g., rail cars, trucks, and ships).

For a segment of G-ORB's customers, another key requirement concerns new properties—having the earliest possible access to specialty polymers that enable the development and commercialization of cutting-edge plastic products.

Fair and flexible pricing at the prevailing competitive market level also is a key concern, ranking slightly lower than the above attributes. The industry is highly price competitive. Since polymer resins may account for more than 50 percent of a processor's total cost and prices fluctuate frequently, some customers change suppliers for a marginal price advantage. Many buy from more than one company, selecting a primary supplier along with one or more "backups."

Customers consistently rank these as the most important product and service attributes. However, their relative importance may vary at times (for example, in a period of high demand, on-time delivery becomes the most important attribute for many customers) and with different customer groups. (For example, customers who value relationship over price place significantly greater importance on product consistency and new properties.) Given these key drivers, G-ORB's

strategy is to select customers and markets where it can excel in product and service performance. G-ORB delivers value to these selected customers by providing the potential for new materials, reliable products and delivery, and hassle-free basic services. These factors help differentiate G-ORB from its competitors. In many cases, this allows G-ORB to obtain a higher price for its materials.

Supplier Relationships

G-ORB's supplier base numbers about 500. Of these, 60 supply critical raw materials or services. Suppliers fall into six categories (listed in descending order of importance), and each plays a role in one or more of the G-ORB value creation processes outlined in Figure 6.1-1:

- *Ethylene and propylene monomer suppliers*: Changes in monomer pricing have significant impact on G-ORB's product-selling price. Some of G-ORB's monomer suppliers also compete in the polymer business. G-ORB manages this situation by a "portfolio" approach to monomer purchasing—70% is supplied through a joint venture with JMK Chemical Industries and 30% through merchant suppliers. With the merchant suppliers, G-ORB uses staggered, long-term contractual arrangements, as well as innovative, formula-driven margin and/or cost-sharing partnerships. Monomer suppliers are a focus of G-ORB's Raw Material Procurement Process and Supplier Partnering Process.
- *Contractors* (maintenance, engineering, etc.): G-ORB has established long-term relationships with these companies based on compatible cultures. Contractors work side by side with G-ORB associates and actively participate in solving problems and improving operations. Contractors play a highly participative role in G-ORB's Reactor Operations, Supplier Partnering, and Safety, Health, and Environmental Management processes.
- *Logistics suppliers* (rail, ship, and truck transporters; terminals; and warehouses): G-ORB has developed partnerships with key suppliers in this area. For example, G-ORB manages all trucking business through a single supplier who has an associate at the Baton Rouge site to support logistics requirements. G-ORB's Transportation Procurement Process and Supplier Partnering Process maintain a focus on on-time delivery.
- *Catalyst and additive suppliers*: Although these suppliers also sell to its competitors, G-ORB has developed close, mutually beneficial relationships with several companies. These suppliers play a key partnering role in G-ORB's Catalyst and Additives Development Process and Product/Process Development Process. Additive suppliers also are a key focus of the Raw Material Procurement Process.
- *Maintenance, repair, and operational (MRO) material suppliers*: Again, G-ORB has developed mutually beneficial relationships with several suppliers who provide ongoing

services and self-stocking, on-site stores for MRO materials. These suppliers are collaborators in G-ORB's Supplier Partnering Process.

- *Internal staff services:* Liam Berlin, as a member of the GPS-USA board, works closely with his U.S.-based manufacturing counterparts and the GPS-USA service group to build strong internal supplier systems. These systems and the strong communications across plants ensure that internal services are provided on a basis that is competitive with outside vendors. GPS-USA is a key partner in G-ORB's Computer System Development; Knowledge Management; and Safety, Health, and Environmental Management value creation processes.

G-ORB has established clear supplier interfaces (Supplier Scan Teams) and multiple communication pathways within its planning and review processes to ensure that its supplier requirements—quality, cost, and on-time delivery—are well articulated and met. The establishment and maintenance of effective partnerships are a vital strength for G-ORB and GPC. G-ORB cultivates solid alliances, partnerships, and joint ventures with academia, governments, research organizations, and industry colleagues to leverage quick application of new science and technology.

P.2 Organizational Challenges

G-ORB's HDPE capacity share is about 14.8% of the total North American market, placing G-ORB behind AustinFuller Chemical and EstesMarlowe Chemical in the domestic market share. In LLDPE, G-ORB enjoys the dominant domestic market share position of 16.4%. For PP, G-ORB has 11.7% of industry capacity, placing G-ORB third among domestic producers (behind AustinFuller Chemical and Sego Chemical). Within GPC, G-ORB is the largest single-site facility and contributes 60% of the company's HDPE capacity, 40% of its LLDPE capacity, and 50% of its PP capacity.

Overall, annual worldwide growth for HDPE and LLDPE is 4–5% while growth for PP is 7–8%. G-ORB projects that its growth in HDPE, the most mature product line, will mirror industry growth rates, while LLDPE and PP will grow 1–2% above the industry average. Across the polyolefin's industry, growth in mature markets (United States, Japan, and Europe) hinges on producing high-value products with high-margin properties, while penetration of emerging markets (in developing countries) depends on low-cost commodity grades. For G-ORB, growth will be driven by increased margins and lowered cost rather than expanded capacity. Increased margins will be achieved by selectively upgrading product mix and customer base.

G-ORB's competitive competencies are as follows:

- *Single-site production facility* offering large economies of scale and an advantageous, fixed-cost position.

- *Multiple liaisons with R&D partners* (available in Japan through the Japanese Ministry of International Development [MID] and other government agencies and in the United States through national laboratories, academia, and industry consortia), enabling G-ORB to conduct R&D at the on-site Technology Center, while leveraging and rapidly applying science and technology developments from multiple sources.
- *Closely integrated customer relationships*, ensuring intimate knowledge of customers' particular processes and their emerging product development needs so that G-ORB can produce a slate of polymer ranges and grades that anticipate customer demand.
- *World-class business practices* speedily deployed across the Polyolefins Business Group to drive the elimination of waste, enable a low-cost position, and accelerate responsive polymer enhancements.

Within the chemical industry, competitive comparative data are available to G-ORB through subscriptions to the Chemical World Clearinghouse (CWC) and the Polymer Industry Institute (PII). Customer and market comparative data are available through G-ORB's Compass Point Research, Incorporated (CPRI) Survey and the Customer Satisfaction Institute. G-ORB obtains comparative data from outside the chemical industry through its membership in the Performance Excellence Clearinghouse (PEC) (i.e., data for knowledge management, customer relations, and human resources). It obtains public domain data through OSHA, the National Bureau of Labor and Statistics, LDNR, and the Recycle Institute of America (RIA), as well as through ICS's CAPP Program. Within G-ORB, the Stretch Team (Figure 1.1-3) has the responsibility to ensure that comparisons and benchmarks are embedded in the Gyroscope Semi-Annual Calibration (GSAC) Process. Currently, comparative data focusing on governance issues are difficult to acquire. However, G-ORB tracks several organizational performance indicators related to governance and is actively seeking external comparison data in this area.

G-ORB's competitive competencies, forged together, form the basis of a unique position for G-ORB in a highly competitive industry. The following are key threats and issues within this industry.

- *Profitability in a cyclical business*—The industry downturn of the mid-1990s to early 2000 highlighted the need for the organization to be a low-cost producer and to differentiate itself. Many competitors consolidated or restructured to concentrate on their core businesses. The need to successfully manage the cyclicity of profits in a capital-intensive industry to ensure long-term viability is reflected in G-ORB's Strategic Goal of making more than 10% Return on Capital Employed (ROCE). In good times, profitability for all competitors is high. However, at the bottom of the business cycle (e.g., 1998), most producers

have difficulty maintaining break-even performance. In a capital-intensive industry, the long-term trend for ROCE is a better indicator than annual profits in any year.

- *Plastics of the future*—As more alliances of various sorts take place among producers, G-ORB must continue to be on the leading edge of leveraging and accelerating entry into the plastics of the future by replacing current materials (e.g., metals, wood, glass, and ceramics) and developing new materials that are the enablers of future technology. This quest includes identifying and building customer relationships in less cyclical markets.
- *Maturing workforce*—Although G-ORB has developed world-class practices across business processes, the retirement of a large percentage of experienced associates over the next five years will create a challenge to sustain key relationships and knowledge. This challenge is exacerbated by the current preference by new technology talent for careers in less traditional industries.
- *Worldwide GPC expansion*—In the 2002 Global Scan, the Polyolefins Business Group challenged G-ORB with new goals: to expand G-ORB’s exports from the United States to Canada, Mexico, and South America and to expand polyolefins sales to existing G-ORB customers with facilities outside the Americas. Additionally, G-ORB helps sister plants in other regions sell to their customers in the United States.

Calmay Chemicals, like many companies in the chemical business with automotive customers, was introduced to Total Quality Management (TQM) by Fife’s Quality #1 supplier requirements in the early ’80s. At first, Calmay merely complied with its key customer’s requirements and then learned that customer satisfaction, process management, data-driven strategy, and associate involvement were simply good for business. With the acquisition of the Baton Rouge facility by GPC, an infusion of Japanese quality know-how, discipline, and conviction was combined with resident experience and dedication to excellence in the newly formed G-ORB. The acquisition has provided a real-world need to merge Japanese-based norms with U.S. performance excellence practices.

With over a decade invested in its quality journey, G-ORB has successfully advanced to integrated, cross-functional teams, as well as worldwide networks and communities of practice. G-ORB associates are the key to demonstrating world-class business processes and continuous improvement. Hoshin Kanri provides the foundation for business planning while promoting associate accountability. Associates are supported by clear value-driven goals; readily accessible performance information; and timely, requisite tools and skills (Kaizen Improvement Process, Figure P.2-1). Senior leaders serve as role models in their personal involvement in continuous improvement efforts. In

addition, they ensure a balanced focus on values that represent all of G-ORB’s stakeholders.

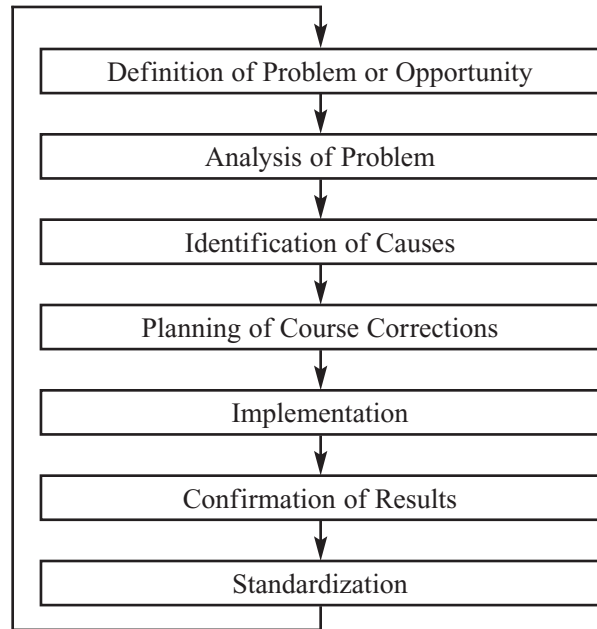


Figure P.2-1 Kaizen Improvement Process

Knowledge sharing across the worldwide network of Business Groups, plants, and Corporate Services is a significant challenge. This organizational learning challenge is being met by expanding associates’ access to the corporation’s knowledge base. Through rotation of associates and electronic support, improvements are quickly identified and transferred within G-ORB and across Business Groups and geographies. Several new products were the result of collaborative efforts across technology laboratories, and an impressive number of technology and practice exchanges have helped reduce costs.

Since 1997, G-ORB has annually conducted an internal, Baldrige-based self-assessment that aids in identifying strengths to sustain and areas in which to improve and innovate. Self-assessments involve the direct participation of associates in Category teams that rotate annually to expand cross-site learning. Senior management and all levels of teams use the findings of this process to ensure that G-ORB systematically evaluates and improves its performance excellence processes and systems. G-ORB is supported by its parent company in the pursuit of excellence. GPC has applied for several prestigious Japanese quality awards and in 1999 was one of the first applicants for the Sun Quality Award (Baldrige-based). Business leaders across GPC, the Polyolefins Business Group, and G-ORB believe they are the architects of success and that unswerving attention to customers, processes, and people is the key component of sustained business results.

1 Leadership

1.1 Organizational Leadership

1.1a Senior Leadership Direction

1.1a(1) GeoOrb Plastics Corporation (GPC) uses Hoshin Kanri as the key method for leaders across the corporation to set long- (five-year) and short-term (one-year) business strategies that support GPC's key principles and policies, as well as position GPC worldwide to delight customers and lead competitively in the plastics industry. GeoOrb Polymers, North America (G-ORB) uses the Hoshin process in its Gyroscope Planning System (GPS) (Figure 2.1-1) to align the company and to involve senior management, departments, and associates from top to bottom in setting key targets and means for realizing business objectives. The Gyroscope Semi-Annual Calibration (GSAC) Process uses external and internal inputs and data analysis to establish, monitor, and revise G-ORB's direction and resource allocation to support corporate and Business Group strategies. Hoshin Catchball is a two-way communication process that engages managers and associates in determining target levels and action plans and is central to the GPS. G-ORB believes that successful organizations are created by knowledgeable associates working toward clear, jointly developed goals, focused on the requirements of its key stakeholder groups (Customers, Partners, Communities, Shareholders, and Associates).

Hoshin planning begins with the GPC Vision and Principles from which G-ORB has articulated its Mission, Goal, Values, and key stakeholders (Figure 1.1-1). Initially established in 1996, these key organizational building blocks are revisited at the start of the GSAC Process. They are the underpinnings of decisions made by the President, teams, and shift operators; they are proudly displayed throughout the Baton Rouge site on banners and posters; they are shared with all new associates; and they are what G-ORB strives to be. Liam Berlin, G-ORB President, and his direct reports compose the G-ORB Steering Team, whose key responsibilities are to lead and direct the development of the Strategy Map, to periodically review and guide performance achievement, and to ensure multidirectional communication about targets, means, and outcomes. The Steering Team is central to integrating the company's Values and Principles into all operations. The Steering Team reviews and adapts GPC-level values and directions, as well as those jointly developed by the Polyolefins Business Group Executive Council and GeoOrb Plastics Services USA (GPS-USA), in establishing G-ORB's long- and short-term objectives. Liam Berlin is a member of both the Polyolefins Business Group Executive Council and the GPS-USA Board of Directors. Iterative Catchball dialogues across GPC and within G-ORB's departments and work units are vital to shaping objectives and plans. This planning dialogue is the key deployment mechanism for focusing G-ORB's associates on company directions

and performance expectations. Other communications mechanisms (the *Compass* newsletter, Gyroscope meetings, unit review meetings, recognition events, the Web page, and closed-circuit television) share progress, achievements, and recognition.

In May and November, after Catchball iterations are complete, the G-ORB Strategy Map is communicated to all departments by the Steering Team and unit management in department-specific Gyroscope meetings. Departmental actions and associates' next steps are identified. The Steering Team then meets monthly to review progress to plan via the Navigation Reviews. Periodic reviews (Figure 1.1-2) provide tracking and focus at various levels within the company. Individual leaders are held accountable for achieving their goals, and overall site performance is the basis for formulating the variable component (20%) of compensation for all associates.

Following the Baton Rouge site acquisition, all G-ORB associates attended G-ORB Directions I Training—with modules on Hoshin Planning, Kaizen Concepts and Tools, Customer Interactions, Team Formation, and U.S./Japanese Cultural Awareness. This training embedded the Kaizen Improvement Process (Figure P.2-1) into G-ORB's way of doing business. Directions I is a modified version of the corporate TQM training deployed worldwide across GPC. Common tools, approaches, and language from the training facilitates partnering within the Baton Rouge site while providing a foundation for communicating with GPC colleagues at Polyolefins Business Group sister plants across the globe. Directions I Training and Liam Berlin's Welcome Lunch are cornerstones of new associate orientation and assimilation (Item 5.2). Both the training and the lunch anchor new associates in the business and G-ORB Values and encourage contributions from these new associates.

Directions II Training, introduced in 1999, is a refresher course for experienced associates with an additional module on Fast Knowledge Exchange and Communities of Practice (COPs). These modules are delivered across the Polyolefins Business Group to speed best practices and technology exchange among the group's seven geographically dispersed plants. Directions Training is taught by the Steering Team and G-ORB managers.

In designing the GPS, the Steering Team ensured that all stakeholders and their needs are directly assessed within the GSAC Process and the Global Scan (Item 2.1). Steering Team members lead sponsor teams (see Figure 1.1-3) that are process owners for value creation processes (Figure 6.1-1). G-ORB's Values, reflecting key relationships with each stakeholder group, provide the foundation for a balanced set of strategies and scorecard metrics

GeoOrb Plastics Corporation's Vision
Skilled Associates Developing and Delivering Plastics for a Healthy Planet

Principles

Support Communities

Strive to enrich society; without vital communities, there is no corporate vitality.

Achieve Highest Ethical Standards

Conduct all business with transparency and openness, acting with integrity, fairness, and responsibility.

Invest in a Future Society

Materially and spiritually contribute toward the enhancement of the global environment.

Customers Partners Shareholders Associates Communities

G-ORB's Values

Growth Through Partnerships

Develop strong alliances with customers. Shape their competitiveness through innovative specialty and new niche products.

Right Technology

Create advantages for customers. Collaborate for innovation in products and processes. Share knowledge across the corporation.

Right Cost

Deliver excellent products through efficient, low-cost operation, best practices, and synergy across the Polyolefins Business Group.

Right Environment

Protect the environment. Be an exemplary corporate citizen.
 Make plastics a contributor to good living.

Successful Associates/Successful Teams

Foster an environment where associates are the foundation for good performance and cultural differences are leveraged for business advantage.

G-ORB's Mission

Provide high-quality polymers that make customers more competitive and provide value to shareholders.

G-ORB's Goal

In a highly cyclical industry, make more than a 10% Return on Capital Employed (ROCE).

Figure 1.1-1 G-ORB's Integrated Framework

(Figures 2.1-3 and 2.2-1). Because G-ORB is highly reliant on technology partners, the Right Technology Team, in conjunction with the Polyolefins Business Group Technology Council, has the responsibility to ensure that these key partners are involved in providing technology inputs to the Calibration Process and Global Scan and are aligned with G-ORB's directions (Area 6.1a[3]).

Cross-functional teams (e.g., Business Development Teams, Customer Account Teams) provide forums for defining and addressing the needs of customers. G-ORB's commitment to following regulations is reinforced daily through its environmental activities and implementation of ISO 14000. Personally, Liam Berlin and the Steering Team

demonstrate a stakeholder balance through their customer visits (five per month), partnerships with academia and industrial consortia, participation on GPC councils and committees, leadership in the Baton Rouge and polymer communities, and commitment to devote three hours a week to face-to-face interaction with associates (e.g., walkabouts, teaching, communication sessions, luncheons, and recognition events). Each Steering Team member serves as a single point of contact with an external technology partner with which the company leverages polymer development as well as environmental innovation.

1.1a(2) Creating an organization where all associates feel they are directly contributing and are empowered to shape

their performance is the ultimate challenge for senior leadership. The Steering Team has deployed a performance process that involves associates in planning their work (Hoshin planning), in making collaborative improvements to their work processes (by providing teams with information and Kaizen tools), and in enhancing their skills and competencies (Development and Learning Maps—Item 5.2). G-ORB fosters an environment where learning is respected and reinforced through skills training, skill-based rewards, cross-site networks, and COPs.

Associates participate in setting the expectations for their performance through the GPS, which provides clear direction on how they contribute to G-ORB's success. These expectations are captured in the Team and Individual Development and Learning Maps to ensure acquisition of the necessary skills for performance. Monetary compensation (raises and incentive pay) is based on performance and skill acquisition. Item 5.2 describes the training and educational opportunities available to G-ORB associates.

G-ORB has a team-based culture. At the work unit level, team members set semi-annual performance targets and

mutually agree upon means for their achievement. Teams plan their work, analyze their unit performance data, and use information and quality tools (the Kaizen Improvement Process) to drive continuous improvement on the plant floor as well as in support functions. G-ORB uses cross-functional and cross-product teams to integrate data and analysis for strategic planning and reviews. These teams also address problems and improvements requiring the knowledge and cooperation of multiple groups representing designated markets and customers, operating processes, or site locations. All G-ORB associates are on at least one team: a work unit performance team, a study team, an improvement project team, a product development team, an innovation team, or a diagonal slice voluntary team (Figure 1.1-3). The Team Formation module of the Directions I training provides associates with basic skills on being an effective team member, including feedback on personal preferences and style. The Kaizen Quality Tools module provides aids for identifying and solving problems. Teams provide a collaborative structure for identifying problems and developing new approaches and innovative solutions. G-ORB depends on ideas and actions where expertise lies—in teams and individuals.

Frequency	Review Name	Indicators and Information Reviewed	Participants	Review Owner
Daily	Daily Operations	Real-time performance indicators: product consistency, on-time delivery, capacity, energy consumption, complaints	Work unit associates	Work unit managers, work teams
Weekly	Manufacturing Performance	Course Coordinates: product consistency, capacity, energy consumption	Optimal Team	VP Manufacturing
Weekly	Supplier Performance	On-time product delivery, raw material acceptance	Supplier Scan Team	VP Strategic Procurement
Weekly	Business Development Review	Customer Course Coordinates: customer account information, complaints, retention	Business Development Teams	VP Marketing
Monthly	Navigation Review	Performance to plan: all Course Coordinates (customers, operations, technology, human resources, SH&E, financial, IT)	Steering Team	President
Monthly	Navigation Review	Performance to plan: work unit Course Coordinates	Work unit associates	Work unit managers
Monthly	Navigation Review	Performance to plan: all Course Coordinates	Polyolefins Business Group	President
As scheduled	Cartography Design Reviews	Technology/product development programs to milestones and gate criteria. Decision to proceed to next stage.	Business Development Teams	VP Technology Center
Semi-annually	Gyroscope Semi-Annual Calibration (GSAC)	Performance to plan: Course Coordinates Revised Strategy Map, Course Corrections	Steering, Stretch, Customer Check, and Optimal Teams, PBG President	Planning and Analysis Manager
Annually	Management Review	ISO 9001:2000 Quality System	Steering Team, ISO Coords.	VP Total Quality
Annually	GPC CEO Visit	G-ORB performance to plan Key improvement factors	G-ORB site	President

Figure 1.1-2 Examples of G-ORB's Performance Reviews

Organizational learning is key to G-ORB's agility. G-ORB must learn faster than the competition about the needs of customers, speedily transfer world-class business practices, and quickly leverage and apply science and technology. Associates must be skilled and confident in their abilities. G-ORB provides associates with skills training, easy access to information and analysis, and connectivity around the GPC globe to knowledge resources through a growing, interactive network of cross-location COPs.

Relationships are essential to business success for companies and individuals. Therefore, G-ORB is diligent in its commitment to conduct all its activities in a legal and an ethical manner. The three GPC Principles (including *Achieve Highest Ethical Standards: Conduct all business with transparency and openness, acting with integrity, fairness, and responsibility*) appear on banners throughout the Baton Rouge site. Also, they are incorporated into the G-ORB logo on all Web sites and printed documents. Steering Team members discuss the Principles in associate meetings and walk the talk in day-to-day interactions with associates, customers, partners, and community contacts. Area 1.2b outlines systematic processes that reinforce an environment of trust and integrity.

1.1b Organizational Governance

As a unit within the Polyolefins Business Group (see the Organizational Charts on pages x and xi), G-ORB's governance structure is provided primarily by the parent organization in Japan. Recently, GPC reconfigured its Board of Directors and governance structures to better ensure transparency and openness. In 1999, GPC was one of the first Japanese companies to reconstitute its governance system in line with the revised Corporate Governance Principles issued by the Japanese Corporate Governance Forum (JCGF). These principles include clarity of the board's purpose (supervise the management of the company), organization, membership (external, independent directors), and establishment and composition of committees. The GPC Board of Directors now is composed of eight external, independent directors and four internal directors. Prominent within the board committees is the Audit Committee, staffed by external directors and focused on the corporation's unwavering commitment to comply with securities regulations in countries where it operates and to conduct business with integrity toward all stakeholders.

The Ethics Committee, a standing committee of the Management Committee (with internal management led by the CEO), ensures that GPC's standards of practice and behavior are exemplary. With Corporate Services, the Ethics Committee documents key practices and behaviors in a handbook for employees, the GPC *Code of Conduct*, which is updated annually. This committee reviews all external and internal audit results, as well as ensures 100% operating unit compliance of new and experienced employees on the GPC *Code of Conduct*.

Within the United States, external audits are conducted quarterly and annually by the Kennet-Blates accounting firm. All external audits have received unqualified signatures since GPC's entrance into the United States in 1991. Internal audits are conducted biannually by an audit team from GPS-USA with a Kennet-Blates auditor to rate operating unit adherence to Basic Standards of Controls (industrywide factors), including inventories, documentation for accounting entries, transaction entries, and delegation of authority guidelines. Findings from these internal audits are reported directly to the board's Audit Committee. Ratings are Good, Satisfactory, Unsatisfactory, and Unacceptable. G-ORB has received Good or Satisfactory ratings since 1995.

Managers are accountable for regulatory compliance and performance on internal and external audits. An Unacceptable rating on an internal audit or a qualified signature on an external audit is grounds for severe disciplinary action, including dismissal. G-ORB believes that stakeholder interests are protected by GPC governance practices, including independent board members, audits, the audit reporting structure, and strong enforcement of the GPC *Code of Conduct*.

1.1c Organizational Performance Review

1.1c(1, 3) The Steering Team meets weekly to review and discuss G-ORB's capabilities and performance. Each meeting is convened around one of four topic areas: (1) Successful Associates/Successful Teams (where associate-related activities and competencies are discussed), (2) Right Technology (where supplier and technology partner capabilities, as well as development projects, are discussed), (3) Right Environment (where SH&E capabilities and community relations are discussed), and (4) Navigation Reviews (where progress to the Strategy Map is discussed). Figure 1.1-2 shows the role the Steering Team plays in reviewing and guiding performance achievement. Navigation Review meetings focus on company-level measures and Course Coordinates (Figure 2.2-1), as well as lower-level measures that link to these Course Coordinates.

At the monthly Navigation Reviews, the Steering Team determines if the means initially defined in the Strategy Map are sufficient or if Course Corrections are needed. When reviews indicate that a target is at risk, the Steering Team charts KAIZEN Improvement Project Teams. These KAIZEN Teams define Course Corrections that may require additional resources, a high degree of innovation, and Steering Team attention or involvement. When at-risk targets are at the department/team level, Course Corrections are directed at that level. When sitewide performance targets are at risk, all contributing units are involved in establishing Course Corrections led by a Steering Team member. KAIZEN Improvement Project Teams involve suppliers and partners when their performance is a contributing factor. The GSAC Process determines if objectives and their respective target times are still valid and, if necessary,

Teams	Participants	Function
Steering Team Liam Berlin, Leader	President and seven VPs	Guide strategic direction, stakeholder relations, performance reviews, and organization-wide communication
Stretch Team Gene Sawyer, Leader	Representatives of Manufacturing, Marketing, Technology, HR, Finance, Procurement, Quality	Sponsor of Strategic Planning, Benchmarking, External Partnering Processes
Customer Check Team Eldon Kaldor, Leader	Cross Industry and Technology Product Development and Service (HDPE, LLDPE, PP)	Check customer expectations and requirements, perceptions, satisfaction, and future demands; Customer Satisfaction Process sponsor
Optimal Team Arato Yano, Leader	Cross Product Team (HDPE, LLDPE, PP)	Monitor internal operations performance by product line; Reactor Operations Process sponsor
Performance Team Jenn Austen, Leader	Representatives of Manufacturing, Marketing, Technology, Human Resources, Finance, and Quality	Evaluate strategic HR directions/plans; owner of recognition/reward systems, suggestion system, compensation comparisons, DLMs, and analysis and action on HR data
Supplier Scan Team Takoa Tsukiyama, Leader	Representatives of Procurement, Purchasing, and Logistics	Monitor supplier partnering, performance, and measurement; interface between GPS-USA and joint venture; sponsor of Transportation Procurement and Supplier Partnering Processes
Right Technology Team Michael Touvelle, Leader	Representatives of Technology, Product Development and Service	Maintain strong relations with technology partnering groups and institutions; sponsor internal innovation/breakthrough sessions; extract leads from customer data
Quality in Practice Team Tom Wharton, Leader	Plantwide diagonal slice team of volunteers	Identify and deploy best practices; establish and grow COPs; Knowledge Management Process sponsor
Right Environment Team Ken Royama, Leader	Plantwide diagonal slice team of volunteers	Promote SH&E prevention and preparedness; promote innovations in waste management, recycling, and energy conservation; Right Environment Process sponsor
EAGLE Teams	Multiple department associate teams	Implement a behavior-based Safety Process with a proactive approach for eliminating accidents
Production Shift Teams	Self-directed operators and contractors	Use data to identify highest-value improvements for profitability (e.g., energy conservation, equipment reliability); maximize shift change efficiency
Business Development Teams (HDPE, LLDPE, PP)	Sales, Product Development and Service, Manufacturing	Key product line customer management teams: target accounts; analyze customer data; design and introduce new products
Customer Account Teams	Direct account dealers, key industry developers	Hold at least one C-level (e.g., CEO, CFO, COO) meeting annually with customers
Baldrige-Based Category Teams	Representatives from all departments on plantwide diagonal slice teams	Conduct a Baldrige self-assessment annually; communicate findings plantwide; G-ORB President is key sponsor
G-ORB Volunteer Clearinghouse Jeanne Mitchell, Leader	Plantwide diagonal slice team of volunteers	Sponsor community events and provide linkage between associates and volunteer opportunities
Process Management Best Practices Rotation Team	Manufacturing and logistics engineers from PBG sister plants on two-month mini-assignment	Identify PBG-wide practices for cross-location transfer; work with plant teams to rapidly transfer practices
Information Technology Team	Representatives of Customer Check, Optimal, Supplier Scan, and Performance Teams and GPS-USA	Ensure data system adequacy; create IT Roadmap charting future direction; Computer System Development Process sponsor
Polyolefins Business Group Technology Council	Representatives from the three Polyolefins technology labs	Monitor new advances in materials, technology, and tools

Figure 1.1-3 Sampling of G-ORB's Teams

reestablishes priorities. All performance review meetings begin with an update on actions defined at the previous session to ensure that those have been completed. The Navigation Reviews provide a forum for cross-organizational dialogue and learning for associates at various levels within G-ORB. The meetings also provide an immediate platform for recognizing performance excellence.

1.1c(2) Key performance measures regularly reviewed by the Steering Team are outlined in Figure 1.1-2, with targets for some of these indicators shown in Figure 2.2-1, the G-ORB Scorecard. In late 2002, Navigation Reviews indicated a changing business environment. The business cycle for the chemical industry is heading downward, with potential negative impacts on G-ORB's business costs and margins. The Optimal Team has begun a KAIZEN Improvement Project to meet the Course Coordinate levels defined in the Strategy Map. These cost pressures also are impacting the execution of Team Development and Learning Maps. The Performance Team has established a KAIZEN Improvement Project with GPS-USA to define Course Corrections for meeting training needs in a cost-constrained environment. The change in the business environment will be a major focus of the upcoming Gyroscope Constant Calibration (GCC) Process.

1.1c(4) Each July the Steering Team holds a one-day Leadership Assessment Session, facilitated by Tom Wharton, Vice President (VP) of Total Quality. The Steering Team evaluates the efficacy of the concluding two performance cycles. Seven standard questions of the assessment shape the Steering Team Leadership Action Plan:

- (1) How well did the GCC Process and Global Scan highlight key stakeholder requirements and needs?
- (2) How well did the cross-functional teams coordinate their efforts at planning and execution?
- (3) How effective was the Steering Team in using Navigation Reviews and external data to reallocate resources to meet targets or redefine priorities to match shifts in the environment?
- (4) In the associate Culture Survey results, which associate perceptions regarding G-ORB's leadership and the site's climate are of concern and require action?
- (5) What are Steering Team members hearing in their associate interactions (three hours per week)?
- (6) What strengths, opportunities for improvement, and key themes emerged from the annual Baldrige self-assessment?
- (7) What are the findings of the internal audit?

The Leadership Action Plan includes system improvements that are fed into the new planning cycle. Individual and Steering Team issues are identified and actions defined in individual performance plans, or Individual Development and Learning Maps (IDLMS), for Steering Team members.

Past assessments have resulted in the creation of the Stretch Team to strengthen comparisons, vital to the GPS. Additionally, in 2000, each Steering Team member made a commitment to meet face-to-face with associates three hours per week.

In addition to the Leadership Assessment, each G-ORB Steering Team member has an annual formal evaluation with Liam Berlin. The IDLM is the foundation of this evaluation, supplemented with leadership performance elements and competencies. Each Steering Team member has a one-on-one discussion with Jason Fujimo, President of the Polyolefins Business Group, during his quarterly visits.

1.2 Social Responsibility

1.2a Responsibilities to the Public

1.2a(1) *Invest in a Future Society: Materially and spiritually contribute toward the enhancement of the global environment.* This GPC Principle underpins G-ORB's dedication to addressing and preventing potentially adverse impacts of its business—operations and products—on society. Safety, health, and environmental (SH&E) performance is integrated into the GPS with Course Coordinates established for Right Environment (Figure 2.2-1) along with other key G-ORB objectives. These targets are tracked and managed within the GPS and Steering Committee Navigation Reviews.

Figure 1.2-1 lists key SH&E requirements, goals, and measures set by regulatory agencies and by G-ORB. In many areas, G-ORB has extended its responsibilities well beyond legal requirements. G-ORB systematically evaluates potential environmental and health impacts in its design and delivery processes (Item 6.1) and develops products and processes that meet Corporate Active Prevention Process (CAPP) guidelines for operational and environmental accountability. These guidelines address safely handling products from inception to disposal. G-ORB was a charter partner in establishing Louisiana's first Clean Cities program in Baton Rouge and in setting goals to meet emission targets well ahead of designated time frames.

Liam Berlin is the senior executive with overall responsibility for SH&E performance. Arata Yano, VP of Manufacturing, and Michael Touvelle, VP of the Technology Center, have major SH&E responsibilities for operations and new product development. Ken Royama shares ownership of CAPP initiatives and has functional responsibility for the plant Safety, Health, and Environmental Department. The 14-step Cartography Design Process (CDP) (Figure 6.1-3) incorporates product environmental and health specifications into new product development. Each year, the Safety Group and the Right Environment Team jointly develop risk management plans and ensure that SH&E plans address all pertinent legal and regulatory requirements.

1.2a(2) The GPS includes the Gyroscope Constant Calibration Process (GCC) and a Polyolefins Business Group Global Scan in which anticipation of stakeholders' environmental and safety needs and requirements is central. During the GCC, G-ORB sponsor teams (Customer Check, Optimal, and Stretch) compile and analyze stakeholder inputs (information from a local community survey and information from customers, suppliers, and regulatory agencies), external research/forecasting sources (including partner affiliations), and joint industry/government/academic studies. These major listening posts for anticipating public concerns provide input to the GPS. Information gathered from direct interaction with local officials and business and community leaders through Clean Cities, Rebuild America, Louisiana Industries of the Future, and Volunteer Baton Rouge also is used.

GPC actively participates in the Biodegradable Plastics Council and is in close collaboration with the Japanese Ministry of International Development (MID) in formulating goals for the Research Institution for the Planet (RITP), the new Japanese national laboratory for the environment. Learnings and guidelines from these efforts (at the forefront of global action) are translated into Basic Standards for GPC operations worldwide. G-ORB participates in numerous industry consortia and measurement efforts to remain at the forefront of best practices within and beyond the chemical industry. It is also a participant on the Committee for Green Chemistry (CGC), which promotes

national and international government-industry-university collaboration in designing chemical products and processes that reduce or eliminate the use and generation of hazardous substances. G-ORB's philosophy, like that of GPC, is that partnering across companies and industries and with academic institutions is the fastest, most economical means for making plastics an environmentally neutral material.

1.2b Ethical Behavior

Integrity in business conduct is the very cornerstone of GPC's and G-ORB's policies. Respect and trust are prerequisites for the solid relationships that permit companies and individuals to succeed. G-ORB ensures ethical behavior through preventive approaches, training, and consistent cultural reinforcement, as well as by tracking incidents and conducting formal biannual audits. All associates are committed to the GPC Principles, including *Achieve Highest Ethical Standards*. Contract associates are subject to the same ethical principles and receive training as well.

New hire orientation includes a module on Partners in Trust, and Steering Team members strongly emphasize this element of the GPC/G-ORB culture. The GPC *Code of Conduct* specifies strict standards of behavior for associates related to the law, conflicts of interest, equity, and fair treatment. The GPC *Code of Conduct* is distributed and discussed annually in every work unit at a Partners in Trust meeting. The GPS-USA legal group prepares vignettes of ethics-related incidents to make the meeting discussion

Environmental Responsibility	Operational Requirement	Measure/Goal	Deployment/Maintenance
Corporate Active Prevention Process (CAPP)	ICS membership requirement	Full implementation (Figure 7.6-4) to 6 codes of standards above industry average (Product Safety, Distribution, Community Awareness/Emergency Response, Associate Health and Safety, Process Safety, Pollution Prevention) Goal: Rating of 6 fully deployed	Right Environment Team
Process Safety Management	OSHA 1910	Goal: Full compliance; no exceedance	Optimal Team
Risk Management/ Risk Communication	EPA regulations	Goal: Full implementation; no exceedance	Optimal Team
Waste Minimization/ Pollution Prevention	LDNR/EPA regulations	Goal: OSHA Star Site—Leadership levels of emission and waste reduction (Figure 7.6-6), recycled materials (Figure 7.6-7), and EPA reportables (Figure 7.6-5)	Right Environment Team
Energy Conservation	Voluntary	Goal: Reduce energy consumption 2% per year	Right Environment Team
Community Recycling Drop-Off Program	Voluntary	Goal: Sponsor a quarterly recycle drop-off event in Greater Baton Rouge	Right Environment Team
Committee for Green Chemistry (CGC) MID-sponsored industry programs in Japan	Voluntary	Goal: Reduce or eliminate generation of hazardous substances in the design of chemical products and processes	VP, Technology Center

Figure 1.2-1 Safety, Health, and Environmental Responsibilities and Measurement

interactive and thought-provoking. This mandatory meeting has 100% attendance, and associate attendance is tracked and reported by departments.

Biannually, internal audits are conducted by an audit team composed of controller specialists from within GPS-USA and an external team member from the Kennet-Blates accounting firm. The audits scrutinize operating unit practices related to controls, customer relations, the environment and safety, conflicts of interest, fair treatment, and equity. Associates know that a violation of ethical standards may result in dismissal.

1.2c Support of Key Communities

G-ORB is proud to be a corporate citizen in Baton Rouge and encourages associates to give back to their local and professional communities. The third GPC Principle is *Support Communities: Strive to enrich society; without vital communities, there is no corporate vitality*. The company demonstrates good corporate citizenship through financial support to many community efforts and, in particular, through its support of volunteerism. All Steering Team members are leaders in community activities (e.g., President of the Greater Baton Rouge United Fund, board member of the Sister of Charity Hospital, Chair of the CGC Research Committee).

G-ORB focuses its financial and corporate sponsorship on programs related to education and public recycling (Figure 1.2-2), two areas closely related to its Values and business success. The Steering Team establishes community focus areas through the GPS and reviews progress and impacts in the monthly Right Environment meetings. For its focus areas, G-ORB provides people and capital resources.

Within the plant, Jeanne Mitchell, Community Relations Manager, and a team of volunteers run a G-ORB Volunteer Clearinghouse to encourage associates to volunteer. The team runs promotional efforts (e.g., cafeteria sign-ups, posters, and Volunteer Vagabond Serenades) and matches associates with a relevant agency/program. The clearinghouse mission is to sustain volunteerism by effectively matching associates' interests and community needs. The G-ORB Volunteer Clearinghouse tracks associates'

Target	Activity
Education Increase interest in math and science in K-12 students Increase interest in business in middle school students Support schools in application of performance excellence principles Provide students real work experience Support academic research	Baton Rouge Science Fair Adopt a High School: Thomas Jefferson Student Reach Junior Achievement Performance excellence advisors Work study programs with Southern Bayou College Grants to academic programs
Public Recycling Promote recycling of plastics and other environmental impact substances Promote public knowledge of recyclable substances	Quarterly mall recycle drop-offs Community relations: visits/presentations
Social Agency Support	United Fund of Greater Baton Rouge
Encourage Volunteerism Encourage associates' volunteerism	G-ORB Volunteer Clearinghouse (Figure 7.6-8) Volunteer Baton Rouge

Figure 1.2-2 Community Targets and Activities

volunteer participation (see Figure 7.6-8). More than 10,190 hours were volunteered in 2002; approximately 35% of these hours were during company time.

In conjunction with the Women's League of Baton Rouge, Liam Berlin and an executive colleague from EstesMarlowe have established Volunteer Baton Rouge, a group that contacts other executives to encourage their participation in the community and then sponsors an annual awards banquet to recognize efforts. The mission of this group is to increase the participation level of local businesses in volunteer activities. In this instance, the Women's League runs the "clearinghouse" function of matching a company's interest and resources to responsive community programs and agencies.

2 Strategic Planning

2.1 Strategy Development

2.1a Strategy Development Process

2.1a(1, 2) In Japanese, Hoshin means "managing with a compass needle pointing the way." G-ORB's Gyroscope Planning System (GPS) (Figure 2.1-1) is modeled on the four-step Hoshin management philosophy—**Step 1: Choose the Focus**, **Step 2: Align the Organization**, **Step 3: Implement the Plan**, and **Step 4: Review and Improve**.

Step 1: Choose the Focus. Strategic planning starts with the GCC. Teams responsible for strategic planning (Figure 2.1-2) follow the same process for analyzing and establishing future direction:

- Gather inputs (typically performed prior to the February and August GCC time frames): external input from a key stakeholder group for which they are responsible, external input on trends that impact the stakeholder group,

and internal performance results of G-ORB Scorecard Course Coordinates (measures).

- Conduct analyses appropriate for their respective areas of responsibility and Strengths, Weaknesses, Opportunities, and Threats (SWOT) analyses of these inputs for the current situation.
- Combine the SWOT analyses with the external input on future trends to create a prioritization matrix to identify the most important issues that will impact future direction.
- Map future projected Course Coordinate performance and determine future gaps in performance.
- Prioritize the gaps using an Analytical Hierarchy Process to develop alternative Course Corrections.
- Present recommended Course Corrections and Future Courses to the Steering Team during the GSAC Process.

The GSAC Process is used to establish a different or modified strategic direction. In March and September, the Steering Team and team leaders spend two days off site conducting a Risk Reward Analysis. The team leaders for each of the GCC inputs (Figure 2.1-2) present to the Steering Team an analyzed aggregation of their respective inputs and recommended Course Corrections and Future Courses to facilitate the following:

- Determine if the strategic objectives and their respective target time frames are still valid.
- Establish new strategic objectives.
- Determine if Course Coordinates define when a strategic objective is achieved, i.e., establish the appropriate planning horizon for a Course Coordinate goal.
- Use the optimization simulator tool to analyze various scenarios and identify correlations among Course Coordinates. Assumptions on the economy, market, product offerings, pricing, shareholders, regulations, environmental issues, and associates are entered in the model, which produces correlated, forecasted results in overall customer satisfaction, repurchase loyalty, market share, margins, ROCE, Return on Net Assets (RONA), and turnover. Various scenarios are used by the Steering Team to balance the needs of different stakeholders, given limited resources and changing market conditions.
- Establish new Course Coordinate goals and/or new metrics to determine strategic success.

As part of this review, the Right Technology Team presents the results of its Original Thought Process. This team works in conjunction with the Polyolefins Business Group Technology Council to identify advanced engineered products for the marketplace.

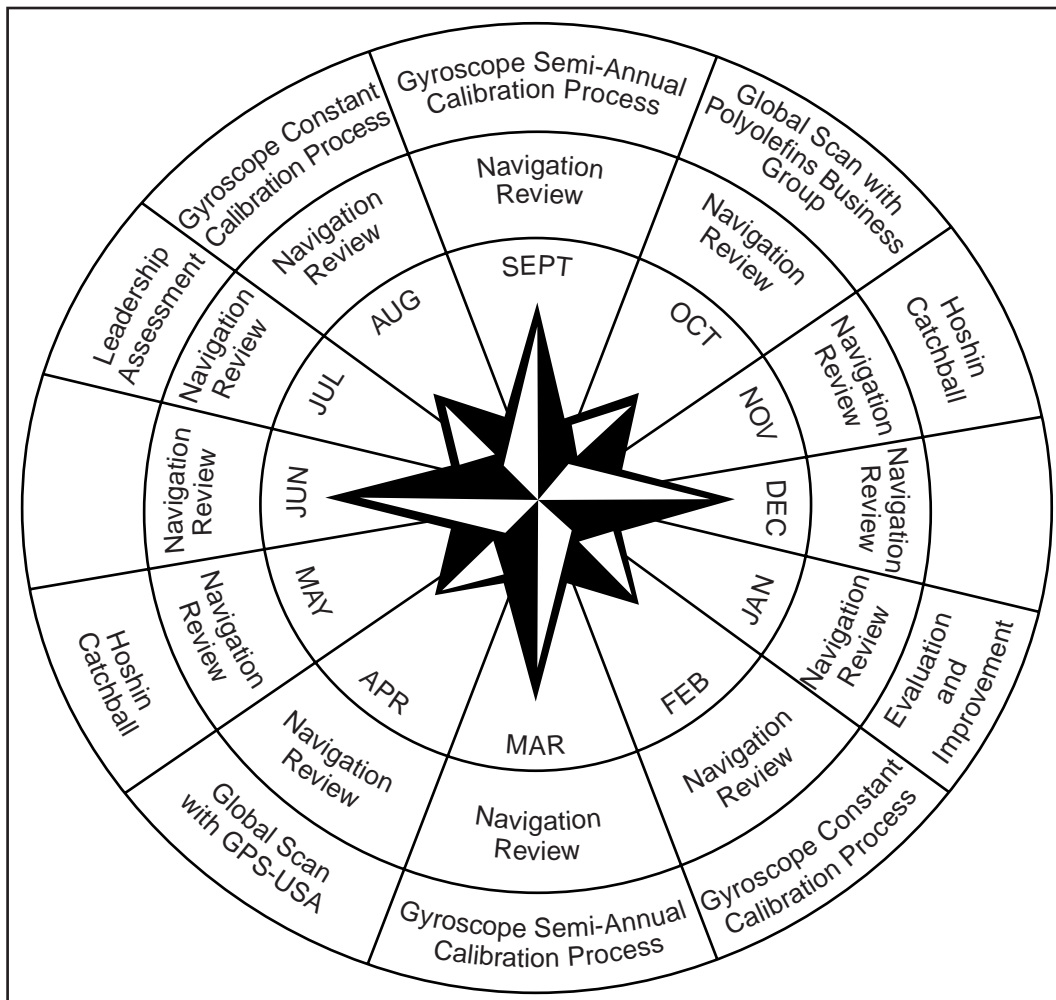


Figure 2.1-1 G-ORB's Gyroscope Planning System (GPS)

At the end of the GSAC session, and specifically as a result of using the optimization simulator tool, a key Course Coordinate is selected, and the Stretch Team conducts a Yardstick Stretch or benchmark study on it for the next six months. The results are presented at the next GSAC session.

A two-day Global Scan session is held once a year with key corporate partners (Polyolefins Business Group and GPS-USA) to reconcile G-ORB's Strategy Map and Course Corrections with the Strategy Maps of these two organizations. Two scans are conducted, one every six months. The first, conducted in October, is a Latitude Global Scan focused on

GPS Gyroscope Semi-Annual Calibration (GSAC) Process				
Process for Inputs	Team	Information Gathered	Special Analysis	Item
G – <i>Global Scan</i>	Polyolefins Business Group and GPS-USA	(see <i>Step 1: Choose the Focus</i> text)	Analysis of stakeholders' needs	2.1
Y – <i>Yardstick Stretch</i>	Stretch Team (Figure 1.1-3)	Benchmarking study on targeted Strategic Course Coordinate	Benchmarking, competitive comparisons, quadrant analysis	4.1
R – <i>Risk Reward</i>	Steering Team (Figure 1.1-3)	Review of consolidated and analyzed inputs	Investment analysis	2.1
O – <i>Original Thought</i>	Right Technology Team, Polyolefins Business Group Technology Council	Advanced technology, chemical, and process breakthroughs	Research, tangent thinking	6.2
GPS Gyroscope Constant Calibration (GCC) Process				
Process for Inputs	Team	Information Gathered	Special Analysis	Item
S – <i>Supplier Scan</i>	Supplier Scan Team and GPS-USA	Supplier performance, new materials and processes	Logistics plus analysis	6.2
C – <i>Customer Check</i>	Customer Check Team (Figure 1.1-3)	Customer expectations, perceptions, satisfaction, and future demands	Quality Function Deployment (QFD)	3.1
O – <i>Operations</i>	Optimal Team (Figure 1.1-3)	Internal operations by product line	Analysis using optimization simulator tool	6.1
P – <i>People Performance</i>	Performance Team (Figure 1.1-3)	Associate performance to goals, skills needed, staffing, work and job design, and recruitment needs	Mentoring, career planning, staffing profile	5.1
E – <i>Environmental Entry</i>	SH&E Manager and GPS-USA	Competitor performance, products, and regulations	Gap analysis	4.1, 1.2

Figure 2.1-2 Inputs to the Gyroscope Planning System (GPS) Process

operational issues within the Polyolefins Business Group. This scan brings together similar business operations across the globe to focus on customers, markets, competitors, technology, and operations. The second, conducted in April, is a Longitude Global Scan focused on support functions provided by GPS-USA. This scan brings together the regional businesses to address financial, marketing, sales, strategic purchasing, logistics, legal, safety, environmental, and human resource issues for the United States.

Although historically the polymer business has shown a seven-year economic cycle, it is difficult to accurately predict beyond a five-year time frame. Therefore, the Strategy Map planning horizon is set at five years. By conducting Global Scans twice a year, the Steering Team, in conjunction with GPC, can monitor global signs of an economic up- or down-turn. A short-term planning horizon of one year is used to coordinate strategic direction with corporate partners (as described above) and with GPC. The output of each semi-annual Global Scan is used to immediately drive improvement (through the Hoshin Catchball Process) and provide input for G-ORB's next six-month GPS cycle. Improvements are focused first on business improvement and then on functional improvements, resulting in an overall faster implementation time,

with six more months of implemented improvements than a traditional one-year planning cycle.

After each of these GSAC reviews, the Steering Team completes the GSAC Process by using the corporate partners' input to adjust the G-ORB Strategy Map and finalize Course Coordinates and their respective targets, using the Kaizen Improvement Process (Figure P.2-1) to identify Course Corrections for deployment, and deploying the Strategy Map through the Hoshin Catchball Process.

Finally, each January the Steering Team assesses the overall effectiveness of the GPS processes. Opportunities are identified and implemented to improve the next GPS cycle. An example of such an improvement was the decision three years ago to offset the two Global Scans by six months.

2.1b Strategic Objectives

2.1b(1) Key strategic objectives, referred to as Future Courses, and their respective target timetables for completion are found in Figure 2.1-3. Each Future Course is related to a key Value and has Course Coordinates to determine when G-ORB reaches its desired position in the marketplace with respect to all five key stakeholders.

2.1b(2) Specific teams are involved in developing Future Courses related to each key Value. Future Courses are presented at GSAC off-sites, where the Steering Team and team leaders conduct a Risk Reward Analysis. During the semi-annual Global Scans with the Polyolefins Business Group and GPS-USA, G-ORB ensures that its Future Courses balance the needs of all key stakeholders.

2.2 Strategy Deployment

2.2a Action Plan Development and Deployment

2.2a(1) Step 2: Align the Organization. The Hoshin Catchball Process is used to deploy the Strategy Map, including the Course Coordinates, to all work units and associates, as well as to identify resources needed for implementation. After the parent corporation approves G-ORB's

Future Course	Short-Term Strategy Map (1-year Action Plans: 2003)	Long-Term Strategy Map (2–5 year Action Plans: 2004–07)	Impacted Course Coordinate (see Figure 2.2-1)
G-ORB Value—Growth Through Partnerships			
Strategic Challenge—Profitability in a Cyclical Business			
(1) Invest capital at the bottom of the cycle	Evaluate Capital Project Process	Gain approvals from Polyolefins Business Group. Identify and implement capital projects	ROCE RONA
(2) Shift customer profile to increase Guiding Light and True North customers with less cyclical businesses	Identify less cyclical markets. Leverage program with current customers	Develop products for specific new Guiding Light and True North less cyclical customers	New Products as % of Sales
(3) Innovate pricing and outsourcing arrangements with customers and suppliers	Develop innovative approaches to pricing and outsourcing. Target Guiding Light and True North customers, catalyst and additive suppliers	Implement innovative agreements	Supplier Costs Net Price
G-ORB Value—Growth Through Partnerships			
Strategic Challenge—Worldwide GPC Expansion			
(4) Build worldwide customer base for GPC	Target international customers based in the Americas	Build infrastructure to support additional sales from GPC affiliates	Market Share Capacity Utilization
G-ORB Values—Right Technology, Right Cost, Right Environment			
Strategic Challenge—Plastics of the Future			
(5) Implement new process technology	Deploy to HDPE product line	Deploy to PP and LLDPE product lines	Productivity Product Consistency
(6) Develop new products for improved margins	Deploy to HDPE, PP, and LLDPE product lines	Deploy to HDPE, PP, and LLDPE product lines	New Products as % of Sales Product Development Cycle Time
(7) Provide outsourcing services to customers (e.g., inventory management)	Deploy to Guiding Light customers. Leverage program with current customers	Deploy to True North customers	Customer Satisfaction On-time Delivery
(8) E-business initiative	Deploy to distributors, small-size customers, and limited products	Expand to include full product offering	Market Share
G-ORB Value—Successful Associates/Successful Teams			
Strategic Challenge—Maturing Workforce			
(9) WINGS Cross-Training	Deploy to 10% of associates	Deploy to 25% of associates	Training Participation Kaizen Suggestions
(10) Rotate engineers and managers to Japan	Rotate HDPE and PP engineers and managers. Rotate high potentials	Rotate LLDPE engineers and managers	Product Consistency Productivity
(11) Focus on recruitment	Partner with targeted schools to attract diverse candidates	Establish early co-op and internship programs with local high schools	Turnover Productivity

Figure 2.1-3 G-ORB's Strategy Map

Course Coordinates	Stretch Source	2003	2005	Stretch	2007	Stretch	Figure(s)
G-ORB Value—Growth Through Partnerships							
On-time Delivery	PII	93%	95%	95%	98%	99%	7.2-2
Net Price (aggregated)	CWC	\$0.23	\$0.22	\$0.22	\$0.23	\$0.23	7.3-7, 8, 9
Overall Customer Satisfaction	CPRI	91%	95%	93%	97%	97%	7.1-4
Repurchase (Loyalty or Retention)	CPRI	93%	94%	94%	95%	95%	7.1-6
Market Share	CWC						
HDPE		14.1	15.0	15.2	15.8	15.9	7.3-13
LLDPE		16.8	16.4	16.4	16.8	17.0	7.3-14
PP		12.0	13.8	13.9	14.1	14.4	7.3-15
Supplier Quality	Polyolefins Business Group						
Monomer Cpk, purity (E)		2.6	3.4	3.0	3.4	3.5	7.5-1A
Monomer Cpk, purity (PP)		1.9	2.0	2.2	2.2	2.5	7.5-1B
Additive Cpk, purity		2.0	2.1	2.2	2.3	2.4	7.5-2
G-ORB Value—Right Technology							
Product Quality/Consistency	PII	2.0%	1.8%	2.0%	1.6%	1.0%	7.2-1
New Products as % of Sales	PII	35%	37%	38%	40%	40%	7.5-5
Product Development Cycle Time	PII	40 wks.	35 wks.	35 wks.	35 wks.	30 wks.	7.5-6
G-ORB Value—Right Cost							
Business Costs—Average (\$000,000s)	CWC	\$11.0	\$11.0	\$10.1	\$11.0	\$9.4	7.3-4, 5, 6
Product Price (% Price Increase)	Crude Oil Prices	3.4%	3.3%	4.8%	3.2%	4.5%	7.2-3
Capacity Utilization	PII						7.5-3
HDPE		98%	95%	95%	95%	100%	
LLDPE		104%	99%	99%	99%	100%	
PP		101%	92%	94%	93%	100%	
Productivity (MM lbs./FTE)	PII	5.3	5.1	5.5	5.5	5.8	7.5-4
Supplier Costs (cents/lb.)	PII	\$0.21	\$0.20	\$0.19	\$0.19	\$0.18	7.5-7
Maintenance Costs (cents/lb.)	PII	\$0.45	\$0.40	\$0.35	\$0.30	\$0.30	7.5-8
Margins	CWC						
HDPE		13.5	13.1	13.1	13.3	13.3	7.3-10
LLDPE		10.2	9.9	9.9	9.7	9.8	7.3-11
PP		11.6	10.6	10.6	11.3	11.3	7.3-12
ROCE	CWC	10.8%	9.3%	11.8%	10.5%	11.6%	7.3-1
RONA	CWC	18.0%	17.8%	16.6%	20.0%	17.1%	7.3-2
G-ORB Value—Right Environment							
EPA Reportables	EPA	21	18	18	17	15	7.6-5
Total Recycled Material Pounds (x1000)	LDNR	18,000	19,000	20,000	20,000	22,000	7.6-7
Waste to the Environment	LDNR	2	1.5	1.0	0.9	0.9	7.6-6
Volunteer Participation	Volunteer Baton Rouge	60%	60%	60%	60%	60%	7.6-8
Internal Audits	GPC	2.0	2.0	2.0	2.0	2.0	7.6-1
G-ORB Value—Successful Associates/Successful Teams							
TCIR	OSHA	.8	.7	.4	.4	.3	7.4-2
DART	OSHA	.5	.3	.2	.2	0	7.4-3
Training Hours per Associate	PEC	50	55	55	60	60	7.4-8
# KAIZEN Team Suggestions Submitted	GPC	1150	1500	1500	1950	2100	7.4-5
% KAIZEN Team Suggestions Implemented	GPC	75%	80%	80%	85%	85%	7.4-5
Associate Satisfaction	PEC	98.2%	98.5%	99%	99%	99%	7.4-10
Associate Turnover	PEC	9.1%	9.8%	9.1%	9.1%	8.9%	7.4-9

Figure 2.2-1 G-ORB's Scorecard Course Coordinates by G-ORB Values

Strategy Map, the Steering Team presents the map to all work units in department-specific Gyroscope meetings.

Then, over the next two weeks, the Catchball Process continues: each work unit manager meets with unit associates

to discuss the Strategy Map, including short- and long-term action plans, Course Coordinates, and how to achieve targets. Associates independently review and update their IDLMs. Then, the work unit meets again to revise the Team Development and Learning Maps (TDLMs) and identify needed resources to execute their targets.

At the end of the two weeks, work unit managers present their TDLMs to the Steering Team during a one-day review and approval session. This dialogue includes any Future Courses and related targets that the unit has identified as outside its scope or capability. The TDLMs serve as the primary vehicle for action plan deployment throughout the organization.

Two years ago, the Hoshin Catchball Process was modified to include the external alignment of strategic partners important to G-ORB's success. The Supplier Scan Team and the Right Technology Team follow the process steps above with key suppliers and technology partners to ensure that their action plans align with G-ORB's Strategy Map. These external action plans are monitored during the monthly Navigation Reviews.

Step 3: Implement the Plan. Work units use weekly, focused KAIZEN sessions (see Area 5.1a[2]) to implement work unit improvements. Monthly Navigation Reviews are conducted at the work unit and the Steering Team levels. The Steering Team reviews G-ORB's Strategy Map and G-ORB's Scorecard Course Coordinates (Figure 2.2-1), while the work units review their respective TDLMs, along with Course Coordinates related to their units.

Step 4: Review and Improve. As deviations from the Strategy Map are identified, teams responsible for input to the GPS (Figure 2.1-2) are called into the Navigation Reviews. The teams then use the control plan review (Area 6.1a[5]) to analyze the issue and develop a Course Correction that is implemented by the work unit; the Course Correction also is recorded as input to the next GCC Process cycle.

2.2a(2) See Figure 2.1-3 for strategic objectives (Future Courses), related short- and long-term action plans, and the

related Course Coordinate for determining when the objective has been achieved.

2.2a(3) With G-ORB's mature work force, it is anticipated that there will be significant turnover in the next five years. Two Human Resource Course Corrections address the transfer of knowledge within the organization (see Figure 2.1-3):

1. The WINGS program will cross-train associates in multiple jobs. This program will target associates with 5 to 10 years' experience to work with associates with 10 to 20+ years' experience in a six-month job rotation. The intention is to make everyone knowledgeable about multiple jobs and identify the most proficient associates for future job assignments.
2. The successful three-month mini-rotation of engineers with sister Polyolefins operations has inspired a new program for engineers and managers to spend three-year rotational assignments with GPC in Japan to further improve collaboration on new polymer development.

In addition, G-ORB's recruitment program focuses on hiring new associates.

2.2a(4) Key performance measures, referred to as Course Coordinates (Figure 2.2-1), are divided by G-ORB's five balanced Values to ensure a cause-and-effect approach to organizational performance. Results are reviewed every month during the Navigation Reviews and semi-annually at both the senior management GSAC session and the follow-up Global Scan with GPS-USA and the Polyolefins Business Group.

2.2b Performance Projection

Future performance projections for Course Coordinates are shown in Figure 2.2-1, along with stretch goals based on comparison data that the Stretch Team identified as best-in-class, best-in-industry, and/or top-quartile comparisons through the Yardstick Stretch Process. In general, stretch goals for finance represent the best in the industry, those for customers and markets represent the top quartile in the industry, stretch goals for operations represent the industry top quartile, and Successful Associates Stretch goals represent best-in-class across industries. Additional G-ORB projections and comparative performance for financial and market results can be found in Item 7.3.

3 Customer and Market Focus

3.1 Customer and Market Knowledge

3.1a(1) Realizing that it cannot be all things to all customers, G-ORB's strategy is to select customers and markets in which it can excel in product and service performance. Business Development Teams (BDTs) determine and select customers, customer groups, and market segments as part of their input to the GPS. BDTs report to the Steering Team, are segmented by product, and play a key role in

determining what products should be developed. Each August, in preparation for the GSAC meeting, BDTs assemble Pathfinders and Explorers to systematically determine targeted markets and selected customers to support the organization's overall strategy, goals, and objectives.

Pathfinders, who are members of Marketing, identify target markets and market segments that represent the greatest

growth potential based upon semi-annual industry scans conducted by independent industry consultants. Pathfinders analyze the industry scans for market segments poised for growth or those on the leading edge of usage for polymers. Sales data from these markets and market segments, along with data on competitors' sales and market share, also are analyzed to determine G-ORB's potential success in these markets. Industry scans provide information on total product volume opportunity so the Pathfinders can determine G-ORB's market share at any time.

Explorers, also members of Marketing, have expertise in the polymer business (including competitors and customers of competitors), as well as knowledge of G-ORB's products, technologies, and capabilities. Explorers are responsible for identifying existing and potential customers, including customers of competitors, within markets and market segments that represent the best match for G-ORB. This group of customers is known as True North, and it is G-ORB's desire to win or retain these customers. Because Explorers have knowledge of G-ORB's products and technologies, both existing and planned, as well as customer requirements, they identify targeted customers based upon the type of material they have or might purchase. This determination is based upon past sales data on existing customers, which are compared against data on similar customers of competitors. The goal is to develop a balanced portfolio of customers across all three product types (HDPE, LLDPE, and PP).

In the determination of targeted customers, Explorers classify customers as small, medium, or large, based strictly upon past and potential sales. Customer size is used to develop different strategies for building and maintaining relationships. The BDTs, with input from the Steering Team, identify a handful of key and target accounts that G-ORB wishes to keep or add to its portfolio. This classification of customers is referred to as Guiding Light customers. These customers represent 50% or more of G-ORB's total sales. They are in market segments that are poised for growth and are on the cutting edge of new plastic technology and products.

Since customers buy such large quantities of products and since polymer resins represent greater than 50% of a processor's total cost, price is an issue that impacts loyalty. Customers are limited in their choice of suppliers because the short shelf life of resins precludes overseas purchases. There are only about ten key competitors, all in the United States, and, in many cases, current customers of competitors may have been customers of G-ORB at one time. G-ORB's strategy is to win back a select number of these customers through the introduction of new products and technologies, as well as by offering partnerships to provide a full service of offerings and plastic resins. Most competitors' customers are known to G-ORB either through Explorers' knowledge, as former (lost) G-ORB customers, or as targeted customers.

3.1a(2) BDTs use a variety of methods for listening and learning to determine key customer requirements, including those shown in Figure 3.1-1. Every six months, BDTs commission focus groups of True North and Guiding Light customers, potential customers, and customers of competitors to determine specific requirements, changes to existing requirements, and future needs. Input gathered from this process includes product, delivery, and service requirements, as well as strategic features and future requirements. These requirements are sorted through regression analysis, and importance factors are determined by customers through forced pair analysis. Customers are asked to compare the requirements against competitive offerings, resulting in a prioritized list of competitive factors and supplier differentiators.

Pathfinders and Explorers watch the industry and marketplace, using input from listening methods (Figure 3.1-1). These vary based upon the target market segments identified during strategic planning. While focus groups are reserved for True North and Guiding Light customers, customer satisfaction and complaint data are analyzed for all customer and market segments, with key issues and importance factors identified for each segment. Key requirements are the same for all customer and market segments, but the importance factors vary based upon customer size and industry type. Pathfinders identify new applications for polymers in which to expand sales and markets. In this way, markets and market opportunities are constantly reevaluated and redefined. Explorers provide product and technology input for the GPS and work jointly with Guides and Pathfinders to execute strategies with customers.

Customer focus groups develop a list of current and future requirements and their relative importance to customers. This list is validated through information obtained from customer visits by Customer Account Teams (CATs) (see Area 3.2a), benchmarking by process owners, market and industry studies, and research from industry publications. Key customer requirements are listed in P.1.

Product, service, and marketing managers apply Quality Function Deployment (QFD) to translate these requirements into key product and service features. QFD analysis also reveals the impact these features will have on revenue and sales. The list of features is analyzed by Technology Center associates as part of the Cartography Design Process (CDP) (see Figure 6.1-3) to determine the new products and services to be launched. G-ORB tracks sales results of new products (Figure 7.5-5) to determine the effectiveness of its processes to gather customer requirements and translates them into offerings and features. A Customer Check Team, consisting of a cross-product (HDPE, LLDPE, or PP) group of G-ORB associates, assesses the accuracy of the process used to determine customer requirements and translates these into features by performing a Customer Center Check.

LEGEND: X = Primary use for data; x = Secondary use for data; blank = Negligible use for data

Data-Gathering Methods	Product Rqmts	Delivery Rqmts	Service Rqmts	Competitive Factors	Strategic Features	Future Rqmts	Relative Importance	Other Factors	When	How Rqmts Are Deployed	Who Uses the Data	How Data Are Used
									Every 6 months	On-line report	Steering Team, Pathfinders, Explorers, CATs, Business Development Teams, Product Managers, Customer Check Team	Develop list of requirements, features, marketing plans, and targeted account plans
Customer Focus Groups	X	X	X	X	X	X	X		Annually	CAT report, account plan, CAP report	Steering Team, CATs, Guides	Validate list of requirements; Develop specific actions
Customer Account Team (CAT) Visits	X	x	x	X	X			X	Periodic	Reports to teams	All process owners	Validate list of requirements; Expand knowledge of industry, customers, and competitors
Benchmarks	x	X	X	X	X			x	Periodic	Reports	Steering Team, Stretch Team, Pathfinders, Explorers, Product Managers	Validate list of requirements; Expand knowledge of industry, customers, and competitors
Market and Industry Studies	X	X	X	X	X				Ongoing	Circulate articles and reports	Various associates	Validate list of requirements; Develop knowledge of industry, competitors, markets, and customers
Industry Publications	X	X	X	X	X	x	x		Daily	On-line reports, Monthly CMS reports	Steering Team, Pathfinders, Explorers, Guides, CATs, Product Managers, Customer Check Team, PD&S, Manufacturing	Determine relevance and accuracy of requirements process; Identify process/product improvements
Complaint Data Scans	x	X	X	X	x	x	X	X	Monthly	On-line report	Steering Team, Pathfinders, Explorers, Guides, Product Managers, Technology Center, Customer Check Team	Validate list of requirements; Develop knowledge of industry, competitors, markets, and customers
Customer Satisfaction Surveys	X	X	X	X	x				Monthly	On-line report	Steering Team, Pathfinders, Explorers, Business Development Teams, Customer Check Team, CATs, Sales Associates and/or departments	Validate list of requirements; Develop knowledge of industry, competitors, markets, and customers
Customer Win/Loss & Retention Data Scans	X	X	X	X	x	x	X		Periodic	Reports	Technology Center, Product Managers	Develop effective customer partnerships
Customer Visits and Audits	X	X	X	X	X	X	X		Ongoing	Product/service plans		
Engineers on Site	X	x	X	x	x	X	X					

Figure 3.1-1 Sample of Methods Used by G-ORB to Listen and Learn From and About Customers

This check is a structured means for assessing customer expectations, perceptions, and satisfaction against current and planned product and service offerings.

Complaint data and customer satisfaction survey data—including survey data on customers of competitors, win/loss data, retention trends, and sales data—are all analyzed by BDTs on an ongoing basis. BDTs use multivariate regression analysis to determine the relevance and accuracy of the methods used to listen and learn about key customer requirements that drive purchase behavior. Value models are created, and each factor is analyzed for its relative strength and importance for revenue and sales. Customer satisfaction survey data, described in Area 3.2b(1), provide a wealth of information to assess how well G-ORB is meeting customer requirements.

3.1a(3) In support of G-ORB's continuous improvement focus, listening and learning approaches to determine key customer requirements are under constant scrutiny. BDTs, working with Technology Center associates, conduct post-mortem evaluations after each GPS cycle to determine the effectiveness of approaches to listening and learning about customers' requirements to ensure they remain current with business needs and directions. This process has led to several changes over time regarding how information is gathered, analyzed, and reported. For example, product managers complained that the information gathered was too difficult to understand and use, so a new prioritization report was implemented. BDTs identified the need for competitive information that more closely mirrored that already gathered for G-ORB customers. A new survey company—Compass Point Research, Incorporated (CPRI)—was employed in 1998, primarily because of its experience in gathering similar satisfaction data from customers of competitors and conducting industry research.

Explorers, working with Pathfinders, evaluate market definition and segmentation at least twice a year as input into G-ORB's new product launch process. This analysis is used partially to determine the need for new products and technologies. This approach has led to a broader definition in certain markets and has changed G-ORB's view of market opportunities and market share. For instance, G-ORB used to downplay the importance of specialty markets, defining these as small, niche players. But as these companies and markets grew in size and complexity, driven by new advances in polymers for use in DVDs to store and read data, a market opportunity was born and added to the list of key vertical markets.

3.2 Customer Relationships and Satisfaction

3.2a Customer Relationship Building

3.2a(1) G-ORB benchmarked a Baldrige Award recipient and implemented an Account Plan that mirrors that used

for government contracts. Further benchmarking with another Baldrige Award recipient on a Customer Advocate Program led to the creation of CATs. CATs are formed with identified senior-level associates who target high-level personnel in customer organizations. Often, these are the C-level contacts (e.g., CEO, CFO, COO, CQO, CIO). CATs strive to hold at least one C-Level meeting annually with customers to clarify their needs so G-ORB can identify ways to increase the value of its delivered products. These meetings also reveal trends, plans, and directions that can have a greater impact on G-ORB's ability to develop and deliver new technologies and products.

To enhance formal partnerships, G-ORB places engineers directly at key customer sites to help integrate the product or service into the customer's organization and to better understand the customer's use of the product as well as unarticulated requirements.

A Guide is assigned to every G-ORB customer to track sales volume, orders, and shipments and to act as a single point of contact for the customer to voice concerns. Depending upon their classification, some customers receive a higher level of contact from G-ORB associates. An Account Plan is created for nearly every customer, especially those designated as strategic to G-ORB's long-term growth objectives. All information is stored in a Customer Account Plan (CAP) in G-ORB's computer system. Guides update the CAPs, which contain all the information necessary to maintain and build relationships with a particular customer. When situations occur that may adversely impact the account, a Customer Action Report (CAR) is created to monitor, track, and manage the situation. The CAR is maintained in the CAP but also is monitored in the Complaint Management System described in Area 3.2a(3).

3.2a(2) Key customer contact requirements are gathered through a variety of means, including those described in Area 3.1a(2) and Figure 3.1-1. Customer Service is responsible for generating customer contact requirements and validating these with customers. All customer groups require the same methods for contact but differ in the level of access needed. For instance, most large customers operate in a continuous, three-shift mode. These customers require 24x7 access to a person with the authority to address customer problems. Smaller customers typically operate just one or two shifts per day and do not require the same level of support. All associates who have any contact with customers are required to attend eight hours of training on effective interactions with customers. On the customer satisfaction survey, customers are asked to rate their overall satisfaction with dealing with G-ORB associates and to offer suggestions for improved performance. This survey also asks customers to identify the person with whom they have been interacting.

Figure 3.2-1 identifies the different means for customers to comment, complain, conduct business, and seek information. Many customers want immediate service, the ability to talk to a live person, 24x7 coverage (large and medium customers primarily), and resolution on the first call. Customers are encouraged to use new e-business and e-order applications so contact information can be received and analyzed in the most expedient manner.

3.2a(3) G-ORB uses a formal Complaint Management System (CMS) Process for resolving all customer concerns, issues, and complaints. Figure 3.2-2 depicts the CMS Process, which begins with information on the customer issue being entered into the CMS. All associates are trained to ensure that a problem is recorded in the CMS before any action is taken.

After the complaint is recorded, a problem owner is assigned, based upon a responsibility matrix maintained by the CMS administrator. The problem owner must contact the customer within 24 hours to acknowledge receipt of the problem. The problem owner attempts to resolve the issue on the spot or establishes a date with the customer for follow-up. The problem owner then investigates the problem and determines the root cause. An action plan is developed and then communicated to the customer. The problem owner negotiates a date for problem resolution with the customer. Some customers require immediate assistance, and others may not require resolution until later. When the corrective action has been implemented, a Problem Analysis Report (PAR) is completed and sent to the customer. The customer is asked to assess satisfaction with the problem resolution. This information is recorded in the CMS and becomes a permanent part of the customer record stored in the CAP.

Complaint information is aggregated from the CMS, analyzed for trends, and reviewed by senior management as part of monthly customer satisfaction reviews. Pervasive issues are identified that may warrant significant changes

to processes, procedures, and the organization. In addition, serious customer issues—those that have the potential for causing severe customer dissatisfaction—are reviewed with the Steering Team. These issues appear on the weekly Customer High-Impact Issues list distributed throughout the organization, including to the Steering Team and Marketing.

3.2a(4) G-ORB’s approaches to building relationships to acquire, satisfy, and retain customers are essential to support its overall growth strategy. As such, BDTs continuously review these approaches to validate the effectiveness of current customer access methods and to identify the means to enhance G-ORB’s performance in these areas.

As part of its input to the GPS, Marketing uses focus groups with customers, Pareto analysis of customer complaints, and regression analysis of customer satisfaction survey results to determine improvements to customer relationship building and customer access methods. These analyses, conducted annually before the GCC Process, result in a list of prioritized actions to keep approaches to building customer relationships and providing customer access current with business needs and directions.

Feedback received from large customers on enhancing relationships led G-ORB to define and form partnerships with Guiding Light customers. As G-ORB expanded the use of electronic communications with customers, numerous complaints were received about the lack of “face time” and personal contact. G-ORB modified its customer support in 1999 to include 24x7 service with the ability for customers to reach a live person. In 2001, G-ORB also began a program of placing engineers on key customer sites to strengthen partnerships.

3.2b Customer Satisfaction Determination

3.2b(1) G-ORB uses CPRI to conduct customer satisfaction surveys. CPRI has been conducting surveys of the industry for over five years. The use of a third-party,

Method of Access	Hours of Access	Who Is Responsible	How Customer Concerns Are Monitored and Managed
Toll-free number	24x7	Customer Service, Guides	Address any customer questions or concerns
Service phone number	24x7	Customer Service	Dispatch service associate or schedule service
Work, home, and cell phone numbers	First shift	Guides, Sales and Customer Service associates	Provide customers direct contact with G-ORB associates
Web site	24x7	Customer Service, Guides	Address any customer questions or concerns Place customer orders
C-Level meetings	First shift	Pathfinders, Explorers, Guides, CATs	Log customer comments and complaints as CDAs
E-business, e-order applications	24x7	Pathfinders, Explorers, Guides, CATs	Key associates receive all customer on-line transaction information immediately
E-mail	First shift	Sales and Customer Service associates	Provide customers direct contact with G-ORB associates

Figure 3.2-1 Customer Access Methods

independent organization ensures the objectivity and validity of the data collected. CPRI begins by conducting focus groups with customers to determine the drivers of

satisfaction. Forty attributes have been identified, but the importance of these vary by market segment and customer size. However, every survey includes five standard questions that focus on Overall Satisfaction, Repurchase Intent (Loyalty), Recommend to Others, Value, and “What two things can your polymer supplier [G-ORB] do to improve your satisfaction?” Although the attributes have changed over time, the five standard questions have not.

A survey sample is established every year and includes a random sampling from all 400+ customers. The survey sample takes into consideration a cross-sample of customers of various sizes (small, medium, large), geographic dispersion, industry classification, and major products purchased. Figure 7.1-8 shows that the response rate for surveys has grown to 78%, far better than industry averages and equal to best-in-class levels. Multiple surveys are conducted within an organization. For the past two years, 87% of those who completed the survey considered themselves to be the primary decision maker to use G-ORB as the key supplier. Every survey asks the customer to identify both its key supplier of polymers and the best polymer supplier in the industry.

Any customer who responds “Very Dissatisfied” on any one of the five questions triggers the Customer Dissatisfaction Alert (CDA) Process. This information is provided by CPRI to the Guide and CAT for immediate action and is recorded and monitored in the CMS. All surveyed customers are asked if the sponsor of the survey may contact them for additional information. If the customer requests that no further follow-up occur, then the customer response and record are kept confidential, but the numeric response is still considered in the overall roll-up.

G-ORB, in conjunction with CPRI, has determined a direct correlation between customer responses on surveys and buying behavior. About 95% of G-ORB’s revenue comes from customers who are “Very Satisfied” or “Satisfied,” and the company derives nearly three times as much revenue from a “Very Satisfied” customer as from a “Satisfied” one. Customer loyalty is nearly 67% higher for “Very Satisfied” customers.

Customer dissatisfaction is monitored through customer complaints, negative comments received on the customer satisfaction survey, and the CDA rate. Customer win and loss rates are used as another indicator of customer dissatisfaction. G-ORB conducts interviews with customers who have left. These “lost customer” analyses provide information to G-ORB to help prevent defections of similar customers.

3.2b(2) G-ORB recognizes that it cannot wait for customer satisfaction survey results before it determines if

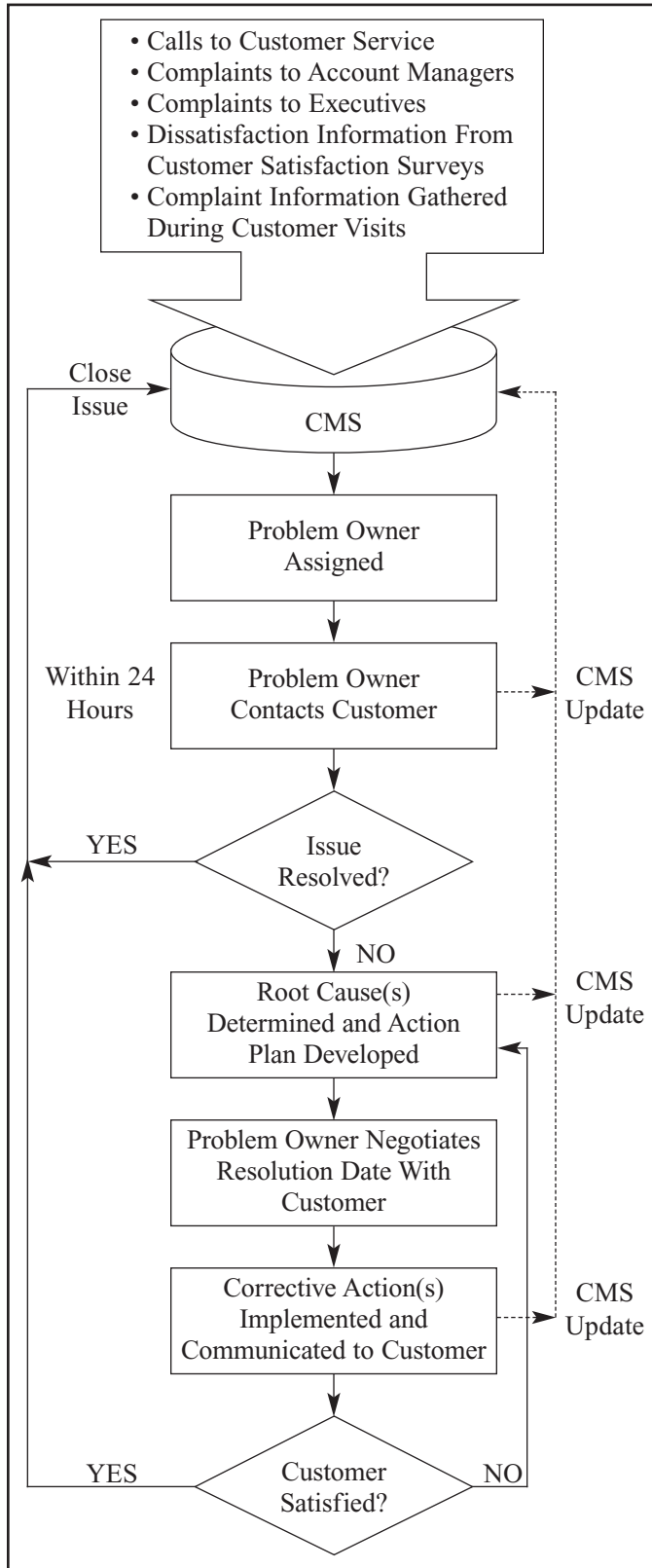


Figure 3.2-2 Complaint Management System (CMS) Process

issues warrant attention. Likewise, it cannot rely on customer complaints and service calls alone as indicators of customer dissatisfaction because not all customers complain. It is the responsibility of the Guide to follow up with customers within five days of a delivery or, in the case of multiple and frequent deliveries, at least monthly to determine performance levels and satisfaction with the transactions. Results of this follow-up are recorded as part of the CAP and are used in the overall determination of the level of performance to specifications for the customer account. Any adverse feedback or complaints, including CARs and PARs, also are recorded in the CMS and used in the overall analysis of pervasive customer issues requiring changes to company processes.

3.2b(3) Several industrywide surveys are used to assess the satisfaction of G-ORB's customers with others in the industry. PII conducts a survey every two years. G-ORB has been rated one of the top five polymer manufacturers the past seven years, ranking first for HDPE in three of the past four surveys and first for PP in the last two surveys. The Customer Satisfaction Institute Index (CSII), developed by Coyote University and the International Quality Society, provides benchmark data for G-ORB to compare itself with others in the industry as well as world-class organizations in dissimilar industries. The American Automotive Industry conducts an annual survey of suppliers, including those that supply polymers for the manufacture of automotive parts and interior systems. Results are used by the Customer Satisfaction Department to compare G-ORB's customer satisfaction performance against relative benchmarks and levels to create goals and targets. Although the surveys are continuous, customer satisfaction results for both G-ORB and its competitors are aggregated monthly.

3.2b(4) As part of the GPS, goals are established on an annual basis for customer satisfaction. Customer satisfaction survey results are aggregated, analyzed, and reported

monthly by the Customer Satisfaction Department. At year end, actual results are compared against goals for the aggregate scores as well as for the individual scores for all three product types, all market segments, and all three customer sizes. An assessment is made of what changes to customer satisfaction determination methods are needed to keep them current with business needs and directions. The overriding goal is to ensure results can be compared year to year while simplifying methods for data gathering and analysis.

Key to marketplace success is G-ORB's ability to use customer information to improve processes, procedures, and products. The analysis of results focuses most on customers' responses to the open-ended question about improving their satisfaction. The Customer Satisfaction Department looks at generating actionable information for improvement. With the help of its survey partner, CPRI, G-ORB benchmarked several world-class organizations to determine the best way to capture and use actionable information. The current survey was patterned after a similar approach used by Fujisan Motor Company. G-ORB continues to look at correlations of customer satisfaction and dissatisfaction results with financial and other business performance parameters to further improve its approaches for determining customer satisfaction. Finally, input from customers has led to further enhancements to the survey process over time. Customers complained that the survey took too long to complete. The current survey takes approximately five minutes to complete through a phone interview (two-thirds less time than three years ago). In addition to reducing the number of questions asked and the time to complete the survey, G-ORB focused on deployment of a survey that provides more actionable information with the question about what G-ORB can do to improve performance. The survey response rate has improved from 27% to over 78% as a result of these improvements.

4 Measurement, Analysis, and Knowledge Management

4.1 Measurement and Analysis of Organizational Performance

4.1a Performance Measurement

4.1a(1) G-ORB shares an integrated business management software system (Chemical Enterprise Resource Software, or CHEM-ERS) with all GPC business units. This system supports G-ORB's Value of Right Technology by enabling the company to benefit from knowledge enhancement and exchange across GPC's internal network of companies and facilities. This system is the result of a five-year improvement effort, completed in June 2000, to eliminate redundant systems through use of a shared information resource across GPC's globally dispersed businesses. The system captures local, regional, and corporate infor-

mation as it is created, eliminating redundant entries and reducing the chance of data entry errors. It provides a GPC-wide integrated system for maintaining financial, supply chain, materials management, program management, and manufacturing business information. Software solutions created for other business needs, such as for G-ORB's CAPs and CMS, interface with CHEM-ERS. GPS-USA provides technical support for the shared computing systems as well as on-site computer support, including a Help Desk and technicians. G-ORB's Information Technology (IT) Department is responsible for providing local programming and planning services and communicating G-ORB's needs to the corporation.

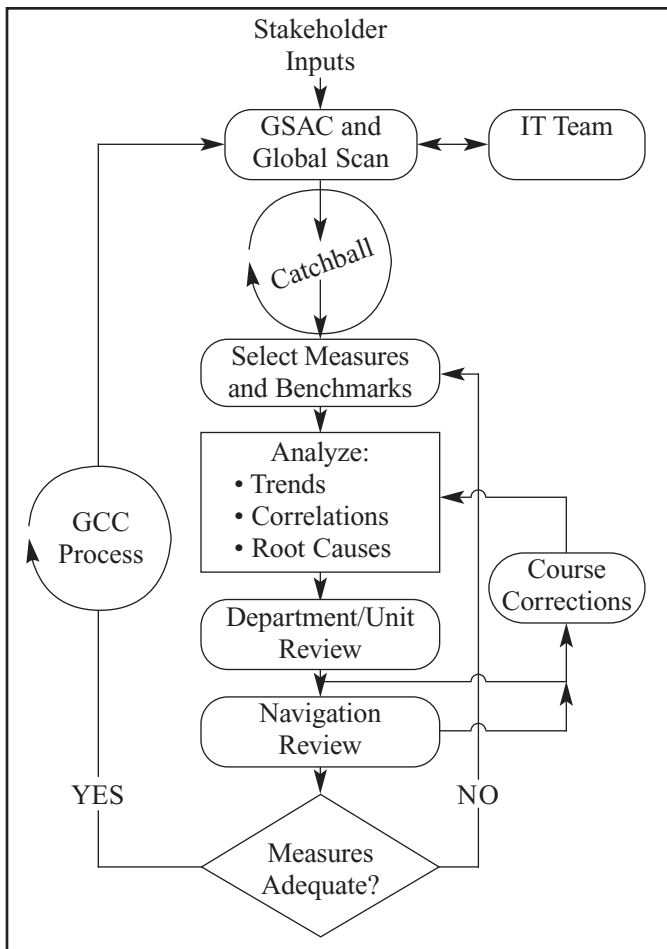


Figure 4.1-1 G-ORB Measurement and Analysis Process

Figure 4.1-1 illustrates G-ORB’s Measurement and Analysis Process. The GPS drives the selection, alignment, and integration of information and data for tracking overall organizational performance and supporting decision making and innovation. Course Coordinates and stretch targets are reviewed as part of the GSAC Process. The IT Team, facilitated by the IT Manager, provides input during the GSAC Process. The team ensures that data systems and resulting measures are adequate to support the GPS Process. It also creates an IT Roadmap, charting future directions in information technology to support changes in the business.

Real-time data are available to managers and work teams to support day-to-day operations. This allows adjustments to be made in many manufacturing processes. Department managers generate weekly reports through standard queries to a data warehouse. These reports support weekly department reviews and are used to prioritize improvements needed to reach department goals. The Manager of Planning and Analysis is responsible for integrating results from all departments for the monthly Navigation Reviews and for determining whether measures are adequate for tracking progress against goals. During these monthly reviews, the Steering Team is able to assess overall organizational

performance, as well as compare specific objectives to benchmarks to identify opportunities for innovation. Improvements may be identified at any of the reviews, and measures from the Navigation Reviews provide integrated information for the next GSAC Process.

4.1a(2) Although G-ORB has used comparative data and information for the past decade, in 2000 it identified shortcomings in its process as the result of a Baldrige-based self-assessment. Benchmarking activities were being driven by departmental budgets rather than organizational objectives, and results were not always used or shared. To focus the company’s comparative data collection and use, the G-ORB Knowledge Transfer and Benchmarking Group (KTBG) was created in 2001. This group performs benchmarking and best practice analyses under the leadership of the Stretch Team. Identification and use of comparative data are tied to the GPS Process, allowing the company to align benchmarking resources with its strategic objectives.

G-ORB establishes a benchmarking budget each year. Teams apply for benchmarking funds through a formal grant process. The KTBG reviews each application, assesses the request against company objectives, determines whether the benchmark or comparison information is already available through its benchmarking consortia memberships or G-ORB’s internal database, and notifies the applicant of its decision. If benchmarking is approved, the KTBG conducts training to ensure that the benchmarking activity meets GPC’s benchmarking guidelines and that all outcomes are documented.

The KTBG contributes to the corporate benchmarking and best practices database available to all associates through a Web-based company intranet system. The KTBG also ensures that relevant and current comparisons are used for each of G-ORB’s key metrics. Benchmarks are required for all measures reported at Navigation Reviews and for other measures at the option of each department. The KTBG has identified three measures for comparison: Best-in-Class, Industry Average, and Top Quartile (Figure 4.1-2).

4.1a(3) Because the performance measurement system is tied to the GPS Process, it reflects G-ORB’s most current business needs and directions. Measures are continuously monitored through regular reviews and the correlation of leading and lagging indicators. The GCC Process provides a systematic process to ensure that unexpected changes are identified and analyzed. Course Corrections are proposed at monthly Navigation Reviews, and the performance measurement system is modified. When new or modified measures are required, the IT Team prioritizes the work for the G-ORB IT Department. The IT Team also monitors computer technology advances and ensures that the infrastructure is adequate to support the performance measurement system.

Comparison	Definition	Source
Best-in-Class	World-class performance in a specific measure, regardless of industry	Benchmark databases, benchmarking activities, industry journals or other publications
Industry Average	Average performance in a specific measure across the polymer industry	Industry journals, industry studies
Top Quartile	Performance level at the beginning of the top quartile of the polymer industry	Industry journals, industry studies

Figure 4.1-2 Definition of Comparison Values

During the GSAC Process, the IT Team conducts an assessment of current and future computer technology needs using the following steps:

- Review IT data for trends and progress toward goals.
- Review and calibrate the IT Roadmap using external and internal information.
- Review computer infrastructure for adequacy and upcoming changes.
- Develop recommendations for consideration by the Steering Team.

The IT Team then presents its recommendations for consideration by the full Steering Team.

4.1b Performance Analysis

4.1b(1) G-ORB classifies performance measures selected during the GSAC Process as leading or lagging indicators. The VP of Total Quality is responsible for performing linear regression analyses using an optimization simulator tool to identify correlations between these leading and lagging indicators. For example, associate satisfaction levels might be a leading indicator of customer satisfaction. The relationship between associate satisfaction and customer complaints is then analyzed. By identifying effective leading and lagging indicators, the Steering Team is able to monitor and forecast product quality performance, cost and schedule performance, and customer satisfaction during the GSAC, allowing the company to strategically select goals and plan improvements to its operations.

G-ORB uses QFD both to select data for performance measurement during the GSAC and to understand the

data that are collected. The use of QFD results in a prioritized list of data and information to run the business and measure organizational performance. G-ORB employs many other tools and analysis techniques to understand and translate data into actionable information. Trend analyses and Pareto charts are prepared for department and Navigation Reviews. Regression analyses, correlations, and experimental designs are used across the company. Department review measures are integrated to support the Steering Team’s Navigation Reviews and decision making. Figure 4.1-3 provides a partial listing of analyses performed.

4.1b(2) Metrics and updates to product line goals and operating plans flow throughout the organization via mechanisms such as articles in the *Compass*, postings on closed-circuit televisions in all associate break areas, e-mail bulletins, and quarterly communication forums held by the Steering Team. All associates have computer access either through individual desktop units or through computer kiosks located in work areas and break rooms. Scorecards from the most recent Navigation Reviews are posted on an internal Web site available to all associates.

Weekly metrics for department goals are posted in departments and on team bulletin boards. Department managers and supervisors hold weekly meetings to communicate department results and link the department’s performance to the top-level goals and results. These meetings are combined with the team “Fix” sessions, a part of the Kaizen program deployed throughout the company. Associates suggest improvements to help the company meet its goals.

Type of Analysis	Review	Performed By
Quality Function Deployment (QFD)	GSAC Process, GCC Process	Planning and Analysis
Pareto Prioritization Process	Department Reviews, Navigation Reviews	Department Managers, Planning and Analysis
Leading/Lagging Indicator Correlations	GSAC Process	Total Quality
Design of Experiments	New Product Development, Department Reviews	Department Manager, Engineers, Total Quality
Affinity Analysis	Department Reviews, Navigation Reviews	Total Quality
Five Whys	Department Reviews	Department Managers, Total Quality
Root Cause Analysis (Fishbone)	Department Reviews, Navigation Reviews	Department Managers, Total Quality

Figure 4.1-3 Examples of Analyses Performed for Reviews and Strategic Planning

4.2 Information and Knowledge Management

4.2a Data and Information Availability

4.2a(1) G-ORB recognizes that work teams must have access to real-time data and information. On the other hand, a continuous flow of problem-related information can overload managers and make it difficult for them to gain perspective on trends across the company's activities. G-ORB uses a hierarchical system of data and information distribution as shown in Figure 4.2-1.

Latitudinal (horizontal) data and information are provided to work teams through integrated systems that convey information such as manufacturing process levels, material distribution, and process capabilities. Information from external data sources, such as customer complaints or supplier problems, also reaches appropriate work groups in a timely manner. This information enhances communication among workers and allows for quick changes in product mix or schedule, as well as adjustments in manufacturing processes to improve throughput.

Many latitudinal data sources come directly from the computer systems used in the course of the work being performed, providing real-time information. Daily reports are generated through queries to a data warehouse that is updated each night. These queries are created by IT and modified at the request of the user.

Longitudinal (vertical) data and information flowed to managers and the Steering Team involve only those issues that require higher level approval or reports used for reviews and midcourse corrections. Queries are automatically generated at prescribed intervals to pull information from the data warehouse to provide daily, weekly, and/or monthly reports.

Information is made available to customers and suppliers through the use of a secondary firewall and reverse proxy. A hierarchy of permissions is used to ensure that an external user accesses only the appropriate information. For example, customers are able to perform on-line queries on the status of their orders but are not able to see other customers' orders or other G-ORB systems such as Finance and Human Resources.

Increasing e-business is one of G-ORB's strategic objectives. The IT Team is working to pilot electronic ordering capabilities with a group of G-ORB's smaller customers. This program will be expanded over the next five years, resulting in on-line ordering for all of G-ORB's customers.

4.2a(2) Hardware and software system reliability is constantly monitored by IT. Downtime of computer systems is measured and reported. IT ensures computer hardware and software security through the use of anti-virus software, firewalls, and other security systems.

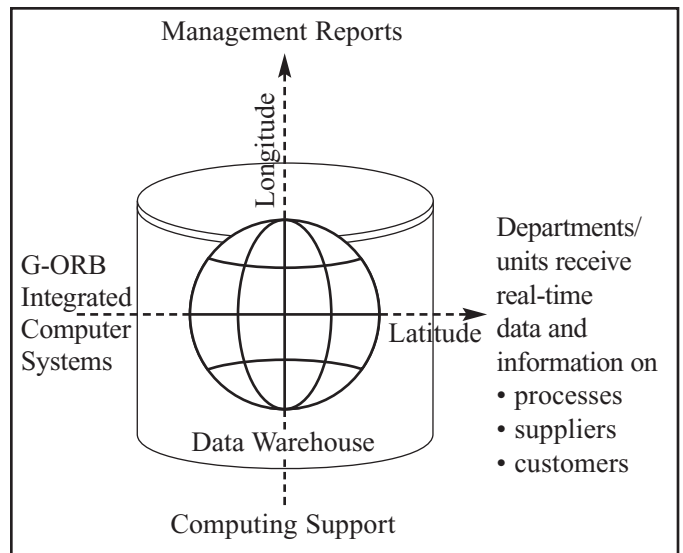


Figure 4.2-1 Hierarchical System of Information and Data

IT develops new software systems and makes major changes to existing systems using a formal process that begins with a detailed requirements document. Once users of the system sign off on the requirements, IT develops a project schedule, including development, testing, piloting, and deployment. Issues of user friendliness are identified during a pilot program with a small group of users. IT conducts associate surveys twice each year and monitors measures of user friendliness for adverse trends and opportunities to improve existing systems. Associate, supplier, and customer focus groups are conducted at least once each year to improve the ease of use of both hardware and software systems.

Data and information security is vital to G-ORB's competitive position. IT assigns passwords to all users through a formal process that includes written applications, management approval, and established levels of access. Each associate, supplier, or customer signs a nondisclosure agreement form when applying for a password. IT has established metrics to monitor hardware and software reliability, availability, and security (Figure 4.2-2).

4.2a(3) Data availability mechanisms are kept current with business needs and directions through the IT Department, the IT Team, and strong collaboration with GPS-USA IT. The IT Roadmap includes trends and upgrade initiatives, which are presented at the GCC sessions for input and approval from the Steering Team. IT actively evaluates emerging technologies in hardware and software to provide more up-to-date data delivery mechanisms and improve the efficiency and timeliness of data delivery. Personal data assistants (PDAs), wireless strategies, and e-business strategies are emerging technologies being integrated into the infrastructure.

Property & Primary Responsibility	Organizational Knowledge Process	Hardware/Software Process	Measure
Reliability & Integrity: G-ORB IT, GPS-USA	Training	Audits, checking formulas, unexpected changes/operations	# Errors
Accuracy: G-ORB IT, GPS-USA	Training, audits	Error proofing, field masks, delta algorithms, audits	# Errors reported # Errors confirmed
Timeliness/ Availability: G-ORB IT, GPS-USA	Web pages, computer access, training	Backup systems, fast response teams, problem hot line, pilots of new software systems	% System uptime # Slow system incidents
Security and Confidentiality: G-ORB IT, GPS-USA	Nondisclosure agreements, computer ethics policy, <i>Code of Conduct</i>	Permissions process, firewalls, reverse proxy, anti-virus software	# Security violations # Viruses not prevented
User Friendliness: G-ORB IT, GPS-USA	Training	Help Desk training, associate training, pilot programs, focus groups, associate surveys	# Help Desk calls Survey results measures

Figure 4.2-2 Properties of Data, Information, and Organizational Knowledge

4.2b Organizational Knowledge

4.2b(1) The team-based culture and the use of Hoshin and Kaizen at G-ORB make knowledge transfer a natural event. Associates share knowledge within the work team structure and COPs through shared servers and a common database. COPs promote communication among associates with common skills, job responsibilities, or interests. The number of recognized COPs has grown from the original Catalysis Community three years ago to a current total of 22 communities. Eighteen of these COPs have members from across the Polyolefins Business Group. These communities have regular meetings, and some host Web sites, issue newsletters, or use other methods to increase communication. Customers, suppliers, and partners are encouraged to provide input to the COPs through G-ORB's Web site, by phone, and through written feedback.

The KTBG encourages work teams and individuals to post best practices for others to use on G-ORB's intranet Web site. This site includes a link to the GPS-USA Best Practices Web site, where search engines identify best practices across business units. Each year, a Best Practice Symposium is hosted by the Polyolefins Business Group to encourage the sharing of knowledge across GPC. G-ORB holds quarterly Best Practice Luncheons for all teams who have added best practices to the intranet Web site, as well as teams who have documented their use of a best practice discovered on the Web site. Participants are recognized by the Steering Team.

4.2b(2) G-ORB IT and GPS-USA share responsibility for ensuring that computer systems provide accurate, reliable, timely, and secure data. Figure 4.2-2 shows the processes used and measures reported.

5 Human Resource Focus

5.1 Work Systems

5.1a Organization and Management of Work

5.1a(1) G-ORB's team-based culture promotes cooperation, initiative, empowerment, and innovation in daily work. The team environment starts at the top of the organization with the Steering Team and encompasses all associates (including contract associates), at all levels, in all work areas. A variety of cross-functional and cross-product teams integrate data and analysis for strategic planning and reviews. These teams also promote cooperation across operating processes, functional areas, business groups, and GPS-USA. Work unit-level teams are the focal point of G-ORB's team structure. These include both self-directed work teams within functional areas and cross-functional teams across work areas. The most common examples of

cross-functional teams are the Production Shift Teams (PSTs), which include associates from shop, engineering, maintenance (including contract associates), purchasing, sales, and product development. The teams provide a collaborative structure for establishing goals and targets in the Hoshin planning phase, and they identify problems and develop new approaches and innovative solutions through the use of Kaizen. All G-ORB associates are on at least one work area team, and most participate on at least one cross-functional team.

Extensive training and education programs, associate access to key business information, and a strong Kaizen program support teamwork. Kaizen efforts of PSTs and self-directed work teams have enabled G-ORB to take a

systematic and collaborative approach to problem solving to fulfill its mission of providing high-quality polymers that make customers more competitive and provide value to shareholders. One of the key features of the PST daily meetings is a short “Fix” session to ensure that each associate knows the problems from the last shift, the plan for solving them, and new concerns.

The interrelationship of the team culture, Hoshin, and Kaizen allow G-ORB to keep current with business needs. Since teams are active in setting their objectives in the GCC Process, the Steering Team can monitor the activities and progress of these teams to ensure they are meeting business needs. On a more specific level, the Performance Team plays a key role in the GCC, ensuring that the team configurations enable associates and G-ORB to achieve high performance. The Performance Team also is responsible for monitoring the success of G-ORB’s work systems in supporting the G-ORB Value of *Successful Associates/ Successful Teams*.

5.1a(2) The implementation of Kaizen by all G-ORB teams allows the organization to capitalize on the diverse ideas and thinking of its associates. G-ORB’s Kaizen efforts are strongly driven by suggestion programs at both the team (KAIZEN) and individual (kaizen) levels. Once a week, the team “Fix” sessions are followed by a focused KAIZEN session. Each associate can suggest improvements in the working environment; machines and processes; office work; product quality; customer services and relations; energy, material, and other resources; or his or her own work. An ongoing Team Recognition Program, sponsored by the Performance Team, provides cash awards for the best team KAIZEN ideas that are implemented throughout the year.

G-ORB’s kaizen program takes idea generation to the individual level. Any associate can submit a kaizen suggestion at any time for improvements of any magnitude. All submissions are acknowledged within a day, reviewed by the work teams at weekly meetings, and resourced or referred back to the submitter within ten days. All implemented kaizen suggestions are published in the *Compass*, presented on closed-circuit television, and listed on kaizen bulletin boards throughout the plant. Suggestions resulting in the greatest cost savings or customer benefit are rewarded monetarily at quarterly Kaizen celebrations. Associates understand that an idea can be good even if it saves only a fraction of time or money. These small-scale improvement ideas, along with team KAIZEN ideas, add up to drive large-scale Kaizen improvements.

The BDTs and CATs, discussed in Item 3.1, provide a key source of input from G-ORB’s customers. Customer comments and data are considered a key information source for all team KAIZEN efforts.

5.1a(3) G-ORB’s team-based culture fosters communication and skill sharing within and across processes and functions, and it fosters cooperation across departmental lines to manage the complex tactical issues related to running the business. The team structure brings together appropriate associates from different parts of the business to act on issues that affect both their functional areas and the business in general. All PSTs and self-directed work teams have space reserved in their work areas for displaying the current level of suggestions submitted, recent achievements, KAIZEN implementation efforts, and results for key performance measures. Other approaches for sharing Kaizen ideas include the *Compass*, closed-circuit televisions in all break areas, monthly celebrations, daily “Fix” sessions, bulletin boards, a best practice Web site, and training sessions. The closed-circuit televisions, COPs, and rotational assignments are designed to rapidly disseminate best practices across the seven plants within the Polyolefins Business Group as well as across Business Groups where applicable.

5.1b Employee Performance Management System

Associates’ motivation is promoted by a work system designed to encourage responsibility, achievement, recognition, and personal and professional growth. G-ORB’s Kaizen has instilled a process orientation and a performance management system that support and acknowledge associates’ efforts for business improvement. The basic element of G-ORB’s performance management system is the Individual Development and Learning Map (IDLm). All associates construct IDLMs annually with the help of their supervisors to document work objectives and goals (driven by Hoshin planning), team participation and performance, and training and learning needs. Performance reviews are conducted annually using the IDLMs as a guide. Associates also receive feedback from peers, team members, internal customers, subordinates, and supervisors that may be used to adjust IDLM goals. The IDLM performance review process is designed to support an innovative, Kaizen-driven, results-oriented, and customer-focused workforce.

Compensation at all levels includes a variable component of 20% that is based on overall G-ORB performance. This further reinforces cooperation in working together toward meeting Course Coordinates and plans. Steering Team members’ performance is assessed against their own IDLMs and integrated with results from customer surveys and Baldrige self-assessments to determine individual compensation levels according to preestablished formulas. The KAIZEN (team) and kaizen (individual) suggestion programs directly support high performance and a customer and business focus within the organization. They provide an immediate return to associates in the form of recognition and, in many cases, a cash reward. In addition, G-ORB

benefits from resulting costs savings and/or improved Course Coordinate results.

5.1c Hiring and Career Progression

5.1c(1) The Recruiting Team, formed in 2000, formalized a list of attributes desired in new associates. The team used results from the annual Culture Survey and considered G-ORB's Mission, Values, and Goal. The attributes include personal and professional motivation, team orientation, Kaizen mindset, leadership potential, innovative skills, diversity appreciation, technical knowledge, and understanding of customer and supplier concepts. Interviewers are trained in behavioral interview skills to evaluate job candidates' fit with these attributes, increasing the likelihood that a new associate will be successful at G-ORB. The Recruiting Team reevaluates these associate attributes annually to determine if changes need to be made.

5.1c(2) Recruiting and hiring involve local high schools, community colleges, and universities across the United States. The Recruiting Team has mapped the process for identifying, interviewing, acquiring, and retaining new associates. In a cooperative effort with local high schools and community colleges, G-ORB associates co-teach courses within each educational setting. This allows the company to serve the surrounding community through information exchange regarding the chemical industry while allowing associates to identify potential new hires. Positions at G-ORB also are advertised in regional newspapers and in international and national chemistry publications. In addition, to ensure that associates represent the diversity of its hiring community, position announcements are sent to a list of traditional minority serving institutions (MSIs). A group of associates accompanies Steering Team members on visits to various MSIs to identify potential chemists and engineers, as well as other appropriate professions. Position announcements also are posted on G-ORB's Web site.

5.1c(3) G-ORB has an Executive Development Program that identifies future leaders and defines a job and education course to prepare them for senior management roles in the organization. As part of this program, the Development and Learning (D&L) Manager meets annually with the President to confirm who will be attending executive training that year. The D&L Manager makes program recommendations and meets with the candidate and his or her supervisor to select a course. In addition, the program offers a well-planned series of rotational assignments within GPC for key management, engineering, and research associates.

When an associate receives a promotion or is transferred to a different department, a D&L representative talks with that person's new supervisor to identify the associate's training needs for the new job. This is documented on the

associate's IDLM and then scheduled by the associate. As part of the IDLM process, all associates receive feedback concerning performance, leadership potential, developmental opportunities, successes, and opportunities for improvement.

G-ORB's efforts to address the future turnover of its mature workforce include a new mentor/coaching program called WINGS as part of the strategic plan. This program will pair associates with over ten years' experience with other associates with at least five years' experience who have a well-defined career progression. WINGS pairs will work together on six-month job rotation sessions to disseminate knowledge concerning key job positions. WINGS also will help identify the most proficient associates for future job assignments.

5.2 Employee Learning and Motivation

5.2a Employee Education, Training, and Development

5.2a(1) As part of the GCC Process, the Performance Team evaluates work and job design, associate performance to goals, skills needed, staffing requirements, and career planning. The appropriate information from these reviews is used by the D&L Team to evaluate development and training plans, D&L Department objectives, and the budget to ensure alignment with organizational goals. The Steering Team monitors the company's short- and long-term learning initiatives using results and data provided by the Performance Team.

Since the IDLM is an inherent part of the performance management system, associates' needs are continuously balanced against short- and long-term organization objectives using a four-element approach to design and deliver education and training: Competency-Based Training, Strategic Training, Compliance Training, and Workforce Enhancement Training.

Competency-Based Training improves job-related skills to maintain associates' technical competence. Over the last five years, the D&L Team has developed Competency Maps for all of G-ORB's various job families. The Competency Map details the competencies for each job and the training needed to acquire these competencies. One exists for all key job areas within G-ORB, including operators, engineers, researchers, and maintenance, purchasing, and sales staff. Associates use this Competency Map annually as they identify training needs on their IDLMs. The newest facet of Competency-Based Training, WINGS, will essentially provide in-depth, on-the-job competency training.

Strategic Training directly supports the company's business initiatives and helps associates understand specifically how G-ORB operates. The newest facet of Strategic Training is the development of a Team Development and Learning

Map (TDLM). The D&L Team has compiled skills and training maps for all the various types of teams within G-ORB. The TDLM details the skills required by team members and the training courses through which they can gain these skills. Team members use the TDLM to identify additional training opportunities for their IDLMs.

Compliance Training includes all government and/or company-mandated programs, such as initiatives required to meet safety standards. Workforce Enhancement Training includes cross-training and job-related skills training to increase an associate's versatility and value to the company.

Successful Associates/Successful Teams is the underlying Value behind all organizational performance measurement and improvement at G-ORB. As such, part of the basic orientation for every associate addresses this Value. All associates receive Directions I training. Directions I includes training modules that address Team Formation, Kaizen (Quality Process Management and Quality Tools), Hoshin Planning, Customer Interactions, and U.S./Japanese Cultural Awareness. Directions II training is an advanced refresher course on these topics that includes an additional module addressing fast transfer of information and COPs, both within the plant and across geographic locations. The Directions training modules serve to support G-ORB's team culture, the KAIZEN and kaizen suggestion programs, and the Hoshin planning efforts. Key technological changes are addressed through courses such as Knowledge Management and e-commerce.

5.2a(2) The D&L Team maintains a matrix to ensure that training and development programs address key organizational needs. During the GCC Process, the Steering Team identifies new courses or development opportunities that may be needed to support changes in key areas.

All new associates receive a one-day orientation to G-ORB that includes an overview of GPC, the G-ORB plant, the GPC *Code of Conduct*, a safety orientation, and the Kaizen philosophy. Directions I is required training during an associate's first two months on the job. Individual department supervisors are also responsible for assimilating new associates into the plant and the department.

In 2000, as a result of the GCC Process, G-ORB introduced a diversity program titled Valuing Differences. Existing training covering Diversity Appreciation, Positive Associate Relations, and Prevention of Harassment also was enhanced. Ethical business practices are included in the Partners in Trust module of New Hire Orientation, as is the GPC *Code of Conduct*. During 2000, as part of the Executive Development Program, courses such as Moving from Manager to Leader, Associate Accountability, and Pragmatic Coaching were added.

The D&L Department and GPS-USA provide extensive support for health and safety initiatives. This includes interactive on-line training offered to meet OSHA safety training requirements. G-ORB also conducts extensive hands-on safety training for the Emergency Response Team. In 2002, G-ORB sponsored CPR classes for all associates exposed to electrical hazards.

5.2a(3) Individual training and development needs, identified annually during associates' performance reviews, are included on each associate's IDLM. Supervisors and associates jointly agree on training to address immediate and developmental needs. D&L Team members conduct surveys, training needs assessments, performance needs analyses, and one-on-one discussions with managers, supervisors, and associates to identify additional training needs.

The new WINGS program will provide innovative, on-the-job training from experienced associates to less experienced associates. For courses developed internally, associates with "expert" knowledge develop and teach these topics. This allows both general knowledge and specific information relative to G-ORB's operations to be communicated by the associates who deal with it every day.

5.2a(4) A key goal of the D&L Department is to provide effective, just-in-time training that allows associates to apply new skills rapidly and directly on the job. Many training needs are met through courses provided by GPS-USA. GPS-USA takes a multiplatform approach that includes technology-based training, standup classroom delivery (supplemented by video, case studies, and hands-on activities), self-study, videoconferencing, and on-the-job training. D&L routinely updates its resource center, which includes books, videotapes, audiotapes, and CD-ROMs. D&L is currently piloting a Net Library that gives associates on-line access to over 30,000 management, professional, and technical publications. When highly specialized training is required, G-ORB supports attendance at outside seminars. A full tuition reimbursement program supports associates in continuing education whether in the traditional classroom setting or on-line.

One additional approach used to transfer learning is the rotation of GPC's engineering associates. Senior GPC engineers on site at G-ORB teach and mentor junior engineers. G-ORB also has a job rotation program that allows more experienced G-ORB engineers to participate in three-year rotation assignments in Japan.

5.2a(5) G-ORB has several approaches to ensure that training is used successfully on the job. In many cases, members of functional teams attend training sessions together (e.g., for training in Team Dynamics, Kaizen, and Handling Conflict). Prior to the session, specific issues to

be addressed are identified through discussions with the associates and/or the supervisor. During training, teams develop projects and establish improvement objectives to implement on the job. Managers take responsibility for seeing that new skills are reinforced when associates return to work and hold follow-up sessions to evaluate the effectiveness of training.

G-ORB's performance appraisal system also focuses on reinforcing individuals and teams that use quality tools and techniques to foster improvement. Associates who learn new skills, apply them to the job, and then show improvement in their IDLM objectives are rewarded through the performance appraisal system. In addition, associates who use new skills to submit kaizen suggestions may be rewarded monetarily for their efforts.

5.2a(6) For every training course offered, the D&L Team establishes expectations and outcomes for the training to ensure that it meets the specified need. When the training is complete, a follow-up meeting is held to verify that the content was appropriate and the need was met. Additionally, four levels of evaluation are used for training courses, including reaction data, pre- and post-tests, behavioral change assessment, and return on investment estimation.

5.2b Motivation and Career Development

The IDLM appraisal system motivates associates to identify, develop, and utilize their full potential. With their supervisors, associates develop their own goals through the Hoshin Planning Process, identify their own training and development objectives, and continuously update their career paths. As supervisors help associates develop their IDLMs, they focus on enhancing skills and job-performance expertise with cross-education and development opportunities. The widespread use of Kaizen, including the kaizen suggestion system, also engages associates in continuous self-development to become better problem solvers. Supervisors throughout G-ORB support the widespread team activities, guide daily team KAIZEN efforts, and recognize individual kaizen suggestions.

5.3 Employee Well-Being and Satisfaction

5.3a Work Environment

5.3a(1) G-ORB has a variety of processes to support a preventive mindset toward safety and health. Preventive action is stressed as a requirement for process hazards analysis, pre-startup safety reviews, management of change, systematic investigations (applied to both accidents and near-misses), and emergency planning and response. A key approach in these efforts is EAGLE (Eliminating Accidents Gives Lessons in Excellence), a behavior-based safety program with a proactive approach for eliminating accidents and injuries. Using peer observations, data tracking, and Kaizen, the EAGLE Program seeks to eliminate any behaviors that could cause injuries.

This is important not only for the protection of G-ORB's associates and contractors but also for the safety and well-being of its community. Nearly all of G-ORB's associates, including maintenance and construction contract associates, are actively involved in the EAGLE Program. The EAGLE Program also encompasses G-ORB's offices and other work environments. As a result of the EAGLE Program efforts, G-ORB has achieved OSHA's Star Site status.

In daily operations, any associate has the authority and responsibility to halt production or maintenance if an unsafe condition exists. Any associate may submit a Safety Improvement Sheet (SIS) to bring attention to a safety issue. Cross-functional EAGLE Teams prioritize these sheets for each department and determine which projects receive funding. EAGLE Teams in each plant area participate in audits of safety, documentation, and process safety management. Senior managers participate in audit reviews and track findings until they are completed to the satisfaction of EAGLE Team members. The audit process provides management with an overall evaluation to focus attention, drive corrective action, and acknowledge good performance. EAGLE Teams identify performance measures, monitor performance, and implement improvements for issues arising in their specific areas. Figure 5.3-1 includes performance measures for key safety, health, and environmental factors.

G-ORB's annual capital expenditures include significant projects relating to safety, health, and environmental improvement. As part of these projects, ergonomic studies are conducted to ensure that a user-friendly work environment is maintained. Associates are involved in the creation and/or review of designs for many of these projects and are encouraged to submit suggestions for improvements to their immediate work area through the EAGLE or kaizen programs.

5.3a(2) Another part of ensuring safety is G-ORB's Emergency Response Team (ERT), which has 168 active participants. Minimum staffing is 25 per shift plus 15 day members. ERT members are trained on fire procedures, rescue, hazardous materials, medical procedures, and emergency care. ERTs coordinate all in-plant activities should an accident occur and support the EAGLE Program through the monthly audits. The most recent activation of an ERT occurred in October 2002 when hurricane Lili hit Louisiana. The ERT handled hurricane tracking, plant preparedness, and plant evacuation and supported the Red Cross by helping to staff a local shelter used by many of the associates and their families.

5.3b Employee Support and Satisfaction

5.3b(1) In 1997, G-ORB used an outside consulting firm to help revise the annual Culture Survey and to better

SH&E Factor	Performance Measures	Results Figure
OSHA Reportables	Total Case Incidence Rate (TCIR)	Figure 7.4-2
	Days Away, Restricted, or Transferred (DART) Rate Star Site Status	Figure 7.4-3
EAGLE Program	# SISs submitted	Figure 7.4-4
	# SISs implemented	Figure 7.4-4

Figure 5.3-1 Measures for Key Safety, Health, and Environmental Factors

understand the drivers of associate satisfaction. The firm conducted an analysis to assess the relative importance and interrelationships among several factors. Each year, these relationships are revisited after Culture Survey results are compiled. Since 2000, the most important contributors to commitment to the company's success were (1) I am respected by my boss and coworkers, (2) I have the opportunity to develop my skills and abilities, and (3) I am recognized for my KAIZEN and kaizen contributions. The most important contributors to the belief that G-ORB will provide high-quality polymers that make its customers more competitive were (1) We continuously apply Kaizen, (2) We have a strong customer focus and build relationships, and (3) We have reliable internal operations. The results from the Culture Survey for these key factors receive special attention since they are important to the success of G-ORB's strategy.

5.3b(2) To support an excellent work climate for associate well-being and satisfaction, G-ORB offers a wide variety of programs, services, and facilities. Health plans include medical insurance with PPO and HMO options, dental and vision plans, and Associate Assistance Programs. Financial services include life insurance, a 401(k) savings plan that matches 10% of associate contributions dollar for dollar, a company-provided supplement to Worker's Compensation, and a full-service credit union. Recognizing that associates' needs vary, G-ORB allows individuals to select those benefits that best suit their lifestyles and needs. Associates have the option to buy extra benefits, including extra vacation time and insurance coverage levels, beyond the normal plan levels. Associates also may make suggestions at any time regarding services and benefits through the kaizen program. In fact, suggestions received through this program have resulted in many changes to G-ORB's services and benefits.

G-ORB also sponsors community and social activities based on input from associates. These

include softball, bowling, golf tournaments, bike rides, and walk-a-thons. G-ORB sponsors an in-plant Fitness Center, an Associate Club, a Retirees Association, an annual picnic, and a holiday party. Because associates manage most of these activities, they have the ability to ensure their needs are met. Members of the Steering Team also sponsor some social activities that help support the team atmosphere while building relationships at the individual level. Such activities include the President's fishing weekends and golfing with Mr. Yano. Additional health services include an annual physical; CPR training; safety glasses, shoes, and fire retardant uniforms; defensive driving classes; and recreational safety courses covering topics such as hunting and boating. To consider the needs of various work groups, services include training for operators on coping with shift work and flexible hours for office personnel. Additional programs include tuition reimbursement and professional and developmental seminars. A child care resource and referral program, a leave-of-absence policy, and preretirement counseling were all introduced in 2001.

5.3b(3) The primary formal approach for gathering associate satisfaction data is the annual Culture Survey. All departments and associate groups are included in this survey, with over a 95% response rate. Results are analyzed by department and eight different associate categories.

G-ORB's work culture emphasizes communication, face-to-face interaction, and openness at all levels of the organization. This culture provides ongoing informal monitoring of associates' needs and issues. The Steering Team has a

Assessment Methods	Measures and Indicators
Conduct annual Culture Survey and analyze data	<ul style="list-style-type: none"> Associate satisfaction segmented by job groups (Figure 7.4-10) Annual rate of absenteeism/sick time Associate turnover, segmented by type of turnover (Figure 7.4-9)
Conduct exit interviews	Percentage of associate turnover, segmented by reason
Collect and analyze data on safety	<ul style="list-style-type: none"> OSHA reportables (TCIR and DART) (Figures 7.4-2 and 7.4-3) and Star Site status EAGLE SIS submission and implementation (Figure 7.4-4)
Collect and analyze data on the Kaizen programs	Number of KAIZEN and Kaizen suggestions submitted and implemented (Figures 7.4-5 and 7.4-6)
Steering Team members conduct informal interviews (3 hours per week for each team member) with associates	Number of associates' concerns discussed in monthly <i>Successful Associates/Successful Teams</i> Review and annual Leadership Assessment session

Figure 5.3-2 Associates' Well-being, Satisfaction, and Motivation: Sample of Assessment Methods and Measures

commitment to interact face-to-face with associates three hours per week. Figure 5.3-2 lists several methods and measures for determining associate satisfaction and how they are reviewed for improvement. These measures are updated and discussed at monthly Successful Associates/Successful Teams Review sessions.

5.3b(4) The Performance Team uses the Culture Survey results, along with other associate satisfaction information, to identify priorities for improvement relative to the work climate and to understand the linkage to business results. In addition, the Steering Team, department managers, and

supervisors develop action plans based on the Culture Survey results.

Associates consistently cite employment stability as their most important concern. The associates understand the dangers of a cyclical business, especially when almost all of G-ORB's competitors have experienced layoffs or some form of downsizing at the bottom of the business cycle. G-ORB has never had a layoff, a fact that is well appreciated by its associates. This motivates associates to support the improvement objectives focused around achieving the goal of profitability at all phases of the cycle.

6 Process Management

6.1 Value Creation Processes

6.1a(1, 2) As part of the GSAC Process—specifically Risk Reward Analysis—the Steering Team uses a process ranking method to select key value creation processes. This method focuses on resources, fit to the organization, impact on profitability and business success, and impact on customer satisfaction or attainment of values. The revised key value creation processes are shared with work units for input prior to finalization. The current key value creation processes are listed in Figure 6.1-1. The direct alignment of key value creation processes to key customer requirements or company values ensures that these processes create value for G-ORB, its customers, and its stakeholders.

6.1a(2) Each key value creation process is guided by a sponsor team, as shown in Figure 6.1-1, and ISO 9001:2000 Procedure B14-22-004. Twice a year, each team discusses requirements, measures, and results for its key value creation process. Key requirements are integrated within G-ORB by inclusion in the appropriate department or company Course Coordinate. Also, conclusions from the key value creation process reviews are provided as input to the GSAC meeting. The sponsor teams invite process owners to participate in these reviews, and they prepare data and information about the process, emerging trends, and supplier and customer input and capabilities. For example, the VP of Manufacturing participates in the Supplier Scan Team review of supplier partnering, and maintenance managers participate in the Right Technology Team review of production process technology.

6.1a(3) G-ORB's design process, based on Kaizen principles and ISO 9001:2000, is called the Cartography Design Process (CDP) (Figure 6.1-3) as a reminder that the design of new processes, products, and services requires a map to ensure that everyone knows where they are going and how to get there. Each sponsor team (Figure 6.1-1) is responsible for the design and introduction of new processes, products, and services. The BDTs, with the Explorers, are

responsible for the design and introduction of new products in their respective market segments. G-ORB marketing and technical associates gather external customer requirements and determine product and service features using QFD techniques. The sponsor team reviews Project Initiation Forms (PIFs) and supporting documentation and decides whether to initiate process, product, or service design projects. While any associate can initiate a design project, many product, process, or service designs come either from the Original Thought Process (Figure 6.2-1), managed by the Right Technology Team, or from the Polyolefins Business Group Technology Council. Design project innovation and initiation are often a collaborative process involving the Technology Council, the Right Technology Team, BDTs, CATs, and associates.

The Technology Council (composed of technical managers from each of the Polyolefins Business Group's three technology laboratories) monitors progress in technology throughout the industry and manages technology to meet the Polyolefins Business Group strategy. Three times a year, the Technology Council meets with catalyst and additive suppliers to monitor advances in raw materials. Twice a year, the Technology Council sponsors a forum with suppliers and technology leaders in academia and in government and industry consortia to exchange views on emerging and maturing technologies and tools (e.g., High Throughput Experimentation, data mining). As part of the Global Scan, the Technology Council biannually reviews all development projects and makes suggestions to initiate, revise, or eliminate projects. These suggestions focus on technology enhancements and the effectiveness of determining customer requirements.

Process, product, and service design projects are documented in a similar fashion within the CDP Database (Figure 6.1-2) and follow the documented 14-step CDP (Figure 6.1-3) and ISO 9001:2000 Procedure B24-42-00. The database is available to associates across the Polyolefins Business Group.

Key Customer Requirement/ Value	Key Value Creation Process 6.1a(1)	Requirement 6.1a(2)	Course Coordinates 6.1a(4)	Control Method	Team	In-Process Control Course Coordinates
DESIGN PRODUCT						
Right Technology/ Right Cost	Product/Process Development	Reduce product variability Develop equipment to support new designs	Product Consistency (7.2-1) MI Cpk (7.5-9) New Products as % of Sales (7.5-5) Product Development Cycle Time (7.5-6)	CDP	Polyolefins Business Group Tech. Council Right Technology Team	Ppk of New Products*
Right Technology	Catalyst and Additive Development	Reduce product variability Improve productivity Support niche products	Product Consistency (7.2-1) MI Cpk (7.5-9) Productivity (7.5-4) New Products as % of Sales (7.5-5)	CDP	Polyolefins Business Group Tech. Council Right Technology Team	Ppk of New Products* Catalyst Productivity*
Growth Through Partnerships	Other External Partnering (government, industry, academia)	Understand impact of emerging trends	New Products as % of Sales (7.5-5)	External Partnering Process	Stretch Team	% Planned Partnerships Implemented*
RAW MATERIALS						
Product Quality	Raw Material Procurement	Conformance to specs. of JMK, merchants	Monomer, Additive Cpk (7.5-1A and B, 7.5-2)	SPC	Supplier Scan Team	Raw Material Consistency*
Growth Through Partnerships	Supplier Partnering	Production improvement Involvement in new designs	MI Cpk (7.5-9) Product Development Cycle Time (7.5-6)	Supplier Partnering Process	Supplier Scan Team	% Planned Supplier Partnerships Implemented*
MAKE PRODUCT						
Product Consistency	Reactor Operations	Conformance to Control Plan	Product Consistency (7.2-1) MI Cpk (7.5-9)	SPC/APC	Optimal Team	Reactor In-Line Melt Index*
Right Technology/ Right Cost	Computer System Development	Network reliability Improve productivity	Productivity (7.5-4)	Server Maintenance	IT Team	System Uptime and Help Desk Response Time (7.5-12)
Right Cost	Knowledge Management	Speed in implementing practices/technology Quick access to knowledge/information	Productivity (7.5-4)	Networks and COPS	Quality in Practice Team	COPs and Associate Participation (7.5-10) Best Practices on Web site & # of Times Accessed (7.5-11)

continued on next page

Figure 6.1-1 Key Value Creation Processes

Key Customer Requirement/ Value	Key Value Creation Process 6.1a(1)	Requirement 6.1a(2)	Course Coordinates 6.1a(4)	Control Method	Team	In-Process Control Course Coordinates
Right Environment	Safety, Health, and Environmental Management	Maintain responsible operations and product development	EPA Reportables (7.6-5) OSHA Reportables (7.4-2, 7.4-3) CAPP Scores (7.6-4)	SH&E Risk Management Plans	Steering Team Right Environment Team	EAGLE Observation Rate* Safety and Environmental Near Misses*
DELIVER PRODUCT						
On-time Product Delivery	Transportation Procurement	On-time Delivery	On-time Delivery (7.2-2)	SPC	Supplier Scan Team	On-time Delivery (7.2-2)
CUSTOMERS' USE OF PRODUCT						
Growth Through Partnerships	Customer Partnering	Understand future markets and requirements	Customer Retention (7.1-6) Wins and Losses (7.1-10)	Customer Partnering Process	Customer Check Team	% Planned Customer Partnerships Implemented*

*Due to the application page limit restrictions, all results for measures in Figure 6.1-1 could not be presented. They are available upon request.

Note: Each process is documented in G-ORB's ISO Manual.

Documentation Inputs
<ul style="list-style-type: none"> • Project title, date initiated, expected completion date • Specific objective of the project (for products, this includes customer/market needs related to resin properties) • Justification and business impact • Resource requirements • Linkage to company Future Course and Course Coordinates • Project champions/project number/team members • Documentation on project progress • Milestones, costs, and full product development cycle time

Figure 6.1-2 Contents of CDP Database

The Steering Team and the sponsor team jointly review each project and set goals and priorities. Sponsor teams review progress with the project leaders. Key projects are integrated into the Strategy Map and Future Courses, including capital expenditures and resource requirements. Projects are staffed by a cross-functional BDT (see Item 3.1) with a Project Leader. Each project proceeds through a 14-step process with reviews conducted at scheduled intervals by the respective sponsor team. If the initial results are encouraging, production trials are approved for the pilot facilities or an internal trial for service projects. A customer champion (usually an Explorer) is assigned to each project to translate customer needs outlined in the project into measurable resin properties or service requirements and to develop a control plan using a Project Analysis Form (PAF). The control plan includes specifications that identify the critical resin properties or service levels, the measurement plan, and any critical process parameters. Last year, the design process was modified to add a supplier champion and SH&E advisor to each project. Supplier champions determine supplier requirements and work directly with suppliers and G-ORB associates in Purchasing, Logistics, and Product Development and Service (PD&S). SH&E advisors ensure that projects assess environmental and health impacts early in the process. The sponsor team again reviews the project after pilot production or internal service trial and can approve sampling or service pilot testing to a customer. Process capability, costs, and customer needs are evaluated prior to initiating or revising any process or sending any material or service to a customer.

Before any commercial production, the specifications are reviewed and approved by Manufacturing, Planning and Analysis, PD&S, the Catalyst and Process Development Group (C&PD), and the BDT. The Steering Team and the sponsor team give final process or product commercial approval. Before implementing any process or service modification, specifications are reviewed by the sponsor team and the departments implementing the service. All

Figure 6.1-1 Key Value Creation Processes (continued)

Step	Action	Responsibility
1	PIF	Project Initiator
2	Review/Approval	Sponsor Team
3	Assign Leader, Champions	Sponsor Team
4	PAF, Add to CDP Database	Project Leader
5	Develop Control Plan	Project Leader
6	Experimental Process/Product/Service Trial	Process Owner
7	Review/Approval	Project Leader/Sponsor Team
8	Customer Pilot Test	Customer Champion
9	Review/Approval	Project Leader/Sponsor Team & Others
10	Process/Product/Service Trial/Customer Trial	Process Owner, Customer Champion
11	Review/Approval	Project Leader/Sponsor Team
12	Process/Product/Service Campaign Trial/Customer Trial	Process Owner/Customer Champion
13	Review/Approval	Project Leader/Sponsor Team
14	Project Commercialization	Process Owner

Figure 6.1-3 Cartography Design Process (CDP)

associates also have the chance to review specifications for each new product, process, or service design via the company intranet during a ten-day period.

6.1a(4, 6) Figure 6.1-1 lists the Course Coordinates (measures and indicators) associated with G-ORB's key value creation processes. Functional areas routinely monitor in-process Course Coordinates daily, weekly, or monthly based on the cycle time of data. For example, product consistency is calculated daily during manufacturing work unit meetings, and operators immediately can see the consistency of the product they are producing within the Distributed Control System (DCS). Customer involvement in partnering is reviewed monthly during the Customer Check Team meetings. Key strategic Course Coordinates for each key value creation process are reviewed monthly by the Steering Team in the Navigation Reviews. These review meetings can generate process improvement ideas that are assigned to a KAIZEN Team.

Customer feedback regarding key value creation processes is obtained during customer meetings, both at the customer's site and at the Baton Rouge facility. G-ORB has developed a checklist of key items to cover with the customer. Explorers, Guides, on-site engineers, and PD&S associates use this list. Among the items covered are feedback on customer partnering activities and on the three critical

quality and service customer requirements. Customers' comments and suggestions either become Kaizen improvements or are included within CARs. Each of these communication items is copied to appropriate key value creation process sponsor teams.

G-ORB began partnering with railroad organizations in 1999 to improve delivery performance. A railroad industry strike in 2001 impacted on-time delivery performance for the entire polymer industry, but during this time, G-ORB discovered alternative delivery means: barge and truck. Although these are not the ideal or least costly options, G-ORB can now leverage them for critical customer situations and offer incentives to improve rail delivery performance.

Supplier feedback regarding key value creation processes is obtained during Purchasing, Logistics, or Strategic Procurement supplier performance review meetings, usually held quarterly, with key monomer, additive, catalyst, contractor, rail, ship, and truck suppliers. During these reviews, key measures are discussed with the supplier. Improvement ideas from suppliers either become Supplier Improvement Projects or are included in performance review reports. These communication items are copied to appropriate key value creation process sponsor teams.

6.1a(5, 6) Testing and auditing are regular topics during customer meetings and supplier performance reviews as G-ORB, its suppliers, and its customers seek to improve quality while balancing costs. Agreed-upon changes are documented through Kaizen improvements or performance review reports. G-ORB has greatly reduced in-process testing of monomers by electronically linking pipeline process outputs from monomer suppliers to G-ORB's manufacturing DCS. Monomer suppliers proved that their test equipment was more accurate and gave real-time trends. Presentation of statistical capability data to customers has allowed G-ORB to reduce testing in 14 operation product control plans over the past year.

Each key process control plan is reviewed annually by the Quality in Practice Team and sponsor teams. Inspections, testing, and auditing are reviewed to assess the value of performing the process check. Process capability analysis includes understanding causes of out-of-control points, any product/process/service produced outside customer specifications, and ways to reduce common cause variation. Frequency of the process checks also is reviewed. A cost benefit analysis often is done, and modification or elimination may be recommended. If a systematic improvement is identified during the control plan review, the CDP (Figure 6.1-3) is used to implement the revision. A revision to the control plan may be considered at any time by submitting a kaizen idea to the VP of Total Quality or the Quality in Practice Team.

6.1a(6) As mentioned earlier, G-ORB uses input from suppliers; other partners such as government and industry consortia and academia; and customers to improve its key value creation processes. Internal forums for improving key value creation processes are held. Monthly Navigation Reviews and daily and weekly manufacturing and supplier performance review meetings all include a specific agenda item asking appropriate associates and sponsor teams what process improvements (Course Corrections) are needed. Agreed-upon process improvements become Kaizen improvement projects. ISO 9001:2000 Procedure B11-29-001 documents the Kaizen Process.

The ability to share learnings quickly across GPC is a key competitive advantage. Over the past three years, the seven plants of the Polyolefins Business Group, including G-ORB, have built on previous intersite sharing methods and developed new methods to quickly transfer knowledge and practices across sites to enhance technology development, reduce waste, and improve efficiencies. COPs (including communities of engineers, researchers, and Human Resources and reactor shift associates) have been initiated across the seven sites, aided by electronic posting and data exchange via a G-ORB intranet Web site. Best Practices Rotation Teams, a precursor to COPs, were established in 1997 as a means to quickly identify and transfer best practices across sites. The Rotation Teams are three-person teams of engineers who spend two months at each of the seven Polyolefin sites training local associates on best practices targeted for speedy transfer, as well as identifying best practices to take to other plants. For example, the most significant projects identified last year by a Rotation Team were identification of a supplier who provided more reliable reactor seals at a lower cost and a review of recycle tower energy usage to revise process control DCS settings and reduce energy usage by 12%.

As mentioned in Category 5, the *Compass* is distributed to associates, key customers, and suppliers. A regular column reviews all key value creation process changes. This ensures that not only individual associates but also other key participants of the supply chain are informed about critical process changes.

6.2 Support Processes

6.2a(1) To determine its key support processes, G-ORB uses the same ranking method as it does for its value creation processes. Key support processes help address G-ORB's three critical quality and service customer requirements. These processes are listed along with their key requirements in Figure 6.2-1.

6.2a(2) As with G-ORB's key value creation processes, each key support process is guided by a sponsor team, as shown in Figure 6.2-1. Each sponsor team discusses requirements, measures, and results for its key support

process two times a year. Key requirements are integrated within the company by inclusion in the appropriate work unit or G-ORB Course Coordinate. Also, conclusions from the key support process reviews provide input for the GSAC Process. The sponsor teams invite process owners to participate in these reviews, and they prepare data and information about the process, emerging trends, and internal customer input and capabilities. For example, key internal users participate in the IT Team review of information systems, and the Accounting Manager participates in the Customer Check Team review of the customer invoicing process.

6.2a(3) As with products and services, the CDP (Figure 6.1-3) is used to design key support processes within G-ORB and with GPS-USA. Key requirements are defined in Step 5 of the process and refined in Steps 8–13. The requirements are determined by using G-ORB's strength/benefit analysis technique with internal and external customers.

Course Coordinates are the primary means for deploying key process requirements for support services as well as for key value creation processes. GPS-USA, like G-ORB, has Course Coordinates within its Strategy Map. Following deployment of higher-level Course Coordinates and initiatives, functional work units identify their key Course Coordinates, action plans, and objectives. A sponsor team is responsible for each key support process and utilizes the CDP process to follow key improvement projects. If key requirements change for a support process, a CDP Kaizen improvement project is initiated to redesign the process.

6.2a(4, 5) Figure 6.2-1 lists in-process Course Coordinates associated with G-ORB's key support processes. To control G-ORB support processes, functional work units monitor in-process Course Coordinates on a daily, weekly, or monthly basis, depending on the cycle time of the data. For example, user feedback on information systems is solicited after each Help Desk call and after each major IT project implementation or upgrade. The results are reviewed monthly during the IT Team meetings.

G-ORB's approach for measurement for support processes mirrors the process used for product and service delivery processes. Associates within each work unit are designated to gather and publish the data on key Course Coordinates regularly. This information is used by managers for their own review, as well as for discussion during the GSAC Process. Most work units use their Course Coordinates as the primary signal to indicate when action is required. Support functions also have methods to track nonconformances and take preventive action to address system problems as part of the ISO 9001:2000 system.

Support Processes	Requirements	Team	In-Process Course Coordinates
Maintenance	Reliable plant operations	Optimal Team	– Plant Stream Factor – Average Turnaround Time
Finance and Accounting	Accuracy	Customer Check Team	– Invoice Accuracy – Internal Customer Feedback – Business Forecast Accuracy
Information Systems	Information at time needed	IT Team	– User Feedback – System Uptime
Engineering	Reliable and safe designs	Right Technology Team	– Plant Stream Factor – Design Errors Within First 90 Days
Original Thought Process (6.1a[3])	– Product/process leads/breakthroughs – Emerging technology partnerships	Right Technology Team	– # of Brainstorming Sessions – # of New Leads/Breakthroughs Proposed in CDP
Communities of Practice (COPs)	Speed knowledge and technology transfer across G-ORB and Polyolefins Business Group	Quality in Practice Team	– # COPs, # of Members – # Best Practices on Web site and # Times Accessed

Figure 6.2-1 Key Support Processes and Requirements

Testing and auditing are regular topics during key support process reviews. Improvement of support processes is a cooperative effort by all parts of the organization to improve quality while balancing costs. Agreed-upon changes are documented through Kaizen improvements, CDP projects, or reports. G-ORB has greatly reduced invoice and billing audits by recently implementing a CDP project to improve the accuracy of cost information input to the CHEM-ERS computer system. The CHEM-ERS system is now more likely to catch billing discrepancies, either to the customer or from suppliers. Another key example is the presentation of statistical stream factor and equipment capability data during an LLDPE Optimal Team meeting. It generated discussion about the continued need for downtime to replace in-line feeders and test equipment used for the production line for film grade and municipal trash can market products. The topic originated with a kaizen idea submitted by a process engineer and contractor maintenance technician. The review allowed G-ORB to reduce the downtime and equipment replacement on the lines while maintaining product capability, increasing stream factors, and reducing maintenance costs.

6.2a(6) Review meetings by sponsor teams who guide key support processes can generate process improvement ideas

that are then assigned for initiation of a Kaizen improvement or CDP project.

G-ORB Internal Customer Day is conducted annually. Using a trade show format where support areas have booths set up to facilitate discussions, key support process owners interact with internal users to actively solicit process improvement ideas. Internal customer comments are documented for use by work units and sponsor teams to develop Kaizen improvement or CDP projects. Internal Customer Day has been very successful in obtaining internal customer feedback. Participation has grown from 5% of associates in 1999 to 57% of associates in 2002. G-ORB uses a number of other mechanisms to drive improvements in support processes.

- Safety and environmental systems are reviewed as part of G-ORB's CAPP initiative.
- Findings from the ISO 9001:2000 quality system and environmental and safety audits are widely communicated.
- The annual Baldrige-based self-assessment includes identification of support area improvement opportunities.
- Reviews of the CPRI Customer Satisfaction Survey results for improvement needs include issues in support functions.

7 Business Results

G-ORB compares favorably against world-class benchmarks and is at, approaching, or projecting levels equal to world-class levels for many measurements. However, G-ORB's intent is not to be the world-class benchmark for all processes and results but to be the best in its industry. G-ORB also compares itself against the top quartile in the industry.

7.1 Customer-Focused Results

G-ORB demonstrates favorable levels and trends for all customer-focused results and is the industry leader for most measurements.

In 1999, G-ORB initiated a process improvement after benchmarking a Baldrige Award recipient's world-class complaint management system. Now customers are asked to suggest an expected resolution interval, since every customer has a different expectation for the time it takes to resolve a complaint. Compliance with this interval is tracked. Figure 7.1-1 demonstrates that since 2000 the percentage of complaints resolved within customer expectations has almost doubled and greatly exceeds the industry average.

A key customer contact requirement is to resolve complaints and issues on the first contact with G-ORB, if possible. Figure 7.1-2 demonstrates a 1.7-fold improvement in the percentage of complaints resolved on first contact by G-ORB since 2000. In addition, G-ORB's customer satisfaction with complaint resolution has more than doubled since 2000, as demonstrated in Figure 7.1-3.

G-ORB renewed its focus on measuring customer satisfaction in 1998 after determining the predictors of customer buying behavior and their correlation to financial performance (see Area 3.2b[1]). Once the baseline measures were established in 1998, G-ORB embarked on a concerted effort to improve customer satisfaction results, as is evidenced by the marked level of improvement in various customer satisfaction scores in 1999 (and continued improvement through the present). Overall Customer Satisfaction (Figure 7.1-4) improved 7%, Recommend to Others (Figure 7.1-5) improved 9%, Repurchase (Figure 7.1-6) improved 6%, and Value (Figure 7.1-7) improved 12%. As the time it took to complete the satisfaction survey decreased, the survey response rate improved (Figure 7.1-8). With the survey completion time now only about 5 minutes, the response rate of 78% equals that of the best-in-class. As a result of its renewed focus, G-ORB is the industry leader in customer satisfaction and is at or approaching best-in-class benchmark levels.

The CSII determines if levels of customer satisfaction for products and services for various industries in the United

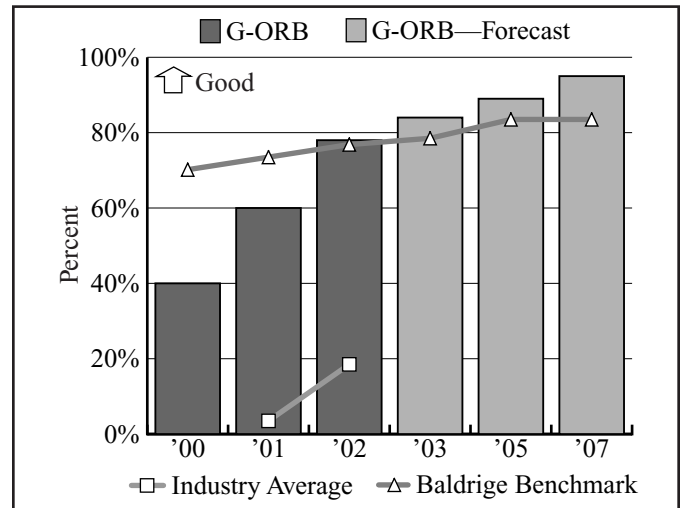


Figure 7.1-1 Complaints Resolved Within the Customer's Expectations

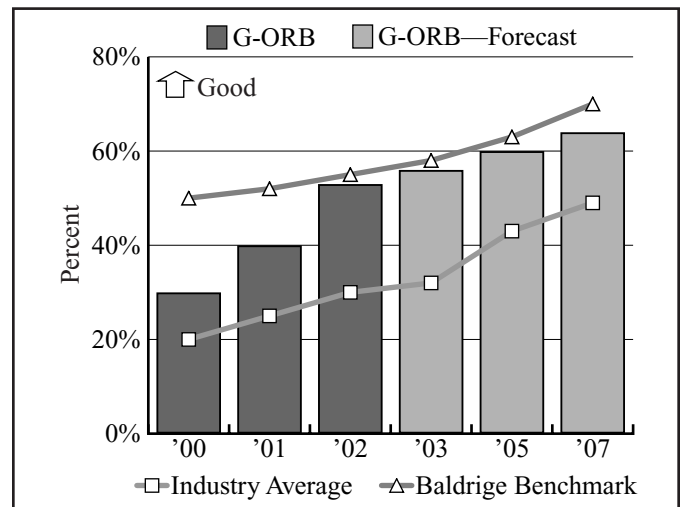


Figure 7.1-2 Complaints Resolved on First Contact

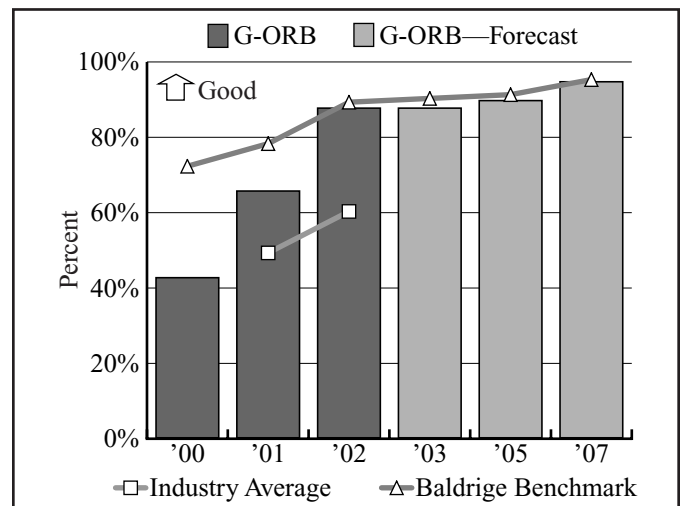


Figure 7.1-3 Customer Satisfaction With Complaint Resolution

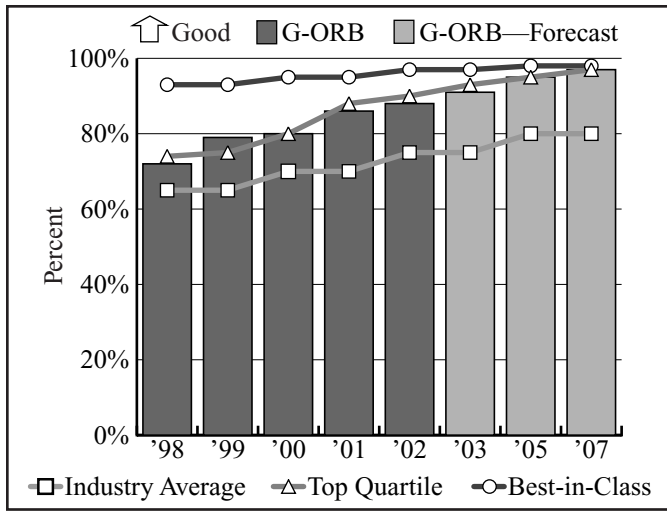


Figure 7.1-4 Overall Customer Satisfaction

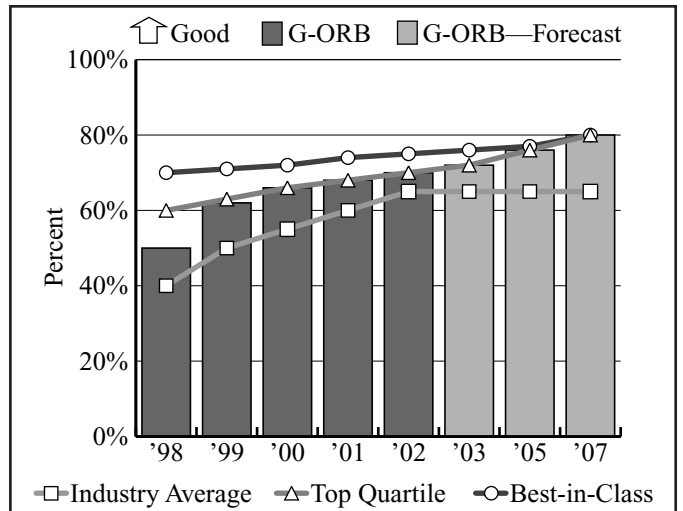


Figure 7.1-7 Value (Top 2 Boxes—Satisfied and Very Satisfied)

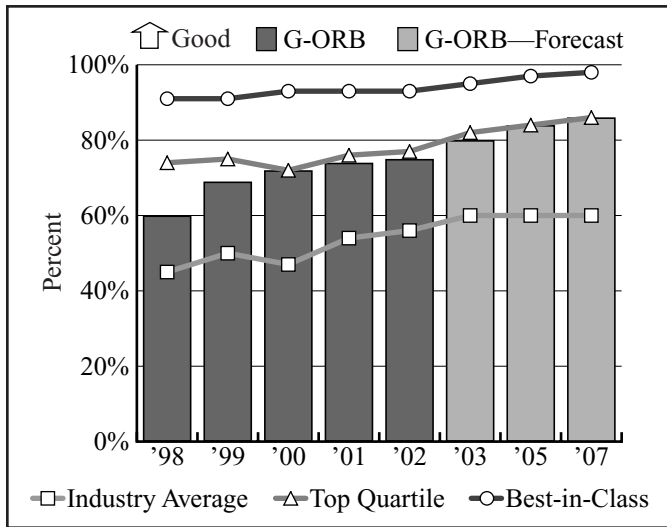


Figure 7.1-5 Recommend to Others

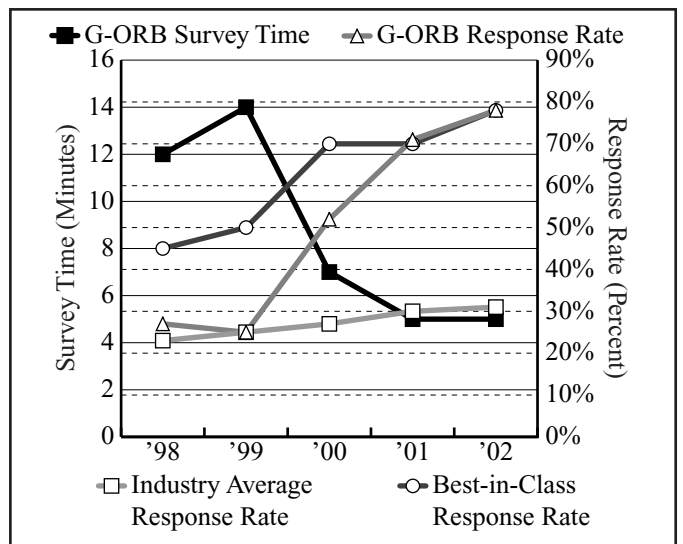


Figure 7.1-8 Satisfaction Survey Completion Time and Response Rate

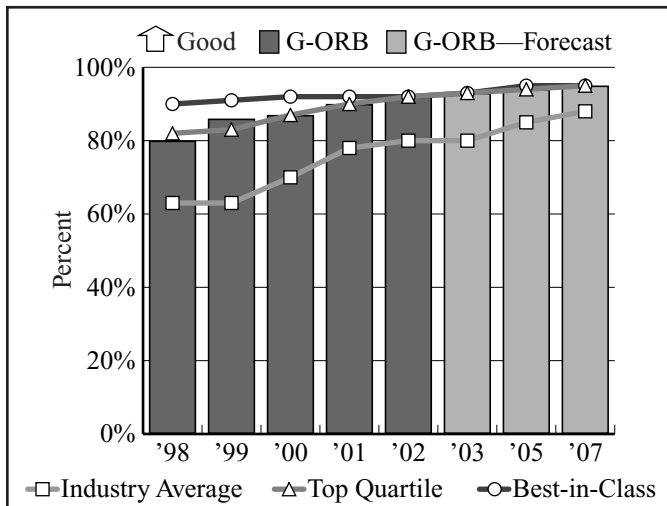


Figure 7.1-6 Repurchase (Loyalty or Retention)

	1998	1999	2000	2001	2002
Overall Satisfaction	3rd/13	5th/14	1st/12	2nd/13	1st/13

Figure 7.1-9 CSII—G-ORB's Performance Compared to Industry

States are improving over time. Over the past five years, G-ORB has been rated as one of the top five polymer suppliers out of at least 12 competitors and has been rated first in two of the last three years (Figure 7.1-9).

In 1998, G-ORB began an intensive effort to win back lost customers. It began tracking customer wins and losses as a means to assess customer loyalty and to assist in growth planning. By 2000, G-ORB had stabilized the percentage of customer losses to a level almost equal to the percentage

Year	Total Number of Customers	Number of Customer Wins	Number of Customer Losses
1998	323	11	49
1999	309	10	38
2000	354	21	20
2001	379	28	20
2002	407	37	22

Figure 7.1-10 Customer Wins and Losses

of customer wins (Figure 7.1-10). G-ORB now gains many more customers than it loses.

7.2 Product and Service Results

Key customer requirements for products and services are identified in P.1 and are addressed by methods described in Area 3.1a(2). Key product characteristics impacting customer satisfaction include product quality, on-time delivery, and price. A definitive measurement of product quality is product consistency. G-ORB determined that melt viscosity is the most critical parameter impacting product consistency and began developing tests to measure this parameter. The current levels of variation in melt viscosity for all products are at or approaching the variability of the test itself (around 2%), which is prompting additional research into different or better test methods (Figure 7.2-1). Known for its superior product quality, G-ORB's results in product consistency significantly outperform the industry average and exceed best-in-class benchmarks provided by the industry for measurement of melt viscosity.

On-time delivery is another key customer requirement. The entire industry is highly dependent on rail transporters to deliver products to customers. G-ORB has consistently improved its on-time delivery performance and is known for its industry leadership in this area (Figure 7.2-2).

One of the leading causes for customer loss is product price. Because many customers buy products in large quantities, any price fluctuation can significantly impact an overall invoice. Figure 7.2-3 demonstrates price over time for all products combined. Polymer prices are greatly impacted by prices for crude oil. Crude oil prices skyrocketed in 1999, causing all suppliers to raise prices about 15%. When prices for crude oil dropped in 2000 and returned to normal levels in 2001, most suppliers took advantage of the situation to elicit higher profits. However, G-ORB adjusted prices more in line with crude oil prices. As a result, it began to win more customers than it lost (Figure 7.1-10). G-ORB predicts that the crude oil price will increase around 3.8% per year. G-ORB plans to adjust its prices about 3% per year through efficiencies gained by continuous process improvement, while it predicts the rest of the industry will increase prices at a rate slightly ahead of crude oil prices. Despite consolidation efforts of suppliers

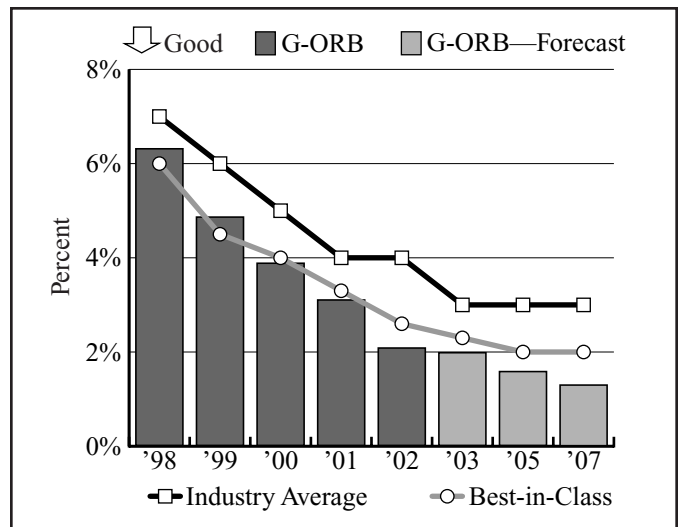


Figure 7.2-1 Product Quality/Product Consistency—Percent Variation From Centerline Target

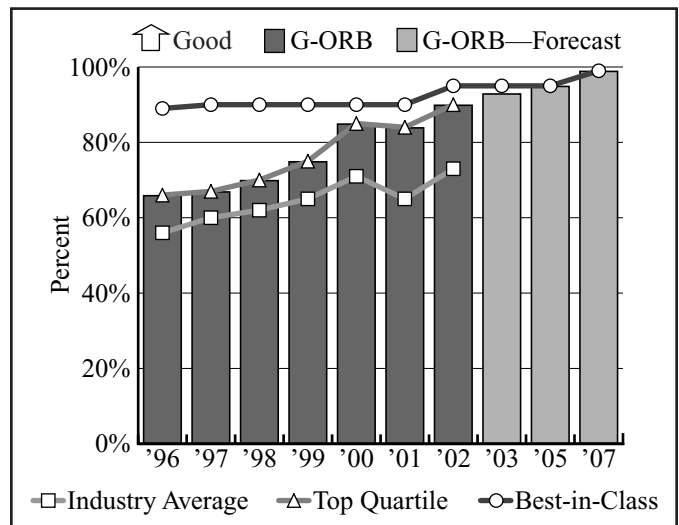


Figure 7.2-2 On-Time Delivery

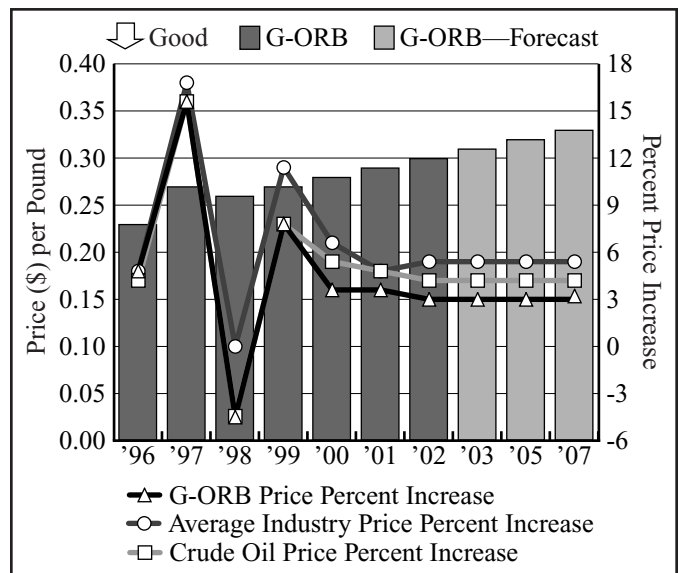


Figure 7.2-3 Product Price

Ranked Attributes	1996	1998	2000	2002
Overall Resin Quality	8	1	1	1
Product Consistency	N/A	3	1	1
Product Availability	5	2	1	2
Price	10	6	6	5
On-Time Delivery	7	3	3	2
Responsiveness of Service Personnel	8	3	3	3
Service Quality	9	2	1	2
Service Coverage (24x7)	11	3	2	2
Problem Resolution Time	10	2	3	2
Supplier Preference	5	2	2	1
Overall Performance	5	1	2	1
Overall Ranking	3rd/13	1st/10	1st/14	1st/15

Figure 7.2-4A PII Survey—HDPE—G-ORB Compared to Industry

Ranked Attributes	1996	1998	2000	2002
Overall Resin Quality	7	8	2	3
Product Consistency	N/A	1	1	1
Product Availability	6	4	2	3
Price	10	6	5	5
On-Time Delivery	7	3	3	3
Responsiveness of Service Personnel	7	3	2	4
Service Quality	8	2	1	1
Service Coverage (24x7)	7	5	2	2
Problem Resolution Time	5	4	3	2
Supplier Preference	5	4	2	2
Overall Performance	5	5	2	2
Overall Ranking	5th/10	4th/8	1st/12	2nd/8

Figure 7.2-4C PII Survey—LLDPE—G-ORB Compared to Industry

Ranked Attributes	1996	1998	2000	2002
Overall Resin Quality	7	5	1	1
Product Consistency	N/A	6	4	3
Product Availability	6	4	2	2
Price	10	6	6	4
On-Time Delivery	7	3	3	3
Responsiveness of Service Personnel	8	3	3	3
Service Quality	9	2	1	2
Service Coverage (24x7)	6	5	3	2
Problem Resolution Time	5	4	3	2
Supplier Preference	5	4	2	3
Overall Performance	5	5	2	2
Overall Ranking	4th/10	3rd/10	1st/12	1st/14

Figure 7.2-4B PII Survey—PP—G-ORB Compared to Industry

in the industry to gain profits from increased volume, little overall improvement in efficiency has been seen. G-ORB has been able to improve efficiencies through process improvements and has used this approach to keep prices flat to gain additional business and profits.

Every two years, PII conducts independent surveys of the major players in the industry. These surveys focus on key attributes important to customers, ranked in order of importance, including product quality and consistency, price, on-time delivery, and service quality. For the past seven years, G-ORB has been rated one of the top five polymer manufacturers. G-ORB has been ranked first in its HDPE line out of at least ten major competitors in three of the last four surveys (Figure 7.2-4A), first in its PP line in the last two surveys (Figure 7.2-4B), and first and second in its LLDPE line in the last two surveys (Figure 7.2-4C).

The American Automotive Industry publishes an annual assessment of its suppliers, including those that supply

polymers for the manufacture of automotive parts and interior systems. G-ORB has ranked in the top five for the past six years for price, on-time delivery, and product quality. G-ORB has ranked first or second overall in the past three years.

Figure 7.2-5 demonstrates that by focusing on the key customer contact and service attributes identified by customers, including satisfaction with immediate response, ability to reach a live person, continuous service, and resolution on the first call, G-ORB improved overall customer satisfaction with service by 22 percentage points since 1998 and has been best in its industry since 2000.

7.3 Financial and Market Results

Good financial results are a balancing act in the polymer business. As the economy improves, so does the polymer business. However, because the polymer business is cyclic,

Attribute	1998	1999	2000	2001	2002
Satisfaction with Immediate Response	N/A	33%	45%	50%	50%
Ability to Reach a Live Person	N/A	62%	60%	65%	70%
Continuous Service (24x7)	72%	78%	77%	76%	80%
Resolution on the First Call	44%	47%	52%	57%	56%
Satisfaction With Service Person	54%	63%	72%	74%	75%
Overall Satisfaction With Service	60%	73%	75%	80%	82%
Industry Average	45%	50%	50%	55%	60%
Best-in-Industry	65%	75%	75%	80%	82%

Figure 7.2-5 CSII Customer Satisfaction With Service

at times production becomes somewhat saturated, with a corresponding slowdown in results. Since this business is capital intensive, costs remain high even during a downturn. G-ORB has pursued a strategy to even out expenses by migrating to a lease program for new equipment and processes, with lease payments based on production volumes, thus matching costs to production volumes.

All financial comparisons are based on *Chemical World's* annual industry report of chemical companies, which includes a special section on polymers. These financial performance comparisons are confirmed by the Stretch Team's review of public annual reports of key competitors.

Being an asset-intensive company, G-ORB uses Return on Capital Employed (ROCE) (Figure 7.3-1) and Return on Net Assets (RONA) (Figure 7.3-2) as the best indicators of financial performance. Both of these G-ORB Scorecard Course Coordinates (Figure 2.2-1) demonstrate improved performance over time due primarily to the implementation of the CDP (Figure 6.1-3) for new products and processes. The CDP has allowed G-ORB to make capital investments in processes that are flexible enough to produce multiple subproducts, rather than make separate or incremental investments to accomplish the same output. In addition, the Polyolefins Business Group has helped G-ORB learn best practices from sister plants and use Kaizen to adapt designs for the Baton Rouge operations. The net impact is that in 2002 G-ORB's ROCE outperformed that of its best competitor and that its RONA outperformed the stretch goal and matched G-ORB's best competitor.

The JMK joint venture, along with other major contracts, has allowed G-ORB to minimize fluctuations in raw materials that can adversely impact a customer's decision to purchase G-ORB's products. This has the additional benefit of helping to manage overall Working Capital (Figure 7.3-3).

Another contributing factor to G-ORB profitability is reducing Business Costs (Figures 7.3-4, 7.3-5, and 7.3-6). Hoshin Catchball has allowed G-ORB to reduce the gap between G-ORB's performance and the competition for HDPE and PP and to outperform its best competitor in LLDPE costs.

Two strategies have allowed G-ORB to maintain competitive net pricing in all three product lines (Figures 7.3-7, 7.3-8, and 7.3-9). First, the two-pronged purchasing strategy of a joint venture along with major contracts to provide flexibility has kept costs down while increasing volume production and sales. Second, the systematic design and improvement of process capability allow flexibility in producing different products and enable G-ORB to keep costs down and, in turn, reduce prices to customers. Although price is the fourth of G-ORB's key customer

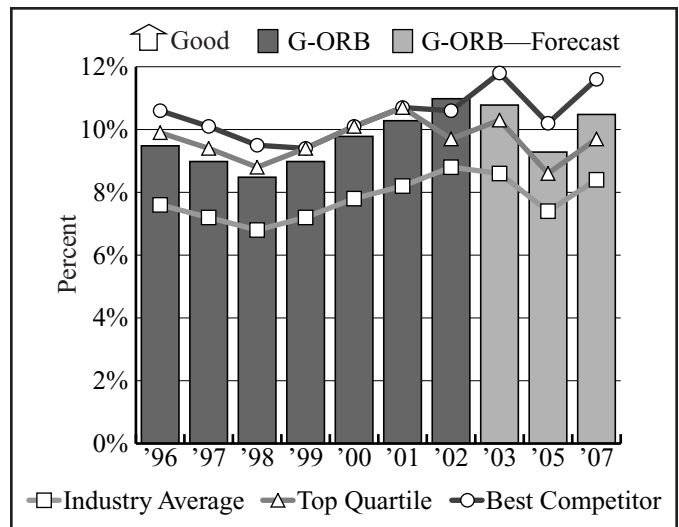


Figure 7.3-1 Return on Capital Employed (ROCE)

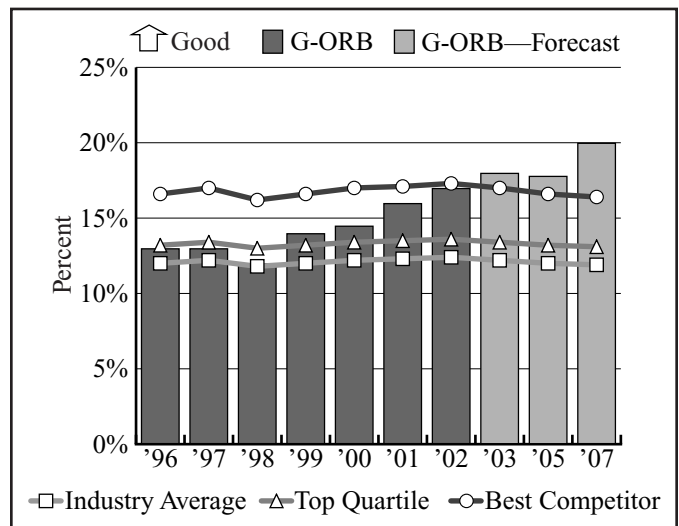


Figure 7.3-2 Return on Net Assets (RONA)

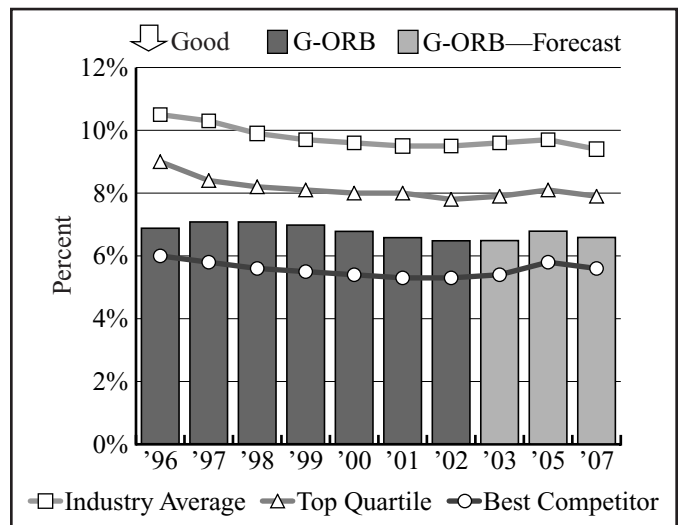


Figure 7.3-3 Working Capital as a Percent of Sales

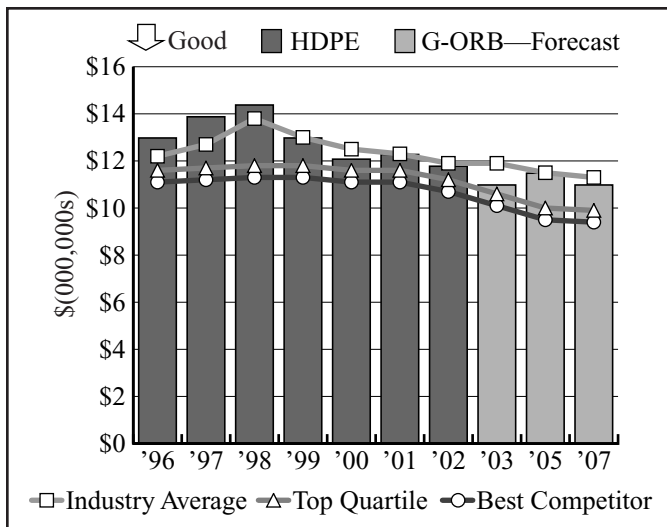


Figure 7.3-4 Business Costs—HDPE

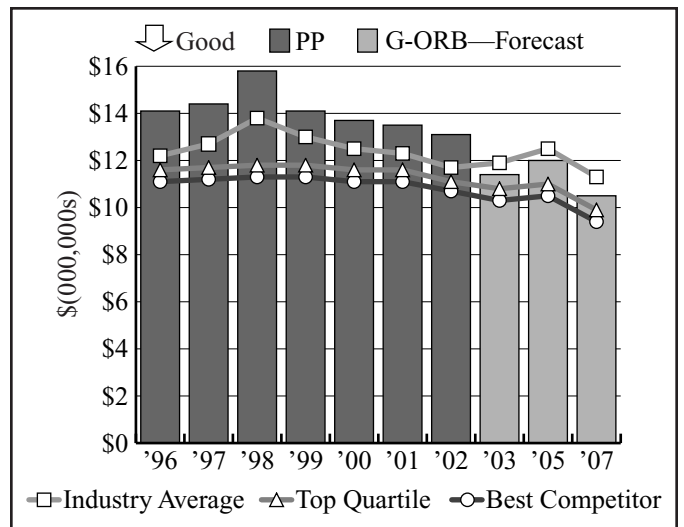


Figure 7.3-6 Business Costs—PP

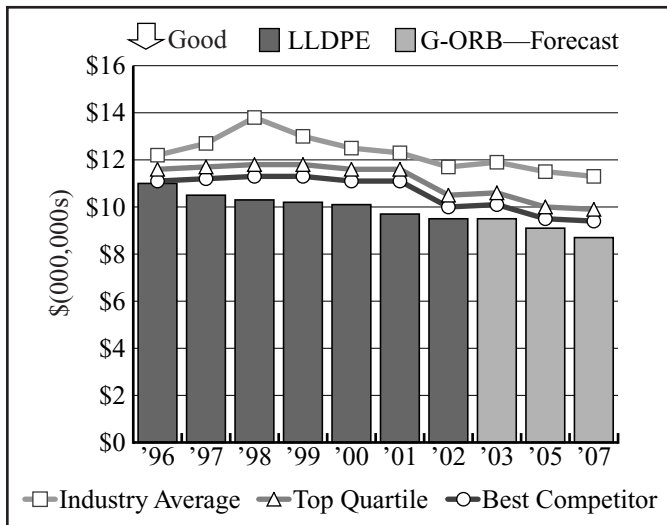


Figure 7.3-5 Business Costs—LLDPE

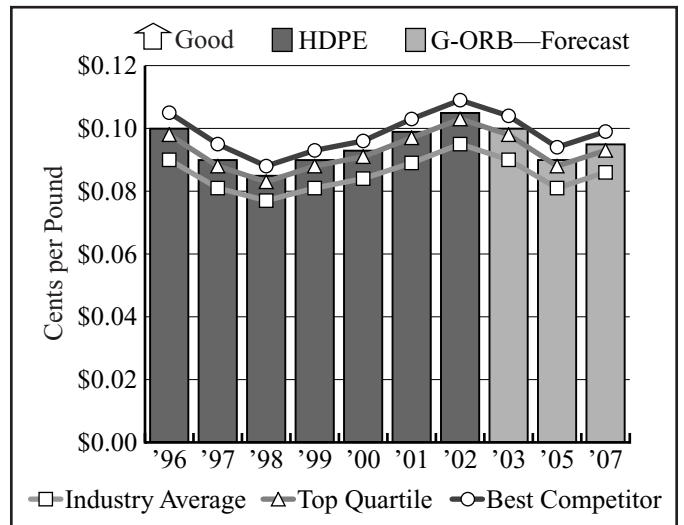


Figure 7.3-7 Net Price—HDPE

requirements, it may be a pivotal decision point in a customer's final decision to use G-ORB. These two strategies also have improved G-ORB's overall margins (Figures 7.3-10, 7.3-11, and 7.3-12) so that they exceed or are approaching the best in the industry. The net result is a win for customers through lower and/or competitive prices and a win for GPC's shareholders through better financial returns.

Market share results are presented in Figure 7.3-13 for the HDPE product line, Figure 7.3-14 for LLDPE, and Figure 7.3-15 for PP. LLDPE is a mature product with processes that have been refined by all competitors in the marketplace, resulting in very little change in market share over time. The PP product is relatively new, and the CDP has been used several times over the years by cross-functional and engineering development teams to improve the process and change material mix. This has generated more efficient processing and resulted in better consistency, lower

costs, and better customer value. Not all cost savings are passed on to customers. G-ORB lowers prices to encourage potential customers to switch to G-ORB (i.e., increase market share), while keeping some of the savings to improve margin (Figures 7.3-10, 7.3-11, and 7.3-12) and improve overall RONA (Figure 7.3-2). All of these efforts have helped to improve Total Sales (Figure 7.3-16).

Sales to customers in Canada, Mexico, and South America have increased steadily over the past six years (Figure 7.3-17). As part of GPC's worldwide expansion efforts, G-ORB is developing strategies through its GPS Process to significantly increase sales in these areas by 2007.

In 1999, G-ORB was the first polymer business to offer its products for sale over the Internet. G-ORB's initial strategy focused on getting a presence on the Internet. Now, a newly revised strategy focuses on both small businesses and distributors. Although currently e-business accounts

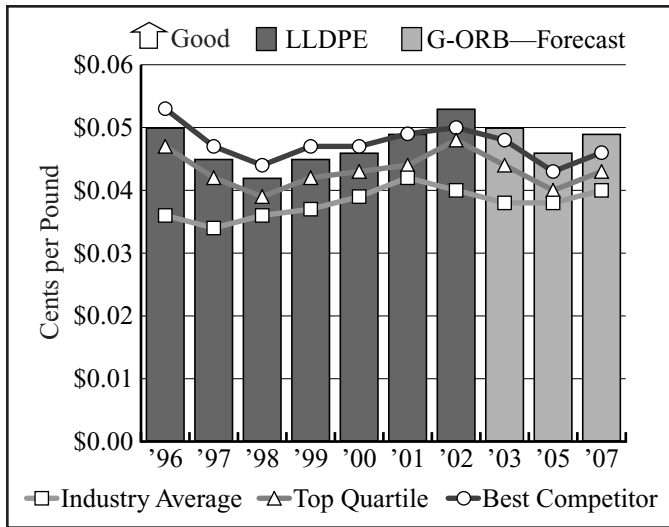


Figure 7.3-8 Net Price—LLDPE

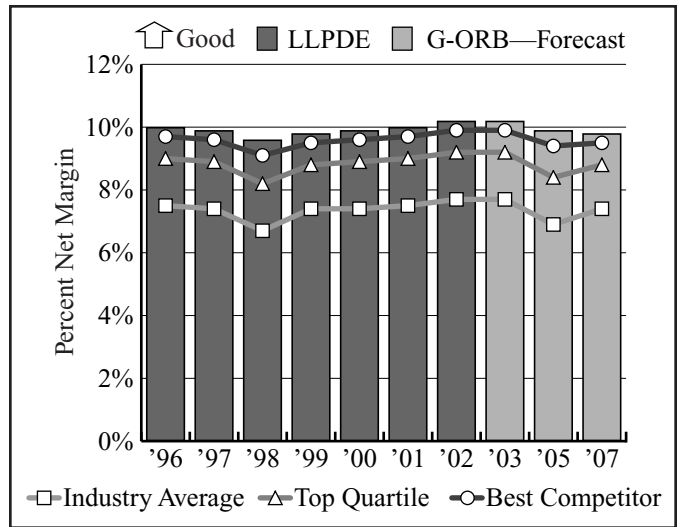


Figure 7.3-11 Margin—LLDPE

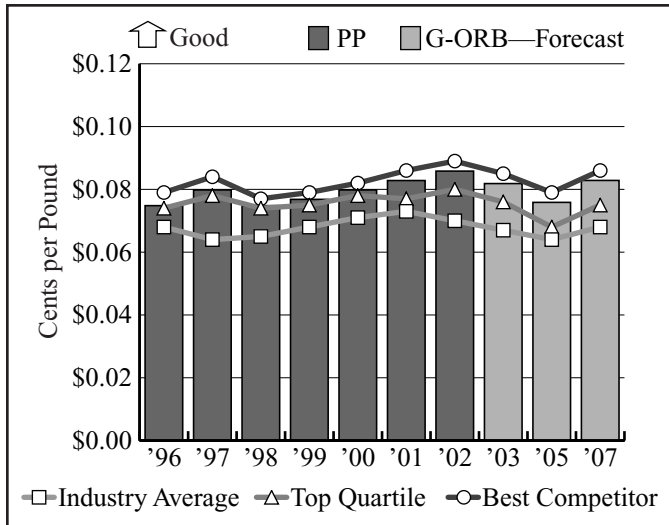


Figure 7.3-9 Net Price—PP

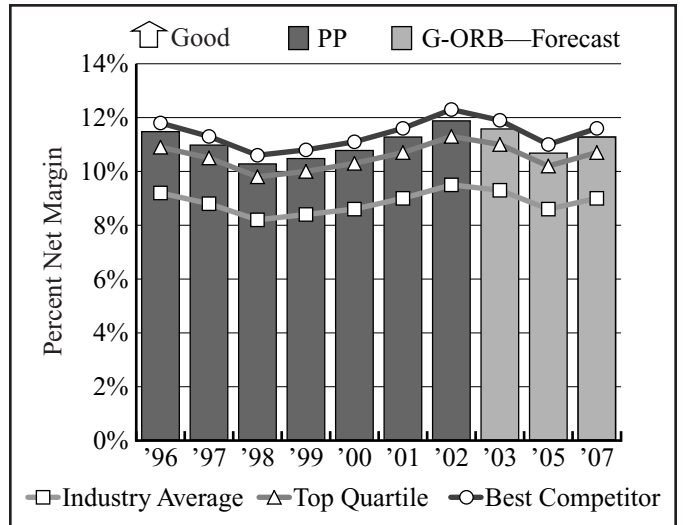


Figure 7.3-12 Margin—PP

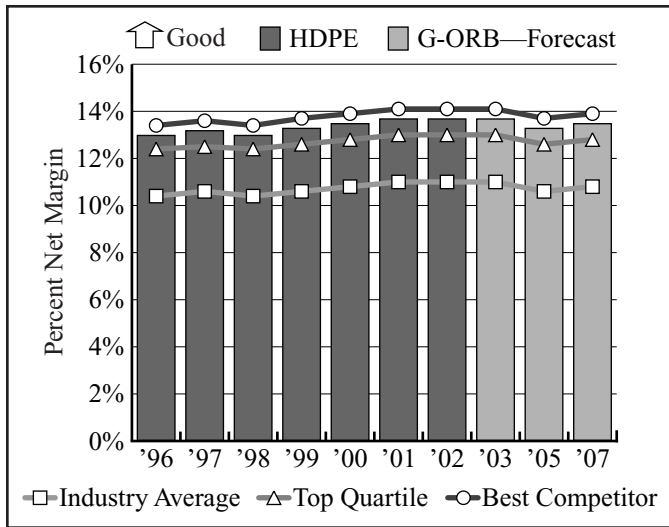


Figure 7.3-10 Margin—HDPE

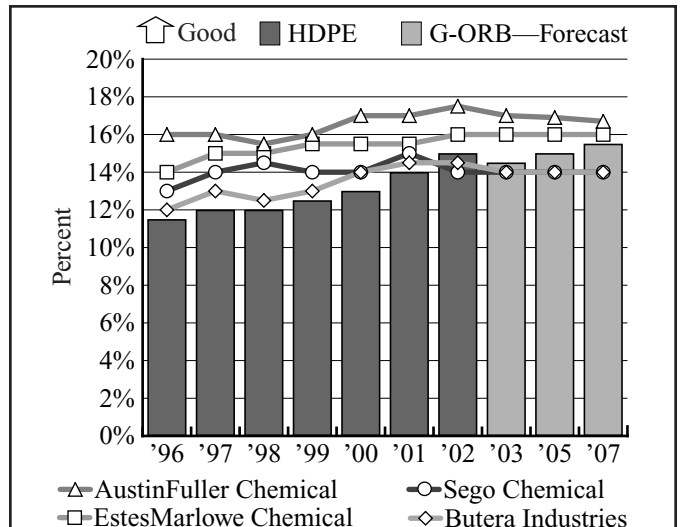


Figure 7.3-13 Market Share—HDPE

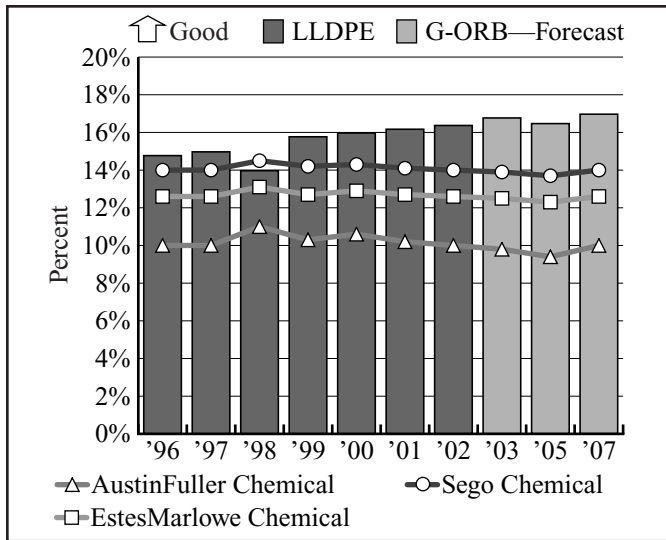


Figure 7.3-14 Market Share—LLDPE

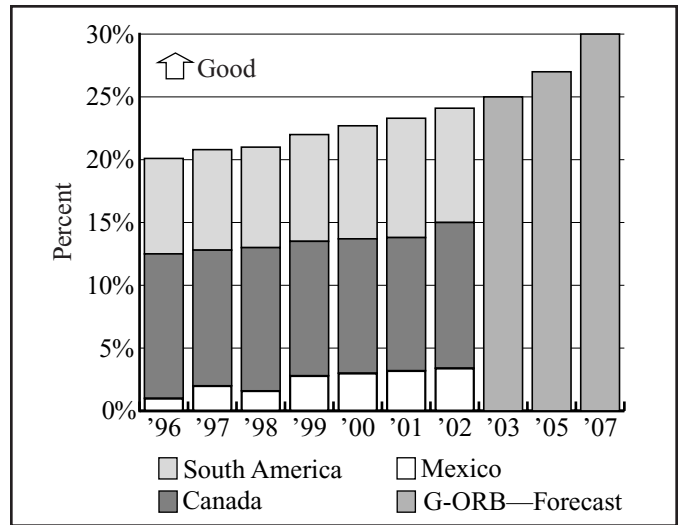


Figure 7.3-17 Sales Outside the United States

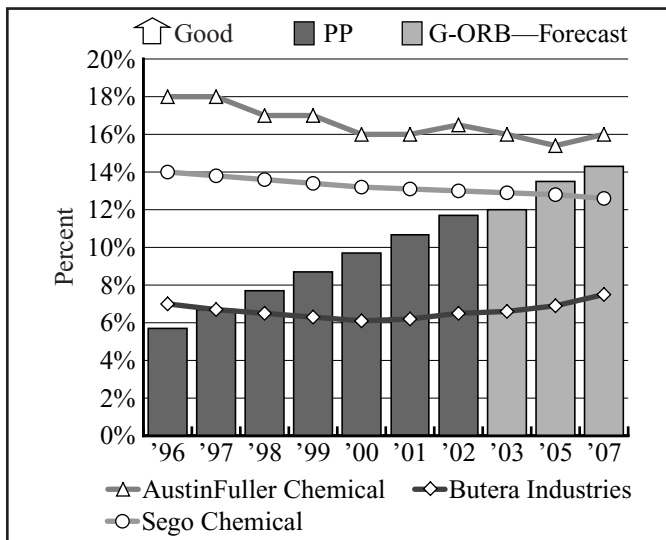


Figure 7.3-15 Market Share—PP

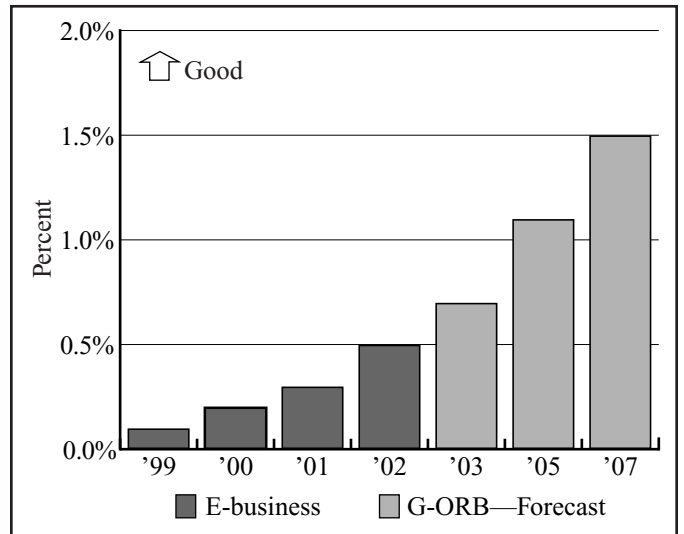


Figure 7.3-18 E-business Sales

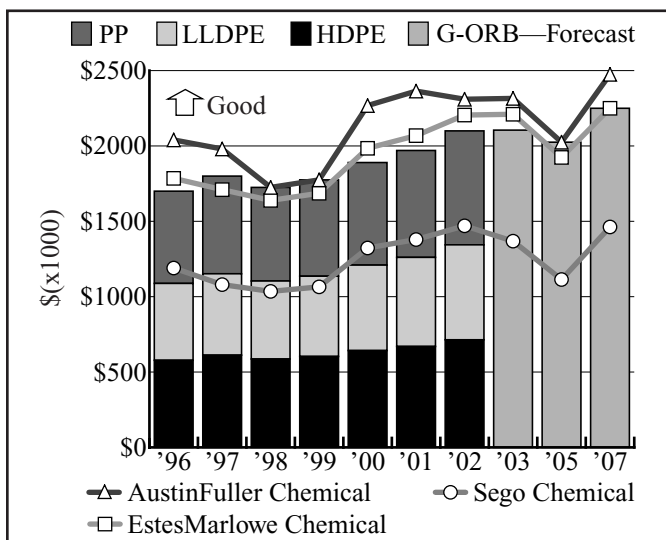


Figure 7.3-16 Total Sales

for .5% of sales (Figure 7.3-18), the new strategy is expected to help triple e-business sales by 2007.

7.4 Human Resource Results

G-ORB's team-based culture is key to achieving effective work system performance. The number of teams has increased from 43 in 1996 to 110 in 2002. Each team is responsible for tracking its progress on achieving specific performance targets. Figure 7.4-1 demonstrates the percentage of performance targets being achieved across all types of teams.

A key human resource responsibility at G-ORB is to provide a safe workplace. Several measures are used to track performance in this area. The most visible are the OSHA Total Case Incidence Rate (TCIR) shown in Figure 7.4-2 and Days Away, Restricted, or Transferred (DART) rate shown in Figure 7.4-3. Because of G-ORB's performance for both OSHA reportables and the efforts made in the

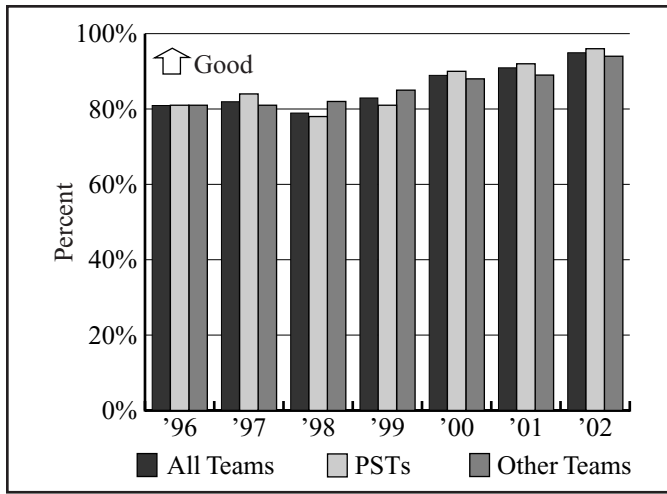


Figure 7.4-1 Achievement of Team Performance Targets

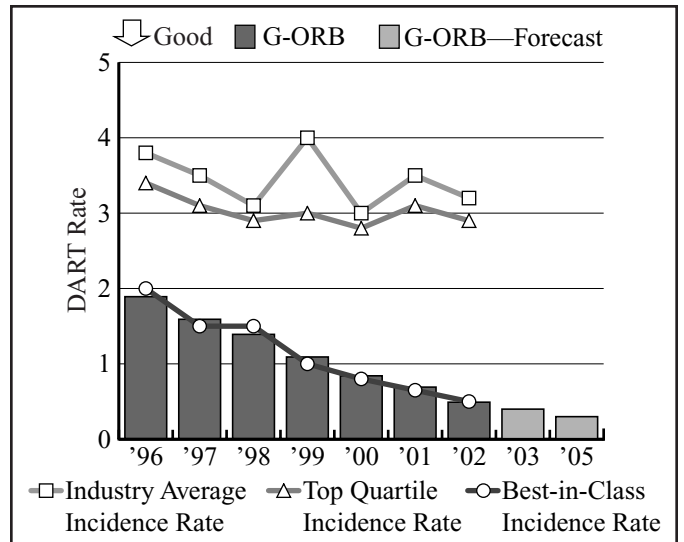


Figure 7.4-3 OSHA Reportables—DART

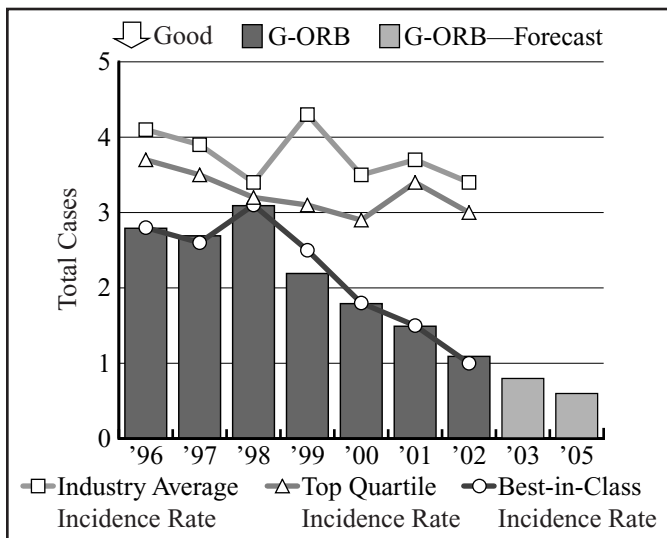


Figure 7.4-2 OSHA Reportables—TCIR

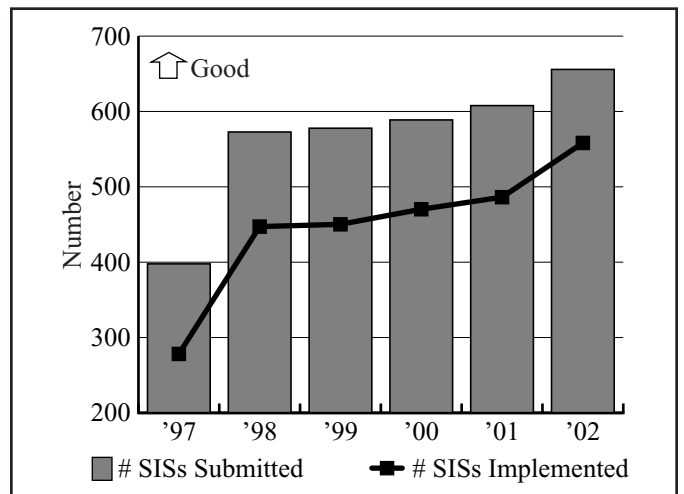


Figure 7.4-4 EAGLE Program SIS Implementation

EAGLE Program, G-ORB achieved OSHA Star Site status in 2000 and continues to hold this status. Figure 7.4-4 demonstrates the growth of the EAGLE Program through the number of Safety Improvement Sheets (SISs) implemented since 1997. Over the past six years, more than 2700 SISs have been implemented.

The KAIZEN (team) and kalzen (individual) suggestion programs allow associates to be directly involved in numerous small-scale improvements. Figures 7.4-5 and 7.4-6 demonstrate the extent of these efforts throughout G-ORB.

G-ORB makes training a priority so that associates can maintain needed skill levels. Since 1996, an average of 98% of associates have received some form of training or development annually (Figure 7.4-7). This compares very favorably to the training and development benchmark results for leading-edge companies. The extent of training also is demonstrated in Figure 7.4-8, which shows the

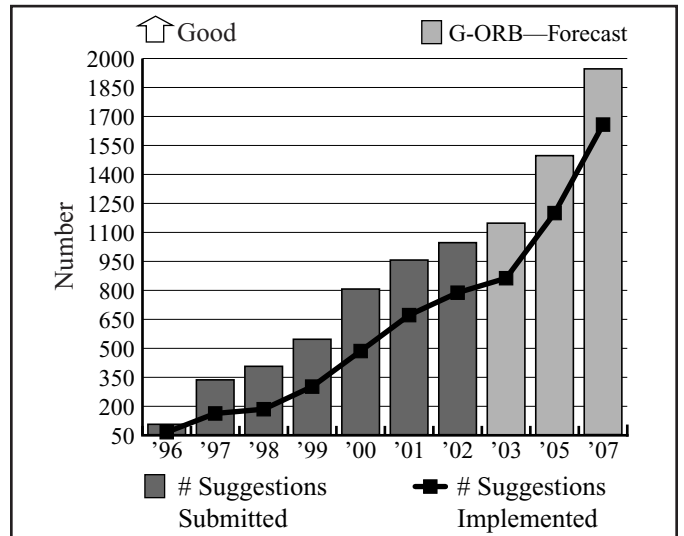


Figure 7.4-5 KAIZEN Team Suggestions

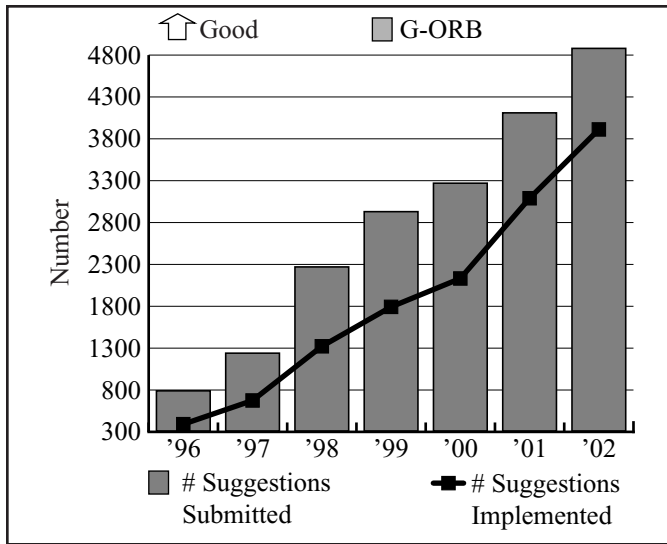


Figure 7.4-6 kaizen Individual Suggestions

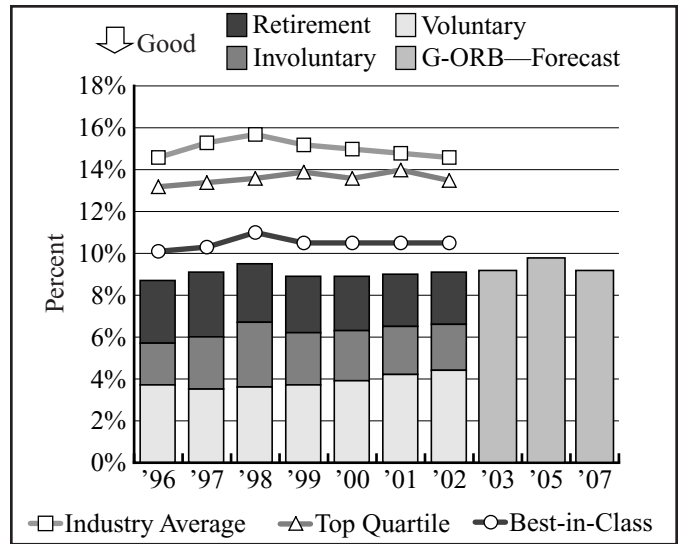


Figure 7.4-9 Associate Turnover

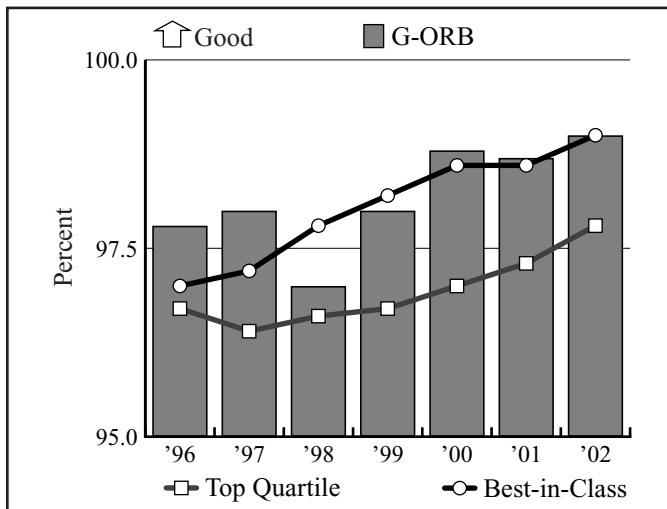


Figure 7.4-7 Associates Receiving Training

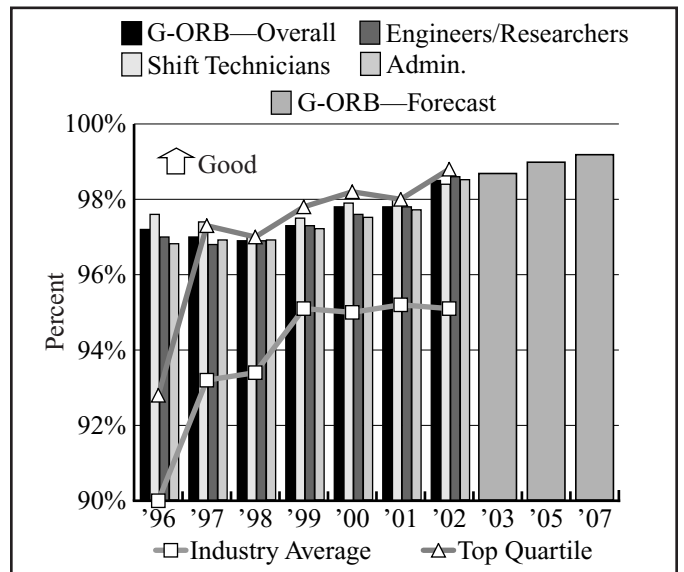


Figure 7.4-10 Culture Survey: Associate Satisfaction

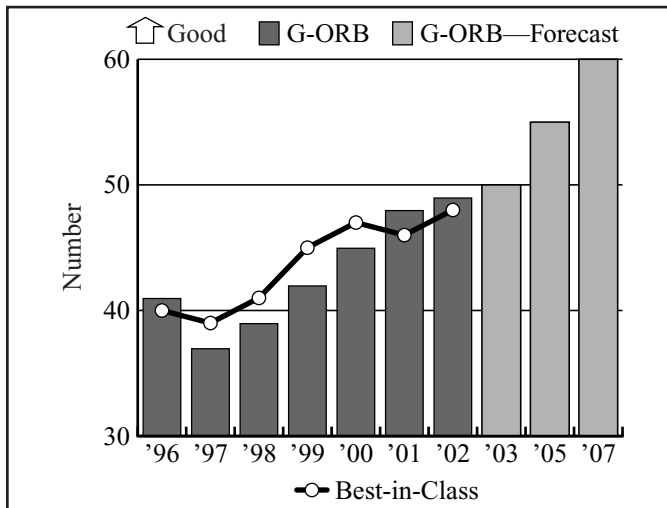


Figure 7.4-8 Training Hours per Associate

average number of hours each associate spends in training and development each year.

Despite the cyclical nature of G-ORB's business and the downsizing in the industry and in business in general, G-ORB has been able to maintain a relatively stable workforce, as shown in Figure 7.4-9. Despite a slight increase in the last few years due to the tighter job market and the maturing workforce, G-ORB's overall turnover is lower than the best in class.

G-ORB's Culture Survey results (Figure 7.4-10) demonstrate performance better than the industry average since 1996, even during the transition years of 1996 and 1997 to a new parent company. From 1998 through 2002, G-ORB has been at or near top quartile levels, with all segments of G-ORB's associates by job category well above the 90%

satisfaction level and no significant differences among associate segments. These results reflect the company's success in a variety of areas, including increases in teams, team participation, training hours, and implementation of KAIZEN and kaizen suggestions.

7.5 Organizational Effectiveness Results

Monomer and additive procurement is a key value creation process for G-ORB. Through supplier partnering efforts and quarterly performance reviews, specifications are jointly established for critical raw materials. Figures 7.5-1A and B and Figure 7.5-2 show G-ORB's monomer and additive process capabilities (Cpk), as well as raw material Cpk information from Polyolefins Business Group sister plants and the JMK joint venture. G-ORB's monomer Cpk, an average of all its monomer suppliers, greatly exceeds the industry top quartile results tracked by the JMK joint venture and its sister plant's best monomer supplier. Additive Cpk results have nearly tripled since 1996 and exceed the industry top quartile of additive suppliers.

G-ORB generally performs better than the industry overall in terms of capacity utilization, meaning that its assets are in use and generating revenue at a greater rate than the industry as a whole. Given the capital-intensive nature of the polymer business, asset utilization is a key factor in ensuring profitability and a strong competitive position. Results for capacity utilization decreased from 1996 to 1998 due to the cyclical nature of the polymer business, but G-ORB continued to exceed industry comparative results by nearly 10% (Figure 7.5-3).

An indicator of G-ORB's competitive position is productivity, measured in pounds sold per associate. G-ORB has reduced its number of associates (not through layoffs but by attrition) as it reduced the amount of work needed to run the company. Hours are calculated on a Full-Time

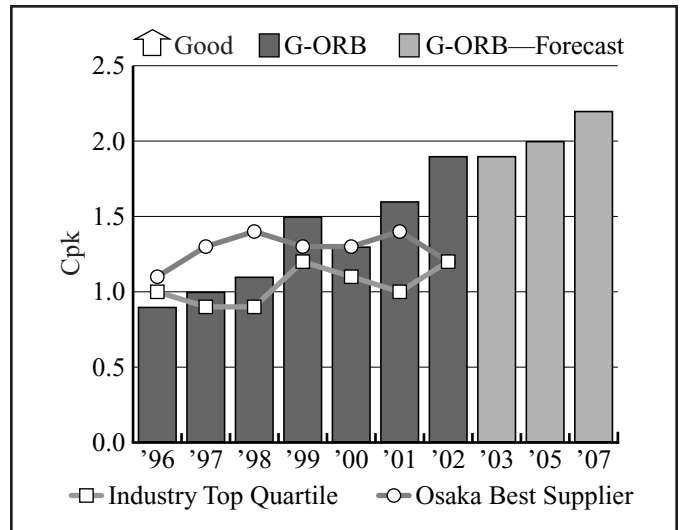


Figure 7.5-1B Propylene Monomer Cpk

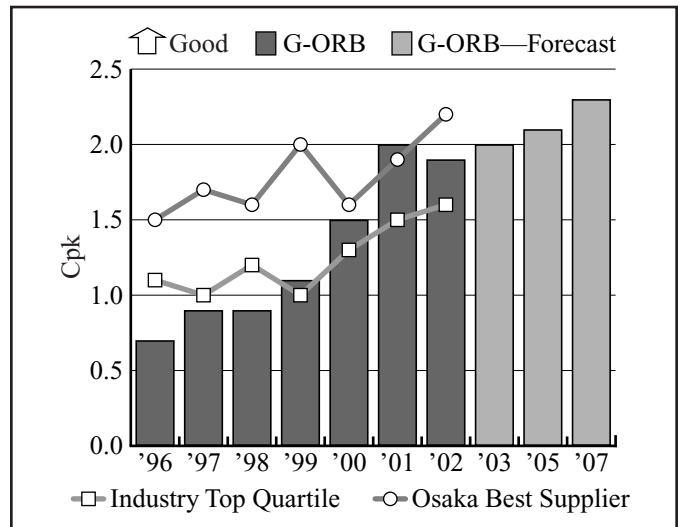


Figure 7.5-2 Additive Cpk

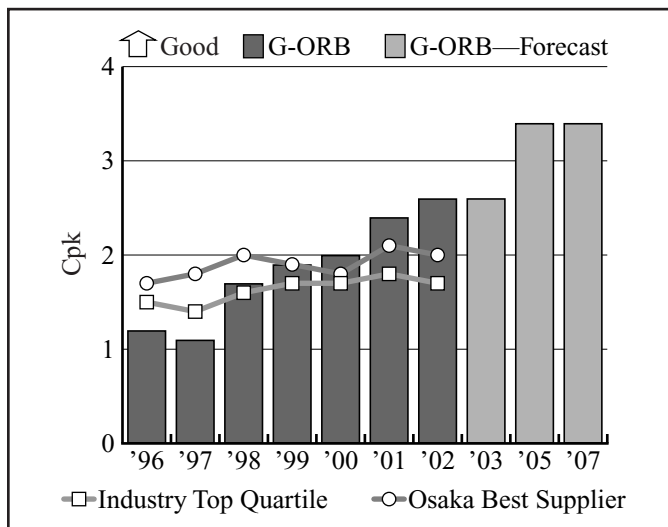


Figure 7.5-1A Ethylene Monomer Cpk

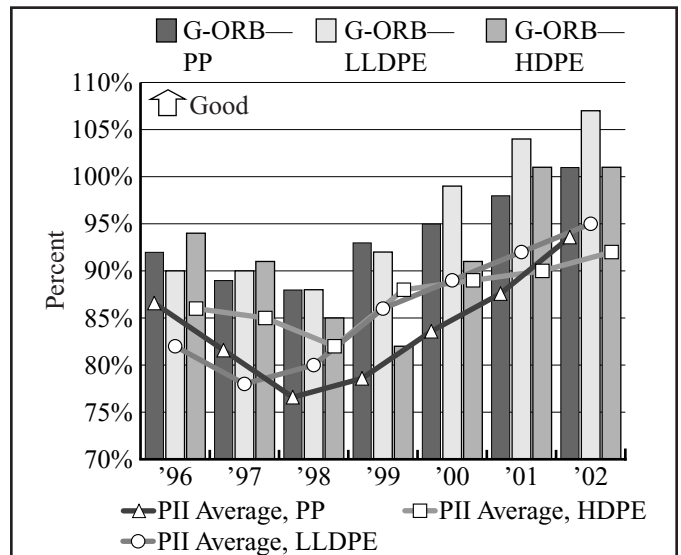


Figure 7.5-3 Capacity Utilization by Product

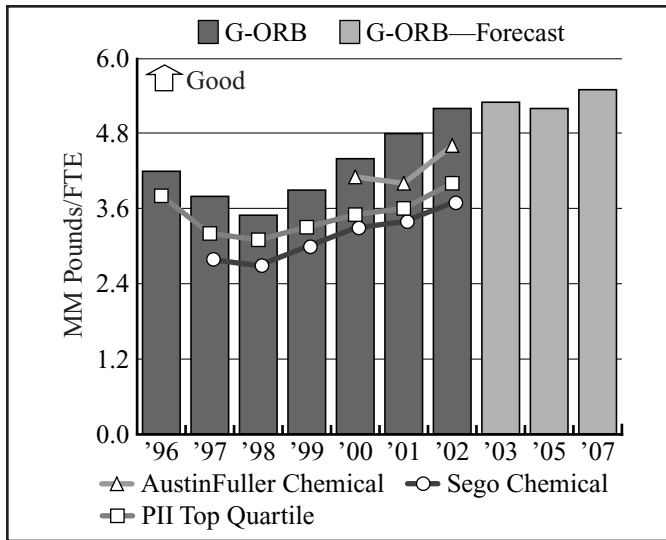


Figure 7.5-4 Productivity MM Pounds/FTE

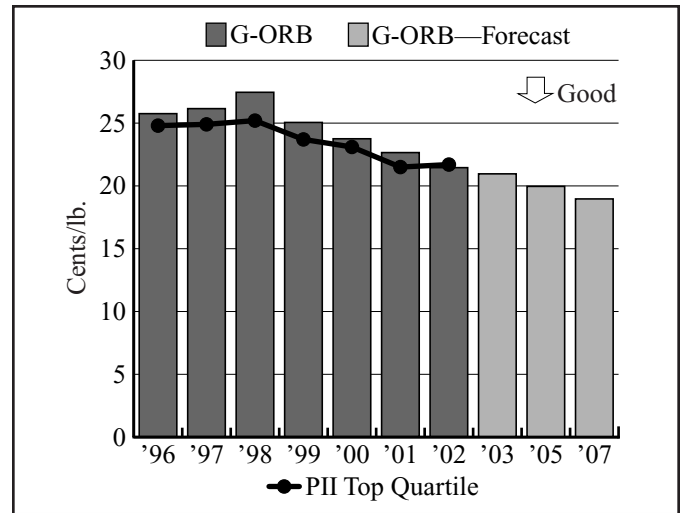


Figure 7.5-7 Supplier Costs

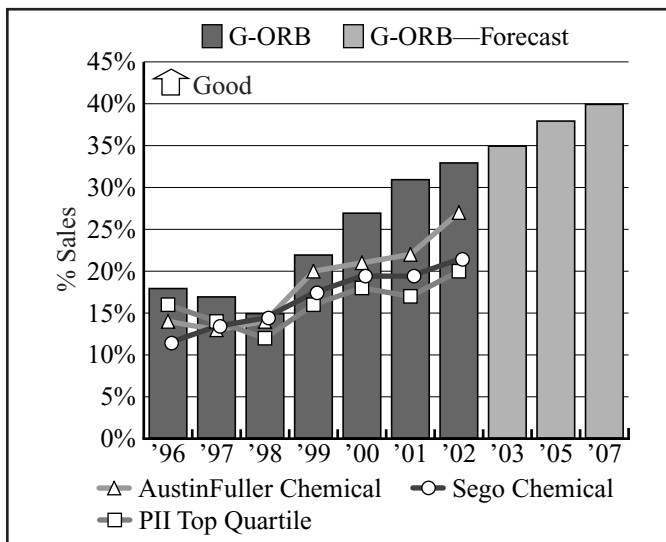


Figure 7.5-5 New Products as % of Sales

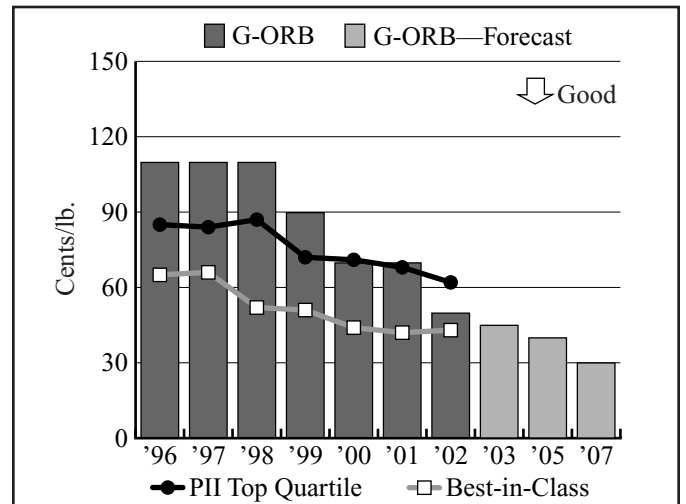


Figure 7.5-8 Maintenance Costs

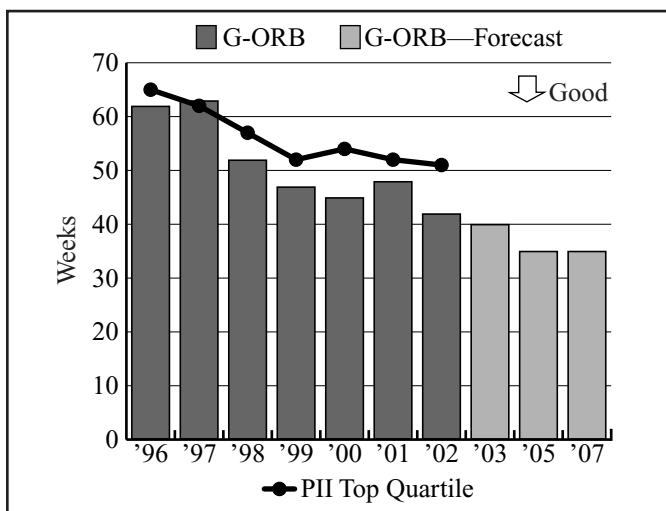


Figure 7.5-6 Product Development Cycle Time

Equivalent (FTE) basis, including for contractors, recorded overtime hours, and any temporary personnel. As shown in Figure 7.5-4, G-ORB results have been outstanding since 1996, far outperforming the PII's top quartile productivity results for this period, as well as productivity results for its most significant competitors. Productivity results decreased from 1996 to 1998 due to the cyclical nature of the business, but G-ORB continued to exceed industry comparative results.

To track its speed in developing new products for customers, G-ORB began measuring sales of new products as a percentage of overall sales (Figure 7.5-5) and development time for new products (Figure 7.5-6). New product sales are defined as sales of any products commercialized within the previous three years. KAIZEN and kalzen improvement projects and the CDP have resulted in steady improvements to quickly bring new products to customers.

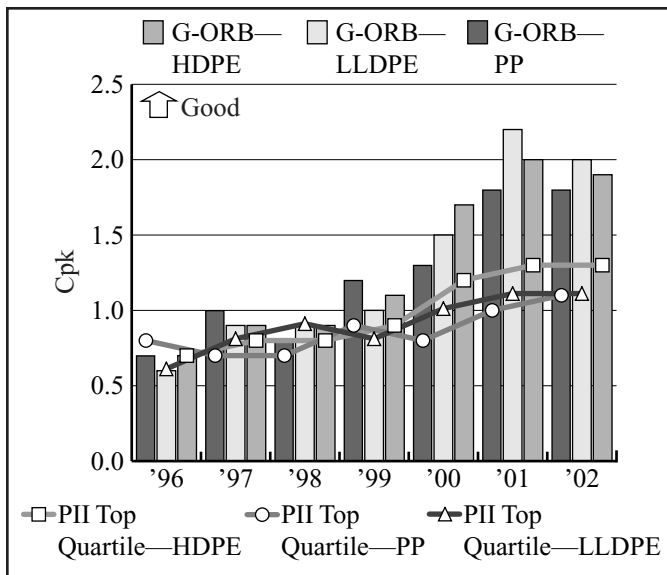


Figure 7.5-9 Melt Index Cpk by Product

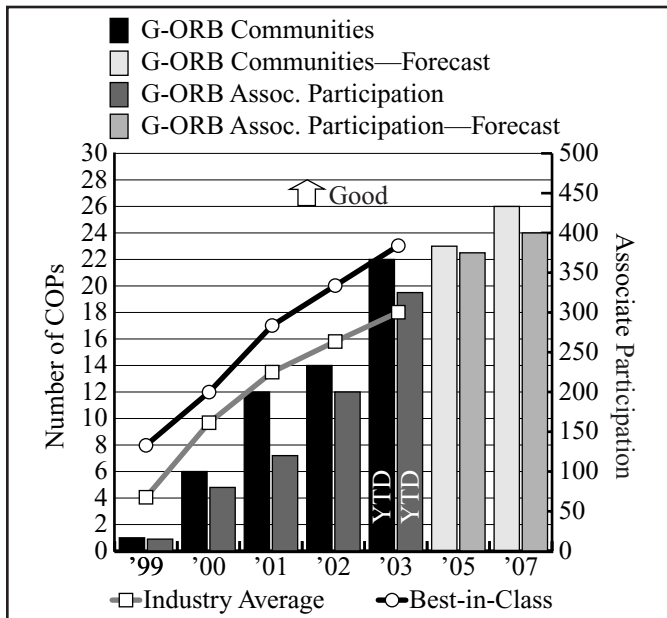


Figure 7.5-10 COPs and Associate Participation

One of G-ORB's Values is Right Cost, enabling a highly effective and low-cost operation. G-ORB tracks two key cost measures, Supplier Costs (Figure 7.5-7) and Maintenance Costs (Figure 7.5-8), related to its key value creation processes. Results have steadily improved and compare favorably to the industry.

Product consistency is one of G-ORB's Course Coordinates and a key customer requirement. Melt Index Cpk is a critical measure of product consistency. Figure 7.5-9 shows how G-ORB's Melt Index Cpk's have increased from less than one (or not capable of meeting customer specification limits) to recent Cpk's of near, at, or above 2.0 (or product consistency that exceeds customer specification limits).

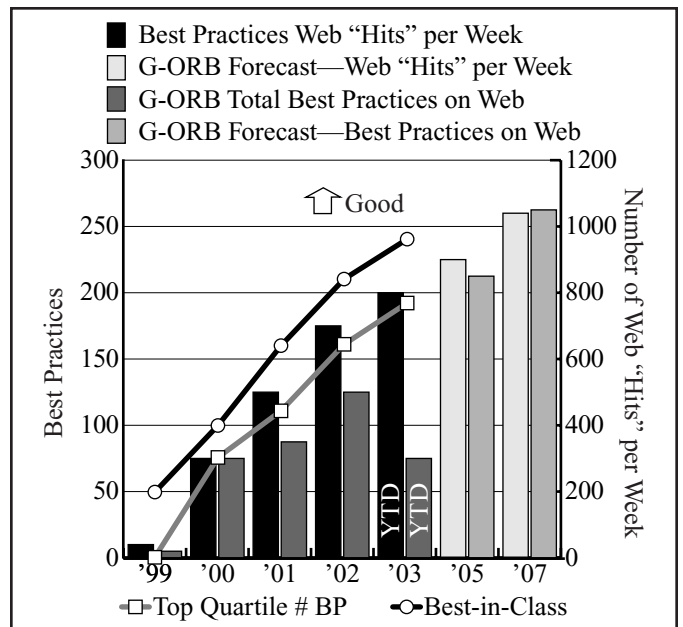


Figure 7.5-11 G-ORB Best Practices on Web and Number of Times Accessed

Recent results for each of G-ORB's manufacturing areas greatly exceed the industry comparative data.

Since 1999, G-ORB has been fostering an environment of shared information and resources, both within the business and across GPS-USA. The number of recognized COPs has grown to 22 in March 2003, exceeding the industry average and approaching best-in-class. Associate participation in these communities has grown to 320 (Figure 7.5-10).

To promote sharing of best practices and lessons learned, G-ORB has developed an intranet Web site where associates can post their best practices or look for practices developed by others. This local best practices Web site contains links to the GPS-USA Best Practices Web site for further sharing of information. The number of practices submitted and associate access of the Best Practices Web site have shown a steady increase each year. During the GSAC process in late 2002, a goal was set to increase associate use of company best practices. An improvement plan was initiated, and Web "hits" per week have increased in the first quarter of 2003 to 800, a hundred more than the total for 2002 (Figure 7.5-11).

Many measures of the computer systems and software are monitored for immediate correction and process improvement. The measure of computer system availability is the most essential to associates. Figure 7.5-12 shows the steady improvement in system availability as a percentage of the scheduled availability. Currently, the system is available 99.7% of the time scheduled. Figure 7.5-12 also shows the improved response times by the Help Desk. Response time currently averages slightly less than two hours.

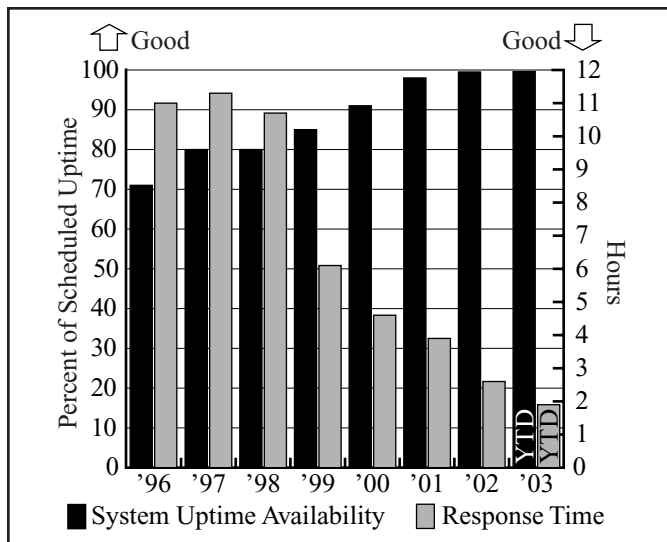


Figure 7.5-12 System Uptime Availability and Help Desk Response Time

7.6 Governance and Social Responsibility Results

Since its acquisition by GPC, G-ORB has achieved internal audit ratings of “Satisfactory” or above. The audit rating is based on Basic Standards of Controls (industrywide factors) including inventories, documentation for accounting entries, expense statements, transaction entries, and delegation of authority guidelines. All internal audits for the G-ORB site have been “Satisfactory” or “Good” since biannual audits commenced in 1997. Figure 7.6-1 shows results for the past three years.

External audits for U.S. financial filings have had no incidents or concerns. All financial audits conducted by the Kennet-Blates accounting firm have been signed with no qualification for 10Q and 10K reports. Within the

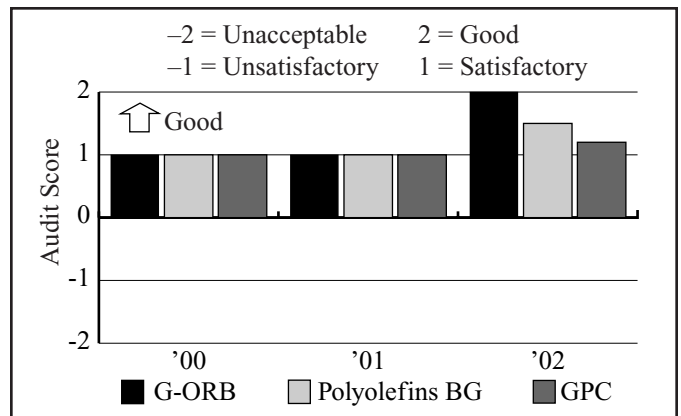


Figure 7.6-1 Internal Audit Rating

corporation and G-ORB, no incidents or concerns with financial audits have been experienced.

GPC’s Principle of *Achieve Highest Ethical Standards* includes transparency and openness and acting with integrity and fairness. Over the past three years, GPC has implemented changes to its Board of Directors’ structure and organization to increase the board’s independence from the corporation’s internal management structure. Figure 7.6-2 demonstrates how the changes made at GPC align with principles advocated by the Japanese Corporate Governance Forum (JCGF) (Area 1.1b).

Relationships are the foundation for GPC’s and G-ORB’s business success. In addition to conducting internal audits, G-ORB makes ethics a key element of associate awareness, training, and responsibility. Each year, a Partners in Trust Seminar is conducted at which the GPC *Code of Conduct* is distributed and actively discussed. In 1999, GPC established a mandatory attendance policy for the

JCGF Principles	GPC	Large Cap >\$800M	Chemical Industry Group
Board Leadership Recommendation: separate Chair (not a CEO)	Separate Chair	32% have a separate Chair; 68% have a combined CEO and Chair	39% have a separate Chair; 61% have a combined CEO and Chair
Board Member Independence Recommendation: >50% independent outsiders	67% independent outsiders	36% have >50% independent outsiders	68% have >50% independent outsiders
Standing Audit Committee Recommended membership: >75% independent outsiders	100% independent outsiders	38% have >75% independent outsiders	40% have >75% independent outsiders
Standing Compensation Committee Recommended membership: >75% independent outsiders	100% independent outsiders	61% have >75% independent outsiders	69% have >75% independent outsiders
Standing Nominating Committee Recommended membership: >75% independent outsiders	100% independent outsiders	41% have >75% independent outsiders	47% have >75% independent outsiders

Figure 7.6-2 Governance Principles: Alignment and Comparisons

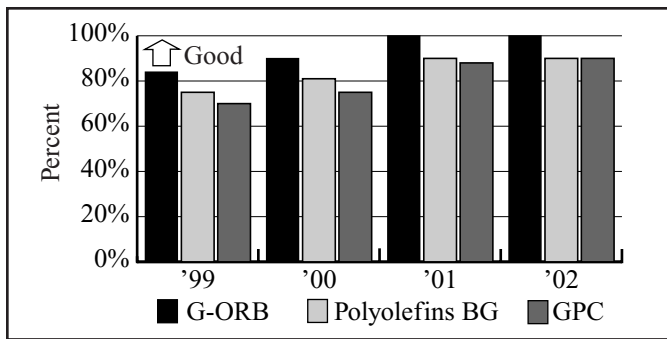


Figure 7.6-3 Attendance at Partners in Trust Seminars

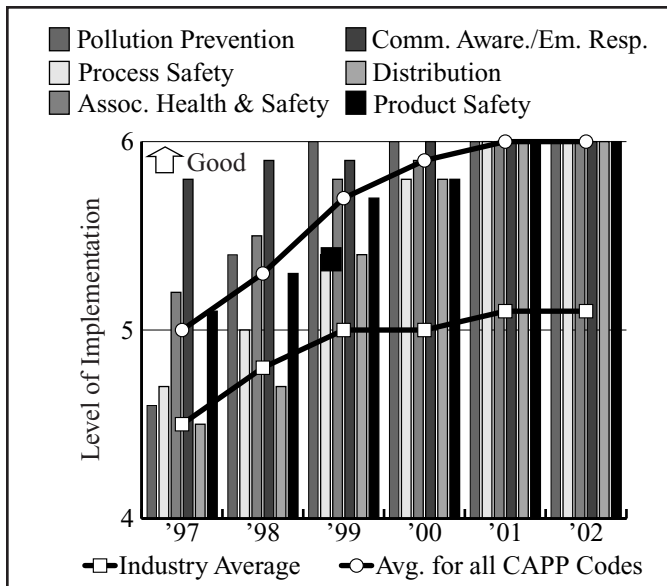


Figure 7.6-4 CAPP Scores

seminar. This ensures that each year associates and managers discuss the key corporate principles and review potential issues. Since 2001, G-ORB has had 100% attendance (Figure 7.6-3). No ethical incidents have been reported through any of G-ORB's feedback mechanisms, including customer surveys, the CDA Process, and the CMS. The G-ORB Steering Team is keenly attuned to any performance data that may indicate that principles of ethical behavior have been compromised.

In addition to pursuing operational results that produce the Right Cost, G-ORB takes seriously its social responsibility to deliver leadership-level results related to the environment and product health and safety. CAPP Scores (Figure 7.6-4) illustrate that G-ORB has continuously improved its performance on the six codes of standards established by the International Chemical Society (ICS) and sustained top-level implementation for the past two years. While others in the industry are still working to deploy these standards, G-ORB has reached and sustained full deployment. In 2001 and 2002, G-ORB received the ICS Platinum Award in recognition of its CAPP best practices.

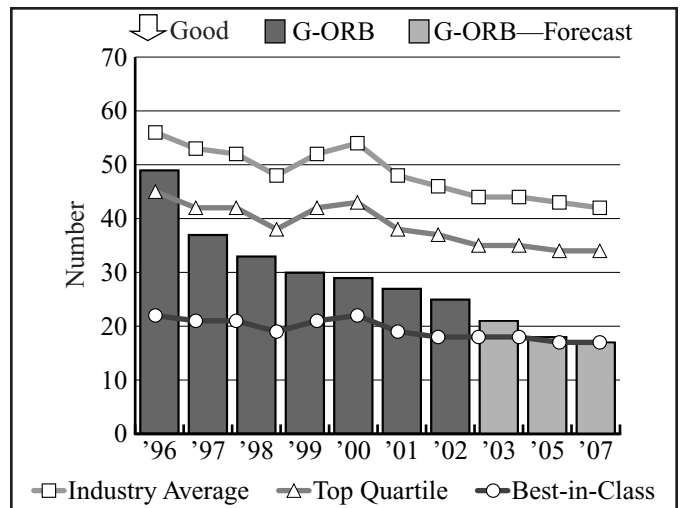


Figure 7.6-5 EPA Reportables

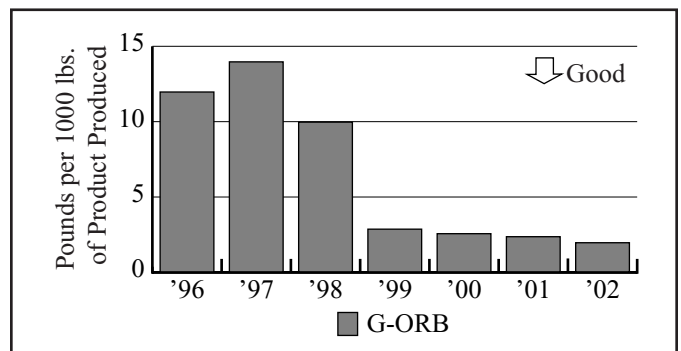


Figure 7.6-6 Waste to the Environment

Liam Berlin served as President of the ICS (2001 and 2002), and Michael Touvelle has been a member of the ICS Program Committee since 1999. G-ORB's Steering Team provides leadership support for ICS's environmental efforts by speaking on its behalf at conferences and events; the number of these speaking engagements has increased from 6 in 1999 to 40 in 2002.

G-ORB is fully compliant with all environmental regulations. Figure 7.6-5 on EPA Reportables indicates that G-ORB has made year-to-year progress in reducing reportables. G-ORB's current level of reportables makes it one of the industry leaders in this area.

Figure 7.6-6 indicates G-ORB's success at reducing the volume of waste from its manufacturing operations. This reduction is due primarily to the construction of a waste recycling plant in 1999. Continued reductions are the result of improvements suggested by associates and implemented by the Right Environment Team. G-ORB's level of reduction has been cited as a benchmark by *Chemical World* magazine. The total volume of all G-ORB recycled material (Figure 7.6-7) indicates the tremendous work effort of the Right Environment Team in leading the workforce in sitewide recycling efforts (including old equip-

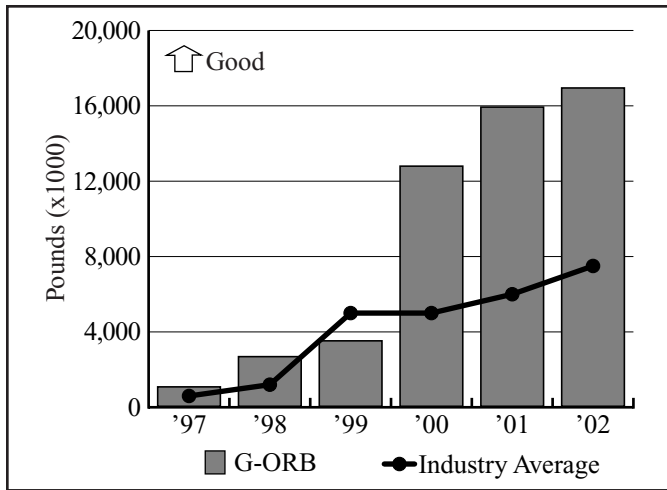


Figure 7.6-7 Total Recycled Material

ment, parts, bottles, cans, and paper). Since 1996, these efforts have saved more than \$6 million, 50,000 trees that would have been consumed for paper production, and 40,000 cubic yards of landfill space.

G-ORB's level of volunteerism is renowned in the greater Baton Rouge area. Jeanne Mitchell, Community Relations Manager, and the G-ORB Volunteer Clearinghouse have

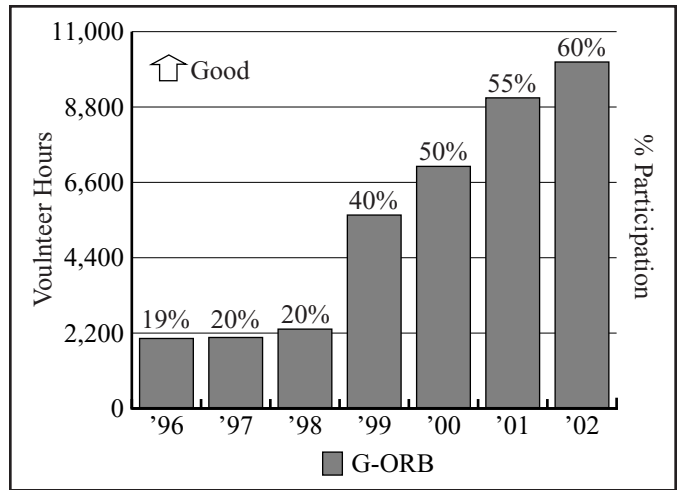


Figure 7.6-8 Volunteer Activities—Associate Participation

received the Mayor's Award for Citizenship, and the Clearinghouse has been featured on a cable television special "Citizens at Work." Currently, more than 60% of G-ORB associates participate as volunteers in over 200 programs. Figure 7.6-8 illustrates the impact of the Clearinghouse startup in 1999 and the sustained high level of volunteers over the past four years.

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