



**Innovation by Chemistry**



## **Toray Composite Materials America, Inc.**

**Decatur Manufacturing Facility**

**Spartanburg Manufacturing Facility**

**Dallas Sales Office**

### **Carbon Fiber (CF) & Polyacrylonitrile (PAN)**

### **Quality Manual**

**CORP-MAN-0004, Rev. 28**

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# COMPANY OVERVIEW

On April 1st, 2017 Toray Composites (America), Inc. and Toray Carbon Fibers America, Inc. merged to create a new business called **Toray Composite Materials America, Inc.**

Toray Composites (America), Inc. and Toray Carbon Fibers America, Inc. have worked successfully together for 20 years and share the same philosophy and culture. Both companies are accomplished with an enviable track record of providing industry leading solutions for our clients. We believe our successes are a result of our industry leading practices and the knowledge, passion, and total commitment to quality from all our employees.

CMA's Tacoma plant was first established in 1992 as TCA—incorporated in Pierce County and located adjacent to Boeing's Composite Manufacturing Center [CMC] — to enable an efficient supply stream of Toray's carbon fiber composite materials. First used on the Boeing 777, Toray's Advanced Carbon Fiber composite materials are now incorporated into the 777 and 787 primary structures and will be used on the new 777X wing. CMA's Tacoma plant supplies a diverse customer base both domestically and internationally and is a major exporter from Washington State.

CMA's Decatur plant was first established in 1997 as CFA—incorporated in Morgan County. The Decatur area has been known for its history in the chemical industry and offers attractive conditions for carbon fiber production. CMA Decatur operates production lines from precursor to carbon fiber and has a diverse base of customers in aerospace, defense, industrial, and automotive. They manufacture Standard Modulus [SM], Intermediate Modulus [IM] and Intermediate Modulus [IM+] fibers for global customer base.

CMA's Spartanburg plant will be an integrated facility producing precursor, carbon fiber and Prepreg in a single facility. This plant is a cornerstone of Toray's growth in North America and provides critical supply chain redundancy and diversification.

With a nationwide footprint, this allows us to build on our success by utilizing our collective knowledge and expertise, and becoming nimbler and responsive to our customers' needs by centrally managing our combined production facilities. Gaining capability across product lines allows us to increase customer value, shorten time to market, and strengthen critical relationships.



Toray Composite Materials America, Inc. (Decatur Plant)



Toray Composite Materials America, Inc. (Spartanburg Plant)

# TORAY HQ PHILOSOPHY, MISSION

## ***Philosophy:***

Contributing to society through the  
creation of new value with innovative ideas, technologies and products.

®

## ***Mission:***

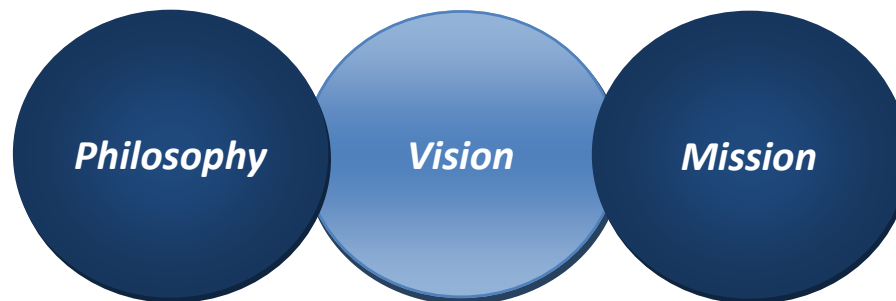
|                             |   |
|-----------------------------|---|
| <i>For our customers</i>    | To provide new value to our customers through high-quality products and superior services   |
| <i>For our employees</i>    | To provide our employees with opportunities for self development in challenging environment |
| <i>For our shareholders</i> | To provide our shareholders with dependable and trustworthy management                      |
| <i>For society</i>          | To establish ties and develop mutual trust as a responsible corporate citizen               |



# TORAY HQ VISION



# TORAY HQ CORPORATE GUIDING PRINCIPLES



## Guiding Principles

### Enhance Trust

- **Safety and Environment**

Placing top priority on safety, accident prevention and environmental preservation, ensuring the safety and health of our employees, our customers and local communities, and actively promoting environmental preservation.

- **Ethics and Fairness**

Obtaining the trust of society and meeting the expectation by acting fairly while maintaining high ethical standards and a strong sense of responsibility and maintaining transparency in management.

- **Emphasis on Human Resources**

Providing an environment where employees find value in their work, and building positive, energetic relationships between people and the organization.

### Embrace Change

- **Customer Focus**

Providing customers with new values and solutions, and achieving sustainable growth together.

- **Innovation**

Achieving continuous innovation in all corporate activities, and aiming for dynamic evolution and growth.

- **Fieldwork and Initiative**

Strengthening fieldwork abilities and initiative, the foundations of our corporate activities, through consistently learning from one another and constant self-driven efforts.

### Sustain Progression

- **Global Competitiveness**

Pursing competitiveness through global top quality standards and cost management, and achieving growth and expansion in the global marketplace.

- **Global Coalition**

Developing global coalition through integrated internal linkages and strategic alliances with external parties.



Toray Composite Materials America, Inc. (CMA) Management System is aligned with Toray HQ's Philosophy, Vision, and Mission.

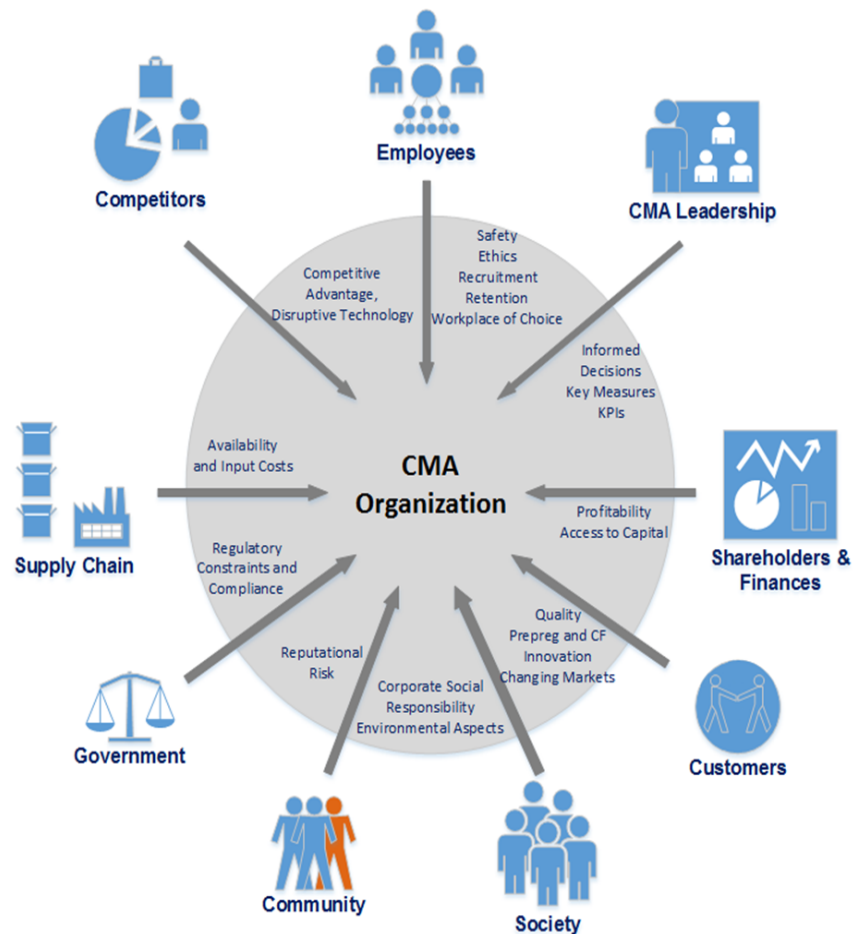
# TORAY CMA QUALITY POLICY

Toray Composite Materials America, Inc. (CMA) will strive to provide the highest quality products with innovative technology that meet our customer, statutory, and regulatory requirements with emphasis on continuous process improvements.

## Principles of our Quality Policy:

|                                       |   |
|---------------------------------------|---|
| <b><i>Safety:</i></b>                 | Provide safe products and ensure a safe work environment                        |
| <b><i>Commitment:</i></b>             | Comply with customer, statutory, and regulatory requirements                    |
| <b><i>Innovation:</i></b>             | Innovation in our customer service, products, and processes                     |
| <b><i>Integrity:</i></b>              | Manifest in all aspects of our company activities                               |
| <b><i>Establish:</i></b>              | Annually review quality objectives  |
| <b><i>Continuous Improvement:</i></b> | Continually improve customer service, products, and processes                   |
| <b><i>Motivation:</i></b>             | Encourage our employees to be involved and proudly take ownership of their work |

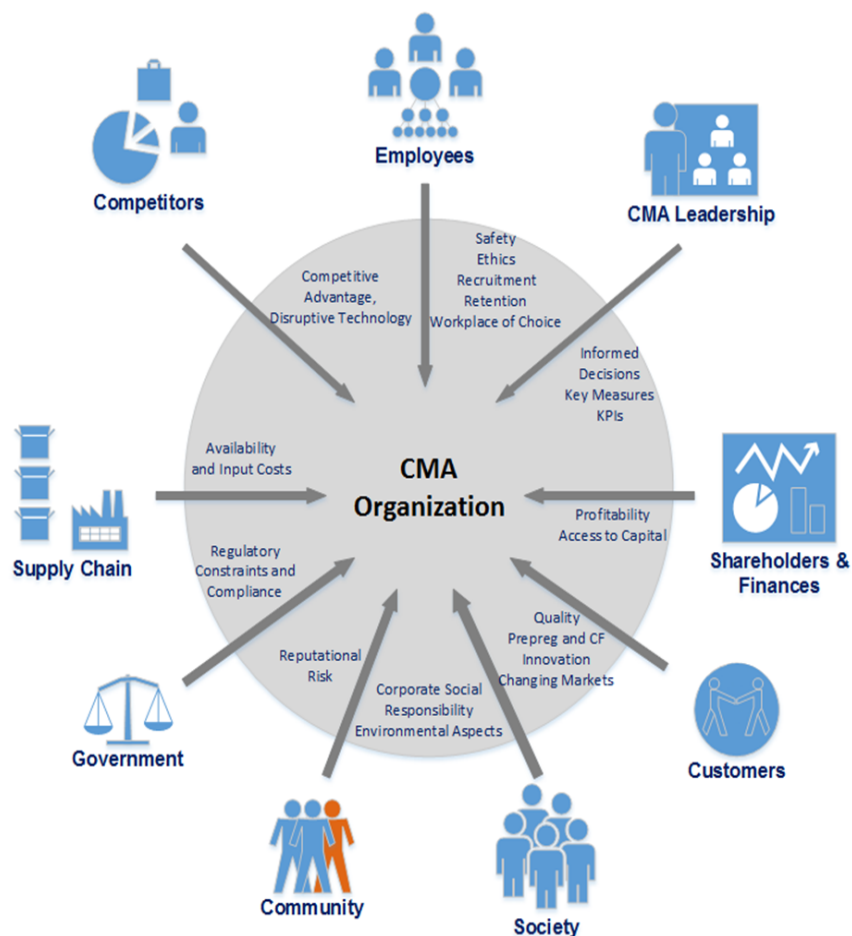
# CMA INTERESTED PARTIES



| <i>Interested Parties</i>    | <i>Expectations</i>  | <i>Key Activities</i>   |
|------------------------------|--|---|
| Employees                    | Safe work environment with access to benefits and career development   | 5S, WIN Program, Annual Wage and Benefit Survey, Ethics Policy, Employee Opinion Survey, Training |
| Leadership                   | Set vision for Toray CMA Carbon Fiber production and achieve KPIs or develop action plans to meet KPIs and communicate company results | X- Matrix, Management Review, Key Measures and KPIs, All Hands Meetings, Daily dept. meetings     |
| Community / Non-Governmental | Reputational Risks, Corporate Social Responsibility, Community Relations   | United Way Campaign; FACEs Christmas campaign; Local Food drives                                  |
| Regulatory                   | Regulatory Constraints and Compliance  | EHS Internal Audits and Report; Financial audits and reporting                                    |
| Supply Chain                 | Availability, Forecasting  | SIOP Meetings; Global Operations  |
| Competitors                  | Competitive Advantage, Disruptive Technology   | Technical Center Testing  |
| Shareholders & Finances      | Profitable, Growth in the Market   | Toray HQ, Financial Reports   |



# CMA INTERESTED PARTIES (continued)



| <i>Interested Parties</i> | <i>Expectations</i>   | <i>Key Activities</i>  |
|---------------------------|---|--|
| Customers                 | Provide high quality, innovative products that meet or exceed customer expectations | Annual Customer Survey, OTD monthly tracking, Customer Complaint KPI, Maintain AS9100, Nad-cap accreditation where applicable, Technical Transfer of new Technology, Customer Specification Registration, Changing Markets, Forecasting Demand, Expanding Markets (Aerospace, Defense, Sporting Good, Industrial and Automotive) |
| Society                   | Corporate Ethics  | Corporate Social Responsibility, Environmental Aspects, Maintain ISO14001 certification  |
| Insurance                 | Profitable, Stable business, Low risk and minimum liabilities, fewer claims         | Consistent policies, internal policies for Safety, Quality, and Environmental  |

# CMA INTERNAL FACTORS



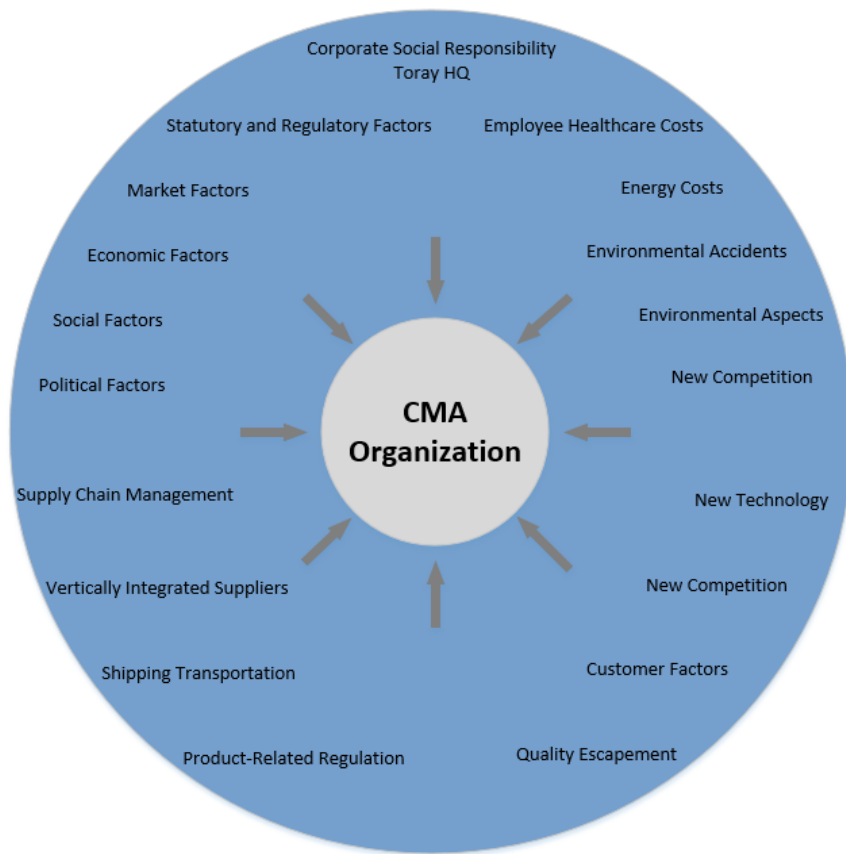
| <i>Internal Factors</i>         | <i>Comments</i>   |
|---------------------------------|---|
| Safety                          | Leadership Commitment to Safety, Safety is First at CMA   |
| Quality                         | QMS Quality Objectives and Key Measures   |
| Ethics                          | Ethics Training, BEAR (Ethics program)  |
| Corporate Social Responsibility | Toray Group takes a comprehensive approach to practicing social responsibility and pursuing its management philosophy and management strategies, recognizing that fulfilling social responsibilities is integral to business growth |
| Employer of Choice              | Employee Opinion Survey   |
| Benefits                        | Marketplace Evaluation, Annual Review   |
| Incentives                      | Marketplace Evaluation, Annual Review   |
| Employee Retention              | Marketplace Evaluation, Annual Review   |
| Management Stability            | Vision, Mission and Objectives, Succession planning   |
| Organizational Structure        | Strategic Planning Toray AP-G 2025, CMA Mid Term Plan, CMA Annual Budget, Business Roadmap, X-Matrix  |
| Environmental Aspects           | Environmental Objectives, Targets and Programs, policy, emissions, pollution, local ecology, climate, Natural disasters   |
| Labor Costs                     | Strategic Planning Toray AP-G 2025, CMA Mid Term Plan, CMA Annual Budget, Business Roadmap  |
| Profitability                   | Business Roadmap, Prioritization  |
| Strategic Risk                  | Strategic Planning Toray AP-G 2025, CMA Mid Term Plan, CMA Annual Budget, Business Roadmap, Risk Analysis   |

# CMA INTERNAL FACTORS (continued)



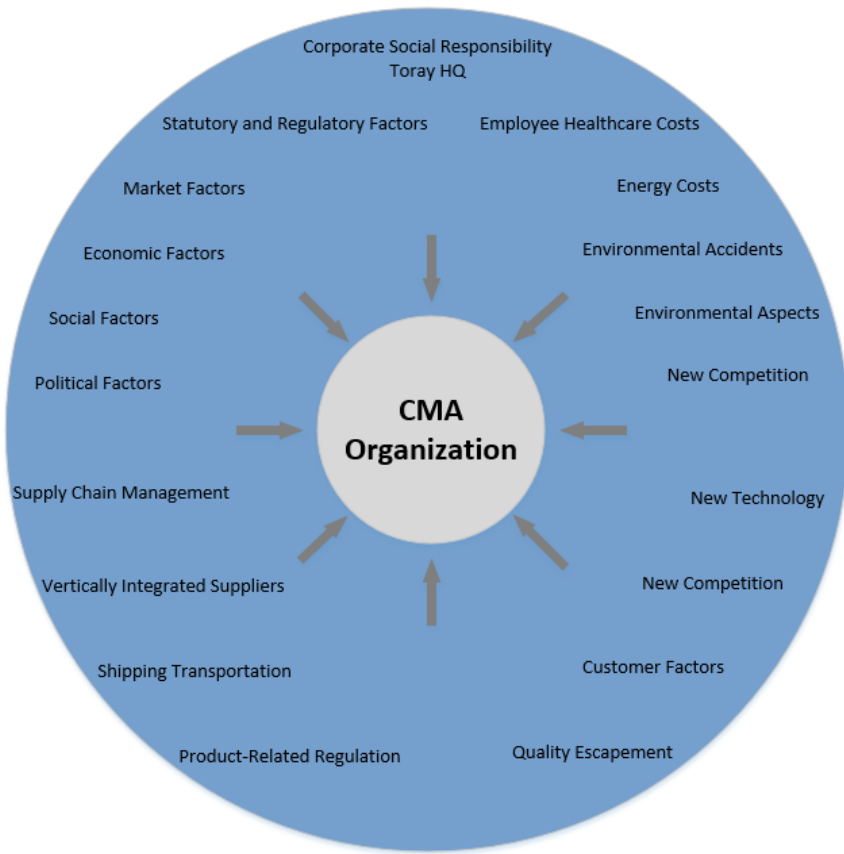
| <i>Internal Factors</i>           | <i>Comments</i>  |
|-----------------------------------|--|
| Organizational Culture / Behavior | Leadership Model   |
| Innovation                        | X-Matrix, Sustain, Retain and Gain Strategy  |
| Resource Management / Factors     | Budgeting  |
| Business Expansion                | Strategic Planning Toray AP-G 2025, CMA MTP, CMA Annual Budget, Business Roadmap, X-Matrix                 |
| Capital Investment                | Strategic Planning Toray AP-G 2025, CMA MTP, CMA Annual Budget, Business Roadmap, CAPEX planning, X-Matrix |
| Aging Equipment Facilities        | Strategic Planning Toray AP-G 2025, CMA MTP, CMA Annual Budget, Business Roadmap, CAPEX, X-Matrix          |
| Branding and Marketing            | Vision, Mission and Objectives, Internet catalogs, Trade Shows   |
| Yield Improvement                 | X-Matrix   |
| Cost Down                         | X-Matrix   |
| Capacity Utilization              | X-Matrix, Business Roadmap, Sustain, Retain and Gain Strategy  |
| CMA Integration                   | Integration of Tacoma, Decatur, Dallas , Spartanburg   |
| Systems and System Transparency   | MES, ERP, CATSWeb, Master Control, Infrastructure  |
| Operational Knowledge             | Succession Planning  |

# CMA EXTERNAL FACTORS



| External Factors                         | Comments  |
|--|---|
| Corporate Social Responsibility Toray HQ | Toray Group takes a comprehensive approach to practicing social responsibility and pursuing its management philosophy and management strategies, recognizing that fulfilling social responsibilities is integral to business growth |
| Employee Healthcare Costs                | Benefit Assessment, ACA, Regulations, HIPAA   |
| Energy Costs                             | Cost Increases (Manufacturing, Raw Materials, Transportation)   |
| Environmental Accidents                  | Prevention, Disaster Recovery, Business Continuity Planning   |
| Environmental                            | ISO14001, Corporate Social Responsibility, Product Safety,  |
| New Competition                          | Market Disrupting Technology, Price/Performance Competition   |
| New Technology                           | Market Disrupting Technology  |
| Product-Related Regulation               | ITAR, EAR, STC  |
| Quality Escapement                       | Prevention, QMS investment, AS9100  |
| Customer Factors                         | Contract Review, Product Safety, Contractual Obligations  |

# CMA EXTERNAL FACTORS (continued)

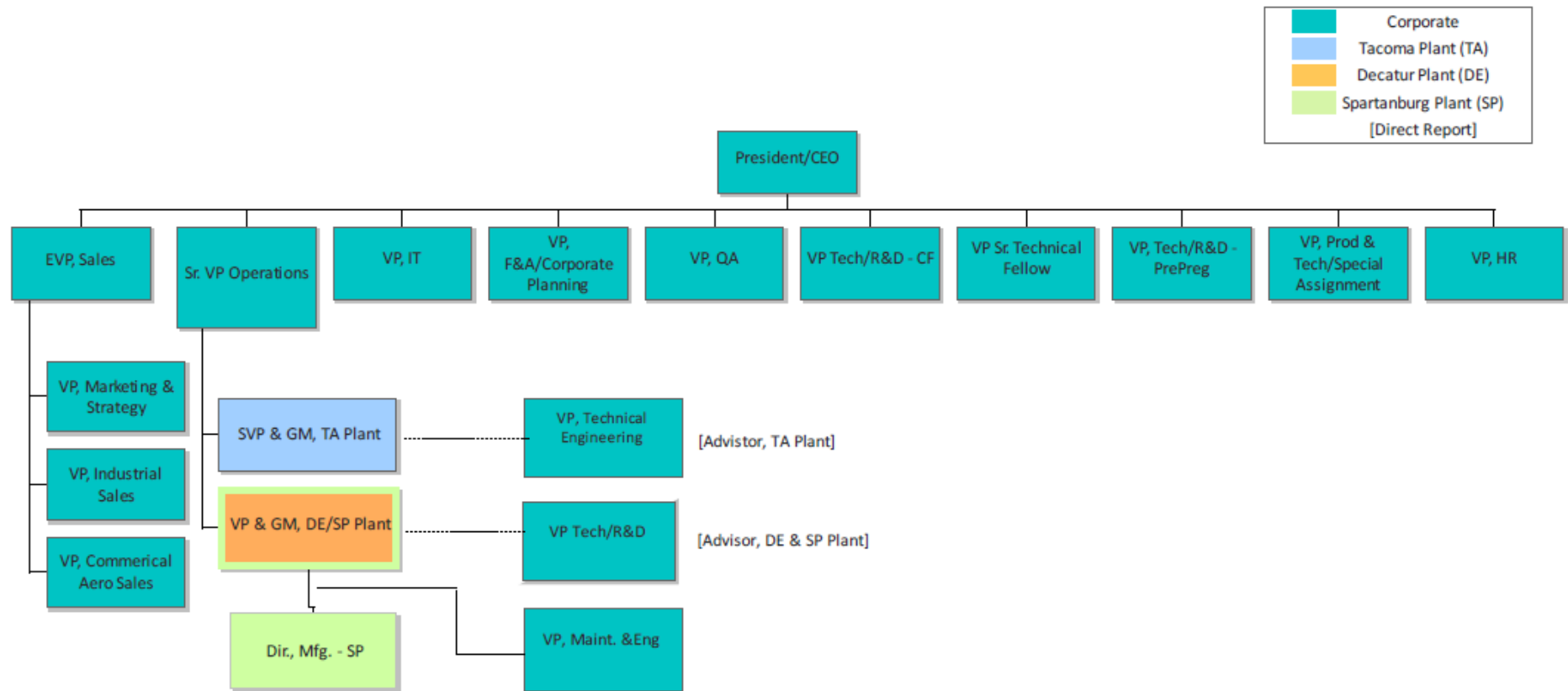


| <i>External Factors</i>          | <i>Comments</i>   |
|----------------------------------|---|
| Market Factors                   | Competition, Market Share, Products or Services, Market Leader Trends, Customer Growth Trends, Market Stability, Supply Chain Relationships |
| Statutory and Regulatory Factors | Compliance, Ethics, ITAR, EAR, STC, FAA, OSHA, Product Safety, HIPAA, DOT, RCRA, CAA, TSCA, REACH, ADEM, SCDHEC                             |
| Economic Factors                 | Exchange rates (Yen to Dollar), Economic Growth, Inflation Forecast, Export Tariffs, Interest rates   |
| Social Factors                   | Local Unemployment, Education Levels, Perception of Toray and Working Conditions  |
| Political Factors                | Political Stability, Public investments, Local infrastructure, International Trade Agreements, International Political Tension              |
| Supply Chain Management          | Costs, Availability, Transportation, Scaling, Export Control, Risk Mitigation, Disaster Recovery, Business Continuity                       |
| Vertically Integrated Suppliers  | Dependency on Toray, Capacity Planning  |
| Shipping Transportation          | Disruption, Costing, Delivery   |



# LEADERSHIP RESPONSIBILITIES

## CMA Organization Chart



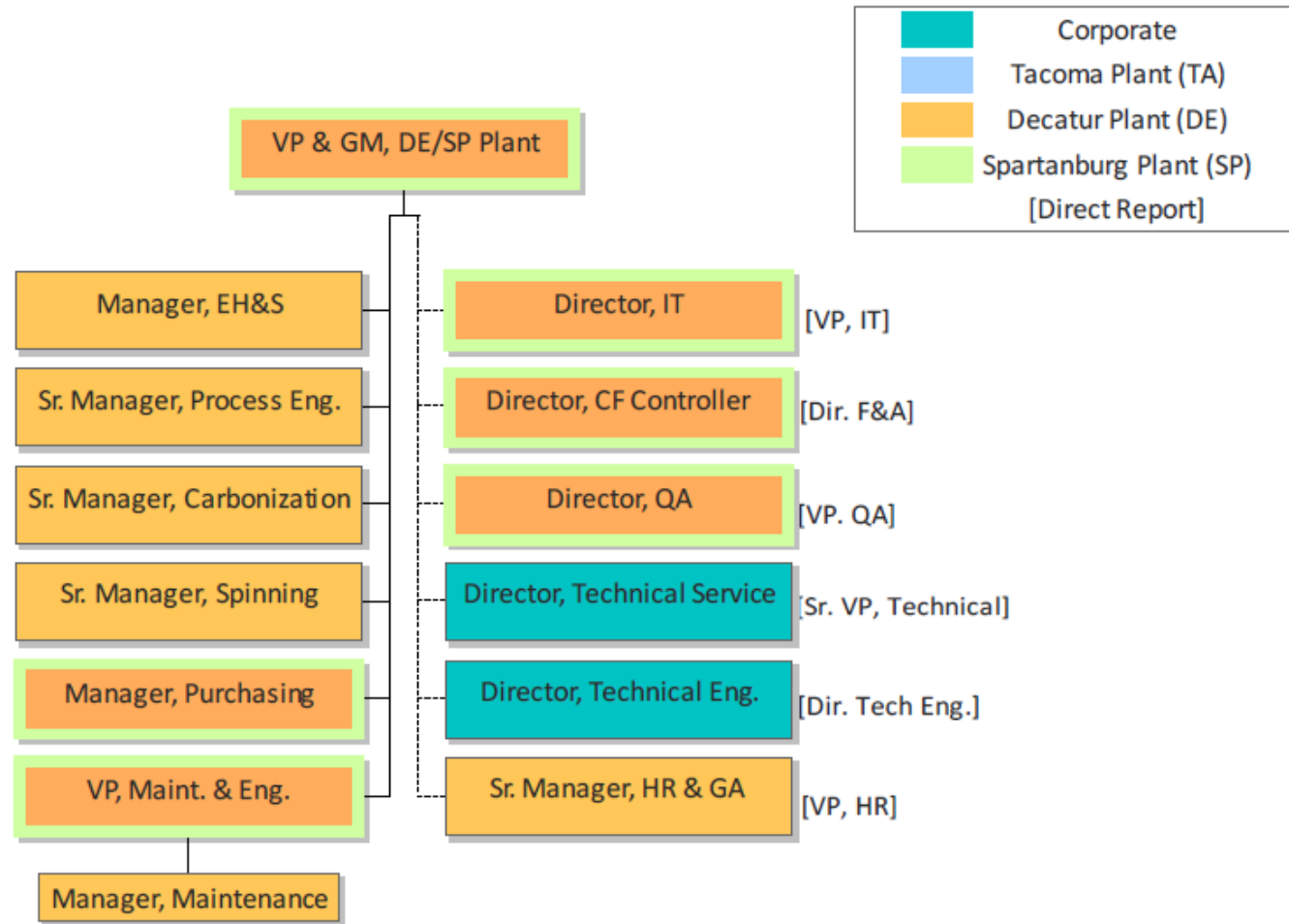
CMA Leadership is responsible for implementing the Management System consistently throughout their site location.

CMA Associates are responsible for working in accordance with the Management System processes and requirements within their site.

Responsibilities for specific activities are detailed within the Management System documentation.

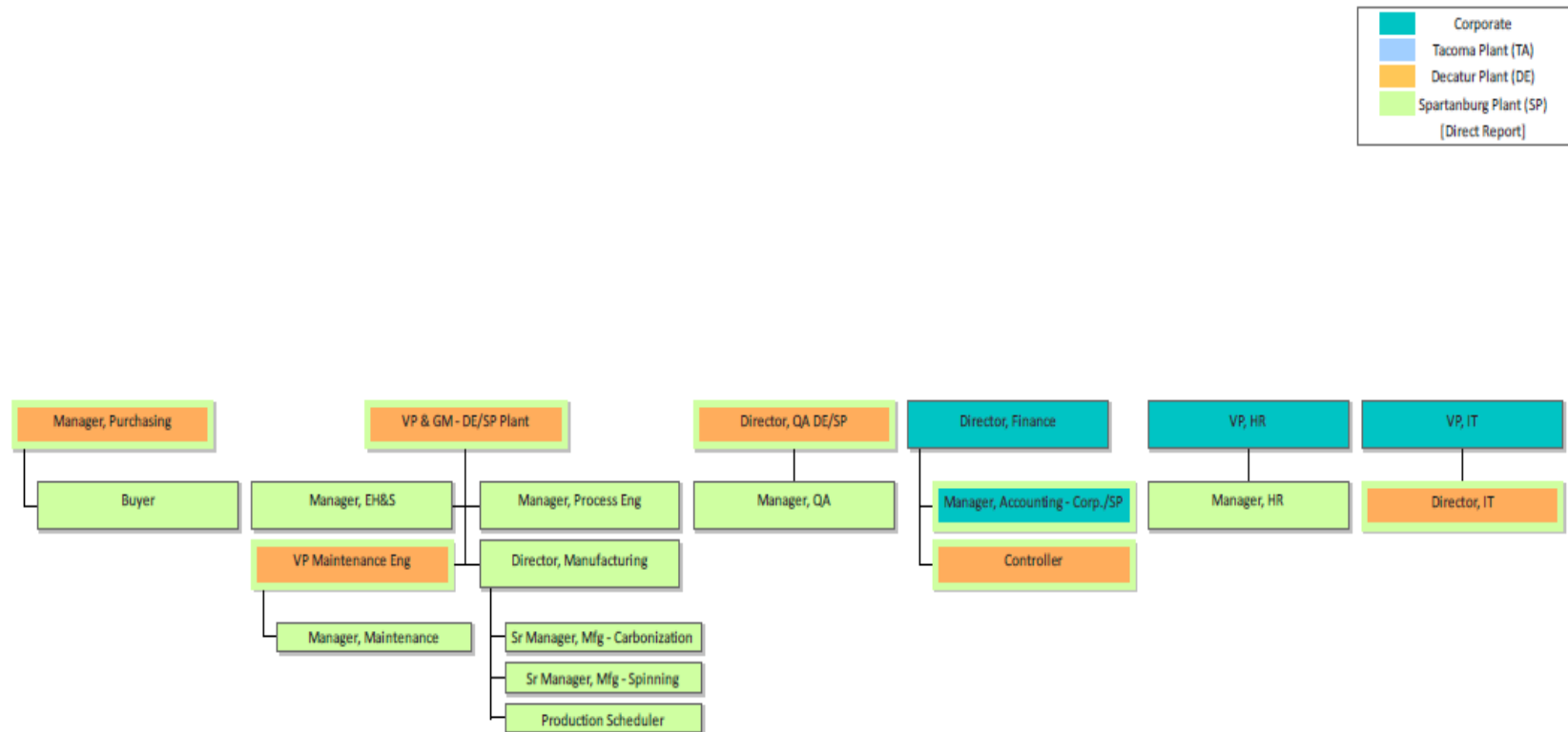
# LEADERSHIP RESPONSIBILITIES

## Decatur Organization Chart



# LEADERSHIP RESPONSIBILITIES

## Spartanburg Organization Chart



# LEADERSHIP RESPONSIBILITIES (continued)

*The CMA Management Representatives for Quality are the Managers of Quality at each site. The Decatur Quality Manager is the Management Representative for the Dallas Sales Office.*

It is the responsibility of the management representative to ensure that the quality management system conforms to the requirements of the AS9100 standards. The management representative is also responsible to ensure that the processes are delivering their intended outputs, reporting on the performance of the QMS and on opportunities for improvement to top management. It is the responsibility of the management representative to ensure the promotion of customer focus throughout the organization and to ensure that the integrity of the QMS is maintained when changes to the system are planned and implemented.

It is the responsibility of all personnel at Toray CMA Decatur, Spartanburg, and Dallas to follow the procedures pertinent to their department. All employees have the organizational freedom to identify problems; to initiate, recommend, solve and/or verify solutions to quality problems; and to have access to Management at any level if action is required.

# SCOPE OF CMA CF & PAN

This quality manual covers Toray CMA-Decatur, Toray CMA-Spartanburg, including Dallas Sales office, and provides the guidelines to accomplish the requirements of the current revision of SAE AS9100 for our Spinning and Carbon Fiber lines. The AS9100 standard requirements are limited in scope to those products that are applicable to the aerospace industry.

## Decatur:

|                                      |  |
|--------------------------------------|--|
| Spinning and Carbonization (AS9100): | Manufacture and Sales of Polyacrylonitrile and Carbon Fibers (Dallas Sales Office) |
| Carbonization (AC7124 & AC7122):     | Non-metallic Materials Manufacturing and Non-metallic Materials Testing            |

## Dallas:

|                         |                                       |
|-------------------------|---------------------------------------|
| Carbonization (AS9100): | Purchasing and Sales of Carbon Fibers |
|-------------------------|---------------------------------------|

## Spartanburg :

|                                      |  |
|--------------------------------------|--|
| Spinning and Carbonization (AS9100): | Manufacture and Sales of Polyacrylonitrile and Carbon Fibers (Dallas Sales Office) |
|--------------------------------------|--|

## Structure Matrix of our QMS:

- ◆ The Decatur plant, Spartanburg Plant and Dallas Sales Office are Campus type of certification.
- ◆ The Decatur site serves as the Central Function.



# EXCEPTIONS

During the course of manufacturing precursor and carbon fibers, some elements of the AS9100 standard are not applicable to our business case. The exceptions that Toray CMA Decatur, Spartanburg and Dallas have identified are as follows:

- ◆ Customers' data are not furnished or used for design, production and/or inspection.
- ◆ Toray CMA does not provide post-delivery activities (AS9100 sect. 8.5.5) pertaining to:
  - Collection and analysis of in-service data
  - Control, updating, and provision of technical documentation relating to product use, maintenance, repair, and overhaul
  - Controls required for work undertaken external to the organization
  - Product/customer support pertaining to training, warranties, maintenance, resources and obsolescence.
- ◆ Special processes are defined for the Decatur facility only for Non Metallic Materials Manufacturing.
- ◆ Customers do not provide their property for use or storage at Toray CMA.
- ◆ Employee owned measuring devices, for the acceptance of products, are not used in our facilities.
- ◆ Design and Development activities (AS9100 sect. 8.3) are not within the scope of the QMS due to Technology Transfer from Toray Japan.
- ◆ Dallas Sales office scope is limited to the Sales of Carbon Fiber and the Purchase and import of Carbon Fiber produced at Toray Manufacturing Sites overseas.

# KEY PROCESSES

## Strategic Planning:

- Determining internal and external relevant interested parties
- Demonstrate leadership and commitment
- Communicating the Quality Policy
- Assigning and communicating relevant responsibilities and authorities

## Manufacturing:

- Managing the production lines to ensure high production yield
- Monitoring and minimizing production risks during production runs

### Maintenance:

- Calibration and maintenance of items identified as having effect on product quality
- Maintaining a preventive maintenance program that is effective
- Ensuring any production equipment that is stored is protected

### Quality:

- Inspection, testing and release of acceptable product
- Compliance to necessary standards and customer specifications
- Compliance to customer approved Process Control Documents

## Support Activities

### Continuous Improvement:

- Preventive maintenance for process equipment
- Customer Satisfaction
- 5S programs, FOD programs

## Purchasing:

- Ensuring purchases, where appropriate, are from the Approved Suppliers List
- Communicating effectively the requirements for the purchases
- Flowing down relevant requirements as identified by product and/or contractually to ensure acceptable/non-counterfeit material is procured

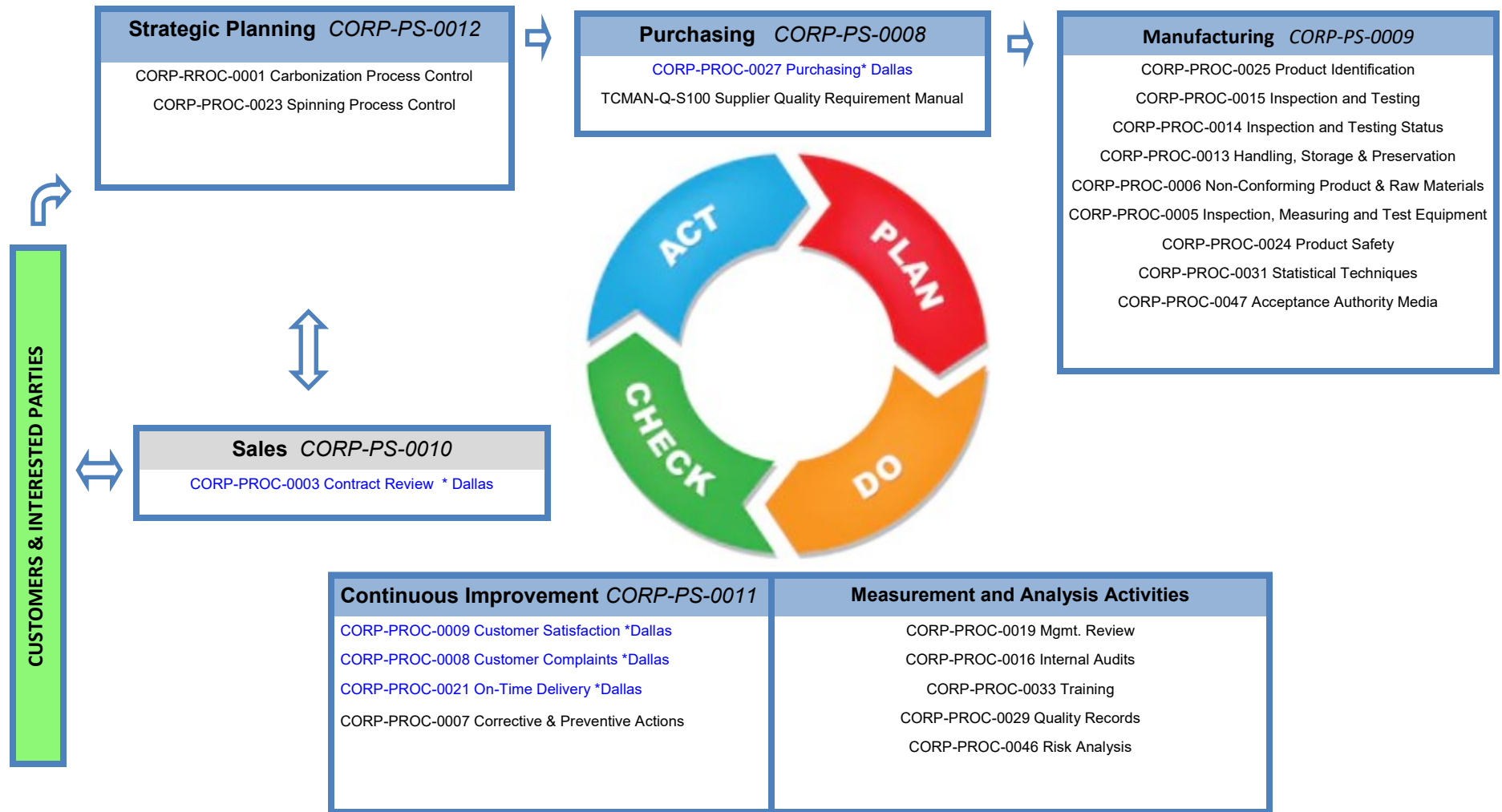
## Sales:

- Monitoring customer satisfaction and on-time delivery
- Capturing and communicating the requirements for products
- Purchasing imported TORAYCA® fibers
- Managing product inventory as necessary for domestic or imported products

### Measurement and Analysis Activities:

- Management Review
- Internal Audits
- Risk Analysis
- Quality data and records
- Training

# Process Interaction



\*Dallas in addition to Decatur and Spartanburg

# DOCUMENTATION MANAGEMENT SYSTEM

The documentation Management System is comprised of this Quality Manual and all the material that defines and supports the processes.

Documentation is available on the Quality Documents Management System where employees can easily access materials needed to perform activities.

