



CIPHER

The right answers, right away

# Increasing Competitiveness with Value Chain Analysis

---

May 6 2009

*Confidential* – this information should not be distributed to any third party without CIPHER's express written consent.

# Session Agenda

---

- Who is Cipher?
- Introduction to Value Chain Analysis (VCA)
- Value Chain Analysis for Products and Services
- VCA Methodology
- Examples
- Q & A

## Strategic Research Services

- Market and Industry assessments
- Primary and secondary research
- Competitive Intelligence
- Acquisition Screening
- Manufacturing Cost Analysis
- Value Chain Analysis
- Intellectual Property Valuations
- Organizational Benchmarking
- Technology Assessments
- Strategic Assessments
- Clinical Trial and Legislative Tracking

## CI Systems Integration Services (Knowledge.Works™ )

- Strategic technology partnerships
- Competia “Best-in-Class” Software Award
- IBM Solution Excellence Award
- 65+ implementations worldwide

## Federal Content Management

- e-Government solutions
- Document scanning

## Intelligence Training Services

- Onsite customized instruction
- Practical hands-on approach

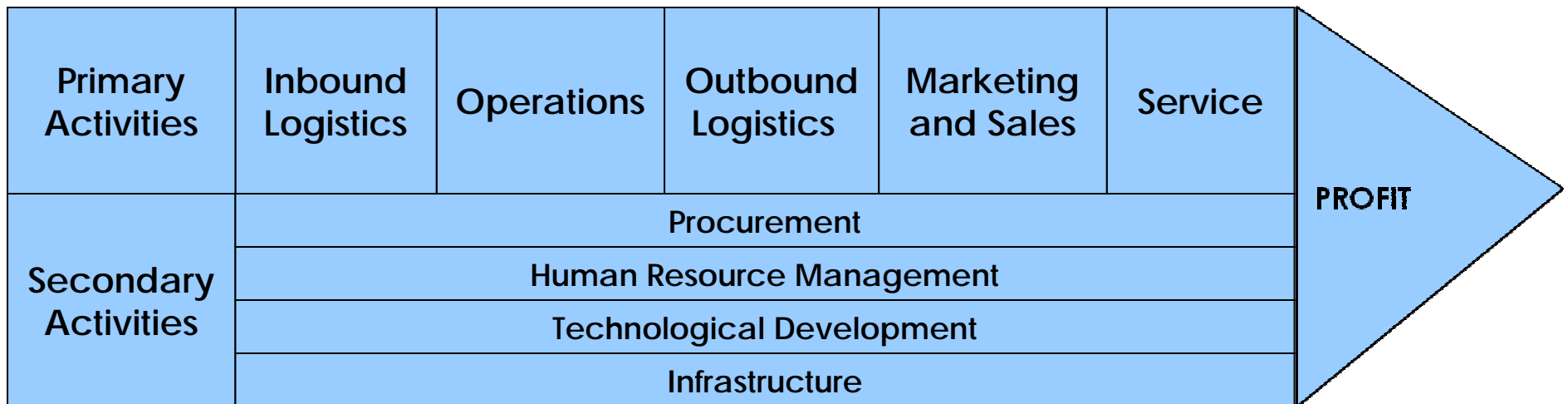


*Confidential* – this information should not be distributed to any third party without Cipher's express written consent.

# Value Chain Analysis – Introduction

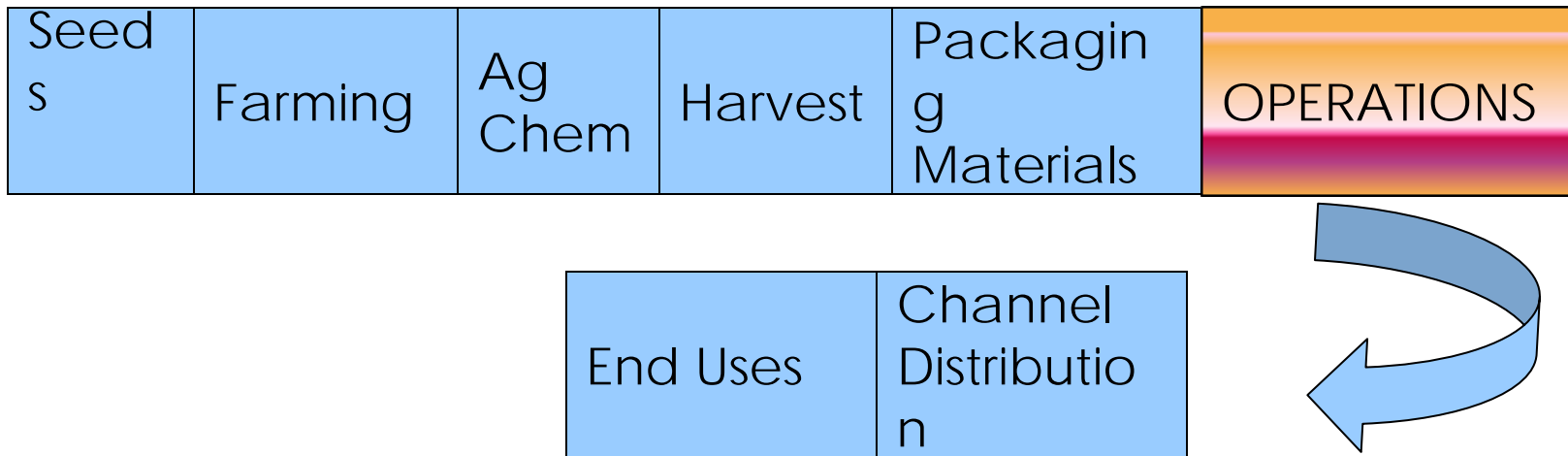
- 1985 – Michael Porter introduces value chain analysis as a technique to evaluate the internal and external business processes as a competitive advantage vs. standard financial metrics (P&L, Balance, Cash Flow)
- The value paid by the Customer will be greater than the cost of all value added activities resulting in a profit.
- Cost advantages and differentiation opportunities are analyzed throughout the value chain to become more competitive

**Porter's Value Chain Diagram**



# Value Chain Analysis – Products and Services

- Value chains exist before and beyond the organizational activities
- Example – Flour Production



- How well does an organization control all of the segments of a value chain?
  - Creating or strengthening entry barriers
- How does an organization optimize value extraction opportunities in each segment of its value chain?

# Value Chain Analysis – Tactical Issues

---

- What value chain segments provide opportunity to extract additional profit?
- What opportunities exist for portfolio expansion (or contraction)?
- What market opportunities exist for existing technology in new and attractive markets?
- Can additional value be extracted by meeting unmet needs along the value chain?
- What are the critical success factors for each technology and market?
- What are the value propositions of competing and emerging technology?
- Who are the emerging competitors in each technology and market segment?
- How does an organization maintain a competitive advantage through the Customer Experience?

# Value Chain Analysis – Methodology

---

## Step One

- **After review of strategic intent, a value chain analysis is structured to provide the framework for making the best decisions concerning the tactical business issues. Note: Supply Chain Analysis is primarily for organizational inbound and outbound logistics (decreasing time and inventory, improved scheduling)**
- **Opportunity assessment may include**
  - **Increased profits**
  - **Increased competitive position**
  - **New market entry**
- **Analysis may include evaluation of**
  - **Technology (what the product or service is)**
  - **Functionality (what the product or service does)**
  - **Market segments (segment description)**

# Value Chain Analysis – Methodology

---

## Step Two

- **A complete process review is conducted for the product or service of interest from beginning materials to final end use. Each step in the value chain is detailed as follows:**
  - **Process description – All steps or segments are completely identified**
  - **Competitive analysis – All competitors are evaluated to understand where and how they participate in each segment of the value chain**
  - **Segment Value – Analysis is conducted to establish volume, value, profitability and projected growth for each segment and for each competitor if applicable**
  - **Key Success Factors – Each segment is evaluated to determine all of the KSF's**

# Value Chain Analysis – Methodology

---

## Step Three

- **End Use Analysis – each end use market segment is analyzed to determine:**
  - **Who participates, where and how their product or service is designed, marketed and distributed**
  - **The value, profitability, KSF's and growth projections for the final products in each end use segment**

## Step Four

- **Critical issues are identified throughout the value chain that will be analyzed for action based on the strategic intent of the organization and the specific tactical business issues to be resolved.**

# Value Chain Analysis – STEP ONE

---

Guar gum is a water soluble polysaccharide used primarily in the food industry for various applications relating to viscosity.

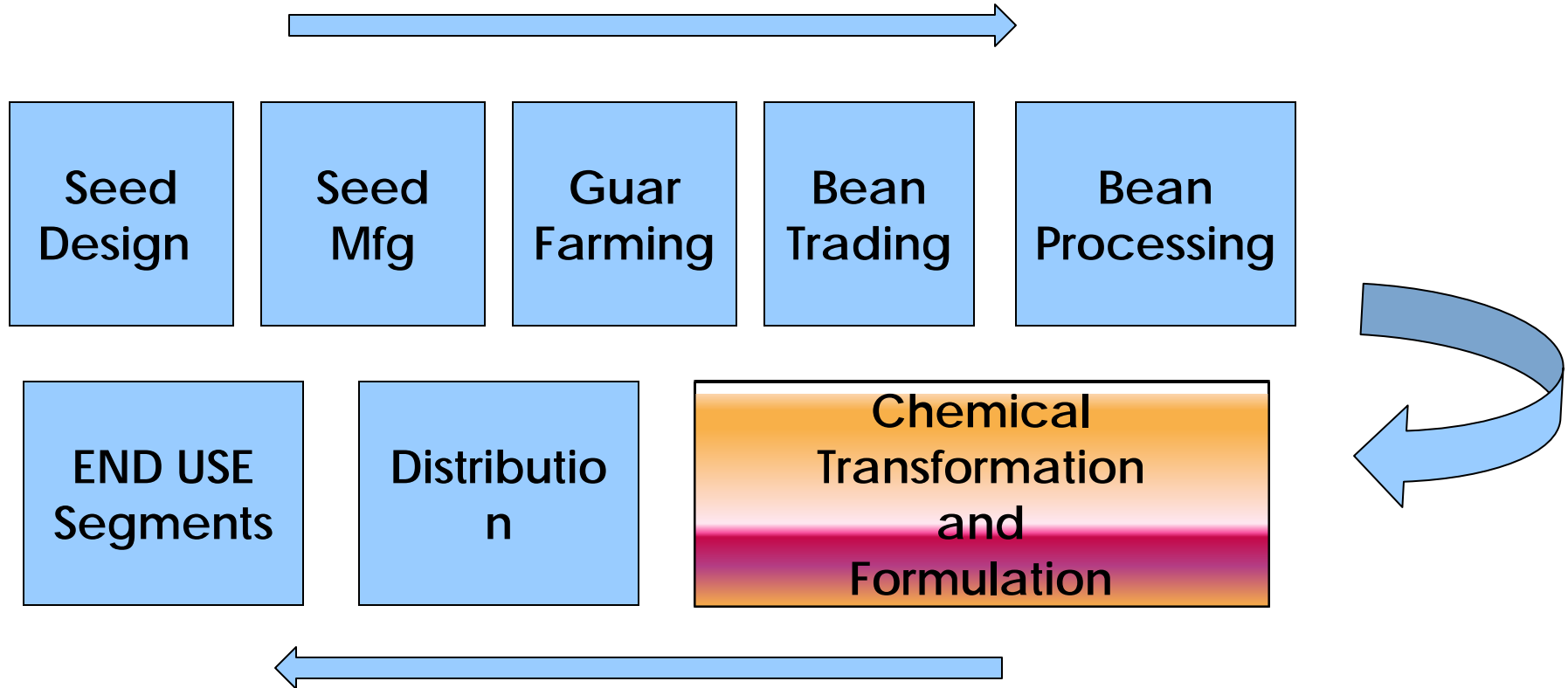
Guar gum is derived from the guar bean which is a relatively drought resistant legume grown primarily in India and Pakistan

## **Strategic Intent:**

**As a Guar Gum manufacturer, what challenges and opportunities exist throughout the value chain to increase profitability or increase competitive position?**

# Value Chain Analysis – STEP TWO

## Process Description



# Value Chain Analysis – STEP TWO

| Process                | Seed Design | Seed Mfg | Bean Farming  | Bean Trading  | Bean Processing | Chemical Transforming | System Formulation | Distribution Marketing | End Use             |
|------------------------|-------------|----------|---------------|---------------|-----------------|-----------------------|--------------------|------------------------|---------------------|
| Competitors            | D,E,F       | D,E,F    | Small Farmers | Large Traders | G,H,I           | A.B.C.D               | A.B.C.D            | A.B.C.D.E              | See Market Segments |
| Value Added Value/Unit | .1          | 1.00     | .26           | .50           | 1.40            | 3.10                  | 4.00 – 10.00       | 3.00 – 8.00            |                     |
| Profit                 | 15%         | 4-6%     | 3-5%          | 3-6%          | 1-2%            | 12 - 28%              | 15-30%             | 2-3%                   |                     |
| Annual Growth          | 0-2%        | 0-2%     | 1-2%          | 1-2%          | 1-2%            | 6-8%                  | 6-8%               | 6-8%                   |                     |

## Key Success Factors (examples)

|                            |   |
|----------------------------|---|
| Seed Design                | Continued use of hybrid seeds for irrigated regions                                 |
| Seed Mfg                   | Seed export restrictions  |
| Bean Farming               | Favorable climate conditions  |
| Bean Trading               | Lack of organized farmer trade groups   |
| Bean Processing            | Continued consistency improvements  |
| Chemical Transforming      | Improved yields   |
| System Formulation         | Ability for rapid, cost effective development of system solutions for key Customers |
| Distribution And Marketing | Anticipating Customer volume requirements   |

# Value Chain Analysis – Step Three

## End Use Market Segments

Also define value add, profitability, annual growth and KSF's for each segment

| Market                   | Additional Process    | Additional Process Customer | Design and marketing       | Distribution                       | End Use Product Pricing | Competitors | End Use                         |
|--------------------------|-----------------------|-----------------------------|----------------------------|------------------------------------|-------------------------|-------------|---------------------------------|
| <b>Agriculture</b>       | Extrude/<br>granulate | Blending                    | Viscosity                  | Ag Chemical<br>manufacturers       | 12.00 -16.00            | A,B,C,D,    | Spray Agricultural<br>Chemicals |
| <b>Oil Field</b>         | Slurry in Oil         | Hydrate /<br>Sand           | Viscosity                  | Oil field service                  | 10.00 -14.00            | A.B.C       | Fracturing<br>formations        |
| <b>Food</b>              | Formulate             | Blending                    | Texture and<br>Stabilizing | Intermediate/<br>finished products | 1.00 - 4.00             | A.B.C.D.E.F | Food Ingredient                 |
| <b>Personal<br/>Care</b> | Formulate             | Formulate                   | Viscosity                  | Manufacturers/<br>retail           | 4.00 – 6.00             | A.B.C       | Shampoo<br>Conditioner          |
| <b>Paper</b>             | Formulate             | Blending                    | Sheet end<br>printing      | Die cutters, office<br>supply      | .70 -.95                | A.B.C.D     | Wet End Strength                |
| <b>Explosives</b>        | Formulate             | Formulate                   | Hydration<br>properties    | Explosive<br>manufacturers         | .35– 3.00               | A.B.C       | Mining explosives               |
| <b>Fire<br/>Fighting</b> | Blend                 | Formulate                   | Hydration and<br>viscosity | Chemical<br>Manufacturers          | .10 - .30               | A,C         | Aerial drops on<br>forest fires |
| <b>Paint</b>             | Blend                 | Formulate                   | Improved<br>suspension     | Brand products                     | 2.00 - 6.50             | B,C,D       | Thicken water<br>based paints   |
| <b>Textile</b>           | Blend                 | Formulate                   | Viscosity                  | Chemical<br>Manufacturers          | 15.00 –<br>125.00       | C,D         | Dye Thickening                  |

# Value Chain Analysis – STEP THREE

## Identification of Critical Issues Across the Guar Value Chain (examples)

| IDENTIFICATION  | DESCRIPTION  |
|---|--|
| GMOs  | <ul style="list-style-type: none"> <li>• Can we expect new GM guar more resistant to climate variations (monsoons) or grow in different climates?</li> </ul>   |
| Guar Gum substitutes  | <ul style="list-style-type: none"> <li>• What are the latest developments in designing starch cellulose based products to meet or exceed the benefits provided guar gum?</li> <li>• How can biodegradable low cost polymers be used to substitute for guar gum?</li> </ul> |
| Development of enzyme technologies                                | <ul style="list-style-type: none"> <li>• What enzyme technologies may help to enhance chemical transformation process?</li> </ul>  |
| Consumer Products and Processed food growth in emerging countries | <ul style="list-style-type: none"> <li>• Who will benefit from this growth in consumption of processed food in emerging countries, when is this going to happen and where?</li> </ul>  |
| Supply chain cycles   | <ul style="list-style-type: none"> <li>• Will the reliability of raw material supply increase (agronomy cycles) ?</li> <li>• Ex: Farmers choose to cultivate cotton or wheat instead of guar according to the market prices?</li> </ul>                                    |
| Extracting technologies   | <ul style="list-style-type: none"> <li>• What are the potential breakthroughs in extracting technologies ?</li> </ul>  |
| Oil price fluctuation   | <ul style="list-style-type: none"> <li>• Which links in the value chain benefit or suffer most from oil price volatility?</li> </ul>   |

## Value Chain Analysis – STEP FOUR

### Using the Data to Plan Future Action

---

Step Two process will be evaluated as to technological advantages, emerging or disruptive technologies, key success factors, unmet customer needs, and value extraction opportunities in each segment.

Step Three process will be evaluated to determine market segment attractiveness, new opportunities, technology and competitive advantages, key success factors

Several important analyses may be conducted at this stage will provide the necessary framework for opportunity analysis and future action

- Challenges and opportunities at each segment of the value chain
- Competitive profiles and positions
- Advantages and disadvantages of technology by market segment
- Critical issues - challenges and opportunities
- Extension of technology to other applications
- Analysis to reinforce, grow or divest various business segments



CIPHER

The right answers, right away

## Q & A

---

Terry A. Brown

Business Director, Chemicals

[T.Brown@Cipher-Sys.com](mailto:T.Brown@Cipher-Sys.com)

610-987-0036

**Cipher Systems, LLC**

2661 Riva Road Building 1000, Fifth Floor

Annapolis, MD 21402

[www.Cipher-Sys.com](http://www.Cipher-Sys.com)

***Confidential** – this information should not be distributed to any third party without Cipher's express written consent.*