



# Carbon Management in the Supply Chain

30 January 2008



# Consultant Clients

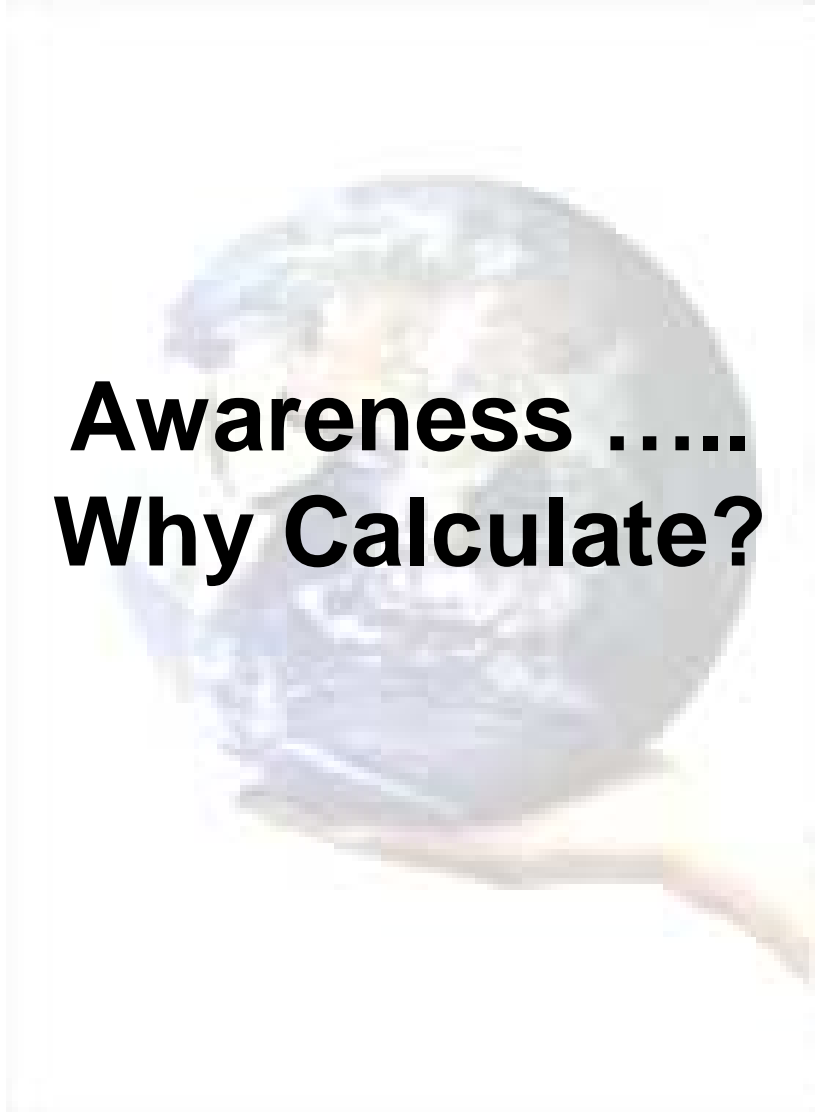




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- Market View
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A background image showing a hand holding a globe of the Earth, centered in the frame. The globe is slightly blurred, and the hand is visible at the bottom. The text 'Awareness ..... Why Calculate?' is overlaid in the center of the globe.

# Awareness ..... Why Calculate?



# Background.

- 1. Public awareness of climate change is growing and concern to act is becoming manifest.**
- 2. Increased Consumer awareness and Retailer initiatives.**
- 3. Political response with both policies and rhetoric.**
- 4. A certain inevitability regarding Carbon tax?**

***It's not going to go away from the business agenda.***



# Macro Situation

- 1. 50% of FTSE 250 Companies have calculated their CFP** *(Data Source Carbon Trust).*
- 2. Less than 2% of overall UK businesses have calculated their CFP** *(Data Source Carbon Trust).*
- 3. 2007 Bali Conference: 150 Global Brand delegates are keen to put a value on Carbon to incentivise business to reduce emissions.**
- 4. Corporate Sustainability policies are increasingly assisting in defining brand image & *competitive advantage.***

**A rapidly evolving situation.**



# Why Calculate your CFP?

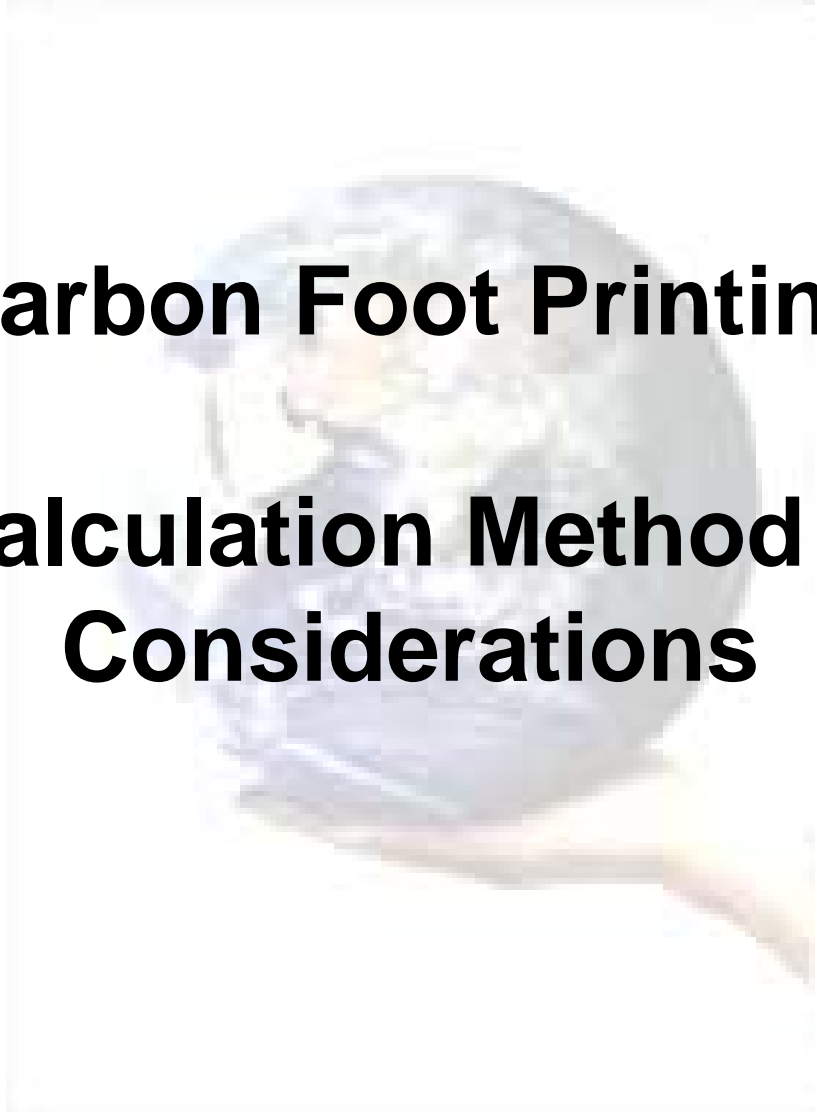
1. A central *plank* in any Corporate Sustainability Policy.
2. 21<sup>st</sup> Century strategy assessment criteria.
3. Know your current and future change impacts.
4. PR input and external communication.
5. Proactive response to (potential) customer request.
6. Progressively becoming part of brand definition.
7. Tool to influence customer or supplier behaviour.
8. Frequently self funding.
9. Carbon Reduction or Offsetting planning.
10. Last & not least ... *a positive environmental impact!*

**The cliché .... *not measuring is not managing.***



# Orientation / Maturity Scale

	<u>Awareness</u>	<u>Calculation</u>	<u>Development</u>	<u>Corporate</u>	<u>Supply Chain</u>
<b>Description</b>	<ul style="list-style-type: none"> <li>• Issue awareness.</li> <li>• Desire to reduce impact.</li> </ul>	<ul style="list-style-type: none"> <li>• Measurement of own direct CFP (Process &amp; Service).</li> </ul>	<ul style="list-style-type: none"> <li>• Positive actions and communicated desire to reduce Carbon</li> </ul>	<ul style="list-style-type: none"> <li>• Integration with business decision making.</li> </ul>	<ul style="list-style-type: none"> <li>• Collective impact assessment (suppliers &amp; customers).</li> </ul>
<b>Behaviour</b>	<ul style="list-style-type: none"> <li>• General consideration.</li> <li>• No measurement</li> <li>• Desire to develop</li> </ul>	<ul style="list-style-type: none"> <li>• Local Carbon KPIs &amp; targets</li> <li>• Internal communication</li> <li>• Establishing data sources</li> </ul>	<ul style="list-style-type: none"> <li>• Ongoing measurement</li> <li>• Establishing Carbon Reduction programme.</li> </ul>	<ul style="list-style-type: none"> <li>• Setting of carbon goals.</li> <li>• Aligning operational, carbon and financial data.</li> </ul>	<ul style="list-style-type: none"> <li>• Collaborative working</li> <li>• Full supply chain CFP calculation.</li> </ul>
<b>Actions</b>	<ul style="list-style-type: none"> <li>• Basic energy conservation.</li> <li>• Recycling</li> </ul>	<ul style="list-style-type: none"> <li>• Raising internal awareness</li> </ul>	<ul style="list-style-type: none"> <li>• Employee and customer feedback.</li> </ul>	<ul style="list-style-type: none"> <li>• Brand protection or development</li> <li>• Reductions</li> <li>• Sourcing</li> </ul>	<ul style="list-style-type: none"> <li>• Behavioural influencer.</li> </ul>

A background image showing a hand holding a globe of the Earth, symbolizing global impact and environmental responsibility.

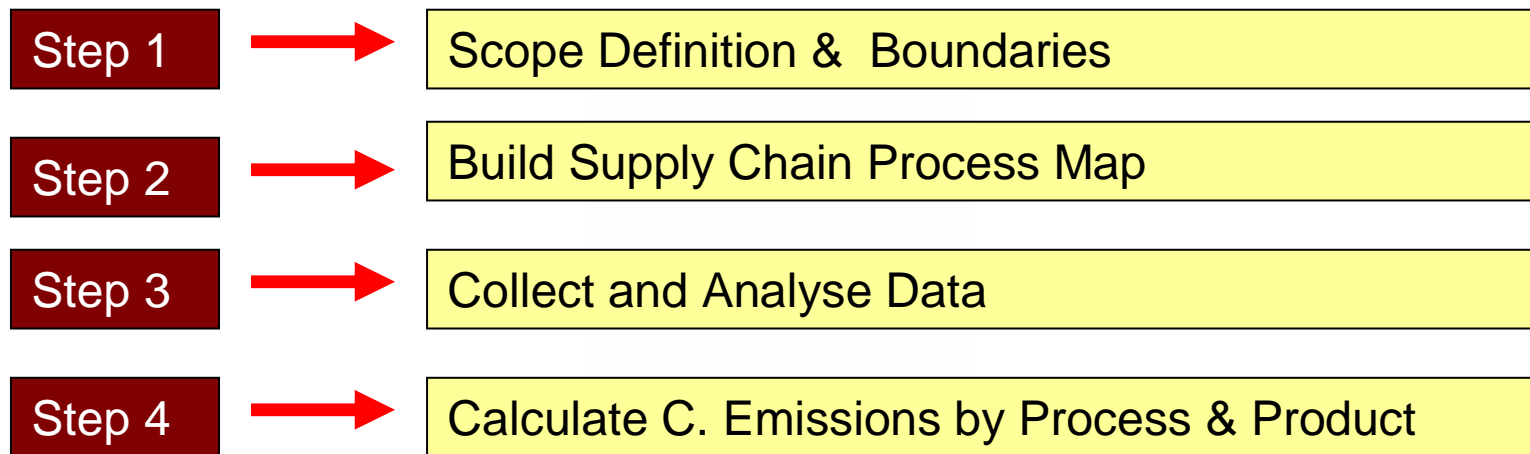
# Carbon Foot Printing

## Calculation Method & Considerations



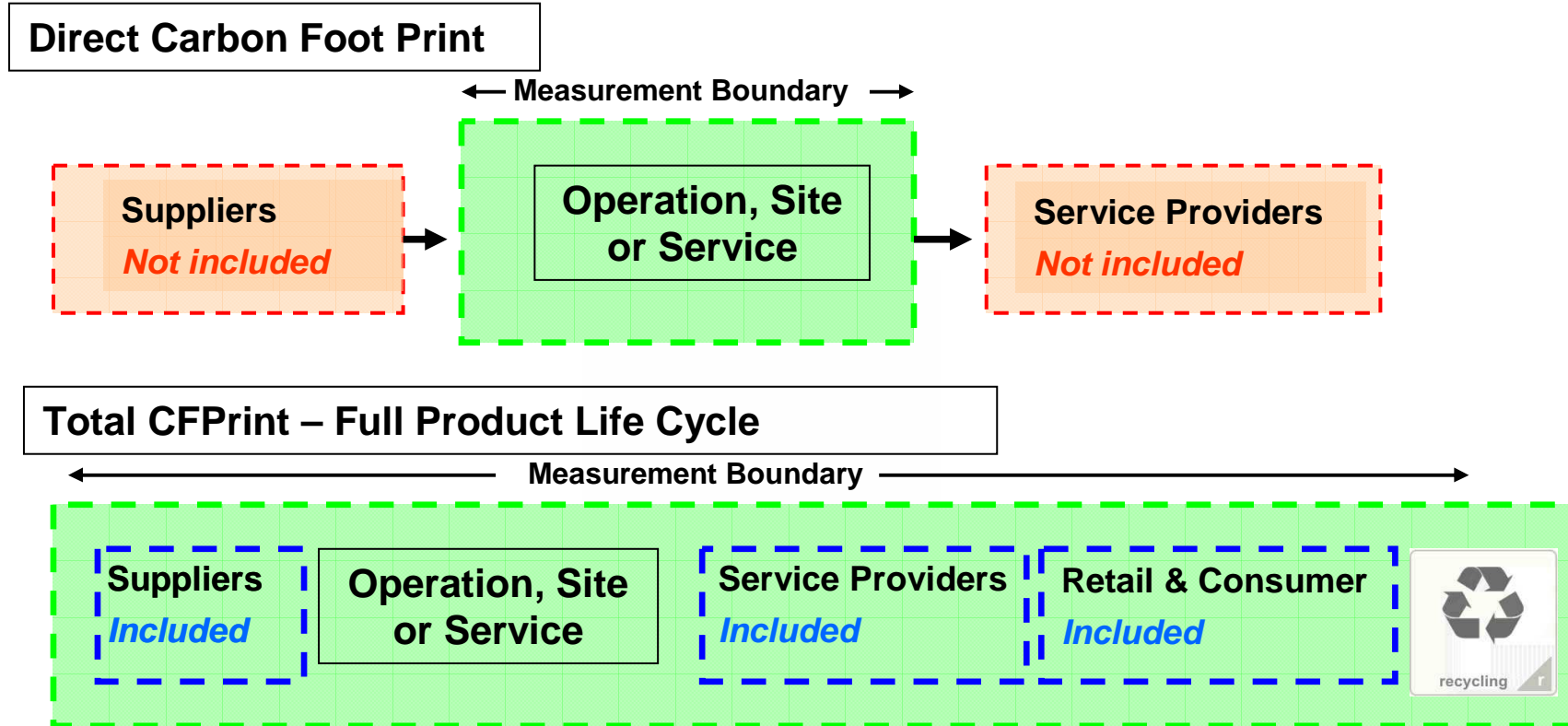
# Carbon Foot Print Measurement Process

- 4 Stage progressive process





# Step 1. Boundaries & Data



What are we trying to achieve? Measurement can be progressive.



# Step 1 - Boundaries & Data

- Identify operational boundaries (*process start & finish*).
- Identify boundary conditions (what is to be included).
  - Energy sources over which we have direct or indirect control?
    1. **Direct Business Carbon – include:**
      - Petroleum Fuels, Oils & Lubricant
      - Electricity & Gas
      - Refrigerants & Propellants
    2. **Indirect Business Carbon – includes carbon generated by suppliers, distributors etc:**
      - Building Materials
      - Primary Supply
      - Disposal
- Identify data requirements + sources.

*Its all about definition ..... but its important to start somewhere!*



# Step 2 – Supply Chain Process Map

Define the Supply Chain process map and identify inputs, outputs and processes.

- The process often covers the following steps:



<b>Sub Process</b>	<b>Raw Materials</b>	<b>Processes:</b>	<b>Storage</b>	<b>Storage</b>
	<b>Inbound Supply</b>	<b>Production</b>	<b>Co-Pack</b>	<b>Retail</b>
		<b>R&amp;D</b>	<b>Picking etc</b>	<b>Consumption</b>
		<b>Sales</b>	<b>Transport</b>	<b>Disposal</b>
		<b>Packaging</b>	<b>Returns</b>	

*Sequential flow and interconnections between processes.*



# Step 3 - Primary & Secondary Data

Collection of data to develop overall business and process CFPs:

- **Data (Directly Measured)**
  - Preferable as energy emissions can be measured accurately.
  - Examples
    - Electricity (KwHrs)
    - Gas (m<sup>3</sup>)
    - Diesel and other oils (Litres)
    - Refrigerants & Propellants (m<sup>3</sup>/Litres)
- **Indirect Data**
  - Examples
    - Carbon associated with RM & packaging manufacture (Supplier/OEM)
    - Service providers (transport and warehousing)
  - Use of generic coefficients?

*Sequential flow and interconnections between processes.*



## Step 4 – Emission Calculations

- Energy data is manipulated into Kwhours.
- Use of emission coefficients to convert energy/direct gas to Kg of CO<sub>2</sub>.
- Fuel emission factors are UK Emission Trading Scheme (ETS) international standards.
- CO<sub>2</sub> emissions scaled to account for any minor processes excluded from analysis.
- Allocation of process to individual product groups.
- On completion of each step CO<sub>2</sub> emissions added together to obtain overall Carbon Foot Print.

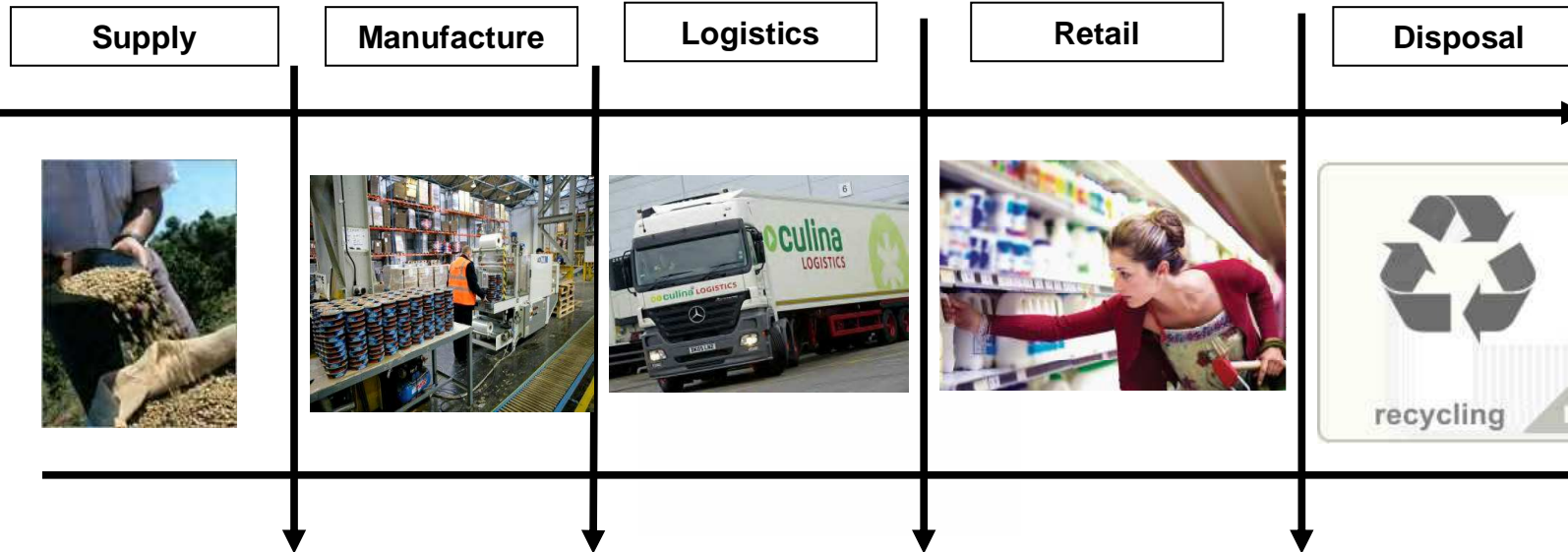
**Conversion of Emission sources to Co<sub>2</sub>**



# Carbon Allocations

Carbon Foot Print Scope

## Carbon by Product Group



## Carbon by Service

**Total of all allocations = Total Carbon Foot Print**



# How Much Carbon Will I Produce?

A real unknown until the process is complete. Influencing factors include:

- Energy used in product manufacture
- Product recipe
- Location of manufacturing locations
- Location of customer base
- Service requirement
- Disposal requirements

**Conversion of Emission sources to Co<sub>2</sub>**



# CFP Results

- Business CFP referenced to international carbon coefficients.
- Discrete CFP calculation by:
  - Customer?
  - Geography?
  - Product Group?
- Carbon maps showing by key process and/or product group carbon emission levels.

**Ongoing Development Potential**



# Reduction & Offsetting





# Reduction

1. Within any given strategy we recommend that you seek to reduce Carbon first before considering offsetting.
2. Reduction will mostly be cost down (reducing energy consumption), Offsetting will always be cost up as we pay for what we produce.
3. Reduction initiatives:
  1. Review working processes / consider efficiency schemes.
  2. Collaborative and/or collective working.
  3. Quantification of opportunity then open dialogue to attempt to influence behaviours.
  4. Procure or generate energy from renewable sources.



# Offsetting

## What is it ....?

- Offsetting compensates for the emissions produced with an equivalent carbon dioxide saving. Offsetting does not actually reduce emissions.

## How can you offset ...?

- There are a number of companies selling offsets. A code of Best Practice is being established (estimated end of 2008), accredited offsets will be given a Government quality mark.

## How much does it cost ...?

- Varies depending on company, offsetting scheme and credibility but £8 tonne is a reasonable current estimate.

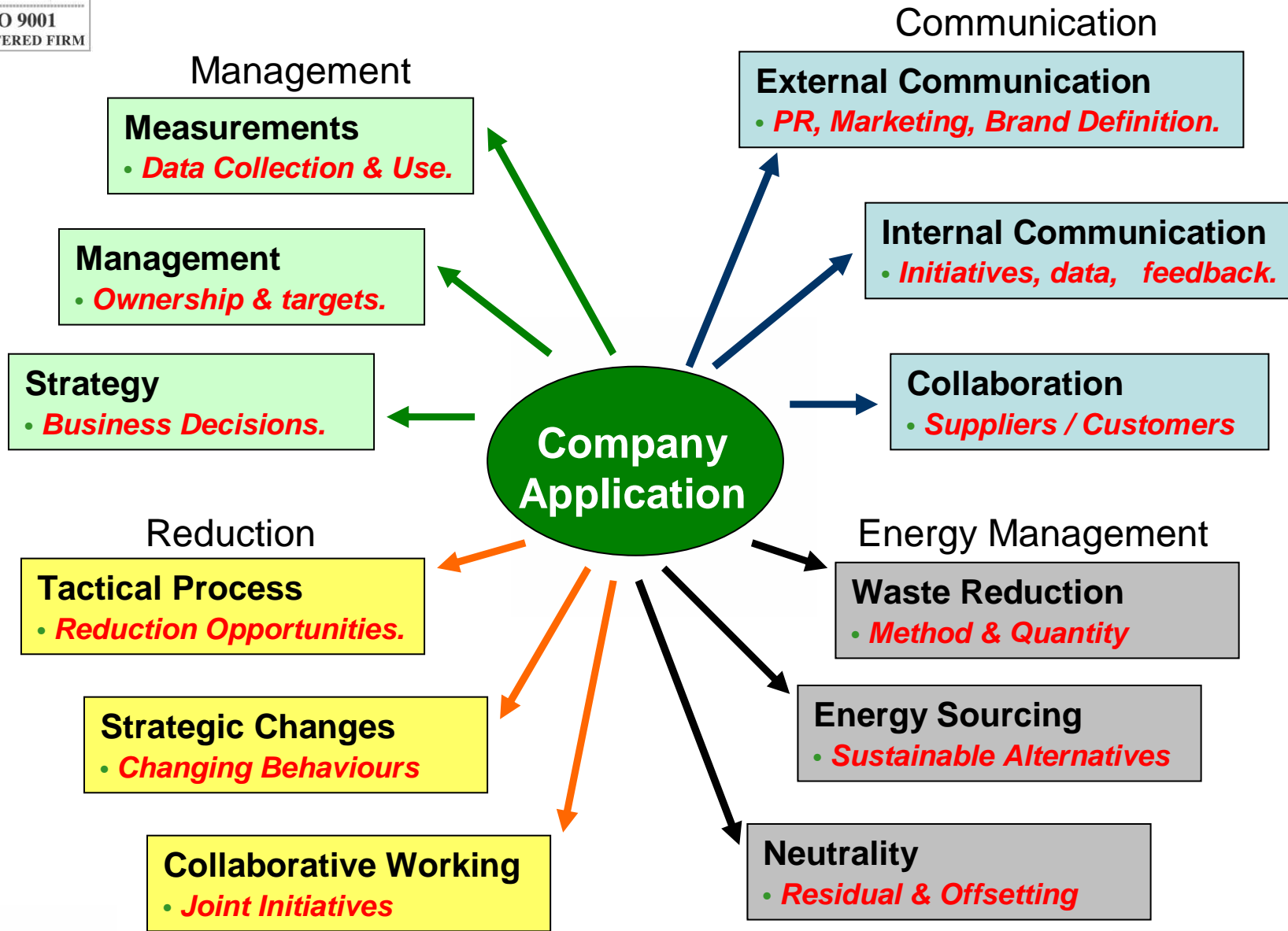


# Application & Benefits





# Applications





# Application Specifics

## Carbon Management Program

1. Progressive monitoring?
2. Develop suite of Carbon KPIs?
3. Benchmark against appropriate comparatives?
4. Deliver CF awareness programme for key staff?
5. Develop CF improvement plan with local targets?
6. Develop and employ customer or service specific CF model?
7. Utilise CF awareness and improvement programme within business marketing?
8. Utilise to influence customer / supplier behaviours?
9. Consider sustainable energy or offsetting opportunities?

## Internal & External Applications



# Culina Logistics

- Direct Carbon Foot Print for chilled distribution service provider.
- Scope – Multi-site warehouse and transport operations.
- Culina, process and customer CFPs.
- Development of internal Plan.
- Ongoing measurement and introduction of Carbon reduction targets.
- Joint initiatives customer initiatives.





# Alpro Soya

- Global Soya milk and associated food product manufacturer.
- Target to be Carbon Neutral by end of 2008.
- Calculation of Direct CFP.
- Development of Carbon Plan.
  - Operations & Process
  - Suppliers / Customers
  - Internal Communication
  - Marketing & PR
- Review of optimised carbon strategy.
- Sustainable energy sourcing.
- Offsetting assessment.





# Benefits

- Brand Leverage
- Opportunity for competitive advantage
- Potential cost reduction
- Potential to influence customer behaviours
- Attract the customers you want
- Attract the Investors you want
- Genuine environmental well being
- Integrated component of CSR plan
  
- Many others, business specific



# Q& A / Debate

Within your table groups, please think about the following

- From what has been said today, can these principles apply to my business?
- What benefits would be gained from applying Carbon Management Principles?
- What are the first steps that can be taken to make a start?