


Sustainability and Development of Technology: Two strategies towards Business Growth
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Personal Background

- 1998-2000 Fulbright Scholar, MSc. Chemical Engineering, U. of Notre Dame.
- 2000-2001 President of the Graduate Student Association, U. of Notre Dame.
- 2000-2004 Ph. D. in Chemical Engineering, U. of Notre Dame.
- 2004-ToDate Joined DuPont
 - DTT at Wilmington, Delaware, US: Process Development Group.
 - DTT at Altamira, Tamaulipas, Mexico: Research & Development Group.




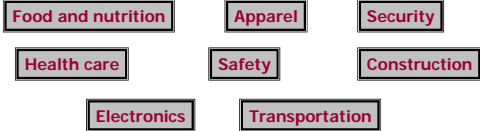
Two views to share

- DuPont's goals towards Sustainability
- My role as an Research & Development Engineer



Background

- In 1802, DuPont was primarily an explosives company.
- One hundred years ago, our focus turned to chemicals, materials and energy.
- Today we deliver science-based solutions that make real differences in people's lives around the world.




DuPont's Vision

"Our vision is to be the world's most dynamic science company, creating sustainable solutions essential to a better, safer and healthier life for people everywhere"



Evolution


- From our first safety rules in 1811 to our first statement of environmental responsibility in 1938, our core values have guided DuPont on a path to sustainability, even as the concept itself has evolved.
- In the 1970s and 1980s, our focus was on internal safety and meeting environmental regulations.
- In the late 1980s and 1990s, we focused on voluntary footprint reduction, going beyond regulatory requirements and pursuing a **goal of zero safety and environmental incidents**. We looked to increase shareholder value as we reduced our emissions and decreased our raw material and energy use.



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Evolution


- We now see ourselves in a third phase of Sustainable Growth, characterized by a holistic approach, fully integrated into our business models.
- In this phase, safety and environmental protection are market-driven business fundamentals throughout the global value chain. Working in partnership with others, we are building sustainability into our products themselves as well as into the way we make them.
- Sustainability is central to our total value proposition, impacting not only our business, but every customer and every consumer we touch, everywhere in the world.



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DuPont's Role

- We have a history of taking actions that address important societal challenges and market needs
- We are a science company with a history of innovation
 - Experience and expertise
 - Participate at the early stages of product and process development
- We are guided by our core values
 - Safety and Health;
 - Environmental Stewardship;
 - Respect for People;
 - Ethical Behavior
- We are an ingredient supplier to many industries with significant environmental and safety challenges



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2015 Sustainability Goals

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2015 Sustainability Goals : Marketplace

Environment, Energy and Climate


Double R&D investment in environmentally smart market opportunities. By 2015, DuPont will double its investment in R&D programs with direct, quantifiable environmental benefits for its customers and consumers along its value chain.

Revenues from Non-Depletable Resources: By 2015, DuPont will nearly double our revenues from non-depletable resources to at least \$8 billion.

Safety

Introduce at least 1,000 new safety products or services. DuPont will enhance its focus on protecting people. The company will increase the amount of R&D spent on developing and bringing to market new products that will protect people from harm or threats. Between now and 2015, DuPont will introduce at least 1,000 new products or services that help make people safer globally.

Grow annual revenue \$2 billion or more from products that create energy-efficiency and/or reduce greenhouse gas emissions. By 2015, DuPont will grow its annual revenues by at least \$2 billion from products that create energy efficiencies and/or significant greenhouse gas emissions reductions for its customers. DuPont estimates these products will contribute at least 40 million tonnes of additional CO2 equivalent reductions by its customers and consumers.



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2015 Sustainability Goals: Meeting the market needs through science and innovation


- Since 1802, DuPont has been awarded patents for more than 34,000 inventions
- The majority of those discoveries have come in the second half of our history, with the pace rapidly accelerating the closer we get to the present.
- These innovations are delivering benefits in both safety and environmental protection to markets around the world.



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Agriculture & Food

- Pioneer Hi-Bred International, Inc., a subsidiary of DuPont, dramatically increases and enhances the world's food supply by using advanced plant genetics to develop field crops that are more productive, of higher quality, more nutritious, and better suited for specific uses.
- Pioneer® brand low linolenic soybeans are used to produce soybean oil that eliminates the need for hydrogenation, a process that creates trans fats, which have been linked to heart disease and other health concerns.
- The Solae Company, a joint venture created with Bunge Ltd., is involved in the research and application of soy protein and other ingredients to meet the growing demand for better tasting, more nutritious foods and beverages.




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Agriculture & Food

- DuPont introduced low-dose crop protection chemicals in agriculture with sulfonyleureas (SUs), environmentally acceptable herbicides that work by inhibiting a key enzyme that weeds need to grow. SUs leave little to no residue and degrade rapidly in soil.
- The DuPont Clean & Disinfect business supplies products and expertise to help customers keep the food supply safe. For example, Virkon® S, the world's premier veterinary disinfectant, has been specified by the United Nations and has demonstrated its effectiveness against the H5N1 bird flu virus.



Herbicide is a key element in helping farmers grow more food with less help of DuPont High yield herbicide and crop protection solutions.



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- The DuPont Qualicon BAX® system is a fast and accurate way to detect bacteria, including *Salmonella* and *E. coli O157:H7*, in food ingredients and finished products.



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Building & Construction

- DuPont has eight products used in photovoltaic solar panels. The company is investing in continued expansion of these products and is innovating next-generation solutions to help improve solar module lifecycle and efficiency.
- A joint venture between DuPont and U.K.-based Tate & Lyle is building one of the world's largest bio-materials facilities in Tennessee. It will convert corn sugar into Bio-PDO™, the key renewable ingredient that is used to make DuPont™ Sorona® polymer for a number of products including carpet, where it provides permanent stain protection.



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DuPont™ Energain™

Over 40% of the energy consumed in the EU is used for operating buildings, of which 70% is for heating. Furthermore, energy consumption for the heating and cooling of buildings continues to grow, along with resulting increases in CO₂ emissions. Improving the energy efficiency of existing buildings is one of the most cost-effective means of contributing to the EU's Kyoto commitments.


DuPont™ Energain™, the energy-saving thermal mass systems, can be used inside walls and ceilings to reduce heating and cooling energy consumption. It is the first panel on the market capable of absorbing high amounts of heat from solar radiation during the day and of releasing this heat during the night.



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Communications


- DuPont technology is used in miniaturized fuel cells for consumer electronics to enable continuous power for laptops and cell phones, while using less energy.
- Looking to the future, we are working in partnership with Environmental Defense to develop a framework for responsible development, production, use, and disposal of nano-scale materials critical to "next generation" communications devices.



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Transportation

- DuPont technology is enabling the development and commercialization of fuel cell-powered vehicles. Today, fuel cell-powered buses and automobiles are running in demonstration fleets, a prelude to their eventual mass commercialization.
- DuPont is introducing new grades of DuPont™ Hytrel® thermoplastic elastomer made with renewable resources for use in a range of automotive parts.
- DuPont has identified and is now testing new proprietary refrigerants to reduce their global warming potential in future automotive air conditioning systems.




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2015 Sustainability Goals: Footprint Reduction

*While we have made progress in reducing our environmental footprint, we recognize we have more to do. At DuPont, "The Goal Is Zero."
Guided by our core values, reducing our footprint will always be a priority.*

- **Greenhouse Gas Emissions:** Since 1990, DuPont has reduced our global greenhouse gas emissions measured as CO₂ equivalents by 72%. By 2015, we will further reduce our greenhouse gas emissions at least 15% from a base year of 2004.




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2015 Sustainability Goals: Footprint Reduction

- **Water Conservation:**
Reduction by 30% over then next 10 years at our global sites that are located where the renewable freshwater supply is either scarce or stressed as determined by the United Nations analysis of river basins globally.

For all other sites, DuPont will hold water consumption flat on an absolute basis through the year 2015, offsetting any increased demand from production volume growth through conservation, reuse and recycle practices.




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2015 Sustainability Goals: Footprint Reduction

- **Fleet Fuel Efficiency:**

Effective immediately, DuPont will introduce fleet vehicles that represent the leading technologies for fuel efficiency and fossil fuel alternatives.

By 2015, we will ensure that 100% of our off-site fleet of cars and light trucks meet these criteria. We will continue to ensure these vehicles are safe as well as fuel efficient, and we will track and report on our fuel efficiency improvements.




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2015 Sustainability Goals: Footprint Reduction

- **Air Carcinogens:**

Since 1990, DuPont has reduced our global air carcinogen emissions by 92%, well beyond legal requirements.

By 2015, we will further reduce our air carcinogen emissions at least 50% from a base year of 2004. This will bring our total reductions since 1990 to 96%.



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2015 Sustainability Goals: Footprint Reduction

- **Independent Verification:**

By 2015, DuPont will ensure that 100% of our global manufacturing sites have successfully completed an independent third-party verification of the effectiveness of their environmental management goals and systems.

We will make this information publicly available and communicate it to our local communities.



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Overall.....


- DuPont's 2015 Sustainability Goals span all of our operations — from R&D to manufacturing to marketing. They go beyond traditional footprint reduction to include goals that tie our business growth even more directly to the development of safer and environmentally improved new products for the many global markets we serve.
- While we have made progress, we recognize we have more to do. Science and innovation are about the future, and we will direct our science to sustainable growth — not as a distant goal, but as an immediate reality for DuPont employees and our customers and partners around the world.



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My experience working in DuPont

- ❑ Message on Sustainability is clear from headquarters to ALL plant sites.
- ❑ Opportunity to develop innovative solutions.
- ❑ Good! Our standards are global. Therefore sustainable goals are followed globally.
- ❑ Lead and participate in projects which goal is to reduce energy consumption.
- ❑ Lead projects which goal is to develop new products according to our market needs and sustainable goals.
- ❑ Participate in programs which goal is to improve our process by minimizing environmental footprint.
- ❑ Will participate in program for residues reduction.




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- Working in industry helps me to realize how important is to be an active player on the development of new technologies and products in a responsible manner towards our environment.
- Working at DuPont made me realize that in our day to day activities we are implementing measures that are leading us to the path of sustainable growth.



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Reflection



Companies and governments around the world increasingly speak of "Sustainability" – the ability of societies to safeguard the environment while providing a good standard of living for all the world's people, present and future.

What is often missing from the discussions of Sustainability is how to make it happen.


Joined efforts: citizens, governments and businesses need to work together on how to implement sustainable development at the local level and at the societal level.

No one can create a one-size-fits-all sustainable development program.

To create a sustainable community, a sustainable business or a sustainable world, we can't continue to do the same things the same way and expect different results.

The challenge is to look at the key issues facing the community or broader society and develop solutions that bring together all the interested stakeholders together.

"What's good for business must also be good for the environment and for people everywhere in the world."



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Visit

www.sustainability.dupont.com

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Thank you !!



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- Sustainable growth is now fully integrated to DuPont's business models.
- These goals go beyond traditional footprint reduction, they include goals that tie our business growth even more directly to the development of safer and environmentally improved new products for the many global markets we shared.
- Sustainability is now part of our R&D, manufacturing and marketing plans and is central to our total value proposition. Development of sustainable technologies and innovation are key to accomplish with our 2015 Sustainable goals.

