

BUILDING BUSINESS VALUE THROUGH SUSTAINABLE GROWTH

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Our current industrial society is on a path of “unsustainable” growth. The industrial revolution was an important step forward when the Earth housed only one billion people. But today, with over six billion people and the majority of them very poor, we are finding that our current economic model based on fossil fuels, unbridled consumption and throwaway products is just not sustainable. And, a “no growth” scenario is just not a realistic one when running a business or leading a country.

So, the solution must be “sustainable” growth, a way to grow that creates both economic and societal values while, at the same, reducing overall environmental impacts by factors of 10. This will require unprecedented innovation and technology, the only lasting and sustainable way to make the necessary transformations.

In addressing and integrating the concepts of sustainable growth within businesses there are at least four basic problems. The magnitude and time scale of many of the important issues, like global climate change and biodiversity loss, do not fit within the business framework of quarterly earnings requirements. The “tragedy of the commons” dictates that no one in the business community has ownership or accountability for vast parts of our environment. The primary focus of the business community is on continuous improvement of the existing systems and processes and not on transformational change. And, these issues are mostly viewed as problems to be handled by the EH&S or corporate social responsibility people and not as opportunities for innovation and growth to be addressed by R&D, marketing and business people.

The bottom line is that the current mindset of most businesses is on incremental improvements to unsustainable manufacturing processes. The external activist groups that were so effective in the 1970s and 80s at bringing public attention to serious environmental issues are now pushing for more reporting and transparency but not for transformational change. So, absent public/customer interest or impending disaster, fundamental change will only occur from leadership, vision and innovation/technology. Yet, in many companies, the R&D leadership and professionals have been left completely out of the sustainability discussions ... so far.

With this as background, the rest of the paper discusses why DuPont adopted sustainable growth as its core mission for the 21st century and the actions/results that have come from this commitment.

The journey began in the late 1980s when DuPont and the chemical industry were under intense scrutiny for their environmental performance. While, in fact, meeting environmental regulations of the day met the letter of the law, the public expectations had moved to a different place, helped in part by actions of environmental groups. DuPont was embroiled in a public battle with Greenpeace over the CFC/ozone depletion issue. It was at this time that a new Chairman and CEO, Ed Woolard, stepped forward with ambitious environmental goals for DuPont, ones that went far beyond what regulations required. He also took the title Chief Environmental Officer and defined DuPont’s intent as “corporate environmentalism.”

By that, he meant that DuPont must meet public expectations for environmental performance, not just those required by law. He, in essence, assumed personal leadership for the transformation of the company to one with a significantly lower environmental "footprint." He saw environmental stewardship as a critical, perhaps dominating, issue for the survival and growth of the chemical industry. Ed also was an early participant in the initial discussions on the role of business in sustainable development and saw environmental stewardship as one of the fundamental building blocks.

As DuPont began to make substantial progress in reducing its environmental footprint, the attention turned to a "numerator" strategy that would encompass growth. While "denominator" strategies address risk and cost reduction (waste, emissions and energy reductions), "numerator" strategies look for market opportunities that drive the link between societal value and shareholder value creation (gas/electric hybrid engines, better tasting food with lower trans fatty acids, lightweight and recyclable materials).

At the same time, Chad Holliday became Chairman and CEO. Chad had spent several years running DuPont operations in Asia and had seen the results of unsustainable growth so he was a natural to lead the next major transformation, this time towards sustainable growth as a business concept to frame DuPont's direction in the 21st century.

For DuPont, *sustainable growth* is defined as "creating shareholder and societal value while reducing environmental footprint ... along the value chains in which we operate." It is not the environmental or social responsibility statement for the corporation but the company's mission for the 21st century, a framework for testing all decisions and actions. In addition, DuPont embraced a far-reaching vision that speaks to the place it aspires to reach - "to be the world's most dynamic science company, creating sustainable solutions essential to a better, safer, healthier life for people everywhere." Taken together, they represent the essence of what DuPont wants to be and the path it will take to get there.

The initial results of DuPont's commitment to sustainable growth can be described in four groups - reduce, engage, transform and reach. These follow from the "sustainable enterprise model" developed by Professor Stuart Hart and graduate student Mark Milstein while at the University of North Carolina at Chapel Hill.

Over the past 10-15 years, DuPont has reduced its environmental footprint in several important areas. Global air carcinogens are down 90%. Global hazardous waste, on a dry basis, is down over 40%. Global greenhouse gas emissions, on a CO₂-equivalent basis, are down 70% and the total corporate use of energy is down 7% while production is up 30%. The "decoupling" of energy from production growth has saved DuPont a cumulative \$2.5 billion since 1990.

Many of these reductions have come from the installation of abatement technology and process improvements that increase yields and energy efficiency. More recently, the application of "six sigma" methodology has produced enormous cost savings while, in many cases, also reducing waste generation and energy and water usage. In addition, DuPont was an active participant in the development of the greenhouse gas emission trading market and has generated over \$40 million in revenue from recent trades.

When looking along the value chain, the numbers (and business opportunities) are even greater. The energy savings and greenhouse gas emission reductions within DuPont's own manufacturing facilities are small compared to the fuel efficiency gains of lightweight engineering plastics in automobiles, the energy savings in homes wrapped with Tyvek®, and the potential for gas/electric hybrids and fuel cells to provide the power trains for future vehicles. In all cases, DuPont sees these technologies and products as consistent with sustainable and profitable growth.

DuPont has also taken several steps to engage external thought leaders with broad diversity of backgrounds and perspectives to help guide the development and commercialization of new technologies.

As the use of biotechnology has grown significantly in agriculture, the industry is encountering resistance in some markets and regions where people simply do not want genetically modified ingredients in their foods, particularly if there is no choice involved. This means that the understanding of ethical, cultural and moral issues and concerns will become increasingly important on the path from laboratory to marketplace. Yet, for many companies and their technical communities, this remains a "blind spot."

DuPont formed an external biotechnology advisory panel in 2000 and, over the past four years, has had members from France, Italy, Brazil, Mexico, China, India, Kenya and the U.S. Their backgrounds have included bioethics, biodiversity, religion, environmental protection, nutrition, food safety, education and microbiology. The diversity of thought and opinion brings very powerful and helpful advice to the senior leadership of the company. The work of the panel has resulted in a set of bioethics principles (see insert) that will guide DuPont's development of biotechnology, and the panel is nearing completion of its second public report on their work.

Based on the success of the biotech panel, Dupont has recently established an external Health Advisory Board to guide its growth in health related markets and to provide oversight to the health attributes of its products.

The DuPont steps to transform the company for the 21st century have been built on a two-decade long commitment to develop world-class expertise in biotechnology, and to fundamentally alter the way in which value is created. This transformation has included over \$60 billion in acquisitions and divestitures; the development of biotechnology (and nanotechnology) for applications in agriculture, materials and other fields; the goal to achieve 25% of revenues from non-depletable resources and 10% of total energy from renewables by 2010; and the goal to have 35% of revenues from products introduced within the last five years.

Dupont is well on its way to becoming a fundamentally different company and by 2007 expects to have 30% of its business mix biology-related (versus 6% in 1997), 30% petroleum-based (versus 76%), and 35% new products (versus 20%). The company will have successfully moved from an explosives company in the 19th century, to a chemical and energy company in the 20th century, to a fully-integrated science company for the 21st century focused on sustainable growth.

The work to reach people everywhere, not just those in the developed economies of the world, with products and services that make lives better, healthier and safer is just beginning and will be built initially on DuPont's global reach in agriculture. The rationale is fairly simple – most of the current population of the world and essentially all of the population growth is in those populations that comprise the middle and lower parts of the economic pyramid.

In Southern Ethiopia, DuPont has worked closely with farmers on improved agricultural practices. By helping farmers move from open-pollinated to hybrid corn, yields have moved, in many cases, from 25 to 130 bushels/acre. Farmers' incomes have increased, their children now go to school, and their standard of living has increased while DuPont's businesses have also grown.

In Mexico, Solae™, a joint venture between DuPont and Bunge, is working with a food company partner to test market off-the-shelf meat and soy protein fajitas that carry the health benefits of soy, costs 30% less and tastes as good as high quality meat. With over 70% of Mexico's population still below the poverty line, this type of product has the potential to improve nutrition levels while addressing taste and price needs.

In Kenya, DuPont is working with A Harvest Foundation International to help communities by introducing disease-free tissue culture bananas and hybrid maize with better agronomic practices. The goal is to reach 6,000 farmers in a local community where each farmer supports an average of ten dependents.

At the December 2004 World Resources Institute's "Eradicating Poverty Through Profits" Conference, Erik Fyrwald, Group Vice President for DuPont Agriculture and Nutrition, provided several examples of DuPont's commitment to building sustainable business in base-and-middle-of-the-pyramid populations. His text and slides can be seen at www.dupont.com under management speeches.

In closing, DuPont is taking steps to address the important questions posed by the World Business Council on Sustainable Development's report "Innovation, Technology, Sustainability & Society."*

These include:

- How can we ensure that sustainability is part of the creative and development process?
- When and how can external viewpoints enrich the creative and development process?
- What processes are most likely to leverage the value of intellectual capital?

DuPont's long term commitment to bio-based materials is an example of incorporating sustainability into a major development process. Building on six decades of polymer and fiber know-how, DuPont has developed specific technology for the cost-effective production of fiber from Sorona® 3GT™ (1,3-propanediol terephthalate) polymer. Over time this fiber will be increasingly produced using Bio-PDO™ corn-derived 1,3-propanediol. As it grows this product family will contribute to DuPont's 2010 goal to derive 25% of its revenues from non-depletable resources like agricultural feedstocks.

Another example is the establishment of an Automotive Safety Team to address the 90,000 fatalities and five million injuries incurred in automobile accidents in the U.S. and Europe every year. Initially, the team targeted the largest causes of fatalities and injuries – ejection through side windows, rollovers and teenage driving. They developed projects aimed at reducing these risks through DuPont products, through public policy changes, and through educational programs including the use of Jeff Gordon, legendary NASCAR driver, to teach safe driving habits for teenagers.

In addition, the team began development of next generation technologies. Their ambitious goal is to reduce vehicular injuries and fatalities by 50 percent in Europe and North America within the next 10 years.

DuPont has incorporated external viewpoints to enrich the creative and development process through both the Biotechnology Advisory Panel and Health Advisory Board. Both external groups discuss R&D programs and processes. The Biotechnology Advisory Panel has been instrumental in encouraging DuPont to incorporate ethical, moral and cultural considerations and input, along side of technical and market factors, into the development process for new agricultural products and applications based on biotechnology.

To address the need for processes to leverage the value of intellectual capital, DuPont participated with the Rockefeller Foundation and several other biotechnology companies to create the African Agricultural Technology Foundation. Based and led from Africa, AATF will transfer selected agricultural technology from developed economies to smallholder farmers in sub-Saharan Africa. See their website <http://www.aftechfound.org/> for more details. Over time, these capacity building projects will create new markets and customers for agricultural-based businesses.

The final and fundamental issue we have to address is whether we have a choice? Current growth patterns and processes are unsustainable and, at some point in the future, will create increasingly undesirable outcomes. Business, supported by governments, academics and NGOs, must step up to the challenge of transforming to sustainable growth. R&D management and professionals are at the leading edge of change and need to be fully engaged and driving the fundamental changes in technology that will be needed.

* Dormann, Jürgen and Holliday, Chad *Innovation, technology, sustainability and society*. A World Business Council for Sustainable Development report, 2002.