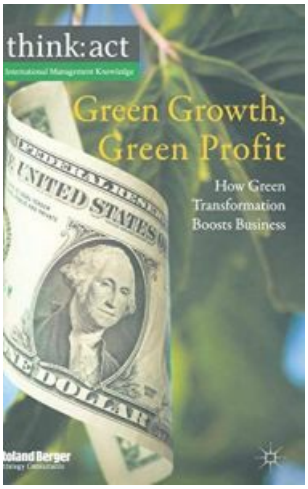

Book Green Growth, Green Profit

How Green Transformation Boosts Business

Roland Berger Strategy Consultants
Palgrave Macmillan, 2011
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Recommendation

Roland Berger Strategy Consultants produced this anthology, which likens the advent of green business to the Industrial Revolution. The comparison is apt. Just as transformative 19th-century innovations changed business, so, too, will green technologies alter industries, companies and societies for the environmental good. More important, as this series of essays explains, the green transformation is an opportunity for – not a threat to – businesses, if they can adapt to new imperatives. Despite the complexity of the subject matter – and an occasional editorial error – the book is surprisingly accessible to the lay reader, particularly given its effective charts and graphs. It offers on-the-ground perspectives from the countries and regions that are riding the green wave and from those that are just getting their feet wet. *BooksInShort* finds this informative collection valuable to investors and executives who are leading the way to going green.

Take-Aways

- The push toward sustainability in the 21st century will change business as much as the Industrial Revolution did in the 19th century.
- The worldwide market for green business, totaling approximately €1.6 trillion ($2.1 trillion) at the end of 2010, may double by 2020.
- "Four megatrends" – "demographics, climate change, urbanization" and "globalization" – drive green business.
- "E-mobility" via electric vehicles will alter how people use their personal transportation.
- Renewable energy sources need to reach "grid parity" to equal current energy costs.
- Perceived ecofriendly traits are beginning to vie with price and quality in consumers' purchase decisions.
- Firms should develop green policies for every stage of their business cycle.
- Germany is one of the world's top green nations due to its national ecological policy.
- Spain and Portugal are leaders in solar and wind power development.
- A number of Middle Eastern nations are planning state-of-the-art "eco-cities."

Summary

Beyond Sustainability

The push toward sustainability in the 21st century will mean as much to business as the Industrial Revolution did in the 19th century. Green innovations will profoundly change how societies work and live. In this new world, alternative forms of energy and energy distribution, reduced waste, and improved efficiency will transform the way governments, businesses and households operate.

> "Environmental technology is the 21st century's lead industry."

Going green and expanding a business are not contradictory actions. In the course of developing green supply chains, businesses can become more profitable by producing energy-efficient products and cutting waste. Inefficient companies will go out of business or will suffer from missed opportunities. But companies that redesign themselves to embrace green practices and technologies will advance. The global market for green business is already huge – totaling approximately €1.6 trillion (around $2.1 trillion) at the end of 2010 – and is on course to double by 2020. This augurs new opportunities for companies to grow, gain market share and generate new revenues. "Four megatrends" are shaping this transformation:

1. **"Demographics"** – With a growth rate of 2% per year in some of the world's areas, the global population is rather likely to top nine billion people by the year 2050, thus stressing not only water, but also sanitation and energy infrastructures. More desalination plants could alleviate imminent water shortages in places like India, and green business can change how societies process and use scarce resources. Electric vehicles (EVs) and energy-efficient products will go a long way toward meeting increased consumer demand.
2. **"Climate change"** – Global warming affects weather patterns and will, over time, lead to less water being available for human use. For example, thawing Himalayan glaciers will provide China with enough water in the short term, but once the ice melts, agricultural growth will stagnate, and food scarcities will prevail. Green technologies that reduce carbon dioxide emissions and incorporate renewable sources can tackle these problems.
3. **"Urbanization"** – In 2009, United Nations data confirmed that more than half the world's population lives in urban centers. "Megacities" such as Mumbai, Rio de Janeiro, Jakarta, Seoul and Manila continue to expand. Dense urban populations create the need for green transportation and construction methods.
4. **"Globalization"** – International competition forces green firms to take global markets into account along with local demands. Using 2010 statistics, the largest green markets are in: energy efficiency at approximately €630 billion ($822 billion), water management at €425 billion ($555 billion), transportation at €220 billion ($287 billion) and power generation at €210 billion ($274 billion).

> "Business is the true engine of growth and job creation, but it cannot solve the world's problems by itself."

Green business ventures unfold three ways: "substituting existing technologies...for environmentally friendly ones," "increasing efficiency" of current processes and "recycling." Favorable legislation, government grants and public investment should support green businesses to create new jobs, reduce carbon emissions, and increase exports of new products and technologies. Governments can provide research, development and funding that will help industries revamp to become more environmentally sound.

"E-mobility"

Automobiles spew 7% of the world's carbon dioxide output; the green solution is to provide electric mobility vehicles. Governments are encouraging e-mobility on the supply and demand sides. The governments of Germany, the US and China are funding the development of electric vehicles, while EV buyers in Denmark receive state incentives to offset their higher costs. E-mobility will trigger a "paradigm shift" in how people think about their personal transportation, so state support is crucial to ensuring that more people drive EVs. For example, developing new battery technologies requires an ongoing collaboration among governments, car makers and utility providers. Government must also guide the expansion of battery charging centers and ensure that the electric power grids are adequate for fueling electric cars.

Renewable Energy

Alternatives to fossil fuels – including "wind, biomass, photovoltaic, solar thermal, geothermal, oceans and hydroelectric power" – can create new jobs and revitalize economies. Aggressive, government-imposed standards are spurring such development. The European Union (EU) has set a "20-20-20" goal that calls for reaching a "20% reduction in carbon dioxide emissions and obtaining 20% of its energy from renewable sources by 2020." By that same year, China will have built massive "wind power bases." In the US, the American Recovery and Reinvestment Act calls for boosting the use of renewable energy.

> "Government can accelerate the transition to the green world, by supporting business with incentives and favorable conditions."

The widespread adoption of renewable energy sources will hinge on achieving "grid parity," at which the cost of renewable sources equals that of standard energy grids. Sunny locations like California have already reached grid parity for solar power, and wind energy costs should fall by 23% by 2050 due to technological advances. Energy output from the wind and sun can vary, so "smart grids" will even out the production and distribution of renewable energy to ensure reliability.

The "Green Product Lifecycle"

Consumers are increasingly aware of the green qualities of the products they buy. Perceived eco-friendly traits are beginning to vie with price and quality when customers make purchase decisions. Thus, companies should develop green policies for every stage of their business cycle and should monitor sustainability in terms of energy, water and resource efficiency.

> "Business is proving to be a shining light, with innovations and discoveries that help us steer away from destroying the planet and improve the living conditions of millions of people."

Johnson Controls followed this approach when it selected coconut fiber and latex instead of petroleum-based polyurethane to make auto seat cushions. It also developed an automated process to manufacture the seats more cheaply than their foam-based equivalents. More efficiently designed shampoo bottles allowed Procter & Gamble to transport more shampoo per shipping pallet, thus reducing energy and logistics costs. And P&G's research showed that consumers wasted significant amounts of energy heating their laundry water, so the company introduced detergents that clean at lower temperatures. If marketers use positioning properly, they can associate an individual product or brand with sustainability.

The World's Greenest Countries

"Germany is arguably the number one green technology country in the world" due to a concerted government push toward sound ecological policies, a policy of

exporting production worldwide, and a strong base in science and research. Germany's green industries, which now boast an average annual growth rate of 8%, account for 8% of the country's GDP and will contribute 14% by 2020.

> "China has made green technology a national priority...Its green stimulus package is one of the largest in the world."

France is the world leader in the use of nuclear power, which generates as much as 78% of its electricity. But that dependence has meant that renewable energy resources receive relatively less attention. While France's green industries lack strong government incentives, the French lead the way in the fields of waste management, energy efficiency and water management.

> Eco-cities "form a perfect testing ground for scientists, engineers and other researchers to put their ideas in practice on a previously unthinkable scale."

The sunny, breezy Iberian Peninsula excels in solar and wind energy development, but its companies suffer from changing regulations and burdensome bureaucracies that hamper development. Still, Spain has more than 700 wind energy companies, and Portugal's growth rate in the wind power industry is one of the world's highest, thanks to strong state incentives. Together, Spain and Portugal are home to three of the four largest wind companies in the world.

> "We stand at the dawn of a new economic day: A green revolution is emerging...Are you ready to take the next step?"

Central and eastern European countries' progress toward green practices varies, given their diverse levels of development. EU members are focusing on renewable energy sources to meet the Union's directives. The west Balkan states are more concerned with water and waste management infrastructure projects. The region is ripe for growth in environmental technology.

Improving US Energy Efficiency

The US uses 20% of the world's total energy, more than any other country. To curb this usage, the federal government has allocated more than $80 billion for green technology, mostly to improve energy efficiency and reduce emissions. Work is underway to improve the efficiency of residences and commercial buildings, which use 40% of the nation's total energy. Investment in and support of green technology tends to occur at the state and local level, often resulting in a "disjointed approach." But green-business executives looking for opportunities in the US should:

- **"Anticipate public policy"** – State and regional programs have often acted as test cases for federal energy practices in areas such as "air pollution control acts, vehicle emission regulation and renewable energy generation standards." While Congress debated cap-and-trade, some states implemented their own systems.
- **"Follow the money"** – The US spent almost $20 billion on green business initiatives in 2009, second only to China. Additionally, American venture capitalists provide important funding to green technology, investing about $5 billion in 2009.
- **"Capitalize on capabilities"** – While the US may not be the ideal location for low-cost manufacturing of environmental goods, its skilled labor force, strong R&D abilities and innovation culture ensure a vibrant green-energy market.

Environmental Leaders

Other nations also offer useful lessons on the future of green energy:

- **Brazil** – The country is a trailblazer in renewable energy production; renewable resources provide 43% of its energy. Government support led to a rigorous legal and funding framework for its hydropower and biomass industries. Brazil is one of the world's three largest producers of hydropower, which provides 75% of its electricity. Brazil also leads the world in biofuels for cars, especially sugar-cane-based ethanol.
- **China** – With significant air and water pollution, limited drinking water and poor hazardous waste controls, China is making huge expenditures on sustainable energy development. China's energy firms benefit from strong government support and funding. China is the largest global supplier of solar panels, exporting 95% of its production. The country also has been an innovator in "green services," or "energy performance contracting" (EPC), in which a provider sells energy-cost-reducing equipment and services to a client; the client then pays the firm a percentage of its energy savings. Now China is home to more than 500 EPC firms.
- **Japan** – Japan, the world's fifth-biggest greenhouse gas emitter, has committed to cutting its emissions by 25% by 2020. Japan depends on nuclear energy now, but it is emphasizing solar power for the future. To stimulate domestic demand for solar, the government offers subsidies and mandates the purchase of photovoltaic-generated electricity. As an incentive, it permits homeowners to sell their excess electricity. Japan also pursues a goal of zero-emissions buildings, relying on heat pumps, LED lighting and special insulation to create greater energy efficiency.
- **India** – Because it "cannot afford not to go green," India plans to spend $250 billion on green business and sustainable energy programs by 2017. As the world's "fifth-lowest energy-intensity economy," India still relies on coal for 60% of its electricity. Indian companies are leaders in photovoltaic cell manufacturing, and India's Reva Electric Car Company "has more all-electric vehicles on the road than any other company."
- **The Middle East and North Africa** – Though rich in fossil fuels, this area is investing in alternative energy. The region's desert location, sunny climate and oil profits provide the impetus and ingredients for solar energy and desalination projects. The most innovative ideas include "eco-cities," such as the carbon-neutral Masdar City in Abu Dhabi, that will run on solar energy and be almost "waste-free."

About the Author

Roland Berger Strategy Consultants operates in 25 countries and serves businesses, financial institutions and governments.