Chapter 11
The Challenges of Sustainable Development for the Health-Care Industry: An Examination from the Perspectives of Biomedical Enterprises

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Introduction

When biotechnology began to play a role in industrialization, it started from the food and beverage industry, such as alcoholic fermentation. With the rise of life sciences in the late twentieth century, we keep redefining the boundary of biotechnology industry. Biotechnology has enabled the revolution of a wide range of industries such as health care, agriculture, and energy. Bioenergy and bioremediation could contribute to the overall human health by controlling disease-causing agents, while bio-agriculture can improve global health by reducing famine. These can indirectly enhance the sustainability for the health-care industry. Nevertheless, we pay greater attention to biomedical products and services that have stronger ties with the health-care industry.

Sustainable development in the health-care industry is aimed at ensuring the basic rights of human beings over both the prevention and treatment for all kinds of diseases for the future generations to come, which are typically defined as seven generations.[1] The basic needs include the access to the standard of care for every human being in an efficient and affordable manner. Typically, we want to understand whether the current practices and the future trends can provide sustainable health-care services to the ever-growing population. We also want to make sure our policies, either from the private sector or from the government, that will have long-run strategic impacts instead of just meeting short-term needs. In the theory of sustainable development, the classical three-pillar concepts, "economic," "social," and "environmental," have profound applications in the health-care industry. Therefore, we would like to analyze how biomedical enterprises could address these challenges for the health-care industry and how biotechnology gives rise to some new problems, such as bioethics and regulation over new technologies.

[1] Constitution of the Iroquois Nations: The Great Binding Law, Gayanashagowa. (n.d.).

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First, from the economy perspective, we argue that the prosperity of the health-care industry is being challenged as it takes a longer time and higher cost to bring new solutions to the patients. We might wonder whether there will be a turning point of this trend and when it would come.

During the golden period of the pharmaceutical industry until the late 1990s, the large companies bore most of the risks in innovation and thus enjoyed high returns protected by the patent law. As the output of research and development (R&D) is dropping, the innovation of pharmaceutical companies nowadays relies on developing strategic partnerships, constructing licensing deals, or pushing merger and acquisition with biomedical firms that are expected to have some disruptive products for the unmet medical needs. The biomedical innovation will be the main contribution to the next boom of new therapies. As a whole, the biotechnology community carries greater responsibility of innovation for the whole health-care industry. In addition, the biomedical industry has extended the areas of research such as bioinformatics, epigenetics, tissue engineering, stem cell therapy, gene therapy, and so on. In a sense, we are just embarking on the way to decode the secret of life. Biomedical discovery will bring the promising future of the health-care industry. However, what makes the sustainable development challenging for biotechnology companies is that it requires a continuous and tremendous amount of funding resources for a very long duration. In most of the countries, governments or universities typically administer and allocate the budget of basic research. From the perspective of start-ups, the risk is high all along the way from preclinical research to the launching of the products in the market. Investing in a wide range of start-ups is the way in which venture capitalists can hedge their bets and manage their risk of their portfolio. However, when the global economy derails from the robust growth and stability, the venture investments in biomedical companies require more patience and encouragement.

Second, from the social perspective, the biomedical industry development can continuously improve the health status of mankind. Better health will ensure one's higher productivity and increase social welfare as a whole. Obviously, the standard of care is always progressing as the new biomedical treatments become available. As we expect to live longer, we naturally care more about the future. Sustainability is a rewarding area for people to pursue. For example, we have seen many corporations adopting the concept of "citizenship," in which employees are keen on participating in various initiatives to save resources, increase fairness, help the community, etc. Nevertheless, from the social perspective, one of the great challenges over the sustainability is how to control the disparity of access and control the health-care spending, once a new medical breakthrough is achieved. For example, the genetic sequencing gives rise to some new problems such as discrimination in employment, marriage, and health-care insurance.

Third, from the environmental perspective, the biomedical industry still faces traditional challenges, such as green manufacturing process and medical wastes control, just to name a few. The evolution of viruses is unknown knowledge to us, and this could be regarded as a response of nature to our scientific advancement in vaccines or antibodies, which poses a potential threat to our sustainability in the health-care sector. Even though we might not change the course of virus evolution, we need to reserve more resources to deal with catastrophic events. For example, the HIV has a severe impact on the world's economy. Something that is more scary is the concept of artificial biodiversity. No one knows for sure how we break the

balance of nature when we introduce the genetically engineered species to the ecosystem or fail to control them among our research laboratories. However, the solutions to these problems have to be nothing but biotechnology itself.

Sustainable Development Framework for Biotechnology Enterprises

Sustainable Development

According to *Our Common Future,* sustainable development means the development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts: the concept of needs, in particular the essential needs of the world's poor, to which overriding priority should be given and the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs (World Commission on Environment and Development (WCED) 1987). All definitions of sustainable development require that we see the world as a system—a system that connects space and a system that connects time.[2] As the global ecosystem, economy, and value system become a more coherent piece, sustainable development will require more international collaboration. Nowadays, information technology has enabled easy sharing and documentation of our sustainability achievement; we cannot let our future generations down.

Many public companies have understood well the importance of the sustainable development. They created their framework of sustainable development not only to address the expectation of investors or employees but also to align with their business interests. The theory behind this is the sustainability of the sweet spot: the place where the pursuit of profit blends seamlessly with the pursuit of the common good. The best-run companies around the world are trying to identify and move into their sweet spots. Moreover, they are developing new ways of doing business in order to get there and stay there (Savitz and Weber 2006).

Fortune 500 companies usually operate at a global scale. Their business is closely related to a large number of consumers. Thus, it is important to develop the sustainable development that promotes the image of the company and nurtures a channel to communicate with prospective customers. For example, Procter & Gamble has developed a series of campaigns around the sustainability issue of water usage.[3] Naturally, Procter & Gamble have the best resources such as technology and talent to meet the social needs while keeping benefits for its long product lines for personal care.

Meanwhile, most companies provide sustainable development reports, in which those numbers of energy conservation and recycled waste are compared each year.

[2] What is Sustainable Development? (n.d.). Retrieved June 18, 2014 from http://www.iisd.org/sd/.

[3] P&G's Sustainability Vision includes environmental sustainability and social responsibility. (n.d.). Retrieved Jun 18, 2014 from http://scienceinthebox.com/environmental-sustainability-goals.

Table 11.1 Category and aspects of the guideline in GRI

Category	Economic		Environmental	
Aspects[III]	Economic performance Market presence Indirect economic impacts Procurement practices		Materials Energy Water Biodiversity Emissions Effluents and waste Products and services Compliance Transport Overall Supplier environmental assessment Environmental grievance mechanisms	
Category	*Social*			
Subcategories	*Labor practices and decent work*	*Human rights*	*Society*	*Product responsibility*
Aspects[III]	Employment Labor/management relations Occupational health and safety Training and education Diversity and equal opportunity Equal remuneration for women and men Supplier assessment for labor practices Labor practices grievance mechanisms	Investment Nondiscrimination Freedom of association and collective bargaining Child labor Forced or compulsory labor Security practices Indigenous rights Assessment Supplier human rights assessment Human rights grievance mechanisms	Local communities Anticorruption Public policy Anticompetitive behavior Compliance Supplier assessment for impacts on society Grievance mechanisms for impacts on society	Customer health and safety Product and service labeling Marketing communications Customer privacy Compliance

GRI global reporting initiative

They usually set specific goals with a transparent measurement mechanism. Some companies have adopted the Global Reporting Initiative (GRI),[4] which is a comprehensive sustainable reporting framework that provides metrics and methods for measuring and reporting sustainability. See Table 11.1.[5] We discuss in detail about how biotechnology firms are adopting the GRI framework to engage in the

[4] GRI G4 GUIDELINES PART 1 REPORTING PRINCIPLES AND STANDARD DISCLOSURES, Retrieved June 21, 2014, from https://www.globalreporting.org/resourcelibrary.

[5] GRI G4 GUIDELINES PART 1 REPORTING PRINCIPLES AND STANDARD DISCLOSURES Retrieved June 21, 2014, from https://www.globalreporting.org/resourcelibrary.

Table 11.2 2013–2014 industry group leader from DJSI (http://www.sustainability-indices.com/images/130912-djsi-review-2013-en-vdef.pdf)

Industry group leaders (2013–2014)	Industry group
Volkswagen AG	Automobiles and components
Australia & New Zealand Banking Group Ltd	Banks
Siemens AG	Capital goods
Adecco SA	Commercial and professional services
Panasonic Corp	Consumer durables and apparel
Tabcorp Holdings Ltd	Consumer services
Citigroup Inc	Diversified financials
BG Group PLC	Energy
Woolworths Ltd	Food and staples retailing
Nestlé SA	Food, beverage, and tobacco
Abbott Laboratories	Health-care equipment and services
Henkel AG & Co KGaA	Household and personal products
Allianz SE	Insurance
Akzo Nobel NV	Materials
Telenet Group Holding NV	Media
Roche Holding AG	Pharmaceuticals, biotechnology, and life sciences
Stockland	Real estate
Lotte Shopping Co Ltd	Retailing
Taiwan Semiconductor Manufacturing Co Ltd	Semiconductors and semiconductor equipment
SAP AG	Software and services
Alcatel-Lucent SA	Technology hardware and equipment
KT Corp	Telecommunication services
Air France-KLM	Transportation
EDP—Energias de Portugal SA	Utilities

DJSI Dow Jones sustainability index

sustainable development issues.[6] The Dow Jones Sustainability Index (DJSI) typically tracks sustainability performance by geographical area and industry group. See Table 11.2.

The Biotechnology Version of Sustainable Development (500)

We understand that the current classical approach to evaluate the performance sustainability of companies is to pick a one-for-all framework, whether GRI, DJSI, or

[6] ABOUT SUSTAINABILITY REPORTING Retrieved June 21, 2014, from https://www.globalreporting.org/information/sustainability-reporting/Pages/default.aspx.

others, and then compare the indicators among all companies or across the industries. However, if we try to use a metaphor here, this approach seems to order the same version of tests to science students, business students, and medical students to understand their academic performance. It might be more meaningful to see a test tailored for their academic features.

Some can argue that large public companies, regardless of industries, would find much common ground in sustainability issues. However, those smaller firms might feel overwhelmed. When we think about the biotechnology industry, we have to agree that it has a long-tail market feature, which means that the sum of small-sized firms contributes to the economy no less than the big firms do. Therefore, it is questionable that the current comprehensive framework of sustainable development is suitable for the entire biomedical industry to adopt. For middle-sized companies that are in the transition stage thinking about the sustainability, if we visit the GRI framework (Table 11.1), we might wonder how many aspects they can align with their current activities. For example, we should understand how to measure their contribution over sustainability, such as identifying the mechanism of the disease, saving health-care expenditure in the long run.

In this chapter, we are too premature to arrive at the conclusion of what exactly the biotechnology version of sustainable development should be. Having a different version for each industry could be a daunting task. However, this industry is so unique that a different alternative should be explored. In the next section, we examine companies in different scales over what they have accomplished and how they have promoted over the sustainability issues.

Industry Initiatives

Biomedical Giants (400)

Genentech & Roche Genentech has a great emphasis on environmental sustainability. Mainly, the company provides sustainability commitments in efficient energy use, water conservation, and waste reduction. The company priority on sustainability depends on its events and its ecological environment. For example, Genentech is located in Southern California, where water is scarce. Therefore, the company is paying extra attention to the water usage. In terms of energy reduction, between 2009 and 2012, Genentech has seen an increased emission from air travel. That was due to increased international travel after its merger with Roche. More alternatives, such as using virtual meeting technology, have been adopted.

Patient access is also a highlight in Genentech's sustainability. Since Genentech's first product launch, the company has provided 3.5 billion in free medicine to uninsured patients. The Genentech access to Care Foundation and Genentech Therapy-Specific Co-pay Cards are patient assistance programs through which the

business interests could be addressed, simultaneously. Overall, Genentech communicates its sustainability issues for the sake of patients and employees.[7]

Roche has a different way to express its sustainability. It believes that only environmentally and socially responsible companies can achieve sustainable financial success. It claimed their daily work in the R&D to be their most significant contribution to society. Roche also mentioned the importance of being transparent with regulators, customers, and suppliers. In 2013, the DJSI as the group leader within the pharmaceuticals, biotechnology, and life science industry recognized Roche. Unlike Genentech, Roche employed the GRI, reaching A+ as the best result.[8]

Abbott

Abbott is one of the most diverse, global health-care companies. The sustainability issues were raised in its global citizenship report.[9] The essential idea "Turning Science into Caring" mentioned that Abbott's strategies for business growth and profitability as inseparable from its strategies for citizenship and sustainability. The priority is R&D. Abbott believed that solving global health-care challenges with the sustainable solutions is a part of sustainability. The second priority is to provide promising products. The third one is to ensure patient access. The last part of the emphasis is "safeguard the environment." Interestingly, Abbott is not only taking care of its own water usage but also actively reaching out to the community. For example, the Abbott Fund has expanded their partnership with Project Water Education for Teachers (WET) to educate children about saving water. What is special is Abbott's sustainable packaging, including an increase in reuse, sourcing packages with more renewable energies. In brief, Abbott is one of the very few biopharmaceutical companies with a very detailed strategy framework to address sustainability issues.

Biogen Idec Inc.

Biogen Idec Inc. ranked second in the world's 100 most sustainable companies (see table below). Its sustainable strategy is embedded in the corporate citizenship. Company image in the minds of employees is very important for Biogen. For example, Biogen has the Sustainability Leadership Award that honors employees around the world who have implemented projects aimed at reducing our environmental impact. In addition, Biogen has Biogen Idec Foundation to support medical and science, technology, engineering, and math (STEM) education, provide humanitarian assistance, and fund important community projects.[10] Biogen also has a greater consideration of environmental issues. For example, its Building 26 applied LEED certification, which is a voluntary program established by the US Green

[7] Genentech: Good. (n.d.). Retrieved June 20, 2014, from http://www.gene.com/good.

[8] Roche – Reporting and Indices. (n.d.). Retrieved June 20, 2014, from http://www.roche.com/responsibility/sustainability/reporting_and_indices.htm.

[9] Abbott Global Citizenship Full Report. (n.d.). Retrieved June 20, from www.abbott.com/static/cms_workspace/content/document/Citizenship/2011/Abbott_Global_Citizenship_FullReport.

[10] Improving Lives. (n.d.). Retrieved June 20, 2014, from http://www.biogenidec.com/improving_lives.aspx?ID=14606.

Building Council.[11] Lastly, Biogen has a special area of sustainability that other companies do not implement: the diverse supplier. Biogen Idec defines a diverse supplier as a business that is women-owned, veteran-owned, lesbian, gay, bisexual, and transgender (LGBT)-owned, service disabled veteran-owned, minority-owned, historically underutilized business, and small business vendors as defined by the US Small Business Administration.[12] Sustainability always creates implicit values hard to measure, and that is why not all companies are willing to commit to it to as they do to the R&D. However, the difference in such devotion provides the opportunity for Biogen to position the company image in that strength. In the company website, Biogen states that the long-term success requires an inspired approach in engaging with stakeholders, advocating for sensible public policy, entering new markets, managing responsibly, and navigating the changing health-care landscape.[13] We believe Biogen has bet on the return on investment in the very long run for its consistent corporate strategy on sustainability.

The world's 100 most sustainable companies, 2014[14]

Rank	Company name	Headquarters	GICS sector	Overall score (%)
1	Westpac Banking Corporation	Australia	Financials	76.5
2	Biogen Idec Inc.	USA	Health care	75.3
3	Outotec OYJ	Finland	Industrials	74.2
4	Statoil ASA	Norway	Energy	74.0
5	Dassault Systemes SA	France	Information technology	74.0
6	Neste Oil OYJ	Finland	Energy	69.2
7	Novo Nordisk A/S	Denmark	Health care	68.8
8	Adidas AG	Germany	Consumer discretionary	68.0
9	Umicore SA	Belgium	Materials	67.8
10	Schneider Electric SA	France	Industrials	66.5

GICS global industry classification standard

[11] Rethinking resources. (n.d.). Retrieved June 20, 2014, from http://www.biogenidec.com/rethinking_resources.aspx?ID=11581.

[12] Supplier diversity. (n.d.). Retrieved June 20, 2014, from http://www.biogenidec.com/supplier_diversity.aspx?ID=19372.

[13] Creating value. (n.d.). Retrieved June 20, 2014, from http://www.biogenidec.com/creating_value.aspx?ID=11614.

[14] The World's Most Sustainable Companies Of 2014– Forbes. (n.d.). Retrieved June 28, from http://www.forbes.com/sites/jacquelynsmith/2014/01/22/the-worlds-most-sustainable-companies-of −2014/.

Biomedical Start-ups

The majority of biotechnology start-ups conduct early-stage R&D. Typically, large pharmaceutical companies would acquire some of the successful biotechnology start-ups or simply saying survivors among the start-ups. The lifecycle of start-ups usually lasts less than 10 years and succeeds in either exiting, such as being acquired by big companies or going public, or being dismissed with failure. This nature gives fewer incentives for biotechnology start-ups to focus on sustainability or social responsibility. In terms of sustainability, we seldom see any activities for environmental protection or energy reservation.

Adhezion Biomedical[15]
Adhezion Biomedical is a company in North Carolina that develops and produces cyanoacrylate-based medical adhesive, wound care, and microbial barrier products for connective tissue. It was formed in 2001, and received the first approval of 510(k) in 2007. There is no information about sustainability or corporate social responsibility on their website.

Lysosomal Therapeutics Inc.[16]
Lysosomal Therapeutics is dedicated to innovative small-molecule R&D in the field of neurodegeneration, yielding new treatment options for patients with severe neurological diseases. There is no information about sustainability or corporate social responsibility on their website.

Bicycle Therapeutics[17]
Bicycle Therapeutics was founded in mid-2009 as a spinout of the Medical Research Council Laboratory of Molecular Biology (Cambridge, UK). There is no information about sustainability or corporate social responsibility on their website.

Bicycle Therapeutics[18]
DKIS LLC is a Russian biopharmaceutical start-up company that develops novel hepatitis C virus-like particles. There is no information about sustainability or corporate social responsibility on their website.

Medium-Sized Biomedical Companies

The medium-sized biomedical companies have aroused our interests in particular because most of them would experience a transition period of adopting corporate sustainability strategy. Other scenarios, such as merger and acquisition, first public offering, or spinning out from a large company, could also play a role in shaping the

[15] Retrieved June 28, from http://www.adhezion.com/docs/company/default.aspx.

[16] Retrieved June 28, from http://www.lysosomaltx.com.

[17] Retrieved July 8, from http://www.bicycletherapeutics.com.

[18] Retrieved July 8, from http://www.dkis.ru/eng/cont-eng.html.

sustainability issues. Interestingly, we typically find that the companies in the scale have quasi-sustainability strategies, which probably have a more direct relationship with their core business. Subsequently, we have a review of several medium-sized biomedical companies of different kinds to evaluate how they are doing over the sustainability issues.

Avanir
Avanir is a biopharmaceutical company in California focused on bringing innovative medicines to patients with central nervous system disorders. It generated around US$ 75 million in revenue and hired about 300 employees in 2013.[19] We can tell that the company is in the amateur stage of sustainability strategy. No independent "sustainability" section appears on their website. In addition, the company has more emphasis on corporate government than environmental sustainability. Unfortunately, none of the indicators is evaluated in numbers.

Intercept
Intercept is a biopharmaceutical company that focused on the development and commercialization of novel therapeutics to treat chronic liver and intestinal diseases.[20] Since all its products are in the pipeline, they have no revenue yet. The only piece related to sustainability is the corporate governance, which covers the basic aspects such as auditing, nomination, and compensation.

Spectrum
Spectrum is a biotechnology company with fully integrated commercial and drug development operations, with a primary focus in oncology and hematology. It had about US$ 155 million in 2013 with four products in the market. The sustainability is missing for this company. However, corporate governance is the only part that the company emphasized.

23 andme
23 andMe, Inc. is privately held company dedicated to helping individuals understand their own genetic information using recent advances in DNA analysis technologies and web-based interactive tools.[21] The company has been a pioneer in this category, and it is believed that its business can significantly change how we understand our genetic vulnerability to diseases. Currently, FDA is challenging the business of genetic testing targeting consumers. In terms of sustainability, 23andme has almost zero initiatives about corporate governance or social responsibility, let alone sustainability. The company has put majority of their efforts in sales and marketing.

StemCells, Inc.
As the leader in this category, StemCells uses stem cell biology to discover, develop, and commercialize breakthrough therapeutics and enabling tools and technologies for use in stem-cell-based research and drug discovery. The only part related to

[19] Retrieved July 8, from http://www.avanir.com/about.

[20] Retrieved July 8, from http://www.interceptpharma.com/about/.

[21] Retrieved July 8, from https://www.23andme.com.

sustainability is in the corporate governance part. However, we all expect that stem cell therapy can significantly increase the sustainability of mankind given its cost-effectiveness and possibility of cures. The CEO and President Martin McGlynn said, "Success in harnessing the full therapeutic potential of stem cells would allow us to address the root cause of the underlying disease rather than just continuing to treat symptoms. The prize would be a paradigm shift that could fundamentally transform the practice of medicine and health-care economics."[22] Nevertheless, stem cells created a lot of controversies in the social aspect.

Ethicon

Ethicon has been part of Johnson & Johnson since 1949, but in 1992, it became a separate corporate entity. In their website, it says, "Throughout our history, Ethicon has remained committed to the Johnson & Johnson goals of improving the health and well-being of the world community." It also uses the tool Earthwards®, a Johnson & Johnson approach, for creating sustainable solutions across the product life-cycle.[23] We believe that the connection to Johnson & Johnson has been a great help to the level of sustainability strategy that Ethicon is playing.

Although the examples above represent only a part of medium-sized biomedical companies, we can say that the sustainability practices have been largely limited to the focus on corporate governance among these companies. Chances are good that some companies that just left the start-up stage have other business challenges to worry. Still, the opportunities exist as some of these companies may start to scale-up in manufacturing. Therefore, environment issues, such as energy reservation, could help with cost controlling. Other aspects include attracting talents in this industry needed to build up a company image with more responsibility.

Discussion

The research on biotechnology companies about their sustainability is limited by whether companies provide adequate public reports. There are very few literatures about comparing sustainability strategy between small, medium, and large companies. Only those biopharmaceutical companies that are well established have more detailed information open to the public. However, if we are able to provide a quantitative survey among these companies, we can understand the status quo of these companies on sustainability.

This chapter here only provides a qualitative assessment other than digging into the data, and has not taken into account geographic differences. We lean on our analysis in developed countries, where the sustainability issues are better articulated among the public information.

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[22] Retrieved July 8, from http://www.stemcellsinc.com/about-us/business-strategy.htm.

[23] Retrieved July 8, from http://www.ethicon.com/corporate/our-commitment/sustainability/our-products.

Another area to look at could be the historic change in sustainable development within the same companies. This research could be done through tracking the records of companies' initiatives on sustainability over time and interviewing senior leaders who manage sustainability issues in the companies. Thirdly, we can also explore when companies establish their human resources on sustainability, such as hiring a chief sustainability officer.

Conclusion

Multinational companies, such as Biogen, Abbott, or Genentech, which have customers, public investors, or employees as their key stakeholders, care more about their sustainability issues, especially those related to the community they serve. Some small companies might have initiatives of environmental protection, but the company might be too small to have human resources to collect the information and manage the ensuing processes, and the total utilities costs could be so low that the company directly ignores it. However, it is understandable that financial sustainability is a more important consideration for biotechnology companies than other sustainability activities. From the economic perspective, small biotechnology companies are contributing a greater and greater part of innovation to the whole industry. Without these small companies that bear very high risks of success, the large companies cannot ensure their R&D efficiency and innovation sustainability in the long run. The hybrid between big companies and small ones is the most critical part of the sustainability strategy adoption. These medium-sized companies need to make decisions on how to engage with stakeholders as their business grows, specifically whether they should initiate any sustainability strategies, and if yes, how they could seek a balance between internal issues, such as corporate governance and external issues, such as ecological footprints. One thing these companies often forget is how their core business has been supporting the sustainability of our society. We also figure that the framework of sustainability auditing and reporting is not suitable for companies at this stage because its comprehensiveness is overwhelming. Finally, we suggest that industry experts and sustainability subject experts work closely to design some practical assessment tools on sustainability issues, which are customized for the biotechnology industry with health care as the main focus. By restructuring what these medium-sized companies have contributed to, yet fail to market, sustainability issues, companies can easily understand their economic incentives to carry on more sustainable business models.

References

World Commission on Environment and Development (WCED). Our common future. Oxford: Oxford University Press; 1987. p. 43.

Savitz AW, Weber K. The triple bottom line: How today's best-run companies are achieving economic, social, and environmental success-and how you can too. San Francisco: Jossey-Bass; 2006.