

Full Length Research Paper

Managing corporate sustainability: Risk management process based perspective

Ayşe Kucuk Yilmaz^{1*} and Triant Flouris²

¹Department of Aviation Management, School of Civil Aviation, Anadolu University, 26470 Eskisehir, Turkey.

²School of Aviation Sciences, Daniel Webster College, Nashua, NH 03063-1300, USA.

Accepted 17 November, 2010

Sustainability risk management requires holistic and systematic integration of ecological, socioeconomic, and corporate risk factors in the business management. This paper presents an integrative conceptual framework for sustainability risk management in enterprise-wide. The development of this integrative framework is accomplished by tailoring of the enterprise risk management framework. In this paper, the conceptual model to corporate sustainability is offered as the specific management and organizational system to both manage and integrate the corporate goals in order to create economic and financial value and awareness of environmental and social responsibility.

Key words: Corporate sustainability, management, risk, risk management, strategic management, sustainability.

INTRODUCTION

Businesses today need to fully integrate sustainability and risk management into their strategy - not only to minimize potential losses but also to exploit new business opportunities arising from the sustainability agenda. These may include new products and services to meet developing sustainability needs, new technologies to improve sustainability or risk performance, or new business models to access and develop emerging markets and support the creation of sustainable communities. This paper focuses on constructing a theoretical model for Enterprise Sustainability Risk Management and aims to improve awareness in the following areas:

- Corporate risks as both threats and opportunities
- Enterprise sustainability risk management
- Climate change and Global Warming
- Risk culture
- Basic philosophy of the “think global, act local” mentality

This paper is organized into 4 main parts. The corporate sustainability concept and literature review is given in next part. Strategies for corporate sustainability and enterprise risk management are given in the third part of the paper. Enterprise sustainability risk management model as conceptual framework is given in fourth part.

Concluding remarks is presented in last part of the paper.

CORPORATE SUSTAINABILITY CONCEPT AND LITERATURE REVIEW

The “corporate sustainability” has gained considerable interest among risk managers and has also been examined in the academic literature (Bebbington and Gray, 1996; Gladwin et al., 1995a; Gladwin et al., 1995b; Hoffman and Ehrenfeld, 1998, Dyllick and Hockerts, 2002; Morrison, 1991a; Schaltegger et al., 2002; Winn, 1995). However, as the vision of corporate sustainability is currently not well-defined it remains a broad approach that includes various characteristics, in particular relating to the contextual integration of economic, environmental and social aspects. It may seem astonishing to realize that the best known aspect of corporate sustainability is the heuristic, multicriteria triple bottom line perspective (Figure 1) which aims to integrate economic, social and environmental aspects of business management (Elkington, 1998). This differs from the macro and political levels where the orientation towards future and present needs as formulated in the Brundtland report has dominated for much longer (Folmer and Tietenberg, 2005). Corporate sustainability encompasses three dimensions of needs, known as the “triple bottom line”; economic prosperity and opportunity; social equity and quality of life; ecological resource preservation. Corporate sustainability is an organizational commitment to

*Corresponding author. E-mail: akucukyilmaz@gmail.com. Tel: +90222 335 0580-6962.

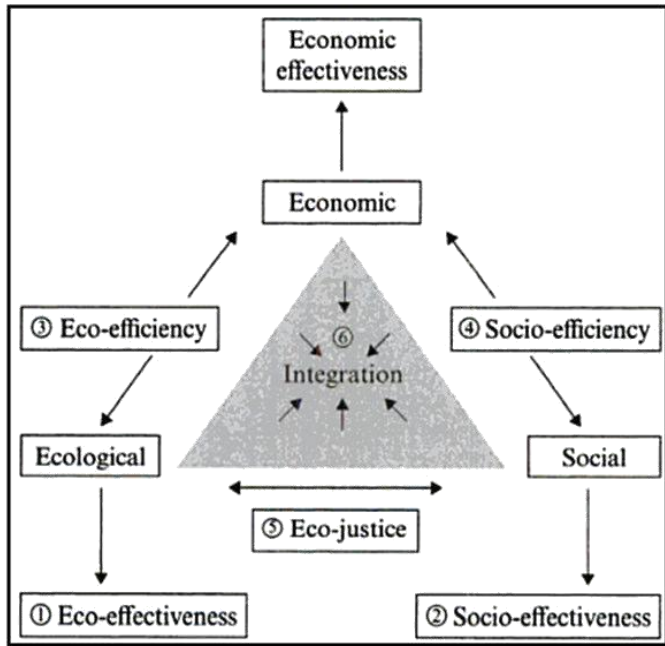


Figure 1. Corporate sustainability Challenges (Folmer and Tietenberg, 2005)

achieving competitive advantage through the strategic adoption and development of ecologically and socially supportive production processes, products and services and innovative human resource management practices (Nemli, 2004). Figure 1 illustrates the three pillar approach of corporate sustainability.

Corporate sustainability can be viewed as a new and evolving corporate management paradigm. The term 'paradigm' is used deliberately, in that corporate sustainability is an alternative to the traditional growth and profit-maximization model. While corporate sustainability recognizes that corporate growth and profitability are important, it also requires the corporation to pursue societal goals, specifically those relating to sustainable development - environmental protection, social justice and equity, and economic development. A review of the literature suggests that the concept of corporate sustainability borrows elements from four more established concepts: 1) sustainable development, 2) corporate social responsibility, 3) stakeholder theory, and 4) corporate accountability theory. The contributions of these four concepts are illustrated in Figure 2 (Wilson, 2003).

Corporate sustainability management is defined by Salzmann, Steger and Ionescu-Somers (2005) as a "profit-driven corporate response to environmental and social issues that are caused through the organization's primary and secondary activities." From a more focused business perspective, corporate sustainability can be defined as "a business approach that creates long-term shareholder value by embracing opportunities and managing risks derived from economic, environmental and social developments" (Dow Jones Sustainability In-dexes, 2009). Another definition is made by the Australian Government, Department of the Environment, Water,

Heritage and the Arts (2009) as encompassing "strategies and practices that aim to meet the needs of stakeholders today while seeking to protect, support and enhance the human and natural resources that will be needed in the future" (Australian Government, 2009). Enterprise sustainability risk management (ESRM) includes corporate sustainability based aims. For this reason, our new Enterprise sustainability risk management (ESRM) concept is based on the triple bottom line concept and it's also includes strategic and cultural dimensions of business management:

- Financial
- Social
- Environmental
- Strategic and cultural dimensions (Values and norms, Communication, Leadership styles and Conflicts)

Corporate sustainability management can be described in both functional and institutional terms. From a functional point of view it is designed to steer ecological, social and economic impacts of business activities in such a way that an enterprise develops in the direction of sustainability. The aim is not only to ensure systematic management of social and ecological aspects using economic methods, but also to integrate them in the conventional business management process. From an institutional point of view, corporate sustainability management describes the group of actors and organisational structure within the business enterprise that are concerned with social and ecological aspects and their integration in the conventional process of operational management of business activities (Schaltegger, Herzig, Kleiber, Müller, 2002). According to the Visser (2007), the corporate sustainability is a values - laden umbrella concept, which refers to the way in which the interface between business, society and the environment is managed. Despite being a relatively young field of academic inquiry, scholars have succeeded in engaging with the mainstream management literature, as well as establishing journals that specialise in various aspects of corporate sustainability. However, research on corporate sustainability still has a bias towards an environmental association and is mainly focused at the organisational level. Scholars approach the subject in a variety of ways, performing exploratory, descriptive, normative and instrumental research, and employing both quantitative and qualitative methods (Visser, 2007).

In their review of corporate social responsibility (CSR) articles published in top -rated management journals between 1992 and 2002, Lockett, Moon et al. (2006) found that environmental/sustainability and ethical subjects dominate CSR research in management, accounting for 36% (64 of the 176 papers) and 31% (54 papers) respectively, compared with papers on stakeholders (18%, 31 papers) and social (15%, 27 papers) themes ((Visser, 2007). Concept of the corporate sustainability is listed by Siebenhüner (2007):

- Triple bottom line (Bowden, et al. 2001, Elkington 1997), Corporate social responsibility (European Commission

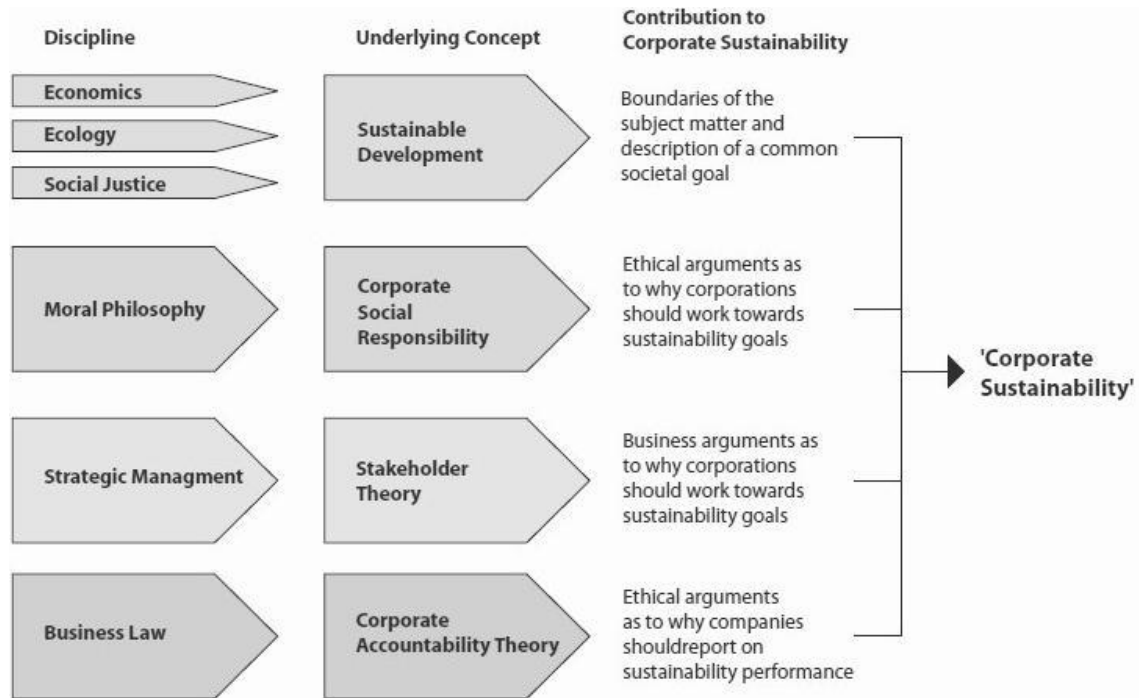


Figure 2. The Evolution of Corporate Sustainability (Wilson, 2003).

2002, Ruggie 2002, Clarkson 1995).

- Corporate sustainability (Dyllick, Hockerts 2002, Gladwin, et al. 1995, Schaltegger, et al. 2003, Shrivastava, Hart 1995a, and Welford 1997).
- Company oriented sustainability (COSY) (Schneidewind 1994, Schneidewind, et al. 1997).

STRATEGIES FOR CORPORATE SUSTAINABILITY AND ENTERPRISE RISK MANAGEMENT

Companies are focusing on corporate sustainability in very different ways. However, successful sustainability programs methodically address strategic, operational, collaborative, and governance requirements (Deloitte, 2007). The United Nations Environment Programme (UNEP) Finance Initiative, addresses the interaction between financial institutions and four broad groups of stakeholders: Suppliers, Internal (employees), Clients and shareholders, Society and the environment. Also, four primary ways in which implementing Sustainability Management and Reporting (SMR) can provide benefits to financial institutions, especially in emerging and developing economies, are identified by the UNEP Finance Initiative (2006) (Figure 3) :

- Revenue growth
- Risk management
- Access to capital
- Cost savings and efficiency

ERM reflects the change of mindset in risk management over the past decades. Business leaders realize that

certain risks are inevitable in order to create value through operations and some risks are indeed precious opportunities if effectively exploited and managed (Ai, 2006). ERM as a framework for capturing risks that are material from the point of view of the achievement of the strategic objectives of the enterprise. According to the Treadway Commission's recent authoritative definition, ERM is '... a process, effected by an entity's board of directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risks to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives.'(COSO, 2003:6) Apart from the measurable risk silos, this conception of ERM encompasses risks that cannot be readily quantified or aggregated. These non-quantifiable risks include, for example, the risks of strategic failure, environmental risks, reputational risks and operational risks that materialise only rarely (Mikes, 2007). The linkage between enterprise risk management and sustainability management is an emerging field of research. Our framework model serves as a starting point to develop a company - specific model. Also, ESRM model is based on risk management principles as following (Kwak and Stoddard, 2003):

Shared product vision: A shared vision for success based upon commonality of purpose, shared ownership, and collective commitment.

Open communications: A free flow of information at and between all program levels though formal, informal, and impromptu communication and consensus-based

Matrix of Sustainability Management and Reporting SMR drivers				
Stakeholders Benefits	A. Suppliers	B. Internal	C. Clients & Shareholders	D. Society/ Environment
i. Revenue growth	Opportunities for new business developments	Improve competitiveness and business	New products and services	Boost local economic growth
ii. Risk management	Reduce risk of supply chain reputational damage	Governance – improve compliance and transparency	Manage environmental risk	Manage reputational risks
iii. Access to capital			Improve access to finance	Meet stock exchange listing requirements
iv. Cost savings & efficiency	Build better relationships	Reduce waste Motivate workforce	Build better relationships	

Figure 3. Matrix of Corporate Sustainability Management Drivers (UNEP Finance Initiative, 2006).

processes.

System perspective: That software development is viewed within the larger systems-level definition, design, and development.

Proactive strategies: Proactive strategies that involve planning and executing program activities based on anticipating future events.

Systematic and adaptable methodology: A systematic approach that is adaptable to the program's infrastructure and culture.

The vision of sustainable development embraces three dimensions – economic, ecological and social aspects – and seeks to integrate them. In the past ten years this vision has grown increasingly important, and at the same time its status has evolved from a theoretical, abstract project to an increasingly tangible and concrete task. The objective of sustainable development confronts business enterprises with four sustainability challenges (Schaltegger, Herzig, Kleiber, Müller, 2002):

Ecological challenge: increasing ecological effectiveness.

Social challenge: increasing social effectiveness. Economic challenge to environmental and social management: improving eco-efficiency and/or social efficiency.

Integration challenge: bringing together the first three challenges and integrating environmental and social management in conventional economically oriented management.

The Enterprise Sustainability Risk Management conceptual model offers a strategic road map, which provides a contextual framework for businesses serious about taking on the challenges and opportunities of sustainable development. The process of the Enterprise Sustainability Risk Management conceptual model is composed of five main phases and their sub-steps. The main phases are:

Phase 1: Strategic Management: Strategic Plan and Orientation.

Phase 2: Management and Organization: Organizational and Infrastructural Orientation (includes Strategic and cultural dimensions (Values and norms, Communication, Leadership styles and Conflicts)

Phase 3: Framework Set up: Establishment and frame-

Framework Orientation.

Phase 4: Report and Monitor: Internal Control Orientation.

Phase 5: Enterprise Sustainability Performance Optimization: Corporate Orientation.

The decision to undertake sustainability is a relatively easy one. However, implementing sustainability in a way that balances opportunity and risk is a significant challenge requiring fundamental business model innovation. Breakthrough thinking is necessary to incorporate sustainability into every aspect of the business model. Leading companies factor changing technologies, emerging consumer demands, and evolving regulatory requirements into sustainable strategies and operations. Companies are focusing on sustainability in very different ways. However, successful sustainability programs methodically address strategic, operational, collaborative, and governance requirements. Leading companies take a top-down, sequential approach when implementing sustainability into their organizations. Leadership commitment is the most important first step. Then, through non-traditional collaborations, systematic assessments of value - chain impacts, and robust governance structures, leading companies ensure that sustainability is woven into the very fabric of the company (Deloitte, 2007). Corporate sustainability involves both financial and non-financial measurement and it can be built on (Salzmann, Steger and Ionescu-Somers, 2005: 3/24):

- Cost reduction achieved through improved environmental, health and safety performance (fewer accidents, fines, lost workdays, etc.).
- Revenue increases achieved through gain in market share due to new environmentally sound products.
- Positive effects on intangibles or, as referred to in Figure 4, value constructs, which do not increase financial performance per se but are yet to be leveraged accordingly.

Companies will not be able to dictate the time frames or expectations for managing sustainability. Shareholders, federal and state agencies, and consumers are driving the evolution of sustainability. The time is now to undertake initiatives and integrate sustainability into the organization. However, sustainability need not be a reactive response to environmental or regulatory threats. As sustainability develops in the business world, companies can move from short-term risk avoidance and regulation compliance to long-term development of brand, competitive, and operational advantage. Proactive sustainability initiatives are an opportunity for companies to differentiate themselves as leaders in the industry, the environment, and society, ensuring long - term business success (Deloitte, 2007).

We have developed this new conceptual Enterprise Sustainability Risk Management framework model as a specific management and organization system to manage integration between the corporate goals of

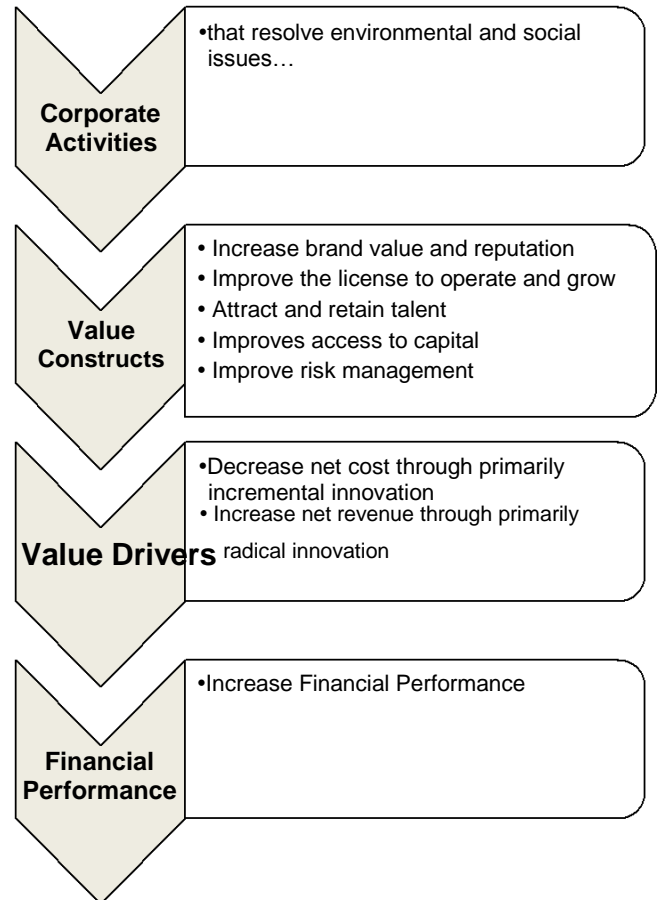
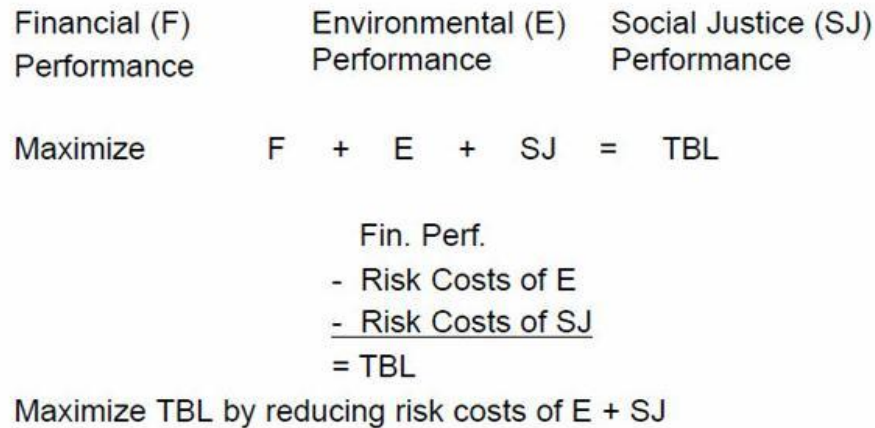


Figure 4. Systemization of value drivers and value constructs (Salzmann, Steger, Ionescu-Somers, 2005).

creating economic and financial value and the aspects of environmental and social responsibility. Enterprise Sustainability Risk Management framework has been developed as an important mechanism for improving corporate sustainability performance. It can protect, create, and enhance business value through measurement and management of sustainability threats and opportunities. In addition, this can help businesses effectively respond to the growing expectations of the corporate stakeholders. The Enterprise Sustainability Risk Management framework provides guidance to managers on how to establish a holistic and systematic sustainability risk management process that generates the risk indicators, risk sources, objectives, and reporting systems needed to ensure effective handling of sustainability risks and improved overall organizational performance and value. We believe that integrating sustainability considerations into existing corporate systems and processes is the most effective way to embed sustainability into corporate business rather than creating new systems and processes. The Enterprise Sustainability Risk Management model enables companies to enhance their competitiveness and future orientation while minimizing their business risks. Managing business processes by using a Corporate

Triple Bottom Line (TBL) Concept
 first articulated by John Elkington, author of
Cannibals with Forks
 Chair of Sustainability, leading U.K. Consulting firm



© Dan R. Anderson, UW-Madison

Figure 5. Triple Bottom Line concept to corporate sustainability risk management (Anderson, 2006).

Sustainability based approach is crucial in today's global business environment. Companies should incorporate a sustainability based approach in their decision-making process and activities in pursuit of corporate objectives.

THE PROCESS OF THE ENTERPRISE SUSTAINABILITY RISK MANAGEMENT MODEL

Current sustainability risks are considerably different from old risks. For this reason, more holistic and enterprise-wide approach needs to managing corporate sustainability risks. Also, new approaches should be set on triple bottom line concept since this concept includes and assess corporate performance in both social, financial and environmental sides (see figure below). Reflecting the diversity of public reporting to emerge in Europe during the late 1990s, John Elkington (1997) coined the phrase the *triple-bottom-line* to capture the notion that organisations should report not only on their financial performance, but also on their social and environmental performance (Milne, Tregidga and Walton, 2003). The expression 'triple bottom line' was developed by environmentalist and economist John Elkington in 1997 and has fast become an international commonplace to describe a mode of corporate reporting that encompasses environmental and social as well as economic concerns. The term is now also used widely in discussions of sustainabi-

lity. Elkington's expression crystallised the increasingly widespread view that 'we need to bear in mind that it is not possible to achieve a desired level of ecological or social or economic sustainability (separately), without achieving at least a basic level of all three forms of sustainability, simultaneously'. In Elkington's own words (Elkington, 1999) , 'the sustainability agenda, long understood as an attempt to harmonise the traditional financial bottom line with emerging thinking about the environmental bottom line, is turning out to be much more complicated than some early business enthusiasts imagined. Increasingly, we think in terms of a "triple bottom line", focusing on economic prosperity, environmental quality, and—the element which business has tended to overlook—social justice'(McKenzie, 2004). For organizations, a sustainability framework or model of social, environmental, and economic performance creates a powerful opportunity to create enduring value for multiple stakeholders (Figure 5) (Epstein, 2009).

The Enterprise Sustainability Risk Management Framework is designed to provide guidance to managers on how to establish a holistic and systematic sustainability risk management process that generates the risk indicators, risk sources, objectives, and reporting systems needed to ensure effective handling of sustainability risks and improved overall organizational performance and value. ESRM implementations and related process actions have potential to create additional value for cor-

porates. ESRM framework includes all corporate risks of the social, economic and environmental aspects in doing business. ESRM is a management approach whereby a company considers the interests of all stakeholders both within the organisation and in society and applies those interests while developing its strategy and during execution. The Enterprise Sustainability Risk Management framework is a logical model that offers a strategic road map, which provides a contextual framework for businesses serious about taking on the challenges and opportunities of sustainable development. The Enterprise Sustainability Risk Management framework model aims to provide a systematic process for integrating sustainability into all company functions, including strategic and business planning, business development, corporate governance, project management, risk management, resources, human resource process, stakeholder management, performance management, and corporate social responsibility. The Enterprise Sustainability Risk Management process provides a framework for corporate sustainability factors to be built into corporate systems, functions, and operations.

We assume that Enterprise Sustainability Risk Management (ESRM) is a kind of enterprise risk management which is not just for building and maintaining the capacity to understand the risk of new socio-environmental businesses. In a world where new regulations and expectations of the social responsibility of financial institutions are growing, ESRM assists in appropriately assessing these risks within the institution's overall credit risk analysis and other financial decision-making (UNEP Finance Initiative, 2006). "Integrating sustainability" means that environmental, social, and broader economic factors, as well as more traditional financial factors are incorporated into business decision-making, actions, and performance. Companies are increasingly integrating sustainability into their key business processes for different reasons, whether to manage new risks, gain business opportunity, or extend their role in society (Stratos, 2007). Corporations are now re-designing themselves in order to integrate sustainability principles into their business strategies and policies. Global companies increasingly recognize that sustainability is an integral part of good enterprise risk management and affects the bottom line and long-term profitability. Corporate sustainability requires companies to address the issues of economic prosperity, social equity, and environmental quality simultaneously. No individual company can be fully 'sustainable' within an unsustainable economic system. Managing for long-term success requires a full integration of the principles of sustainability into an organization's enterprise risk management processes. Working towards the goal of corporate sustainability is a complex journey in which different process concerns may be emphasized at different phases. The new ESRM framework model is designed as a process to help following subjects mainly:

- Improve awareness of the necessity for sustainability risk management

- Identify sustainability risks and opportunities
- Promote innovation and operational efficiency
- Develop a company-specific sustainability risk management model, policy, and guideline.
- Integrate sustainability considerations into the decision-making process and practices
- Manage sustainability funds
- Proactively manage risk and achieve competitive advantages
- Increase value and innovative capacities
- Move towards sustainable business practices
- Promote corporate social investment, citizenship, and social responsibility
- Increase financial, social and environmental contributions
- Improve the corporate reputation

We listed here the expected Main Benefits of the ESRM Model as follows:

- Achievement of balanced and integrated economical, social and environmental performance.
- Full integration of sustainability based topics into business strategy, management and organization at all levels.
- Corporate value optimization.
- Reasonable assurance to achievement of the corporate objectives in triple bottom line concept.
- Corporate resource optimization
- Corporate risk optimization
- Effective and proactive management of the sustainability based risks.

The Enterprise Sustainability Risk Management ESRM model helps managers to employ tools such as environmental management systems, cleaner production, environmental auditing, life-cycle assessment, and environmental accounting. These tools can be applied to reduce risk, reduce costs, identify opportunities, and enhance business reputation and stakeholder interest. The findings of Deloitte (2007) indicate that leading companies focus on the following critical success factors in order to have a successful, long-term sustainability program. Importantly, the sequence in which these efforts are undertaken is crucial to implementation success. The new ESRM Model is designed as a conceptual process, consisting of five main phases as shown in Figure 6. The sub-steps of each phase are presented below.

Phase 1: strategic plan and orientation

Objective and Related Activities: Establishment of Strategic Orientation to practice use of the ESRM model.

Sub-steps of Phase 1:

- Set strategic Sustainability Strategy and determine the related objectives: economic, social, and environmental (triple bottom line concept)

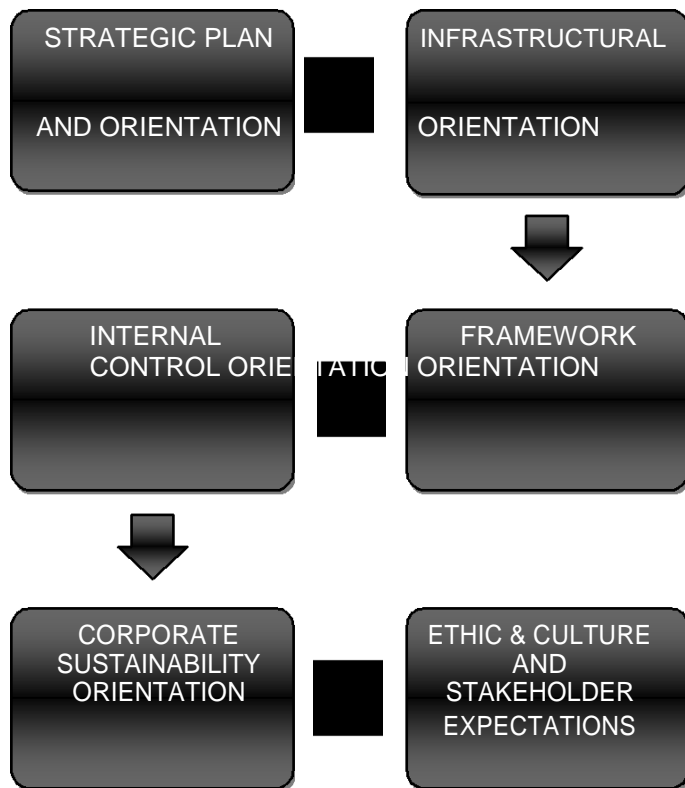


Figure 6. The Enterprise Sustainability Risk Management Framework Model

- Define business objectives in terms of sustainability
- Demonstrate leadership
- Stakeholder Analysis: Identify stakeholders and stakeholder expectations
- Define strategy, targets, and plans
- Define company policies: Environmental, social and economic considerations
- Search competitive advantage fields: current and latent
- Look to create innovation - driven corporate sustainability strategies
- Examine current strategies from a sustainability perspective
- Examine operations from a sustainability perspective
- Examine current risk culture from a sustainability perspective
- Improve strategic plan in terms of enterprise sustainability risks
- Improve business plan in terms of enterprise sustainability issues
- Improve operational plan in terms of enterprise sustainability issues
- Link up with like-minded companies

Phase 2: management and organization: infrastructural orientation

Objective and Related Activities: Integration of ESRM into key corporate activities and functions: Sustainability based approach.

Sub-steps of Phase 2

- Check over infrastructural situation related to corporate resources in view of financial, social, and operational processes
- Mobilize corporate resources
- Develop guideline of ESRM model
- Develop measures and standards of business performance
- Assign ESRM committee and alignment of roles and responsibilities
- ESRM Organization: identify roles and responsibilities
- Training: Familiarize personnel with enterprise risk management, corporate sustainability, and related practices; train ESRM team on emerging approaches and techniques; hold executive seminars on enterprise risk management, corporate sustainability, and integration of enterprise risk management and sustainability
- Create and improve a corporate culture supportive of sustainability (includes Strategic and cultural dimensions (Values and norms, Communication, Leadership styles and Conflicts)
- Sustainability in human resource management issues: attract and retain talent
- Set up corporate Sustainability Performance Criteria
- Set up Stakeholder Engagement plan and its process

Phase 3: set process step: framework orientation

Objective and Related Activities: Systemization of sustainability issues, corporate value drivers, and relevant corporate activities by setting up the risk management framework.

Sub-steps of Phase 3:

- Identify threats and opportunities which affect enterprise sustainability:
- determine sustainability issues affecting both strategic and operational risks which are related to not meeting and meeting business objectives
- Create Scenario Analysis for potential sustainability risk events
- Prioritize sustainability based threats and opportunities
- Establish Strategic Plan to achieve business objectives
- Establish thresholds and targets according to enterprise risk appetite
- Analyze impact, cost, and benefits of sustainability based risks
- Prepare corporate risk map and holistic picture of the company
- Exercise decision-making to optimize risk handling options
- Implement risk handling plans for enterprise risk optimization

Phase 4: report and monitor: internal control orientation

Objective and Related Activities: Collection, analysis, and

dissemination of risk data for relevant levels of management; Communication and reporting in a timely manner.

Part of the effort to integrate innovation for sustainability throughout the organization is achieved through regular communication. Both within and outside the organization, a systematic process should be in place to spread the word about any achievements being made, in as solid and quantifiable a way as possible, to encourage everyone involved and give those associated with the company something to boast about and identify with.

Phase 5: corporate sustainability check: corporate sustainability orientation

Objective and Related Activities: Establishment of internal control of model and related activities towards effective implementation of sustainability practices.

Sub-steps of Phase 5:

- Create gap analysis: performance optimization aimed at assessing and comparing triple bottom line based performance results and risk factors according to planned and desired ESRM model outputs
- Assess progress towards sustainability goals
- Determine overall score
- Adjust strategies to ensure goals are met

Overall enterprise sustainability check: This phase includes assessment of ESRM implementation performance by Control and Measurement of sustainability variables according to the determined criteria (Esquer-Peralta, 2006) as follows:

- Sustainability Leadership
- Planning for Sustainability Improvement
- Employees Involvement
- Process Management
- Product / Service Management
- Information and Analysis Management
- Customers and Suppliers Involvement
- Other stakeholders Involvement
- Sustainability Results

An effective strategy for sustainable development requires good management. It must provide coordination, leadership, administration, and financial control, harnessing skills and capacities and ensuring adherence to timetables. The roles, responsibilities, and relationships between the different key participants in strategy processes must be clearly defined and understood (Organisation for Economic Co-Operation and Development [OECD], 2001).

CONCLUSION

Our model presents a holistic and proactive fresh way to

manage the enterprise -wide sustainability risks. To go beyond compliance and legal liabilities, businesses have to integrate risk management based philosophy and culture into core business functions of the company. Sustainability management will succeed only if managers and personnel recognize that the reforms create value for them. Cultural change within the context of an overall sustainability management system must be accomplished within the business in order to provide sustainability management based benefits, seizing opportunities. The policies and objectives regarding climate change issues should be integrated into an overall sustainability management framework which is an integral part of the firm's business strategy. Integration and a holistic approach are the key concepts for both a successful business and sustainability. The triple bottom line of social, environmental, and economic objectives in the sustainability concept requires more coordination between internal and external stakeholders of the business. The Enterprise Sustainability Risk Management framework model provides many basic benefits which allow a business to ensure its sustainability. These include:

- Managerial approaches and processes such as strategic planning, corporate governance, human resource management, the decision-making process, reputation management, crisis management, corporate resource planning and management, and financial risk management.
- Shareholder acquisition.
- A systematic process for strategic and operational decisions at all levels in business
- A holistic snapshot of economic, environmental, and social impact factors on corporate sustainability for both managers and personnel.
- The integration of economic, social, and environmental factors with strategic objectives according to the triple bottom line concept.
- An understanding of the interdependence between business, society, and the environment.

We envision that Enterprise Sustainability Risk Management will be a core competency for global business management and organization. The new Enterprise Sustainability Risk Management framework offers a flexible strategic approach to anticipating potential problems and resolving sustainability challenges through risk analysis, positive external engagement, and robust management systems.

REFERENCES

- Ai J (2006). Enterprise Risk Management, Retrieved 12/08/2009 from <http://www.macminn.org/risk%20management/lectures/Enterprise%20Risk%20Management%20Encyclopedia%20Entry.doc>
- Anderson DR (2006). *Corporate Survival: The Critical Importance of Sustainability Risk Management*, the Society of CPCU Dairyland Chapter, CPCU.DC.Meeting_2006.05.17_AndersonDan.SustainabilityRM.pdf.
- Australian Government Department of the Environment, Water, Heritage and the Arts, (2009). *Corporate Sustainability. Business and Industry*

- Sustainability. Retrieved 08/26/2009 from <http://www.environment.gov.au/settlements/industry/>
- Bebbington J, Gray R (1996). "Sustainable Development and Accounting: Incentives and Disincentives for the Adoption of Sustainability by Transnational Organizations," Limperg Institute Chartered Association of Certified Accounts.
- COSO, Committee of sponsoring Organizations of the Treadway Commission (2003), Enterprise Risk Management Framework (2003)
- Deloitte Touche Tohmatsu, (2007). Aviation and Sustainability. Retrieved 08/26/2009 from http://www.deloitte.com/view/en_BA/ba/industries/life-sciences-health-care/article/2b80ad9fed2fb110VgnVCM10000ba42f00aRCRD.htm
- Deloitte (2007). Creating the "Wholly Sustainable Enterprise": A practical Guide to Driving Shareholder Value through Enterprise Sustainability. Deloitte Development LLC., p.3, [http://www.deloitte.com/dtt/cda/doc/content/Creating/the wholly/20sustainable/enterprise\(1\).pdf](http://www.deloitte.com/dtt/cda/doc/content/Creating/the%20wholly/20sustainable/enterprise(1).pdf)
- Dow Jones Sustainability Indexes (2009). Corporate Sustainability. Retrieved 08/26/2009 from http://www.sustainability-indexes.com/07_html/sustainability/corpsustainability.html
- Dyllick T, Hockerts K (2002). Beyond the business case for corporate sustainability, Business Strategy and the Environment, John Wiley & Sons, Ltd. and ERP Environment. 11(2):130-141.
- Elkington J (1999). Triple bottom line revolution: reporting for the third millennium, Australian CPA, 69: 75.
- Epstein MJ (2009). Making Sustainability Work: Best Practices in Managing and Measuring Corporate Social, Environmental, and Economic Impacts, Berrett-Koehler Publishers.
- Esquer-Peralta J (2006). The Sustainability Performance Criteria. Sustainability Management Systems (SMS): Sustainable development in relation to different kinds of management systems. 10th Canadian Pollution Prevention Roundtable. Halifax, Canada, June 14, 2006. Retrieved 09/02/2009 from http://www.c2p2online.com/documents/Javier_Esquer-Peralta.pdf, p. 14.
- Folmer H, Tietenberg T (2005). Corporate Sustainability, the International Yearbook of Environmental and Resource Economics 2005/2006, Edward Elgar Publishing Limited, p. 189.
- Gladwin TN, Kennelly JJ, Krause TS (1995a). "Shifting Paradigms for Sustainable development Implications for Management Theory and Research," Acad. Manage. Rev. 20 (4): 874-907.
- Gladwin TN, Krause TS, Kennelly JJ (1995b). "Beyond Eco-efficiency: Toward Socially Sustainable Business," Sustainable Dev. 3: 35-43.
- Hoffman A, Ehrenfeld J (1998). "Corporate Environmentalism, Sustainability, and Management Studies," in Sustainability Strategies For Industry: The Future of Corporate Practice, Nigel J. Roome, Ed. Washington, DC: Island Press.
- Kwak YH, Stoddard J (2003), "Project risk management: lessons learned from software development environment", Elsevier Science Ltd., pp. 915-920.
- McKenzie S (2004). Social Sustainability: towards some definitions, Hawke Research Institute, Working Paper Series, No 27, South Australia, 2004.
- Mikes A (2007). Enterprise Risk Management in Action, Financial Market Group, Retrieved 12/08/2009 from http://fmg.lse.ac.uk/events/pdfs/A_Mikes.pdf.
- Milne MJ, Tregidga H, Walton S (2003). The triple-bottom-line: benchmarking New Zealand's early reporters. Working Paper. Department of Accountancy and Business Law, University of Otago, Dunedin, New Zealand.
- Morrison C (1991a), Managing Environmental Affairs: Corporate Practices in the U.S., Canada and Europe. New York: The Conference Board.
- Nemli E (2004). The Status of Corporate Sustainability in Turkish Companies, Retrieved 12/07/2009 from <http://opim.wharton.upenn.edu/gc/philadelphia/abstract/Nemli.pdf>
- Organisation for Economic Co-Operation and Development (OECD) (2001). The DAC Guidelines Strategies for Sustainable Development, OECD Publications Service., France, p. 27.
- Salzmann O, Steger U, Ionescu-Somers A (2005). Quantifying economic effects of corporate sustainability initiatives – Activities and Drivers, IMD 2005-28, November 2005, p.3.
- Schaltegger S, Herzig C, Kleiber O, Müller J (2002), Sustainability Management in Business Enterprises, Concepts and Instruments for Sustainable Organisation Development, Centre for Sustainability Management (CSM) e.V., CSM, University of Lueneburg, Federal Ministry for the Environment, Nature Conservation and Nuclear Safety 2nd Edition, BMU/BDI (Eds.) 2002.
- Siebenhüner B (2007). Concepts and strategies of corporate sustainability, *University of Siena*, Siena, 15, 18 May 2007, Retrieved 12/07/2009 from www2.depfid.unisi.it/Docenti/Vercelli/Siebenh_1.pdf
- Stratos (2007). Integrating Sustainability into Business Processes, Case Studies of Leading Companies, Stratos inc., Ontario, Retrieved 08/27/2009 from http://www.stratos-sts.com/publications/Sustainability_Integration_Study_Brochure_EN_.pdf.
- UNEP Finance Initiative (2006). Sustainability management and reporting: Benefits for financial institutions in Developing and Emerging Economies, December 2006. Retrieved on November 13, 2008 from http://www.unepfi.org/fileadmin/documents/smr_benefits_dec2006_01.pdf, p. 4.
- Visser W (2007). Corporate Sustainability and the Individual: A Literature Review, University of Cambridge Programme for Industry Research Paper Series: No. 1, 2007.
- Wilson Mel (2003). Corporate sustainability: What is it and where does it come from? Ivey Bus. J. Jul/Aug2003. 67(6): 1-5
- Winn M Ed. (1995), Corporate Leadership and policies for the natural environment. Greenwich, CT: JAI Press.