Organizational Change for Natural Capital Management: Strategy and Implementation

Findings from a Survey of 26 Pioneering Companies

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Table of Contents

Executive Summary 4

Section 1: Introduction 5

1.1. Purpose of the Study 6
1.2. Why Do We Need Natural Capital Management? 6
1.3. Natural Capital Management (NCM) 7
1.4. Firm Foundation for NCM 8
1.5. Key Questions 8
1.6. Data Collection 9

Section 2: Importance of Natural Capital 10

2.1. Ecosystems Services – All Sectors 11
2.2. Ecosystems Services – Food & Agribusiness 12

Section 3: Organizational Change Model for NCM 14

3.1. Organizational Change Model 15
3.2. Externalities 16
3.3. The Importance of Evaluation 16
3.4. Endogenous Change 17

Section 4: Implementation Barriers and Strategic Action Plan 18

4.1. Barriers to Change 19
   4.1.1. Macro-Level Barriers 19
   4.1.2. Organizational Barriers 19
4.2. The REAL Action Plan 20
4.3. Approaches to Implementation 22
4.4. Strategic Action Plan and Macro-Level Barriers 23
4.5. Strategic Action Plan and Organizational Barriers 24
## Table of Contents

### Section 5: Strategic Action Plan and Specific Challenges 26

- 5.1. Relevance Barrier: Challenges 27
- 5.2. Measurement Barrier: Challenges 28
- 5.3. Priority Barrier: Challenges 29
- 5.4. Integration Barrier: Challenges 30

### Section 6: Operational Action Plan to Address Barriers 31

- 6.1. Recognition Activities 32
- 6.2. Evaluation Activities 33
- 6.3. Adoption Activities 34
  - 6.3.1. NCM-Related Projects 35
  - 6.3.2. NCM-Related Policies 36
- 6.4. Leadership Activities 37

### Section 7: Demographics 39

- 7.1. Demographics by Size 40
- 7.2. Demographics by Industry Sector 40
- 7.3. Choice of Terms 40
- 7.4. Relationship to Sustainability 42

### Section 8: Sustainable Innovation 43

- 8.1. Business Drivers of Sustainable Innovation 44
- 8.2. Types of Sustainable Innovations 45
Executive Summary

- This study describes how business leaders can strategize and implement changes in organizational behavior related to valuing natural capital in their company. It is based on the practices of 26 pioneering companies (60% of them with US$10 Billion+ revenues each) across nine industry sectors.

- Natural capital valuation is being implemented in pioneering companies as an organizational and behavioral innovation called natural capital management (NCM). NCM is rapidly becoming the new frontier for business leadership.

- NCM refers to the sustainable management of a company’s demand for natural resources and other ecosystems services, as well as the business value chain’s impacts on their future supply. This includes evaluating and mitigating the public aspects of these impacts (externalities) that are usually unrecognized.

- Pioneering companies are moving forward aggressively with NCM and expect to build it deeply into their business within the next 3 years. They will be much better positioned than other companies to prepare for and thrive in an increasingly resource-constrained world.

- A strategic action plan can enable companies to overcome four key organizational barriers to change: relevance, measurement, priority, and integration. The action plan consists of four key stages that can be sequenced or pursued simultaneously: recognition, evaluation, adoption, and leadership.

- The relationship between the strategic action plan and the implementation barriers is the strongest for measurement. Without measurement of natural capital in place, implementation success is significantly reduced because the crucial stage of evaluation gets compromised.

- The pioneering companies implement the strategic action plan through consistent operational patterns of activities and levels of implementation.

- These operational patterns include a top-down effort by C-level executives to get NCM recognized in the company, a top-down effort from the enterprise level to evaluate NCM, a business unit-driven effort to adopt NCM-related projects and policies for business growth, and a top-down effort to build NCM into the business. These efforts are mostly undertaken internally before being extended to the supply/demand chains.

- Delaying NCM implementation carries the great risk for companies of losing competitively as more astute competitors use NCM to thrive in a resource-constrained world that is already here and will hit business hard in 3-5 years.
Introduction

Section 1
1.1. Purpose of the Study

- The primary purpose of this study is to develop and test a model of organizational change that provides practical guidance to companies and business leaders regarding natural capital/biodiversity and ecosystems services (BES) management.

- Natural capital management (NCM) refers to the sustainable management of a company’s demand for natural resources and other ecosystems services, as well as the value chain’s impacts on their future supply. This includes managing impacts on third parties/public goods, i.e., externalities, that are often unrecognized.

- NCM is the organizational and behavioral means through which crucial management and accounting innovations such as natural capital accounting are designed and implemented in corporations.

- To provide useful guidance, the change model includes a strategic action plan for implementing NCM, along with specific activities, barriers and challenges that should be addressed.

- A secondary purpose of the study is to establish the emerging business field of NCM more firmly in theory and practice.

1.2. Why Do We Need NCM?

- We need to value natural capital/BES explicitly because we cannot manage what is not measured.

- The core reason why biodiversity loss and ecosystems degradation are escalating is that the value of their services is largely invisible to decision makers in business and government.

- The lack of prices and property rights for BES has resulted in externalities, where uncompensated or “not agreed to” costs are imposed on nature because of economic activity.

- The impacts on biodiversity and ecosystems due to externalities is severe and rapidly escalating.

- Primary forests have completed disappeared in many countries. Every year, we lose several million hectares of forest, mostly in Latin America, Southeast Asia, and Africa.

Natural Capital Management (NCM) refers to the sustainable management of a company’s demand for natural resources and other ecosystems services, as well as the business value chain’s impacts on their future supply.

The lack of prices and property rights for BES has resulted in externalities, where uncompensated or “not agreed to” costs are imposed on nature because of economic activity.
• Since 1900, the world has lost almost 50% of its wetlands, and 50% of our coral reefs are either destroyed or severely damaged.

• 80% of commercial fish stock are fully exploited, overexploited or depleted. At current rates, there will not be any commercially viable stocks of fish by 2050.

• Around 85% of agricultural land has been degraded due to unsustainable agricultural practices. Every year, 12 million hectares of land are lost to desertification.

• Overall, two-thirds of the world’s water and land ecosystems are now degraded significantly. The collective cost to the global economy of mismanaging natural capital is US$6.6 trillion per year (11% of GDP) and is expected to increase to US$28 trillion in 2050 at current rates.

• The world’s 3000 largest publicly listed companies are estimated to have caused US$2.15 trillion in environmental damage in 2008, in a report prepared by Trucost for UN Principles for Responsible Investment (UNPRI)/UNEP.

• Natural capital valuation can help create support for new tools and techniques to value natural capital for business decision-making.

• NCM, which is the business innovation to enable natural capital valuation, can mitigate and reduce the impacts on nature due to third party/public good externalities.

1.3. Natural Capital Management (NCM)

• The goal of NCM is to enhance business value for the company while ensuring preservation and renewal of natural capital. Natural capital valuation is the centerpiece of NCM because it provides the measurement that is vital to managing natural capital.

• In this report, NCM is treated as a business innovation that changes business processes, practices, systems, strategies, etc. It is therefore a major driver of organizational change.

• Comparable business innovations include Customer Relationship Management (CRM), where customers and service are the focus of organizational change; Total Quality Management (TQM), where manufacturing quality and operations are the focus; and Supply Chain Management (SCM), where suppliers and procurement are the focus.
1.4. *Firm Foundation for NCM*

- This study seeks to place NCM on a firm conceptual foundation by drawing from established fields such as diffusion of innovations, organizational change management, and biodiversity and ecosystems services (BES), in order to create a robust “theory of change”.

- The change model was derived from the experiences of at least forty companies that have taken the lead in implementing NCM, which grounds the model empirically in current practices.

1.5. *Key Questions*

The study addresses the following important questions:

1. How important are various natural resources and other ecosystems services to the business success of corporations? (*Section 2*)

2. What is an appropriate change model, or “theory of change”, to implement natural capital management in corporations? (*Section 3*)

3. What is a strategic action plan for implementing NCM and what are the macro-level and organizational barriers to implementing it? (*Section 4*)

4. What are the specific challenges associated with these barriers and how do they map to the strategic action plan for implementing NCM? (*Section 5*)

5. What are the operational activities that can address these challenges? (*Section 6*)

6. What kinds of companies and sectors are taking the lead in implementing NCM and what are the NC-related terms used by them? (*Section 7*)

7. How do the companies in this study compare with global sustainability leaders five years ago, when sustainable innovation was at a similar stage of its lifecycle? (*Section 8*)

*The change model was derived from the experiences of at least forty companies that have taken the lead in implementing NCM, which grounds the model empirically in current practices.*
1.6. Data Collection

1. The concepts associated with NCM were developed through a review of key publications in biodiversity and ecosystems services, as well as from theories of innovation diffusion and organizational change management.

2. The change model was developed through three meetings of executives at leading companies, including a side panel at a Business for Environment (B4E) 2012 conference in Berlin, a B4E workshop at the June 2012 Rio+20 conference, and a roundtable organized by the Corporate Eco Forum (CEF) in Sept 2012, followed by detailed interviews with executives at two leading companies that had implemented NCM. Altogether, over 24 companies were involved in all these meetings.

3. The change model was tested and validated through an extensive questionnaire administered to their member companies by leading organizations in the TEEB for Business Coalition. These organizations included the World Business Council for Sustainable Development (WBCSD), the Global Reporting Initiative (GRI), the Cambridge Program for Sustainable Leadership (CPSL), and CEF.

4. Altogether, 26 companies responded to the survey. This is a reasonable sample size for testing the change model, given the prominence of the responding companies and the early stage of diffusion of natural capital management in business.

5. In total, over 40 companies were involved in the data collection process, including interviews, group meetings, and surveys.
2.1. *Ecosystems Services – All Sectors*

At the core of NCM is the sustainable use of natural resources and other ecosystems services. In this study, we focus particularly on *provisioning and regulating* services, which are the most important of biodiversity and ecosystems services provided by nature.

The list of provisioning and regulating services used in the study is from *The Economics of Ecosystems and Biodiversity in Business and Enterprise*, 2010 (Editor: Joshua Bishop, Publisher: Earthscan from Routledge). Metals and minerals, and renewable energy resources, were added to this list.

Respondents were asked to indicate how critical each ecosystems service was to the *business success* of their corporation, both now and in 3-5 years.

While the importance of ecosystems services depends on the industry sector, an aggregate response across industries can show which services are likely to grow in importance *as a whole* for business.

The results of the study are shown below:
Takeaways

- In the aggregate, *freshwater and renewable energy* are going to become the most important to business as a whole, 3-5 years from now. They will be between high and mission-critical importance.

- Food, fiber, climate regulation services, soil-related services, and hazards protection services will also approach high importance for business success, with fiber becoming the most important across industries in this group.

- Pollination services are expected to be the least important among all the ecosystems services, given their specialized role and application.

### 2.2. Ecosystems Services – Food & Agribusiness

The relative importance of ecosystems services now and in 3-5 years depends on the industry sector. Food & agribusiness was the largest group in this study, comprising 20% of the respondents. Its results were:
Takeaways

- Freshwater, food and soil-related services such as soil formation and stabilization will get close to mission critical in 3-5 years.

- *Freshwater showed the largest increase in importance when it came to business criticality in 3-5 years.* Its importance rose rapidly from moderate-high to nearly mission critical in 3-5 years.

- Biochemical/medicinal services had the least importance now and in 3-5 years. This may be due to their limited role and application to this sector, unlike pharmaceuticals where they are very important.

- Interestingly, pollination services did not rate highly, which seems counterintuitive, given their importance to agriculture. This is because the respondent sample consisted of large mechanized businesses. Smallholder farmers are much more dependent on pollination services than the large industrialized farmers.

- The lower importance for renewable energy is also interesting. This may be because the food and agribusiness companies in this survey are still very dependent on energy from conventional power sources.
Organizational Change Model for NCM
3.1. Organizational Change Model

An organizational change model describes the organizational barriers and specific challenges to implementing behavioral change, a strategic action plan for addressing these barriers and challenges, and operational activities within each stage of the action plan.

The organizational change model for implementing NCM is summarized below:

- There are four key organizational barriers to NCM: relevance, measurement, priority, and integration.
- Each organizational barrier comprises a set of specific challenges that are interrelated.
- In addition, there are macro-level barriers that originate outside the company.
- The strategic action plan for addressing these barriers and challenges, called the REAL action plan, comprises four stages: recognition, evaluation, adoption, and leadership.
- Each stage of the strategic action plan includes operational activities that help overcome the challenges and barriers that dominate that stage.
3.2. Externalities

- At the heart of NCM is the realization that business activity has tremendous impacts on biodiversity and ecosystems services because of “externalities.”

- Externalities refer to the positive or negative consequences of an economic activity that are experienced by third parties.

- While ecosystems and biodiversity are the most important third parties that are affected by business, human beings and their activities and structures are also impacted.

- Lack of property rights to the services provided by nature compounds the problem. Ownership is an incentive to preserve natural capital.

- Externalities are compounded by the “public goods” character to biodiversity and many ecosystems services. Businesses often see services as a government responsibility in order for them to do business.

- The end result is that business activity has resulted in huge negative externalities that have eroded the natural capital from which biodiversity and ecosystems services are produced for business.

3.3. The Importance of Evaluation

- The central problem that NCM tries to solve is to make visible the value of ecosystems and biodiversity services for business, as well as the costs of business impacts on biodiversity and ecosystems.

- Because these values and costs are invisible to business decision makers, business dependencies and impacts on nature also become invisible.

- Due to this invisibility of nature, externalities are not factored into decision making. Similarly, dependencies also get little consideration.

- Evaluation of business impacts and dependencies is therefore the most important stage in implementing NCM, because it is central to management. What does not get evaluated cannot get managed.
• Evaluation includes methods for identifying dependencies and impacts, metrics to evaluate them in economic terms, corporate data against which the methods and the metrics can be used, and a detailed business case for justifying NCM-related investments.

3.4. Endogenous Change

It is important to recognize that the organizational change model developed here is endogenous, i.e., it relates to organizational changes in the company that are under the control of business leadership.

Clearly, endogenous change models, while important, are not sufficient to bring about natural capital valuation. Exogenous changes that are outside the company are also important. These are changes at the public policy level that are made by governments and international organizations. They also include changes brought about by other stakeholders such as customers, investors, the general public, and others.

Exogenous changes related to natural capital valuation are outside the scope of this study, but are discussed more fully in recent works such as Pavan Sukhdev’s Corporation 2020 (Island Press, 2012). An example of exogenous change is a regulation or standard that requires valuation of the impacts of a business on natural capital.

This study focuses on the organizational and behavioral drivers of endogenous changes because of the dearth of information in this area. The few studies that consider endogenous changes within a company do so in a prescriptive/normative way, rather than base it on the actual experience of companies in implementing organizational change.

This study is among the first to develop a descriptive theory of change that is based on the actual experiences of companies in implementing natural capital management in their business.
Implementation Barriers and Strategic Action Plan
For a change model to be useful, it needs to identify the major barriers in implementing NCM, as well as a strategic action plan to overcome these barriers.

### 4.1. Barriers to Change

We distinguish between barriers to change that are largely outside the control of corporations, i.e., macro-level barriers, and organizational barriers that are largely within the control of the corporation.

#### 4.1.1. Macro-Level Barriers

Macro-level barriers relate to a lack of the following regarding NCM. Ways to overcome these barriers are examples of the exogenous changes that are outside the scope of this report:

- **Government regulations**: Refers to regulations at international, national or regional levels that require companies to pursue NCM-related practices or outcomes.
- **Customer pressure**: Refers to demand by customers that the company pursue NCM-related practices or outcomes.
- **Competitive pressure**: Refers to competitive actions that put pressure on the company to pursue NCM-related practices or outcomes.
- **Investor pressure**: Refers to investor actions that put pressure on the company to pursue NCM-related practices or outcomes.
- **Societal pressure**: Refers to societal pressure perceived by the company to pursue NCM-related practices or outcomes.

#### 4.1.2. Organizational Barriers

An organizational barrier is a set of similar challenges that is present within the company and affects the success of the strategic action plan for NCM. Overcoming this barrier is an example of endogenous change that is the focus of this report.

The barrier-based approach is based on theories of diffusion of innovations and change management, where progress in implementing
business innovations requires overcoming critical barriers for different kinds of organizational change. These barriers include:

- **Relevance Barrier:** This barrier exists when the business relevance of NCM to the company is not clear. While NCM may be understood to benefit nature, humanity, and business in general, its business value to the company may not be clear even at a conceptual level. The relevance barrier is about why NCM needs to be implemented in the company.

- **Measurement Barrier:** This barrier exists when there is a lack of data about implementing NCM at the operational level in the company, i.e., operational data on natural capital valuation, economic measurement metrics, and the detailed approach for building the business case. The measurement barrier is about what data and operational methods to use (and how to use them) to implement NCM-related changes.

- **Priority Barrier:** This barrier exists when the company finds it difficult to prioritize NCM initiatives over other business efforts. It can occur if the NCM opportunities are not immediate or exciting, if a prioritized plan to implement NCM isn’t available, or if the culture does not emphasize NCM. The priority barrier is about when to implement NCM-related changes.

- **Integration Barrier:** This barrier exists when the company finds it difficult to integrate NCM efforts into the business context where it has to be used. This includes integrating with existing strategies, systems, and people in the business. The integration barrier is about how to sustain NCM-related changes to the business.

### 4.2. The REAL Action Plan

A strategic action plan for NCM, which we call the REAL action plan, identifies the high-level changes in organizational behavior that a company goes through to implement NCM. As a result, it provides a change model for leaders to follow.

The strategic action plan was drawn from the extensive research on the diffusion of innovations and revised through discussions with twenty-four companies, as described earlier. These changes (or stages) in organizational behavior are:

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1 A prominent example of this approach is the chasm-based model of business success described by Geoffrey Moore in *Crossing the Chasm* (HarperCollins, 1992) and *Inside the Tornado* (HarperCollins, 1995).
• **Recognition**: Create recognition in the company that managing natural capital could have major business benefits

• **Evaluation**: Evaluate and get a better understanding of what natural capital means to the company

• **Adoption**: Adopt natural capital in the company by implementing projects and policies related to it, and

• **Leadership**: Enable the company to lead on natural capital by making it an integral part of the business.

The validation of the strategic action plan was done through a detailed survey of 26 companies as described earlier. A specific question asked about the expected time it would take for the company to implement each of the stages in the action plan.

The results of the survey are given below:

On average across all companies, the recognition stage is likely to be implemented within the next 1.3 years, evaluation within the next 1.5 years, adoption within the next 2 years, and leadership within the next 3 years.

**Takeaways**

- On average across all companies, the recognition stage is likely to be implemented within the next 1.3 years, evaluation within the next 1.5 years, adoption within the next 2 years, and leadership within the next 3 years.

- These timelines for corporate change are likely to be very optimistic. For example, many Global 500 sustainability leaders who first recognized the importance of sustainable innovations five years ago are even now only at the adoption stage.
4.3. Approaches to Implementation

Importantly, the stages need not be implemented in strict sequence. In fact, companies can pursue these stages simultaneously, or wait until a future date when they want to implement NCM.

The approaches used to implement the strategic action plan are summarized below:

<table>
<thead>
<tr>
<th>Approach</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staged</td>
<td>58%</td>
</tr>
<tr>
<td>&quot;Full Court Press&quot;</td>
<td>33%</td>
</tr>
<tr>
<td>&quot;Wait-and-See&quot;</td>
<td>9%</td>
</tr>
</tbody>
</table>

**Takeaways**

- 58% of the companies are pursuing a sequential “staged” strategy of implementing the strategic action plan, where recognition is typically the first stage and leadership is the last stage. This may be because of a motivation to implement NCM carefully and systematically.

- This suggests that the stages may generally be considered to be sequentially implemented over time, which validates the change model based on diffusion of innovations over time.

- However, one-third of the companies are pursuing a strategy of “full court press”, where all the stages are being tackled simultaneously. This may be because of a sense of urgency around NCM.

- A few companies (9%) are taking a “wait-and-see” approach where they stay informed about NCM currently but expect to begin serious implementation only in the medium-term future.

- Whether the strategic action plan is implemented now (in sequence or simultaneously) or down the road, it nevertheless identifies a powerful way to understand how change can happen around NCM in organizations.
4.4. Strategic Action Plan and Macro-Level Barriers

How do the stages in the strategic action plan correspond to the macro-level barriers described earlier? To understand this relationship, respondents were asked to identify the specific stage in the strategic action plan whose success most depended on overcoming each macro-level barrier.¹ The results were:

![Macro-Level Barriers vs. Strategic Action Plan]

**Takeaways**

- Lack of customer pressure regarding natural capital is the biggest macro-level barrier at the recognition stage of NCM implementation. It is bigger than all other macro-level barriers at this stage and more important here than at any other stage.

- Lack of industry standards, competitive pressure, and government regulations regarding natural capital are the biggest macro-level barriers to succeeding in adoption, where they are more important than at any other stage. This makes sense, since the large investments called for by adoption can take place in a business climate of greater certainty that standards and regulations create.

¹ For each barrier, the total percentage of firms across all stages exceeds 100% because the respondent could select more than one stage if necessary.
• Lack of pressure from investors regarding natural capital is the most important macro-level barrier to the success of the leadership stage. Lack of societal pressure regarding natural capital is also most important at this stage.

• Overall, the absence of industry standards regarding natural capital is not a major barrier to the early stages (recognition, evaluation) of NCM implementation. This means that standards can take another 2-4 years to be developed, before large-scale adoption of NCM is expected to occur in the industry. The same is true of government regulations and competitive pressure.

• Overall, for the NCM implementation process to get going, what matters most is pressure from customers to adopt NCM.

4.5. Strategic Action Plan and Organizational Barriers

What about organizational barriers? While each such barrier may be expected to affect the success of every stage of the strategic action plan, one can expect that these effects vary by stage. These differential effects were identified as given below:

• To identify which organizational barrier affects the success of which stage the most, the study identified the set of challenges comprising each barrier.

• Respondents were asked to identify the stage in the strategic action plan whose success was most affected by each challenge comprising the barrier. More than one stage could be chosen, if necessary.

• The extent to which a stage depended for its success on a specific challenge was given by the percentage of companies that identified the stage as being most affected success-wise by that particular challenge.

• The percentage score for the organizational barrier for a particular stage was then given by the average of the percentages for all the challenges comprising the barrier for that stage.

The organizational barriers vs. stages of the strategic action plan are given below:
Section 4: Implementation Barriers and Strategic Action Plan

Takeaways

- The relevance barrier affects the success of the recognition stage more than any other stage. Business leaders first need to conceptually understand the relevance of NCM to their particular business to recognize it as important. In other words, the recognition stage most depends for its success on adequately answering the “Why is NCM relevant for us?” question.

- The measurement barrier affects the success of the evaluation stage the most, in a way that is very distinctive. 60% of companies identify it as most important to the evaluation stage -- more than any other effect. *This makes sense since “What should I measure and how?” is at the heart of the NCM evaluation stage, which in turn is key to scaling up NCM in the enterprise.*

- The priority barrier most affects the adoption stage. An inability to prioritize NCM initiatives over other business initiatives is at the heart of the difficulties that companies have in adopting NCM. This makes sense since “When should I implement NCM projects and policies?” is the question that most needs to be addressed in the adoption stage.

- The integration barrier most affects the leadership stage. Difficulty in integrating NCM with the strategies, processes, and systems of the company results in NCM not being built into the business. This makes sense since “How can I integrate NCM into my business?” is at the core of NCM leadership.

- Every barrier has at least 20%-60% of the companies identifying it as most important to any stage. This means that addressing every barrier is important, but its level of importance depends on the implementation stage.
Strategic Action Plan and Specific Challenges
We can also see how the specific challenges within each organizational barrier map to the stages of the strategic action plan. To do so, the respondent was asked to indicate the stage of the strategic action plan whose success most depended on overcoming the particular challenge.  

5.1. Relevance Barrier: Challenges

Takeaways

- Difficulty in getting senior management to understand what natural capital means to the company impacts the success of the recognition stage more than any other stage.

- Personal relevance to the CEO, i.e., in getting his/her personal commitment to sustainability, is another key challenge at the recognition stage, which continues into the later stages of adoption and leadership.

- Demonstrating natural capital’s business value at a conceptual level is a key challenge at both the recognition and the evaluation stage.

- Overall, the relevance barrier is primarily one of tailored meaning, i.e., what does natural capital mean specifically to the company and the individual?

1 For each challenge, the total percentage of firms across all stages exceeds 100% because the respondent could select more than one stage if necessary.
5.2. Measurement Barrier: Challenges

Takeaways

- The challenge of having metrics to measure NC-related economic costs and benefits is distinctively critical to the evaluation stage, according to 75% of respondents.

- Similarly, the absence of corporate data for NC-related methods and metrics is the second most important challenge at the evaluation stage. It is more important at this stage than at any other stage.

- The challenge of not having a standard approach to creating a detailed business case is also most felt at the evaluation stage. It is less needed at the recognition stage, where conceptual understanding trumps details.

- The lack of clear methods to implement NC-related initiatives most impacts the success of both evaluation and adoption, where they are most needed.

- Overall, economic metrics, data, business case templates, and methods matter most at the evaluation stage.

The challenge of having metrics to measure NC-related economic costs and benefits is distinctively critical to the evaluation stage, according to 75% of respondents.

The lack of clear methods to implement NC-related initiatives most impacts the success of both evaluation and adoption, where they are most needed.
5.3. Priority Barrier: Challenges

Takeaways

- The challenge that impacts the success of the adoption stage more than any other is the lack of business unit leaders willing to champion natural capital. It is only when BUs get involved in implementing NCM that the top-down efforts of the recognition and evaluation stages take root throughout the company.

- One reason why this happens is the lack of immediate NC-related business opportunities, which affects adoption more than any other stage.

- Another key reason is the absence of a prioritized plan for implementing natural capital, which affects the adoption stage more than any other stage.

- Priorities for NC-related initiatives can get enhanced if there is an enterprise-wide culture than emphasizes natural capital. Such a culture has its biggest impact at this adoption stage, where NC-related projects and policies get adopted.

- Overall, at the adoption stage, it mostly comes down to business unit priority, since there are many other immediate business opportunities for BU leaders to pursue.

The challenge that impacts the success of the adoption stage more than any other is the lack of business unit leaders willing to champion natural capital.

Overall, at the adoption stage, it mostly comes down to business unit priority, since there are many other immediate business opportunities for BU leaders to pursue.
5.4. Integration Barrier: Challenges

**Takeaways**

- The specific challenge that impacts the success of the leadership stage more than any other challenge or stage is the lack of enterprise-wide processes to integrate natural capital into the business. These integration processes help scale natural capital by building it into the business.

- Integrating natural capital into the business is more likely if the vision and strategy for natural capital is aligned with the business. This is a challenge that is primarily felt at the leadership stage and secondarily at the recognition stage.

- A challenge that is equally important at the leadership and adoption stages is that of creating employee incentives and performance systems around natural capital. Where such systems exist, natural capital gets integrated into the business.

- Overall, the three challenges above of processes, strategies, and systems all illustrate one overarching need at the leadership stage: **integrating natural capital into the business**.

![Integration Barrier - Specific Challenges](image)

**Challenges:**
- Lack of a NC vision and strategy that is aligned with the business
- Lack of employee incentives and performance systems around NC
- Lack of enterprise-wide processes to integrate NC into the business

**A challenge that is equally important at the leadership and adoption stage is that of creating employee incentives and performance systems around natural capital.**
Operational Action Plan to Address Barriers
What are the ways in which companies can overcome the barriers to implementing the strategic action plan? These are given by the specific activities that can be performed in each stage of the strategic action plan and the organizational level at which they can be performed. The specific activities and their implementation level give the operational action plan for implementing NCM in companies.

6.1. Recognition Activities

The recognition stage activities are mainly about changes in management abilities related to NCM. These are primarily changes in mindsets among the CEO, senior and middle management.

The five kinds of management abilities that need to be promoted in order to enable recognition and overcome the relevance barrier are given above. For each such ability, the percentage of respondents who found it prevalent at each leadership level is shown above.

1 For each activity, the total percentage of firms performing the activity across all organizational levels exceeds 100% because the respondent could select more than one level of implementation for the activity.
Takeaways

- The CEO was the business leader most commonly associated with every one of the abilities needed for recognizing NCM as important to the company.

- The chart shows clearly that NCM is primarily a top-down business innovation in the company, with the CEO and most senior management typically the drivers in recognizing its importance.

- The relevance barrier is most overcome (75% frequency) when the CEO is able to take a long-term business view that includes natural capital.

- Among the five management abilities, willingness to take business risks regarding NCM is the least likely to be present at every leadership level.

- The benefit of a top-down business innovation is that the company will take it more seriously. The risk is that its success depends on the tenure and ongoing commitment of the particular CEO, which is subject to change.

- To overcome the relevance barrier, efforts should focus on helping the CEO acquire management abilities in natural capital. These range from enabling a long-term business view where NCM has a role, to a willingness to take business risks regarding it.

6.2. Evaluation Activities

The goal of evaluation is to get a better understanding of what the business innovation means for the company before making significant investments, thereby reducing its business risks and increasing the business opportunities from it.

The six key evaluation activities as well as the organizational levels of implementation, shown in the chart below, were identified from “The Economics of Ecosystems and Biodiversity in Business and Enterprise, 2010” report by TEEB that was referenced earlier.

Respondents were asked to identify the level in the organization where each evaluation activity had been implemented. Level of implementation could be at one or more (or none) of the following organizational levels: Site/Property, Business Unit (BU), Enterprise, Supply Chain, Demand Chain.
Takeaways

- For five of the six evaluation activities, the most common level at which they were implemented was the enterprise level. For the 6th activity (setting objectives and targets) the enterprise and BU levels shared the top spot.

- The above result suggests that NCM evaluation is typically a top-down implementation effort. This is consistent with the top-down recognition of it.

- Enterprise-level implementation is most likely (71%) in reporting externally, which is consistent with sustainability reporting.

6.3. Adoption Activities

The goal of the adoption stage is to implement projects and policies that leverage NCM in order to pursue business strategies that provide business value to the company.
The six business strategies used in this study were derived from the CEF’s 2012 report, *Valuing Natural Capital: The New Business Imperative*, which is based on the natural capital initiatives of 25 leading companies that are members of CEF.

As before, the organizational level at which these projects and policies were implemented are derived from the “The Economics of Ecosystems and Biodiversity in Business and Enterprise, 2010” report by TEEB.

### 6.3.1. NCM-Related Projects

The most visible way in which companies adopt NCM is by implementing projects and other initiatives related to it. These projects achieve one or more business strategies aimed at stabilizing operations, addressing regulations, improving reputation, reducing costs, or growing revenue.

**Projects-Related Takeaways**

- Companies take a variety of approaches to adopting NCM-related projects, depending on the kinds of business strategies and benefits targeted.
- NCM-related projects targeting stability of business operations/business continuity are implemented most often at the site or

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The goal of the adoption stage is to implement projects and policies that leverage NCM in order to pursue business strategies that provide business value to the company.
property level.

- NCM-related projects targeting compliance with government regulations, reducing costs and waste, and corporate or brand reputation are implemented most often at the enterprise level.

- NCM-related projects targeting revenue *growth in existing markets* are implemented most often at the business unit level. NCM-related projects targeting revenue growth through new markets are much less common. When implemented, they are typically at the enterprise or business unit level.

### 6.3.2. NCM-Related Policies

A more long-lasting way to adopt NCM is through NCM-related business policies that guide how work is performed. Just like projects, these policies can be used to promote a variety of business strategies. Policies are an important way to embed NCM adoption in the enterprise.

#### Policies-Related Takeaways

- While NCM-related *projects* aimed at stability of business operations are mostly implemented at the site/property level, their policies and procedures are mostly implemented at the business unit or enterprise level.
The policies for keeping up with NCM-related government regulations are mostly implemented at the business unit, rather than the enterprise level.

The policies for NCM-based cost and waste reduction are mostly implemented at either the site/property or enterprise level.

The policies for NCM-based revenue growth strategies for existing or new markets are mainly implemented at the business unit or enterprise level.

**Adoption Stage- Overall Takeaways**

- The key takeaway for the adoption stage is that *business units become a lot more important during this stage*. NCM-related business innovations, which until now have been pushed top-down by the CEO at the enterprise level, now need to cross the barrier of business unit adoption.

- Industry experience with corporate sustainability suggests that sustainable innovations in general are currently at the adoption stage of implementation in most G500/F1000 companies.

- In general, sustainability seems to have reached a plateau where further growth requires *acceleration in the adoption of sustainable innovations by the business units*.

- A similar challenge can be expected of NCM-related innovations, once they have crossed the recognition and evaluation barriers at the enterprise level.

**6.4. Leadership Activities**

At the leadership stage of natural capital management, NCM-related factors become explicitly incorporated into seven core business policies and processes, i.e., strategic planning, capital investment decision-making, work-unit planning, supply chain management, management information systems, performance evaluation and compensation systems, and employee engagement.

The findings from the survey regarding these aspects are shown below:
Companies are most likely to build NCM-related factors into five key business policies and processes at the enterprise level: business strategies and planning, management information systems, employee engagement programs, capital investment decision making, and supply chain management.

Companies have made least progress in building NCM-related factors into their performance evaluation and compensation systems.

**Takeaways**

- Companies are most likely to build NCM-related factors into five key business policies and processes at the enterprise level: business strategies and planning, management information systems, employee engagement programs, capital investment decision-making, and supply chain management.

- NCM-related factors are typically most explicitly incorporated into work unit planning and monitoring at both the business unit and enterprise level.

- Companies have made least progress in building NCM-related factors into their performance evaluation and compensation systems. *This is probably the most important test of business leadership.*

- NCM leadership is an enterprise level implementation because NCM-related factors get incorporated into the business as a whole.
Demographics
7.1. Demographics by Size

26 companies completed the survey adequately. Their distribution by 2011 annual revenues is shown below:

The most common respondents (32%) had 2011 revenues of US$10-20 Billion, while 20% of the sample were very large companies with US$50 Billion+ in annual revenues.

Takeaways:

- The respondents included a broad mix of companies, with over 75% from companies larger than US$1 Billion in annual revenues.

- The most common respondents (32%) had 2011 revenues of US$10-20 Billion, while 20% of the sample were very large companies with US$50 Billion+ in annual revenues.

7.2. Demographics by Industry Sector

Takeaways:

- The respondents ranged across nine industry sectors, with the largest (20%) coming from the Food and Agribusiness sector, followed by Chemicals (16%) and Financial & Professional Services (16%).

- The variety of sectors ensures that the study's findings can be generalized across industries.

The respondents ranged across nine industry sectors, with the largest (20%) coming from the Food and Agribusiness sector, followed by Chemicals (16%) and Financial & Professional Services (16%).
7.3. Choice of Terms

Respondents were asked about the terms that they used within the company to describe the dependencies and impacts of business on nature.

**BES vs. Natural Capital**

- **Biodiversity & Ecosystems Services**: 33%
- **Natural Capital**: 17%
- **Both Terms**: 33%
- **Others**: 17%

**Takeaways:**

- While the older term “biodiversity and ecosystems services (BES)” is more popular (33%) than the newer term “natural capital” (17%), another 33% of respondents used both terms in their company.

- Given the rise in popularity of the newer term “natural capital” among businesses, we used the term *natural capital management throughout this report*.

- For managers uncomfortable with the term “natural capital management”, the term “BES Management” can readily be substituted without any loss of meaning.

*While the older term “biodiversity and ecosystems services (BES)” is more popular (33%) than the newer term “natural capital” (17%), another 33% of respondents used both terms in their company.*
7.4. Relationship to Sustainability

The respondents were also asked whether natural capital/BES was treated as a specific context in itself, or thought of as the same as sustainability within their company. The responses are summarized below:

Slightly more companies (42%) treat the concept of NC/BES the same as sustainability versus those that treat them separately (37%). This may be due to the fact that NC/BES is still very much an emerging concept in business.

Among the other (21%) category, the concept of “Environmental Profit & Loss (EP&L)” was the most prominent.

In this study, we treat natural capital management as a specific and distinctive concept within the broader field of sustainability, recognizing that it can be used interchangeably with BES management.

Takeaways:
Sustainable Innovation

Section 8
8.1. Business Drivers of Sustainable Innovation

Since natural capital management is an integral part of sustainability, the study also evaluated the abilities of responding companies to execute on the business drivers of sustainability-driven innovations.

The comparison sample for the study was a separate study conducted in 2008 by InnovaStrat on the abilities of thirty Global 500 sustainability leaders (different from the companies in this study) to execute on these same drivers of sustainable innovation.

The results of these two studies are summarized below:

Takeaways

- The companies in the current 2013 study had a greater self-reported ability to execute on the business drivers of sustainable innovation when compared to the self-reported abilities of the 2008 leaders.

- This is likely due to the much greater industry experience with how to implement sustainable innovations during these past five years.

- The companies in this 2013 study are most improved at implementing a company-wide process for justifying investments, and a company-wide measurement system for tracking sustainable innovations.

- This increase may be because of the greater industry experience in justifying and measuring sustainability costs and benefits since 2008. All other drivers are more qualitative, where industry best practices are less tangible.

8.2. Types of Sustainable Innovations

The 2008 study identified five different types of sustainable innovations that improved business performance. This 2013 study compared the self-reported ability of companies to execute on these innovations vs. the 2008 leaders.

The companies in the current 2013 study had a greater self-reported ability to execute on the business drivers of sustainable innovation when compared to the self-reported abilities of the 2008 leaders.
Takeaways

• The 2013 firms had about the same ability to implement innovations that ensured sustainability compliance and risk mitigation as the 2008 leaders.

• This may be because the 2008 firms already had high abilities, or because compliance and risk mitigation has not got any easier in the past 5 years.

• The biggest improvement occurred in making existing offerings more sustainability-friendly. This may be because of the increased market interest in sustainable offerings and the cumulative corporate experience in this area in the past 5 years.

• As expected, sustainable innovations that radically change business and industry dynamics (typically, business model innovations) continue to be the most difficult to implement. They are far more rare and elusive than others.

The biggest improvement occurred in making existing offerings more sustainability-friendly. This may be because of the increased market interest in sustainable offerings and the cumulative corporate experience in this area in the past 5 years.