



GARRISON INSTITUTE REPORT

Real Estate Leadership in the Age of Climate Change

**A Symposium of the Garrison Institute's
Initiative on Transformational Ecology**

August, 2009

REAL ESTATE LEADERSHIP IN THE AGE OF CLIMATE CHANGE

A SYMPOSIUM OF THE GARRISON INSTITUTE'S INITIATIVE ON TRANSFORMATIONAL ECOLOGY

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EXECUTIVE SUMMARY

Buildings are responsible for 42% of U.S. greenhouse gas emissions, so real estate is a key sector through which to address climate change. In May 2009, the Garrison Institute held a three-day retreat for a group of thirty leaders of large and small companies in the real estate sector, leaders of not-for-profit community-based real estate organizations and rising young leaders, to discuss the real estate sector's response to climate change. Made possible with support from the Surdna Foundation, the goal of the retreat was to help participants transform the way their organizations function, moving away from business as usual and towards a green paradigm that would reduce their firms' climate impacts.

Dr. Radley Horton of Columbia University kicked off the proceedings with a presentation of research on the stunning impact that climate change is likely to have on the built environment. The retreat was facilitated by Professor Rebecca Henderson, formerly of the Sloan School of Management at MIT, now at Harvard Business School, who broached a key problem faced by many leaders in the field: being overwhelmed with too much information, too many choices, and too many priorities. Her research has shown how as a consequence of this, one becomes "stuck." Therefore one of the key objectives of the retreat was to help the participants identify what really matters, set priorities, and create some space in which to move forward.

A steering committee of leaders in the for-profit and not-for-profit fields, who helped design the retreat, also served as its faculty. Ken Hubbard, the EVP of Hines Corporation, a global real estate company, discussed how the company set internal goals to deal with climate change. Bart Harvey, recently CEO of Enterprise, a national not for profit working to create affordable housing, told the story of how Enterprise transformed itself, and then changed the affordable housing industry with its *Green Communities* program. Jonathan F. P. Rose presented the principles by which his green development company is structured. Bob Fox, architect of the Bank of America Building, perhaps the nation's greenest office building, described how a retreat process helped bring the project's many participants together around green goals. Finally, John McIlwain, a senior fellow of the Urban Land Institute, discussed how contemplative practices could enhance one's strategic ability.

These presentations were followed by individual and group contemplative exercises which helped the participants engage the ideas presented more deeply. They then worked to develop new strategies and personal climate action plans. The plans were grounded in reality, acknowledging the current state of financial markets, and what's involved in trying to lead organizational change in a time of decreased resources and increased uncertainty.

Participants were highly enthusiastic about the retreat. Many expressed how valuable it was to take the time to step back and reflect on critical issues, particularly in a challenging time. Others noted the power of cross-pollination of ideas that took place between for-profit and not-for-profit organizations, and between younger and more experienced leaders. In the wake of the retreat, many report ongoing mentoring and networking with others they met at the retreat.

To support this emerging network, the participants asked the Garrison Institute to provide an ongoing framework and communication system, including a private website, which we've launched, and quarterly gatherings for a meal in New York City, which we look forward to.

ABOUT THE GARRISON INSTITUTE

Founded in 2003, the Garrison Institute is a non-profit, non-sectarian organization exploring the intersection of contemplation and engaged action in the world.

Our mission is to apply the transformative power of contemplation to today's pressing social and environmental problems, helping build a more compassionate, resilient future.

We envision a future in which contemplative methods are widely used to cultivate insight, caring, ethical behavior and courage in individuals, contributing to much-needed value shifts and positive changes in society.

Real Estate Leadership in the Age of Climate Change Program Agenda

Purpose:

The purpose of this retreat is to bring together established real estate industry leaders, leaders of community-based real estate organizations, and young leaders from the industry to provide them with the framework and tools needed to adapt their organizations to a world affected by climate change. Many leaders want to “go green” but are still unsure of how to complete this transformation practically and viably in light of the uncertain economy, globalization and population changes.

Questions Addressed:

The retreat is intended to deepen thinking and develop solutions to the following types of questions:

- What is required to transform my whole organization?
- How do I provide the necessary leadership?”
- What are strategies for greening a company and its buildings in ways that reduce risk and enhance the company’s economics?
- How can greening existing buildings become a successful business strategy?
- How do we do our part both to reduce our contribution to global climate change and respond to the likely localized impacts of it, such as sea level rise, warmer temperatures, and more severe weather events?
- How does the current world financial crisis affect the search for solutions?
- How does one translate what one knows as a leader to all of one’s departments to ensure this transformation? While many leaders want their companies to think and act differently, their senior managers often want to continue business as usual because that is what they know best.
- How does one set goals and measure progress?
- What are models of success that we can learn from?

Many have wrestled with these questions. No one has all the answers, but this retreat will offer the wise guidance and lessons learned by many who have successfully engaged with these and other issues and created successful solutions.

Real Estate Leadership in the Age of Climate Change

May 27-29, 2009

Wednesday, May 27th

- 5:00 - 5.30pm Optional Meditation Class (*Meditation Hall annex*)
- 6:00 - 7:00pm Wine and Cheese reception, welcome and introductions (*Dining Hall*).
- 7:00 - 8:00pm Dinner
- 8:00 - 9:00pm Laying the groundwork: Climate scientist Dr. Radley Horton, will describe the current state of the world's climate and the scope of the response that is needed. (*Auditorium*)
- 9:00 - 10:00pm Prof. Rebecca Henderson will then lead a discussion on the theme of executive overload and organizational change.

Thursday, May 28th

- 7:00 - 7.30am Early morning yoga (*Heritage Room*), meditation (*Meditation Hall Annex*), or hike (*Meet in Main Foyer*)
- 7:30 - 8:30am Breakfast

Morning: Hearing the Call

- 8:30 - 9:15am Introduction: Jim Chaffin will walk us through his experience in achieving the shared values necessary to respond to climate imperatives.
- 9:15 - 10:15am Group discussion: "Why are you personally called to the challenge of transforming your leadership role and in turn your own organization in the context of the climate change challenge?"
- 10:15 - 10:30am Break
- 10:30 - 11:30am Examples of successful change, including Bob Fox and the Bank of America Tower.
- 11:30 - 12:30pm Visioning exercise: If your organization could respond completely to climate change, what would the organization look and feel like?
- 12:30 - 1:30pm Lunch

1:30 - 2:00pm Break: Optional meditation class (*Meditation Hall Annex*)

Afternoon: Finding the response to the call

2:00 - 3:00pm Group discussion of barriers to realizing your vision.

3:00 - 3:30pm Walk and talk: take a walk outside with a fellow participant and discuss the keys to changing your organization.

3.30 - 4.00pm Break

4:00 - 5:30pm Exercise – in small groups (perhaps separated between non-profits and for-profits) discuss potential pathways for change to greening your own organization and your local market.

6:00 - 7:00pm Dinner

7:15 - 8:00pm Changing an organization to change the system: Bart Harvey will tell the story of the greening of Enterprise and the greening of the affordable Housing Industry.

Optional Night-time Journal exercise: Summarize your thoughts on the day’s discussions and what you would like to do to green you own organization.

Friday, May 29th

7:00 - 7:30am Early morning yoga, meditation, or hike

7:30 - 8:30am Breakfast

8:30 - 9:00am Break

9:00 - 9:30am “What is the framework of an organization climate change plan?”
Discuss the elements (led by Ken Hubbard) Compare tactics vs. a comprehensive strategy

9:30 - 10:30am Group discussion of the issues that emerged in small g
group exercise and journaling from day before.

10:30 - 10:45am Break

10:45 - 11:45am Development of a personal action plan.

11:45 - 12:30pm Wrap up

12:30 - 2:00pm Lunch

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Mr. Kenneth Hubbard - Introduction

Mr. Hubbard has lead Hines' Inc.'s East Coast expansion and has been a driving force in developing the firm's climate policy. He is a trustee of the Urban Land Institute, and co- chair of its Committee on Land Use, Energy and the Environment (see appendix for bio).

Climate change is a large environmental problem that will affect multiple aspects of the development business. Mr. Hubbard advocated for a pragmatic approach, addressing climate change as a business proposition. Industry leaders should address the problem in both a bottom-up and top-down manner. Being perceived as a leader in climate change can be an asset. Some organizations such as Jonathan Rose Companies address climate change first through the use of criteria such as site selection, as there is a clear connection between the location of a building and its climate impact, with buildings in denser, walkable, and more transit served locations having a lower transit impact (for more information, see the "Growing Cooler" report at www.uli.org). In contrast Hines, Inc. is practice oriented, integrating sustainability into all new projects without regard to location.

In order to address the challenge of global warming, Hines Inc. created an internal working group. Their initial concept was to create a prototypical green building as a model for their future developments; however, due to the diversity of the firm's work, the working group abandoned this effort and instead, moved towards developing environmental best practices for the firm. These best practices assisted in creating an internal reorientation of the company that integrated positive change in its underlying business model while addressing the need for energy efficiency and environmental sustainability. For example, Hines shifted its focus to include a greater emphasis on redevelopment, rather than new development, which has proven to be both environmentally beneficial and more appropriate in the current financial environment.

Dr. Radley Horton – Laying the Groundwork

Dr. Horton is a climatologist for the Center for Climate Systems Research at Columbia University. He conducted his graduate work at NASA's Goddard Institute for Space Studies and Columbia University in New York. His Ph.D. research focused on regional impacts of climate variability and climate change as simulated by Global Climate Models. He has authored peer-reviewed publications on topics including polar climate, adaptation to climate change, and high-latitude climate variability and change. His current research covers the science of climate change and variability, as well as impacts on societies and ecosystems. At the Center for Climate Systems Research, Dr. Horton helps conduct regional climate change scenario assessments for stakeholders around the globe.

Even in the best-case scenario, climate change is going to have a significant impact on the real estate industry. In order to strategically address these changes we must

understand the potential threat and the roles of adaptation and mitigation. Key information about the effects of climate change and its impacts on the real estate industry includes:

1. Current climate projects all project an increase in temperature, but there is a high degree of variability in these projections. – North American temperatures are likely to increase by between 3 and 7 degrees fahrenheit by 2100. Due to a delay in warming, the severity of future warming depends on our present actions. The longer we delay significant reduction of greenhouse gas (GHG) emissions, the more likely temperatures will be higher.
2. It is much more difficult to predict changes in global precipitation than changes in global temperature. In sub-tropical and tropical zones, decreased precipitation will occur in conjunction with increased evaporation due to warming. The resulting water scarcity is one of the biggest concerns of climate change; it most deeply affects some of the earth's poorest peoples.
3. Sea-level rise due to ice melt in the polar regions will impact coastal regions where many of our large population centers are located. Technological limitations make it difficult to monitor and predict the extent of melting.
4. There will be an increase in extreme weather events at all latitudes in the form of heat waves, floods, droughts, fires and intensified seasonal storms. These events will have a significant impact on the insurance industry and in energy demand.

In addition to striving to reduce its output of GHG's, the real estate sector can address climate change through adaptation. Adaptation refers to the response strategies that increase a building's or community's reliance and capacity to adapt to the higher variability of climate changes described above. Adaptation strategies in real estate include:

- Build buildings that can withstand occasional flooding of bottom floor rather than building costly infrastructure to buffer buildings from storm surges. Avoid building in flood-prone areas
- Provide the ability for the building to naturally moderate temperature with windows that open and green roofs
- Design water-efficient buildings that incorporate rainwater collection and greywater systems for cooling
- Build compact, transit-oriented development, reducing embedded energy costs related to transportation

Dr. Rebecca Henderson – How to position your company for effective change

Dr. Henderson just completed her tenure as a professor at the Sloan School of the Massachusetts Institute of Technology and is about to begin a professorship at the Harvard Business School. Her research focuses on the difficulties that large organizations face when attempting to respond to major shifts in their environment (see appendix for bio).

There is a significant disconnect between the opportunities that companies could derive from addressing climate change and the obstacles that they perceive in changing their daily practices. A common obstacle to organizational change is the problem of professional overload. This problem is often derived from the fact that decision makers and staff are out-of-step with each other, not working in a unified way to set goals and to acknowledge limitations.

Overload leads to a less productive organization. It results in productivity crashes and decreased morale. Working in a state of constant overdrive reduces the likelihood of setting and achieving long-term strategic goals. Overload results in a focus on the end product, often at the expense of laying a firm foundation for projects during their early stages. This tendency to focus on the bottom line rather than on the evolution of a project creates increased errors and can lead to a pattern of triage rather than proactive problem solving.

Given the prevalence of overload within our organizations, it seems counterintuitive that we don't address this issue in a more systematic way. Professor Henderson identified two primary obstacles to addressing overload. The first is an error of attribution. It is common for individuals who express concerns to be seen as lazy or uncooperative, rather than that they are identifying valid issues that need to be solved. A second cause for lack of corrective action is that we have a hard time saying no to "good projects." Both non-profit and for-profit companies suffer from the desire to participate in projects that fall in line with their organizational mission or that meet their selection criteria. In order to counter this tendency to over-commit, we must be more aware of how we are actually spending our time. The most successful organizations are those that are able to measure the value that they produce.

Mr. Barton Harvey – Changing an organization to change the system

Former CEO and President of Enterprise Community Partners, a national non-profit that creates affordable housing and invests in community development (see appendix for bio).

“Our future may lie beyond our vision, but it is not completely beyond our control. It is the shaping impulse of America that neither fate nor nature nor the irresistible tides of history, but the work of our own hands, matched to reason and principle that will determine our destiny. There is pride in that, even arrogance, but there is also experience and truth. In any event, it is the only way we can live.” Robert Kennedy

Enterprise Community Partners has an organizational mission that focuses on creating housing for the lowest income Americans. In the early 1990s, when they first considered greening their projects, Mr. Harvey, who was then CEO was ambivalent because he considered the added costs of going green to be prohibitive. After reading Jared Diamond’s book Collapse, which relates the demise of societies throughout history due to a series of factors including environmental destruction, Mr. Harvey reconsidered the need to incorporate environmental standards into Enterprise’s work.

After examining the greening work of Jonathan Rose Companies, Enterprise began to explore the interface between affordability and sustainability. Enterprise identified the need to find a strong leader for this initiative and selected Stockton Williams, who proved to be a very good choice. Enterprise estimated that the upfront costs of building green were +/- 3% of traditional construction costs. They worked collaboratively with leaders in a variety of sectors to progress their agenda. Enterprise looked for organizational and strategic advantages for incorporating sustainability into their building guidelines.

In 2004, Enterprise decided to undertake a large national demonstration project. The project was budgeted at \$550,000,000. The purpose was to transform how the affordable housing industry located and built affordable housing. The pilot was a success. Enterprise subsequently created separate standards for different types of projects. Mr. Harvey believes this organizational shift worked because:

- They were able to change the playing field to make green advantageous from a business perspective.
- They identified the right person to lead the effort.
- They were able to overcome internal tensions relating to funding and project criteria.
- They got key stakeholders including Sean Donovan, then NYC HPD commissioner now Secretary of HUD, on board.

- They took time to think through the organizational implications. They had retreats to set departmental goals.
- They learned from industry specialists and then honed their own program.

Mr. Bob Fox – Real Estate Leadership in the Age of Climate Change

Mr. Fox is an architect who is highly respected for his leadership in the green building movement (see appendix for bio).

Mr. Fox discussed the development of the Bank of America Building at One Bryant Park in midtown Manhattan. This building is a 50-50 joint venture between the Durst Organization and the Bank of America. The building will achieve a LEED platinum rating from the USBG. It includes a commercial space and the LEED Gold Henry Miller’s Theater.

The building uses half of the water of a typical office building. There is 100% capture of storm water and grey water which is collected and used for toilets, flushing, and the cooling tower make-up. The on-site 5 mega watt cogeneration plant is 77% efficient, more than twice as efficient as a typical power plant. At night the building’s engineers use the excess electrical energy from the cogeneration plant to make ice that is then used during the day as part of the cooling system. The building is designed to increase the interaction between tenants and nature. Every occupant in the building can see outside.

Mr. Fox, who is an advisor to Mayor Michael Bloomberg’s Office of Long Term Planning and Sustainability, described the relationship between greening existing buildings and climate change. New York City has a goal of reducing green house gas emissions 30% by 2030. 85% of the buildings that will exist in New York 2030 are already built, and 80% of the City’s carbon emissions come from buildings. He categorized green buildings as more popular with tenants due to reduced energy costs which leads to higher occupancy rates.

Mr. Jonathan Rose – Transforming Planning and Development

Jonathan Rose is co-founder of the Garrison Institute and President of Jonathan Rose companies, a multi-disciplinary real estate development, planning, consulting, and investment firm (see appendix for bio).

Jonathan Rose Companies does not normally use the phrase “sustainability” as it is too generic. Rather the firm focuses on applying the qualities of ecological health, such as resilience, at the heart of all of its projects. The company’s buildings, projects, and internal goals are all focused on creating denser mixed use mixed income, livable,

transportation-oriented communities where civic life can thrive. This organizational focus is grounded in the reality that there is enormous suffering of humans because of environmental problems. The firm seeks to create projects that can alleviate the burden on the planet and on the world's poor.

The United States will grow by 90 million people by 2050. New York City will grow by 2 million people. In New York, working class people spend 9% of their income on transportation compared with 30% for the average working class American. Thus transit oriented development not only reduces the greenhouse gases of automobile based transportation, but also provides working residents with more disposable income to allocate to health care, education, and savings.

Mr. Rose argued that given what we know about the environment we should only focus development on transit connected locations. Historically, the most affordable housing has been located either in inner cities, or furthest from urban centers, causing the poorest people to travel the furthest to work. 43% of green house gas emissions in the USA come from buildings and 32% from transportation. Together, our building/transportation system creates 75% of our green house gases. Combining the energy used to power a home with the energy used to get to and from the home, the average suburban family uses 240 mbtus of energy per year - four times as much as a green urban multifamily (62 mbtus). Fortunately this data dovetails nicely with an increased desire by baby-boomers and young adults to live in denser housing urban areas.

We have created a consumer culture, yet people seek a more meaningful life that is richer than the short term pleasures of consumerism. We should enrich that impulse, not ignore it. For example, one of the reasons people want to live in the suburbs is to have more contact with nature. We need to bring nature into the cities so that more people will want to live there.

In response to these questions, Jonathan Rose Companies has created a business model that focuses on policy, planning, development, owner representation, and investment. These four programmatic areas are pursued at building, neighborhood, municipal, regional, and national scales. This organizational model has enormous recruiting power. People look for places where they can express their values through their work.

A key strategy for the success of green building, especially in the affordable sector, is to integrate your team at the beginning of a project. As long as building green requires additional materials, there will be a cost premium. In contrast, if you build smart, you can build green at a very small premium because your environmental benefits are also sources of cost savings. An example of an innovation that had financial and environmental benefits is the placing of gas fired boilers on a roof which saved Dinkins

Gardens in Harlem \$90,000 because they did not have to build a flue. That money was spent on passive solar sunshades instead. Mr. Rose recommends focusing on insulation, which he categorizes as one of the most effective ways to increase energy efficiency.

Closing remarks and reflections

- This has been energizing and has created optimism.
- The group was all pretty much in agreement. This may have been a limitation because we didn't hear anything contrary.
- It is easy to feel insulated. This was a reminder to reach outside ourselves.
- The idea of integrating nature into low-income communities resonated with many of the participants.
- The focus was not just on building more efficient buildings. Instead, the focus was on how the organizations themselves can be greener.
- The group would like to meet once a year for a retreat. They are also interested in creating a website for sharing information and a quarterly lunch or dinner in New York City.

APPENDIX A

Group Exercises

Exercises were based on Rebecca Henderson's article: ELI LILLY'S PROJECT RESILIENCE (A): ANTICIPATING THE FUTURE OF THE PHARMACEUTICAL INDUSTRY (2007). For the full text of the article go to <https://mitsloan.mit.edu/MSTIR/IndustryEvolution/Resilience/Documents/07-041-Resilience.pdf> **The following are excerpts from the article.**

Building the Scenarios for Project Resilience

Scenario planning is a disciplined method for thinking about the future and its inherent uncertainties. Peter Schwartz, president of the Global Business Network and a leading expert on scenario planning, calls scenarios "stories about how the world might turn out tomorrow," and adds that the purpose of scenario planning is "not an accurate picture of tomorrow, but better decisions about the future." To accomplish this, scenario planning creates a number of different future worlds that are both plausible and also sufficiently differentiated so as to enable decision makers to compare and contrast them and their strategic implications.

For Project Resilience, the working team created four scenarios for the future of the research-based pharmaceutical industry that were set in 2020, approximately 15 years away. Given the industry's long R&D cycles, the team decided that 15 years was enough time to allow Lilly's senior managers to imagine future worlds that were substantially different from the current industry environment.

The team also decided to focus their scenarios on the U.S. market, both because of its overriding size and importance to the sales and profits of the pharmaceutical industry, (in 2004, more than 50% of Lilly's sales were in the U.S., and some industry observers speculated that the U.S. market accounted for a disproportionate share of profits for every major pharmaceutical firm) and also because the external environment in the U.S., which for many years had been relatively stable and supportive of the industry's business model, was becoming increasingly turbulent. If the pharmaceutical business model was going to be forced to change, the team reasoned, it would be because of what happened in the U.S. market. Understanding how this market might evolve was a critical first step in assessing future strategic options for the industry in general and for Lilly in particular.

The scenarios were developed by first selecting the two most critical and uncertain of the many external factors (called, in the language of scenario planning, "driving forces") that could impact the future evolution of the pharmaceutical industry. The project team tested a number of possible driving forces before ultimately selecting "R&D Output" and "Rx Purchase and Prescribing Decisions" as the two forces to use for their scenario planning exercise. They reviewed their choice with both senior Lilly colleagues and outside consultants who were well versed in both scenario planning and the pharmaceutical industry environment.

These two "driving forces" became the scenario axes, with each end of an axis representing opposite outcomes of the driving force that the axis describes. For example, one end of the "R&D Output" axis represents R&D output that produces breakthrough innovation, while the other end represents output resulting in incremental innovation.

Putting the two axes together defined four future worlds: “Haves and Have-nots”, “Price Sensitive Patients”, “Payers Rule” and “Rationing Innovation.” The team then spent a considerable amount of time thinking through what each of these worlds was likely to look like. Abbreviated versions of their descriptions follow below:

Scenario 1: Haves and Have-Nots

In this scenario, consumers are paying out-of-pocket for most of the cost of their prescription (Rx) drugs, either because their insurance plans have limited or capped coverage of Rx drugs, or because they have switched to Health Savings Accounts (HSAs) that give them pre-tax dollars to spend directly on healthcare products and services. Many fewer people are uninsured, as HSAs and limited contribution plans are more affordable for small business owners, although they are often not able to be as generous in their HSA contributions as larger employers. Since patients are paying more out of pocket, they are more sensitive to the costs of Rx drugs. They also aggressively search out information sources to help them understand the range of therapeutic choices open to them to discuss with their doctors.

After many years of false starts, the pharmaceutical industry is using advances in genomics, proteomics, IT and other technologies to both increase R&D output (40-50 new NMEs annually), and to produce a range of new products that represent clear and significant improvements over currently available therapies. Deeper knowledge of the genetics of disease, and the development of sophisticated and relatively cheap diagnostic tools, has led to the creation of more customized therapeutic alternatives in some key therapeutic categories.

The new products are more expensive than existing therapies, as companies seek to recoup the ever growing costs of R&D, even though pharmaceutical companies realize that patients are paying out-of pocket for a substantial portion of these costs. These new products are available globally at prices roughly equivalent to those charged in the U.S. The increased efficacy of the products, and the ability to focus their use on patient segments most likely to benefit from them, means that government payers in many countries are willing to pay the premium demanded by manufacturers.

In the U.S., patients with more generous insurance plans, or with personal resources to supplement employer contributions to HSAs, willingly purchase the new products to improve their health outcomes. But patients with fewer resources are often unwilling or unable to buy such products. As more blockbuster products become generic, these patients have wider treatment options, but there is still a rancorous political debate about access to new therapies.

Scenario 2: Price Sensitive Patients

In this scenario, employers respond to continuing increases in healthcare and pharmaceutical costs by pushing an ever-greater share of these costs onto employees. Thus, employees are paying out-of pocket for more than half of their Rx drug costs. As a result, they are much more sensitive to the price of Rx drugs than had previously been the case. Outside the U.S., the industry’s relative lack of productivity means that it continues to face severe pricing pressures and access restrictions in countries with government-financed healthcare systems.

The pharmaceutical industry has been largely unable to translate advances in genomics, proteomics, and other technologies into new products that represent clear and significant improvements over currently available therapies. The industry is generating only about 10-15 NMEs annually, and most of these new products generally rely on the same targets as existing therapies and produce only modest or incremental improvements in safety and efficacy. Customized therapies are generally limited to oncology and a few other specialized disease states. Although experts continue to debate whether the industry's R&D productivity decline is a cyclical or structural problem, there is no clear evidence that the promise of the new technologies is going to be fulfilled anytime soon.

Scenario 3: Payers Rule

In this scenario, the Center for Medicaid and Medicare Services (CMS) sets the price of Rx drugs for both Medicare and Medicaid, and establishes tight utilization controls to control growth in Rx demand. In the private sector, health insurers continue to consolidate to achieve growth, having lost the possibility of expanding business by gaining access to the Medicare population. The government expands Medicaid eligibility in order to enable many more low-income Americans to afford health insurance. Four national Pharmacy Benefit Management firms (PBMs) dominate the private Rx benefit market and use their market clout (as well as the government's price precedents) to drive down Rx drugs and strictly control Rx utilization.

The pharmaceutical industry has been largely unable to translate advances in genomics, proteomics, and other technologies into new products that represent clear and significant improvements over currently available therapies. The industry is generating only about 10-15 NMEs annually, and most of these new products generally rely on the same targets as existing therapies and produce only modest or incremental improvements in safety and efficacy.

Since the industry is producing relatively little important innovation, the focus of the FDA is on safety, so new products must establish that they are at least as safe as current therapies before they receive marketing approval. Clinical trials are generally larger and longer, unless a product can be shown to be responsive to an important unmet medical need.

Outside the U.S., the industry's relative lack of productivity means that it continues to face severe pricing pressures and access restrictions in countries with government-financed healthcare systems.

Scenario 4: Rationing Innovation

In this scenario, pharmaceutical benefits are provided to both working age employees and the Medicare population by a small group of consolidated private health insurance plans. Pharmaceutical prices are not directly regulated, but the payers use market dominance both to strictly control the Rx utilization decisions of prescribers and to leverage this control to obtain large discounts and rebates from manufacturers seeking access to the patients managed by these payers. Although CMS (the Center for Medicaid and Medicare Services) does not directly provide the Medicare Rx benefit, it does control benefit design and utilization policy through its regulatory authority.

After many years of false starts, the pharmaceutical industry is using advances in genomics, proteomics, IT and other technologies to both increase R&D output (40-50 new NMEs annually), and to produce a range of new products that represent clear and significant improvements over currently available therapies. Deeper knowledge of the genetics of disease, and the development of sophisticated and relatively cheap diagnostic tools, has led to the creation of more customized therapeutic alternatives in some key therapeutic categories.

These new products are available globally only at prices roughly equivalent to those charged in the U.S. The increased efficacy of the products, and the ability to focus their use on patient segments most likely to benefit from them, means that government payers in many countries are willing to pay the premium demanded by manufacturers.

Alternative Business Models

The team then turned its attention to exploring the alternative business models that Lilly might consider adopting in order to compete in these quite different worlds. Business models can be defined on several different dimensions of strategic choice, including: 1. Lines of business in which the company operates; 2. Elements of the value chain the company owns and their configuration; 3. Focus/scope of the business. 4. Role of size/scale in competition; and, 5. Key capabilities necessary to create a competitive advantage.

Framing Concrete Recommendations

As Peter reviewed the various scenarios and the business models that the team had considered, he wondered what his recommendations should be. The four industry scenarios seemed plausible enough, but had the team in fact settled on the right axes? Were there other scenarios he should alert the senior team to? And if these were the right scenarios, should he recommend that Lilly pick one as the most plausible, and base its strategy on that one? Which one was in fact the most plausible? Or should the firm position itself for every possible future?

What kind of business model should the firm consider as it evaluated how the industry was likely to change? Was every business model viable in every possible world, or were some better suited to one scenario over another? Which did Lilly have the capabilities to adopt? What were competitors likely to do faced with the same challenges? Most critically, what should Peter recommend that Lilly *do*, given the apparently robust strength of the current model? Should he, for example, recommend that Lilly set up an independent business unit to experiment with the new model? Should he recommend that Lilly announce the new strategic direction of the firm today and transition the whole firm immediately? Was something else more appropriate?

Peter felt excited as he turned back to his desk. This was his opportunity to contribute significantly to strategic thinking – and to action – inside Lilly. How should he frame the issues? What should he recommend?

APPENDIX B

Steering Committee Bios

STEERING COMMITTEE BIOS

Jonathan F. P. Rose is the co-founder of the Garrison Institute and President of Jonathan Rose Companies. His work in the private, public and non-profit sectors focuses on creating a more environmentally, socially and economically responsible world. In 1989, Mr. Rose founded Jonathan Rose Companies LLC, a multi-disciplinary real estate development, planning, consulting and investment firm, that has become a leading provider of green urban solutions. Much of the firm's work involves close collaboration with not-for-profits, towns and cities. A national figure in the smart growth, green building, and affordable housing movements, Mr. Rose is a Trustee of the Urban Land Institute and co-chair of its Climate and Energy Committee. He is also a Trustee of the Natural Resources Defense Council and Enterprise Community Partners, where he is deeply engaged in its Green Communities program.

Rebecca Henderson is the Eastman Kodak Professor of management at the Sloan School of the Massachusetts Institute of Technology, and a research fellow at the National Bureau of Economic Research. She runs the strategy group at Sloan and teaches courses in technology strategy and advanced strategy. Her research focuses on the difficulties large organizations encounter in attempting to respond to major shifts in their environment. She has experience working in a wide variety of industries, including semiconductor capital equipment, aerospace, branded consumer goods, automobiles, pharmaceuticals, biotechnology, information technology, and telecommunications. Her current research focuses on the energy sector and on the challenges firms encounter as the attempt to act in more sustainable ways. Professor Henderson sits on the boards of IDEXX and the Ember Corporation, and she has worked with both members of the Fortune 100 and small, technology-oriented startups.

Bob Fox is one of New York City's most highly respected leaders in the green building movement, and architect of the Bank of America Tower, the first skyscraper to seek LEED Platinum certification. An advisor to Mayor Michael Bloomberg's Office of Long-Term Planning and Sustainability, Bob has been honored with many awards, including a Leadership Award from the US Green Building Council, the New York City Council's inaugural "Big Green Apple" Award, and the Urban Visionary Award from the Cooper Union. A founding partner of Fox & Fowle Architects, Bob guided that firm to a position of national leadership in the design of sustainable high-rise buildings, including the influential 4 Times Square/Condé Nast Headquarters. Bob led the team that created the original "Green Guidelines" for the Battery Park City Authority in Lower Manhattan, which will eventually result in 5 million SF of LEED Gold buildings. In 2003, Bob Fox joined with Richard Cook to form Cook+Fox Architects, a firm devoted to creating beautiful environmentally responsible high-performance buildings.

John K. McIlwain is the Senior Resident Fellow and holds the J. Ronald Terwilliger Chair for Housing at the Urban Land Institute in Washington, DC. Mr. McIlwain leads ULI's research efforts to seek and promote affordable housing solutions, including development and housing patterns designed to create sustainable future environments for the nation's urban areas. Prior to joining the ULI staff, Mr. McIlwain served as Senior Managing Director of the American Communities Fund for Fannie Mae and as president and chief executive officer of the Fannie Mae Foundation. Mr. McIlwain has

also served as executive assistant to the Assistant Secretary for Housing/Federal Housing Commissioner at the U.S. Department of Housing and Urban Development.

Bart Harvey was Chairman of the Board and Chief Executive Officer from 1993 through 2006 of Enterprise Community Partners, a leading provider of development capital and affordable housing expertise. He is known as one of the nation's leading affordable housing advocates, as well as a leader in sustainable development. Enterprise's Green Communities initiative is an unprecedented commitment to bring the health, economic and environmental benefits of sustainable development to low-income communities. The initiative has earned Harvey and Enterprise national recognition including the U.S. Department of Housing and Urban Development and the U.S. Environmental Protection Agency's 2007 "Energy Star Award for Excellence in Affordable Housing," Global Green USA's "Organizational Design Award" and the Home Depot Foundation's inaugural "Visionary Award."

Ken Hubbard is Executive Vice President and CEO of East Region of Hines, Inc., a leading global real estate company. Mr. Hubbard has been involved in all phases of the development process with transactions aggregating more than 37 million square feet of commercial real estate valued at more than \$15 billion. Mr. Hubbard was previously co-leader of the firm's East-West Division, which developed properties in San Francisco and Bay Area markets, and co-leader of the Hines Banking Group, which developed properties in the Midwest and Eastern United States. He has lead the firm's East Coast expansion, and has been a driving force in developing the firm's climate policy. Mr. Hubbard is a trustee of the Urban Land Institute, and is co-chair of its Committee on Land Use, Energy and the Environment.

John Parkinson is the Executive Director of the ULI's New York District Council. A strategic initiative of the New York District Council is the "Sustainable Building Council" which is focused on the 'greening' of existing buildings in New York. Prior to joining the staff, he was a member of ULI, where his prior work included providing technology and services to the real estate industry. Those experiences included founding and running a business that provided document and drawing imaging services, as well as an on-line property management marketplace providing the economic advantages of electronic commerce. He has twenty five years of professional leadership and management experience in organizations ranging from start-ups to Fortune 200 firms, not-for-profits and the public sector

Joel Russell, Senior Fellow at the Garrison Institute has spent 30 years as a planning consultant and land use attorney specializing in sustainable development, land conservation, community participation, and traditional neighborhood design. His innovative zoning codes and master plans that implement sustainable development principles have been adopted by many communities and his work in land conservation has resulted in the permanent preservation of over 20,000 acres of land.