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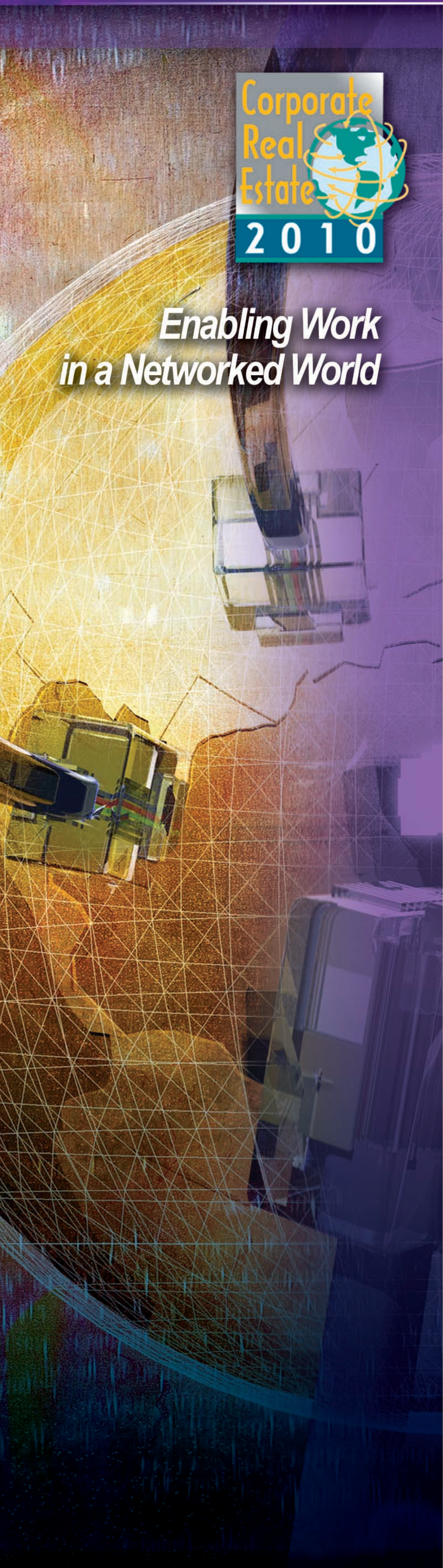

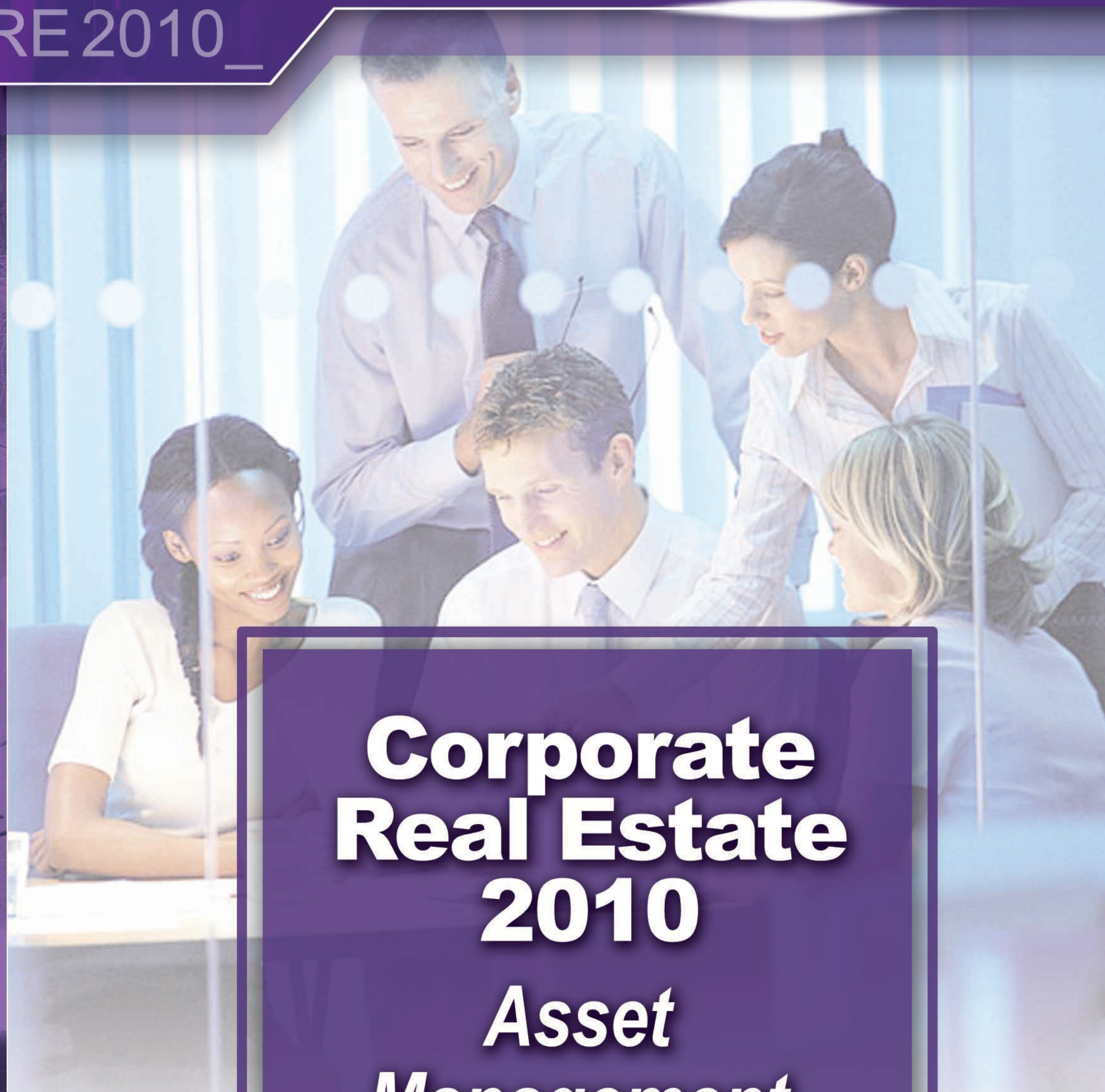

Corporate Real Estate 2010

Asset Management & Portfolio Optimization

A Research and Leadership Development Program
for Corporate Real Estate and Infrastructure Management Professionals

CoreNet Global
CORPORATE REAL ESTATE NETWORK

Produced for:

CoreNet Global
Corporate Real Estate 2010 (CoRE 2010)
Enabling Work in a Networked World

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Introduction

The process of asset management in the corporate real estate (CRE) arena is in the midst of change. Once a purely tactical and reactionary discipline, it is moving to an orientation that is strategic, agile, data-driven, and geared toward optimization of the entire portfolio. In 2010 and beyond, the enterprise portfolio will be made up of more than real property and fixed assets. It will also incorporate the corporation's human and capital resources, technology, and other components that contribute to enabling work for competitive advantage. The challenge is to develop and implement innovative methods and processes to optimize the performance of these assets in an integrated fashion, according to the vision and strategies of the organization.

Portfolio optimization is driven by real-time data, integrated models and metrics, and collaboration with other process providers, both internal and external. Optimization of all of the resources is essential to successfully meeting the needs of the new business model, a networked enterprise, which has replaced the traditional view of the corporation as a fixed entity defined by one or more geographic locations.

As the importance of knowledge workers increases, the retention of these valuable resources cannot be understated. Workplace designs, performance evaluations, availability of ubiquitous technology that provides reliable access to work anywhere at anytime, and other areas that support and affect this critical resource will be subject to scrutiny. Done properly, portfolio optimization requires the integration of planning and allocation of all of the resources of the business and is a multidimensional, ever-changing equation that demands continuous monitoring and adjustment.

The process of portfolio optimization starts with understanding the entire value network of the corporation, then segmenting the portfolio according to the value that each piece contributes to the organization's competitive advantage. The next step is to manage the portfolio of resources based on the company's vision and strategy. Measuring the success of that management and recalibrating, as needed, completes the process.

Currently, many organizations find their portfolio of resources out of alignment with their corporate vision and strategy. Incremental and non-integrated solutions to business unit needs have created a hodge-podge of assets that are not conducive to

Resources - the total means available to a company for enabling work, increasing production or increasing profit — including, but not limited to — capital, real estate, labor, technology, raw materials, and all other assets of the enterprise.

Portfolio Optimization - the process of continually assessing risk, demand, supply, and financial structure of the enterprise's resources, resulting in specific actions that minimize risk and/or maximize return on the resources, in alignment with the unique needs of the company.

optimization efforts. In addition, the long lead time required for most real estate requirements coupled with shortening business cycles have turned many of these ‘assets’ into liabilities.

Business Environment Drivers

The accelerating interactions of a combination of forces will result in even more dramatic changes than we have seen to date in the global business environment.

Globalization has opened up new markets for products and services – as well as new opportunities to reduce costs in the production and delivery of those products and services. As these markets expand and grow, the opportunities to shift to lower cost locations will also expand and grow. Transfer of technology and talent, fueled by cost competitiveness, will result in an international redistribution of human and financial capital over time.

The importance of shared knowledge and understanding across networks will grow, fed by continued technological advancement and the accelerating pace of change and innovation. The value of the network will increase and the lines between the entities in the value chain will continue to blur, thus increasing the complexity of managing the assets within the value chain.

Advances in technology will enable the virtual collection of real-time data that will be necessary for portfolio optimization analysis and measurement. Data integrity, network security, and risk mitigation will assume major importance. The complexity of managing and mitigating risk will increase as new types and levels of risk associated with this more open environment will surface.

In this environment, the very nature of work and the workplace are being transformed, and so is the role of the corporate real estate executive. The CRE professional has unprecedented opportunities for adding value to the enterprise through solutions to old and new challenges by utilizing new alliances, new networks, and creative combinations of physical and virtual network resources.

Real Estate/Infrastructure Practice in 2010

The concept of Integrated Resource and Infrastructure Solutions (IRIS) is gaining popularity internally as an effective means of monitoring and responding to the increasingly complex interplay of resources – in real time and in alignment with the strategic direction of the enterprise. The future availability of real-time information for all the resources of the organization, and in its value chain, is crucial to the organization’s ability to optimize these resources. Optimization tools have been developed and are currently being used on a limited basis. The automation of information gathering and reporting will increase the rate of adoption and value of these tools.

More and more corporations are turning to business process outsourcing (BPO) and unbundling to optimize their core competencies and, in turn, their competitive advantage. Sharing resources within this new value network creates flexibility and cooperative alliances in which the strength of the bond between the companies reduces financial risks and helps to reduce the costs for all participants. Organizations that can leverage the financial strength of their strongest partners are able to do more with their resources and thereby compete more effectively.

The rise of new business models in the financial arena is a testament to this new order. Organizations such as American Financial Realty Trust in the United States and Mapely in the United Kingdom are leveraging their experience and mastery of the real estate industry to manage portfolios of properties once owned by financial institutions. By concentrating their efforts in vertical industries and effectively utilizing their core competencies, these organizations are providing levels of flexibility not previously available in real estate. New models and solutions will surface in the years to come that will mirror these early innovators. One major challenge in this effort will be the creation of metrics that will allow organizations to measure the effectiveness of these new solutions.

Implications for CRE Role

CRE professionals have the opportunity to proactively lead the integration of resources if they properly position themselves with the knowledge and skills necessary to accomplish this task. A broader business education will be required to understand general and company specific competitive advantage and core competencies. Skill sets in finance, management, and strategy development will be required in order for the CRE executive to understand and contribute meaningfully to enhancing the capabilities of the corporation.

In addition to acquiring new skill sets, the CRE executive will have to develop a new perspective on real estate itself. Real estate, by definition, is enduring. This mindset creates the false impression that real estate is also an asset that has to be held and protected. In reality, real estate is a resource that should be utilized for the good of the organization. Once the value has been realized and the use has been satisfied, the asset should be released. This enduring mindset and the current rules of the financial community have served to make real estate the least agile – and sometimes most costly – asset in the portfolio mix.

CRE will be compelled to reinvent itself in a mode of agility in order to adequately and profitably manage risk, business cycle shifts, and the combined work environments of physical and virtual spaces, along with the tools employees need to perform productively in these environments.

Optimization is relative to the drivers and goals of each specific organization. A balanced, scenario-driven approach to optimization will provide insight to the desired outcomes of the business. In the future, enterprise-wide optimization activities will be commonplace. Real estate will be viewed as one of many interdependent pieces of the asset efficiency puzzle. This increases the complexity of the analyses performed and forces one to look at optimization in terms of leveraging the business's Key Performance Indicators (KPIs) – or sources of competitive advantage, whatever they may be – while keeping a vigilant eye on key emerging trends.

To meet these goals, organizations will be pressed to:

- Provide executive sponsorship and support for an integrated approach among resources.
- Produce timely and relevant strategic forecasting information from business units.
- Develop credible and continuous forecasting methods for changing business needs.
- Share information across functions and across nodes of the enterprise "network."
- View investments in real estate, human resources, and technology as equally important to the success of the enterprise and allocate accordingly.
- Create alignment of strategies across functions and business units.
- Hold business units accountable for resource decisions.
- Match demand duration to investment duration for all resources.
- Understand the competitive advantage of all value chain strategic partners and involve them in the strategic planning process and implementation.
- Develop and promote leaders with a generalist approach and knowledge in a wide range of areas, including collaboration and facilitation, business strategy evaluation, corporate finance, network management skills, communication, and presentation effectiveness.
- Develop integrated performance metrics relevant to the business model.
- Apply all processes, financial models, systems, tools, and approaches on a global basis.

No one formula or best practice will fit the needs of all, but approaching the change process at the structural level will help in the task of repositioning the CRE role for greater flexibility and ability to work collaboratively across the network. This, in turn, will greatly enhance its capacity to add value within the emerging business models and value networks of 2010 and beyond.

1 Method of Study

Corporate Real Estate 2010 (CoRE 2010), the formal industry-wide research program was begun in August 2003 and continued through April 2004. A standard research approach was utilized, beginning with a vision prepared by CoreNet Global staff from current business research and thought leaders. This vision was then refined and validated by the participating representatives of multinational corporations and leading service providers in CoRE 2010 that engaged in and supported the project.

This vision was then evaluated through comparison with current research findings from the CoreNet Global Discovery Process (a series of focus group meetings across various geographies hosted by CoreNet Global with corporate real estate (CRE) industry leaders over the past three years). This process resulted in the development of a series of "Big Bets," or research hypotheses, in each of eight identified research areas. These "Big Bets" served as the research questions we sought to validate or disprove based on qualitative in-depth interviews with CRE leaders and other business executives.

Concurrently with the team research work, CoreNet Global staff commissioned the Gallup Organization to perform an industry-wide survey based upon the Big Bets to gain a broad viewpoint on the hypotheses.

"Best-in-class" case studies were identified throughout the process for interviews and further research. Telephone and in-person interviews, which followed a structured interview guide, were documented and analyzed for patterns and anomalies to help us understand the current views and future perspectives of these business leaders. The team then met to discuss the interviews and synthesize the data received. A second meeting of all CoRE 2010 participants took place to further validate or refute the Big Bets and to uncover team crossovers. A subsequent meeting of select team members and leaders synthesized all of the research findings across the eight research teams.

Interviews were conducted over a four-month period in late 2003 and early 2004. Case study material was solicited as part of the interview process and some of those real-world examples have been incorporated into this Report. A diagram of this learning process is shown on the next page in Figure 1.1.

All other research tracks followed a similar process. One of the teams was based in Europe and provided a global perspective by working closely with each of the individual teams as well as performing their own research project.

Figure 1.2 lists the companies that participated actively in the research process for Asset Management & Portfolio Optimization. The Appendix identifies the individuals we interviewed and their positions within their companies. Members of the research team are also listed in the Appendix.

The Asset Management & Portfolio Optimization Team also utilized articles, books, case studies, reports, team discussions, the Internet, and a CoreNet Global Survey administered by the Gallup Organization to ground the theories and compare results to other bodies of work.

Several key business terms are used throughout the paper. For your reference, definitions may be found in the Glossary section of the Appendix.

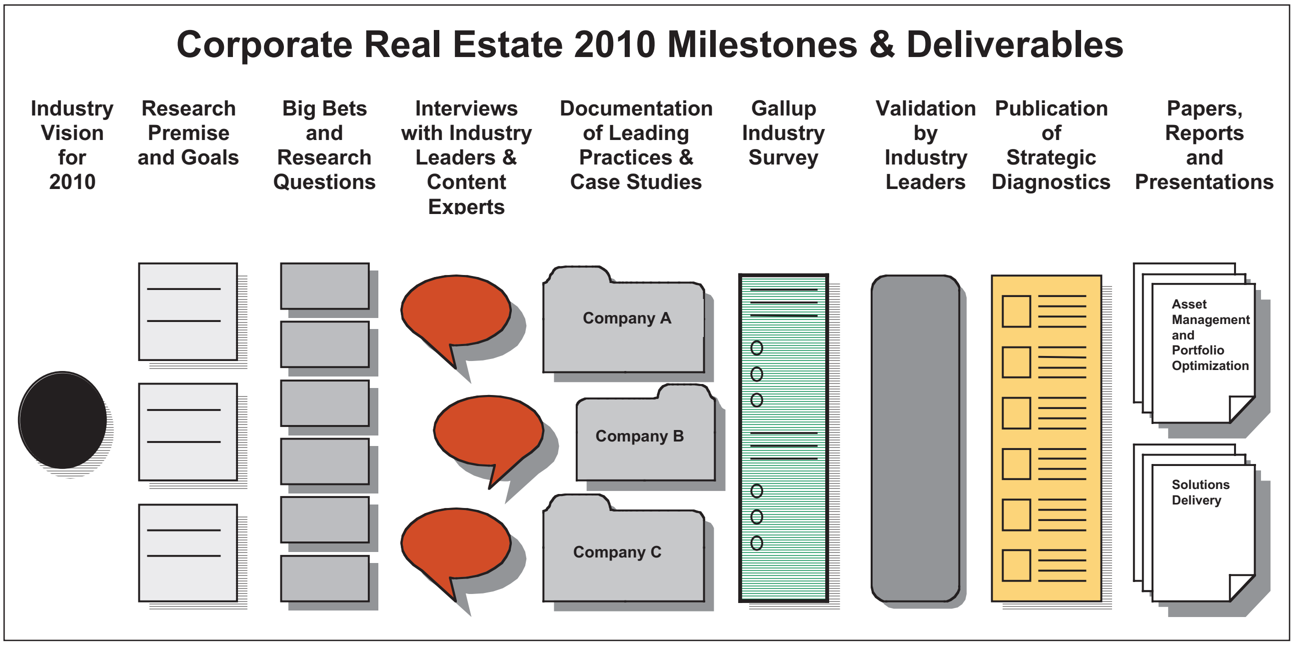

Figure 1.1 Corporate Real Estate 2010 Research Process

American Financial Realty Trust (AFR)
Bank of America
Cisco Systems
Critical Core
Electrolux
Equity Office Properties Trust
Ford Land
General Motors
General Services Administration (GSA)
KeyBank
Nelson Bakewell
Nokia
PricewaterhouseCoopers
Regus
Sprint
Sun Microsystems
United Technologies
Whirlpool

Table 1.2 Companies Interviewed

2 The Here and Now

The discipline of Asset Management and Portfolio Optimization is widely understood in real estate terms to be critically important to the success of the bottom line, yet real estate remains disliked and under-managed as an asset class within most major corporations. While business-planning cycles are being dramatically shortened to increase the company's competitiveness, the average length of a real estate commitment has not changed significantly for decades. Consequently, real estate is the least agile part of the business model, creating a drag on the corporate flexibility required to adapt to changing conditions.

In general, corporate management of real estate has historically been more tactical than strategic, being evaluated initially at the individual property level, rolling up into a real estate portfolio data set. Recently, corporations have changed course to focus on aligning the real estate planning, management, and execution with the needs of the business units and enterprise. This has led to a much greater portfolio efficiency level, enhancing the contribution by corporate real estate to the business unit collective success. Metrics and measurements for real estate have been designed by many CRE departments to support the business objectives. Through this inherent contribution to the competitive position of the enterprise, some CRE groups have elevated themselves above passive participant status and become a respected "strategic" partner in the decision-making process.

This, however, is not the practice for the majority of companies. A large percentage still view portfolio and/or asset optimization as simply securing the best terms and space for the least amount of cost, thus earning the "tactical" label for real estate departments. Yet, the world is changing and a new breed of real estate professionals has emerged that is business school educated and savvy. These professionals know that the value created by their contribution to the enterprise lies not in the transaction, but in a holistic positioning of the portfolio, processes, and financial analytics to enable the business units to be successful. We are currently in the middle of this change in focus, and the transition of CRE professionals from real estate experts to business advisors is upon us.

Few companies have adopted an integrated view of asset management inclusive of CRE, human resources (HR), and information technology (IT) although they recognize the benefits of doing so. 66% of participants in the Gallup survey responded that they recognize the need for the adoption of an integrated approach[1], but the reality is that CRE, HR, and IT mainly operate in silos, competing for capital and reacting to the business unit needs with tactical support. (See Figure 2.1) Coordination between the functions is rarely observed beyond the rudimentary sharing of information needed to accomplish short-term objectives. The focus is on protecting and safeguarding the assets of the silo; therefore, optimization occurs within each silo with little or no coordination among the other functions.

[1] Ellzey, K., & Valenziano S. (2004). *Corporate Real Estate 2010: Integrated Resource and Infrastructure Solutions*. Atlanta, Georgia: CoreNet Global, Inc.

On the technology side, multiple vendors and in-house technology groups provide services to create databases that warehouse real property data and allow for the timely notification of expiration dates and other events. The data can be aggregated to show the entire portfolio of properties or it can be sorted and reviewed in a variety of manners. New applications resolve the conversion issues for global portfolios in regard to date formats, currency conversions, and measurement types (square foot versus square meter). Decisions, for the most part, databases used to track equipment are a superior method to establish the actual utilization occupancy of each asset as compared to the methods the CRE department employs. Conversely, Nokia, a proponent of the integrated management approach, believes strongly in the overall harmonization of information across HR, IT, and CRE and the elimination of repetitious data collection which equates to fewer man hours and reductions in cost and time to market.[2]

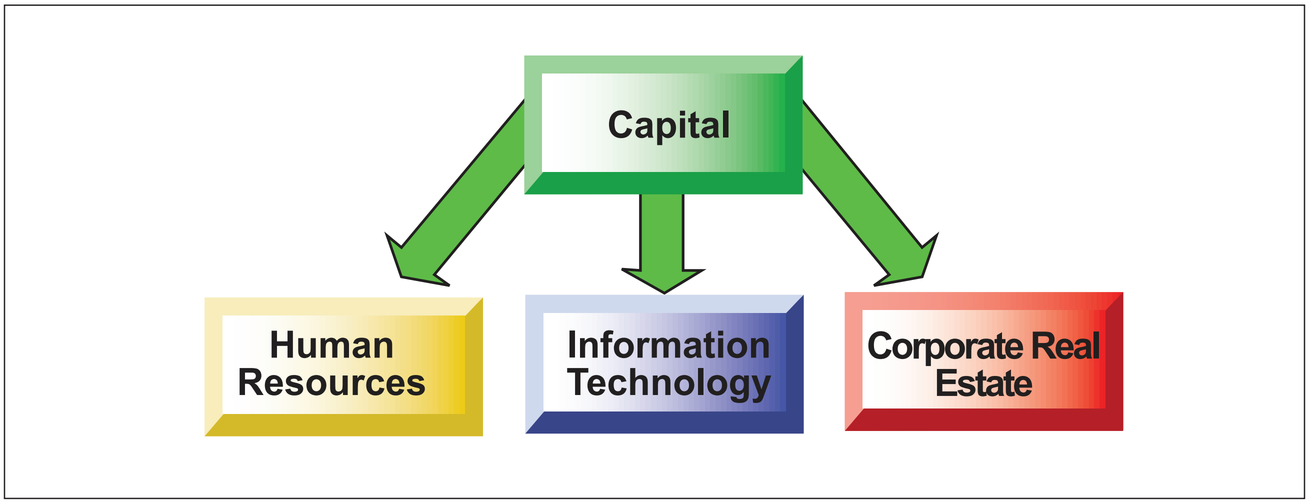

Figure 2.1 Current Coordination of HR, IT, and CRE

are still done at the asset level as modeling of the data is cumbersome and the reliability of information is uncertain. Additionally, there are no established uniform standards to measure the efficiency of portfolios across the board. In the HR and IT departments, separate customized databases often exist that monitor headcounts, growth projections, new hires and terminations, and computer and telephone equipment deployment to each end-user. In many organizations, these

Shorter business cycles are putting a premium on flexibility. Landlords are more experienced at pricing risk and are testing and evaluating various methods of providing pricing and flexibility in response to market demand.

The marketplace is highly fragmented with many landlords and tenants worldwide at varying levels of sophistication, resulting in inefficiencies in the real estate marketplace.

[2] Ellzey, K., & Valenziano S. (2004). *Corporate Real Estate 2010: Integrated Resource and Infrastructure Solutions*. Atlanta, Georgia: CoreNet Global, Inc.

Portfolio-level solutions are difficult, at best, due to lack of ownership concentration. For example, in the United States, Equity Office Properties Trust (EOP) is the largest office owner/landlord with just over 125 million square feet of space in their owned portfolio.[3] This number represents *only 3%* of the total office market in the U.S.. The only organizations that own more real estate than EOP are both primary users of that space — Wal-Mart and the U.S. General Services Administration (Public Building Services), the landlord of the civilian federal government.

Another area of inefficiency, in the United States at least, is in lease document standardization. Leases are often long and full of arduous language that is constantly negotiated and massaged by a barrage of attorneys on both sides of a transaction. In contrast, while European countries differ in laws, it is common for a lease to be less than ten pages in length. There appears to be little motivation in the U.S. to standardize documents, a move that would dramatically reduce transaction legal costs and make the leasing process more efficient. However, some landlords, including Equity Office Properties, have adopted a more equitable standard lease template taken from the most widely-accepted lease clauses in their portfolio and provided it to their top clients as an offering to reduce the cost and time involved with negotiating the lease.

Real estate portfolio-level transactions are being done on a limited basis, with the long-term effects still yet to be determined.

Accounting rules, differences in legal statutes by state as well as by country, variability in lease terms, and cultural norms hamper an organization's ability to aggregate real estate across international boundaries. Thus, portfolio-level transactions are currently regional in nature and/or confined to specific industries.

In summary, segments of the real estate industry are providing business solutions to business issues, and this transition has matured to a high level of expertise in some corporations, but it has yet to begin its transition process in many others. With capital market pressure to increase margins continuing for the foreseeable future, the pressure to provide a higher level of integrated solutions that enable the business units to maximize their competitive advantage will accelerate.

[3] Who's Who in the Buildings Market 2003: The 2003 'A' List. (2003, September). *Buildings Magazine*. Retrieved March 25, 2004, from http://www.buildings.com/Articles/detailBuildings.asp?articleID=1504#

3 Drivers for Change and Current Deficiencies

"The world we have created today has problems which cannot be solved by thinking the way we thought when we created them." — Albert Einstein

Historically, corporate real estate was driven by relatively slow growth in the organization, five-year business planning horizons, and long-term commitments preferred by lenders and landlords in their own domestic real estate markets. Subject to decisions made from the top of the organization and frequently communicated too late, the CRE team was unable to influence the transactions, if only the deal at hand, and therefore provided little value-add to the process. Ironically, they were often labeled as ineffective or slow to perform by those individuals making the decisions and few recognized the benefits of sharing information, even internally. Today, companies and their support organizations – CRE, HR, and IT – need to be able to adjust to constantly evolving and intensely competitive business environments or face extinction. The biggest challenges of real estate are: large and highly visible expenditures, long lead and commitment times, and limited opportunities to modify plans as needs change. To effectively meet the requirements of today's business environment, the least agile part of the business model is now required to be more agile than the business units it serves.

Several key drivers have been emerging over the last few years. Forward-thinking companies have been developing strategies to deal with the drivers that affect their business. Some of the more common drivers that move companies to change to a portfolio-level approach are:

- Immediate business unit requirements
- Increased inventories of unoccupied space
- Shorter business cycles
- Advances in technology and innovation
- Availability, cost, and psychological mind-set of skilled labor
- Regulatory and governmental policies
- Corporate/business unit tactical and strategic visions
- Globalization
- Risk and security
- Sustainability and corporate social responsibility

The largest driver for securing, realigning, or releasing real estate in the past has been the immediate requirements of the business units that utilize the space. The business enterprise and/or business units deal with speed to market, global and regional economics, changing customer preferences, and technology issues. The revenue lost by not having the proper real estate in place at the time needed by a business unit can far exceed the cost of the space.

Meanwhile, companies are burdened with inventories of unoccupied and underutilized space for a myriad of reasons. Consolidations, mergers, failed business plans, short business cycles, and changes in management can all contribute to this dilemma. Excess space is a problem that can't be solved overnight with current sublease models.

Business units are now primarily concerned with securing the most flexible solution to their needs in the least amount of time possible. Since the duration of business cycles has shortened, corporate real estate executives are pressed to match those needs with comparable real estate solutions. The inability to accurately forecast future business and market conditions often results in a generic or sub-optimal solution. Looking at the needs in terms of the portfolio allows for a more focused and integrated approach that uncovers opportunities to leverage the organization's existing capacity or market power.

Technology advancements are allowing workers to be much more mobile than ever before. As more and more knowledge workers are free to work from locations other than a fixed workstation, the need for employee-dedicated space decreases. The increased use of office sharing, hoteling, and virtual offices is evidence of this trend. Walking through an office one can sense that the occupancy levels are down, but how can a CRE executive be sure. In an effort to better understand the issue, Nortel Networks completed a worldwide study last year that tracked employees over a two-day time span.[4] One of the most astonishing discoveries was that only 50% of the office space was utilized at any given time. Asset utilization was defined as the ratio of the POS (people on site) to the number of seats in the asset.

The more mobile an employee becomes, the less total space they require. Today, the business case for total employee mobility has not been proven to a point that companies will shed the bulk of their real estate to un-tether the masses and reconfigure for the new collaborative space requirements; however, some have taken a step in this direction and the gap is closing. Forward-looking companies are monitoring the situation and looking to IT to resolve compatibility and security issues, and then for technology to stabilize. When that happens, this could overshadow the need for flexibility as the main driver for portfolio-level planning.

Experts warn us that we are headed for another talent shortage in 2007 and beyond. As the talent stream dwindles and the balance of power shifts back to the workers, companies will have to adjust the way they recruit and retain talent. New workers entering the market will want the freedom and flexibility to decide where, when, and how they work best, and as a result, real estate may cease to be as product-driven as it is today and become more of a byproduct of work. Older workers are now more likely to desire this flexibility, too, as a result of 9/11 and changing attitudes regarding the balance between work and home.

In the United States, the Sarbanes-Oxley Act of 2002 (the Public Company Accounting Reform and Investor Protection Act) is forcing public companies to change the way they report their assets and liabilities, with real estate being one component of the mix.

[4] Dunn, D. (2003). *Nortel Networks: Business without Boundaries; "The Other Side": Learning's from the Integrated Work Environment Council*. Case presented at the Corporate Real Estate 2010 meeting of CoreNet Global, Inc., December 3, 2003, Tampa, Florida.

This is prompting companies to reevaluate the way they treat real estate and to make the information more transparent to potential investors.

The standardization of processes (i.e., ISO 9000) and Six Sigma initiatives have now made their way into the CRE world. Client Relationship Management (CRM), once an external tool, is now being applied to internal clients. The manner in which a company embraces these initiatives will determine how they approach future changes – as these tools can either be disciplines that will assist in the transition or stress points that will hinder the process.

The globalization of business has added new twists in terms of risk and security. The issue that many multinationals have to wrestle with is how they price the risk: from a business perspective or a real estate perspective? This is particularly exacerbated in the countries of the former Soviet block within Eastern Europe. Risk should properly reflect the variables when compared against the mature economies of both the U.S. and the principal countries within Western Europe. It is clear that there is enhanced risk due to uncertain political and economic stability, and the potential for lack of efficiency of the tax, legal, and accounting regulatory bodies. There are also risks associated with core intellectual property, as the legal protections in some countries are not sufficient to prevent IP from being copied. Risk is a rapidly changing target that must be monitored and updated on a regular basis.

The need for corporate social responsibility in terms of the environment and society as a whole has been affecting the way businesses operate in Europe for several years. A few U.S. firms have taken the initiative to create 'green' buildings and have reaped unexpected rewards. Lower costs and higher worker productivity numbers have been reported, but too few U.S. companies have taken heed of this movement as of yet. Unfortunately, it appears that absent any legislation to require this shift in direction, the business case will have to be quite compelling before this movement gains widespread adoption. The pressure from investors looking for short-term gains as opposed to long-term sustainability initiatives is too great for some leaders to ignore.[5]

A number of areas will need to be reformed to create a more proactive approach to asset management and portfolio optimization:

- Accurate, real-time information on all of the organization's assets will be required in order to make informed decisions in an integrated manner.
- Cost effective methods for the acquisition and maintenance of the data will have to be developed and in place.
- Customizable optimization programs will have to be developed to handle the complexity of integrated analyses.

[5] For more information, see Axford, N., & Adam, R. (2004). *Corporate Real Estate 2010: Sustainability & Corporate Social Responsibility*. Atlanta, Georgia: CoreNet Global, Inc.

- HR, CRE, and IT will have to break their silo mentalities and come together to discuss the interaction and interoperability of their respective disciplines from an internal customer viewpoint.[6]

- The relationships between CRE, IT, and HR will have to be studied, understood, and utilized in such a way to optimize the outcomes desired by the organization.

There is much to be done to prepare for the future of asset management and portfolio optimization. The good news is that there are pioneers in the field who have clearly seen a glimpse of what can be and are actively forging paths and creating those outcomes now. We had the opportunity to interview a number of these pioneers and are pleased to present some of their experiences and lessons learned in this Report.

[6] For more information, see Ellzey, K., & Valenziano S. (2004). *Corporate Real Estate 2010: Integrated Resource and Infrastructure Solutions*. Atlanta, Georgia: CoreNet Global, Inc.

4 Emerging Viewpoints

"A glimpse is not a vision. But to a man on a mountain road by night, a glimpse of the next three feet of road may matter more than a vision of the horizon."— C. S. Lewis

At the beginning of the project, our focus was on developing a series of "Big Bets" for 2010 that were used as a benchmark for the future. (See the Appendix: Original Big Bets.) The thought was that these items would be standard operating procedure by 2010; therefore, the goal of the team was to uncover rough approximations of these occurrences today. What we thought in theory, we found in fragmented pieces in a series of interviews that covered diverse industries in a variety of geographic locations and with differing business demands.

In addition to the in-depth interviews, two surveys were completed: a sampling of 50 real estate executives, including those interviewed for this project, were polled on twelve key questions which related to the Big Bets (see the Appendix: Big Bet Research Findings, page 56), and later an industry-wide poll was conducted by the Gallup Organization (see the Appendix: CoreNet Global/Gallup Survey Results, page 57).

Industry Practices and their Evolution

The primary role and priority for real estate in 2010, which is evident in top tier CRE departments today, will be to enable enterprise competitive advantage, financial performance and the optimum use of capital, technology, people, and real property resources in a coordinated fashion. Asset management along with real property portfolio rationalization and optimization will continue to play an increasingly critical role in overall corporate performance.

In our examination of major changes that we expect to occur by 2010, we found that many firms will have or be in the process of adopting these approaches and business processes, and others will not. CRE departments, like their core businesses, can move slowly at times. When the corporate focus is on quarterly returns, it is a difficult challenge to balance short-term company financial needs with the mid- and long-term requirements of real estate.

Further compounding the problem is that the complexity of portfolio optimization at all levels will increase with the global expansion of business operations, manufacturing, offshoring, and sales activities. This unending pressure on global competitiveness will require a deeper level of expertise and knowledge in all areas that affect the business.

Optimization of portfolios will involve creative solutions to the unique challenges of each organization based on specific needs and organizational culture. Consequently, a clear definition of a single "best practice" cannot be created. The best that can be expected is to structure a framework that will allow critical review of the businesses in such a way that the relevant issues are discovered and optimized to meet the strategy of the overall organization.

The first critical component to defining applicable best practices is whether the company has a clear strategy that has been communicated to the rank and file. In cases where a clear, unifying strategy does not exist, all one can hope to do is to manage the assets as effectively as possible. Without a stated purpose or specific goals, how does one know what to optimize, when, and for what purpose?

BIG BET 1:

Real-Time Availability of Information

Initially, when we asked our group of 50 real estate executives about the availability of real-time information for assets and the portfolio in 2010, we prefaced the question with the definition of assets as all resources of the organization and only asked a general question. Approximately 80% of those polled felt that they would be able to access this information on individual assets as well as the financial position of the portfolio. 72% felt that portfolio performance would be tracked in real time against industry standards and the business goals of the enterprise.

For the Gallup survey,[7] we asked if the respondents could currently obtain information on performance in four different areas—each by asset/location and overall—and/or if they expected to be able to do this by 2010. (See Figure 4.1, CoreNet Global/Gallup Results on Real-Time Performance Capabilities.)

		Now		By 2010	
		% No	% Yes	% No	% Yes
Portfolio Performance					
By Asset or Location	N=296/290	37	63	9	91
Overall	N=300/293	32	68	5	95
Workforce Productivity					
By Asset or Location	N=263/253	72	28	28	72
Overall	N=269/258	70	30	26	74
Workforce Satisfaction					
By Asset or Location	N=270/251	68	32	28	72
Overall	N=279/264	61	39	24	76
Employee Recruitment and Retention					
By Asset or Location	N=252/264	72	28	28	72
Overall	N=259/269	70	30	26	74

Figure 4.1 CoreNet Global/Gallup Results on Real-Time Performance Capabilities

Managing and optimizing the total resources of the organization requires access to the information you need, where and when you need it. The outlook for obtaining real-time real estate information in 2010 is good, with 91% of the respondents stating that this would be possible. Only 72%, however, felt they would be able to obtain information about employee productivity, satisfaction, recruitment, or retention by asset/location by that time. The perception appears to be

[7] *CoreNet Global/Gallup: Corporate Real Estate 2010 Survey Summary*. (2004). Atlanta, Georgia: CoreNet Global, Inc.

that this information is not currently tracked to the degree that real estate is tracked and therefore will lag behind.

Generally, the consensus is that:

- Real-time information will be available on all assets, including the ability to drill down into whom is sitting where to assess individual seat utilization.
- Real-time information will be available for the portfolio.
- Overall, portfolio performance will be tracked in real time against industry standards and the business goals of the enterprise.

Some companies have taken this a step further and have created tools to act as sensors for potential optimization opportunities. (See Sidebar: PricewaterhouseCoopers – Heat Map.)

One area that created more discussion than consensus was regarding the real-time availability of market information that would allow one to 'mark-to-market' the value of all leased and owned real estate. The feeling was that this is not something that is needed on a real-time basis, nor is it or would it be cost-effective to retrieve. We uncovered evidence that this is not only available today, but it is being packaged with a customized optimization tool that also forecasts future trends by sub-market. (See Sidebar: Real Estate Market Portfolio Planning Tools.)

PricewaterhouseCoopers — Heat Map

PricewaterhouseCoopers (PwC), along with its service partners, has developed a tool called a "heat map" to help target their portfolio management activities. The heat map incorporates a multi-layered series of attributes such as macroeconomic indicators, real estate market trending data, building/landlord specific factors, and PwC business trends to provide a more comprehensive assessment of potential portfolio optimization opportunities using nontraditional indicators. This moves the focus to be more "proactive" versus the traditional "reactive" mode surrounding excess space or lease expirations. This has also allowed PwC to get a jump on opportunities well ahead of the normal decision cycle.

Real Estate Market Portfolio Planning Tools

A critical factor in portfolio planning, which is often overlooked or underestimated, is the current and future condition of the real estate market. The point in time in the real estate market cycle when a lease is negotiated can have a dramatic impact on the total cost of the lease over time. It is common for real estate markets to fluctuate as much as 50% in pricing over a typical five to seven year market cycle. Many companies who signed leases during the peak of 1999-2001 are now experiencing lease costs much higher than current market rates. Others are wondering whether to lock in today's low rates through early renegotiations. While many companies know what excess space in their portfolios costs, few have any way to estimate the implications of being over (or under) market rate conditions in their leases. They also cannot measure how effectively they are managing that cost gap over time.

Forecasts of commercial real estate lease rates have been developed over the past two market cycles and are often consulted by real estate investment advisors, pension fund portfolio managers, developers, and investors. Real estate brokers may consult forecasts on a deal-by-deal basis. CRE managers have rarely had access to market forecast data and lacked the knowledge and tools to make use of the information.

Corporate Portfolio Analytics, Inc. has recently developed a set of analytic tools for applying real estate market forecasts to corporate real estate portfolios. They accomplish this through a strategic alliance with Torto Wheaton Research (TWR), which possesses the largest proprietary real estate database in the industry, covering all major commercial property types in over 70 MSAs and 1200 sub-markets. Figure 4.2 shows an example of an analysis of the current market cost gap, overlaying upcoming lease expirations with expected market prices.

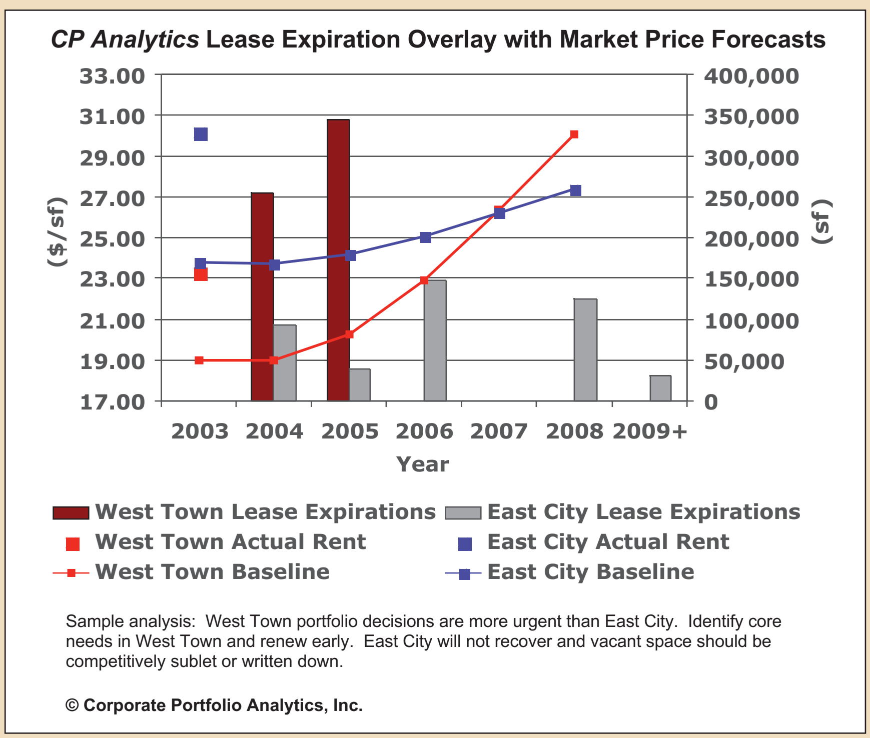

Figure 4.2 Sample Analysis: Market Value Optimization

Summary and chart provided by Martha O'Mara, Corporate Portfolio Analytics, Inc.

BIG BET 2:

"Value Network" Optimization

This area yielded the least amount of information and requires further study. We believe value chain enhancement is a significant source of competitive advantage, the details of which companies that have figured this out are reluctant to share with their competitors. Wal-Mart and Dell Computer are two of the most visible companies currently utilizing supply chain optimization techniques for competitive advantage.

Our investigation indicates that just under half of those polled feel that organizations will share portions of their portfolio with an extended network of customers, suppliers, and enterprise business partners by 2010, with the majority of the remaining respondents not quite sure what to make of this phenomenon. The Gallup survey collaborates these findings with 49% agreeing to this statement to some extent, but with only 22% of those polled either strongly agreeing or disagreeing with the premise. (See Figure 4.3, Portfolio Sharing with Partners.)

Value chain enhancements may take place for a variety of reasons, including boosting occupancy of underperforming assets. This, however, should not be the driver for undertaking the initiative. Whirlpool found multiple benefits when they combined their resources with their suppliers in mind. (See Sidebar - Whirlpool Value Chain and the Supplier Parks.)

It is important to note that real estate departments that use service providers who actually place people on the company's premises are already exhibiting this behavior. It also happens in IT, HR, and other departments. This is an indicator that the practice is already accepted, even if it is not recognized as such. It is important to note that there is seldom allocation back to the service provider for costs incurred.

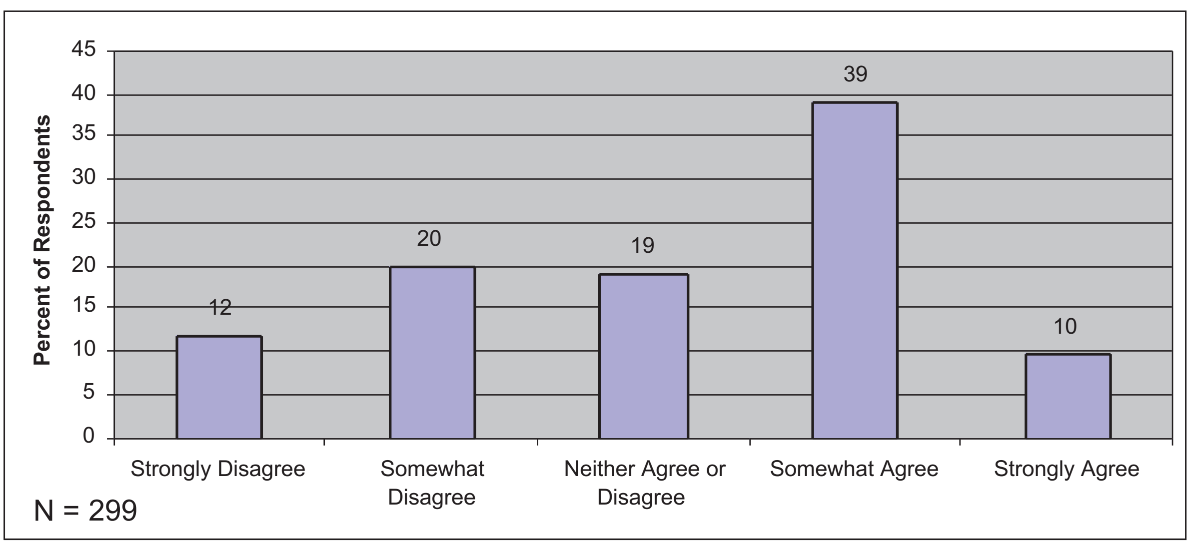

Figure 4.3 Portfolio Sharing with Partners

It is clear that the extent to which the enterprise uses and leverages the core competencies of its value chain will determine the effectiveness of its strategy and ultimately its success.

Where there is a need, there will be a solution. The most exciting evidence that we uncovered of the future happening today is in the area of flexible portfolio-level transactions. In the U.K., where lease terms have averaged 15 – 20 years historically, Abbey National Bank shed a portion of its portfolio to Mapely, a real estate investment group backed by George Soros that was specifically created for this purchase. In the portfolio was a mixture of owned and leased properties that were in varying states of occupancy. By transferring 'ownership' of all of their properties to Mapely, the bank removed itself from the real estate business and put it in the hands of a group that is better equipped to manage the day-to-day requirements of asset management. In addition to shedding itself of space that it no longer needed, the transaction equalized the rental payments over a twenty-year period and allowed Abbey National to price flexibility, up front, in case of a change in future demand. Since that time, there have been additional portfolio-level purchases in the U.K. in industries other than banking.

Whirlpool Value Chain and the Supplier Parks

As companies become more ingrained in Six Sigma and lean manufacturing, they look for ways to pare down manufacturing processes to core competencies. This means non-core activities must be outsourced, but remain homogenous within the manufacturing environment. Whirlpool is striving to find ways to reduce supply chain costs and simultaneously deliver better service to their customers and trade partners. This involves joint occupancy and financial commitments as they redefine their supply chain network platform.

Whirlpool is designing manufacturing facilities so suppliers can take over operations within the plants to minimize overall capital investment and reduce time and availability supply chain risks. For those functions that are better suited outside the primary manufacturing process, they are working toward the development of supplier parks that are adjacent to the manufacturing campuses. This allows suppliers to set up specialized operations near their main customer, in a controlled environment, without all the risks associated with developing facilities outside of their home territory or country. To this end, Whirlpool has created supplier parks in Slovakia, Poland, and Mexico at the front end of the supply chain process. This has mitigated some of the country risk inherent in investing in developing countries.

In addition to joint occupancies and real estate commitments at the front end of the value chain, this process can even blur the lines between competitors. Whirlpool has already been involved in tests where they are warehousing, delivering, and installing their competitors' products — all in the name of removing costs from the system.

BIG BET 3:

Pressure for Portfolio Agility Driving Creation of New Ownership and Financing Vehicles

In the Gallup survey, we asked real estate executives how much of a premium they currently pay for flexible contract terms and how much they will be willing to pay in 2010. Not surprising, 32% said they do not pay a premium now and will not in the future. Of the others, 41% said they are willing to pay a premium of 5% or more by 2010 for flexibility.[8] (See Figure 4.4, Premium Willing to Pay for Flexible Terms.)

In our separate survey, 83% of the respondents believe there will be an expansion of real estate investment products that will allow tenant flexibility. In addition, 62% believe that creative financing and ownership models will continue to evolve and grow as a desired approach to acquire, build, and dispose of individual assets in a manner that maximizes the value of the networked enterprise.

Last year's purchase of 158 Bank of America owned properties by American Financial Realty Trust (AFR) proves that this phenomenon is not limited to the U.K. (See Sidebar: Bank of America/AFR Case Study.) Reinforcement of this phenomenon is that this was not a sale-leaseback, but a sale-*partial*-leaseback in which Bank of America was able to shed almost 3 million square feet of vacant space.

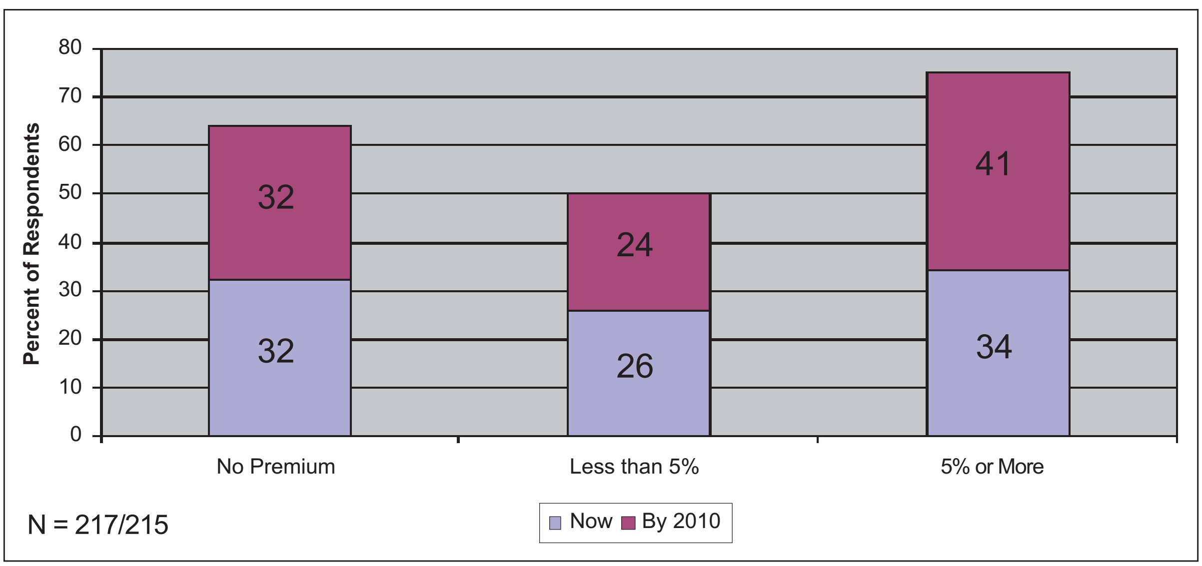

Figure 4.4 Premium Willing to Pay for Flexible Terms

[8] *CoreNet Global/Gallup: Corporate Real Estate 2010 Survey Summary*. (2004). Atlanta, Georgia: CoreNet Global, Inc., p. 16.

The transaction described in this case study is having significant and positive impacts on both parties involved. Due to some of the proprietary aspects of this unique transaction and the planning process leading up to it, some of the details that substantiate various elements have been omitted. Nonetheless, CoreNet Global is grateful for the opportunity to publish this case study in the following abbreviated form.

In the last quarter of 2002, a senior vice president at Bank of America (the "Bank") was working on a solution to its lopsided real estate assets. Numerous acquisitions and changing business conditions had increased the Bank's real estate portfolio and it was out of proportion with the actual space requirements of its business units. Previous efforts by the Bank and its service provider team to lease excess space had been successful in filling only a portion of the Bank-owned property portfolio with third-party tenants, but a significant amount of property remained vacant.

This core of vacant space had been difficult to market primarily due to the "B" and "C" market locations of these properties and the small individual blocks of available space. In fact, the very prospect of adding more third-party tenants to the numerous leases the Bank was already managing was itself a source of angst. Managing this disparate group of third-party tenants had proven to be difficult and time-consuming, with these efforts marginalizing the net economic benefit from the leases.

It was clear that a gap had emerged between the space needs of the business groups — whose business plans were typically measured in time frames much shorter than lease terms — and the corporate real estate department's ability to respond to these needs. Space was not available in the existing portfolio where and when it was immediately required, but a glut of space was available where needs did not exist.

The prospect of filling this gap by leasing from a group of conventional third-party landlords was problematic, at best. The broad geographical needs of the business groups, the fragmented network of third-party landlords in these markets, the difficulty and time required to negotiate individual leases, and the multi-year commitments required by these landlords were all daunting obstacles. And that did not begin to address the existing vacant space disposition problem.

While the REIT market held promise as the most likely source of a simplified, single-landlord solution to Bank of America's real estate portfolio needs — potentially including the ability to add and delete space commitments under a single over-arching lease arrangement — no such solution had yet been presented.

Birth of a Partnership

Meanwhile, Bank of America had developed an innovative approach to disposing of closed retail branches with American Financial Realty Group ("AFRG"). In early negotiations, it became evident that the Bank wanted to keep the "good" retail branches — the ones that were easy to dispose — and sell AFRG the more challenging properties. AFRG, naturally, wanted to purchase only the good ones and let the Bank keep the others. It didn't take long to derive a "win-win" solution, which began to cultivate a proactive problem solving relationship as opposed to the traditional adversarial one.

The working relationship that had evolved between the Bank and AFRG over several years led to discussions regarding non-branch vacancies. Contrary to branches, which the Bank would vacate completely, large building space requirements tended to expand and contract over time, thus creating the vacancy/scarcity problems all over again.

The Bank's senior corporate real estate leadership team evaluated the conditions that would need to be present to efficiently transfer vacant space in office buildings to AFRG. The current structure would not be able to handle this scenario. An acceptable solution required one owner, with diverse market coverage and a large overall portfolio. A REIT – American Financial Realty Trust ("AFR") was created to work exclusively with financial institutions and meet these challenges.

Transaction Structure

Under a single large transaction executed in a "bulk sale" arrangement, Bank of America sold properties, comprising a significant amount of space, to the newly-formed, publicly traded REIT. They then entered into a leaseback on the portion of portfolio space for which the Bank had a long-term need.

The portfolio of properties included completely vacant properties, properties in which 100% of space was leased back by the Bank, properties with partial space leasebacks, and facilities partially leased by third-party tenants. Property types in the portfolio ranged from very large office properties to bank branches averaging 4,500 SF in size. AFR did not "cherry-pick" the properties offered for sale. The portfolio composition was determined based on the goals of vacancy reduction and enhanced flexibility.

The Bank signed operating leases under a single landlord, single lease document, single rent payment format. However, a variety of unique rights were made available to the Bank for outright termination of leases, downsizing of leased space, and space "trading."

The Bank was also given price protection for lease renewals and the ability to trade for space in any of the other properties owned by AFR under a formula-based pricing structure. These combined provisions offered unprecedented space flexibility and economic advantages for future facility needs.

For properties in which it occupied more than 90% of space, the Bank retained control over appointment of property managers, thus providing a seamless transition from the perspective of its business units occupying these properties.

Unique Features of the Solution and Challenges Encountered

The resources required to execute a transaction of this size were significant. It wasn’t just the number of properties involved that added to this need, but the time constraint the two parties imposed on the transaction was unprecedented. The short timetables pushed the lawyers, accountants, and their own staffs to the edge. This also necessitated several deviations from traditional real estate transactions.

The most prominent deviation from standard practice was that the closing was held even though some of the typical pre-closing activities were not yet completed. This included miscellaneous estoppels, title, and environmental items. These were pursued post-closing, as if the closing had never happened.

The resources required to monitor and manage a lease of this structure and magnitude are different as well. Keeping track of the ins and outs of the flexibility alone requires a "playbook" and constant communication between the Bank and AFR. Add to that the normal landlord/tenant issues and you have a tiger by the tail.

Outcome and Benefits to Bank of America

The Bank achieved a host of benefits from the transaction that included:

- Transfer of economic risk and lease-up responsibility for vacant space to AFR
- Transfer of all operating expenses on vacant space to AFR
- Transfer of lease administration for all existing third-party tenants to AFR
- A "right-sizing" of leased-back space to match current Bank requirements
- The ability to expand, contract, and exchange space on a national basis, under pre-set and/or formulaic pricing
- A single landlord, a single lease document, and a single rent payment
- Continued control over property management in buildings with Bank-dominated occupancy
- Improved ability to serve space requirements for business groups within the Bank
- Finally, and most significantly, the direct cost savings

Buyer Characteristics that Support the Feasibility of the Transaction

AFR was formed as a REIT with a specific focus on the financial services industry. Unlike traditional REIT and institutional investors in the sale-leaseback market, AFR coveted the opportunity to profit from re-positioning vacant properties to alternative uses with higher values.

In addition, and more importantly, the unprecedented ability to terminate, downsize, and exchange leases under the transaction structure offered to the Bank was a byproduct of AFR's own financial structure, which was specifically designed to utilize asset-level financing that was not limited by Commercial Mortgage-Backed Securities ("CMBS") underwriting rules that commonly prohibited offering these terms to tenants in properties secured by loans re-sold in the CMBS markets.

In sum, the underlying financial structure of AFR was designed to permit the flexible features offered to the Bank that a more conventional REIT or institutional investor could not have delivered within the constraints of current capital markets.

The transaction is not a capital play by AFR or a financing vehicle for Bank of America. AFR's motivation is to utilize its resources to maximize the real estate value of the assets while the Bank is motivated by the flexibility created by the relationship.

Significance to Asset and Portfolio Optimization Practices in 2010

The solution crafted by these two partners to meet portfolio optimization challenges represents an innovative approach, driven by the specific needs of the Bank and requiring a paradigm shift from the deeply entrenched investment and debt lending practices that had previously impeded the delivery of flexible solutions for portfolio optimization — an approach likely to be a common model by 2010.

The rise of REITs such as AFR as business solutions and not just capital structures, will allow more portfolio-level transactions to occur in mature industries where the factors are conducive to this structure. The success of this approach will depend on the acquiring entity's ability to garner enough scale to make flexible movement within its portfolio of properties a reality. At least three other REITs in the U.S. are building on this formula: Capital Automotive REIT (car dealerships), Correctional Properties Trust (correctional facilities), and Entertainment Properties Trust (movie theaters).[9]

These new models deliver flexible portfolios. Portfolio-level transactions that enable efficient transactions mitigate risk and offer continued ownership consolidation. In the future, we expect to see more ownership models evolve to create efficient transactions, carry entire portfolio segments, and transfer the risk/reward of vacant space.

Is there a market for this type of transaction in the future? The Gallup survey results show that 51% of the respondents would be willing to transfer all leased assets to a third party for financial and day-to-day management, while 37% would be willing to do the same with owned properties. (See Figure 4.5, Third Party Management of Assets.)[10]

In line with this movement to create flexibility, one of our suppositions for the future was that REITS and global investor groups will offer plug-and-play or "ready-to-go" leases with little or no up-front capital cost and the ability to exchange or terminate individual lease obligations within the

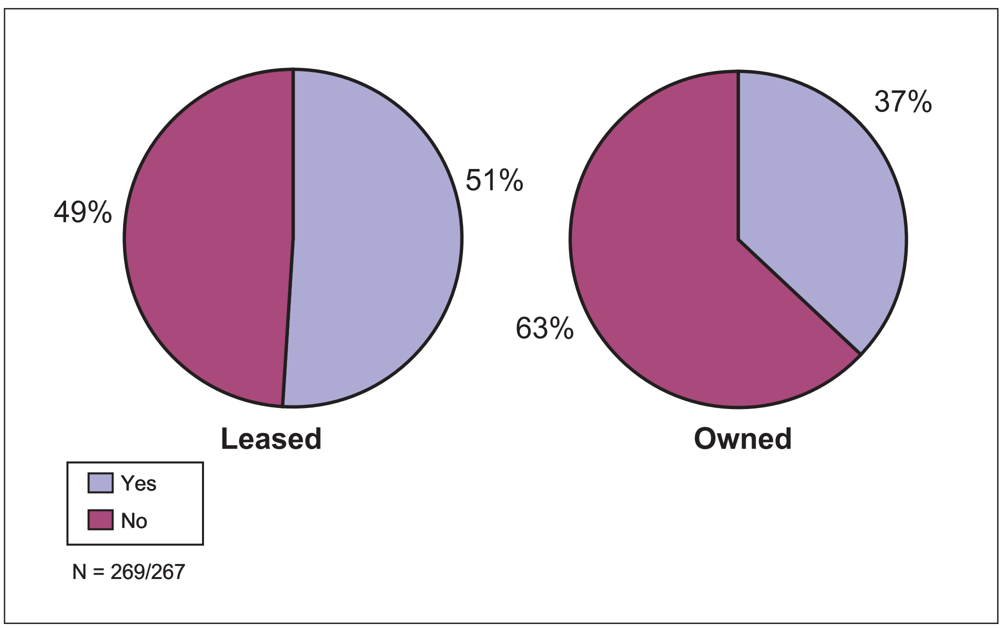

Figure 4.5 Third Party Management of Assets

[9] Allers, K. L., (2003). A Street Pioneer Strikes Again. *Fortune, Vol. 148*, 224-226.

[10] *CoreNet Global/Gallup: Corporate Real Estate 2010 Survey Summary*. (2004). Atlanta, Georgia: CoreNet Global, Inc., p. 18.

framework of a total "space bank" or "master lease." In our poll of 50 real estate executives, 64% of the respondents felt that this would be a viable option by 2010.

Executive suite companies such as Regus and HQ have been offering unfurnished and furnished small-to-medium sized offices with core, shared services for years. In our studies we found evidence of this happening with larger, client-dedicated offices as well (see Nokia example on p. 39). Executive suite operators are also experimenting with master agreements on a set amount of space with a variety of different tactics as they explore the market for the ideal balance between price and flexibility.

For a space bank or master lease arrangement to work on larger spaces, scale is the significant issue in creating flexibility. Mark Scully, Senior Vice President of National Leasing for Equity Office Properties (EOP) explains, "To accomplish this you need enough touch points with the customer to provide flexibility. This requires many lease locations with a single customer."

EOP, the largest owner/landlord of office properties in the U.S., has accomplished this with one hundred customers in their Strategic Customer Program. These customers, which include PricewaterhouseCoopers, Washington Mutual, and LandAmerica, have an average of 12 leases with EOP and an average total of 300,000 square feet. Other national landlords, including Trizec and Liberty Property Trust, are constructing portfolio solutions for their customers, too. The same response numbers were received for the supposition that templates will be created for legal and transactional processes that will provide real estate professionals with the ability to rapidly respond to business model changes on a par with HR, IT, and other internal corporate service groups.

The fragmentation of the real estate market in the U.S. makes it unlikely that *standardized* templates will see widespread implementation, but the efficiency in the form of automation of legal documents has already begun to take place. RealComm reports in its October 1, 2003, *Advisory*[11] that the British Property Federation (BPF) has adopted an interactive, web-based, short-term lease form. The same Advisory also reports that the law firm of Proskauer Rose (Manhattan) has created an automated lease transaction system that is capable of creating a complex lease in a fraction of the time it normally takes.

Smaller landlords can take advantage of resources such as LawDepot™, a provider of automated interactive legal contracts in the United States, the United Kingdom, Canada, Australia, and New Zealand.[12] None of these replace competent legal advice, but automating one of the more time-consuming tasks in the process is a step in the right direction.

[11] Paperless Leases and Web Based Contracts Getting Closer. (2003, October 1). *RealComm Advisory*. Retrieved April 4, 2004 from: www.realcomm.com/advisory.asp?aid=56

[12] www.lawdepot.com

The area that garnered the most uncertainty was in response to the following Big Bet statement:

An active market in derivative and/or insurance products will emerge to allow corporations to mitigate market renewal or residual value risks associated with owned assets through value guarantees or guarantee "strips."

While only 15% disagreed with this statement, the remaining 85% were split down the middle between agree and not sure. No evidence of these products was discovered in our research, but where there is risk that can be quantified, these products usually follow.

In general, we found agreement that corporate and commercial real estate will continue to be a respectable investment vehicle, but most respondents rightfully stated that there is a question as to its ability to outperform the S&P 500 Index in 2010. The cyclical nature of the relationship between real estate and the S&P 500 Index make this a difficult forecast to make with accuracy.

Two statements met with only 40% and 39% agreement, respectively, and these were in reference to service providers:

- Global property owners with preferred master arrangements will continue to evolve and strengthen – resulting in a reduced need for third-party advisory and brokerage services.
- Service providers will be compensated like institutional asset managers and money managers (i.e. based on a percentage of the value of the overall portfolio).

The feeling was that the relationship between third party service providers and the organizations they serve will change over the next six years and there will probably be more need for their services; but the services will be different and the compensation will change to reflect a pay for performance theme, not one based solely on the square footage or value of property managed.

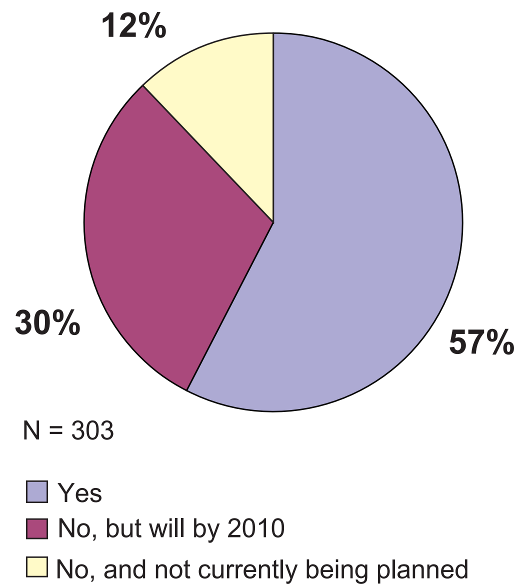

Figure 4.6 Use Management Science Techniques for Portfolio Optimization[13]

[13] *CoreNet Global/Gallup: Corporate Real Estate 2010 Survey Summary*. (2004). Atlanta, Georgia: CoreNet Global, Inc., p. 14.

Other Findings and Revelations

The Gallup survey revealed interesting information regarding the status of portfolio optimization in companies today. More than half of the respondents replied "yes" to the following question (see Figure 4.6, Use Management Science Techniques for Portfolio Optimization):

Does your company currently use financial modeling and/or management science techniques to optimize the performance of your real estate portfolio? In other words, do you use various techniques to optimize the performance of your portfolio against business objectives subject to a number of constraints, such as capital structure, flexibility of terms, location, and other factors affecting the portfolio?

Those who responded "yes" to this query were then asked to list the top three metrics that they use to measure the optimization of their portfolio. 27% of those eligible to respond did not reply. The majority of the responses were some derivation of cost, space, or employees (i.e. SF/employee, $/SF, $/employee) – typical real estate measurements. Interestingly, 34% of the answers were unique and unable to be categorized into general groupings, suggesting a trend toward customized metrics. This highlights one of the biggest challenges with looking forward to 2010 on the topic of portfolio optimization. Standard metrics to adequately describe optimal portfolios do not currently exist, especially ones designed to measure optimization of the entire portfolio of resources that enable work. If they did, it would be easy to take aim and shoot toward optimization targets. The reason they do not exist, however, serves to clarify some of the confusion surrounding optimization and gives us some insight into the complexity of the process.

The objective or goal of optimization is to improve a variable in order to either maximize a benefit or minimize a cost. Optimization begins with building a model that clearly defines the problem and its parameters. All business issues are shown as variables with the relationships between these issues creating the constraints of the system. While sophisticated optimization techniques have been around for more than half a century, the technology that allows these models to be solved quickly and easily has only been around for the past twenty years or so. Modeling requires people trained in this discipline to create and run the models. This mathematical concept is being used in other areas and has just recently found its way into the world of corporate real estate. (See sidebar: Extending Mathematical Optimization to Corporate Real Estate on next page.)

Extending Mathematical Optimization to Corporate Real Estate[14]

Imagine being able to specify your portfolio goals, requirements, costs and constraints, click a button, and quickly see the solution that optimizes your goals. In many disciplines, such as flight scheduling, supply chain management, financial portfolio planning, and even creating the NFL football schedule, this is already a reality.

Like internet search engines that quickly and systematically search through millions of web sites, mathematical optimization techniques quickly search through the possible activities to find the one that best meets the user's goals and requirements. These techniques, which combine financial modeling and management science, have enabled organizations to save millions of dollars for many years.

Dr. Jane Mather, Ph.D., President of Critical Core, is extending these techniques to optimize corporate real estate portfolios. Going beyond databases and spreadsheets, Critical Core's proprietary software enables users to consider millions of different combinations of real estate, relocation, construction, and other workplace activities to find the combination that best meets their goals. And these evaluations take seconds or minutes rather than the hours or days needed for the more traditional spreadsheet approach.

"The potential benefits can include million-dollar savings and better business results," states Dr. Mather. "In one test case using data from a financial services firm that was consolidating its back-office operations across many cities, we identified a solution that would have saved an additional $20 million. And possibly more important, by consolidating to locations where workers could be retrained, our solution would have reduced layoffs by one third."

In other business disciplines, optimization techniques combined with simulations are addressing future uncertainty. For example, OptTek Systems has worked with several petroleum and energy companies to select the best portfolio of investment projects when there is limited capital and they are uncertain about project profitability. Using these techniques, planners identified the portfolio with the highest return for each level of risk and then identified the return-risk combination that best met their goals.

Dr. Mather notes that similar techniques would help users consider uncertainty in their real estate portfolios. For example, this approach could help them decide how much space to lease over the next few years, even when they don't know future demand.

Both of these approaches will bring corporate real estate professionals closer to a systematic approach to portfolio optimization and save organizations millions of dollars. But even with these techniques, they will still need to specify where they are aiming — that is, the balance of productivity enhancement, cost control, and flexibility that is right for their organizations.

[14] For more on applying mathematical optimization to corporate real estate, see Mather, J. E. (2004, April). Best Practices in High-Level Occupancy Planning: Data and Analysis. *Journal of Corporate Real Estate, Vol. 6* (2), 162-193. http://www.henrystewart.com/journals/cre/index.html

Asset management is a more concrete discipline. Assets are hard and fast and can be measured in different ways. The measures typically do not change, but when they do, it is in a discrete way that is easy to understand and 'get your arms around'. In expanding the definition of assets to all of the resources that enable work, we have included technology and people – two resources that increase the complexity of managing assets, and that, when combined with real estate and capital (especially in light of internal capital allocation procedures), create a system of four interdependent assets that can work at cross-purposes.

Assets also have different dimensions. While real estate may be described by type of asset (office, warehouse, retail, R&D, etc.), it may also be described by the business function (sales, call center, headquarters, manufacturing, etc.), control elements (leased or owned), lease term (short or long), geographic location, or other dimensions as defined by the company. Some of these same dimensions can be applied to human and technological resources, but with different meanings. (See SBC's Dimensional Approach to Real Estate on following pages.)

SBC's Dimensional Approach to Real Estate

As executives demand new and innovative methods of viewing infrastructure at an enterprise level, it's useful to develop alternate views of aggregating and analyzing infrastructure in relation to CRE, HR, & IT. At SBC, the corporate real estate department views their portfolio from perspectives outside of traditional CRE management reporting. By developing different dimensional overlays, they can further develop discreet segments, hierarchies, and continua. (See Figure 4.7, SBC's Dimensional Deck.)

This enables CRE executives to compare, analyze, and communicate different priorities and unique synergies in several dimensions at one time to various audiences. By creating and prioritizing the dimensional deck, SBC's real estate department can integrate the various perspectives within the organization and prioritize them against existing and potential demands on infrastructure. More importantly is the ability to clearly articulate priorities from the perspectives of different stakeholders.

Figure 4.8 (SBC Segmentation) details two segments (Financial and Functional) of the SBC Portfolio Infrastructure.

Financial - SBC views its infrastructure commitments in terms of a continuum, short-to long-term. The vehicles by which they finance, account for, and relate to corporate financial priorities can be illustrated on this continuum. For example, working from short-term to long-term, clusters of real estate holdings can be viewed in terms of short-term fluid

Figure 4.7 SBC's Dimensional Deck

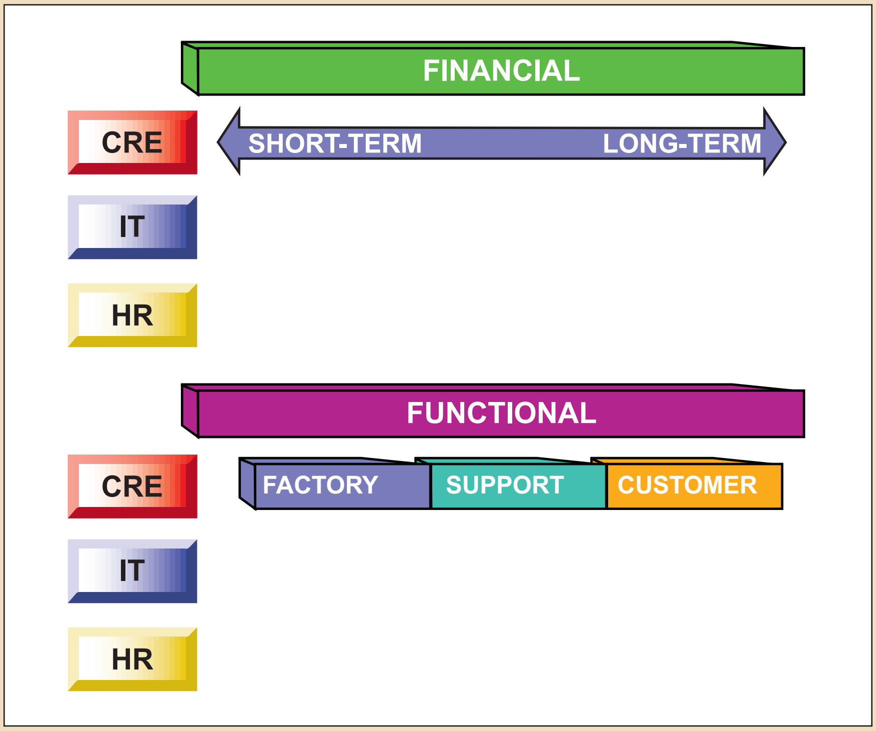

Figure 4.8 SBC Segmentation

demand durations of monthly contracted lease commitments, to medium-term operating leases supporting key functions, to capital leases, synthetic leases, and core long-term owned holdings.

Similarly, IT infrastructure and labor procurement can be placed on short- to long-term continua.

Functional - Functional segmentation of the portfolio can be approached in a multitude of ways depending upon the core businesses, industry sector(s), and support priorities of the entity. SBC's highest-level functional segmentation divides infrastructure into the following discreet segments:

Factory - Supplying the product and/or service sold. In SBC, this would entail the assets of the network: Voice, Data, and Wireless.

Support - Assets related to the shared services supporting the products and/or services sold. In SBC, these are the assets supporting the network factory. Examples include CRE, Procurement, HR, IT Services, etc.

Customer - Assets in support of all external client-facing activity. It encompasses primarily sales locations but might include customer care and related customer support functions.

Further segmentation can be, and usually is, done within the factory, support, and customer segments. As emerging corporate initiatives take place, SBC CRE views each segment and how that relates to its overall short-, medium-, and long-term strategies of enabling work and optimizing the asset base.

As highlighted by the SBC example, the element of perspective has to be considered. Different parts of a company will look at different resources in varying ways. Perspectives are further distorted by personal and organizational bias, accounting rules, and culture – aspects that often appear irrational to the casual observer.

As CRE moves from basic asset management to portfolio optimization, the results will be reduced real estate risk and costs, an increase in the overall flexibility of the portfolio, and a more strategic/proactive approach. (See Figure 4.9, AM/PM Model.)

This is not to say, however, that asset management will no longer be important or needed. Managing the individual assets will be as important as ever. The difference is in the change of perspective of the CRE executive from the micro- to a macro-level approach. As the company integrates the CRE, IT, and HR functions and resources, the opportunity to increase the value of the combined resources will increase dramatically.

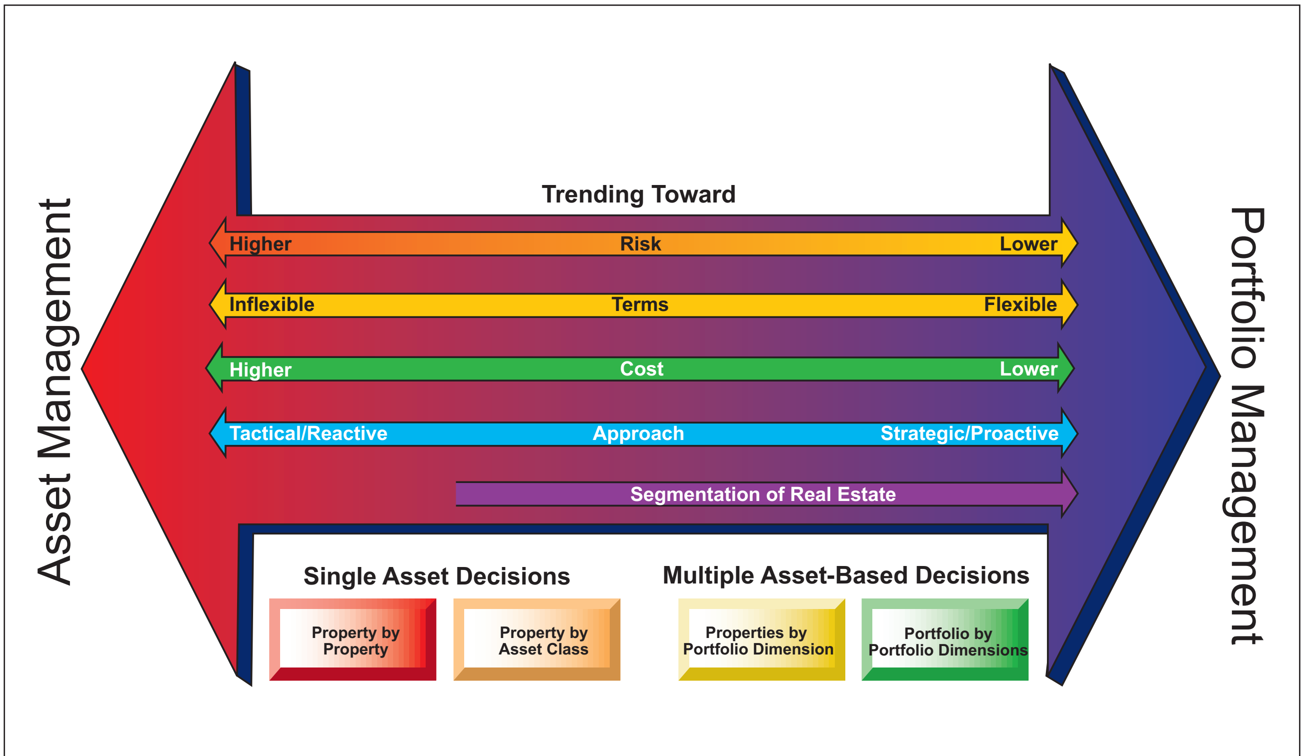

Figure 4.9 Asset Management/Portfolio Management Model

"Change starts when someone sees the next step." — William Drayton

In our research, we found companies managing their real estate assets well and working through real estate portfolio-level optimization. We found some that were working to better understand the complex relationships between people, technology, and real estate. We found a couple that were very clear about how they optimize their portfolio of properties.

Through all of this, one thing was very clear. Portfolio optimization is an evolving science with no concrete rules or formulas. Trying to distill all of the thoughts into one concise method of approach is impossible. What is possible, however, is to develop a framework for working through this complicated process so that you can better understand your company's unique situation and communicate the value of moving toward this process.

Some companies will be better situated than others to take advantage of total portfolio optimization. Organizations with single lines of business (pure plays) have fewer variables than large, multinational, multi-disciplined companies (see Sidebar: PricewaterhouseCoopers – An Optimized Portfolio). Even then, without a clear, concise organizational strategy, it is impossible to translate the needs of the company into sensible plans. The most a corporate real estate department can hope to do in this situation is to manage the assets over which they have control as effectively as possible.

PricewaterhouseCoopers – An Optimized Portfolio

David Jarman, Managing Director of Global Real Estate and U.S. Workplace Leader for PricewaterhouseCoopers (PwC), is one real estate leader who is very clear about his definitions of asset management and portfolio optimization. "Asset management doesn't mean much from a real estate perspective since the primary asset in their business is people – all other assets are less consequential." Jarman went on to explain that, "Portfolio optimization is a holistic concept for most (U.S.) companies – but we are relatively specific about how we define it. For us, portfolio optimization represents the things that we are able to do in our real estate portfolio to improve the way we utilize space and its functionality."

PwC employs a sophisticated system that tracks the day-by-day, hour-by-hour, and minute-by-minute occupancy and utilization rates in 100 of their largest offices around the world. This allows them to make refined decisions about the amount of space they need on a short-term basis. Their goal is to have occupancy utilization in the 88 – 93% range. They also employ a feedback system to find out how the most valuable resources in the organization feel about CRE. The responses have been increasingly positive. Productivity is up, according to the internal customer surveys, and complaints are down.

It is helpful to remember that optimization it is not about real estate; it is more about the business drivers and goals of the company. There are different factors affecting companies based on industry sector, business needs, definition of core assets and asset mix, and cost of capital. In addition, companies that are highly leveraged will approach optimization in different ways than financially unleveraged companies.

Getting Started

To begin, the following questions need to be answered:

- Where are we now?
- Where do we want to go?
- What will it take to get there?
- What tools are at our disposal to implement this process?
- Does upper management support this initiative?

Current State of Affairs

One of the keys to optimizing performance of a portfolio is to have access to information about the individual assets that make up the portfolio. While sensitivity studies indicate that the information does not have to be perfect, the relative nature of real estate begs that the asset-by-asset-level information be as concise as possible.

Before reaching out to HR and IT regarding their assets and subsequent integration of these assets, it is important to have your CRE house in order by having the following established:

- A centralized, well-designed stable organization with well-defined processes and executive sponsorship
- A thorough understanding of the real estate portfolio
- Complete and accurate real estate data captured and managed in a database supported by a standard platform
- Records of occupancy levels or plans to start tracking them

In conjunction with the real estate information, a thorough understanding of the business, as well as the industry, is crucial to effectively support the organization and migrate from a functional approach to an enterprise focus. What are the internal and external business drivers? At what stage of growth is the industry? Who are our competitors? What are they doing that we should be doing?

Next, is there a clear, concise company strategy that has been articulated throughout the organization, and if so, how has it been communicated? This is important because the strategy forms the framework within which optimization will take place.

Objectives

What Key Performance Indicators (KPIs) have been identified as critical to the company? KPIs are measurements that reflect the organization’s goals that are key to its success, and that are quantifiable. These are usually long-term in that their definition and how they are measured does not change often.

If the KPIs have been properly identified, then the goal should be to improve these numbers. If they have not been identified, the objective should be to determine how real estate enables the organization and how it can be positioned to better serve the company's factors of production. This should move the focus away from the assets and toward the sources of competitive advantage.

What Internal Tools are Currently Used and Available?

The Six Sigma methodology helps identify critical processes and provides a common approach to improve them. Many senior executives rely on these principles and tools to make effective process improvements. The result is higher quality products and services, fewer defects, improved speed to market, and higher customer satisfaction. Per Paul Campbell, former Six Sigma Deployment Director at Ford Land, "Six Sigma identifies the primary causes of process variation which allows targeted efforts to eliminate or minimize them." Six Sigma is so widely used, it carries with it inherent legitimacy.

A strategy evaluation should be performed. Strategy cannot be formulated or adjusted to changing circumstances without a process of evaluation. A strategy evaluation can be performed by consultants as an analytic task, but most often is an integral part of an organization's processes of planning, review, and control. The answers to the following three questions are the products of a proper strategy evaluation:[15]

- Are the objectives of the business appropriate?
- Are the major policies and plans appropriate?
- Do the results obtained to date confirm or refute critical assumptions on which the strategy rests?

The answers to these questions are often difficult to obtain and require a situation-based knowledge as well as significant insight given that each business strategy is unique and there is no "right" or "wrong" strategy in the absolute sense. However, the objectives that are set because of the evaluation can be excellent performance criteria. Market share, share of industry capacity, estimated relative cost (relative to competitors), and relative price-value relationships are all good strategic benchmarks in addition to direct measures of quality and customer satisfaction.

Another tool that will simplify this process is a company-wide Balanced Scorecard (BSC).[16] According to Paul Campbell, "The use of Six Sigma and BSC fit like hand and glove." Since the BSC translates strategy to the different areas in the company to focus actions toward the common goals, this tool will be particularly suited to assisting in optimization attempts.

Finally, consultants such as Critical Core and Corporate Portfolio Analytics, Inc. are actively creating customized optimization programs for clients and companies. Look for commercial programs to come online as this technique is more widely understood and used in the future.

Parse the Portfolio

Current portfolio optimization classes teach that real estate needs should be broken down into clusters – "groupings of fungible

[15] Rumelt, Richard P. (2000). Note on Strategy Evaluation. The Anderson School at UCLA, POL 1999-1.3.

[16] Kaplan, R. and Norton, D. (1996). *The Balanced Scorecard: Translating Strategy into Action*. Boston: Harvard Business School Press.

Nokia – Segmentation

In industries where products and technology are continually evolving and changing, time to market is critical for maintaining a competitive and financial advantage. This is particularly important for companies in the telecommunications industry, which has been undergoing an industry shakeout for several years. To help in this environment, Nokia's real estate department (Workplace Resources) undertook an initiative to become more flexible and responsive to the needs of the enterprise by reevaluating its CRE portfolio management approach.

Nokia divided its portfolio into three segments based on the size and type of usage of the real estate occupied: "Small" – typically up to 20,000 sq ft and 100 people; "Medium" – up to 100,000 sq ft and 500 people; and "Large" – over 100,000 sq ft and 500 people. Sixty percent of its offices, by number, are project offices, which primarily comprise the small segment, whereas manufacturing facilities and regional corporate offices comprise the large segment. The medium segment typically comprises R&D centers and country hubs. The strategic approach for the small segment is that they can be cut or shrunk at a moment's notice. This segment utilizes a unique approach of a "pay as you go" leasing model with a fixed global and tiered structure. A global leasing company willing to accept a total worldwide pricing and service structure rather than multiple individual lease contracts was critical. To this end, Nokia teamed up with Regus, one of the leaders in providing fully serviced offices on flexible terms.

Additionally, set-up costs for the small segment are kept to a minimum for better flexibility. The strategic approach behind the large segment is for long-term stability and consolidation. The approach for the medium segment is retaining a degree of flexibility while at the same time aligning with the business strategy. Most offices in this segment are supporting R&D programs and as a result the lease terms are normally 3-5 years. Nokia core business partners and CRE interact on a regular basis to determine their strategy and direction, thus allowing better portfolio optimization to occur. With the CRE portfolio divided into these three segments, they have greater flexibility to respond to any situation and balance the supply and demand for space more easily. Moreover, portfolio optimization concepts can evolve with a changing business environment under this solution.

Nokia also initiated an enterprise CRE mobile work initiative to work with the segmentation approach. The more mobility you allow employees to have, the less workspace is required. Nokia feels that enabling employees to be more mobile will reduce space needs more than workspace standardization. By coupling the segmentation approach with mobile working, Nokia has been able to reduce their portfolio by 20% compared to the conventional approach and estimates it can be further reduced by at least another 20% going forward. Moreover, Nokia now has in place a very scalable and agile portfolio solution that can be readily adapted and changed to meet the needs of the business.

Although some technology hurdles remain on enabling 100% mobility, Nokia is committed to making it work. After all – mobile work is their business. What better way to test and promote their own products than by using them internally?[17]

[17] For more information, see Venable, T. (2004, March). Mark Tamburro and the Nokia Team: Delivering World-Class Workplaces. *Corporate Real Estate Leader, Vol. 3* (2), 39-43.

space requirements." These clusters are typically defined by comparable geography and/or functionality. The goal is then to reduce the number of clusters, making the remaining clusters larger.

Another way to segment a real estate portfolio is to classify assets based on size and function. Nokia did this with their portfolio to increase their ability to respond to business changes. (See Sidebar: Nokia – Segmentation.)

As companies trend toward a more strategic approach to optimizing multiple asset efficiencies, it's useful to develop alternate methods of viewing the portfolio as a whole. This goes beyond clustering assets or segmenting based on size. The aggregate of the portfolio can be sliced and diced in multiple ways forming views that have discreet segments, hierarchies, and continua. Segmenting the portfolio into different dimensions provides an excellent method of mining out priorities, comparing internal and external factors, and communicating the often complex, interdependent, and esoteric nature of portfolio optimization. This is also an excellent way to view the other assets of the organization to begin understanding the interplay of the resources.

Core, Key, Fluid, and Captive

First, however, we recommend a very basic and direct approach to classifying corporate assets. Define each resource based on its strategic value to the business. In other words, determine how valuable the asset is to the organization. Each resource should fall into one of four categories: Core, Key, Fluid, or Captive. For real estate, the following definitions might be appropriate:

- Core - Properties of strategic value with long or indeterminate duration requirements that are essential to the needs of the business and are not easily replaced due to significant financial, geographic, political, and/or pre-existing risk factors. This might include strategic data centers, corporate headquarters, R&D labs, production facilities, or retail bank locations.

- Key - Properties with shorter-term duration requirements that are currently strategic to operations yet may be fluid or disposable in the longer-term due to evolving business or market trends. This might include regional offices, call centers, sales offices, or back-office operations.

- Fluid - Properties serving a business purpose with low strategic value and no significant duration demand that can be disposed of with minimal interruption to operations. This might include special projects, emerging markets, start-up organizations, or short-term contract space.

- Captive - Properties with low strategic value and duration demand but significant financial, geographic, political, or pre-existing risk obligation. These properties are often specific use, legacy buildings that have high infrastructure, cleanup, and/or reconfiguration costs. These properties usually are a drag on capital resources.

Anything that is central to the business is core. Controlling the core assets is critical because these are tied to the competitive advantage of the company. These include core competencies, core real estate, core intellectual property, core technologies, core people — or a combination of any or all of these. So this could include executive officers, scientists, knowledge workers, intellectual property, patents, processes – anything that allows the company to succeed over its competitors. These are the most valuable resources in the company and they must be protected. A structure needs to be in place to make sure they remain secure as long as necessary.

Key resources are important, but not core critical. They are somewhat malleable or fungible, therefore they can be replaced, but not without some planning. Key resources may include sales professionals, key administrative people, manufacturing equipment, inventory, or the fleet. These resources contribute to the production of the organization's products or services, and possibly support the core resources. The cost to replace them can be significant, but manageable.

Fluid resources are those that have a high churn rate, with fluctuating demand that is hard to predict long-term. These easily replaceable resources will not harm the business if they disappear. Since they are impossible to manage long-term, using a short-term contract and/or low investment minimizes risk. Depending on the business, this might include receptionists, office supplies, line workers, interns, or computers.

Captive resources are the black holes of the business. They do not add to the bottom line, are expensive to maintain, and hard to remove. They may include legacy employees, old equipment, proprietary software programs, or outdated processes. These captive resources are often caught in the core as they were once critical to the competitive advantage of the company, but their life has outlived their usefulness. (See Figure 5.10, Resource Classifications.)

There are core, key, fluid, and, unfortunately, often captive resources in CRE, IT, and HR. The solution for managing the combination of these resources is in understanding the

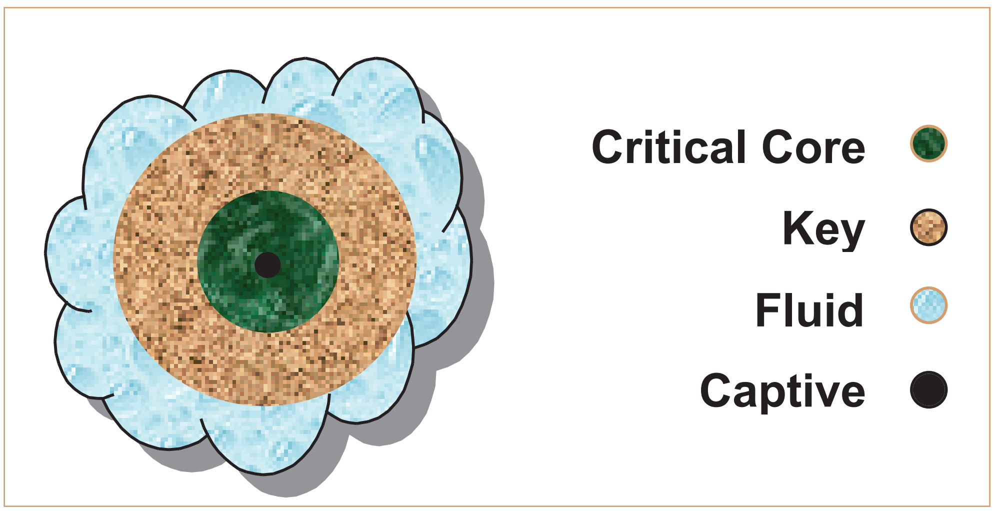

Figure 5.10 Resource Classifications

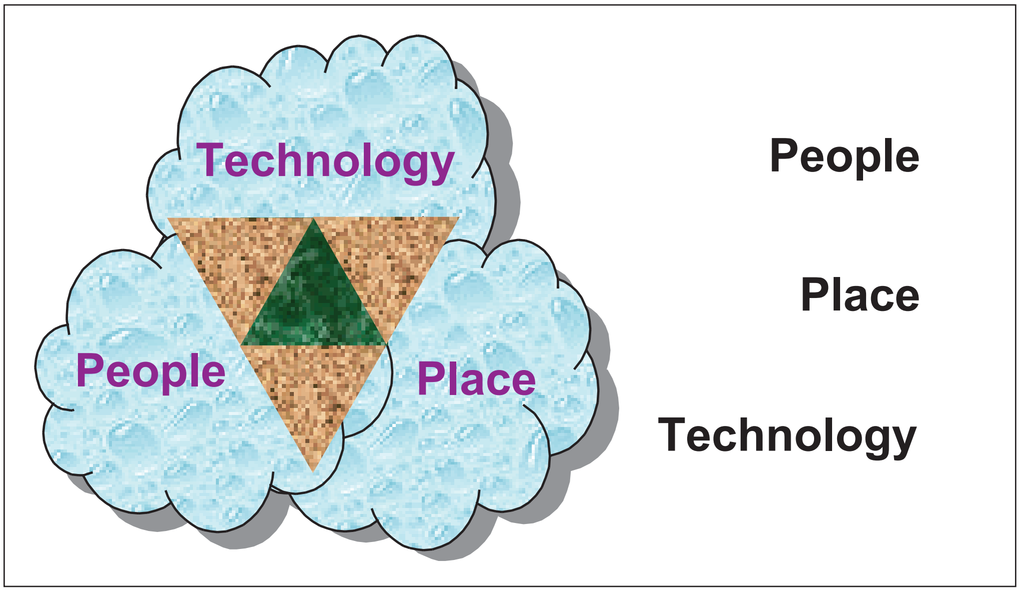

Figure 5.11 Resource Portfolio Management

dynamics of the overlaps. (See Figure 5.11, Resource Portfolio Management.) Where the core resources overlap, there is a compelling need for long-term, controllable real estate.

It is important to understand that the forces and drivers that affect change in the core resources are typically internal and therefore controllable. The threats to the core come from the outside, and that is why it is so critical to surround and protect these assets. Where there are fluid resources, the drivers are external and not under the control or influence of the organization. Both internal and external forces affect key resources and this area is where portfolio-level solutions may have their highest impact.

Getting the Word Out

Is there management support behind the initiative? Who are the thought leaders in your organization that can help you promote your agenda? Most successful plans have a strong supporter on the executive team. Without one, the initiative will take longer to get traction, but it is worth the fight. Senior leaders are always looking for ways to improve workforce productivity and enterprise-wide profitability. A solid business case with clearly established and communicated goals and objectives should be created. If the company culture is such that you can share this without fear of criticism and facilitate change, tell as many people in the organization as you can about it. Not only will an astute senior leader pick up on the concept and champion it, there will be no doubt where it came from.

Going Toward 2010

Based on the current state, it is probable that real estate portfolio optimization will be commonplace by 2010. The financial models and other digital tools will be readily available to collect valuable real-time data and analyze any problem, no matter how complex. Service providers will offer the scope and capabilities so that the business manager can focus on the "business of the business" in meeting the needs of the organization. Sophisticated landlords and lenders will have varied financial offerings to solve varying portfolio needs.

The complexity of managing and optimizing the totality of the resources on a portfolio level in this timeframe, however, is speculative. The vast majority of companies today have some form of communication across functions, and agree there is perceived value in the integration of the disciplines; however, the adoption rates of true integration have been slow. Despite that, the CoRE 2010: Integrated Resource and Infrastructure Solutions Report suggests that "many corporate leaders, researchers, and scholars believe it will soon no longer be an option,"[18] rather a mandate as shown by the investment capital flowing to third-party business process outsourcing (BPO) firms. This is an indicator that a broad and powerful community is beginning to understand the value and market opportunity this type of integration delivers to the enterprise.

Primarily, integration is a common-sense approach for CRE, HR, and IT to come together to support business strategy through faster, cheaper, and smarter responses. The tremendous opportunity of the alliance lies in its potential to offer more proactive, integrated, and agile solutions that respond to an ever-changing environment. This report touches on the necessity of the integration to the overall success of the enterprise. For detailed research and implementation strategies, see the CoRE 2010: Integrated Resource and Infrastructure Solutions Report.

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[18] Ellzey, K., & Valenziano S. (2004). *Corporate Real Estate 2010: Integrated Resource and Infrastructure Solutions.* Atlanta, Georgia: CoreNet Global, Inc.

6 Key Points and Principles

Not everything that can be counted counts, and not everything that counts can be counted."— Albert Einstein

The key to an effective Asset Management and Portfolio Optimization program in any organization is captured in the following three guiding principles:

Focus on Enabling Work

As technology evolves it will become more reliable, accessible, and inherently more transparent. There will be complete visibility on every aspect of "space" and the focus of planning will be on what is required to enable work anytime, anywhere: be that space, labor, equipment, or technology. All resource metrics will be captured and warehoused in database systems that will be linked and web-enabled, allowing complex business solutions to be solved quickly and efficiently.

While business units will continue to be held accountable for their financial performance, transparency will require internal business leaders to employ CRM techniques to reach higher levels of client satisfaction at lower cost. This will lead to enterprise solutions being applied consistently across the globe, despite physical distance, time zones, and regulatory and legal constraints.

Know the Business Strategy of the Organization

It will be critical to understand the competitive advantage of the company and the core competencies of individual business units. In addition, the competitive advantages of value chain partners need to be considered. Resource solutions need to migrate away from a tactical approach within a specific function to an enterprise-wide focus.

Evaluate the role of each resource segment in your business – are they viewed as investments, expenses, or factors of production? Does the company differentiate between the three? What are the accounting ramifications? Are the current policies and plans in alignment with the company's business strategy?

Identify the KPIs or alternative strategic performance criteria of the enterprise and align the resource strategy to the corporate objectives.

Foster executive sponsorship and support through informal and formal means of communication. Take the leadership challenge. CRE executives are uniquely positioned to leverage their skills for the new role of business advisor.

Optimize the Enterprise Portfolio

Take the leadership challenge and open up the lines of communication between the other functions in the organization. Start to integrate the CRE, HR, and IT functions in planning, design, and implementation.

The question isn't how to optimize your portfolio – it is what do you want to optimize? Space, human resources, time, or capital? Segmentation of the portfolio is critical. Define the core, key, and fluid resources and determine the overlaps. Are your core resources properly protected from outside threats?

Don't forget to look for captive resources that may be draining the capital resources of the company. Old assumptions may no longer be valid and these former core resources may have outlived their usefulness. By definition, these are not easily removed from the system, but a plan to begin the process to remove them from the company may be warranted.

Develop a policy on optimization and utilize standard data, systems, and models to evaluate your business solutions on an ongoing basis. Periodically evaluate the strategy and validate your business case assumptions, making sure that they hold true and tie into the business of the business.

A variety of financial structures will be packaged in the marketplace to facilitate flexibility at the right cost. Be creative and look to both the competitors in the market as well as cutting-edge company practices to foster internal conversation and new solutions to your unique business needs.

The First Steps

The first step, they say, is always the hardest to take. A move toward an integrated approach will require first steps in a variety of areas. The key to moving toward the future is to throw out old assumptions and start questioning the fundamental roles and procedures that have become ingrained in the organization. The dynamics of total resource optimization make this a unique journey for each company that decides to forge a path in this direction. If we have accomplished nothing more with this Report than to begin the process of investigation, then we have been successful.

7 Implications for CRE and Infrastructure Leaders

"Everything is always impossible before it works."— Hunt Greene, Businessman

Business as usual is over. For companies to be able to survive and compete in the future, they must maximize the use of their most valuable resources. In order to achieve the mission, vision, and strategy of the organization, CRE, IT, and HR executives will need to coordinate their efforts and work as a team to protect and support the core resources. Those functions that are not deemed critical to the core should be outsourced to partners. This process requires constant review as industry and business cycles are constantly changing. A change in plans that will pull some of these functions back into the organization is also possible.[19]

To effectively work in this new environment, CRE and infrastructure leaders must:

- Understand general business and finance principles
- Know the business of the business, e.g., the company's competitive advantage
- Proactively lead the integration efforts between CRE, HR, and IT to eliminate silos and establish cross-functional processes
- Be effective in building and maintaining teams – both as team member and leader
- Adopt a philosophy of Client Relationship Management (CRM) (See sidebar: Relationship Capital: PricewaterhouseCoopers)
- Define the company's resources and priorities based on those resources that are core to the competitive advantage of the business
- Devise a structure that will protect core resources so they remain secure as long as necessary
- Create an integrated CRE strategy to meet business challenges and opportunities
- Anticipate business changes and provide real estate alternatives for business units at a strategic level
- Develop solutions to the current challenges and mitigate risk for potential future threats
- Implement solutions with the least amount of capital possible
- Monitor and constantly adjust plans as needed to respond to changing conditions, as well as changing business models

[19] For more information on the challenges facing CRE leaders of tomorrow, see both Ellzey, K., & Valenziano, S. (2004). *Corporate Real Estate 2010: Integrated Resource and Infrastructure Solutions*. Atlanta, Georgia: CoreNet Global, Inc. and: Bouris, G. and Foster, S. (2004). *Corporate Real Estate 2010: Enterprise Leadership*. Atlanta, Georgia: CoreNet Global, Inc.

PricewaterhouseCoopers – Relationship Capital

David Jarman of PricewaterhouseCoopers (PwC) suggests that "Relationship Capital" is a new critical value to measure CRE performance. Relationship capital is the exponential increase in corporate value that occurs when CRE groups develop and sustain the closest possible partnerships with their internal clients.

A new way for CRE professionals to think about their value proposition, relationship capital requires a business focus that goes beyond the mere dissemination of metrics, as the qualitative factors which shape internal client relationships play a significant role in driving higher CRE value. Thus, relationship capital opens CRE to entirely new behaviors, skill sets, and disciplines that result in higher levels of performance.

8 Conclusion

What will the reality be in 2010? To paraphrase the great American author, Mark Twain, "We are gratified to be able to answer that question promptly. We don't know."

It is clear that all segments of corporate real estate will be much stronger in business, financial, operational, and technological aptitude. The global business climate will only continue to increase the difficulty of maintaining a market lead and a sustainable enterprise. Because of this, all aspects of business will become much more intelligent about its customers, resources, strengths and weaknesses, and ability to use higher efficiencies to increase margins.

Real estate unto itself is not a driver of the business, but exists in its purest form to enable the enterprise to be as successful as possible. By 2010, we expect CRE leaders to be highly intelligent business managers who understand business drivers, and not just real estate effects. These leaders will use new market and proprietary methods of analysis to constantly measure efficiencies, to promote changes to increase productivity, and to be a visible and strong voice at a strategic level of the company.

By 2010, information will be more fluid, constantly benchmarked, financially driven, and utilized on a daily basis to support the business objectives. Market risk will be more widely measured and flexibility costs will be understood and tested. However, in 2010, individual businesses will remain independent and focused on their own specific goals, and thus, will need customized solutions at all levels.

One size does not fit all today, nor will it tomorrow. However, business managers of the future will be more adept at understanding, measuring, and optimizing the combined resources of CRE, HR, and IT to create value for the enterprise.

9 Beyond Corporate Real Estate 2010

This is a dynamic world and the area of asset management and portfolio optimization is in its infancy. This Report is a first step at understanding some of the ways that companies are beginning to look at their portfolio of resources.

Areas for Further Research

- Investigate organizations as they implement the IRIS approach to see how they are handling optimization of resources.

- Research leveraging the use of real estate and other resources throughout the value chain.

- Orchestrate a coordinated research approach with HR and IT organizations to better understand the effect of real estate on productivity and effectiveness – attempt to tie real estate into technology and the workforce. Included in this research should be an effort to capture the effects of space/place/mobility/technology on productivity of knowledge workers.

Sources for More Information

www.e-optimization.com/resources/

www.manyworlds.com/

www.sissa.it/fa/am/DCS2003/reading_mat/zua
zuaDivSEMA.pdf

Sarbanes-Oxley Act of 2002
Sarbanes-Oxley, the Public Company Accounting Reform and Investor Protection Act
www.sarbanes-oxley.com/

Human Resource Metrics

Center for Advanced Human Resource Studies, Cornell University
www.ilr.cornell.edu/CAHRS/

Simulation Optimization

OptTek provides some additional detail on simulation optimization on their website, www.opttek.com

There are good discussions in the articles at www.opttek.com/publications/oqpromo.html and www.novasim.com/newsletter/SimOpt.html

Companies/Executives Interviewed

The Asset Management and Portfolio Optimization Team would like to thank the following people and their companies for sharing their stories and their time with us.

Company	Executive	Position
American Financial Realty Trust (AFR)	Nick Schorsch	President & CEO
Bank of America	Robert Patterson	Senior Vice President
Cisco Systems	Mark Golan	Vice President of Workplace Resources & WWRE
Corporate Portfolio Analytics	Martha O'Mara	Principal
Critical Core, Inc.	Jane Mather, Ph.D.	President
Equity Office Properties Trust	Mark Scully	Senior Vice President, National Leasing
Electrolux	Harry Cole	European Real Estate Manager
Ford Land	Paul Campbell	Six Sigma Deployment Director
General Motors	Marilyn Nix	Director of Strategic Facilities Planning
General Services Administration (GSA)	Ron Kendall	Chief Asset Officer
KeyBank	Ronald Keller	Senior Vice President & Director
Nelson Bakewell	Timothy P.O. Asson	Director, Head of Corporate RE
Nokia	Mark Tamburro	Vice President, Real Estate & Facilities
PricewaterhouseCoopers LLP	David Jarman	Managing Director, Global Real Estate
Regus	Robert R. Gaudreau	Executive Vice President
SBC	Mark Schleyer	Vice President, Corporate Real Estate
Sprint	Daniel Boutross	Director, Portfolio/ Project Planning
United Technologies Realty Inc.	Ron Zappile	President
Whirlpool	Lee Utke	Real Estate Asset Manager, Global Assets

Team Members

Participant	Company	Position
Brian Banké	Procter & Gamble	Real Estate Manager, Americas
Sunil Das	Intel Worldwide	Real Estate Manager
Thad Dean	The Coca-Cola Company	Finance Manager, CRE Group
Jennifer Dryden	Northern Trust	Vice President, Corporate Real Estate
Candace Fitzpatrick	CRESA Partners	Director Emeritus
Barbara Hampton	CoreNet Global	Vice President, Knowledge Management
Ron Horton	Bank of America	Vice President, Corporate Real Estate
Ron Kendall	GSA	Chief Asset Officer
Andrew Kolen	ADP	Senior Director, Corporate Real Estate
Tom LaDue	McKesson	Director, Workplace Business Planners
Sam Lampe	USAA	Director, CRE eSolutions
Chris Mach	SBC	Senior Manager, National Staff
Rick McPherson	CRESA Partners	Vice President, Corporate Solutions
Marguerite Morrell	Booz Allen Hamilton	Senior Associate
Craig Morris	Grubb & Ellis	President, Corporate Services Group
Lynne O'Brien	The Coca-Cola Company	Director, Corporate Real Estate
Wayne Peacock	USAA	Senior Vice President, Corporate Real Estate
Randy Pereira	CB Richard Ellis	Senior Managing Director, Consulting
Mark Schleyer	SBC	Vice President, Corporate Real Estate
Mark Scully	Equity Office	Senior Vice President, National Leasing
Lee Utke	Whirlpool	Real Estate Asset Manager, Global Assets
Susan Wojciechowski	Trammell Crow Company	Principal

Original Big Bets

Research Premise

As the enterprise becomes more complex and geographically dispersed, the task of managing the nodes as well as the network will become more complex. Leaders will be pressured to improve the utilization of individual assets as well as the performance of the overall network. As a result, a greater focus will be placed on managing and maximizing the value-add of assets and more sophisticated technologies will evolve to provide decision-makers with the ability to optimize the overall configuration of their portfolios.

A convergence of IT, HR, finance, and corporate real estate at some level in the corporation will facilitate asset management and portfolio optimization. Depending on many different factors (size of company, corporate culture, work history of C-suite individuals, etc.), this may emerge under HR, CRE, or another department, and may or may not be visible in the C-suite.

Research Goal

Define the role of the corporate real estate and infrastructure leader and the processes that will be used in maximizing the value of individual assets and optimizing the value of the overall network.

Research Hypotheses (Big Bets)

1. There will be complete visibility on every aspect of "space," partially as a result of the Sarbanes-Oxley Act, as well as to ensure that the space meets the needs of the business. Enterprise systems will enable CRE, IT, and HR to monitor and respond to the needs of the workforce and enterprise, thereby allowing the organization to manage and measure the optimization of its interdependent resources more effectively.
   a. Asset Level: Asset performance assessments will be done on a granular, asset-by-asset basis. In turn, this will make the ability to capture, update, and track accurate individual property data critical.
   b. Portfolio Level: Metrics to measure the overall performance of the portfolio against the business goals of the enterprise (portfolio optimization) will be available. The quest for portfolio optimization will create the attendant need to quantify results of strategies utilized for space (capacity) utilization, occupancy cost reductions, efficient use of capital deployed in resource provisioning, global flexibility, business effectiveness (i.e. productivity, time to market, etc). Ultimately (circa 2020), indexes and performance metrics will enable corporations to compare their portfolio performance with their peers and competitors.

The cost of acquiring and maintaining the systems necessary to allow for portfolio-level information will pass the "cost to value" test based upon standardization of data and technology solutions. (See CoRE 2010: The Role of Technology and the Web Research Report.)

2. “Value Network” Optimization. The concept of portfolio optimization will extend down the full vertical length of the supply chain, across business partnerships, suppliers, and to customers. The distinction between corporate real estate and the real estate of the network of business partners will be blurred.
   a. For example, parts vendors to manufacturing companies may consign inventories to space within the manufacturer-controlled facility in bonded warehouse-type environments to reduce the real estate costs embedded in vendor supply contracts and improve the flow of component materials without attendant investments in inventories by the manufacturing company.
   b. The desire to drive down finished product costs may (for example) prompt corporations to allow these same vendors to leverage the credit of the corporation for vendor raw materials contract purchases and other areas, thus reducing unnecessary costs embedded in the supply chain.
   c. Managing “shadow space” will involve corporations leasing this space to third parties; whereby, there is co-habitation on a floor between the owner/user and third party. With the blurring of lines within supply chains, owner/users or tenants will reach out to their vendor, supplier, customer, and competitor networks to lease shadow space from within an underutilized real estate portfolio.
3. Pressure for Portfolio Agility Driving Creation of New Ownership and Financing Vehicles. The inexorable shift to adoption of more global, networked, and “agile” business models will create the need for new structures that have parallel agility. New leasing models will allow corporations to streamline the process, timeline, and capital costs of acquiring new resources. This will enable the corporation to exit obligations quickly and without “long-tailed” liabilities or losses generated by “dark value” sales of owned assets, but there will be a cost associated with this flexibility.
   a. REITS and global investor groups will offer plug-and-play leases with little or no up front capital cost and the ability to exchange or terminate individual lease obligations within the framework of a total “space bank” program or “master lease.”
   b. There will be more consolidation within the owned real estate industry with the emergence of regional and national players who can respond to corporate needs in multiple regions. A byproduct of this will be the streamlining of the documentation, legal, and transactional processes for leasing transactions into “templated” program forms created at the inception of the program, allowing real estate to respond to business model changes on a par with HR, IT, and other internal corporate service groups.
   c. Real estate will continue to be a respectable investment vehicle. Creative financing and ownership models will emerge which will own

total corporate real estate portfolios and acquire, build, and dispose of individual assets in a manner that maximizes the financial/value proposition of the corporation while providing a more agile and cost effective vehicle for acquisition, occupancy, and disposition of resources. The debt and equity markets will change as some companies become more comfortable with the risk profile associated with the corporate real estate portfolios for investment grade firms (Mapely beta testing in Europe) which will allow unprecedented flexibility of commitment and use of real estate.

d. Consortiums of investors will be created which will still need service groups to manage at the individual asset level.

e. An active market in derivative and/or insurance products will emerge to allow corporations to mitigate lease market renewal economic risks and to lay off residual value risks associated with owned assets through value guarantees or guarantee "strips."

f. Service provider compensation for large corporate clients will be based on the goals of the client and the performance of the service provider, but there will not be a widespread change in the overall compensation model. The culture is too entrenched and the industry too fragmented to drive a full-scale change in this area.

Big Bet Research Findings

As part of the research effort for CoRE 2010, the Asset Management and Portfolio Optimization Team queried 50 real estate industry professionals regarding their opinion on key issues related to our Big Bets. The following summarizes the results of our survey.

Issue	Degree of Agreement	Agree	Disagree	Not Sure
Real-Time Information Availability				
Individual asset performance		82%	7%	11%
Financial position of portfolio		78%	7%	15%
Portfolio performance against industry standards and goals of the enterprise		72%	15%	13%
Value Chain Optimization				
Portfolio optimization concept will be expanded through the value chain		45%	25%	30%
New Models Deliver Flexible Portfolios				
Expansion of CRE investment products with tenant flexibility		83%	6%	11%
New entities to acquire, build, and dispose of assets		62%	18%	20%
Plug-and-Play leases through space banks/master lease programs		64%	24%	12%
Templates for legal/trans. process speed response		55%	25%	20%
Active derivative/insurance market to mitigate risks		43%	15%	42%
New Models Will Drive Change				
CRE investments continue to outperform the S&P		65%	17%	18%
Reduced need for 3rd party service providers		40%	33%	27%
SPs compensated like institutional asset mgrs (on % of portfolio value)		39%	49%	12%

Figure A-1: Big Bet Ad Hoc Survey Results

0% – 40% Agreement

41% – 60% Agreement

61% - 100% Agreement

CoreNet Global / Gallup Survey Results

Corporations will be seeking higher levels of performance from their assets

Research Question

Does your company currently use financial modeling and/or management science techniques to optimize the performance of your real estate portfolio? In other words, do you use various techniques to optimize the performance of your portfolio against business objectives subject to a number of constraints, such as capital structure, flexibility of terms, location, and other factors affecting the portfolio?

Response

As can be seen in Figure A-2, management science techniques are already being used to optimize the performance of their portfolios by a substantial majority of the respondents.

When asked to identify current measures being used the most popular metrics mentioned included:[20]

- Square feet per employee
- Cost per employee
- Cost per square foot and
- Occupancy/vacancy rates

Note: In response to this and related issues, the Corporate Real Estate 2010 research team created a special group to focus on more appropriate metrics for measuring the performance of individual assets as well as the overall resource portfolio in a networked world.

Implications

To meet stakeholder expectations, corporate executives will be seeking higher levels of performance from their assets. As a result, firms will increasingly employ tools that are more sophisticated and methodologies to explore new ways to reduce costs, leverage space, or improve the productivity of assets to create more value for the enterprise.

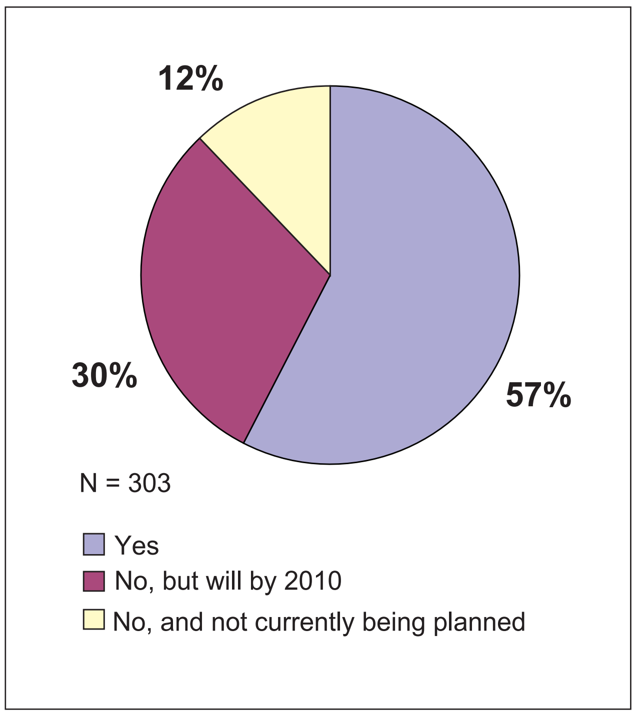

Figure A-2 Use Management Science Techniques for Portfolio Optimization

[20] As pointed out by Kaplan and Norton, the efficient use of assets is one of the keys to sustainable shareholder value. See Kaplan, R. & Norton, D. (2004, February). Measuring the Strategic Readiness of Intangible Assets. *Harvard Business Review, Vol. 82* (2), 52-63.

Corporations will be able to collect and analyze information on their assets in real-time

Research Question

Can you currently, or do you think your company will be able to obtain information on performance in the following areas on a real-time or almost real-time (e.g., end-of-day) basis by 2010?

Response

The figures in Figure A-3 represent the percent of respondents who stated that their companies can or would be able to obtain information on a real-time (or almost real-time) basis now and by 2010.

Implications

One of the keys to improving performance is having access to the right information when and where you need it. As indicated in Figure A-3, there are certainly opportunities to improve the access to information on the performance of the overall portfolio and individual assets, but the bigger opportunities seem to lie in the areas of workforce productivity, satisfaction, and recruitment and retention.

		Now		By 2010	
Portfolio Performance		% No	% Yes	% No	% Yes
By Asset or Location	N=296/290	37	63	9	91
Overall	N=300/293	32	68	5	95
Workforce Productivity					
By Asset or Location	N=263/253	72	28	28	72
Overall	N=269/258	70	30	26	74
Workforce Satisfaction					
By Asset or Location	N=270/251	68	32	28	72
Overall	N=279/264	61	39	24	76
Employee Recruitment and Retention					
By Asset or Location	N=252/264	72	28	28	72
Overall	N=259/269	70	30	26	74

Figure A-3 CoreNet Global/Gallup Results on Real-Time Performance Capabilities

Research Question

What premium does your organization currently pay for flexible contract terms and what premium would you be willing to pay in 2010?

Response

While it is still difficult to match real estate lifecycles with the business lifecycles, one of the ways in which firms and their solution providers are responding to this is by designing, buying, or leasing flexible space and/or workplace solutions that can be more readily adjusted to meet changing business and workforce demands. Thus, even though the initial or short-term cost may be greater, the total lifecycle cost may be substantially less — in addition to the more intangible benefits of being able to respond quickly to changing internal and external customer requirements.[21]

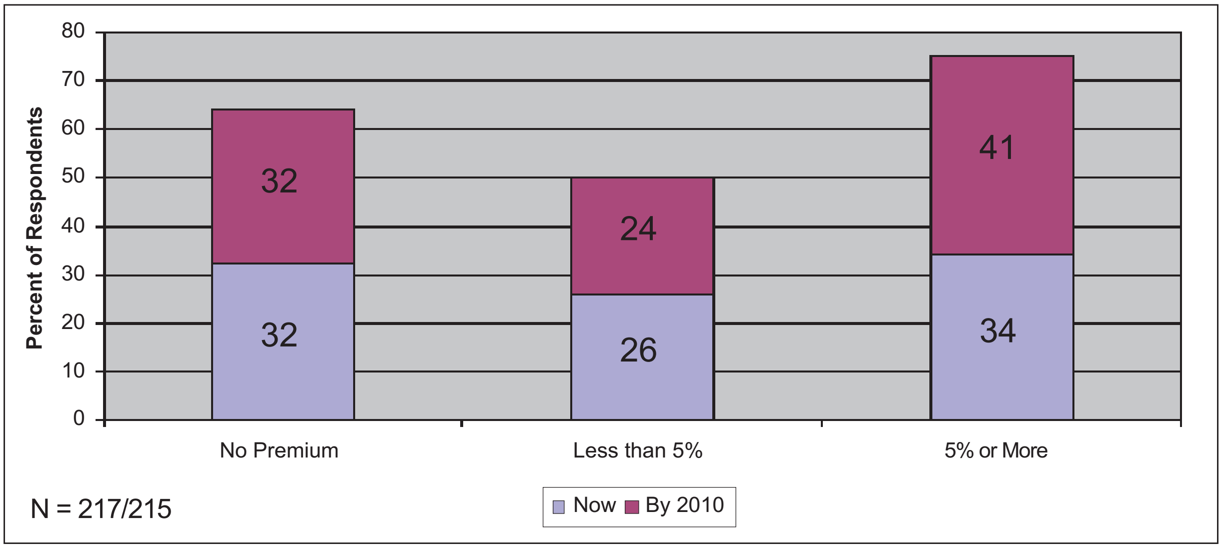

Figure A-4 Amount Willing to Pay for Flexible Contract Terms

Implications

One of the continuing themes of the past decade has been the need for greater agility and responsiveness. And one of the traditional challenges of the corporate real estate profession has been how to align the real estate and workplace needs of the enterprise with those of the enterprise, i.e., to be able to buy, build, lease, or dispose of assets quickly to meet the changing needs of business.

[21] Although it is somewhat beyond the scope of this paper, today there are well-understood techniques for assigning a financial value to flexibility. See, for example, Ghosh, C. and Sirmans, C. F. (1999). *An Introduction to Real Options Analysis for Corporate Real Estate*. Atlanta, Georgia: The IDRC Foundation.

Corporations will share major portions of their portfolio with their extended network of customers, suppliers, and enterprise business partners

Research Question

How much do you agree or disagree that by 2010, your company will be sharing major portions of your portfolio with your extended network of customers, suppliers, and enterprise business partners?

Response

As indicated by Figure A-5, a substantial number of the respondents (49%) believe that by 2010, their corporations will be sharing major portions of their portfolio with their extended network of customers, suppliers, and enterprise business partners.

Implications

This message is consistent with other findings from the survey and the research teams that suggest that this is yet one more way in which creative leaders will be leveraging the use of space across their extended networks. The business rationale for this somewhat new phenomenon can be traced to the current state of excess capacity and new thinking about process management.[22]

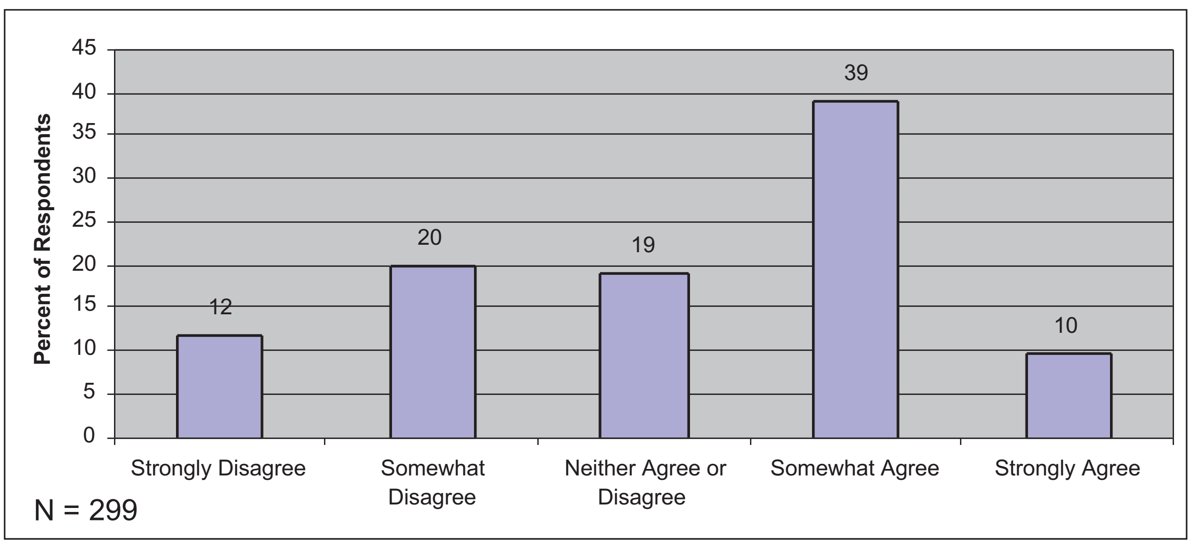

Figure A-5 Portfolio Sharing with Partners

[22] For example, when you combine excess space with just-in-time management concepts, the opportunities for leverage and additional cost savings across a shared network can be significant.

A significant number of corporations will transfer assets to third parties for financial and day-to-day management

Research Question

Will your company consider transferring all assets to a third party for financial and day-to-day management by 2010?

Response

When asked whether their companies would consider transferring leased or owned assets to a third party for financial and day-to-day management, the response was as indicated in Figure A-6.

Implications

In an effort to improve corporate responsiveness and agility, we are beginning to see the transfer of major portions of portfolios and, in some cases, entire portfolios, to third parties across a number of industries. Within the financial service industry, the Mapely acquisition of Abbey National's portfolio in England and the American Financial Realty Trust's acquisition of parts of Bank of America's portfolio in the United States are two examples that illustrate this potential trend.

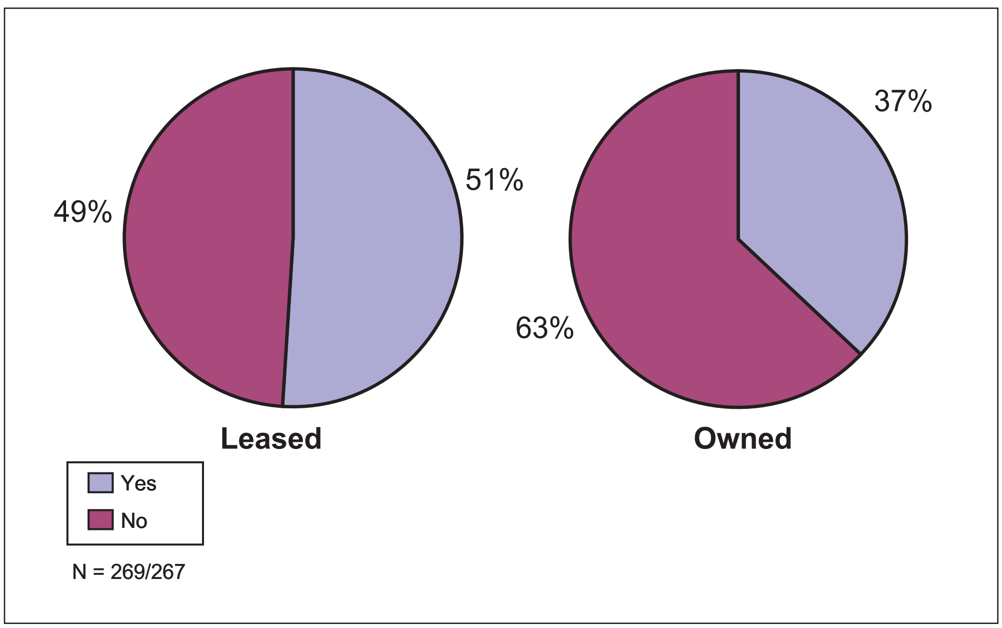

Figure A-6 Third Party Management of Assets

Glossary of Terms

Several key terms used throughout this Report are defined as follows:

- **Assets** – any workplace resource including capital, people, real estate, furniture, equipment, technology, raw materials, and all other tangible items used by a company to enable work and create value. In 2010, this term will be synonymous with resources.

- **Asset Management** – The management of any resource of the enterprise that is viewed as an asset. This includes resources such as human, capital, technological, real estate, knowledge, or other type of asset that is a contributing factor to the success, profitability, and overall competitive advantage of the enterprise.

- **Competitive Advantage –** when a firm's actions in an industry or market create economic value or profit, whereby the actual value derived exceeds the firm's cost of creating it, and when few competing firms are engaging in similar actions. Usually derived from superior skills, superior resources, or superior position.

- **Core Businesses** - should be outlined in the value proposition and are substantially supported by the distinctive competencies of the enterprise. Core Businesses may be identified at the enterprise level, regional level, or by division/department, may change over time, and require constant evaluation and definition.

- **Core Competencies** - distinctive capabilities derived from characteristics that the competition lacks, (i.e., product R&D, performance, cost, branding, manufacturing, service, industry standard).

- **Customer Relationship Management (CRM)** - a business strategy designed to optimize revenue, profitability, and customer satisfaction by a specific plan of customer interface and evaluation processes.

- **Enterprise** – the business organization within which all assets, resources, core businesses, competitive understanding, and knowledge reside.

- **Holistic** – relating to or concerned with wholes or with complete systems rather than with the analysis of, or dissection into parts.[23]

- **Plug & Play Leases** – space that is 1) furnished and 2) wired and connected for data/telecom. Different providers of this space offer varying degrees of service and amenities on top of this basic package, such as shared-conference room access, break rooms, shared-receptionist services, copy services, etc. Landlords with a portfolio of properties may also allow the tenant the ability to open, close, and change national and global occupancies, at a constant leasehold expense, within their portfolio of properties.

[23] *Merriam-Webster Online Dictionary*. (2004). Retrieved April 3, 2004, from http://www.m-w.com/cgi-bin/dictionary?book=Dictionary&va=holistic

- **Portfolio** – the collective enterprise workplace resources.

- **Portfolio Optimization** – the process of continually assessing risk, demand, supply, and financial structure of the enterprise's resources, resulting in specific actions that either minimize risk or maximize return on the resources, in alignment with the unique needs of the company.

- **Real Estate Flexibility** – the ability to open, expand, contract, and terminate occupancy commitments, both within a single location as well as within a portfolio, in a timely manner, that mirrors the rapidly changing business environment and allows for maximum occupancy and/or utilization. The premium paid for this flexibility may ultimately be outweighed by the total cost of occupancy reduction.

- **Real Time** – current as of this moment. Most commonly used as an indicator that technological communication is instant and information is up-to-date.

- **Resources** – the total means available to a company for enabling work, increasing production, or increasing profit - including, but not limited to: capital, real estate, labor, technology, raw materials, and all other assets of the enterprise.

- **Strategy Evaluation** – the outcome of the appraisal of plans and results of plans that centrally concern or affect the basic mission of the enterprise. Its focus is on the separation of the current operating results and the factors that result in success or failure in core businesses. Those activities and events are strongly shaped by the firm's control and reward systems, information and planning systems, structure, history, particular culture, and unique competitive advantage.

- **Value Chain** – all the necessary activities or components of the business model that bring a product or service to market. An example of a real estate value chain would consist of: properties, transactions, design & construction, lease administration. For 2010, the concept defines that the collective component parts of a process create a greater value through integration of organization(s) and assets working together toward a single objective and purpose, than if they remained stand-alone.

- **Value Proposition** – the entire set of resulting experiences, including price, which an organization causes some customers to have. Customers may perceive this combination of experiences to be superior, equal, or inferior to alternatives.[24] The goal of the organization is to provide an optimized mix of experiences to a group of target customers, profitably and with a value that is perceived as better than those offered by the competition.

[24] Lanning, Michael J. (1998). *Delivering Profitable Value: A Revolutionary Framework to Accelerate Growth, Generate Wealth, and Rediscover the Heart of Business*. Reading, MA: Capstone Publishing Ltd.

PARTICIPATING COMPANIES IN CORPORATE REAL ESTATE 2010

Corporate End-Users and Service Providers participating in CoreNet Global's Corporate Real Estate 2010 research and leadership development program include:

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The Staubach Company
Tishman Speyer
Trammell Crow Company
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RESEARCH TEAM LEADERS

Seven research teams were created and launched in North America, with an eighth team launched in Europe to address similar issues. The eight research teams included:

- **The Changing Nature of Work and the Workplace.** Team Leader: Eric Scaff, Johnson Controls. This team was also assisted by Dr. Charles Grantham and Dr. James Ware from The Work Design Collaborative.

- **The Strategic Role of Place.** Team Leaders: Tom Bomba and Dylan Taylor, Jones Lang LaSalle.

- **New Models for Solutions Delivery and the Transformation of the Service Provider Industry.** Team Leaders: William J. Braun, Cushman & Wakefield; and Mary Pat Rick, Johnson Controls.

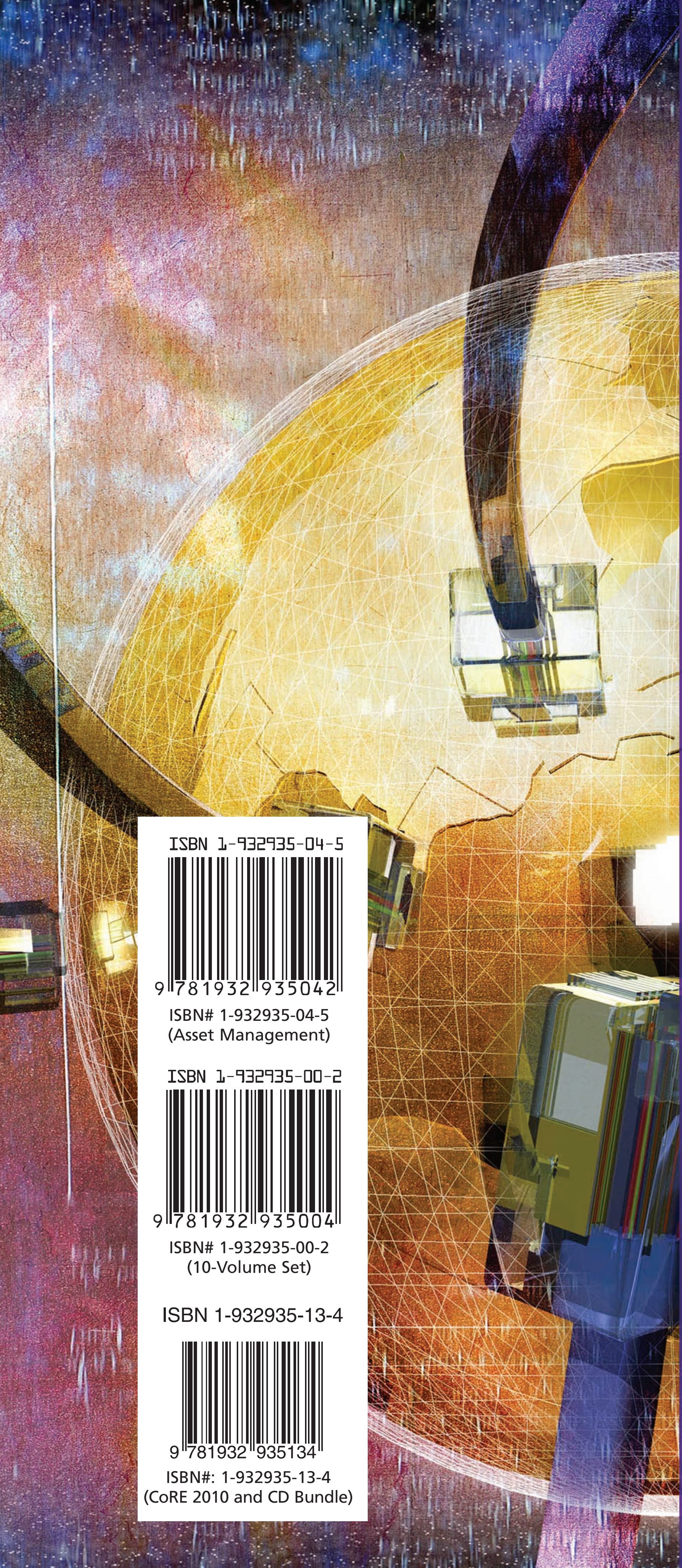
- **Asset Management and Portfolio Optimization.** Team Leaders: Candace Fitzpatrick, CRESA Partners; Craig Morris, Grubb & Ellis; Randy Pereira, CB Richard Ellis; and Susan Wojciechowski, Trammell Crow Company.

- **Integrated Resource and Infrastructure Solutions.** Team Leaders: Karen Ellzey, Trammell Crow Company and Steve Valenziano, Jones Lang LaSalle.

- **The Role of Technology and the Web.** Team Leaders: Georgia Perkey, Earth Tech; Kay McNew, General Services Administration (GSA); and David Clute, Cisco Systems & OSCRE. CB Richard Ellis fully supported this team and was instrumental to its success.

- **Enterprise Leadership: Skills and Competencies for Successful Corporate Real Estate and Infrastructure Leaders.** Team Leaders: George Bouris and Dennis Cassel, Deloitte; and Scott Foster, Booz Allen Hamilton.

- **Sustainability and Corporate Social Responsibility.** European Research Team: Nigel Yeatman, Cushman & Wakefield; Nick Axford, CB Richard Ellis; and Francesca Hughes, Jones Lang LaSalle.



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