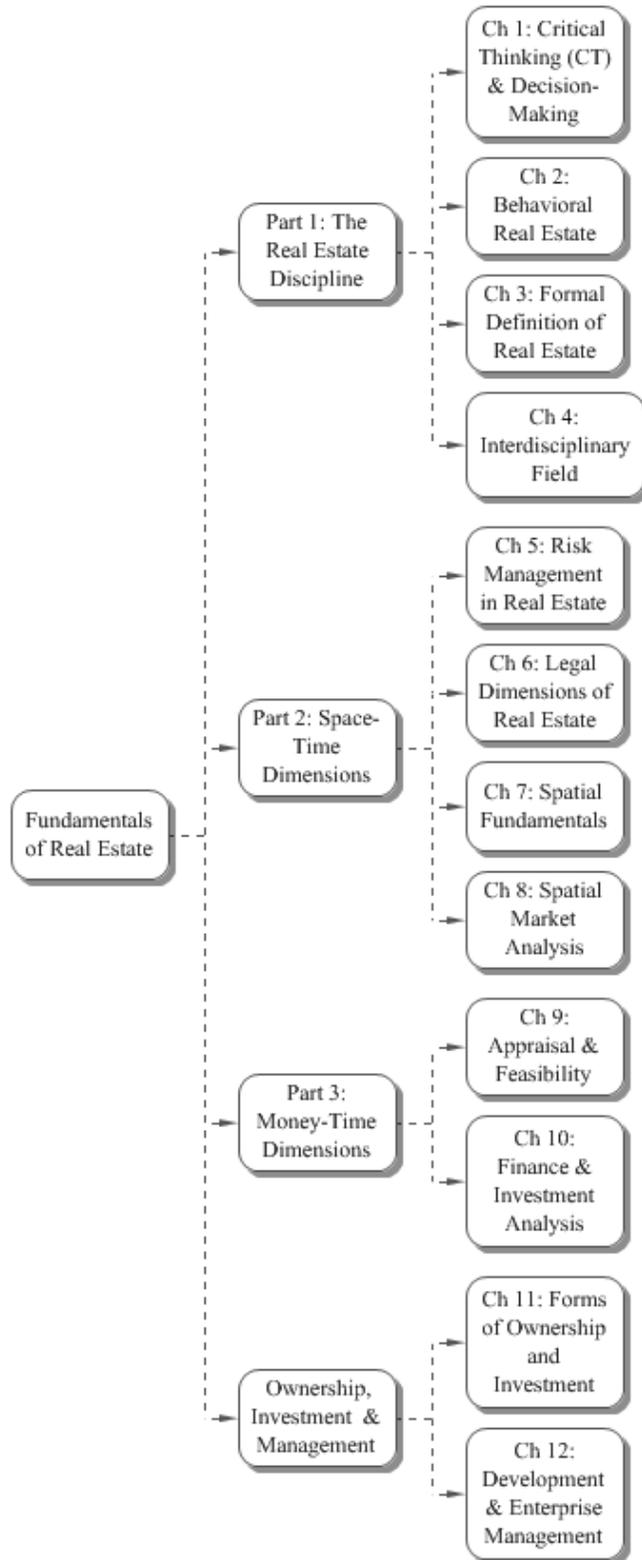


Overview: Fundamentals of Real Estate



This is the reorganized Fundamentals of Real Estate. The book is organized into four major sections.

This document presents the proposed format using Chapter 1 as a prototype. The other chapters are being formatted using the same basic layout to provide some consistency. Noteworthy changes include:

1. Chapter Preview
2. Text Box Highlights
3. Commentary with explanations and examples of advanced topics.
4. Exhibit numbers and formats.
5. Chapter Summary/Review

In an electronic format, the document would include hyperlinks

Revised: August 2, 2010

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Chapter 1: Critical Thinking and Decision-Making

Preview Chapter 1

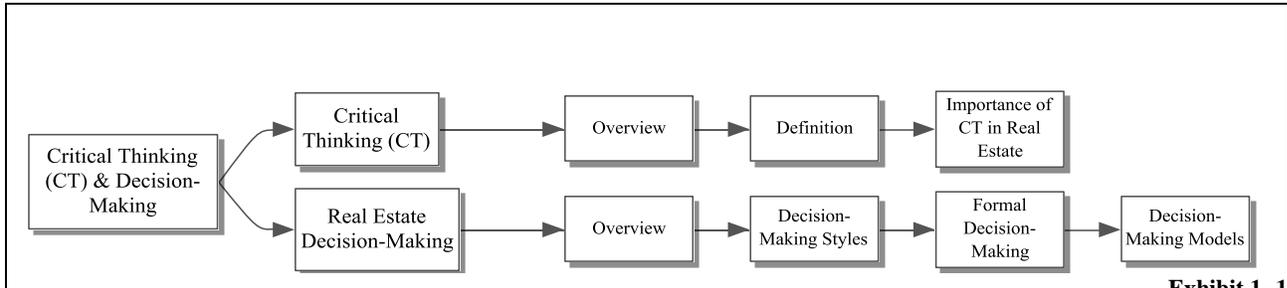


Exhibit 1- 1

Overview

This chapter is designed to emphasize the importance of applying critical thinking to the real estate market in light of its unique and inefficient (i.e., largely private, unequal information, inelastic supply) nature. The discussion also provides an overview as to how one can hone one’s critical thinking skills in general, and then with respect to real estate in particular. It concludes with some questions regarding real estate that can be used to test one’s ability to critically think about real estate issues at this point in time, prior to having delved into the balance of the module. This will provide something of a base line, and allow students to track their progress.

The discussion of decision-making provides an overview of the how decisions are typically made in the real estate market. It then introduces a framework that can be used when approaching real estate decisions. The discussion also introduces various types of decision models and styles that could be applied, as well as some food for thought in the form of “critical thinking exercises.”

What you will learn in Chapter 1

- What critical thinking is and what it entails.
- Why real estate is an inefficient market
- How to apply Decision-Making to real estate.
- How to position decisions.
- Requirements of formal decision models
- How to apply formal decision models
- Types of decision models

Example. See example of traditional Highest & Best Use model.

- Highest & Best Use (H&B Use)
- Criteria: physically possible, legally permissible, marketable, economically feasible & highest value
- Unweighted models: disjunctive, conjunctive, cut-off
- Weighted models: compensatory, non-compensatory
- Sensitivity & Attribution analysis

Key Constructs

<p style="text-align: center;">Definition of Critical Thinking</p>	<ul style="list-style-type: none"> •The art of analyzing and thinking to improve it •Thinking that is purposeful, focused & action-oriented
<p style="text-align: center;">What it Involves</p>	<ul style="list-style-type: none"> •Not accepting the “way it is,” asking “why it is?” •Creating clear and precise problem statements •Questioning vital assumptions and implications •Gathering and assessing relevant information •Using abstract ideas and creating thinking to interpret •Coming to well-reasoned conclusions and solutions •Testing them against relevant criteria & standards •Making recommendations and communicating them

Critical Thinking

Overview

Although real estate practice has been around a long time, the field has failed to emerge as a unique discipline.¹ This is especially true in the academic community where it has been relegated to a mere subset of other fields, mostly finance within which most academic real estate programs reside. While this domicile has provided some useful insights and a framework for real estate practice, it has cannibalized efforts to create a distinct discipline with its own theoretical foundation and unified body of thought. It has also left the discipline open to interpretation. This in turn has empowered a number of parties with vastly different educational backgrounds, interests and skills to set the direction for the industry. The end result has been the lack of consensus on interdisciplinary “best practices” that focus on market-based solutions which are both economically viable and sustainable. Indeed, if the field had emerged as a distinct discipline and approached real estate as a resource rather than a financial asset, it would not be playing catch-up with such important issues as sustainability and socially responsible investing.

The failure to elevate real estate to a distinct field has created a number of problems for the discipline. Although it has made advances, the discipline remains plagued with ambiguity and uncertainty. As such, the barriers to entry are very low and few entering the field understand the education, training and experiences that are necessary to assume the role as “stewards of the land.” At the same time, the void in applied theory has blurred the line between what is properly in the domain of real estate, and what is in the domain of related fields with an interest in, or influence on, real estate. As such, real estate has been on the defensive when new issues have arisen (e.g., growth management, smart growth, green buildings). Playing catch-up without the benefit of a rigorous foundation of knowledge has allowed others to set the rules within which real estate must operate. As a result, a number of critical decisions and policies based on normative beliefs rather than real estate fundamentals have been created. Some of these have led to a number of unintended consequences that could have been avoided if real estate academicians and professionals had taken on leadership roles early on in the debates.²

The lack of an independent unified body of thought has been particularly problematic since real estate is both a behavioral science and inherently inefficient market. This book has been written with the premise that real estate academicians, students and professionals should step back and try to develop a clear understanding of real estate fundamentals and how the market currently

...if the field had emerged as a distinct discipline and approached real estate as a resource rather than a financial asset, it would not be playing catch-up with such important issues as sustainability and socially responsible investing.

¹ This statement is likely to catch many off guard, especially academicians and professionals who have focused their efforts on real estate careers. Despite the progress that has been made on both sides of the spectrum, the fact remains the discipline lacks an independent, theoretically based, unified body of thought and has been forced to borrow from other disciplines.

² Unintended consequences are events or outcomes that are triggered by some action that were not considered when making a decision or adopting a policy. While these ripple effects may be positive, the concept focuses on the negative side which if considered, would have resulted in a different decision.

works. Based on that foundation it will be possible to apply critical thinking skills and common sense to improve decision-making and ultimately the quality of space they produce or impact. Thus, those new to the field and experienced veterans who want to help advance the discipline and avoid repeating sins of the past should approach real estate with an inquisitive mindset. They should also approach new challenges with a degree of skepticism and challenge conventions that have become institutionalized but lack any empirical foundation. Therefore, the objective of this chapter is to help readers start asking “why we do what we do?” rather than accepting it as “the way it is” and more importantly, the “way it will be.”

The suggestion that those who are new to the real estate field should approach it with a critical eye can be daunting for readers who are new to the field. It can also be challenging for those who are currently in the industry but don’t have a clear understanding of some of the nuances of how the market works. This creates something of a conundrum. Indeed, readers are being asked to hone their critical thinking skills before they try to develop an in-depth understanding of the underlying fundamentals upon which the industry is built. That said, the investment in time, energy and brain matter should enhance their careers and allow them to understand why various parties make what appear to be irrational decisions and don’t behave the way we think they should. The reality is that there is no irrational behavior in the real estate market; its appearance merely reflects our inability to understand the underlying rationale that drives individual decisions which, in the aggregate, make up the market.

Commentary 1- 1

Before launching into a discussion of real estate fundamentals, it is important to step back and take a fresh look at our critical thinking skills. Once we have set the stage, we can then turn our attention to the behavioral nature of the market. This will allow readers to understand how the market works today as well as how it might function going forward. This dual approach will help readers develop the skills necessary to succeed in their real estate careers in light of current practices, as well as empower and motivate them to help advance the state of the art.

The Scientific Method vs. Critical Thinking

The scientific method and critical thinking have some common elements but are distinct approaches to problem solving. Both rely on an objective, dispassionate search for answers to questions. Broadly speaking, the scientific method consists of a set of processes that are used to explore various phenomena, create knowledge, revisit current knowledge, and synthesize existing knowledge into a more holistic framework in search of truth. Although there a number of variations, the approach typically begins with hypotheses which are empirically tested. These tests then provide the building blocks upon which theory is derived. Through replication, the validity and reliability of results are established and help build a unified body of thought.

Critical thinking is more encompassing than the scientific method and may not result in empirical testing of hypotheses. Rather, it is a disciplined process that is used to decision making based on an understanding of complex phenomena. Rather than pursuing truth, the approach recognizes that there may be more than one acceptable outcome or conclusion. The approach often benefits from questioning existing knowledge in pursuit of improved understanding of the underlying phenomenon. It can also be used to develop answers to new questions or lines of inquiry in an effort to provide better decision support and achieve desired outcomes. It can also be applied to questions which cannot be empirically tested due to data limitations common to the largely private real estate market and its associated lack of transparency. Over time, the knowledge accumulated through critical thinking may lead to hypotheses that can be empirically tested over time and ultimately contribute to a common body of knowledge.

Critical Thinking Process

Critical thinking is a disciplined process that is used to make objective decisions based on the breadth and depth of inquiry appropriate to the issue at hand. Exhibit 1-2 illustrates the critical thinking process. As noted, the process begins with an awareness of some need or another trigger event and culminates in execution of the decision. While the illustration suggests there are clear separations between one phase and another, the reality is quite different. That is, critical thinking is an interactive process in which making sure the each of the steps is addressed is more important than the sequence. In addition, the depth of inquiry for each stage may vary depending on the nature of the problem or issue being addressed.

To be an effective critical thinker, one must be able to get out of one's comfort zone and become something of an intellectual pioneer. They must also be inquisitive, challenging assumptions others accept and focusing on the implications and practical consequences of those assumptions on the decisions they are trying to make. They must be patient and tolerant and willing to embrace critical thinking as an interactive process which benefits from insights from others and as well as from a willingness to vet preliminary conclusions with various constituencies. Thus, an effective critical thinker is one who is not only goal seeking, but is constantly open to new and better ways of thinking and is able to effectively communicate those thoughts.

Many people are not comfortable with such an open-ended approach but are content with following a prescribed path and just want to know how to get from point A to point B. Such approaches may work in the physical sciences which are subject to prescribed sets of actions and reactions and are governed by laws of nature. This is clearly not the case in real estate which is a behavioral science and is subject to ever changing market forces and market dynamics. In such an environment, a critical thinker must be able to think holistically and explore issues from different perspectives. This will provide the decision-maker with a system of checks and balances that improves the chances that the outcome has a better chance at achieving its ultimate goals and objectives. This is especially true when having to convince others of the merits of their recommendations in the complex, high-risk situations that typify many real estate decisions.

Critical Thinking Process

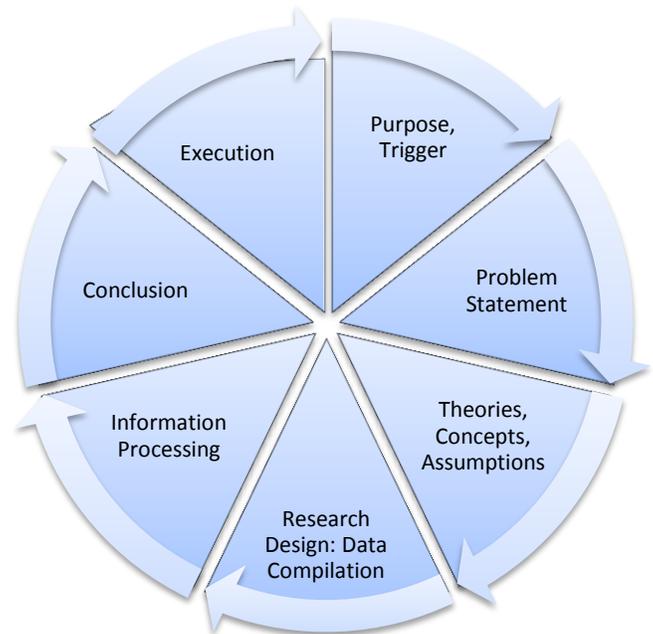


Exhibit 1- 2

To be an effective critical thinker, one must be able to get out of one's comfort zone and become something of an intellectual pioneer.

Importance of Critical Thinking

In some respects, advocating “critical thinking” might appear to be a trivial exercise since everyone thinks each and every day. While that is true, not everyone thinks critically. Indeed, much of the “thinking” that gets done is not really thinking but more of an anatomical response, looking to the past to figure out how to approach an issue. As such, it is more “doing” than thinking. Much of the thinking that does get done lacks objectivity and is biased, myopic, naïve, uninformed and backward looking rather than forward looking. One of the goals of this book is to help readers learn how to think critically and objectively, and to demand excellence in thought from themselves and from others who they encounter or who affect their quality of life. To get there, the discussion will attempt to cultivate an appreciation for systematic thinking and foster more holistic thinking that can be applied to decisions.

Importance of Critical Thinking

The Reality	<ul style="list-style-type: none"> • Everyone thinks • Not everyone thinks critically
The Problem	<ul style="list-style-type: none"> • Much thinking is biased, distorted, partial, uninformed • It affects the quality of our lives & what we produce, make, or build
The Goal	<ul style="list-style-type: none"> • The ability to think critically and objectively • The ability to achieve excellence in thought
Achieving the Goal	<ul style="list-style-type: none"> • A systematic thought process must be cultivated • A holistic approach must be applied ensuring breadth and depth of inquiry

Exhibit 1- 3

While critical thinking is important in many disciplines, it is particularly important in real estate due a number of factors including its capital intensive, durable nature that makes many decisions an “irretrievable commitment” of scarce resources. In addition, real estate is a highly controlled industry, especially when it comes to the regulation of land use.

Unfortunately, many of the regulations and policies that guide real estate practices were based on assumptions and normative beliefs rather than how they will affect the market. In some cases, the failure to consider market effects has created “unintended consequences” which can have the potential to do more damage to the broader market than the good they achieved. While real estate professionals were a bit slow to the dance on these issues, they have been working hard to play catch-up. This catch-up mode has imposed additional risks on the market since many of the policies that have been established were developed in the absence of input from the real estate

Unfortunately, many of the regulations and policies that guide real estate practices were based on assumptions and normative beliefs rather than how they will affect the market.

industry. This creates a conundrum for the industry; how to interject market-based considerations into the existing policies without appearing to be against the underlying values they represent. To overcome the challenges associated with joining a movement in progress when the current champions may be a bit skeptical about motivations, real estate leaders must come to the table with facts rather than opinions. The ability to deploy critical thinking will come into play at two levels of this challenge. First, it can help develop logical, empirically based solutions to complex problems that affect the built environment. Second, it can help figure out how to get involved to help find collaborative solutions rather than the sometimes combative approaches of the past.

Definition of Critical Thinking

Critical thinking, as opposed to mere thinking and acting, is a combination of an art and a science. It is a learned process by which one approaches a variety of decisions from an objective perspective. To be effective, applied critical thinking must be purposeful, focused and action-oriented. That is, it must be designed to address an actual need, it must be concentrated on a particular issue, and it must be applied to support a decision or implement a policy or program.

Definition of Critical Thinking

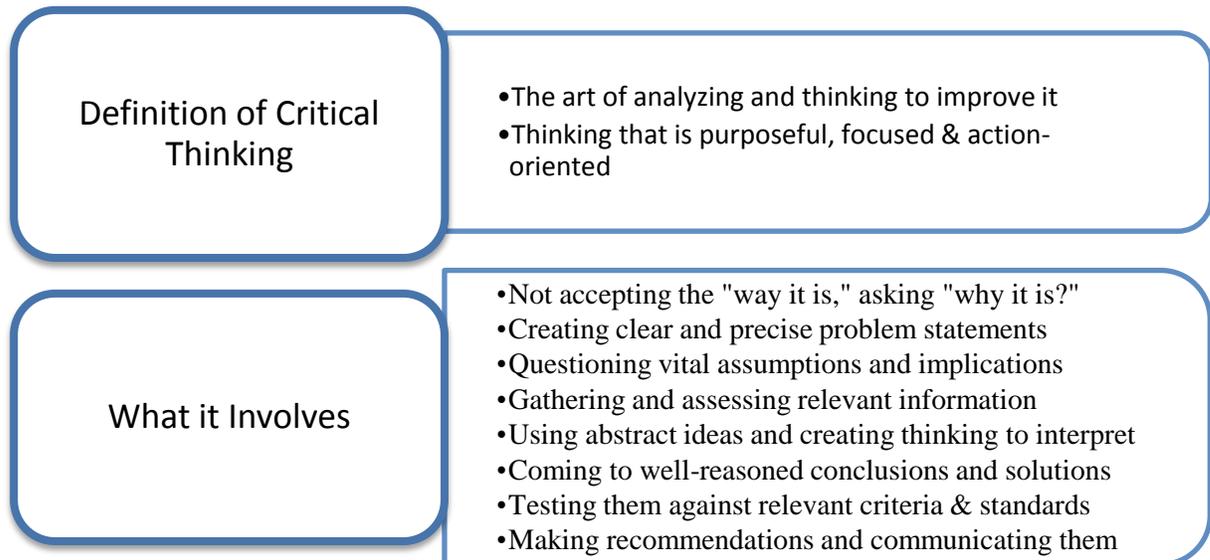


Exhibit 1- 4

Once the problem statement has been flushed out, the process turns to the research design that will guide the fact-finding phase. The research design should identify the analytical framework and data requirements that can be processed into useful information. The research design should be developed with an eye toward the behavioral nature of the industry and the wide range of decision-makers who may influence a particular issue. This argues for a segmented approach that is designed to capture the perspectives of the relevant market players with both the vested interests and the ability to affect the outcomes. This phase generates potential solutions or preliminary course of action that are plausible. The critical thinker then tests these solutions or actions against pre-specified criteria to determine if a satisfactory solution has been identified.

Extending Critical Thinking to Real Estate

Challenges in Making Real Estate Decisions

The application of critical thinking, in and of itself, is a difficult skill to master. Extending critical thinking to real estate decisions is even more challenging. This is due to several complications that must be overcome. *First*, the unique nature of the asset class with its dual Space-Time/Money-Time dimensionality makes it difficult to extend traditional approaches to decision-making. *Second*, the real estate market is inefficient in the sense that information is not readily and equally available to all decision makers. It is also inefficient in the sense that supply is relatively inelastic and cannot readily expand or contract to respond to changing demand. *Third*, real estate is a behavioral science, with each decision and transaction the result of deliberations and negotiations among parties with different interests, experiences, skills and drivers. *Fourth*, real estate decisions often invoke group decision-making. This introduces a new set of dynamics that makes it more difficult to adhere to processes that overcome personal and political issues, much less ensure that critical

Commentary 1- 2

thinking has been applied. *Fifth*, for many, real estate decisions are made infrequently. As such, decision makers may lack the experience and resource support available to those who are accustomed to making more frequent and less complicated decisions. *Finally*, real estate is a highly regulated industry that is subject to pressure from a number of external sources (e.g., planners, politicians, regulators, citizen's groups, advocacy groups). Since this pressure can

Inefficient Market

The efficient market hypothesis was developed in finance. In this context, it focuses on "informational efficiency." In essence, it assumes that all players have equal knowledge about an asset rendering it impossible to "beat the market." There are various forms of efficient market assumptions. The "weak form" is where all players have access to past data (i.e., stock price trends). The semi-strong form assumes all players have access to past data and instant access to current data. Finally, the strong form assumes equal access to all information, even hidden or insider information. The real estate market does not satisfy the efficient market assumption due to several factors including its private nature and lack of transparency. While some argue that publicly-traded Real Estate Investments Trusts (REITs) and Commercial Mortgage-Backed Securities (CMBSs) satisfy the semi-strong form, they represent only a minor proportion of the overall market compared to privately held investments and owner-occupied space. Furthermore, the prices at which real estate trades may not reflect the true "value" which can be affected by financing terms and contractual terms which are not discoverable at a transaction level in either the private or public market. The semi-form hypotheses is assumed in many financial models which renders application to real estate without adjusting for differences in the asset class invalid (i.e., Garbage in, Garbage out). Unfortunately, that has not prevented many decision-makers from blindly applying finance theory to real estate which has actually contributed to even greater inefficiency. Thus, critical thinking and efforts to understand the drivers behind market behavior take on much greater importance in real estate than in other asset classes.

change, it introduces a level of uncertainty regarding the institutional constraints that will be in effect over the full real estate life cycle. This is especially true since many of these sources will vet the issues in the public forum, exposing the industry to political risk and adding to the uncertainty surrounding real estate. This adds a layer of "institutional" and group behavioral complexity to the thinking process.

Challenges in Extending Critical Thinking to Real Estate

Despite the challenges faced in applying critical thinking to real estate, the direct and indirect benefits far outweigh the costs. The direct benefits consist of capturing positives (e.g., adding to returns and user satisfaction) and avoiding negatives (e.g., reducing losses, avoiding suboptimal solutions that hurt productivity). The indirect cost/benefit ratio focuses on the externalities which can be affected by real estate decisions in either a positive or negative way.

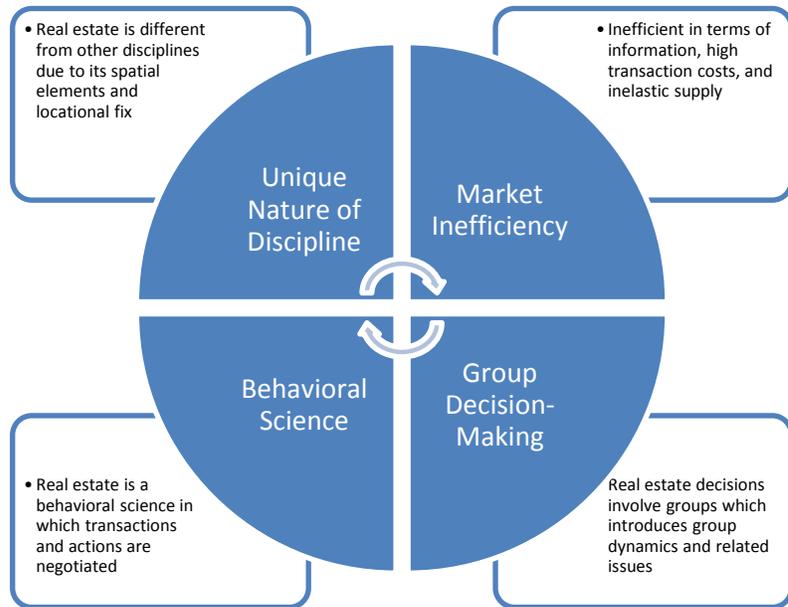


Exhibit 1- 5

Decision-Making Process

To help make sure professionals and others who have an impact on real estate decisions “get it right” by incorporating critical thinking, a systematic process should be applied. As noted in Exhibit 1-5 this process can be envisioned as a multi-step program with a discrete number of steps. However, as in the wheel of thought, the sequential manner of thinking is illustrative rather than proscriptive. That is, due to inefficiencies in the market (i.e., lack of perfect information, inelastic supply, vulnerability to policy changes) and behavioral nature, the process must be approached in an interactive manner rather than as a checklist or roadmap that can be blindly followed.

A simple example of non-sequential decision-making is the application of due diligence once a deal has been tied up. While this might seem backward, the time and expense in properly underwriting individual decisions makes it too onerous to apply to prospective deals. However, due diligence is critical to make sure that deals that actually get closed are aware of any latent issues or risks. If they are discovered and cannot be resolved to the mutual satisfaction of the parties, the deal is dropped and they have to go back to the drawing boards and seek another solution. While frustrating to some type-A personalities who are action-oriented and have little tolerance for ambiguity or inefficiency, real estate decisions often benefit from and sometimes require feedback loops or checks and balances that can provide additional insights once they are discovered as well as a sense of direction as to how best to proceed. Depending on the nature of the question at hand, the decision-making process can be modified to fit a number of situations.

Decision-Making Process in Real Estate

Decision-Making Process

To help make sure professionals and others who have an impact on real estate decisions “get it right” by incorporating critical thinking, a systematic process should be applied. As noted in Exhibit 1-6 this process can be envisioned as a multi-step program with a discrete number of steps. However, as in the wheel of thought, the sequential manner of thinking is illustrative rather than proscriptive. The process must be approached in an interactive manner rather than as a checklist or roadmap that can be blindly followed.

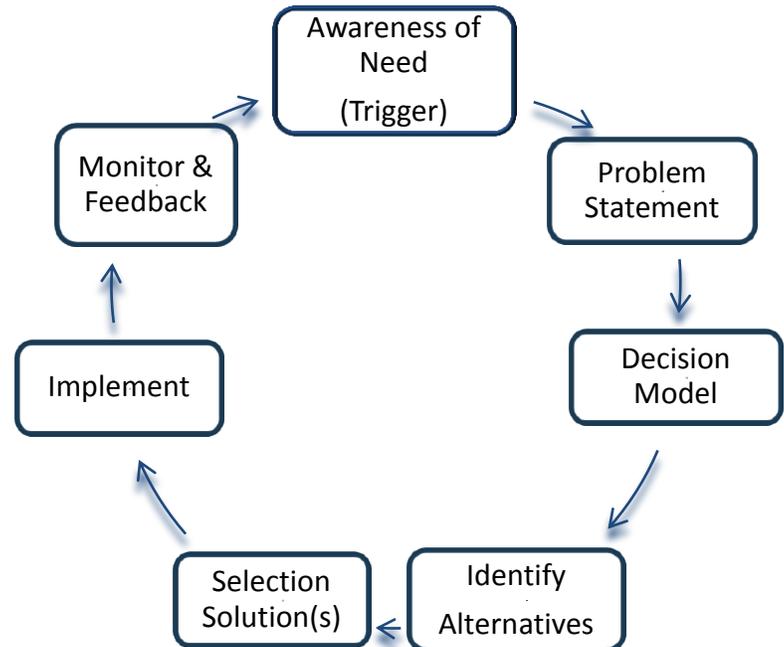


Exhibit 1- 6

Commentary 1- 3

Awareness Triggers. In general, the decision-making process begins with some trigger; an event that creates an awareness of the need to make a decision. In some cases, these triggers may be ignored and the current solution simply extended. While seemingly benign, the failure to step back and explicitly address spatial decisions could have far-reaching consequences especially since needs and market conditions are likely to have changed over time. Thus, a good rule of thumb is to treat all real estate decisions as non-trivial and ensure that they are approached with the level of scrutiny and discipline they warrant.

Awareness Triggers

A decision trigger in real estate could be the realization that a company is operating at full capacity and needs larger facilities to accommodate the current business and allow for expansion. On the other hand, a company may be coming up on the expiration date for an existing lease and a decision must be made whether it should be extended, renegotiated or replaced by moving to another space. In the former case, the decision is overt and action-oriented and may involve a change in location to a larger facility. In the latter case it can be subtle and approached without critical thinking by deciding to renegotiate and extend the terms of the existing lease.

Problem Statement. The process of critical thinking begins with an in-depth exploration of the problem statement or issue that needs to be addressed. This might sound obvious and somewhat trivial but the reality is this stage is essential and often places the problem in a significantly different context than if the “problem as stated” was blindly accepted as the problem at hand. Indeed, in many cases the initial “problem as stated” is really more an issue statement or one that concentrates on the symptoms or manifestations of a problem rather than at the essence of the problem.

... in many cases the initial “problem as stated” is really more an issue statement that addresses the symptoms or manifestations of a problem rather than at the essence of the problem.

Specification of a Decision Model. After the problem statement has been formalized, an appropriate decision-model can be specified. Specification of the model should address data requirements and analytical methods. It is important that the decision model be specified before alternatives are considered. This will help avoid getting caught up in spontaneous decisions, politics or processes. It will also provide decision-makers the opportunity to stay focused on the underlying goals and objectives of the problem at hand. In addition, specifying criteria and selecting a

... Specification of a decision model should be established before alternatives are considered to avoid getting caught up in spontaneous decisions, politics or processes.

model at this stage can also help avoid the danger of being forced to “write a policy with a deal on the table.” This situation can occur when someone finds a deal and then becomes a champion of the deal, pushing for a policy that will allow it to be approved. If such a policy is written, it can easily become another “that’s what we do.” In the absence of critical thinking to revisit this ad hoc policy it can become institutionalized. A much better approach is to treat the “deal” as an exception and then use it as a test case for the development of a formal policy. In addition to avoiding risk, this approach will also encourage innovation and encourage critical thinking.

Identification of Alternatives. At this point in the process, the decision-making team can explore alternative solutions. In many cases, decision-makers will limit the alternatives they consider to ones that fall in their “evoked set.” The evoked set contains the possible alternatives that come to mind when first confronted with the decision or when it is explained to the decision-making team by the client. The scope of this evoked set will be influenced by a number of factors including the experiences of the decision-maker or client. It can also be affected by personal agendas or a priori solutions some internal advocate champions. Finally, it can be influenced by observations of what peers have done when making similar decisions. In many cases, decision-makers will try to consider a rather narrow range of options to simplify the task and avoid adding unnecessary work. While this is understandable, real estate decisions often benefit from a more inclusive or holistic approach. While this may push the boundaries of inquiry, it will help ensure the results are robust and benefit from some “out of the box” creative thinking.

Expansion of Alternatives

One example of the benefits of expanding the options can be drawn from the current market and the plight of owners who want to sell assets in a distressed market. The trigger behind this decision might be that the owner is facing refinancing risk and is concerned they may not be able to qualify for a loan and/or may have to accept recourse debt. The options that might come to mind up front are to: 1) cut the price to move the asset and absorb the loss, 2) let it play out and run the risk of foreclosure, or 3) hand the keys back to the lender in a strategic foreclosure.

Since each of these alternatives has some downside, the decision-makers may come up with additional options depending on the quality of the asset. In the first case, they could approach the lender and seek to renegotiate the loan to one that is more affordable, or to extend the term to bridge the bottom of the market. This may be accompanied with the offer of setting up an equity participation agreement which would increase the yield to the lender. Alternatively, they could find a substitute buyer who could step in and assume the loan. Finally, they could opt for a partial sale, putting proceeds in escrow to reduce or retire the debt when it matures and attracting capital partners by adding other performing assets to the mix.

Another example would be the case of a tenant in a good building for which the lease is expiring in the near term. The alternatives appear fairly simple: extend the lease under the initial renewal terms, or move to a new location. While these are choices, the tenant has more choices, depending on market conditions. For example, in a soft market the tenant might opt to renegotiate the lease downward to get a reduction in rent for staying or to other concessions or incentives. Alternatively, the tenant might offer to purchase the building from the owner to take advantage of declining values.

Selection of a Solution. Once the alternatives have been specified, they should be tested against the evaluative criteria and run through the decision model. While this sounds rather straightforward, the selection process can be fairly involved, especially if includes consideration of alternatives which may not be obvious candidates. In selecting the optimal solution, the process should be dynamic and forward looking rather than static and backward looking. This is important in light of the cyclical nature of real estate which renders solutions based on the way it was vulnerable to errors if the market hits an inflection point and begins to turn.

The selection process should conduct some form of attribution analysis to document why the chosen alternative beat out other options. At the same time, sensitivity analysis should be conducted to test the stability of the solution. This could consist of changing the weights attached to the various criteria to determine if the recommended choice still emerges. Alternatively, some scenarios could be evaluated by looking at the results of best case and worse case assumptions on each of the variables. Depending on the nature of the problem and the associated risk, more complex scenarios can be run using multivariate simulation models (e.g., Chrystal Ball). Finally, in real estate, although a single choice is required to move forward, alternative choices should be identified. This will provide some fallback options in case the desired choice cannot be implemented under the assumed conditions (e.g., price, timing, and contractual requirements).

Extending the decision-making process into the implementation stage is necessary since transactions are negotiated, and it is not possible to know how the negotiations will turn out...

Implementation. After the optimal solution has been identified, the process does not end, but extends into the implementation stage. This is necessary since the subsequent transactions that will implement the decision are negotiated, and it is not possible to know how the negotiations will turn out going into the final stage. To address uncertainty regarding the outcome of negotiations, decisions should specify the guidelines, parameters and deal points that must be satisfied during the implementation phase. This will give the negotiator some flexibility to negotiate and also help them understand where to draw the line and turn to the next best solution.

... decisions should specify the guidelines, parameters and deal points that must be satisfied during the implementation phase.

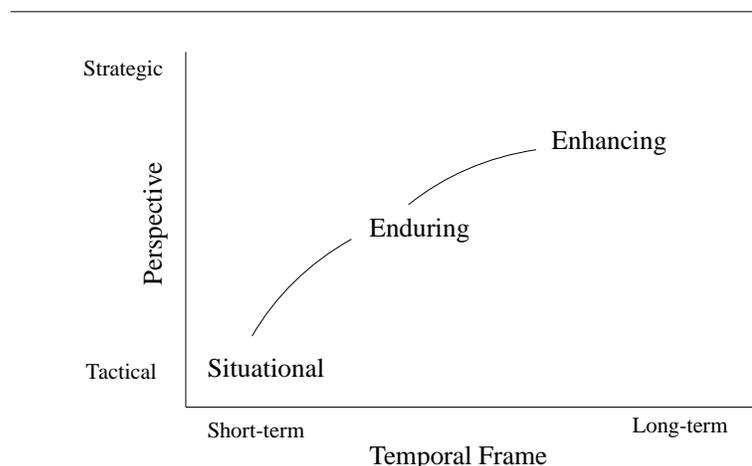
Monitoring and Feedback. One of the most overlooked stages of real estate decision-making is the monitoring and feedback stage. Ignoring this stage could have implications for the success of the initial decision, as well as subsequent decisions that may use it as a precedent. This caveat is particularly true in real estate since the track record or success of prior decisions can be difficult to determine after the fact. Thus, setting up a monitoring and feedback system up front can document “lessons learned” and allow the decision-maker to avoid repeating mistakes of the past. To provide an objective basis for monitoring and feedback, the key assumptions and deal points that supported the decision should be formally documented and, where possible, quantified during the selection process. Of particular importance is specification of the “expected outcomes” that can serve as a benchmark for success. These benchmarks can help identify potential flaws in the decision making process that can be addressed and incorporated in future decisions.

Positioning Analysis

Positioning Analysis

One of the preliminary stages that should occur before the decision-makers get too involved in the process is the positioning of the decision. This analysis is designed to establish the philosophical and temporal perspectives that should frame the decision. Exhibit 1-7 illustrates Positional Analysis for real estate decisions. As noted, the y-axis plots out whether the decision can be approached in a tactical manner or should be approached from a more strategic perspective. The x-axis denotes whether the temporal frame of the decision can be short-term and focused on current needs or whether it should be long-term and focused a longer period of time.

Real Estate Decisions: Perspectives & Time Frames



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Exhibit 1- 7

Situational-Type

Decisions. Decisions that fall in the “situational” category are often driven by the need for making a quick decision. These types of decisions fall into two categories. *First*, they are non-material and don’t warrant more in-depth analysis. Many times these types of decisions are made infrequently and are ancillary to the enterprise and don’t receive a lot of attention. Either explicitly

or implicitly the decision-maker has determined that they are not material and not worth the time, resources and effort it would take to approach in a more rigorous, analytical manner. *Second*, they are driven by some unexpected or unplanned event and must be responded to in an expedient manner. This type of crisis management can compromise the decision-making process and leave little time to approach the decision in a thoughtful manner much less apply critical thinking to the process. However, critical thinking can be used to develop early warning systems and fast-track approaches to problem solving that can be deployed when such situations arise. This is particularly important in making real estate decisions which can have subtle but significant implications for the firm and thus should not be treated lightly. Unfortunately, many companies do not understand the role that “good real estate” can play in the success of a firm and take a minimalist approach to the real estate decision-making process.

Situational-Type Decisions

An example situational decision is when a mature, stable company with limited growth potential is facing the maturing of a long-term lease. In this case, the decision is often approached with a sense of expediency, with little information processing and/or evaluation of options. As such, the tenant chooses to maintain the status quo and not think about alternative solutions. This approach is somewhat understandable as it allows the tenant to carry on with “business as usual.”

Another example of a situational decision is the dilemma faced by the corporate real estate (CRE) department of the surviving side of a Merger & Acquisition (M&A). One of the justifications likely cited for acquiring the target firm if it was not in distress is that the combined company can achieve economies of scale. In addition to cutting payrolls, the most visible cost-cutting move is the disposition of excess properties. This creates situational pressure where the CRE department is forced to dump assets, regardless of market conditions and/or future spatial needs. Although the “situational needs” can be satisfied, the short-term metric may be at the expense of maximization of wealth of the firm if a more orderly disposition program could be adopted.

Enduring-Type Decisions

An example of an “enduring type of decision” would which addresses the questions of which market a successful local firm that has an established track record and dominates their home market should expand into to accommodate growth. The problem statement is to develop an expansion plan that doesn’t jeopardize the current “brand,” builds on its competitive advantage, and diversifies its base of operations. In developing the expansion program, the decision maker should start with an understanding of the drivers of success that got them to where they are today. Attention should then turn to determining how that track record can be leveraged and which markets should be targeted for expansion.

Once the decision maker understands the critical success factors, research should be conducted to understand “best practices” in key areas such as strategic business expansion, market targeting and site selection. The decision model should draw on an understanding of these internal and external considerations to develop a customized model that achieves the goals and objectives underlying the expansion program as it moves into new markets. In a defensive mode, the decision model should also incorporate features that ensure that the company does not compromise its competitive position in its current market and expose its existing operation to excessive risk if the expansion does not work as planned.

Enduring-Type Decisions. When dealing with “enduring” problems, the goal is to make decisions that revenue neutral to revenue positive. The underlying tone is one of conservatism rather than aggressiveness. The objective is to make decisions that ensure long-term success rather than short-term profits. The decision maker recognizes that the decision is non-trivial, and must be approached in a more rigorous manner than “situational” decisions. Since such decisions have the potential to affect business activity, either positively or negatively, decision-makers expend more time, energy and other resources to support decisions. They also extend efforts to understand best practices surrounding the decision itself to make sure that they remain competitive. Additional research is necessary to ensure the decision is approached in an appropriate manner and that a framework is put in place that can generate valid and reliable results. To that end, attention is paid to current market conditions and key emerging trends that are likely to have an impact on the suitability of the decision over the planning horizon.

Enhancing-Type Decisions. The category of enhancing-type decisions is distinguished from the others by the fact they take the offensive and are more proactive than other categories which may be more defensive and reactive. One to key objectives underlying these types of decisions is to help grow the top line (i.e., gross revenues, net sales) while the situational and enduring categories may focus on the bottom line by looking for ways to cut costs or stay on the lower risk side of the spectrum by favoring safer, more conservative choices. While the other types of decisions can benefit from critical thinking, it is an essential component of “enhancing decisions.” To make enhancing-type decisions, best practices constitute the floor or minimal standard. Based on that foundation, the decision maker pushes the envelope to take the enterprise to the “next level.” Given the dynamic, competitive nature of many industries, reliance on “business as usual” is no longer an acceptable standard.

... “enhancing-type decisions” must explicitly incorporate critical thinking to help push the envelope of best practices.

Commentary 1- 7

Enhancing-Type Decisions

An example of an enduring type of decision is when a firm is considering expanding its business line beyond its core capabilities in an effort to become more vertically integrated and evolve into more of a full-service operation. For example, a firm might acquire existing businesses to complement its core activities. This could happen when a property type specialist firm (i.e., office, industrial, retail, apartment) considers expanding its business line to include other property types to better serve clients who seek some level of property type diversification. Another example would be when a strong domestic firm is exploring the option of developing a global capability to provide existing clients with more opportunities without having to develop new relationships.

Another example of an enhancing decision may be provided by the case of an advisory firm considering more vertical integration. In particular, this firm may be considering the development of an in-house property management function to capture some of the “leakage” or revenue-generation that currently flows over to third-party managers, or to create greater alignment of interest that could enhance property-specific performance. A final example is the case of a firm with a strong market knowledge and understanding of real estate fundamentals. In this case it may consider leveraging that knowledge by providing complementary services to its clients. These services might be focused on existing tenants to help them improve their business operations, or on investors to help them manage real estate investments from a more strategic perspective, introducing portfolio management services as an overlay to individual investment strategies.

Decision-Making Styles**Decision-Making Styles**

There are a number of styles that can be applied to decisions-making. In many cases, the decision-making style is adopted without much deliberation.

While

understandable, the stakes are so high

that the determination of the appropriate decision-making style should be explicitly addressed. Allowing it to fall to chance or to be determined by the personalities of some of the key players is likely to lead to sub-optimal solutions. Exhibit 1-8 presents some of the major decision-making styles: directive, quantitative, analytical, qualitative, and behavioral. While each of these styles had distinguishing characteristics, they can be combined into a hybrid approach, or can be used to develop a system of checks and balances or test the robustness of a conclusion.

Directive Style	<ul style="list-style-type: none"> •Results oriented, intolerant of ambiguity •Focused on efficient process to expediency
Quantitative Style	<ul style="list-style-type: none"> •Purely statistical, not based on understanding •Focused on methodology and processes
Analytical Style	<ul style="list-style-type: none"> •Inquisitive; integrates qualitative & quantitative •Seeking to understand processes and outcomes
Qualitative Style	<ul style="list-style-type: none"> •Based on a general understanding •Incorporates common sense, logic & thinking
Behavioral Style	<ul style="list-style-type: none"> •Focused on most probable players •Based on empathy & understanding

Exhibit 1- 8

Directive Style. The Directive Style is the most aggressive, focusing on rational conclusions that reduce ambiguity. In a perfect world, it might appear that this is the best approach with decision-makers maintaining an emphasis on pragmatic, bottom line decisions. Indeed, many developers, CEOs and other Type-A personalities approach decisions in this style. From an objective perspective, the directive approach is neither as efficient nor robust as it might appear, especially when applied to real estate decisions. Indeed, due to the inefficient real estate market and its dependence on human and enterprise-level decisions, decision-makers must be able to cope with a degree of ambiguity. This creates a dynamic tension between being decisive and action-oriented as opposed to more strategic and research-oriented. Many professionals opt for the action-oriented approach in real estate where being aggressive, intolerant and stubborn has epitomized what it takes to be a successful. Unfortunately, this style will not win the day when things are always changing and new challenges are being discovered.

... due to the inefficient real estate market and its dependence on human and enterprise-level decisions, decision-makers must be able to cope with a degree of ambiguity.

Quantitative Style. In the Quantitative Style, the emphasis is on developing statistically valid indicators of the phenomenon or issue of interest. Statistical tools that can be applied range from relatively simple univariate models used to test for differences among groups or to test hypotheses to more complex

multivariate models. The selection of the appropriate statistical model is a function of the nature of the problem and the availability and quality of data. One of the challenges in relying on purely quantitative analysis in making decisions is the fact that most models generate outputs regardless of whether data requirements have been satisfied. While there are a number of tests that can be used to qualify the data, the determination of whether the underlying assumptions have been met separate from the statistical models. Thus, models can be run regardless of the satisfaction of the underlying requirements yielding invalid and results. Since the emphasis of statistical models is predicting outcomes rather than helping develop and understanding of various phenomena, the results are often hard to evaluate against known benchmarks. Thus, the violation of underlying assumptions will not be recognized unless the analyst goes back and explicitly tests the underlying assumptions, a step that is often missed. Thus, while some may be enamored of purely quantitative models, they must be tempered to the situation and data limitations.

Analytical Style. In the Analytical Style, the decision-maker focuses on fundamental research to develop a model or framework that can be used to support a decision. In the absence of a solid theoretical and applied base, the analysis is often exploratory, focused on understanding the drivers and processes surrounding the phenomenon of interest. Although the Analytical Style often operates in the discovery mode, the style can be used to test a priori assumptions, hypotheses and forecasts. It can draw on quantitative and qualitative approaches in its effort to understand what is going on and provide meaningful decision support.

Qualitative Style. The Qualitative Style draws on a combination of market knowledge, primary research and problem solving. The objective is to develop an understanding the underlying phenomenon or issue. Insights are also drawn from experience with the particular phenomenon or by abstracting from similar phenomena. It involves logical thinking and pragmatism, seeking insights into why things occur. It also draws heavily on common sense and an understanding of how the market for the particular phenomenon or surrounding a particular issue operates. The style is useful in situations where data are limited or where the assumptions underlying quantitative models are not satisfied. It is also appropriate when looking at inefficient markets and emerging markets for which there are no historical data or benchmarks that can be used to provide a frame of reference.

...the behavioral style is often applied at a segmented level, focusing on the most probable set of players who will be involved in, or affect, the decision.

Behavioral Style. The Behavioral Style focuses on the processes by which decision-makers determine what they are going to do when faced with a particular situation. Rather than treating the market in a broad brush, the behavioral style is often applied at a segmented level, focusing on the most probable set of players who will be involved in, or affect, the decision. Once segmented, the analyst tries to develop sufficient empathy with the targeted market segments to understand differences in their motivations, search behavior, information processing and decision-making that distinguish them from other markets. The approach uses a combination of quantitative and qualitative tools to understand why the market does what it does in response to various phenomena. In terms of data, the Behavioral Style often relies on primary data collected through surveys, polls, interviews or observation.

Recommended Decision Style

Given the dangers of relying on directive and purely quantitative decision styles, real estate decision-makers are advised to apply a hybrid approach which blends quantitative analysis with qualitative (e.g., analytical and conceptual) and behavioral styles. The determination of whether a decision warrants incorporating each of them and if so, their relative importance can be incorporated by assigning weights to them and combining their scores. The inclusion of the styles and the weights attached to them should be based on the nature of the decision and the level of confidence in the validity and reliability of the signals each of them generate. The weights should also consider how the market or submarket in which the object of the decision arrives at its own conclusions. This will help avoid the problem of developing models that are elegant and intuitively appealing, but transcend or otherwise depart from common business practices. This type of error in decision-making could generate a conclusion that satisfies short term conditions, but which fails to meet market requirements and falls short on the exit side of the equation.

Requirements for Formal Decision Models

To generate valid (i.e., correct) and reliable (i.e., stable) results, the application of formal decision-making models should satisfy a number of requirements. *First*, the problem statement must be written with clarity, removing ambiguity that could deflect the analysis from the real problem at hand. *Second*, the decision maker should source new alternatives or options beyond the initial evoked set (i.e., plausible options) that is triggered when the decision first arises. *Third*, the decision-maker should be able to identify the evaluative criteria, and then quantify resource limitations that bound the range of alternatives that can be implemented if selected.

Elements of Formal Decision-Making Models

These decision-making requirements should be approached as general guidelines rather than absolute cut-offs. This is due to the inherent ambiguity surrounding some of the elements, as well as the fact that the ultimate decision will often require compromises and trade-offs. This is especially

Problem Clarity	•Problem statement is clear and unambiguous
Known Options	•Decision-maker can identify viable alternatives
Clear Preferences	•Criteria can be specified, quantified and ranked or weighted
Constant Preferences	•Criteria and weights (if any) are constant over time
Constraints Known	•Time or cost constraints known and have quantifiable impacts
Explicit Payoff/Goal	•Choice will be alternative offering highest perceived value or best meets other goals

Exhibit 1- 9

true in cases where a decision can have more than one acceptable conclusion. In such cases, the ultimate choice should depend on the how each of the viable alternatives satisfy the goals and objective expressed in the problem statement. Regardless of the kind of decision model that is applied, the final decision will blend some quantitative analysis with some

qualitative considerations that are beyond the immediate scope of the problem (e.g., impacts on branding, effect on social responsibility, political palatability). In the end, the decision-makers must be able to use the model to support human judgment. The conclusions generated through the decision-making model should weigh heavily on the final decision. However, they should not dominate the decision at the expense of common sense and understanding of how the market really works and how likely it is that it will change.

Application of Decision-Making Models

(Yellow boxes are "stopping points")

Applying Decision-Making Models

Once the decision-maker has determined the appropriate style and developed a model that can support the decision at hand, the application of the model must satisfy several criteria: suitability for the underlying problem and the context within which it is addressed; validity of the model in the sense of its ability to generate accurate conclusions; nature of the environment within which it is applied; and, the accuracy with which the model is applied.

Exhibit 1-10 presents a framework that can be used to guide the determination of whether or not an existing or customized model should be applied to a particular decision. As noted, each criterion has a stopping point and a proceeding point. The stopping points (i.e., yellow boxes) indicate the model cannot be applied as

currently configured. The passing point indicates the model meets that particular test. While the initial screens may seem obvious, the latter have more subtle implications and bear some discussion.

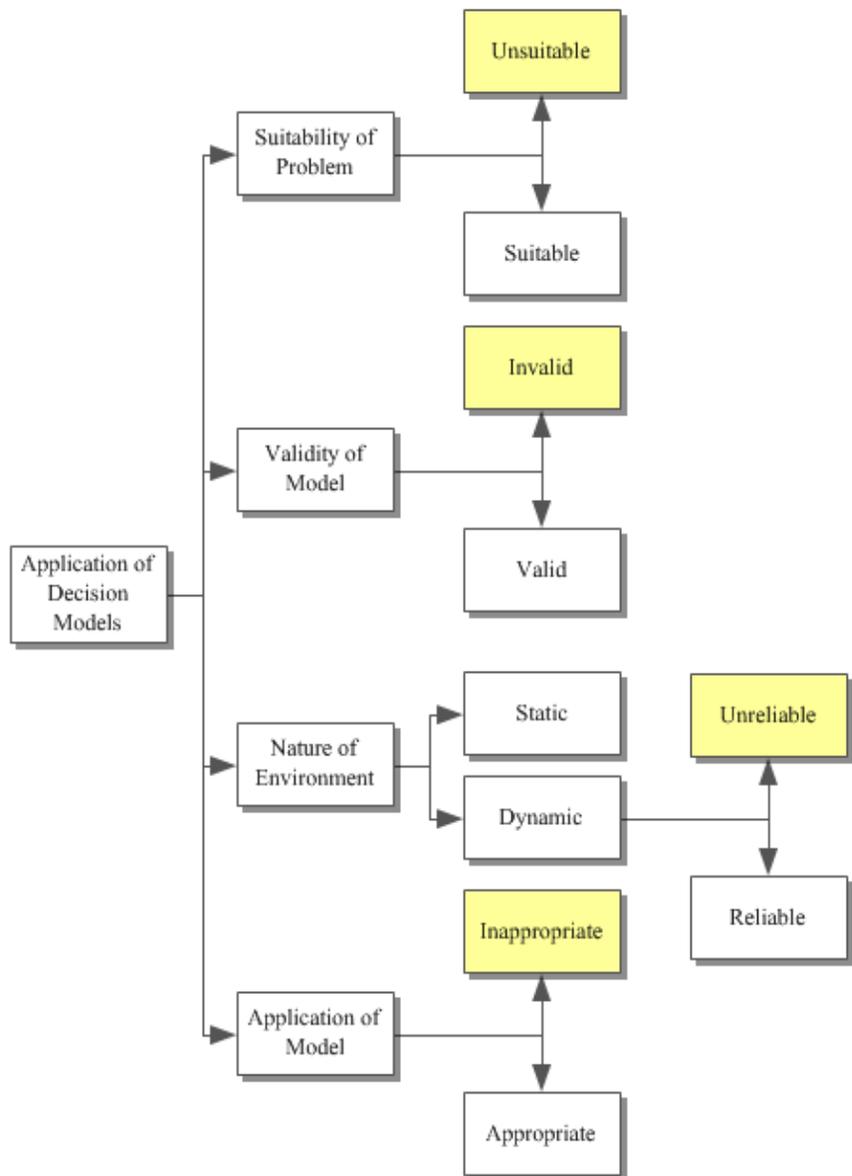


Exhibit 1- 10

currently configured. The passing point indicates the model meets that particular test. While the initial screens may seem obvious, the latter have more subtle implications and bear some discussion.

Unsuitable Problem Errors

The application of models to unsuitable problems covers a wide range of applications. On the one hand, this problem occurs from applying unnecessarily complex models to simple problems. On the other hand, it can occur when decision-makers apply models that are too simplistic to complex problems.

Commentary 1-9 discusses these two cases in some detail.

Commentary 1- 9

Unsuitable Problem Errors

An example of model that is too complex would be the reliance on a sophisticated Discounted Cash Flow model (e.g., Excel-based, Argus) to predict the market value for a property for which the “most probable buyer” are individual investors who focus on cap rates. While the Argus model would be more precise, it would not be a good predictor of the “most probable price” as it transcends the market. This line of inquiry should focus on the “usual suspects” or the most probable players who will be involved in the particular market segment in which the decision falls. Given the array of players in the market and the different perspectives, experience, motivations and market knowledge they bring to the table, this analysis should be focused on the “most probable players” and how they make decisions. In some cases, the decision-makers will rely on statistical models that pass tests of validity, while in others they will concentrate on behavioral approaches based on empathy and market knowledge.

An example of a complex problem that relies on too simple of a model would be the case where an investor with very limited real estate knowledge decides to buy distressed assets and relies on a market recovery to create value. While this kind of market timing strategy might work, success depends on the application of a number of sophisticated models ranging from underwriting to property and asset management to be able to select good assets. Some form of DCF analysis will also be required to model the financial elements and account for mortgage payments, tenant improvement allowances, concessions, leasing commissions, capital expenditures, capital improvements and other drains on cash flow to maintain solvency and reposition the asset for sale. The failure to account for such “fundamentals” could be disastrous, especially in a world that has turned back to recourse debt. The message is clear: there is no such thing as “no brainer investing” in real estate in general, and distressed assets in particular.

Validity of Model. The second test is to critique the model in terms of its validity. Simply stated, this requirement asks the question of whether the model accurately and unambiguously generates the correct solution. The criterion explores whether the model does what it purports to do, or whether it generates false conclusions. The possibility of using invalid models is amplified in real estate due to the absence of a rigorous theoretic framework that could be used to test the specification of various models. The problem is further complicated by the private nature of the market and the fact that the outcomes of models are not subject to public scrutiny. Indeed, in many cases those who use models to make decisions do not track what actually happens. Not only does this reduce accountability and incentives to think critically, but it inhibits the refinement and replication of models. The failure to audit the results of predictive models for real estate decisions can have far-reaching impacts on the individual decision maker and the enterprise. For

example, it can insulate deal makers from accountability for the accuracy of proformas submitted to get a project through investment committee. Since acquisition teams are often incentivized to do deals, this can introduce agency effects which put deal quantity ahead of deal quality. Unfortunately, while the transaction is the end of the deal for the acquisitions team, it is the beginning of the cycle for the operations team which must try to deliver on the assumptions in the proformas.

Commentary 1- 10

Validity of Model Errors

Several examples can be cited where the issue of validity is in question. The first case is where a model is based on normative assumptions of how the market should behave rather than an understanding of how it behaves. For example, a number of municipalities have adopted incentive programs to encourage mixed use development in hopes of creating more vibrant, walkable communities that are more “sustainable.” While intuitively appealing, these programs evoke developer behavior that focuses on the density bonus and not on the marketability of the retail space that anchors the ground floor. As such, many projects are built that create dysfunctional space that does not meet the needs of targeted users, especially at the price points the developer must charge. In such cases, the mixed-use incentive models can renders invalid conclusion and results in the creation of “unsustainable” space in the sense it fails to satisfy the intended demand, and winds up being backfilled by alternative tenants that are inconsistent with the modeled outcomes.

Another case deals with the “green building” movement and the financial “models” that have been produced that show going green pays off. In the absence data associated with the relatively short time period in which the LEED system has existed and the absence of long term data, analysts have been forced to develop hypothetical cases based on financial modeling. Many of these models assume rationale thinking and economic behavior which are important, but fail to capture some of the intangibles (e.g., first to market strategies, goodwill, social responsibility) that affected market behavior and price premiums and should be built into such models. This is especially true since the competitive advantage and pricing algorithms are likely to change as the green movement progresses along the diffusion of innovation curve.

Reliability of Model and Market Dynamics. The third criterion addresses the reliability of the model. In this context, reliability refers to the ability of the model produce valid outcomes over time in repeat applications. The risk is that a model that is valid at one point in time may become invalid over time if market conditions or other factors change. If this occurs, the model is unreliable and cannot be used to support decisions. To avoid this risk, a preliminary assessment of the environment should be made to determine if material changes have occurred. Before making this assessment, the decision-maker must have a sufficient understanding of the drivers of the market to be able to identify the variables or assumptions can have a material impact on the results. This argues against over-reliance on purely statistical models at the expense of models based on an understanding of real estate fundamentals and market mechanisms.

Once the key drivers are identified, the environment can be assessed to determine if it has been static (i.e., not much change) or dynamic. In cases where drivers have been static, models that worked in the past are likely to work in the current setting even though they may not have been calibrated for reliability. In essence, the model continues to work but the results are serendipitous. This can lead to a false sense of security which can lead to faulty conclusions if the key drivers change. This risk is relatively high in the dynamic real estate market which exhibits significant cyclical fluctuations. Unfortunately, it is difficult to identify when the market is approaching these inflexion points, pointing to the importance of focusing

attention on a model's reliability. This determination should be revisited on a scheduled basis (i.e., annually) and then on an ad hoc bases when conditions in the key drivers have occurred.

Commentary 1- 11

Model Reliability and Market Dynamic Errors

In a static environment, a model's reliability is not required to yield correct results. For example, in the recent sustained bull run the "buy low sell high" mantra and deal mentality in which many were caught up in seemed to work and become "business as usual." As such, the models that supported such behavior were accurate on the "buy" side of the investment cycle. Unfortunately, they failed on the "sell" side as evidenced by the collapse of the market. This points to a problem in relying on industry norms and practices; it is easy to get caught up in the euphoria and difficult to tell when "reliability" becomes important. This is illustrated by reference to the dramatic swings in investment performance that have occurred when the market changed direction over the past 40 years; models that appeared to work resulted in false decisions to buy or failure to sell.

Another example would be in the case of a paradigm shift, where what was once acceptable is no longer an option. This could occur in the case of green buildings and socially responsible investing which some argue will render "black buildings" functionally obsolescence and in danger of major losses in value. It could also occur in the case where changes in supply chains or logistical models have rendered previously attractive properties locationally or functionally obsolescent. Finally, the changes could be triggered by a shift from retail tenants who initially sought locations to maintain market share relative to competitors to one focused on unit profitability.

Application of the Model. The final requirement is ensuring the appropriateness of the model. That is, must satisfy the underlying assumptions and data requirements upon which the model has been built. This test is particularly important when applying purely mathematical financial or statistical models to real estate which, due to the inefficient nature of the market, cannot be adhered to without making significant adjustments. .

Commentary 1- 12

Inappropriate Model Application Errors

An example of this type of error is when a portfolio manager blindly extends Modern Portfolio Theory (MPT) to develop asset allocations for real estate. This error is fairly widespread, rendering such an approach inappropriate. This applies to a number of decisions ranging from setting real estate allocations in a mixed asset portfolio to setting property type allocations a real estate portfolio. While it is possible to get vectors of returns for the various cuts of real estate, the underlying data fail to meet the requirements needed to support the complex mathematical calculations embedded in MPT. The challenge is that an optimization model will take the inputs and generate outputs, but the outputs are meaningless as noted by the "garbage in, garbage out" axiom.

To avoid excess reliance on financial models, the decision-maker should treat the outputs as one set of indicators and the look at the preponderance of the evidence to make a decision. For example, with respect to property type allocations, MPT models could be generated. Then, the decision-maker could look at some actual benchmarks to extract the "collective" wisdom of industry players. For example, the decision-maker could evaluate the property type allocations of the NCREIF Index or the NAREIT Index to get some insights into how institutional players have diversified across property types. It should be noted that this only gives a partial picture since these indices were not designed to be diversified but are merely the aggregation of individual funds or holdings. To complement these data, the decision-maker could look at the market basket of investible assets to assess the size of the pie.

Another common error in application of a decision model is "transcending the market." That is, a decision-maker may be able to develop a sophisticated model that yields valid and reliable results, but that may be more precise or complex than what the market uses to make decisions. An example of this would be relying on Modified Internal

Rates of Returns (MIRR) when the market segment for a particular type of property looks at cap rates. Another example is the imposition of normative standards that affect the design, location and/or cost of real estate based on some model of the urban form that has no anchor in the market and thus generates functionally obsolescent space. To avoid this risk, intervention models must contain a market component.

Types of Decision Models

Overview

There are two basic types of decision models that can be applied to real estate: non-compensatory and compensatory (see: Exhibit 1-12). Simply stated, non-compensatory models do not allow trade-offs; they are focused on key deal points that cannot be offset or supplemented by strong performance on other deal points. On the other hand, compensatory models look at the totality of the factors, treating them as a whole rather than as discrete parts reducing the probability an individual attribute will be a deal-breaker.

There are three types of non-compensatory models: maximization, minimization, and cut-offs. In a maximization model, the decision-maker selects the property with the highest rate of return. In a minimization model, the decision-maker picks the asset which has the highest “low” score on all attributes. In a cut-off model, alternatives that fail to exceed a minimum threshold on individual variables are automatically eliminated. For example, a property may have to hit a hurdle rate of return or generate sufficient net cash throw-off to cover an investor’s periodic cash requirements.

Types of Decision Models

Compensatory models are used when the decision-maker is focused on satisfying multiple criteria and looking at the property as a whole. In such cases, over or under-performance on some attributes can offset or complement performance on other attributes. For example, a project may have high tenant risk due to low credit scores which would render it unacceptable under a cut-off model. However, the project may be acceptable if higher returns compensate the buyer for the added risk. Alternatively, it may be a great asset which the buyer can acquire at a lower cost and the remerchandise to higher credit tenants.

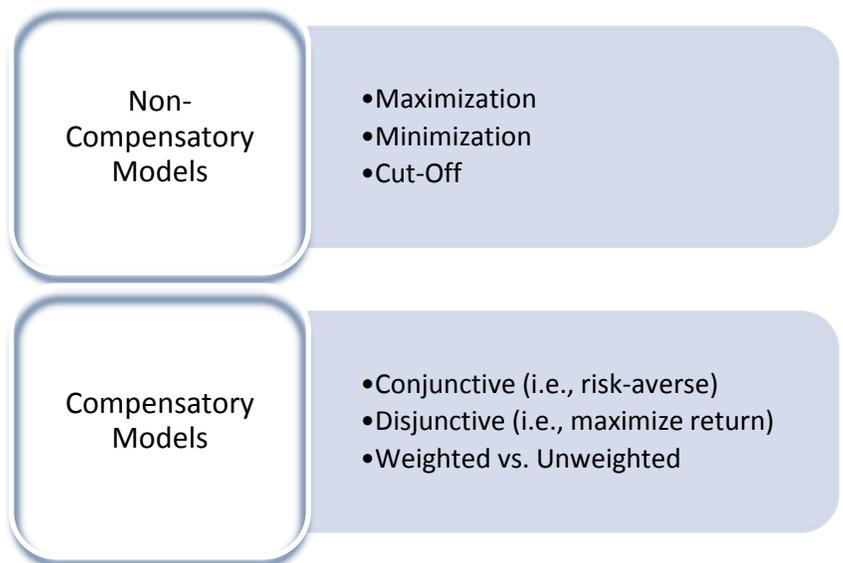


Exhibit 1- 11

In conjunctive models, the risk-averse decision-maker selects the asset that has the lowest combined scores. In disjunctive models, the assets with the highest returns are selected. These distinctions can be remembered by avoiding the bad and picking the best (i.e., reject “con” and pick “dis” one). The final decision in compensatory models is whether the variables should be weighted when they are combined or if they should merely be summed up. In most cases, a weighted approach can identify a “best fit” solution,

and forces the decision-maker to determine which criteria are the most important (i.e., the deal breakers) and which are nice, but not necessary to ensure success. The application of non-compensatory and compensatory decision models can be illustrated by applying them to the classic Highest and Best Use decision.

Case Study: Applied Highest & Best Use Decision Model

H&B Use analysis is an integral part of real estate appraisal and is required of all appraisal assignments in determining “market value.” The analysis is also embedded in “site in search of a use” type of feasibility studies, although other criteria may be added depending on the goals and objectives of the client for which the analysis is being conducted. Briefly, the Highest and Best Use for a site is defined as:

The reasonably probable or plausible use of property which is physically possible, legally permissible, marketable, financially feasible, and provides the highest or maximum value as of a specified date.

The criteria that are used to determine the H&B Use for a property include: physically possible, legally permissible, marketable, financially feasible and provides the highest or maximum residual land value. While some elements of each criterion can be quantified they also contain some qualitative data. In addition, some of them are not givens but can be changed. For example, a zoning appeal may be able to change the “legally permissible” alternatives for a site. Similarly, new technologies and sufficient capital deployment can have a dramatic impact on the “physically possible” criterion. As such, H&B Use analysis requires a dose of critical thinking and an understanding of market fundamentals. Exhibit 1-13 presents a step-by step process that can be used to determine H&B Use. As noted, the process is similar to a general decision-making model, beginning with a problem statement and ending with implementation and feedback.

Weighted Decision-Making Model: Step-by-Step

Step1. Determine Goals & Objectives

In this case, a landowner is trying to select the appropriate use for a site that has a relatively flexible type of commercial use zoning. She is trying to pick the Highest & Best Use so she can capture the maximize land value when she sells the property. Although the developer will determine the actual use, she is trying to understand what the possible uses are so she can develop a marketing plan.

- **Step 1.** Determine Goals and Objectives
- **Step 2.** Select Evaluative Criteria
- **Step 3.** Assign Weights (i.e., importance) to each criterion (Sum = 100%)
- **Step 4.** Identify and Select Viable Alternatives
- **Step 5.** Rate of Alternatives on Each Criterion (1 to 10 scale)
- **Step 6.** Select Alternative
 - Calculate Weighted Ratings
 - Multiply Rates by Weights by Attribute
 - Sum the Weighted Rates/Alternative
 - Compare Weights
 - Conduct Attribution Analysis
 - Select Top Choice and Backups
 - Attribution Analysis
- **Step 7.** Implement, Monitor and Feedback

Exhibit 1- 12

Step2. Select Evaluative Criteria

In this case, the five traditional criteria surrounding H&B Use decisions can be selected as the evaluative criteria. These criteria are explained in Exhibit 1-14: legally permissible, physically possible, marketable, and financially feasible and maximizes value.

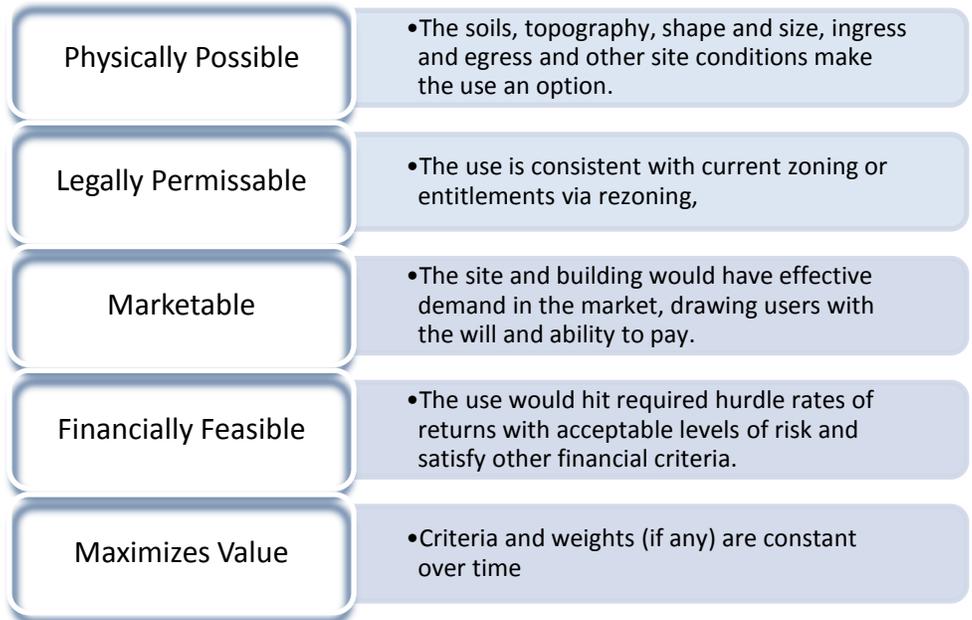


Exhibit 1- 13

Step3. Decision Model: Assign Weights/Criterion

Assigning weights to the evaluative criteria can add more precision to the decision-making process. Using weights can also provide more flexibility and allow the decision-maker to incorporate market-based inputs, allowing it to be customized for a particular situation. It can also help maintain objectivity by identifying the key drivers that affect the ultimate outputs. While determining the appropriate weights can be complicated, various techniques (e.g., Delphi Analysis) can be used to help reach a group consensus. The effort to specify the weights up front can also be important during the implementation stage and improve buy-in. This is particularly important if the ultimate choice was not an obvious choice at the beginning of the process, of if it differs from the choice advocated for by some champions or proponents of some of the options.

Assign Weights to Criteria

Criterion	Weight
Legally Permissible	10%
Physically Possible	5%
Marketable	30%
Financially Feasible	20%
Maximum Value	35%
Total Weighted Score	100%

Exhibit 1- 14

Step4. Identify Alternatives

In this case study, the open-end zoning supports any of the major property types: office, retail, industrial, apartment or hotel. In other situations, once the criteria and weights for the decision model have been set, the next step is to identify alternatives. It is important that the weights are set before the alternatives are sourced to avoid bias and prevent advocates from deliberately manipulating the system to achieve the desired outcomes. It can also help avoid the risk that the deal will color the process, especially if the option is new and outside of the core of the decision-maker. Another way of thinking about this is, “Never write a policy with a deal on the table; the deal will distort the policy.” This is especially true when the proponent of a deal is in a powerful position and can exert undue influence on other decision-makers.

Step5. Rate Alternatives

Based on an understanding of the “drivers of value” or needs of the respective land users or uses, the decision-maker rates each use on the five criteria (see: Exhibit 1-16). Note each of the alternatives have high scores on the “Legally Permissible” and “Physically Possible” criteria. This is due to the flexible zoning and the compatible site features. With respect to the other criteria, the ratings differ for each property type. These differences reflect the analyst’s ratings of how the site would satisfy the “drivers of value” or critical success factors important to each of the alternative uses. For example, if the Office use is selected, it would provide the maximum value to the land which was one of the key objectives of the decision-maker. While it might seem that the analysis could stop there, it’s important to note that the Office project rates relatively low on Marketability and if there is no market, there is no value for either the building or the land.

H&B Use Ratings/Use/Alternative

Criterion	Office	Retail	Industrial	Apartment	Hotel
Legally Permissible	10	8	9	6	8
Physically Possible	10	8	10	8	8
Marketable	4	2	4	7	6
Financially Feasible	4	4	2	8	6
Maximum Value	9	4	2	8	6
Total					

Exhibit 1- 15

Step 6: Select Alternative

Non-Compensatory Model. Under the maximization strategy, the office and industrial properties would prevail, with office eking out a win with a pair of 10s. Under the minimization, apartment and hotel would come to the top with the highest “low” score, with apartment winning out. Finally, if a cut-off was set at 5, the only surviving uses would be apartment and hotel.

Non-Compensatory Strategies

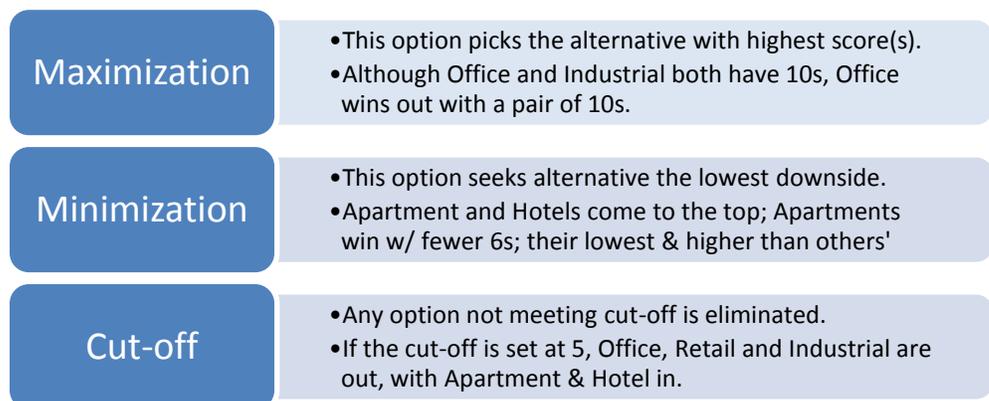


Exhibit 1- 16

Compensatory Model. In the compensatory model, the next stage is to develop the weighted ratings. Once the alternatives have been rated and the criteria weights have been established, the calculation of the weighted ratings is fairly straightforward. Exhibit 1-17 shows the weights and weighted ratings for each alternative. The scores for each criterion for each alternative are generated by multiplying the Weights in Exhibit 1-15 by the quality ratings in Exhibit 1-16. Once the weighted ratings are calculated, the decision model identified earlier can be applied. As noted, the apartment alternative comes out the highest, followed by Office and Hotel.

Calculate Weighted Ratings for Base Case

Criterion	Base Case	Office	Retail	Industrial	Apartment	Hotel
Legally Permissible	10%	1	0.8	0.9	0.6	0.8
Physically Possible	5%	0.5	0.4	0.5	0.4	0.4
Marketable	30%	1.2	0.6	1.2	2.1	1.8
Financially Feasible	20%	0.8	0.8	0.4	1.6	1.2
Maximum Value	35%	3.15	1.4	0.7	2.8	2.1
Total Weighted Score	100%	6.7	4.0	3.7	7.5	6.3

Exhibit 1-17

Sensitivity Analysis

Since the Selection phase is the heart of the decision-making process, the results should be explored in more detail before the decision is finalized. Assuming the previous steps have been followed in a systematic manner, attention can turn to exploring the preferred option against the alternatives. Two types of exploratory analysis can help in this stage: 1) Sensitivity Analysis to determine if the results are stable, and 2) Attribution Analysis to identify the criteria that are driving the final choice. Sensitivity analysis is fairly straightforward, with the analyst making changes in weights or ratings to see if the results change. In practice, this is often referred to as scenario analysis in which values are specified for the base case, the worst case, and the best case. In addition to helping qualify the responses, sensitivity analysis can be used in group decision-making to help arbitrate among various parties with differing opinions by showing how far assumptions would have to change to affect the outcome. Similarly, the stability of the model can be tested by seeing if minor changes in inputs create major differences in preferred choices. If this happens, the model is unstable and should not be relied on without considering other factors that could change the indifference point. If not, then the decision-maker would be indifferent to the choice and could explore multiple avenues to identify the one that could be implemented at the lowest cost. On the other hand, if it takes major changes in assumptions to affect the outcome, the pressure to implement the top choice.

...sensitivity analysis can be used in group decision-making to help arbitrate among various parties with differing opinions by showing how far assumptions would have to change to affect the outcome.

Base Case 1 vs. Case 2 Sensitivity Analysis

Criterion	Base Case	New Case 2	Office	Retail	Industrial	Apartment	Hotel	AVG
Legally Permissible	10%	35%	3.5	2.8	3.2	2.1	2.8	2.9
Physically Possible	5%	5%	0.5	0.4	0.5	0.4	0.4	0.4
Marketable	30%	25%	1.0	0.5	1.0	1.8	1.5	1.2
Financially Feasible	20%	15%	0.6	0.6	0.3	1.2	0.9	0.7
Maximum Value	35%	20%	1.8	0.8	0.4	1.6	1.2	1.2
Total	100%	100%	7.4	5.1	5.4	7.1	6.8	6.3

Exhibit 1- 18***Attribution Analysis***

Attribution Analysis can be applied to identify the criteria that are driving the rating of the alternatives. Exhibit 1-19 shows the contribution of each of the criteria to the total score after the weights have been applied. The rows indicate the percent of the total weighted score contributed by each criterion for each alternative. For example, 47% of the total score for the office use came from “Maximize Value.” On the other hand, apartments won out on the consistent performance on the top three criteria. Note the answers might be different if the weights change, so it would be useful to run some sensitivity analysis to identify the stability of the selection under different scenarios.

Base Case Attribution Analysis

Criterion	Weight	Office	Retail	Industrial	Apartment	Hotel	AVG
Legally Permissible	10%	15%	20%	24%	8%	13%	15%
Physically Possible	5%	8%	10%	14%	5%	6%	8%
Marketable	30%	18%	15%	32%	28%	29%	25%
Financially Feasible	20%	12%	20%	11%	21%	19%	17%
Maximum Value	35%	47%	35%	19%	37%	33%	36%
Total	100%	100%	100%	100%	100%	100%	100%

Exhibit 1- 19

Implementation, Monitoring and Feedback

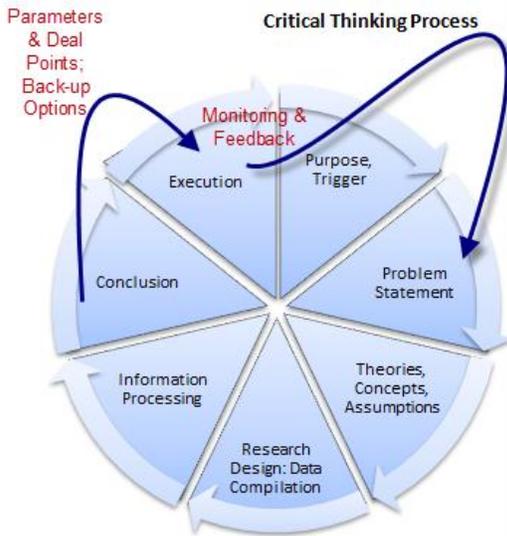


Exhibit 1- 20

When dealing with many types of decisions that involve critical thinking, the process ends after the decision is made and the follow-up action is executed. While this approach might work in “efficient markets,” in real estate the process does not end with the choice of an option. In real estate, most transactions are negotiated and as such, there is some risk that the availability and/or terms may be changed during the execution phase. Had this uncertainty been known up front, a different conclusion might have been reached.

To address this risk, during the selection phase the decision-makers should identify back-up solutions in case negotiations fail. They should also establish the parameters or deal breakers that must be satisfied to justify a transaction. For example, assume a developer is considering acquiring a site for a use that is not “legally permissible” under existing zoning. Since rezoning is not automatic, the

developer’s decision involves risk that the rezoning will not be approved. A couple of steps can be taken to manage this risk and reduce the uncertainty surrounding this potential “deal breaker.” *First*, the developer could explore the probability of getting the site rezoned so the risk could be priced into the deal. This might involve discussion with a land use attorney to get an opinion whether a rezone is “politically palatable.” It might also include informal meetings with the planning, zoning or other department staff members to explore the possibility of a rezone. Finally, efforts could be extended to identify stakeholders who may be opposed to a rezone, as well as those who might support it so the opposition can be assessed. Based on these inputs, the decision maker could estimate the probability of getting the rezoning approved. If this risk is too high, the project might still be pursued by negotiating for a discount to make sure the risk-reward relationship has been considered. *Second*, rather than buying the site outright and hoping the rezone will be approved, the developer might be able to control the site with a contingent offer to purchase. Then, if the rezoning is approved the contingency would be removed and the deal could be closed. If the rezoning is not approved, the buyer could walk or might be able to negotiate a lower purchase price that could be justified under the current zoning. Rather than making this determination on the spot, the decision-stage should identify the preferred choice, along with a contingency plan that identifies a viable backup solution.

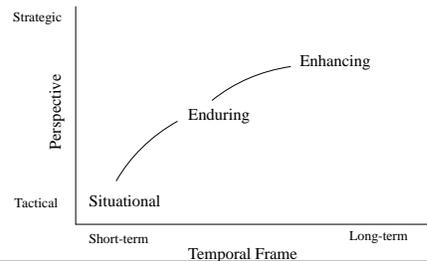
The results should be monitored where the real estate has a material effect on operations. This will allow the results to be compared to a benchmark that can periodically be used to determine whether the decision should be reconsidered. This type of “defensive thinking” is important since real estate can be an enabler or inhibitor of operations and/or user satisfaction. In some circles it is referred to as an “exit strategy” which is an important component of real estate decision making since many of the factors that affect real estate are external and cannot be controlled. The feedback loop is important in cases where a similar decision may have to be addressed in the future. The “Monitoring and Feedback” part of the process is designed to help institutionalize “lessons learned” to help improve decision making processes for future problem statements.

- **Critical Thinking.** Critical thinking is a disciplined process that is used to make objective decisions based on the base breadth and depth of inquiry appropriate to the issue at hand.
- **Real Estate Decision Making.** Real estate decision-making is complicated by the unique nature of the asset and the inefficient nature of the market.
- **Positioning Decisions.** Critical thinking should be extended to correctly position the decision so it can be approached with the appropriate depth and breadth of analysis.
- **Decision Making Styles.** A number of styles could be applied to real estate decisions. In many cases, the personality of the decision-maker or senior officer will dictate the style; especially if they are a type-A personality. In many situations the vulnerability of real estate to external forces may argue for a softer approach. The appropriate choice of style should itself be determined by critical thinking.
- **Types of Decision Models.** A number of decision models could be applied to resolve real estate decisions including non-compensatory models and compensatory models. The specification of the appropriate model will vary from case to case and should be based on a number of tests including suitability, validity and reliability.
- **Sensitivity & Attribution Analysis.** To help in the final deliberations, the stability of the model should be reviewed through sensitivity analysis. This involves looking at several scenarios (i.e., best case, worst case). Attribution analysis explores the factors affected the ranking of various alternatives.
- **Conclusion.** In some cases, the conclusion or decision can be final. In real estate, it must be translated to an operational plan to guide the execution and negotiations. It should include a statement of terms as well as alternatives in case negotiations are not completed.
- **Execution.** This stage is critical to the process and should be addressed in the final documentation. It should also identify key metrics or benchmarks
- **Monitoring and Feedback.** In real estate, this stage takes on added importance duo to the temporal nature of decisions and the need to periodically make follow decisions.

Concepts

- Application of Formal Decision Models
- Attribution Analysis
- Compensatory Decision Models
- Critical Thinking
- Critical Thinking Process
- Decision-Making Styles
- Highest & Best Use Analysis
- Implementing Decisions
- Monitoring and Feedback
- Non-Compensatory Decision Models
- Positioning Decisions
- Rating Alternatives
- Scientific Method
- Searching for Alternatives
- Weighted Ratings

Real Estate Decisions: Perspectives & Time Frames



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Can real estate decisions really enhance value or are they properly focused on the bottom line? How can real estate enhance the value of the firm?

Questions to Ponder

- **Nature of Real Estate.** Some approach real estate as a resource and focus on how it is deployed while others approach real estate as an asset and focus on it as an investment. How should real estate be approached? What implications does that have on the industry? How does it affect professionals?
- **Static vs. Dynamic Environment.** Is the real estate environment static or dynamic? What drives that distinction? What implications does it have on the application of real estate decision-making models?
- **Formal vs. Informal Decision-Making.** Some argue the real estate market is inefficient and inherently complex. What does the term “efficiency” mean? Is the market efficient? As such, should decision-makers apply formal or informal decision-making? What are the keys to success?
- **Behavioral Nature of Real Estate.** Since real estate transactions are all negotiated, the discipline takes on a behavioral perspective. Is real estate a behavioral science? How should decision-making incorporate behaviorism?

Chapter 2: Real Estate as a Behavioral Science