VALUE IN THE REAL ESTATE DEVELOPMENT PROCESS; THE ARCHITECT'S CONTRIBUTION

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Approval of the Graduate School of Natural and Applied Sciences.

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ABSTRACT

VALUE IN THE REAL ESTATE DEVELOPMENT PROCESS; THE ARCHITECT'S CONTRIBUTION

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Real estate development projects are becoming larger and more complex than in previous decades, because of the rapidly changing social, political, environmental, and financial context; new building technologies; equipment needs; and material variety. Under these circumstances, the real estate development process depends on a dynamic, iterative and interdisciplinary effort. Stages of this process and their interrelationships may differ, since selection and timing of activities must be a function of each specific project. This complicated process involves much input from a wide range of professionals, such as architects, engineers, contractors, market analysts, economists, attorneys, project managers, consultants etc., which constitute the development team.

Value adequately reflects the reality of concerns that will dominate the work on revenue producing real estate development projects. The aim is to maximise the value, received in return for the money invested, by minimising the project costs in the shortest possible time, with the highest quality standards. In fact, value constitutes a relationship between supply and demand. Identification of demand and the formulation of required solution to satisfy it, supply, is necessary for project's success.

This study investigates the major concerns of value, and the real estate development process in detail. In order to clarify real estate development process stages, four different models proposed by different authors are analysed and evaluated. The thesis will also trace the architect's contribution in such a complex endeavour, and concludes that the architect defines the end product, which is the building, and establishes the contact with specific market segments. In addition, design solutions affect the future financial benefits, derived from the project, and the operational characteristics of the project. The architect, being a member of the development team, therefore, makes considerable contributions to value in the real estate development process, and must be open to collaboration with other team members whose contribution from their professional perspectives can increase the value.

Keywords: Value, Real Estate Development Process, Development Team, Architect

ÖZ

GAYRİMENKUL GELİŞTİRME SÜRECİNDE DEĞER; MİMARIN KATKISI

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Gayrimenkul geliştirme projeleri hızla değişen sosyal, politik, çevresel ve finansal şartlar, yeni bina teknolojileri, araç ihtiyaçları, ve malzeme seçenekleri dolayısıyla gitgide büyümekte ve kompleks bir hal almaktadır. Bu koşullara bağlı olarak biçimlenen gayrimenkul geliştirme süreci ise dinamik, iteratif ve disiplinlerarası bir çabaya dayanmaktadır. Aktivitelerin seçimi ve zamanlaması her projenin özgün niteliklerine göre farklılaştığı için bu sürecin aşamaları ve bu aşamaların birbirleriyle olan ilişkileri değişiklik gösterir. Bu karmaşık süreç mimarlar, mühendisler, müteahhitler, pazar analizcileri, ekonomistler, avukatlar, proje yöneticileri, ve danışmanlar gibi pekçok profesyonelin oluşturduğu geliştirme grubunun katkılarını içerir.

Değer kavramı kar amaçlı gayrimenkul geliştirme projelerinde yapılan işe hakim olan etmendir. Burada amaçlanan, proje maliyetlerini mümkün olan en kısa zamanda ve en yüksek kalitede minimize ederek, yatırılan paraya karşılık olarak beklenen değeri arttırmaktır. Aslında değer kavramı arz talep ilişkisini içerir. Talebin tanımlanması ve arzın, yani bunu karşılayacak çözümün üretilmesi projenin başarılı olması için şarttır.

Bu çalışma değeri tarifleyen ana kavramları ve gayrimenkul geliştirme sürecini incelemektedir. Gayrimenkul geliştirme sürecinin aşamalarını tariflemek amacıyla değişik yazarlarca önerilen dört geliştirme modeli analiz edilmiş ve değerlendirilmiştir. Bu tez, aynı zamanda mimarın bu karmaşık ve çok bileşenli çaba içerisindeki katkısını araştırmaktadır. Mimar son ürünü, yani binayı tasarlayan kişi olarak belirli pazar segmanlarıyla iletişim kurar. Ayrıca tasarım çözümleri projeden elde edilecek finansal getiriyi ve binanın operasyonel özelliklerini tanımlar. Böylece mimar gayrimenkul geliştirme grubunun bir elemanı olarak bu süreçte yaratılan değere önemli katkılarda bulunur, ancak yaratılan değeri arttırmak amacıyla diğer grup üyeleriyle işbirliği yapmak zorundadır.

Anahtar kelimeler: Değer, Gayrimenkul Geliştirme Süreci, Geliştirme Grubu, Mimar

To My Family

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CHAPTER 1

INTRODUCTION

The argument and objectives of the study and the disposition of the text in the following chapters are presented here.

1.1. ARGUMENT

"Real Estate Development" is the process of converting undeveloped areas of land into components of the built environment. The term "Real Estate Development" does not comprise renovation, reconfiguration, or redevelopment of existing projects, although they require many of the same steps as development necessitates. Non-profit making projects, such as religious, administration, recreation projects, go beyond the scope of the study. The products of real estate development process are not differentiated for industrial, commercial, hotel, housing, office or for mixed-use projects since their development processes are basically same.

Real estate development configures the built environment. It is an iterative, dynamic, and interdisciplinary process. Political environment, economic circumstances, social trends, physical conditions, and legal procedures are the components of this interdisciplinary world. According to Miles, Berens, and

Weiss(2000) the need for real estate development is constant, since population, technology, and taste never stop changing. In this world of change, real estate projects are becoming larger and more complex than in previous decades. Results of this change include the new building technologies, equipment needs, material variety. Information about prospective markets and financial considerations gain importance. Under these circumstances, multidisciplinary development team carries out the entire process.

Adaptability to changing trends, which leads to more user oriented planning, has become extremely important today. Real estate project's success can not be either accidental or mysterious in today's world. Serious attention to market – that determines the user profile of the project, is necessary in order to capture market share from competitors. Identification of "demand", and the formulation of the required solution to satisfy it, "supply", is essential for project's success. This relationship is basically referring to "value". Value is a subjective concept, and has different meanings for different people. This statement is also valid through real estate development process. End product of the process has different meanings of value for the user, for the developer, or for the other players of the development team. Value of the project to the developer is the utility of the completed project expressed in financial terms. The project combining value concerns of prospective users, developer, and development team members would be successful.

On the other hand, "design" establishes a contact with specific market segments. Conveying right image results from careful consideration of design criteria during all stages of real estate development project. Design also implies several cost parameters, which are important for financial gains.

At this point value in real estate development becomes important. In order to investigate such a relationship, value concept and real estate development process stages should be analysed. Since design defines the end product, which is the building, the role of the architect in the development team gains importance. Architects' role in value creation should be emphasised.

1.2. OBJECTIVES

The objective of this study is to examine value in the real estate development process. Investigation of major concerns of value and clarification of real estate development process stages are the complementary parts of this objective. However, the aim was not only to investigate value in the real estate development process, but also to explore the role of architect in value assessment of that complex and multidisciplinary endeavour.

1.3. DISPOSITION

After the statement of argument and objectives of the study in this chapter, major concerns of the value are presented in Chapter 2. In Chapter 3, real estate development process is analysed. The text is based on a literature survey in

Chapter 2 and Chapter 3. A discussion on architect's contribution is performed in Chapter 4. Conclusions drawn from the study is argued in Chapter 5.

CHAPTER 2

VALUE

In this chapter, major concerns of the value are investigated under five main headings. Accordingly, in the first part the nature of value is analysed. The second part includes the judgement of project viability. In order to examine value in the real estate development process, it is necessary to expand the basic concepts of value definitions in that particular area. Afterwards, design economics is covered in the third one. In the fourth part, project objectives are clarified. And finally, value engineering is investigated in the last section.

2.1. THE NATURE OF VALUE

In order to examine the nature of value, many dynamic and interactive factors about value are analysed under three main headings in this part of the study. These titles include definition of value, factors of value, and types of value.

2.1.1. DEFINITION OF VALUE

Value is a relative concept created in the minds of individuals. Value, which is not a constitutional characteristic of an object, includes comparisons in its definition, and has different interpretations for different people. The relationship between what someone wants and what he/she willing to give up in order to get it

emphasises the subjective considerations constituting value (Best, & Valence, 1996). Definition of value changes when the factors affecting value change.

2.1.2. FACTORS OF VALUE

Relationships that create value have a complicated nature. Appraisal Institute (1992) defines four independent factors creating value as: utility, scarcity, desire, and effective purchasing power. Similarly, Jacobus and Harwood(1996) point out four characteristics of value by adding concept of transferability besides the concepts of utility, scarcity and demand, which is coupled with the purchasing power. The interaction of these factors affects the balance of supply and demand.

In classical economics the value of an item is accepted in relation to its utility, which is the competence of an object to fulfil a need, or desire. Fallon(1971) outlines utility as the quality or state of being useful or serviceable; fitness for a given purpose; timeliness in meeting a need; suitability of location; in summary completing the cycle–the capacity to satisfy wants.

The basis of the economic explanation of value is that an object must be scarce relative to have a value. "Scarcity is the present or anticipated supply of an item relative to the demand for it" (Appraisal Institute, 1992:25). Then, scarcity means that there must be a small supply relative to that demand. The object has little or no value in an economic sense if there is plenty of a particular object and a short demand for it (Seeley, 1972:210).

Price (cited in Best, and Valence,1999:14) defines value as "the amount of desirability obtainable from.... a product consumed". Purchasing power to fill it gains importance, since desire is restrained by effective purchasing power. Desirability and purchasing power constitute the demand side, while utility and scarcity form supply. Seeley(1972:210) argues that:

> Value constitutes a measure of the relationship between supply and demand. An increase in the value of an object is obtained either through an increase in demand or a decrease in supply. Value also measures the usefulness and inadequacy of an object relative to other objects or goods.

According to the Appraisal Institute (1992) the supply of an item at a particular price, at a particular time, and in a particular place indicates that item's relative scarcity, which is a basic factor of value. On the other hand, demand is defined as the desire and ability to purchase or lease goods and services (Appraisal Institute, 1992).

Cost and price relationships are also integrated concepts of value, although it is a much more subjective term than either cost or price. "Price represents the amount a particular purchaser agrees to pay and a particular seller agrees to accept under the circumstances surrounding their transaction"(Appraisal Institute,1992:17). Demand and its scarcity determine the price of an item; if there is abundance of some object available or there is little demand for it, the item has little price (Best & Valence, 1999). The resources consumed to achieve a specific objective

accepted as the general explanation of the cost, and the difference between cost and price is profit (Ashworth,1994). Value is defined as the needed performance at the minimum cost (Shah,1988).

Another factor affecting value is quality, which cannot be simply defined. Value based quality view suggests that the basis for quality is psychological understanding of the meaning of the value. Consumers have been conditioned to accept that the quality of a product is determined by its price (James, 1996). Similarly, the Building Research Establishment (cited in Best&Valence,1999:16) defines value as quality in relation to cost, and argues that maximum value is then in theory obtained from a required level of quality at least cost, the highest level of quality for a given cost, or from an optimum compromise between the two.

2.1.3. TYPES OF VALUE

According to Aristotle(cited in Fasal, 1972) there are seven classes of value: (1) economic, (2) political, (3) social, (4) aesthetic, (5) ethical, (6) religious, and (7) judicial.

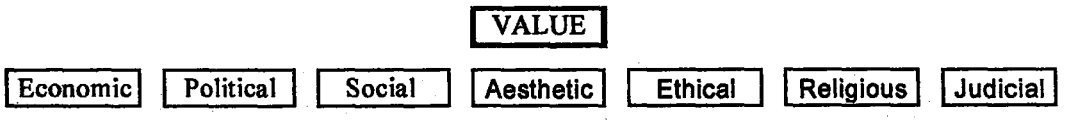


Figure 2. 1 Types of value (source: Fasal,1972)

Real estate professionals are most concerned with economic value. Fallon(1971) defines four kinds of economic value which are as follows : esteem value,

exchange value, use value, and market value. Fallon(1971) argues that these categories are not entirely separate; on the contrary, they often overlap, and any one may affect another.

Esteem value is based on abstract feelings and prestige e.g. art works (Shah,1988). Best and Valence(1999) mention that esteem value represents the attractiveness or desirability of an object. Therefore it will change in time, depending on fashion.

Exchange value is the amount of purchasing power for goods or services to be exchanged with other (Dasso&Ring, 1989). It is a result of explicit actions of market participants.

According to Fasal (1972) use value, which is the utility to a specific user, is the fundamental form of economic value. Best and Valence(1999) simplify it as the value to the user. Then use value is the value a specific object has for a specific use.

The interaction of suppliers and demanders, or sellers and buyers, constitutes a market (Appraisal Institute,1992). Market value is defined as a price at which both buyers and sellers are willing to do business. Jacobus and Hardwood(1996:392) mention market value as " the cash price that a willing buyer and a willing seller would agree upon." It is the most probable selling price (Dasso&Ring, 1989:356).

According to the Appraisal Institute(1992) the definition of value in most real estate appraisal is market value, but investment value, which is the value to the specific investor; going concern value, which is the ongoing business value; or insurable value may also be considered.

Fasal(1972) argues that the "real value" of a product (often referred to as "value") is a rating of the acceptance of a product by the customer. According to Fasal, the "real value" or "value" of a product is always relative and it is the result of the combination of specific value types.

2.2. Value in the Judgement of Project Viability

Viability refers to the financial feasibility of undertaking the development of the proposed building project (Hutchinson,1993). The Chartered Institute of Building(1999) explains that the project budget and relevant cash flows effect viability of project development. Miles, Berens, and Weiss(2000) relate value and cost, suggest that if the value exceeds the total cost the project is formally feasible. Thus, viability is determined by the relationship of project value and project cost. By accepting this definition, three main headings- project costs, project value, and valuation methods- are analysed in the second part of the Chapter 2.

2.2.1. Project Costs

"Project costs are all the expenditures incurred by the developer in completing the project to the condition for which a value was calculated" (Hutchinson, 1993:6).

The term cost, either an accomplished fact or a current estimate, is related with production, not exchange; and there are several types of costs: direct costs, indirect costs, construction costs, and development costs (Appraisal Institute, 1992: 17).

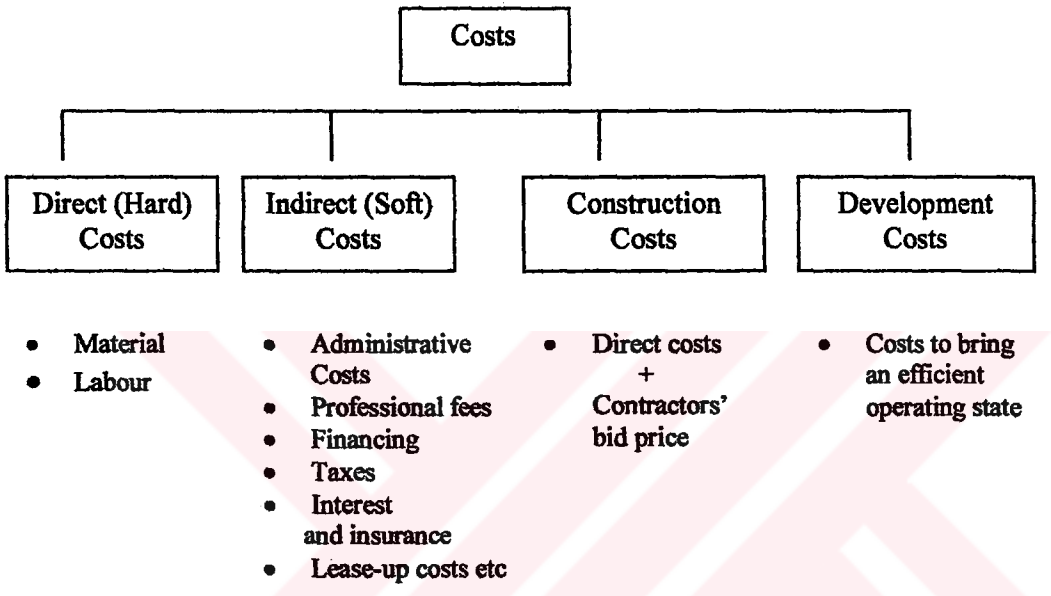


Figure 2. 2 Types of costs (source: Appraisal Institute, 1992)

2.2.2. PROJECT VALUE

Hutchinson(1993) defines project value as utility or benefit of the completed project to the developer, expressed in financial terms. Wilson, Keenberg, and Loerke(1990) explain the deciding measure of building value as building cost. According to Morton and Jaggar(1995:340): "Developers expect the value of the building when completed to be worth the money paid for it and this may not be the case if costs are not carefully considered controlled". Mann(1992:57)) argues that:

> The problem of assessing the worthwhileness of building projects, from an economic point of view, is equivalent to that of selecting an appropriate measure of economic performance and then estimating its value for the project under scrutiny.

The answers to the question of value assessment vary according to type of client, the function of the building, and the purposes for which the value is being determined (Morton and Jaggar, 1995).

> The most appropriate method in a given development situation is the one that most meaningfully represents the developer's purposes for and utilisation of the intended, completed project. Thus the choice and use of a method of calculating a value for a project will depend on the nature of the developer and the purpose of the project. (Hutchinson,1993:29)

Since value is a subjective concept, there are different methods for financial quantification. These methods are all in relation to the specific characteristics of a given project.

2.2.3. VALUATION METHODS

There are different methods of measuring value of the project. Determination of appropriate techniques for measuring value is important, because it provides an objective structure for project evaluation. Ehrhardt(1994:1) argue that: "...you should accept the project if it adds value to the firm; you should reject the project if it doesn't add value". Cleland and Ireland(2000) claim that the project should fit the organisation's strategic goals, and project must bring financial benefits the organisation.

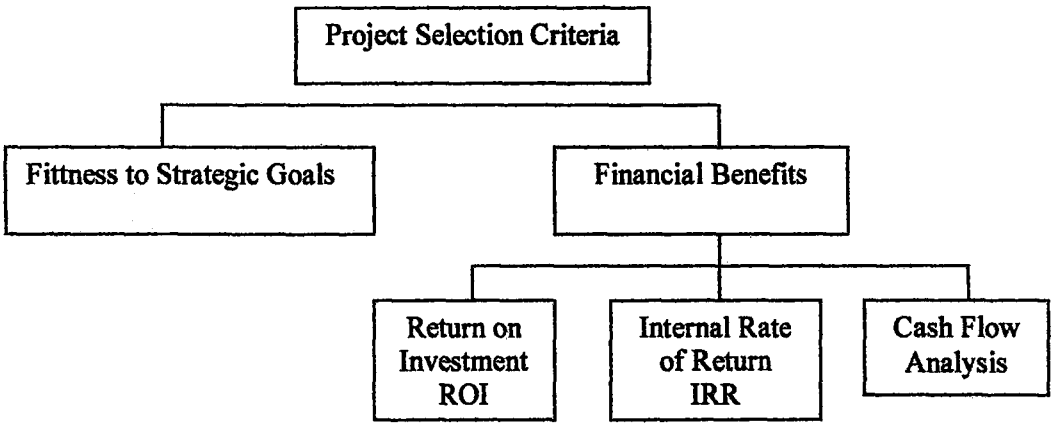


Figure 2. 3 Project selection criteria (source: Cleland and Ireland,2000)

According to Cleland and Ireland(2000) financial returns that project will bring are assessed by measuring the value of a project. There are three approaches: Return on Investment (ROI), Internal Rate of Return (IRR), and Cash Flow Analysis.

ROI measures the return in money related to all project expenses. This is simply stated as total project revenues divided by all costs to complete the project. ROIs may be used to compare similar projects as a potential measure of profitability and become a useful tool in the project selection process. It permits comparison of dissimilar projects on a common scale as it contributes to the organisation's financial health.

Internal Rate of Return (IRR) is another approach to calculating the rate of return for a project. IRR incorporates the concept of Net Present Value, or NPV. IRR more accurately reflects the value of a project when there is long-term project and the payment is in the future. NPV calculates the value of money today that is paid in the future.

Cash flow analysis is another useful tool to determine whether a project should be selected. An organisation with little capital operating in a period of high interest rates may need to perform a cash flow analysis. This will determine the amount of money required for expenses and the payment schedule for a project.

By accepting value as a project selection criterion, Ehrhardt(1994:4) categorises value creation techniques under two main headings as strategic alignment and discounted cash flow techniques.

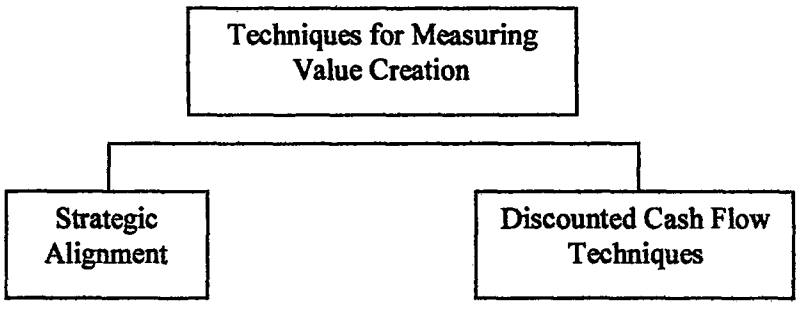


Figure 2. 4 Techniques for Measuring Value Creation (source: Ehrhardt, 1994)

There are simple and complex methods of measuring the value of the project. Ehrhardt(1994:5) points out that:

> Most companies for project evaluation use discounted cash flow (DCF) techniques, probably because they are straightforward to apply. You forecast the future cash flows, choose the appropriate discount rate, and find present value of the forecasted cash flows. The net present value (NPV) is defined as the difference between present value of the future cash flows and the initial cost. If the NPV is positive, then accepting the project adds value to the firm.

Sirmans (cited in Miles, Berens, & Weiss, 2000:82) explain that:

> The fundamental idea that sooner is better than later is applied in DCF models by discounting future income at a rate that reflects the opportunity costs, inflation, and risks accompanying the passage of time.

According to Miles, Berens, and Weiss(2000:83): "The word discounting describes exactly what occurs: the value of future income is discounted (reduced) to estimate its present value.

Value is a subjective concept and there are different ways in which it can be financially quantified.

Hutchinson(1993) proposes four methods for valuation, which are classified as: comparable sale value, current capital value, capitalised income value, and target value. Hutchinson(1993) argues that the most appropriate method of determining the value of a proposed project will depend on the nature of the developer and the intended purpose of the project.

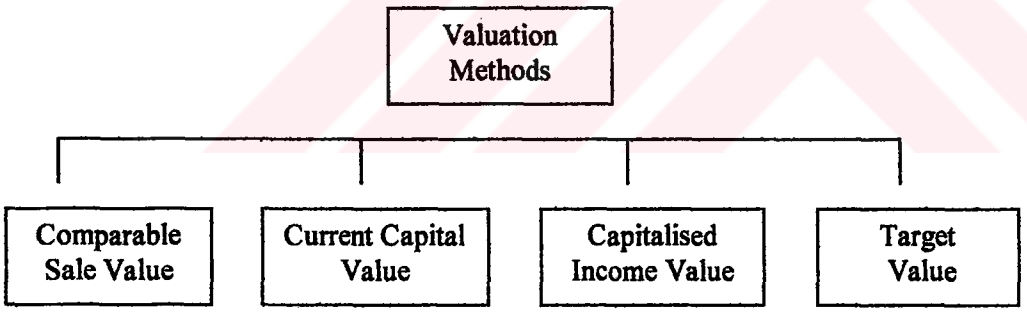


Figure 2. 5 Valuation Methods (source: Hutchinson, 1993)

Dasso and Ring(1989) propose a model composed of three methods for project valuation. Such methods are classified as: comparable sale or direct sales comparison approach, income approach, and cost approach.

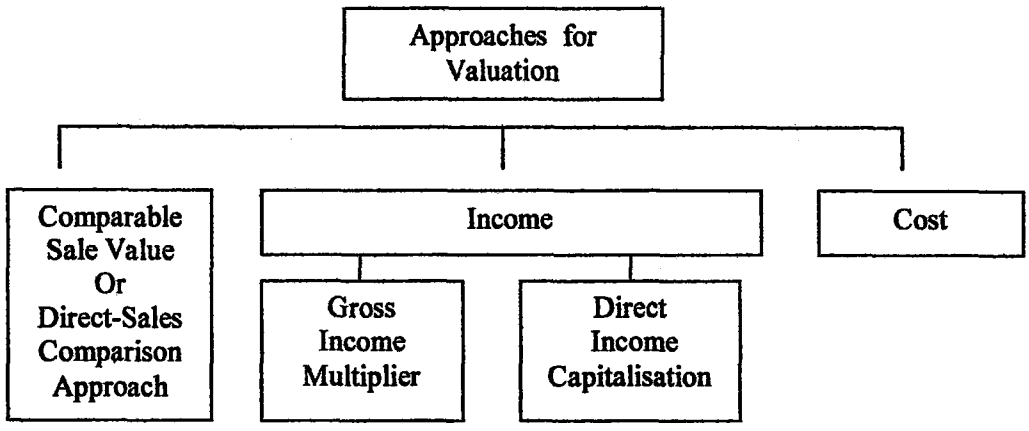


Figure 2. 6 Valuation Methods(source: Dasso & Ring, 1989:358)

The Appraisal Institute(1992) defines a similar methodology composed of three approaches which are as follows: cost approach, sales comparison approach, and income capitalisation approach.

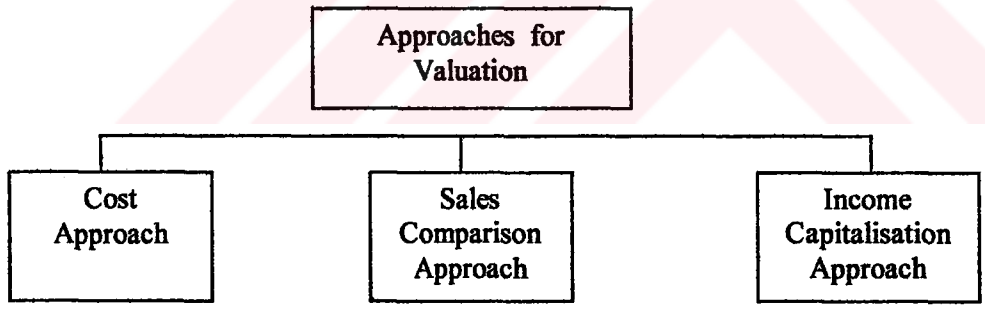


Figure 2. 7 Valuation Methods (source: Appraisal Institute,1992:83)

These approaches can be summarised under three main headings, which are comparison based, income-based, and cost- based approaches.

According to Dasso and Ring(1989:362) direct sales comparison approach, also called as market approach, involves four basic steps. Figure 2.8 shows these steps.

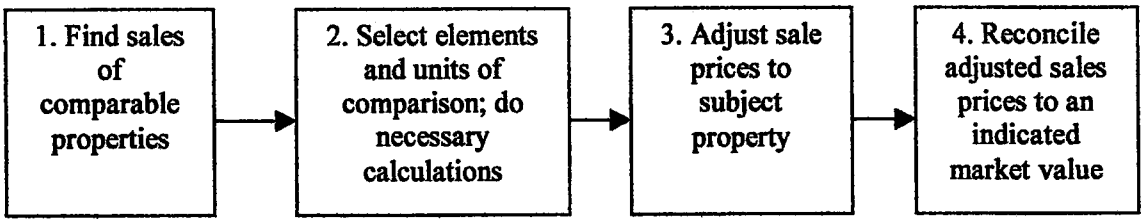


Figure 2. 8 Sales Comparison Approach (Dasso and Ring, 1989:362)

According Hutchinson(1993:31,32) a summary for the comparable sale value method can be expressed as:

Project Value = Market sale unit value of comparable building
X
Project unit quantity
X
Adjustment for variable factors: Location
Quality standard
Condition of comparable building
Market fluctuation

The comparable properties used to derive a market sale value for a project must be ones of similar type to that of the project. For this purpose, the classification of buildings in identifiable, specialist property markets can be used. Such clear and identifiable markets are those for housing, commercial (offices), retail (shops), and industrial (factories, warehouses, etc.) properties. The market values also require adjustment with regard to the particular circumstances of the project. Such as location, quality standard, physical building condition, and fluctuations over time in supply and demand affect the sale value of the project.
The size of the building will be also effective. This can be adjusted by using values for quantified units of comparable buildings. The units quantified will be those appropriate to the function of the building and thus ones that are particularly value sensitive. The most appropriate unit for commercial and

industrial buildings is the usable floor area. Appropriate units for housing are bedrooms

According to the Appraisal Institute(1992:83):

> The sales comparison approach is useful when data concerning recently sold or currently offered properties similar to the subject property are available. These comparable data are adjusted to reflect the differences between the comparable properties and the subject property.

As for income based methods, Dasso and Ring(1989) examine income based valuation techniques under two headings as Gross Rent Multiplier (GRM=sale price/monthly rent) and direct income capitalisation technique. They list basic steps in GRM technique as:

1. Ascertain the gross market rental of the subject property
2. Derive the GRM from the market
3. Apply GRM to subject property to estimate its indicated market value (Dasso&Ring, 1989:368)

" Direct income capitalisation approach is most meaningfully applied investment properties (apartment buildings, office buildings, warehouses, stores)" (Dasso&Ring, 1989:378). In a similar way, the Appraisal Institute(1992) accepts income capitalisation approach as a useful tool to appraise income-producing properties. Hutchinson(1993) also mentions capitalised income value and current capital value.

> Capitalised income method represents the value of the building as its capital value. The distinction between this method and the current capital method is that this method is based on the capitalisation of actual income rather than current incomes projected forward to give a current, future variable value. The value of the building is represented by the present, capitalised value of the actual net incomes that will be generated by the project during its life cycle. These actual net incomes are capitalised to a present value using a discount rate, which represents the developer's required rate of profit return.
> The significant feature of this method is the use in the capitalisation process of actual incomes of the project. The incomes and costs of the project can be

precisely identified and realistically forecast. This requirement can make the method inappropriate for projects with long life cycles, for the level of precision and reliability of forecasts over such periods is not sufficiently high. Cost and price inflation are significant factors in the uncertainty of future incomes and costs.

The value of a proposed project is its current capital value. The current capital value of a project is the amount if invested in the form of expenditure on the procurement of the project would produce a given, periodic rate of return from a given, periodic income from the project.

Periodic rate of return (%) = (periodic income / capital sum) x100 Thus:

Current capital value = (periodic income / periodic rate return)
x 100

But it is necessary to multiply the periodic income by the factor, which discounts a future periodic income flow. Thus the formula for calculating the capital value of a future income flow is:

Current capital value = Periodic income x Present Value of $1 per period at Periodic rate of return (%) in perpetuity

The principle of the method is appropriate for those building developments, the purpose of which is to generate a long term, potential income flow, which can not be precisely actualised nor realistically forecast. (Hutchinson,1993:33-35)

Finally, the Appraisal Institute(1992:83) clarifies the cost approach as:

> The cost approach is effective in valuing new improvements and properties that are not frequently exchanged in the market. In this approach a separate land value estimate is added to an estimate of the current cost to construct a reproduction or replacement of improvements. Entrepreneurial profit is also added. From this total, estimated depreciation, and obsolescence from all causes is subtracted.

2.3. DESIGN ECONOMICS

According to Morton and Jaggar(1995) economics in general is about the way in which scarce resources are allocated between all their possible uses. Design economics is a small part of a much larger subject of environmental economics. It seeks to ensure the most suitable and appropriate solutions through various design options.

Floor area measurement conventions are used as a unit of reference in economic performance judgement of design work. Various institutions such as the American Institute of Architects, and the Building Owners and Managers Association (BOMA) use this conventions. According to Mann(1992) most of the forms of cost estimating and performance analysis in the early stages of planning use floor area as the conceptual unit of reference, since not much more than the approximate building size is known.

According to Ashworth(1994) three factors , appearance, function and cost, can be examined for careful assessment of building design. Appearance and function is largely subjective, and cost can be accepted as the measurable component in value judgement.

Floor area conventions, plan shape, site considerations, building grouping, buildability, and constructional concerns are respectively investigated as factors of design economics in the following section.

2.3.1. Floor Area Conventions

According to Mann(1992), it is important to understand the meaning of the various terms related with the floor area conventions. These terms are the following:

- Total Floor Area or Gross Floor Area,
- Net Leasable Area, Net Assignable Area, and Net Usable Floor Area, and

- Floor Area Ratio, and the Net to Gross Ratio or Efficiency Ratio.

In addition, Ashworth(1994) defines wall-to-floor ratio as an effective tool used for comparing economic performance of the projects.

2.3.1.1. TOTAL FLOOR AREA

"The terms Total Floor Area (TFA), Gross Floor Area, and Architectural Area refer to a measure of the building size in terms of floor area, as measured from (permanent) outside finished surface to outside finished surface of the building" (Mann, 1992:111). It includes all areas utilised by walls, columns, stairs, ducts, and shafts, whether people can occupy them or not.

2.3.1.2 NET USABLE AREA

The Net Usable Area (NUA) is measured from the inside finish of external walls to the inside of permanent inside walls. It is the area that a tenant can actually use, however, structural elements such as columns or structurally necessary elements inside this area and areas of non-permanent, non-structural partitions are not subtracted. Mann(1992:112) points out that:

> The net usable area does not include shared (public) corridors, restrooms, storage areas, and so on. In principle, when several tenants share an office floor, the usable area is equal to the rentable or leasable area (NLA). If a single tenant occupies an entire floor, the elevator lobby, restrooms, closets, and so on, will be for the tenant's exclusive use. In this case the rentable area is different from usable area and includes these areas. However, the rentable area will include a prorated percentage of common corridors, rest rooms, lobbies, and so on, even where several tenants share these spaces.

2.3.1.3. NET TO GROSS RATIO (EFFICIENCY RATIO)

The Net to Gross Ratio (NGR), also called as efficiency ratio, is formed by The Net Leasable Area over the Total (gross) Floor Area.

NGR=NLA/TFA

The net to gross ratio (NGR) is an important indicator of floor plan efficiency. Mann(1992:112) states that:

> Building efficiency as measured by the Net to Gross Ratio or its inverse, the Gross to Net to Ratio, refers the amount of space that must be built in the building as a whole (TFA) in order to provide the amount of space (net leasable area or net usable area), for which the owner will receive rental income, or which actually produces the use value of building.

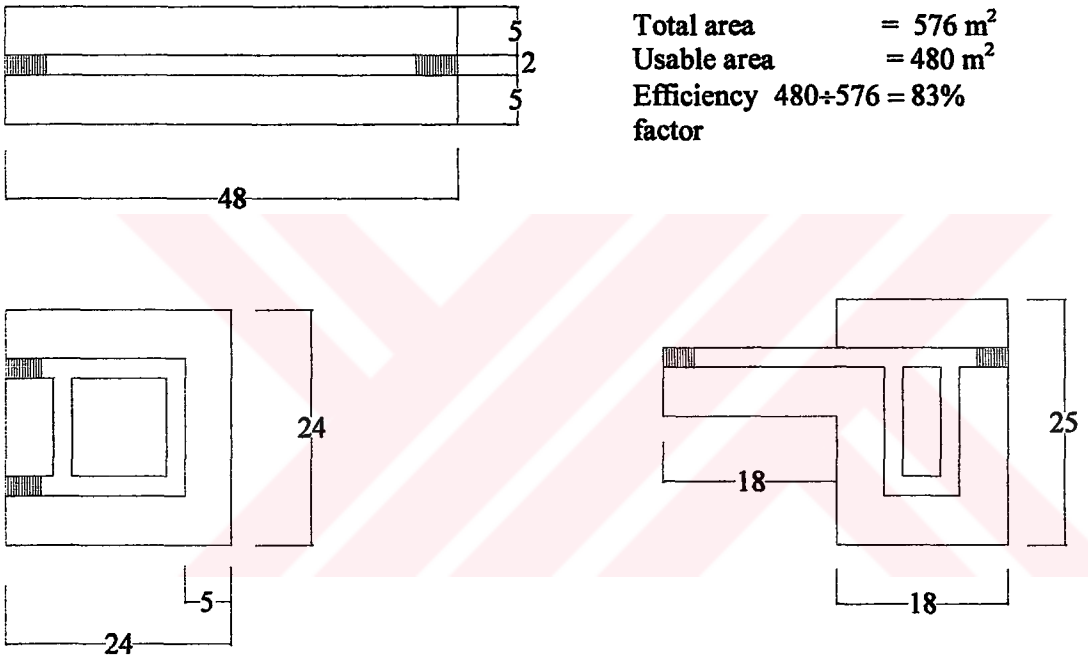
Based on experience with many examples of various building types, standard expected levels for the NGR have been established that can guide the programmer and the designer in many decisions during early development stages. Figure 2.9 shows standard expected levels for different building types.

	Expected NGR
Office Buildings	0.75 to 0.80
Apartments	0.67 to 0.80
Hotels	0.62 to 0.70
Schools	0.55 to 0.70
Hospitals	0.55 to 0.67

Figure 2. 9 Standard expected levels for the NGR (source:Mann,1992:112)

The higher the NGR is (closer to 1), the better, or the more efficient the building. Because this relationship is almost always quite direct and close, the NGR can be

used as a reliable performance indicator during the design process. The way that space can be utilised within the project varies, although the outline alternative plans for a project may be similar in overall size. According to Ashworth(1994) an economic layout should reduce the amount of circulation space to an acceptable minimum in relation to the type and purpose of the building. Figure 2.10 shows this relationship.



Total area = 576 m^2
Usable area = 480 m^2
Efficiency 480÷576 = 83%
factor

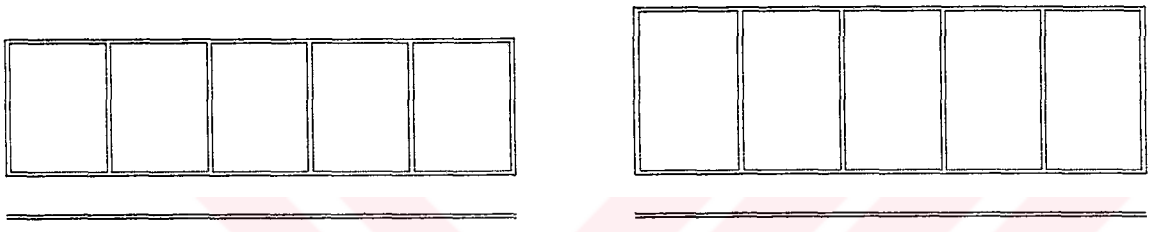
Total area = 576 m^2
Usable area = 460 m^2
Efficiency 460÷576 = 80%
factor

Total area = 576 m^2
Usable area = 455 m^2
Efficiency 455÷576 = 79%
factor

Figure 2. 10 Comparison of planning efficiency factor (source:Ashworth, 1994:108)

In a hotel room example, Figure 2.11, scheme B has a higher NGR. The higher NGR is achieved not by a reduction in circulation space but by increasing the

overall TFA. The rooms merely were made deeper, whereas there are constraints in furnishing hotel rooms preventing that. As a consequence of making rooms deeper, the unproductive circulation inside the rooms was increased, the rooms lost appeal instead of gaining value. Therefore, double checking results from different points of view avoid uncritical reliance on a single performance indicator or measure.



Solution A NGR=0.8

TFA=1750

Solution B NGR=0.82

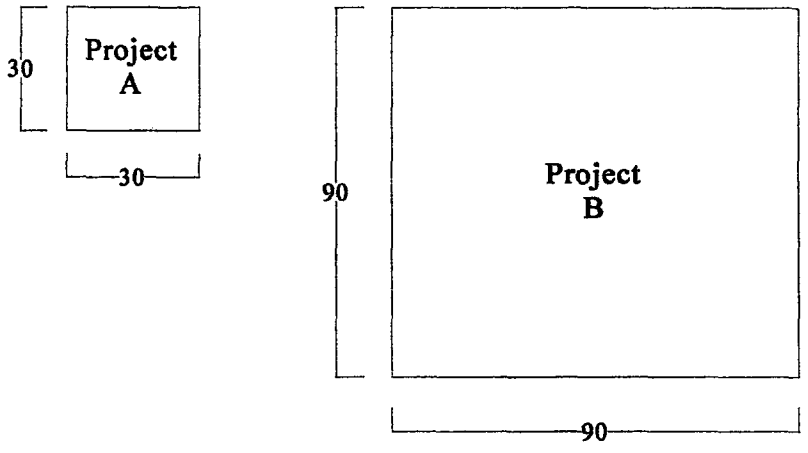
TFA=1925

Figure 2.11 "Improving" NGR (source:Mann,1992:115)

2.3.1.4. WALL TO FLOOR RATIO

According to Ashworth(1994) larger buildings' unit costs are lower than smaller projects since larger projects can be more efficiently managed in terms of design costs, plant and material usage. Ashworth(1994) also argues that another reason for the lower unit cost is the lower wall to floor ratio. Larger plan area will always result in a lower ratio. There is more correlation of cost with wall to floor ratio

than with size. As it is seen from Figure-2.12 Project B has a lower wall-to-floor ratio than Project A, which has a smaller plan area.



Overall heights 4m

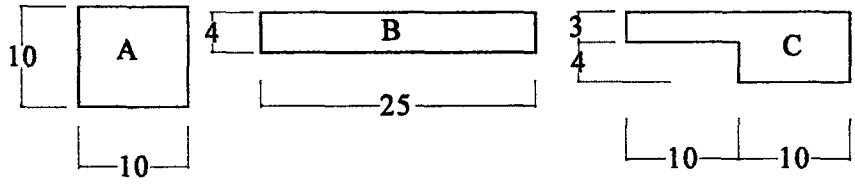
Project A		Project B
900 m^2	plan area	8100 m^2
120 m	perimeter length	360 m
480 m^2	wall area	1440 m^2
480 ÷900 = 0.533	wall to floor ratio	1440 ÷8100 = 0.178

Figure 2. 12 Variation of wall-to-floor ratio (source: Ashworth, 1994:107)

2.3.2. PLAN SHAPE

According to Hutchinson(1993) plan shape is a significant factor in determining quantities of cost sensitive elements such as external walls. The more complex the plan shape of the building, the higher overall cost of the structure is a widely used assumption. The basis is wall-to-floor ratio. The square plan has the lowest ratio,

in the majority of cases provides the most economic solution, but the wall to floor ratio can only be used to compare buildings with a similar floor area, and does not constitute an optimum reference point.



Building heights 3 m

	A	B	C
Floor area	100 m^2	100 m^2	100 m^2
Perimeter length	40 m	58 m	54 m
Wall area	120 m^2	174 m^2	162 m^2
Wall-to-floor ratio	120÷100 = 1.2	174÷100 = 1.74	162÷100 = 1.62

Figure 2. 13 Comparison of plan shapes (source: Ashworth,1994:110)

The lower the wall-to-floor ratio, the more economic will be the design. Hutchinson(1993) argues that circumstances, such as size and shape of site, or planning restrictions, may cause the designed building is uneconomic in form. There is always a need to balance it against other important criteria of planning efficiency, and external aesthetics.

2.3.3. SITE CONSIDERATIONS

According to Peiser and Schwanke(1992) each construction site has its own characteristics, which have an important influence on its suitability for development. Location, slope and topography, accessibility, ground conditions, excavation, drainage, and utilisation of water and sanitary sewer services affect the cost of the project. Hutchinson(1993) point out that it is important to identify cost affecting characteristics of the site. For example, poor bearing capacity, high ground water level would increase the amount of substructure cost, which is a part of construction costs.

2.3.4. BUILDING GROUPING

Morton and Jaggar(1995) argues that overall cost of the project is also influenced from grouping and arrangement of buildings on site. The general character of site and its immediate surroundings may be predominant in building grouping.

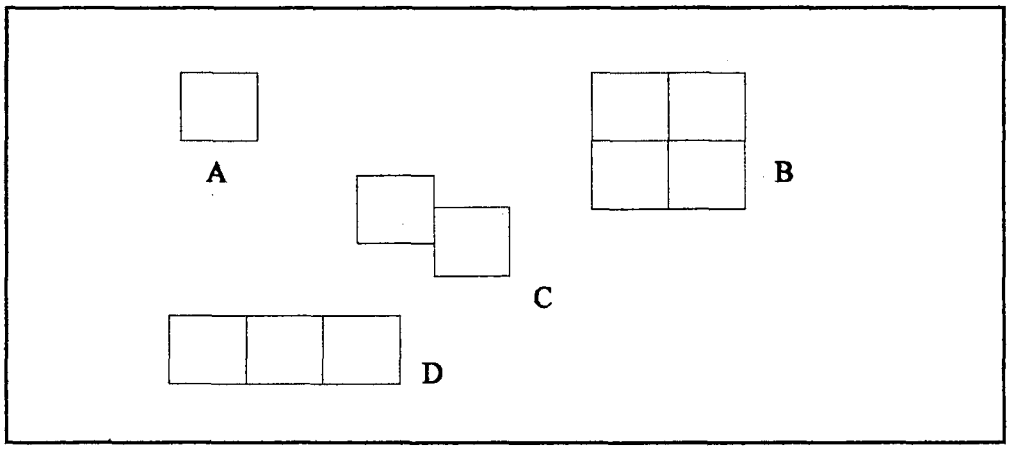


Figure 2.14 Alternative plan groupings of buildings(source: Ashworth,1994:114)

According to Ashworth(1994:114)

> In cost terms, both initial and recurring, arrangement B offers the best solution. It provides for the use of more shared elements and can be constructed on a more confined site. Heat loss during use will also be lower. Arrangement A although desired for other reasons, is the worst solution in terms of design economics.

2.3.5. BUILDABILITY

CIRIA ,The Construction Industry Research and Information Association , defines buildability as " the extent to which the design of a building facilitates ease of construction, subject to the overall requirements for the completed building" (cited in Nicholson,1996:230). It provides financial gains. Designs, which require unnecessarily complex methods and procedures, will cause inefficient use of the construction industry's resources.

2.3.6. CONSTRUCTIONAL CONCERNS

According to Ashworth(1994) the constructional details, materials used, and methods of construction will have important cost implications for the project. Repetitive constructional details in the process will be able to provide for economic savings on the project. Characteristics required and the price, the client is willing to pay, affect the choice of materials.

Alkass, Jergeas, and Tyler (cited in Nicholson, 1996) argue that both functional and constructional aspects of detailing influence project's overall performance. Details should be thought in terms of their construction-related aspects, including feasibility, and impact on cost and schedule.

2.4. PROJECT OBJECTIVES

The Project Management Institute (cited in Ghanbari and Froese, 1999:2748) defines the term "project" as "a *temporary* endeavour undertaken to create a *unique* product or service".

The Chartered Institute of Building(1996:3) defines project management as:

> **The overall planning, co-ordination, and control of a project from inception to completion aimed at meeting a Client's requirements in order to produce a functionally, and financially viable project that will be completed on time within authorised cost and to the required quality standards.**

"Any architecture, engineering, or construction (AEC) project starts and ends with a product; i.e. starting with recognition of a need (for a physical object, as a product) and ending with the constructed product"(Ghanbari, and Froese ,1999:2748). It basically refers to a supply and demand relationship.

Control of scope, time, cost, quality, safety, and risk constitute the objectives that govern all the processes involved in the development of the project.

Ghanbari, and Froese(1999) argue that the goals of every construction project are to be completed with the right scope, within a reasonable time, cost, and quality, at minimal risk.

Similarly Best and Valence(1999) point out that the goal of the project team is to increase quality while decreasing cost and time since establishing equilibrium

between time, cost and quality is a clear statement of the construction process objectives. The simple triangle in Figure 2.15 shows these three parameters "time, quality, and cost" balanced at the corners.

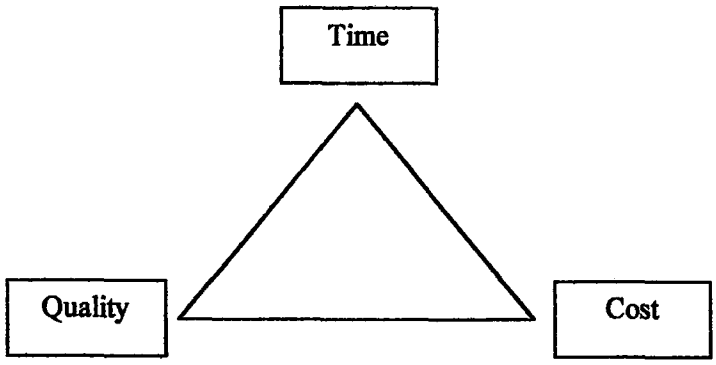


Figure 2. 15 The time/cost/quality triangle (Best&Valence,1999)

Atkin(1990) places value at what he calls the "pivotal point" in the centre of the triangle.

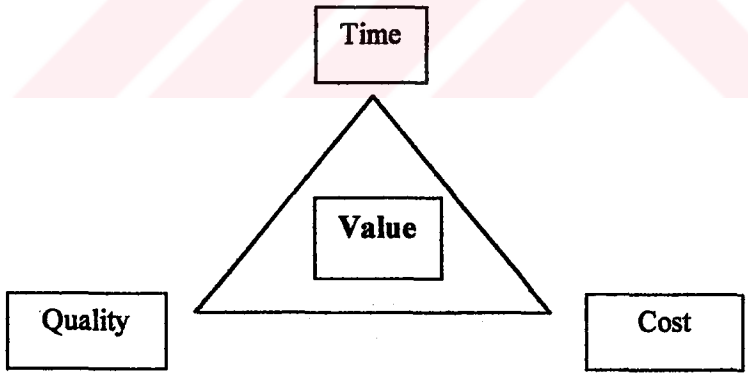


Figure 2.16 the time/cost/quality/value triangle (Atkin,1990)

Best and Valence(1999) also suggest that value may be maximised by maximising the various quality parameters applicable to any project in addition to time, cost and scope composed of project objectives and client's strategic plan. Figure 2.17 represents this relationship.

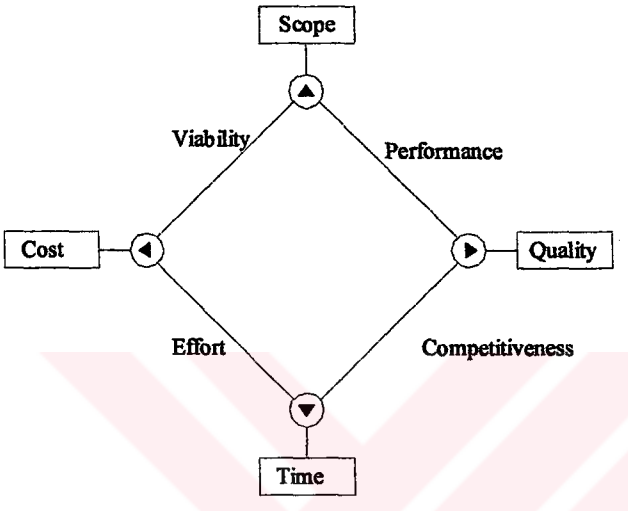


Figure 2. 17 The Time, Scope, Cost, and Quality Diamond
(source: Best&Valence, 1999:17)

The progress of a project is dependent on these elements. In addition, effective project management must embrace all provisions for quality assurance and health, for safety, and for environmental protection (CIOB, 1996).

2.5. VALUE ENGINEERING

Value engineering emerged during World War II when shortages of critical resources necessitated changes in methods, materials, and traditional designs. Many of these changes resulted in superior performance at a lower cost (Peurifoy and Ledbetter, 1985). The value process originated within the General Electric Company in the USA. General Electric was faced with a specific increase in demand accompanied by a shortage of key materials. According to Ashworth(1994) this forced the company to use substitute materials for many of its products. The company found that, through careful and informed use of substitute materials the cost of a product was often reduced, but suprisingly, the product was also improved. This approach resulted in a method which identified the function of a scarce component or element and then sought its replacement with an alternative component or element whilst maintaining its function. This basic philosophy which was then known as "value analysis" was the elimination of cost which did not contribute to the performance of the required function. ICE-The Institution of Civil Engineers(1996:2) states that "the value analysis concept was further developed by General Electric and others over the next ten years became known as value engineering".

Function is a key aspect of value engineering. According to Hashimoto(1989), the word "value" in value engineering is a ratio referring to the relation between function and cost defined as:

$$\text{Value} = \text{function} / \text{cost}$$

The value engineering team will seek answers to the followings to help function and value determination:

- What is the item?
- What does it do?
- What does it cost?
- What is it worth?
- What else could do the job?

According to CIE(1996:23) the objective of a value engineering study is to:

- examine all, or certain aspects of the design
- brainstorm the options for value improvement
- provide the project team with an opportunity to review the cost estimate and investigate the potential for cost savings

Therefore, value engineering analyses the various options to produce required function by removing unnecessary cost without sacrificing reliability, quality, and aesthetics. According to Peurifoy and Ledbetter(1985) value engineering may be applied to a project in two stages. The first stage is during or immediately after completion of the scheme designs in order to reflect the results into detailed design. The second stage begins after the award of the contract. The contractor concerning savings, which can be effected through modifications in the contract, makes the study. Then, the contractor and the owner share resulting savings on a pre-agreed basis.

CHAPTER 3

THE REAL ESTATE DEVELOPMENT PROCESS

Real estate development process depends on a complex and multidisciplinary effort. According to ULI, Urban Land Institute, (1998) the process is not a linear set of operations, rather it is an iterative process involving many interrelated activities and areas of expertise. The stages of the real estate development process and their interrelationships may differ, and the selection and timing of activities must be a function of each specific project. The establishment of development team and the scope of each expert's participation depend on the nature of the particular project.

The "development team" concept is identified firstly in this chapter. Afterwards four different models of real estate development process, suggested by different authors, are investigated in detail. Model A, proposed by Laventhol and Horwath(cited in Peiser, & Schwanke,1992), includes a five staged process composed of:

1. Planning and Initiation Phase
2. Feasibility Phase
3. Commitment Phase
4. Construction Phase
5. Management and Operation Phase

Model B is proposed by West(1994). This model includes phases of:

1. Conceptualisation, Planning, and Initiation
2. Full Project Feasibility and Business Analysis
3. Commitment
4. Design and Construction
5. Management and Operation

Model C is proposed by CIOB "Chartered Institute of Building" (1996). It includes eight stages:

1. Inception
2. Feasibility
3. Strategy
4. Pre-construction
5. Construction
6. Engineering Services, commissioning
7. Completion/handover
8. Client commissioning/occupation

Model D, proposed by Miles, Berens, Weiss(2000), includes an eight-staged development process. These stages are the following:

1. Inception of an Idea
2. Refinement of the Idea
3. Feasibility
4. Contract Negotiation
5. Formal Commitment
6. Construction
7. Completion and Formal Opening
8. Property, Asset and Portfolio Management

An evaluation of these models is the final part of this chapter.

3.1. The Development Team

According to Peiser and Schwanke(1992) development is a team effort. Miles, Berens, and Weiss(2000) argue that developers must choose their consultants with full knowledge of what is required for a proposed development, since each development has different characteristics.

Development team can be considered as composing of two groups of specialists: the design/construction group and the real estate services group. Figure 3.1 shows development team members.

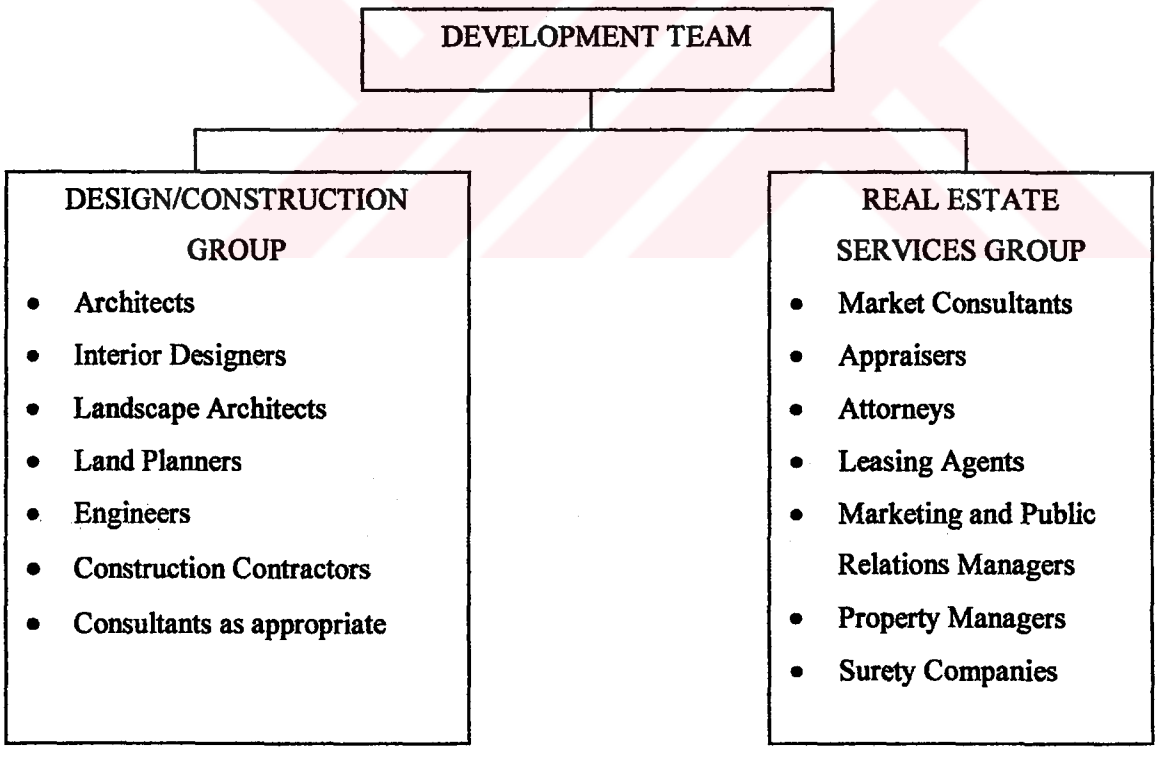


Figure 3. 1 The Development Team (source: various authors)

The design/construction group includes an array of consultants and contractors that perform tasks ranging from site analysis and planning to building design and construction management. The work that they perform and manage represents the bulk of the project's total cost. According to ULI(1998) effectively managing design and construction services is critical to the success of the development project. The design/construction group includes:

- Architects
- Interior designers
- Landscape architects
- Land planners
- Engineers
- Construction contractors
- Consultants as appropriate

Various real estate services are also essential in development process. They are provided by a variety of consultants, some of which participate in the development process from start to finish and some of which typically perform specific, short-term tasks. The real estate services group includes:

- Market consultants
- Appraisers
- Attorneys
- Leasing agents
- Marketing and public relations consultants
- Property managers
- Title companies
- Surety companies

According to Peiser and Schwanke(1992) any development team must be structured to meet the needs of the particular project. Architects and engineers help to realise visions when working with clients' dreams on a new project. An economic consultant can help to ensure that those goals don't exceed the budget. Management and design consultants are the catalysts who spur ideas into action. A project's ultimate success requires all participants in the project to listen to and learn from each other.

Urban Land Institute "ULI"(1998) defines effective management of the development team as a fundamental tool necessary for project success. Successful development depends on the developer's ability to manage the many participants in the development process.

According to Miles, Berens, and Weiss (2000) a description of participants in the real estate development process would be incomplete without mentioning the final users of the space: the direct consumers of the finished product. They(2000:51) argue that:

> Developers anticipate users' needs when articulating the original project concept. The market study further elaborates on the idea and guides developers in developing products that fit their intended market(s). Ultimately final users determine the success of the project by accepting or rejecting the finished product as it is delivered to the marketplace.

3.2. MODEL A

Model A is proposed by Laventhol and Horwath (cited in Peiser and Schwanke, 1992), and includes the following phases shown in Figure 3.2.

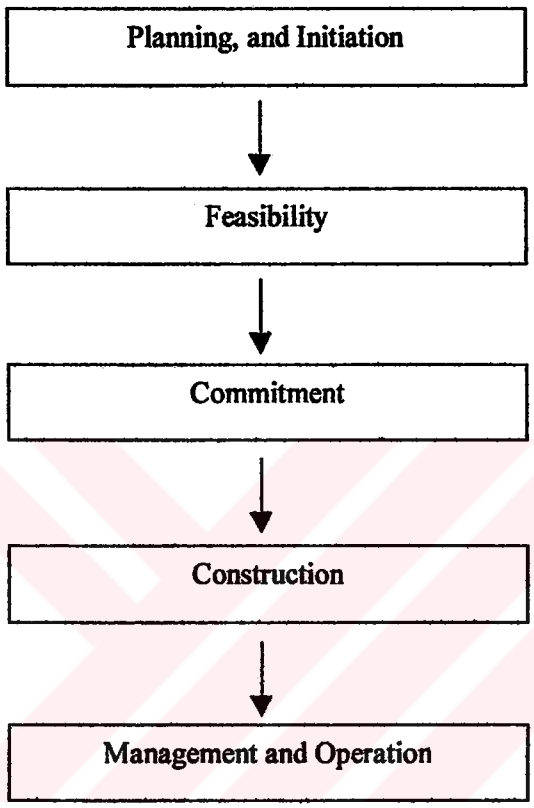


Figure 3. 2 The Development Process (source: Peiser and Schwanke,1992)

3.2.1.PLANNING AND INITIATION PHASE

Determination of preliminary development concept is the aim of the planning and initiation phase. In order to define it,

1. Project objectives should be established.
2. Major developmental issues should be identified.

3. Development team should be assembled.
4. Identification and secure control of site can be preferred.

Establishment of project objectives, the first step of the planning and initiation phase, needs the clarification of the following objectives:

- Governmental objectives, including capacity to assist, and ability to motivate;
- Financial objectives;
- Developmental objectives, which are timing, market position, product image, and product type; and
- Operational objectives, together with management, and level of involvement.

Definition of major developmental issues, as a second step, includes identification of regulatory, locational, political, and environmental conditions, as well as land assembly and public sector involvement considerations.

The development team, basically composed of a financial/development adviser, a developer, a land planner (optional), a legal adviser, an economic consultant, and others as appropriate, should be formed during the planning and initiation phase as a third step.

The preliminary development concept is determined at the end of the planning and initiation phase.

3.2.2. FEASIBILITY PHASE

Steps constituting feasibility phase are the following:

1. Data Collection
2. Data Analysis, Evaluation and Recommendations
3. Operating Performance Projections, and
4. Financial Feasibility Analysis

After determination of the preliminary development concept during the planning and initiation phase, the development concept should be refined by further data collection. This first step of the feasibility phase includes:

- Site evaluation;
- Market delineation and evaluation;
- Economic trends and analysis;
- Determination of sources of demand;
- Comparable analysis;
- Competitive analysis;
- Locational analysis;
- Supply analysis of existing and proposed projects; and
- Investment climate.

Data analysis, evaluation, and recommendations form the next step after data collection. The finalisation of the development concept in the second step of the feasibility phase is based on:

- Estimation of future demand and supply, leading to estimation of annual occupancy, rental rates, sales;
- Evaluation of site advantages, and disadvantages by market segmentation recommend facilities and amenities sizing; and

- Selection of an architect and a land planner, thus preparation of preliminary land uses and facility plan, which are essential for preliminary development cost estimates.

Operating Performance Projections, the third step of the feasibility phase, comprise the clarification of the following items in order to determine preliminary development cost estimates:

- Project occupancy level
- Project rental rates
- Projections of likely operating revenues
- Projections of likely operating expenses

Preliminary development cost estimates are conducted on preliminary financial analysis, and the following items are then used for preparation of the project pre-tax financial statement.

- Preparation of final land use plan and schematic design; and
- Determination of initial project financing

The development program is finalised at the end of the feasibility phase.

3.2.3. COMMITMENT PHASE

Commitment phase includes, in sequence the following steps sequentially:

- Land assembly
- Leasing commitments
- Preparations of necessary environmental documents
- Agreements for public sector financing assistance
- Securing public development approvals

- Selecting project architect and engineers
- Selecting project marketing and advertising firm
- Preparations of necessary financing documents
- Preparation of preliminary development schedule
- Preparation of final project cost estimates
- Finalisation of facility design

At the end of these procedures permanent and construction financing obtained.

3.2.4. CONSTRUCTION PHASE

Final design and engineering projects are completed during construction phase. A construction manager is selected. Bidding packages are prepared. Subcontractor agreements are finalised. The consequent steps are:

- Executing building contracts
- Obtaining certificate of occupancy
- Implementation of pre-opening marketing program and staffing
- Grand opening

3.2.5. MANAGEMENT AND OPERATION PHASE

Management and operation phase includes following steps:

- Operating the facility
- Executing management agreements
- Conducting marketing program
- Generating profits

3.3. MODEL B

Model B is proposed by West. He(1994) argues that the process of developing an investment property, regardless of type, size or location requires accomplishing five distinct phases of activity:

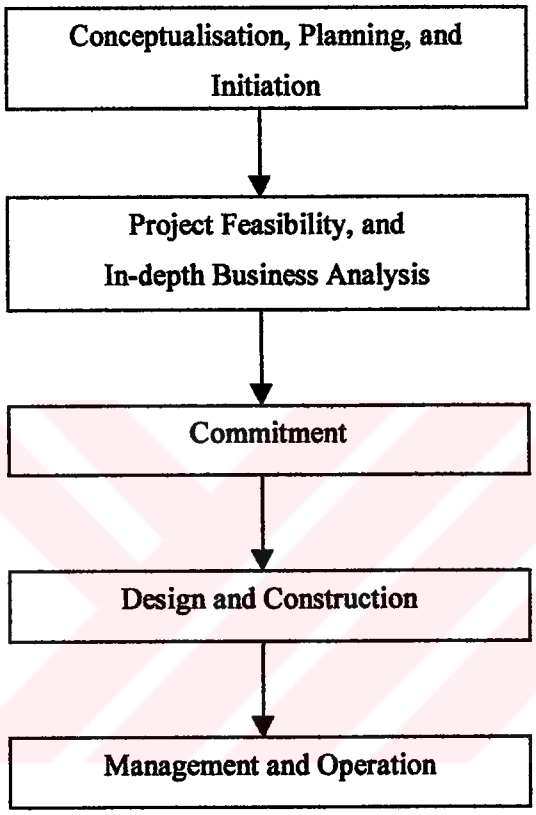


Figure 3. 3 The development process (source:West,1994)

West(1994:19) points out that the process is founded on the principle that successful projects include the following traits:

- Have typically met or exceed the development objectives of their investors and owners
- Are compatible and complementary with the natural resources of their sites and with the surrounding land uses
- Provide a platform for secured financial gain for those associated with them

- Provide the type of quality of products and services desired by the tenants; and
- Provide enhanced quality of life and augment the needs of the communities they serve.

3.3.1. CONCEPTUALISATION, PLANNING AND INITIATION PHASE

After initial conceptualisation, an optimal development program begins by creating the framework within which the process and final success of the project will be judged. Planning and initiation phase starts with setting the overall objectives. Answering the questions related with following topics will help the team at this point.

1. Financial
2. Development
3. Concept Design
4. Operational
5. Political Influences

By analysing and discussing these and other pertinent questions, the development team grows its ability to make consistent qualitative decisions. This allows the development process to occur in a climate without failures and surprises, and minimises risk.

The following questions are related with the financial concerns:

- What are the project's financial objectives?
- Do they involve long-term, residual, or value appreciation goals?
- What are the priorities of the developer regarding these goals?
- Can the developer finance a project of this magnitude?
- What is the level of commitment in terms of time, money, and resources? (West,1994:20)

Developmental questions are related with site characteristics. They are generally about existing constraints and opportunities of the site. Surrounding land uses'

compatibility with the proposed development gains importance. Existing condition and image of the site, accessibility, human resources located are the other significant items.

Questions in relation to concept design are the following:

- Does the team need to make a statement?
- Will an overseas consultant be involved?
- Once identified, will the scope of this consultant's brief include initial concept(s), preliminary design, developed design through to working drawings and ancillary documentation, or initial concept(s) only, with the assistance of local professionals to assist in the preliminary design?
- Will a local architect prepare it with an overseas consultant participating in an observation and clarifying role only, with the local architect preparing the documents of control? (West,1994:20)

Operational considerations are related with management structure. Whether management function requires the services of a professional operator or not is a critical question. In addition, level of involvement in the operation should be clarified.

Policies govern development on or near the site, and their level of encouragement on development is important. Public react to the development of the project, and the statutory processes take how much time should be investigated.

However, the determination of the overall project objectives continues after these questions have been answered. Considerable public concern has arisen recently

over the development process' effects on the quality of life, historic preservation, the environment, and regulatory constraints.

The common thread throughout these questions is the need to identify and deal with the major influences on development by formulating objectives.

The final step in the planning and initiation phase is completing a full development team. For most projects, retaining the services of an overall financial and development advisor during this phase is vital, early selection of this individual or firm is particularly important on complex projects. Depending on the sophistication and experience of the project initiator, West(1994:20) lists the advisor's actions as the following:

- Identifies other potential members of the development team for one or all of the development phases
- Co-ordinates the preparation of the development objectives
- Advises and guides the other involved parties
- Undertakes and completes a market-driven project feasibility and business analysis
- Researches examples of projects that have been successfully analysed, financed, developed, and operated
- Maintains regular contact with the client, the client's representative, architects and other professional consultants
- Augments the project's credibility with the financial community
- Proceeds as quickly or as slowly as the project requires, and
- Performs all of the above services without having a vested interest in obtaining future work from the project.

On completion of the conceptualisation, planning, and initiation phase, the initiator should have established a set of development objectives, formulated an initial development concept, become aware of the major opportunities and constraints of the project, and addressed each of the principal issues inherent in

the development process. The initiator also should have retained the services of a professional financial and development advisor, assembled other members of the team, and established a timetable for the full project feasibility and business analysis.

3.3.2. Full Project Feasibility and Business Analysis Phase

There is some degree of risk for all parties involved since the decision to continue with a project depends on a set of assumptions. The level of risk varies according to the nature of project, the team's ability to control future events and conditions, and expected level of financial gain and commitment. According to West (1994:21) the decision to build and operate an investment property requires

- an accurate assessment of current and future economic and market condition,
- a structure that insulates the project from uncontrollable conditions,
- a management group committed to the maintaining the quality of the investment, and
- a pragmatic and timely project feasibility and business analysis.

At this stage, the team must undertake a preliminary project feasibility and business analysis to determine the "go/no-go" status of the proposed project. An experienced project analyst should do the preliminary study. Determining the project's viability requires a two-step process. The first step involves assessing the market feasibility of the project. The second step requires preparing a cash flow statement of the full project cost.

The project feasibility/viability of a development in a market requires analysis of several factors, only one of which is location. The location of competitive

properties, current and future expansion patterns, economic growth within the market, regulatory and legal issues, site characteristics, special local conditions, critical mass, and trends must also be considered. The project initiator or consulting firm must collect the quantitative data that serves as the basis for future development decisions. The following items also need to be completed:

1. Developing a Database which serves as a reference point for making project recommendations and guides, comparisons of the projected performance with actual results from similar existing properties.
2. Delineating the Market Support Area which is showing major sources of demand, the location of competitive developments and the segmentation, the distance from the proposed site to the major sources of workforce concentration, transportation, amenities, and recreational facilities and existing socio-economic boundaries.
3. Determining the Sources of Demand which is defining principle users and/or premium tenants; second-tier/complimentary users and/or tenants, accommodating provision for future expansion; other associated users.
4. Evaluate the Suitability of the Site for Development, which includes competitive position and the relevant bulk and location parameters.
5. Recommending Facility Sizing and Amenities by using the market research and projected market segmentation analyses already conducted. It helps to determine the optimum size and best choice of design. Therefore, materials and equipment should be selected that have life cycles and costs appropriate to the probable life of the project.

It is important to emphasise the level of detail necessary when establishing the project viability. In principle, financial feasibility analysis can be divided into three distinct sections: project orientation, investment orientation, and executive summary.

The project-oriented segment of the feasibility analysis is the most significant in the analysis because it involves the dissemination of more factors, variables, risks, sensitivities, and calculations. The project is divided into a number of cost centres to identify the range of questions and results that is needed to be assessed and resolved to provide answers required for the total project cost. The generalised headings for the project orientation cost centre include the following:

- Land input value plus other land purchase related expenditures
- Project promotion
- Marketing and commissions
- Tenancy procurement allowances, vacancy provision contingency, etc
- Holding charges
- Funding costs plus other funding related expenditures
- Design consultant costs plus allowance for disbursements
- Construction and other independent costs, together with contingency, and escalation allowances, and
- Development management allowance, development margin and other overhead allowances (West,1994:23)

Each party involved in the project feasibility and business analysis adopts a different bias toward the various sensitivities. For the project to proceed, a consensus needs to be reached. This is called as investment orientation. The detailed model is able to address each of the party's particular concerns.

Executive summary includes a single page summation of the relevant costs, key dates, and findings relating to the approved synopsis dictated by the team from the project orientation and investment orientation segments referred to above. This executive summary is only one synopsis and is relevant to the predetermined variables and sensitivities selected by the team for the particular exercise being reviewed.

At the end of this stage the base model has been established, checks and balances have been applied, and the overall feasibility analysis has been completed.

3.3.3. COMMITMENT PHASE

With the completion of the executive summary, the overall project analysis has been established, preliminary development costing and design have been prepared, and a preliminary program has been set up for the project's construction. The commitment phase (sometimes called the package phase) involves the final negotiation of these items:

- Land assembly/site acquisition
- Agreements from public entities for development and funding assistance
- Selection of a client representative (project co-ordinator), architect(s), engineers, cost engineers, and other professional consultants
- Refined project costs, both direct and indirect
- Agreement among the funding, developing, and operating entities
- Financing and ownership structure
- Environmental and statutory documents
- Preliminary development schedules
- Marketing strategy
- Developed design drawings (preliminary sketch design and developed design documents can account for as much as 60 percent of the total design effort)

- A value engineering program maintained throughout the design process, ensuring that the budget targets are attained and that the most appropriate and efficient design is developed without compromising aesthetics; and
- Overall land use plan (West,1994:24)

These commitments may be formal agreements, letters of intent or understanding, or other binding legal documents. All members of the project team normally take part in the closing of all agreements and in the decision to commit the project's investors to the development process. Legal representatives should also take part because the agreements reached in the commitment phase are binding and guide the project's development. The most important step in the commitment phase is securing project financing for both the development and investment packages. The funding sources and financing methods available for development properties must cover both direct and indirect costs.

3.3.4. DESIGN AND CONSTRUCTION PHASE

By the time final approval of to begin construction is confirmed, the final site, architectural and engineering documents, together with the schedules of quantities and conditions of contract, have been completed.

After the design decisions have been made, the project co-ordinator comes to the forefront. The services of an experienced project co-ordinator are critical during this phase. During construction, this individual or team must perform these steps:

- Initiate and administer the terms and conditions of engagement of all professional consultants, the contractor, and any independent contractors;

- Develop working drawings and final specifications and ensure that the cost plan included in the feasibility is adhered to;
- Secure all necessary resource and territorial consents and statutory approvals
- Direct the tender selection process and conduct negotiations with the preferred main contractor;
- Chair meetings to keep the project team fully informed on construction progress
- Attend all site and design meetings, and keep accurate minutes;
- Monitor and issue all site instructions, variations, and the overall construction cost plan;
- Handle all contractual issues and disputes
- Monitor all on-site and off-site facilities and construction;
- Ensure program commitments are maintained;
- See that appropriate quality assurance and quality control programs are implemented and maintained by the main contractor and all professional consultants;
- Obtain all necessary statutory approvals at the completion of the contract;
- Obtain all guarantees, warranties, as-built drawings and operating manuals required in the documents
- Ensure that the maintenance items are attended to promptly and efficiently and,
- Assist in bringing the project in on time and within pre-set budget constraints. (West, 1994:24)

3.3.5. MANAGEMENT AND OPERATION PHASE

On major projects, this phase usually begins 12-18 months before project completion and continues when the building becomes operational. This phase involves assisting in the selection of major equipment, preparing and implementing aggressive sales and marketing campaigns, selecting the property manager, continuing control and reduction of operating costs, and generating operating profits, maintaining all facilities, and enhancing the building's image in the marketplace.

The primary objectives of the management/operating phase are a fully occupied building with the payment of the minimum incentives, rental discounts, etc., and

ensuring the long-term success of the project. This requires the services of a committed and experienced management team.

3.4. MODEL C

CIOB (1996) accept the following scheme of RIBA, " The Royal Institute of British Architects", as a well form constituting the basis of many projects. This scheme reflects the stage-by-stage process associated with development projects- no matter how they are large or complex.

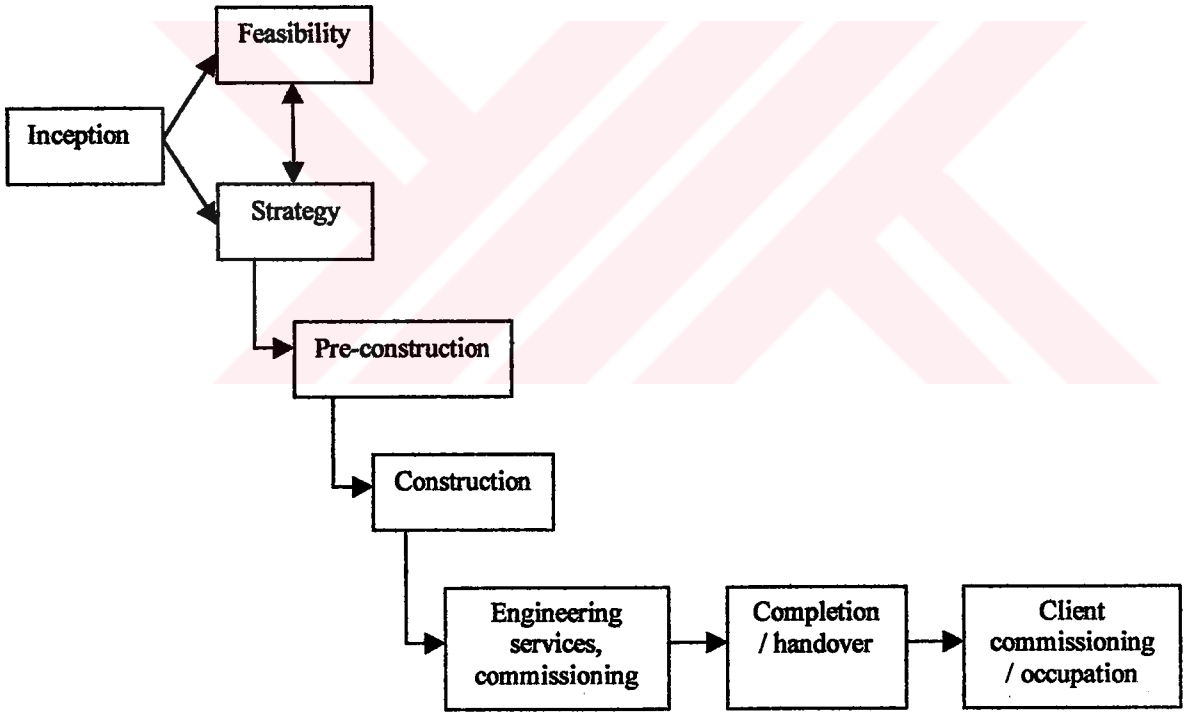


Figure 3. 4 Stages of the development process and their relationships

(source:CIOB,1996:11)

3.4.1. INCEPTION STAGE

Client states his objectives during inception stage. He prepares a careful analysis of his business, organisation, and present facilities before appointing a project manager. This process will result in a project-specific statement of need. It must not be confused with the project objectives that will be developed later from the statement of the need. The project manager has the responsibility of providing a cost effective and independent service, selecting, correlating, integrating, and managing different disciplines and expertise, to satisfy the objectives and provisions of the project brief from inception to completion.

3.4.2. FEASIBILITY STAGE

Feasibility stage comprises six steps, which are shown in Figure 3.5:

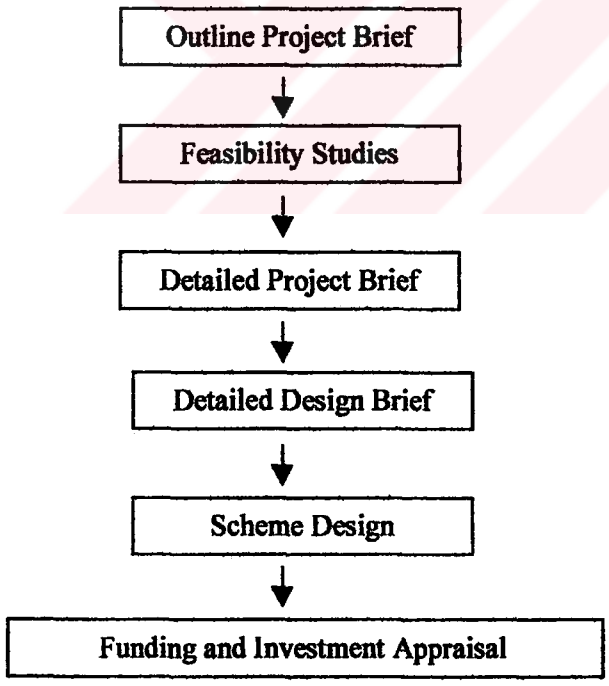


Figure 3. 5 Feasibility stage (source: CIOB, 1996)

policymaking body, and may include constraints related with time, cost, performance, and location. The project manager should be provided with a clear statement of the client's objectives. This is the initial brief to which the project manager will then work.

In order to achieve effective feasibility studies the information used should be as accurate as possible. Specialists and experts will provide much of the information.

> Some of these experts may be available within the client's own organisation, or be regularly retained by the client- lawyers, financial advisors, insurance consultants, and the like. Others, such as architects, engineers, planning supervisors, town-planning consultants, land surveyors, and geo-technical engineers may need to be specially commissioned. (CIOB, 1996:12)

Feasibility studies are the most crucial, but also the least certain phase of a project. Time and money, expended at this stage, will be repaid in the overall success of the project. The feasibility report should include a risk assessment, and comparative life cycle costing to be included for each option.

"The formulation of the detailed brief for the project is an interactive process involving most members of the Design Team and appropriate representatives of the client organisation" (CIOB,1996: 13).

Preliminary design studies, which are part of the process, may produce various options and suggestions for change. Therefore during feasibility phase, there is opportunity and scope for change, since it is not unusual for the client to modify

his thinking on various aspects of the proposals in the early phases. The assembly of the detailed design brief is the responsibility of lead design consultant along with the client and project manager, who will monitor compliance of it with the outline project brief, project budget and master programme.

> The project manager will monitor the progress of assembly of the detailed design brief and notify the client of the effects on cost, time, quality, function, and financial viability of any changes from the outline design brief. The detailed design brief, or such part of it that has not been deferred, having been tested against these four criteria, should be presented to the client as a formal document for his approval. The presentation should normally be made jointly by the lead design consultant and the project manager. (CIOB, 1996:15)

Detailed design brief becomes the control document for the project once approved by the client. The project manager will issue it to all members of the design team, and instruct them to complete the scheme design. In addition, he will monitor the completion of scheme design, arrange for cost checks to be carried out, obtain confirmation that the design meets the detailed design brief and all external constraints.

The project manager should have knowledge of project finance, and an understanding of the banking system, tax, management accounting, the law, and related disciplines in this areas. The project manager should also know when and where to go for special advice.

The process of developing the project brief from the client's objectives is shown in Figure 3.6.

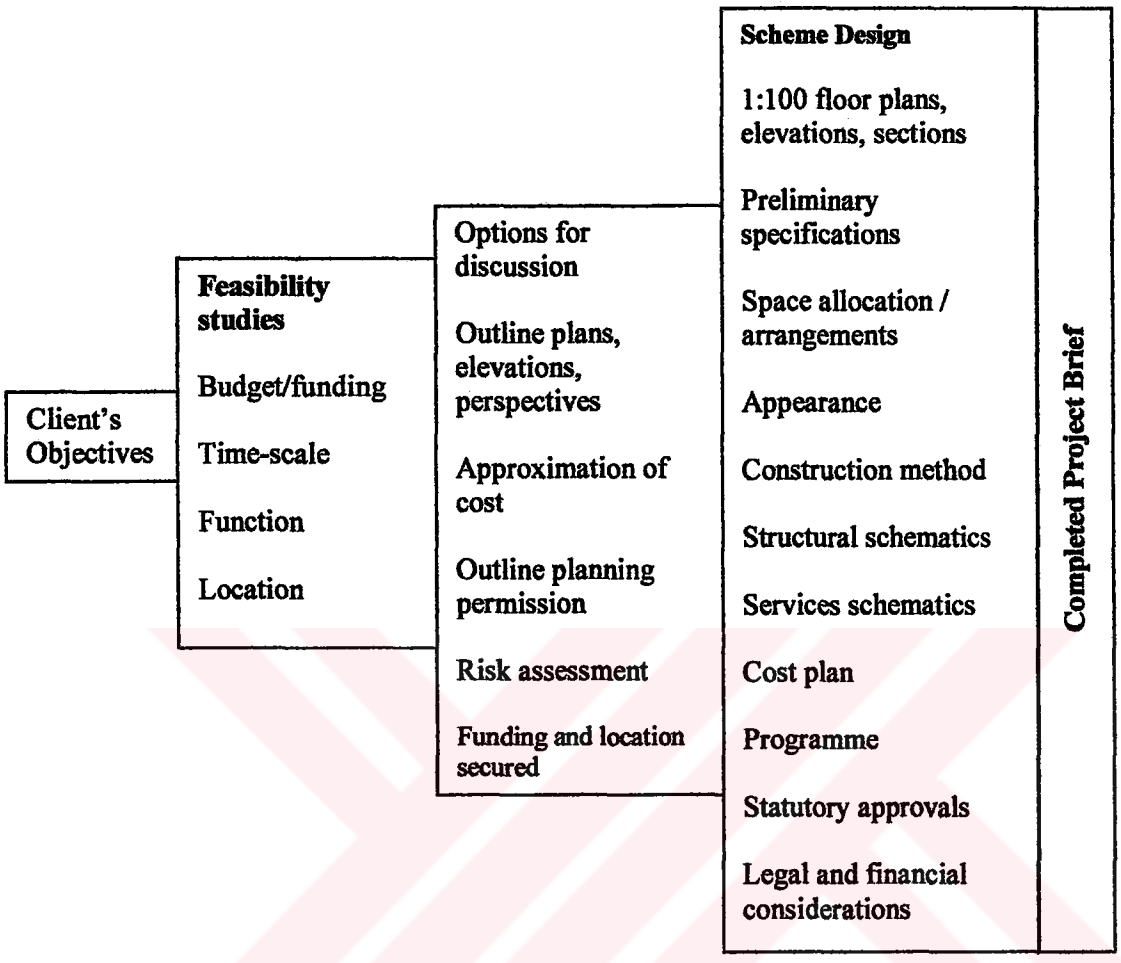


Figure 3. 6 Development of Project Brief from Objectives (source: CIOB,1996:13)

3.4.3. STRATEGY STAGE

Distinction between the tasks and activities of the feasibility and strategy stage is not always clear, since each is influenced to a certain extent by the considerations and findings of the other. Feedback is essential. A typical strategy stage consisting of the main elements is shown in Figure 3.7.

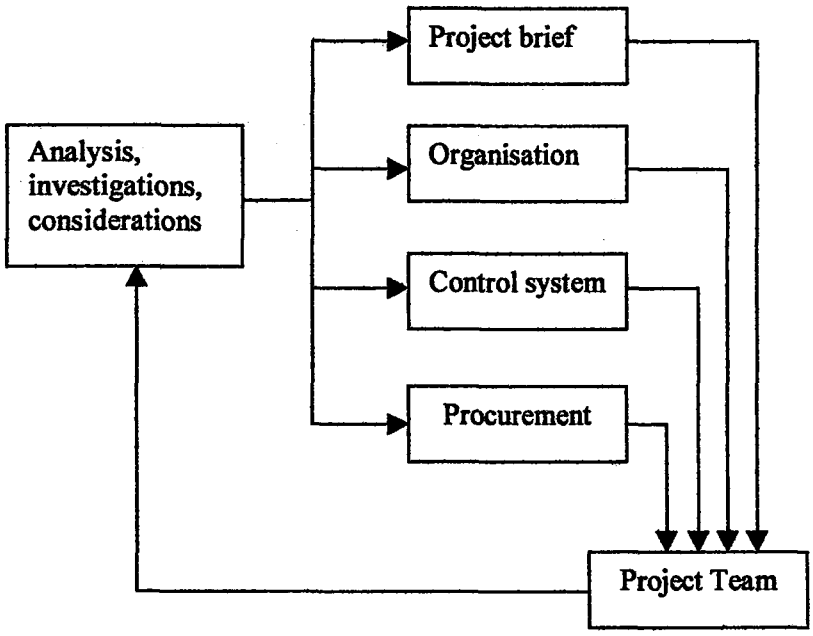


Figure 3. 7 Elements of strategy stage (CIOB, 1996:17)

The project manager performs several activities at this stage. These are:

- Reviewing the project brief with the client and existing members of the project team to ascertain that the client's objectives have been met. Preparing a final version in a written form.
- Establishing in consultation with the client and consultants, a project management structure (organisation), and the participants' roles and responsibilities, including access to client and related communication routes, and decision required points (CIOB,1996:18)

The master programme, and detailed programmes for each stage, should be developed as soon as the necessary parameters are established. Progress of the project against master and stage programmes should be carefully monitored. The various steps in the development of the project master programme are shown in Figure 3.8.

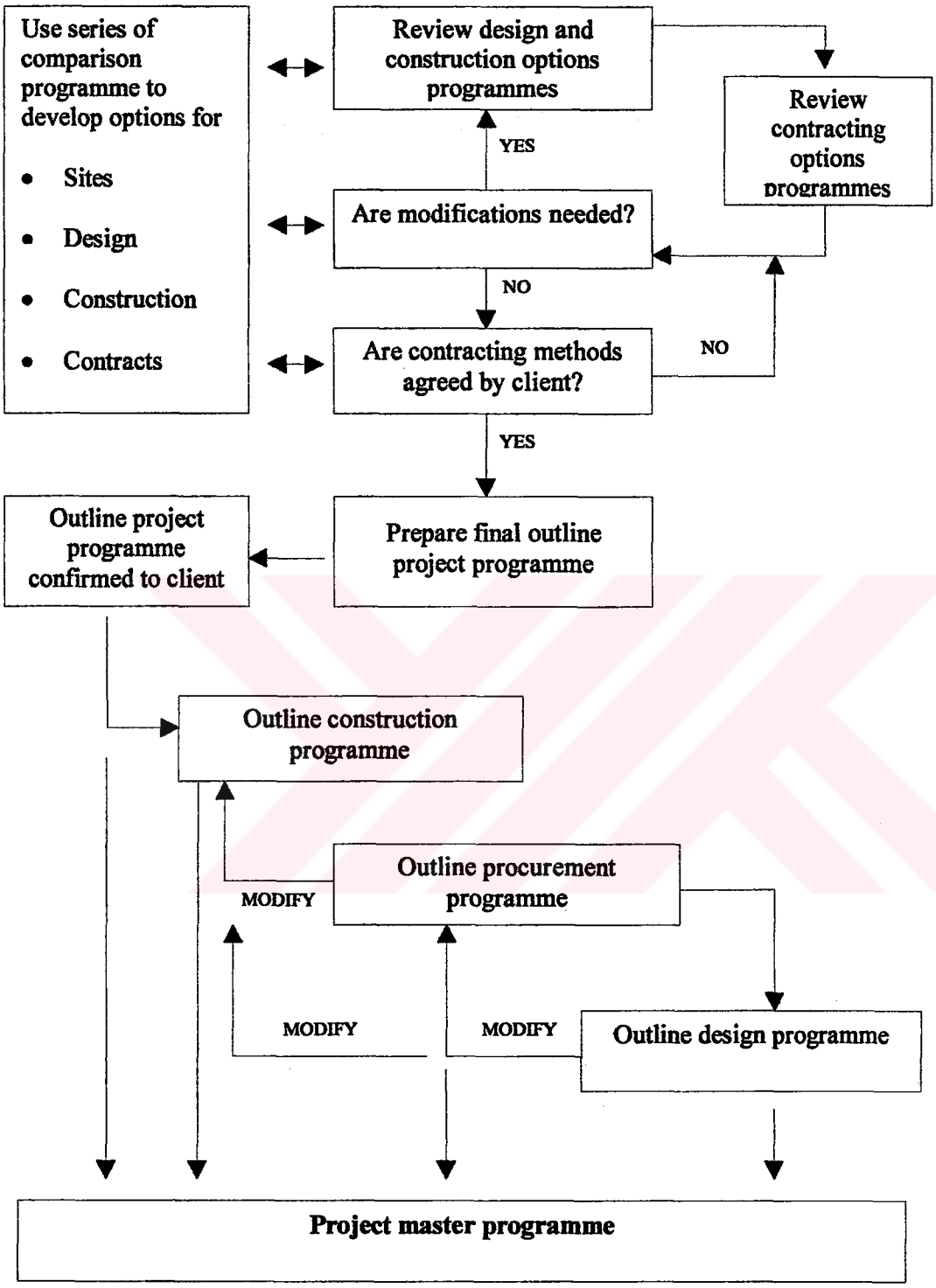


Figure 3. 8 Project planning (source: CIOB, 1996: 20-21)

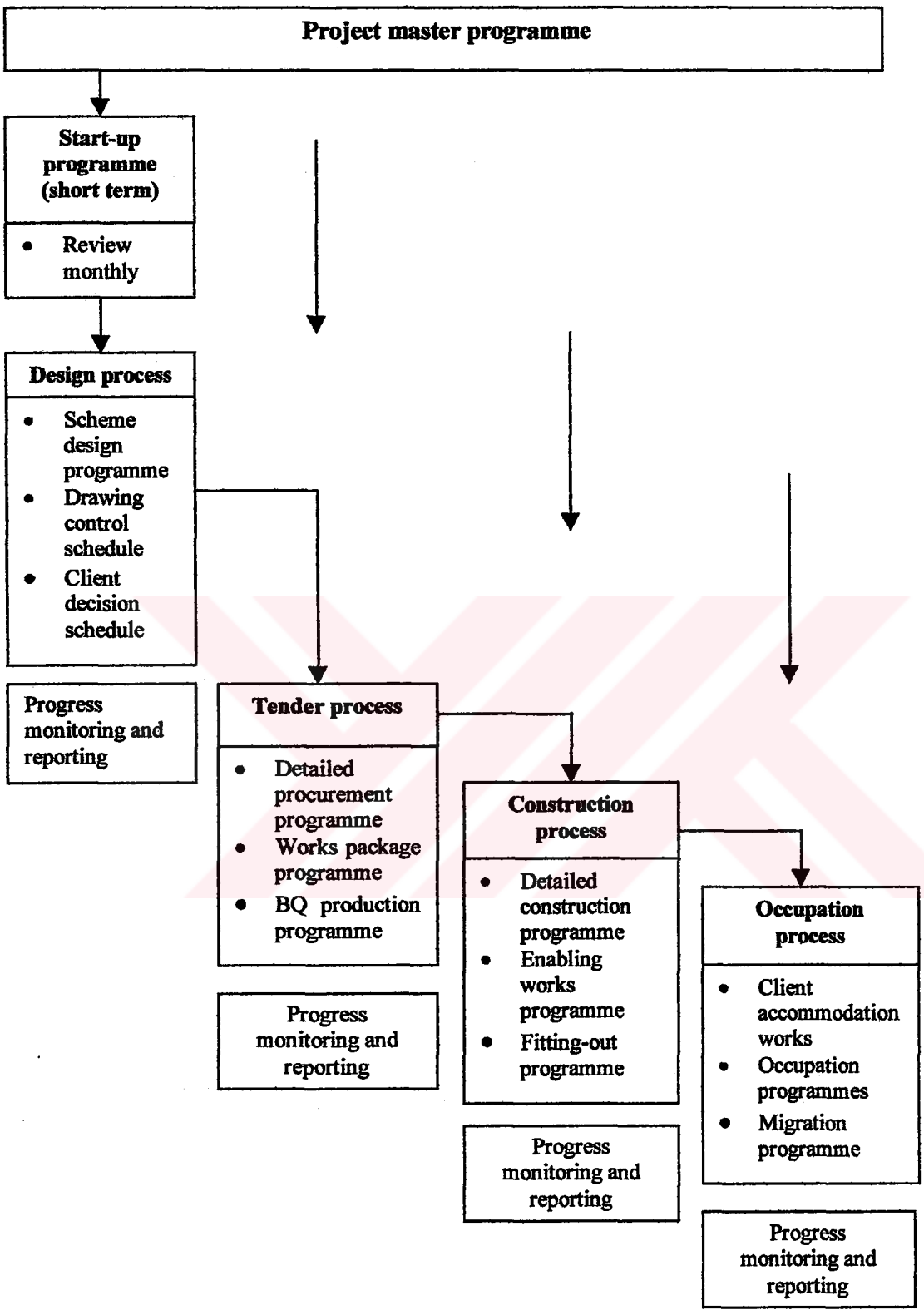


Figure 3.8. continued

Based upon the master program a cost plan , including a cash flow plan, allocating expenditure and income to each period of the client's financial year, should be prepared. The objective of the cost plan is to provide the best estimate of the final cost of the project. "A cost plan is prepared to include all construction costs and all other items of project cost but excluding the developer's returns and other extraneous items such as his agent's fees" (CIOB, 1996:22).The aim of the cost control is to allow the project to be completed within the approved budget. It will be the best possible estimate of:

- The final cost of the project
- The future cash flow
- The costs in the use of completed facility

Effective cost control will require the following actions to be taken:

- Establishing that all decisions taken during design and construction are based on a forecast of the cost implications of the alternatives being considered.
- Encouraging the project team to design within the cost plan and adopt the variation and design development control procedure for the project, which is based on architect's instructions. No member of the team has the authority to increase costs on its section of the work. Savings on another must balance increased cost on one item. (CIOB, 1996:24)

Choice of procurement method, which depends on the type of project, client, and his requirements, is another important step occurred during strategy stage. Procurement is defined as "the process by which the necessary contributions of the various participants in the design and construction phases of the project are secured" (CIOB,1996:28). The selection of method should be made when consideration is being given to the appointment of design and other specialist

contractors. The various procurement methods can be broadly classified under four headings: traditional, design and build, management contracting, and construction management

Site selection and acquisition is another important stage in the project cycle. The activities involved in a site investigation can be broadly grouped as shown in Figure 3.9. Some of the activities may overlap, depending on the level of expertise of the specialists appointed

Activity	Action by
Site surveys	Land surveyor and structural engineer
Geotechnical investigation	Ground investigation specialist
Drainage and utilities survey	Civil engineering consultant
Contamination survey	Environmental and/or soil specialist
Traffic study	Transportation consultant
Adjacent property survey	Buildings/ party walls
Archaeological survey	Local museum
Environmental issues	Specialist consultant
Legal aspects	Solicitor
Outline planning permission	Architect

Figure 3. 9 Activities associated with site investigation (source: CIOB, 1996:33)

3.4.4. PRE-CONSTRUCTION STAGE

Once the client has made a commitment to the project, accepted the feasibility report and approved the scheme design the project can proceed to the pre-construction phase. This will involve detailed design, preparation of tender

documents tendering process and production of enough working drawings to permit construction to start. At the beginning of pre-construction stage a number of key issues has been completed. CIOB(1996:37) defines these as:

- The client's brief covering the type and nature of the project has been completed and translated into a scheme design
- A suitable site has been identified and made available
- A master programme has been prepared.
- A cost allowance has been allocated to cover on-site development, including pre-main construction works, infrastructure, buildings, fit-out, and equipment
- Geological and topographical surveys of the site have been carried out.
- Planning authorities have been consulted regarding the planning status of the site
- Statutory authorities, public bodies and utilities have been approached for information regarding mains services, highways, and related infrastructure items, which are likely to influence site development.
- Consultants have been appointed to provide –at least part of- the services required
- The client has authorised the project to proceed and should be aware that considerable costs will be incurred.
- With large and complex projects a core group will have been formed consisting of the principal team members and the client, all of whom will contribute to strategic decision taking.

It is important to arrange a meeting of project manager, the Design Team and other consultants to review all aspects of the project to date. The objective of the meeting will be to formulate a design management plan. This plan should at least cover:

- The size and format of drawing types
- Schedules of drawings to be produced by each discipline
- Incorporation within the design programme of key dates for review of design performance to check:
  - Compliance with brief
  - Value engineering analysis
  - Health and safety issues
  - Completeness for tender (CIOB,1996:38)

After then, assembling progress meetings at relevant intervals will provide reviewing progress on all aspects of the project. At this point, co-ordinating the activity of the various participants in the total process is an important responsibility of the project manager. Submitting preliminary design proposals, reports, and scheme design drawings to the client for approval is another important step. Figure 3.10 shows the process of preparing outline design proposals.

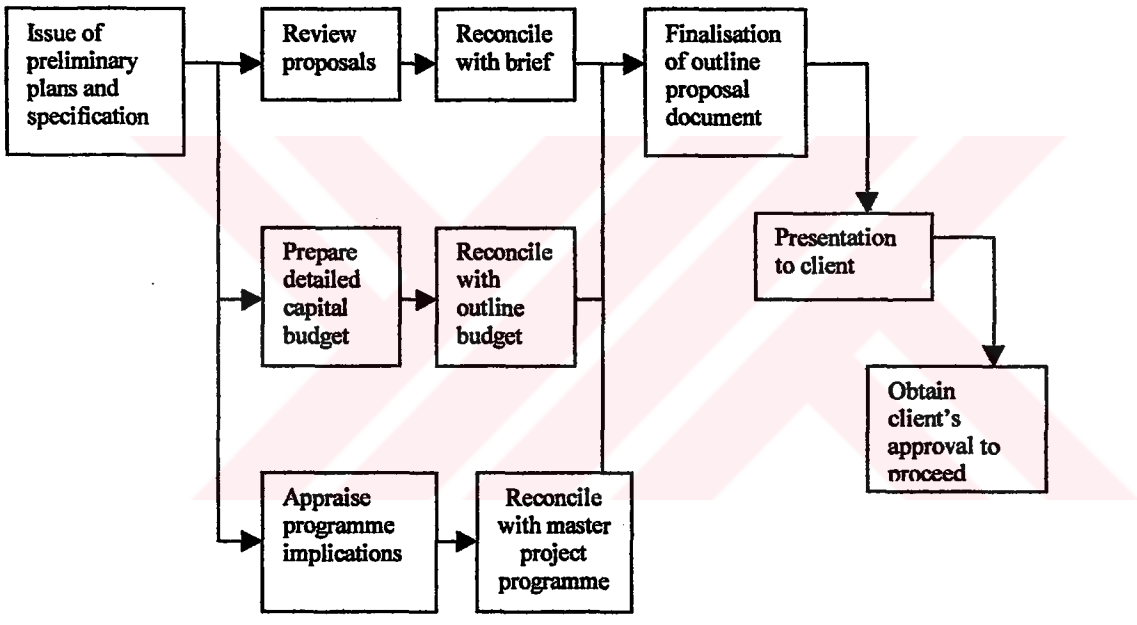


Figure 3. 10 Outline design proposals (CIOB, 1996:41)

The project manager's another role during pre-construction stage is to manage the tasks executed by the consultants. CIOB(1996:45) identifies following list constituting tender action:

- Checking the various tender documents are produced at appropriate times, including these for pre-main construction works, and ensuring that they contain any special terms required by the client.

- In conjunction with the relevant consultants, preparing list of firms to be invited to tender for the main and subcontract elements of the work (pre-qualifying process)
- Checking, in liaison with other project team members that all subcontract terms are compatible with the main contract terms, paying particular regard to contractor-designed elements and confirming that appropriate warranties are secured
- Receiving reports on tenders, together with method statements. Interviewing successful tenderers, if necessary, to clarify any special conditions and to meet significant leading personnel. Arranging for formal acceptance of tender as appropriate and issuing relevant letters of intent.
- Initiating action if tenders are outside budget.
- Arranging for formal signing and exchange of contracts.

3.4.5. CONSTRUCTION AND FITTING-OUT STAGE

Project manager, in conjunction with the project team, should do reviewing project strategy programmes, all relevant procedures/controls and completion of pre-construction works, and checking their readiness for the commencement of main construction.

Contractor's preliminary programme suitability to master programme should be checked before construction work starts. Furthermore, adequate and timely information should be provided for contractors. Costs should be contained within the cost plan. The overall development objective and detailed programmes should be achieved. The project manager should submit reports to client and project team members, including:

- Project progress – status of design and construction
- Notice of any further decisions required
- Cost and budget controls, usually produced as a financial management document
- Problems and measures to overcome them
- Update on anticipated final cost and completion date (CIOB,1996:53)

Fitting out can be carried out either as a part of the main construction contract, or separately. Which course to adopt is determined at the feasibility and strategy stages and will depend on the project circumstances or client requirements. Generally fitting out comprises the following elements:

- Preparation of heads of agreement for lease
- Preparation of material for and implementation of marketing or promotional campaigns
- Recommendations regarding contractual terms for the works to be carried out
- Preparation, in conjunction with the relevant consultants, of drawings, specifications, and relevant tender and contract documents
- Selection and appointment of suitable contractors
- Reviewing and reporting: (1) to all parties concerned and taking action where to appropriate, including certification; (2) agreements with the quantity surveyor on meeting schedules, and valuation dates; (3) on cost comparisons with the cost plan; (4) on claims for extension of time in conjunction with the members of design team and consultants concerned.
- Monitoring: (1) information flow from the consultants; (2) client/owner payments against interim certificates and fee payments to the consultants (CIOB,1996:56)

3.4.6. Engineering Services Commissioning Stage

Commissioning is carried out in two distinct parts: engineering services commissioning and client commissioning.

Engineering services commissioning is part of the construction design and installation phases of the project. It is the responsibility of the main contractor in the case of traditional contract. The main tasks to be carried out must be considered in three stages: pre-contract, contract, and post-contract. "Client commissioning is an activity predominantly carried out by the client's personnel assisted, where required, by the consultants" (CIOB,1996: 64).

3.4.7. COMPLETION AND HANDOVER STAGE

Completion and hand-over are very much interlinked. They are carried out under the co-ordination and supervision of the project manager, in close working relationship with the consultants.

At this stage project management functions are:

- Pre-completion activities
- Preparing for handover and the handover meeting itself
- Practical completion and the issuing of a practical completion certificate
- Implementing the user occupation plans
- Preparing the final account
- Final inspection and the issuing of a final certificate
- Post completion review / project evaluation report (CIOB,1996:64)

Programming the required activities to achieve a co-ordinated and satisfactory completion of all work phases within the cost plan is the overall objective. The main aspects of completion and handover will generally cover the following activities:

- Preparation of lists identifying deficiencies, e.g. unfinished work, frost damage, and materials, goods, and workmanship not in accordance with standards
- All remedial and completion work carried out within the specified time under the direct supervision of nominated qualified and experienced personnel.
- Monitoring and supervising completion and handover against the programme
- Ensuring that handover takes place when all statutory inspections and approvals are satisfactorily completed
- Monitoring progress of final accounts by assisting in any controversial aspects or disputes, and by ascertaining draft final accounts are available on time and are accurate
- Establishing the plan for post completion project evaluation and feedback from the parties to the contract for the post-completion review project close out report. (CIOB,1996:68)

3.4.8. CLIENT COMMISSIONING AND OCCUPATION STAGE

The principles of client commissioning and occupation are determined at the feasibility and strategy stage. The client's personnel assisted by the consultants, carry out client commissioning. The main tasks are as follows:

- Establishing the commissioning objectives in time, cost, quality, and performance terms.
- Arranging the appointment of the commissioning team in liaison with the client. This is done before or during the detailed design stage, so that appropriate commissioning activities can be readily included in the contract.
- Making sure that budget stage that an appropriate allowance for commissioning costs is made.
- Arranging appropriate access, as necessary, for the commissioning team and other client personnel during construction, by suitable modification of the contract documents.
- Arranging co-ordination and liaison with the contractors and the consultants to plan and supervise the engineering services commissioning, e.g. preparation of new work practices manuals, staff training and recruitment of additional staff if necessary; the format of all commissioning records; renting equipment to meet short term demands; overtime requirements to meet the procurement plan; meeting the quality and performance standards. (CIOB, 1996:71-72)

A decision will be made at the feasibility and strategy stages, depending on the client's objectives, and users' requirements. Occupation involves employees themselves and the style of management and culture of the users' organisations.

3.5. MODEL D

According to Miles, Berens and Weiss(2000), the development process is hardly straightforward or linear, and inherently interdisciplinary and dynamic. They claim that development is an art, which is creative, often extremely complex,

partly logical, and partly intuitive. " Good management of the interactions among various disciplines is essential to successful development" (Miles, Berens, Weiss, 2000:3). This flow chart in Figure 3.11 can freeze the discrete steps of Model D proposed by Miles,Berens, and Weiss.

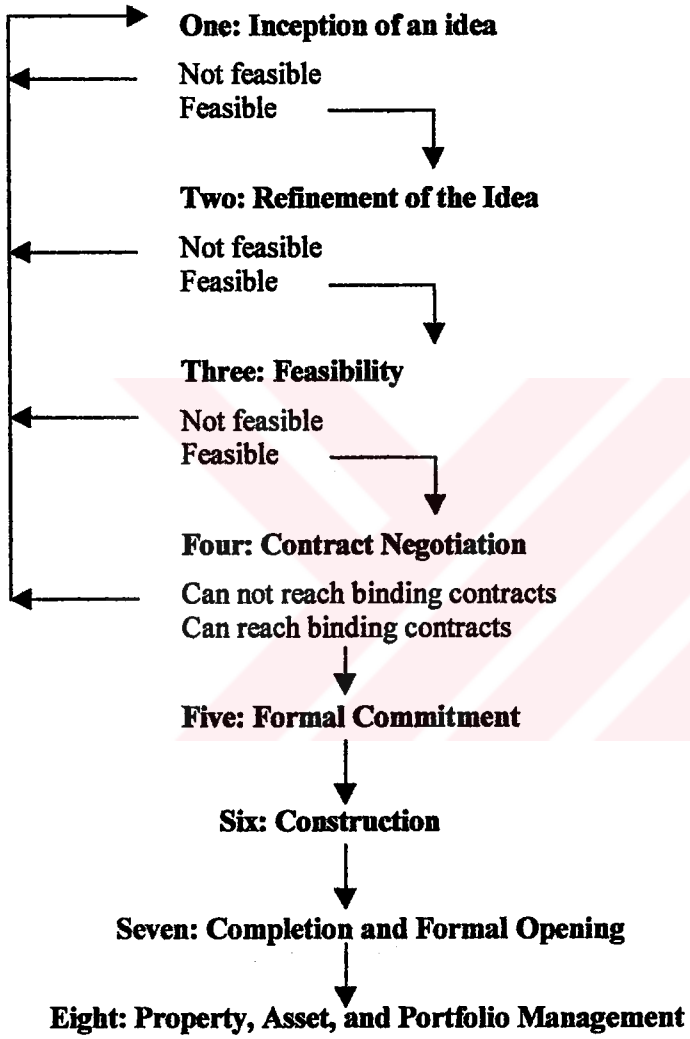


Figure 3. 11 The eight-stage model of real estate development (source:Miles, Berens, and Weiss, 2000:6)

3.5.1. INCEPTION OF AN IDEA

Inception of an idea is a first stage in the development process. It is the least mechanical and most creative stage among all the activities that constitute the real estate development. Developers as professionals constantly involved in informal brainstorming, they search their background and current experience for an idea that offers potential. Ideas emerge in many different ways, but in any case developer must have the relevant experience and familiarity with the latest changes. Developers need to understand the total marketing concept, because marketing and market research underline every stage of the development process. They should do "1) finding out what customers want, 2) producing it, and 3) persuading customers to purchase or rent it" (Miles, Berens, Weiss, 2000:185)

Ideas come from several different motivations and inspirations, but, regardless of the source, ideas must be tested quickly with a "back-of-the-envelope" pro forma. After then, they should be integrated into the company's strategic planning. "Back-of-the envelope" pro forma is a simple comparison of value and cost. Since ideas are not sufficiently refined for detailed analyses of discounted cash flow techniques, it is a rough estimate. According to Miles, Berens, and Weiss (2000:189):

> To prepare a quick pro forma, the developer typically uses his concept of target tenant to estimate how much rent the tenant might be willing to pay for a particular type of space with appropriate services in a particular location. The projection consists of a rough estimate of income per square foot without detailed attention to the level of tenant improvements, cost escalations, length of lease, and the many other factors that become important during the later stages of development decision making. The next step is to multiply the project's leasable square feet by the estimated revenue per square foot. The developer then subtracts the projected operating expenses. The rough estimate of value thus

inelegantly generated is then compared with a rough estimate of cost. If value exceeds cost, at least based on the rough numbers, the idea remains viable. If cost exceeds value, it is back to the drawing board.

The most important stage of the development process is stage one. Although weak leadership and poor management can ruin a good development idea; the converse is not true.

3.5.2. REFINEMENT OF THE IDEA

Stage two in the development process involves refining the idea generated during stage one. Toward the end of stage two, the rough idea is linked to a specific site that is legally, politically, and physically capable of supporting that idea. Primary objectives comprise finding and acquiring a site, and making an initial determination of legal and physical feasibility. In order to achieve this following tasks must be undertaken

- Scanning the environment for significant forces- possible competitors, government jurisdictions, political power bases;
- Choosing the site
- Analysing the market, that is, the areas or neighbourhoods within the market that might offer an appropriate site
- Setting market, physical, legal, political criteria for the proposed project
- Analysing possible sites to identify the site that best satisfies the criteria;
- Determining initial design feasibility
- Negotiating for the selected site and structuring a contract (usually one that constitutes an option) to secure the site;
- Discussing the project with elected and appointed officials and city planners to ascertain their interests and any possible constraints on the project;
- Analysing the competition – competing development companies and competing projects- and refining the subject development to maximise its competitive position;
- Continuing to refine financial feasibility – periodically re-testing the back-of-the-envelope numbers for financial feasibility and undertaking preliminary projections of the timing of cash flows over the development period, remembering the importance of level two feasibility; and

- Controlling risk during idea refinement – testing the design's preliminary feasibility by discussing with engineers, architects, land planners, contractors, and/or financial sources a project design that fits the prospective tenant market. (Miles, Berens, Weiss, 2000:219)

Before committing large sums of money to site acquisition, the feasibility of project layout should be determined.

> Determining the feasibility of the layout requires engineering and architectural information that may include the results of soil tests, exact grade measurements, a look at setbacks combined with various projected land and building configurations, and projections of space for parking and other requirements (Miles, Berens, Weiss, 2000:229).

Developers should engage outside consultants – often a land design professional, an architect, and possibly engineers- to survey the site to determine whether it satisfies development objectives or not. The architect designs an initial building layout on the site, given intended access points, determines parking place. Urban land value relies more on the land's visibility and proximity to customers and services than on its inherent productivity (the soil's fertility, coal reserves, or timber stands, for example). Therefore, access to residences and businesses, pedestrian and vehicular traffic flow, and/or proximity to any off-site amenities that make the site more or less attractive to prospective customers should be carefully considered. Surrounding land uses should be taken into consideration while considering proper scale for a project.

In order to refine the idea further, developers should talk to other professionals, and community members who might be affected by the proposed development.

These might be contractors, tenants, property managers, lenders, investors, and higher risk investors. Developers must decide whether the project worth taking to stage three, the formal determination of feasibility, after introducing the project to others involved in the development process and evaluating their responses. However, the developer initiates some more detailed market research before it. By this way, segments based on user's needs are defined. The more complete the research, the more exactly developers can define their market niche, and reduce risk. Who will use the proposed space, and how public will react to the project are important questions. Features, functions, and benefits offered by the competition should be considered.

> In searching for the winning strategy that will capture the greatest market share at the highest price, developers move back and forth between considerations of supply and demand. During this process, they segment demand and differentiate their own product from the competing supply. All this information goes into the developer's database and provides insight into the existing supply, the characteristics of space users, and unmet needs (demand). (Miles, Berens, Weiss, 2000:238)

An ongoing function during refinement of the idea is to translate all the collected information and completed analyses into a framework that relates potential risks and rewards to the developer's objectives. The initial back-of-the-envelope analysis is continually revised. However, financial feasibility goes a critical step beyond stage one: developers must begin estimating cash flows.

3.5.3. Feasibility Study

According to Miles, Berens and Weiss(2000) the formal demonstration of viability is the goal of stage three- the feasibility study. Project is more likely to

the refinement of the idea. Feasibility never proves certainty and can not guarantee a project's success.

The feasibility study, which is the formal demonstration that a proposed project is or is not viable, includes:

- Market study
- Preliminary drawings
- Cost estimates
- Information about terms and sources of financing
- Government considerations
- Value statement and formal estimate of feasibility

Market study is the most crucial item in a feasibility analysis. The first step in a market study is an examination of national economic conditions and projected long-term trends as well as careful consideration of the characteristics of the region, locality, neighbourhood and site. The second step is investigation of comparable properties to determine the features, functions and benefits of those properties that are important to the market. As a third step, projected absorption schedules for the market segment and for the specific property should be prepared. It is necessary to segment the market carefully by defining all the features, functions, and benefits of comparable projects to be able to predict the overall absorption rate for the market segment. By this way, value can be estimated.

Preliminary drawings show exterior elevations, and specify rentable square feet or saleable units, parking, type of HVAC systems, and the like. The formal feasibility study requires drawings much closer to final design plans than those needed in stage two. It is more efficient to use the same architect and engineer throughout the entire process, although different architects and engineers can be used for the initial architectural layout and final construction drawings.

Land, optioned or contracted in stage two, the needed infrastructure, and the planned improvements to the land included in the estimate of the cost to construct the project. Although each development will have features specific to it, a typical cost estimate might include the following elements:

- Land cost
- Site development cost
- Design fees
  - Architecture
  - Engineering
- Hard costs
  - By category
  - Labour and materials
- Permitting costs
- Financing costs
- Marketing costs
  - Promotion
  - Advertising
  - Leasing commissions
  - Brokers' fees
- Pre-opening operating costs
- Legal fees
- Accounting costs
- Field supervision costs
- Overhead
- Contingencies
- Development fees(Miles, Berens, Weiss, 2000:349)

Ideally, each estimate is confirmed by market data. Some items such as land costs may be based on contracts or options. The largest item, hard costs should be confirmed by comparison with

1) the cost of similar projects
2) cost estimation services; and
3) the prospective general contractor.

It is important not to forget the most important partner in the development process- the government.

As for the value statement and formal estimate of feasibility, the critical point is using projected rents or sales based on truly comparable projects. The attributes of value of the comparable projects and the differences between comparable projects and the subject project, i.e., the proposed development, must be explicitly laid out. By using an estimated discount rate, the analyst reduces projected operating flows to a current value that incorporates everything that can be known about the project. In other words, all the information about market, the quality of the space relative to the competition, future trends, and the risks associated with all the projections are brought back to one value at one point in time. The analyst then compares this value with the total cost estimated earlier. A project satisfies feasibility definition of Graaskamp (cited in Miles, Berens, Weiss, 2000:355)

> If the value exceeds the total cost, where the total cost includes all the logistics as well as all the items necessary to satisfy the legal, physical, and ethical rules, and where the developer commands the financial and human resources necessary to

bring the project come to fruition. Thus the developer uses both appropriately defined value and completely specified costs to determine formal feasibility.

During stages four through seven, the feasibility study is constantly refined; it remains the single most important management tool in the development process.

3.5.4. CONTRACT NEGOTIATION

During stage four, contracts are arranged to implement the decision to proceed the project. The formal feasibility study assembles all previously completed projections and research into summary statements of value and cost. If the project is feasible, its estimated value will exceed costs (broadly defined). At the end of stage three, there is necessary information to bring together the development team. Therefore, feasibility analysis serves as a sale and negotiating tool, and a co-ordinating device.

For each member of the development team, a detailed agreement should be negotiated and documented. At the same time, various relationships among players should be clearly defined. All different aspects of the projects should be covered by the collection of individual contracts, since contracts are a method of risk control. The collective risk of all members of the development team will be reduced, if all contracts are properly drawn and are consistent with each other. As the process moves toward construction, the developer's role becomes that of a primary negotiator who brings together all the members of the development team. Following issues are carried out during stage four- contract negotiation.

- Arranging financing

- Environmental issues
- Decision about design and contractors
- Decision about major tenants
- Decisions about equity
- The government as a partner

"By the time they enter stage four, developers will have at least preliminary drawings of the project, and it will be necessary to make final arrangements with the architect and other design professionals, including engineers" (Miles, Berens, Weiss, 2000:417).

3.5.5. FORMAL COMMITMENT

Once the project is officially deemed feasible in stage three, the development team can move toward formalising all the relationships necessary to implement the plan. In stage five, contracts negotiated in stage four are executed.

> As for marketing, the pre-leased space requires a formally executed lease, with memoranda of some leases recorded. If an outside leasing agent or sales agent used, a listing agreement or at least a memorandum of understanding may be necessary. A memorandum describes the type of space to be leased or sold and the conditions under which the transaction is to occur. (Miles, Berens, Weiss, 2000:431)

The developer must institute a control mechanism for the development itself, either by directing the architect to perform a certain amount of supervision or employing an on-site construction manager. The general contractor must also use some type of formalised process for control. The most common methods are the

program evaluation and review technique (PERT) and the critical path method (CPM), both of which are available for use on personal computers.

3.5.6. CONSTRUCTION

During stage six, time becomes even more crucial. During the contract negotiation and formal commitment stages, the specific rules governing the relationships among the parties were formalised and their obligations defined.

> By carefully selecting a team of experienced professionals and by establishing formal relationships, the developer is better able to co-ordinate the working relationship among the design, construction, marketing, financial, operations, and public sector players during stage six. Co-ordinating the players through the construction process is especially important in complex multiphase or mixed use developments, which often involve multiple designers and builders, many different users, and several chances for the general public to express its opinion and have an impact on the process. (Miles, Berens, Weiss, 2000:436)

Then, developer's focus shifts toward project management. Much of the process focuses on co-ordination and collaboration. The crucial items to be controlled are time, quality, and budget. An experienced project manager will be able to maintain a sense of co-operation and mutual achievement among the development team, as the various inevitable conflicts are resolved.

The general contractor contracts with a variety of subcontractors to finish the physical work and provide the needed equipment. These efforts involve installing the building's electrical, sanitary, and HVAC systems. Although the general contractor manages the subcontractors, the project manager represents the developer's interests with the general contractor. The general contractor's main

task is properly scheduling the different subcontractors' work and making every effort to maintain that schedule.

"Even with extensive pre-leasing before construction, some space usually remains unleased at the initiation of construction and therefore must be marketed during construction" (Miles, Berens, Weiss, 2000:442). Construction should be co-ordinated with the ongoing marketing effort and the available financing that covers construction and marketing.

3.5.7 Completion and Formal Opening

Stage seven, completion and formal opening, comprises the following :

- Training the operations staff
- Connecting the utilities
- Beginning the on-site operations
- Final marketing of the development
- The grand opening

Stage seven encompasses the activities associated with completion and the formal opening and requires considerations involving the public sector, tenants, the interior layout, operations personnel, and a shift in financing to long-term investors. Stage seven is the end of the active phase of real estate development and sets the stage for asset and property management-stage eight.

3.5.8. PROPERTY, ASSET, AND PORTFOLIO MANAGEMENT

Property, asset, and portfolio managers provides critical functions for ensuring that real estate projects maximise their value. These constitute the real estate management triad. The triad should work together to add value. The real estate asset must be viewed as more than just bricks and mortar. The project must be recognised as a dynamic business enterprise operating in an ever-changing and increasingly competitive marketplace.

Property management focuses on the day-to-day operation of the asset. Major responsibilities of the property manager are:

- Tenant relations and retention
- Rent collection
- Control of operating expenses
- Financial reporting and record keeping
- Maintenance of property
- Planning capital expenditures
- Crisis management
- Security issues
- Public relations (Miles, Berens, Weiss, 2000:463)

Asset management extends the focus of property management beyond one physical facility. The asset manager manages property managers, and guides them in developing strategic plans for their properties to maximise the assets' values. Major responsibilities of an asset manager include:

- Development of property strategic plan
- Hold/sale analysis
- Review of opportunities to reposition properties and to provide justification for major expenditures
- Monitoring property performance
- Managing and evaluating the property manager by comparing property performance to peer properties in the particular submarket

- Assisting in tenant relations (Miles, Berens, Weiss, 2000:465)

Portfolio management includes understanding and directing the owner's investment objectives, evaluating the performance of the asset managers. The major tasks of portfolio manager involve:

- Communicating with investors and setting portfolio goals and investment criteria
- Defining and implementing portfolio investment strategy
- Overseeing acquisitions, dispositions, asset management, and reinvestment decisions
- Accountable for portfolio performance
- Client reporting and cash management (Miles, Berens, Weiss, 2000:467)

3.6. Evaluation of Proposed Models

Although various observers of the development process may outline the sequence of steps slightly differently, the essence of the steps does not vary significantly. There are major overlaps and similarities among these proposed classifications. Drawn from these, basic real estate development process stages can be grouped under three main headings, which are

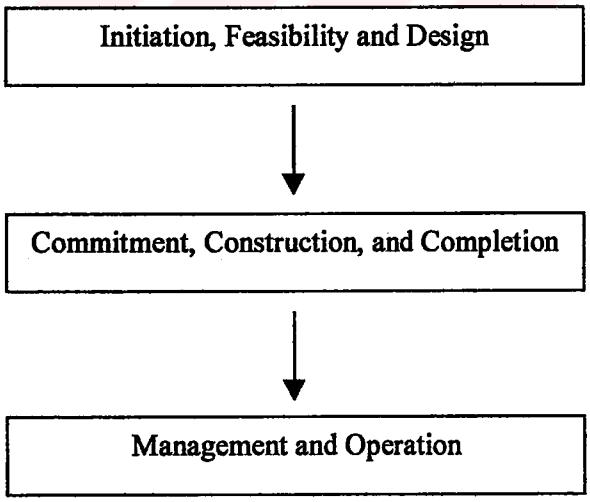


Figure 3. 12 Three main parts of real estate development process stages

Each step in the real estate development process depends on the preceding one. The early stages of the development are especially important, involving many iterations of planning and analysis before the architectural plans and other arrangements are finalised. A common mistake made at earlier phases of analysis will cause many problems at later stages. If the walls are to be straight, the foundation must be level. This is the major reason for the identification of major influences on proposed development, which is a common thread seen throughout the proposed models. It is seen that feasibility phase is investigated as the most important part of the real estate development process in each proposed model. Project feasibility analysis serves as an internal decision making tool during all phases of the development process. Changing market conditions, design choices, leasing considerations and financing terms interact to affect the feasibility of the project. Market study, which is the most crucial item in a feasibility analysis, provides necessary information about economic conditions, projected demand, absorption rates, and competitive market conditions. At the same time these results are reflected to design work. Financial feasibility studies based on preliminary drawings, effects the developer's investment decision, and revisions may be necessary for design solutions. This is an iterative process. A careful analysis minimises risks, and provides the developer taking greatest market share and financial return.

Carelessly negotiated or written agreements made with contractors, or other professionals will cause trouble. They should be clearly identified and costly correct. Construction phase needs a close monitoring system. Co-ordination of different parties is critical during this stage. Completing the project on time, at the level of required quality, and within the limits of the project budget is the aim of construction process. These are clearly identified in the proposed models.

As it is stated earlier, management and operation phase aims to ensure the long-term success of the project with minimum failures.

Since real estate development is a team effort, accurate information flow between development team members is essential for success. Choosing the right consultant at the right time is critical for such a complex and iterative work.

CHAPTER 4

DISCUSSION ON THE ARCHITECT'S CONTRIBUTION

In this chapter, the architect's involvement in various stages of the real estate development process, and the extent of its contribution to value are discussed.

Architects take several responsibilities throughout the real estate development process. According to Miles, Berens, and Weiss(2000) with development becoming increasingly complicated, architects are becoming involved in the development process much earlier than in the past. Architects can be effective in securing planning and zoning approvals, working with community groups to understand their needs and preferences for proposed project. In addition, architects can help guide a developer in selecting a site for a specified use or develop alternative concepts for a site and head the land use team to bring a concept into reality.

Typically an architectural firm prepares concept design proposals, preliminary drawings, and final working drawings of development project. Through the final drawings more players are brought in to refine the interior space, structural components, mechanical, and electrical system. As these refinements are incorporated into the architect's design, the project begins to assume its final

shape. Design studies also require much iteration in accordance with feasibility studies. Therefore, architect's co-ordination role is important during these phases.

Preparation of construction contract documents and assistance in construction bidding or negotiation process is the next phase of architects' involvement in commitment stage. Detailed specifications and drawings are prepared by the architect. Architects may be involved in construction planning work, which includes preparation of CPM, or PERT diagrams. Architects may continue monitoring the project during construction.

Architects are also effective in management and operation phase with the design they offer. The operational characteristics of the building, thus life cycle costs of building depends on architectural design.

Componentisation is a necessity during all stages that the architect's involvement occurs. The architect as a project co-ordinator must be capable of relating each component that involved in the real estate development process, to the entire work. There should be close attention to each aspect of the proposed project components in order to remove unnecessary items in project management process. The design/construction team is highly involved in the detailed description of every aspect of the project during design economics, value engineering and value maximisation studies, and the architect takes the lead in specification. Offering higher value through more integrated assemblage should be provided by the architect.

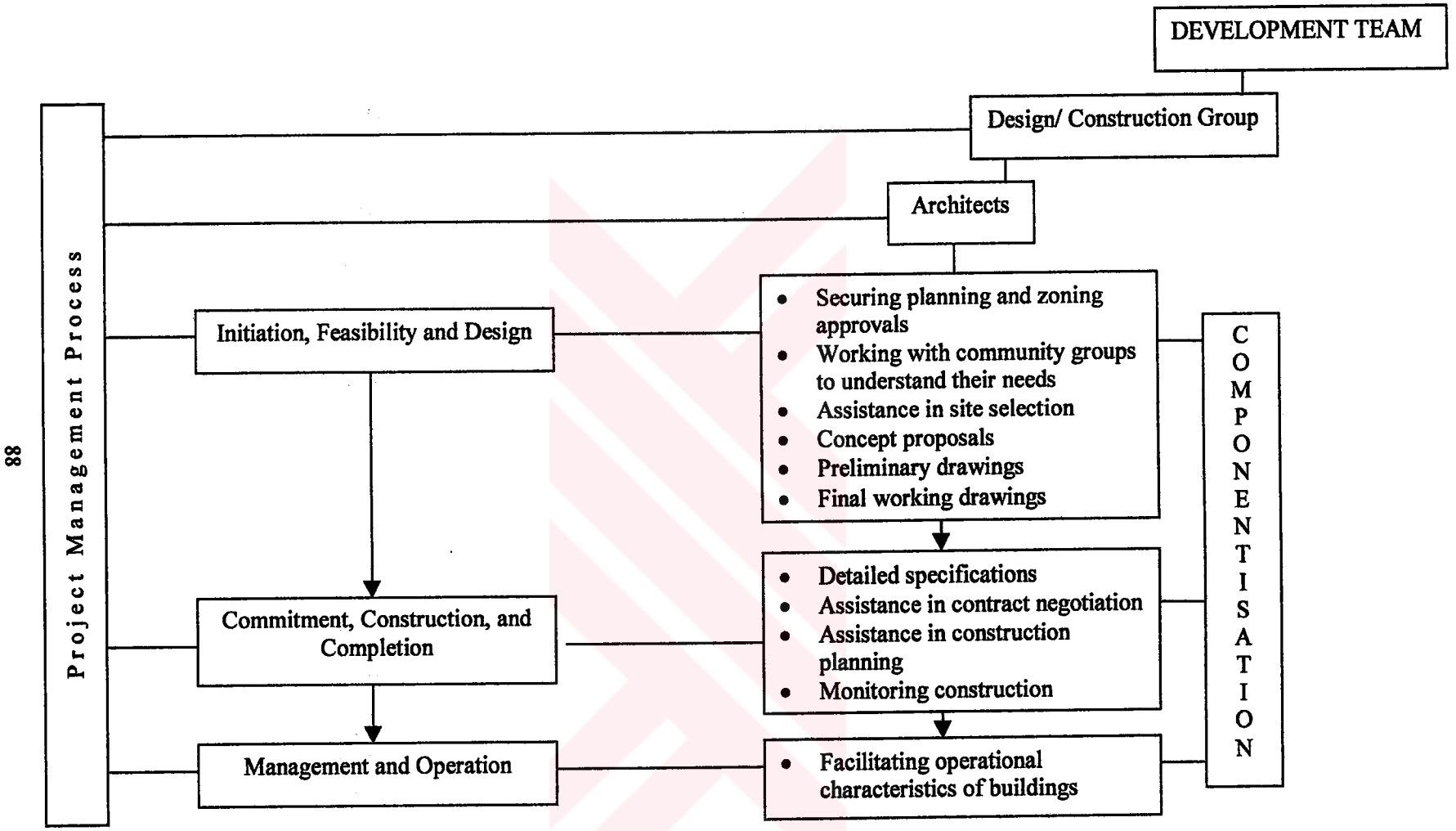


Figure 4. 1 Architects' responsibilities in the real estate development process

Architects' responsibilities in the real estate development process are shown in Figure 4-1.

Architects determine several value parameters during real estate development process. According to Collins (cited in Best & Valence, 1999) the value of a real estate development is a function of:

- its utility-generating factors, which include land and improvements, locational and institutional attributes,
- the market, and
- external economic, social, and political factors.

There is a relatively straightforward meaning of "value" in a commercial market sense. Developers expect the value of the proposed development to be worth the money invested. The simple relationship-value has to exceed the cost-is the basis for investment decision. In order to achieve greatest financial return for their investment, developers have to understand the market in which they operate. Market studies helps to clarify the current and forecasted supply and demand conditions. This kind of study identifies the prospects most likely to buy or lease space. It means that market studies provide necessary information about proposed development's utility or use value to the user. In fact proposed development's value to the user and to the developer are closely linked. According to Malizia and Howarth(1995) market analysis should engage in a careful exercise of market

segmentation and product differentiation. The hourglass shape illustrates this process in Figure 4.2.

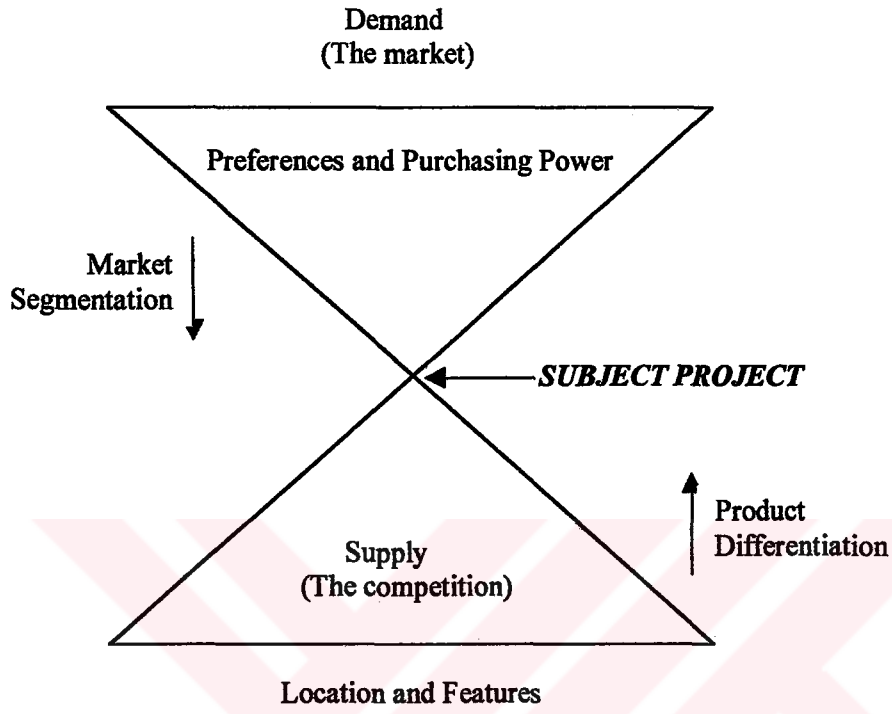


Figure 4. 2. Subject Project (Malizia, and Howarth, 1995:66)

The lengths of the top and the base of the hourglass represent forecasted demand and supply, respectively. A market analyst begins with the demand side by clarifying market segmentation, which is identified by describing the characteristics of potential consumers' tastes and preferences. With the process of product differentiation, a market analyst moves from a more generic subject project to a more differentiated subject project. Differentiation helps to better define a subject project located at the centre of the hourglass. At this point, the

most valuable thing is balancing market segments with differentiated projects. The architect should propose necessary design solutions to reach the subject project. Design implies cost and establishes a connection with prospective users. Architects therefore have a large degree of responsibility for achieving value in the real estate development process.

Architects set value parameters by different ways, which can be grouped under three main headings of which are:

1. improving usability by target tenants
2. design economics criteria
3. the operational characteristics of building

Architects determine value parameters by guaranteeing end user performance with the design they propose. End user performance is achieved by improving usability by target tenants, which increases profit levels. In addition, architects, with the help of design economics criteria, establish value principals firstly by increasing net leasable or saleable area which effect developer's financial gain, and secondly by decreasing construction costs, in terms of resource use, construction method, details, material choice they imply. Value engineering studies help the architect for a better evaluation of certain aspects of the design economics of the project. These help the architects for cost effective design solution. Finally, architects' decisions have cost implications in terms of the way that they facilitate the operational characteristics of buildings. Operation, heating, lighting, maintenance,

security, cleaning thus total cost of running, maintaining, and modifying services of a building is effected by the design that architect offer. It means that long -term viability of end product is closely related with architectural decisions taken prior.

However there are wider questions of value. Buildings are particularly rich in the range of values for different people at different times: aesthetic value, historical value, political value, and symbolic value. Clearly these values are not measurable simply in monetary terms. The implications of successful design go far beyond creating an effective structure. Architects, like the other players in the development process, are bound by ethical obligations. Architects are responsible to innovate and advance the state of art.

Some cities, like Bilbao, Spain, have centred economic development plans on striking architecture. The unusual architecture and high style of the new Bilbao, Guggenheim, designed by Frank Gehry, was expected to bring perhaps 500.000 visitors to Bilbao the first year. According to Miles, Berens, and Weiss(2000:341) it brought 1.36 million visitors and $160 million in revenue to the former ship building town that few ever visited. This is called as "Bilbao effect" in literature (Uhlir, 2000:37). The city's solution to its economic decline was culture and design. Similarly, Millennium Dome, designed by Richard Rogers, was the focus of British millennium celebrations, and visited by over 6.5 million people. Sydney Opera House, and Pompidou Centre are the examples of this kind. These examples express the direct contribution of architects' design ability to value.

According to Miles, Berens, and Weiss(2000) nowadays heightened interest in the functionality and aesthetics of constructed space leads to research into the value created by outstanding architecture. Design landmarks bring a higher return to the developer. Therefore, besides being concerned how a building fits its site and serves its intended tenants, developers also think about how a building blends in to the urban setting. Context is an important element of design. Architects synthesise the elements of context and design. They understand space and urban design far better than other players of development team do. The architect is a key player in the real estate development process and ultimately responsible for much of the mark it leaves on society.

CHAPTER 5

CONCLUSION

Real estate development projects are natural responses to the high costs of land, population growth and development conditions. The financial benefits derived from a real estate project are direct money payments in the form of the lease or sale price. Value adequately reflects the reality of concerns that will dominate the work on actual projects. Particular circumstances of the project, such as location, site characteristics, and fluctuations over time in supply and demand, affect the sale or lease price of the property. Therefore, basic characteristics, timing, and location of a proposed project should be defined and then related to patterns and trends of the external environment. Market analysis studies compare demand for and supply of a proposed project. A complete site analysis is an important part of this study. It is used to gain insights about demand and supply, basic constituents of value, in the market area. This kind of study identifies the prospects, most likely to want to buy or to lease space in the proposed development project, and project's competitive position and potential absorption in the market.

The architect, being a member of the development team, should provide necessary design solutions to reach the "subject project" (Malizia, and Howarth, 1995), which means the differentiated project in accordance with market segmentation.

estate development process. User preferences and habits defined while identifying market segments should be reflected to design work.

If costs are decreased without damaging quality, within the time limits, it will increase the value. The building's design establishes the parameters, which determine whether value can be achieved at the acceptable costs. Construction, management, and operation can only achieve value to the degree design allows. This is the architect's next contribution to value. But these steps may not fulfil the possibilities unless they are well managed and unless costs are controlled. In addition, overall, high quality design is becoming much more important because of its revenue producing characteristics. High quality design provides scarcity, which is one of the major constituents of value.

Projects are becoming larger and more complex than in previous decades, thereby demanding new technical and organisational skills. The developers need to co-ordinate the large, multidisciplinary teams required for complex projects, and project management becomes important. The architect, being a member of development team, makes considerable contributions to value in the real estate development process, since design solutions affect the future benefits derived from the real estate project. The architect is the only person who has skills to create formal and functional relationship as a determinant of value in the real estate development process.

However, the profession of architecture continues to experience change due to the impact on the business climate by a variety of internal and external forces and constraints relating to the demands of the changing economy. It seems impractical to define one specific role adherent to the architect in the real estate development process. Architects, in addition to their designer role, begin to take different responsibilities in feasibility, value engineering, or in construction planning studies. They can also be effective in project management structure. In order to be more competent leaders, or co-ordinators in the development team structure, it is necessary for architects expanding their professional level of involvement in the related field of activities occurring in the real estate development process. The architect should have the ability to be a team player, and the sensitivity to environmental and planning issues. The architect should have an understanding of feasibility studies, and construction costs relating to particular types and uses of buildings. In addition, the architect must develop his management capability to deal with the implicit complexity of projects.

As a general observation, developers must insist on value, achieved by the creative design and effective collaboration. To conserve the value, the flow of work from one step to another must be efficiently transmitted without delays or imperfections. In addition to accurate information flow, communication among development team members is a necessity. While the architect's role is to create the vision, they must be open to collaboration with other team members whose

contribution from their professional perspectives can increase the value of the design. To increase the value of the real estate development project, the architect should be a part of different development team groups associated with the particular stages. Architects must understand the environment in which they operate. Design is decision making and the key to successful projects lies not only in the final form, but in the entire process leading up to it.

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