project success:
an appraisal of winning cultural spaces

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Abstract

Cultural spaces play a key role within our environment and our heritage and are not only important for us here at home but attract visitors from all over the world and thus need to satisfy their sponsors and end users.

The research will explore project success by looking at three cultural institutions to understand the importance of how the project mission captures the values set out through the integrity of the concept[1]. The focus of the analysis will concentrate on the quality of conception and realisation of the projects. The emphasis will initially be looked at from the architects and space planners view point as they are ultimately the 'integrators' of the multiple requirements expressed by different stakeholders.

The Hypothesis

Based on this framework our working hypothesis that underlies the structure of this research is: *the expression of symbolic value is central to the project mission particularly in cultural buildings where the perception of its end users[2] is the over-riding principle for their success.* Symbolic value in this context we define as the quality of conception and the spatial articulation in terms of its contribution to its environment.

Key Words: **Stakeholders, Perception, Symbolic Value, Product Integrity and Integration.**

word count: **9684.**

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[1] ***Integrity of the concept*** is defined as the approach to the project – to capture the essence of how the building or space was originally conceived with the intention **now** to build on it's strengths and to enhance the ***wholeness*** of the concept.

[2] ***End users*** in this context is defined as those people who work within the facility and those people who will acquire the benefit of it.

Chapter 1.0
Introduction

What is success and how is the criteria defined to measure it?
The Oxford English dictionary defines success as: *"the favourable outcome of something attempted the attainment of wealth fame etc".*

How do favourable outcomes happen –are they in the hands of the gods, is there some magical formula or do they create their own success? Much has been written on project success and how to achieve it with endless ideas on what constitutes it.

So how is success defined here?

For this paper the case studies are researched by visiting and exploring all three sites in an effort to understand whether the project mission is captured. This enquiry leads to many questions: do these projects deliver on their objectives and if so are they in alignment with their organisations goals?

Although this maybe construed as subjective, the distinction for success in these three case studies has been the importance of how cultural spaces fair best when there is a high degree of integration which is defined as *the combination of diverse elements of perception.*

Based on this assumption, those 'players' that were actively involved in initiating the design concept for the case studies have all stressed that the framework for the success[3] of public spaces is the underlying principle that *well designed buildings enhance our environment by integrating and contributing to their environment.*[4]

The Research Objectives

As a result of the hypothesis the research objectives are to examine whether the goals set out in the project mission are captured in the design and delivery of public open spaces in addition to fulfilling stakeholders expectations in culturally significant built environments.

[3]The UK does not have a culture of open debate between high profile figures as our European partners appear to have – ours is a more adversarial culture were such debate is highly unusual. This is changing with agencies such as the Commission for Architecture and the Built Environment (CABE) lending their support for more strategic attitudes to architecture and planning being developed. To gain lasting benefit there must be an intelligent dialogue that focuses not on how architecture fails but on how it succeeds.

[4] Integrating their immediate surrounding areas in this context refers to the facility attracting greater numbers of people who as a result generate income.

Here the project mission shall be defined: *"as the overriding purpose in line with the values and expectations of the stakeholders."*[5] It shall include the overall strategic intent to balance product integrity and functional performance that the architects and space planners (in this case) shall deliver to the client.

Product Integrity

According to Clark, K.B,T. Fujimoto (1990) they suggest that the age we live in dictates a certain mindset in the majority of its population and that a pervasive trend now exists with large conglomerate companies 'gobbling up' all the smaller ones in their midst resulting in the perception that human endeavour by anyone operating on his or her own is either deemed as being of *inferior quality* or being *prohibitively expensive.* People involved in a complex activity appear to have become preoccupied with the activity itself and have lost sight of the actual objective of the business.[6] Gone are the days when the master craftsmen looked after all aspects of his product and endorsed it proudly with his name.

Customers with increasing expectations are demanding better products and manufacturers in turn realise the necessity to respond by devoting more of their resources to ensuring *product integrity* resulting in improved design and quality assurance. The government can help by endorsing product integrity by commissioning well designed buildings for their own facility which lead others to follow their example and reward those for exceptionally good design. A *'good'* design is subjective but nevertheless relies on a set of engineering functions which together make up product integrity – these consist of the following disciplines: performance, aesthetic appeal, reliability, ease, economy, safety of maintenance and consistency[7] all at a given cost from the end users point of view.

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[5] As defined by Winch (2002) in Managing Construction Projects.

[6] For example any product of today's industry whether it be a physical product or a service illustrates the concept with various aspects of product creation, realisation and customer support being delegated to different groups of people.

[7] Consistency in this context refers to the quality of the product in that it matches others of its type and therefore its constituent parts are inter-changeable should it no longer be in production – in other words standardisation.

Chapter 2.0
Theory

2.0 Theory Relating to Project Success

How is success defined?

The reality is that there is no single set of defining success factors that can be applied to any one project, as the literature below would have us believe. Different projects will rank their success factors in the order that is most appropriate for them: a blanket approach can never be adopted for example: a factory and a public space will categorically have very different objectives. Based on this assumption the measure of success is defined by the stakeholders: those people who work within the facility and the end users who will acquire the benefit of it – it is **their requirements** that the architects must satisfy to justify the success of the outcome.

The literature suggests a succession of different ideas on what is held to be the approved belief or 'conventional wisdom' on what constitutes success with project management authors all trying to answer this intriguing question. Rubin and Seeling (1967) first introduced success and failure ratings by looking at how the experience of a project manager affected the outcome of a project and concluded that *technical performance* was a measure of success, regardless of the project manager's previous experience.[1] Avots (1969) identified his reasons for failure as the wrong choice of project manager and an unsupportive top management. Baker, Murphy and Fisher (1983) suggested that instead of using time, cost and performance as a measure of success *perceived performance* should be used.

Hughes (1986) conducted a survey identifying the factors that affect project performance and concluded that poor management principles[2] and the lack of communicating the project goals to those involved were responsible for project failure. Morris and Hough (1987) backed up this theory and conducted their own study by selecting eight financially sound projects, which despite their economic potential to succeed generally failed due to their poor management. However they were able to identify the success and failure factors for each of the individual projects and devise seven success factors: project objectives, technical uncertainty, politics, community, schedule duration, financial contract and implement problems.

Schulz, Slevin and Pinto (1987) classified their factors as ***strategic*** or ***tactical.*** Their *strategic* group of factors included project mission, top management support, and project scheduling whilst their *tactical* group of factors included client consultation personnel selection and training. Pinto and Prescott (1988) identified the relative importance of the tactical versus the strategic approach. They explored how success factors vary at different stages of the project depending on the success measures used and concluded that when external success measures are employed planning factors dominant tactical factors throughout the project life cycle.

[1] Previous experience, with the exception of the size of the previously managed project.

[2] Poor management principles refer to rewarding the wrong actions.

Cooke-Davis (2002) suggests that the 'real' success factors are evident when the project delivery, which is the processes and decisions, are translated into the organisations corporate strategy, which becomes the context for the management practise.

What is interesting to note is that most of the authors with the exception of Morris and Hough (1987) are theoretically based rather than empirically proved. Generally they relate to the project manager or the organisation undertaking the project rather than actually addressing the external factors such as the economical climate and the weather conditions that are specifically relevant to construction and in this sense Morris and Houghs success factors come closest to reality.

What seems to be emerging from the literature is that there is no single set of factors to determine project success but a myriad of different perceptions of what **actually** constitutes success.

It is difficult to name all the factors that might affect the successful outcome of a project[3] because of the diversity of the different types of buildings. Many would argue that project management is the answer to controlling the process[4] but the successful delivery alone doesn't automatically constitute that the project will be a success – a project may meet all its objectives but it doesn't mean that doing something **right** equates to success.[5]

A project can be on time and to budget but fail to be a success or vice versa. For example the Millennium Dome captures the concept perfectly: initially it generated a lot of excitement, the external structure was greatly admired, the project was on time and to budget despite a change in the government. Its downfall was that the client had no idea what was going inside the structure, which illustrates the need for a **clearly defined brief,** as a building without a purpose has no future.

The other side of argument can be illustrated by the London Eye, which at the time was perceived as a failure, due to technical and financial problems. As well missing its intended opening for the millennium celebrations and despite its initial wobbly start is a huge success with the general public.[6]

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[3] The nature of construction involves risk because of the uniqueness of the product in that it is a prototype process and comprises of a large number of diverse activities and organisations. These make planning more critical especially when there is added pressure from clients and financiers to shorten lead times.

[4] Professor P. Morris makes the distinction between the term 'project management' and prefers the term 'management of projects', which does seem more fitting in this context.

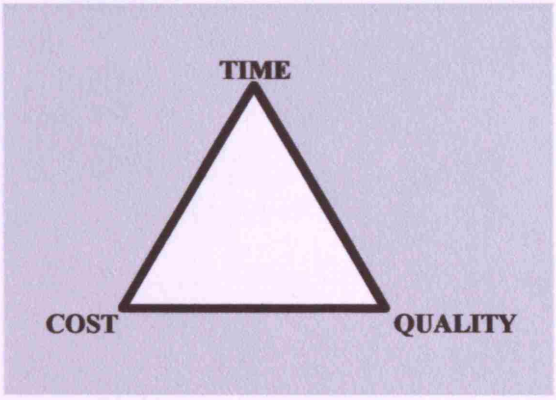
[5] The real test is whether the project meets its goals: whether the sponsors like it and the end users use it – it is the stakeholders who dictate the outcome.

[6] From Masters of Structure, Engineering in Today's Innovative Buildings by Sutherland Lyle, Laurence King Publishing Ltd, (2002).

To be 'right' on what constitutes success must involve a continuing divergence between 'conventional wisdom' and that of *reality* – reality is what counts but is obscured by social or habitual preferences.

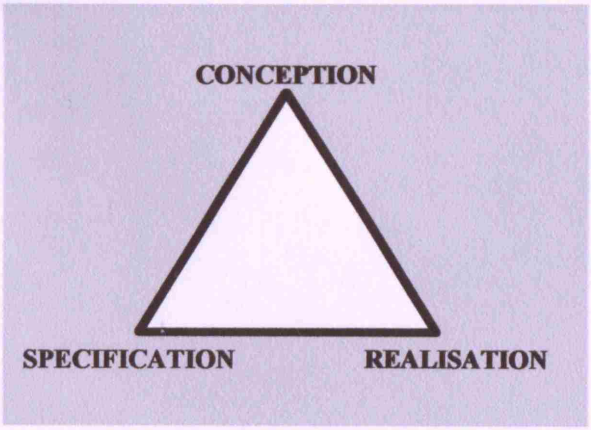
2.1 Theory Relating to Project Processes

The theoretical approach will focus on the power of *product integrity*[7] and argue that it is of equal importance to the functional performance to balance stakeholder values. The criteria to measure success has primarily been the *Iron Triangle* that is based on time, cost and quality: Success was determined by the accurate prediction of these three factors or possibly a trade-off between one or other. Time and cost are established from the outset by understanding the client's objectives but **quality** is difficult to define.



Winch (2002) states that the product integrity of the constructed asset is defined in terms of **quality** and encapsulated in the following three factors.

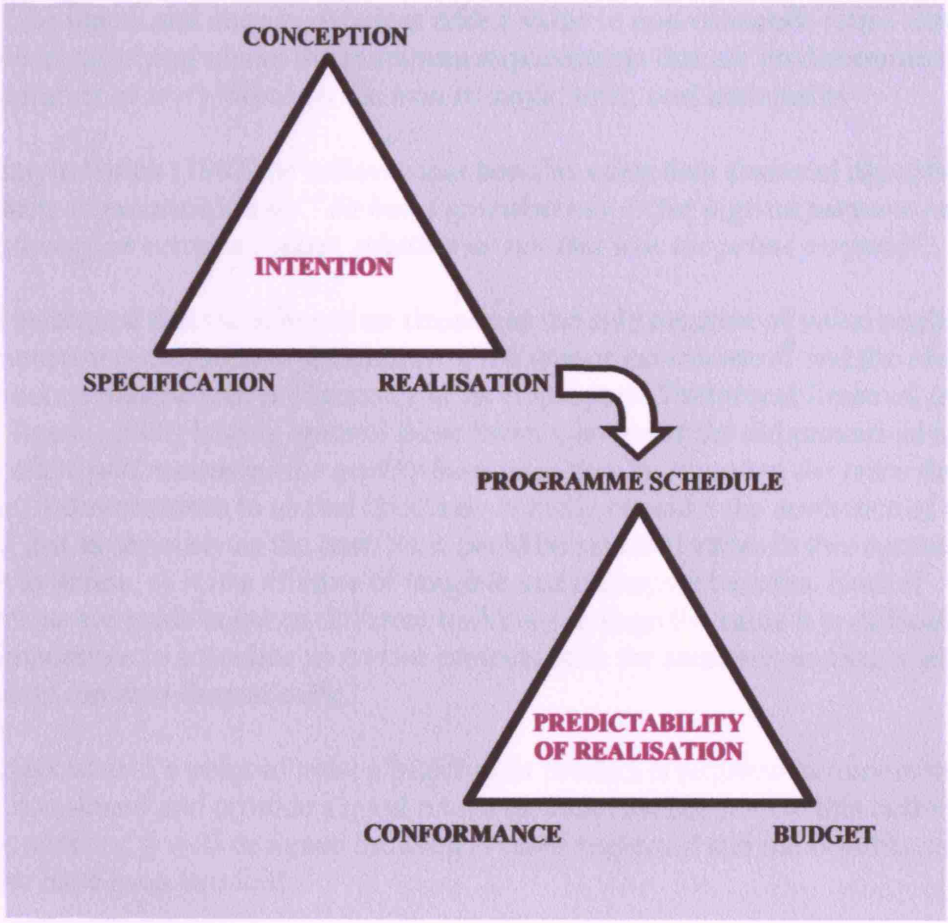
- The quality of ***conception***, in terms of elegance of form, spatial articulation and the contribution to the urban culture.
- The quality of ***specification*** in terms of the finishes and the fitness for purpose.
- The quality of ***realisation*** in terms of the service delivery to the client.



The Quality Triangle
Source: Winch, 2002.

[7] Clark and Fujimoto (1991) capture the concept of product integrity and illustrate it within the car industry.

A fourth dimension to the quality triangle[8] is the quality of ***conformance*** in terms of compliance to the specification.



The Four Types of Quality

Source: Benchmarking Product Integrity in Construction: A Space Syntax Approach

The first triangle defines the quality of *intention* and prompts these questions to be asked: what sort of building is required and how should it perform, what is the budget and when does the building need to be completed?
The second triangle defines the *predictability* with which the *intention is realised* and corresponds to the traditional iron triangle of objectives whilst **quality** means *conformance* in this context. What is evident is that these two triangles of intention and predictability are inseparable and intrinsically related.

[8] Carr, B, Michell, T, Stoner, T and Winch G (1999) **Benchmarking Product Integrity in Construction: A Space Syntax Approach.**

How Good Design Adds Value

Adding value is a popular concept and there are different definitions depending on whom one speaks to. An economist would define it as the difference between the value of the inputs and outputs, whereas added value in non-economic terms maybe described as satisfying **above** the minimum requirements that are predetermined in the agreed contract of work based on the *iron triangle*: time, cost and quality.

According to Groak (1992) he believes that benefits other than financial objectives are by-products of an intention as: *"To build speculatively or for a given purpose - means the creation of an economic asset, whether or not that was the prime purpose".*

It could be argued that the reliance on finance as the sole measure of value neglects other important issues such as the *quality of the indoor environment*[9] and the ability of the creation to enhance the productivity of its employees. Traditional financial models such as Rouse (2000) largely ignored these factors, however the old proverbial saying that *the client will remember the quality long after they've forgotten the price* does ring true, it demonstrates to us that clients do actually consider the aesthetics of a building just as seriously as the cost. So it could be said that **value** in this context is difficult to define, as it is a mixture of tangible and intangible benefits. Even if comparisons are made between different buildings to gage the value it is difficult or nearly impossible to articulate as no two projects have the same requirements and perceptions can alter dramatically.

From an economist's point of view a building or product is required to maximise the client's investment and provide a good return on their risk but despite this definition the importance of a well-designed building is often neglected and the benefits could otherwise have been two fold:

[9] **Indoor Environmental Quality** (IEQ) here is directly related to business processes.

- **Productivity in terms of business benefits**

Productivity is defined here as a ratio of inputs to outputs with the organisational measure aimed at increasing revenue through increased efficiency and effectiveness of the occupants.[10]

- **Maintenance costs in terms of running a building**

This maybe difficult to define as different buildings have different purposes and different spatial layouts as well as different locations and therefore land costs. What this highlights is the need for feasibility studies to be undertaken to establish the **actual** maintenance costs[11] over the life cycle of the building to establish whether the building represents good value for money.

On both these factors the Government is committed to raising the standards of awareness.[12]. Measuring and communicating the value of good architecture and urban design is the main aim of the Commission for Architecture and the Built Environment (CABE) who share this view with the Construction Industry Council (CIC) on the development of Design Quality Indicators (DQI).[13]

If clients are used to the evaluation of space in terms of its economic value what appears to be missing is how that space can enhance our environment and our performance at work.[14] The importance of creating 'corporate value' can be captured

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[10] From the client's perspective, a building can provide a substantial return on the investment but in order to do so it must be seen as an asset that exists to facilitate the client's objective. For the client to realise a return, the building needs to function efficiently so it needs to be designed well (Winch 2002). Although there is a lack of hard data that is able to directly correlate the environmental factors of building productivity there is sufficient evidence to show that there are preferred environmental settings that indirectly enhance productivity (Clements-Crome, 2000, p11) and that productivity can increase as much as 15% when workers are satisfied with their environment (Clements-Crome and Kaluarachchi, 2000, p141).

[11] (Holti et all. 2000, p.23) recommended that maintenance costs should be undertaken at the initial stages of a project. These are defined as the general upkeep of the building in terms of utility bills, gas, water and electricity.

[12] The Government has set guidelines to improve performance across the industry with landmark reports such as: Latham & Egan setting out their guiding principals. ***The Latham Report (1994) Constructing the Team*** is specifically aimed at helping clients to achieve higher quality projects through better performance by focusing on tightening up codes of practice. ***'Rethinking Construction' (1998) by Sir John Egan's Construction Task Force*** was aimed at raising the profile of the construction sector through a number of different measures including: more professional integrity, improved performance measures and best practice companies in an endeavour to reduce construction costs.

[13] Generally speaking the perception has been not to invest substantially in the building design process but to favour standard solutions that are 'bought off the shelf' by speculative developers.

[14] Spatial configuration can provide an environment that supports our productiveness an appropriate level of IEQ: heating, ventilation, air conditioning, indoor air quality and natural light is also needed. Leamann and Bordass (1998, 2000, 2001) have illustrated the concept and shown that there are two killer variables: Building depth (for e.g. shallow floor plans are preferable where all workstations have

in the design of a building and can reflect the organisations ambitions and values – it sends out a clear message to its external environment and lets people know its vision and strategy for the future. Financial and non-financial performance measurements are used to help the organisation prioritise their objectives in the ***balanced scorecard*** and the ***asset matrix models***, which will be discussed shortly. These have helped a significant number of clients who are now choosing to invest their resources into the design of an asset, with the belief that a mix of tangible and intangible benefits will enhance *shareholder wealth* even if these returns are not fully translated onto their balance sheet.

Unfortunately the overriding and still current perception has been for organisations to view buildings as 'a cost to be incurred' rather than 'an asset to be valued' because buildings consume vast sums of capital expenditure. The consequence of this action has resulted in a stock of poor quality buildings and although the short-term objectives have been met the long-term implications are rather more serious in that we are left with poorly designed buildings that **don't** add value, **don't** encourage productivity and **don't** enhance our environment.

Putting this into a wider context, the failure by investors, developers and owners to thoroughly consider the actual use of buildings has resulted in a vast number of organisations being housed in spaces that are inappropriate for their business needs. Some clients have prioritised the measure of capital cost to the detriment of all else, even to the extent that their facility may not meet the needs of its users or the objectives it set out to achieve. A more responsible approach needs to be adopted, as ***an asset is long-term utility*** that has a lasting impact on our environment. Whilst this may only be an assertion there is a growing body of research that would justify this statement.[15]

As such more evidence is needed to convince organisations and clients to invest in good design but we could speculate that clients are struggling to meet their quality aspirations for a number of reasons:

- Clients may be unable to see a correlation between good design and organisational success.
- Clients may view good design as an additional unnecessary cost instead of an integral part of their building.
- Clients may only be motivated by financial incentives and be unable to prioritise the social and environmental goals.

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access to natural light) and work groups (for e.g. small workgroups prefer to be allocated their own space).

[15] Research by Building Use Studies (BUS) has begun to address the importance of buildings to workplace productivity.

Looking at the argument from the client's perspective there has been a general dissatisfaction with the construction industry as a whole in that it does not offer value in terms of delivering well conceived good quality projects on time or to budget. In comparison to other industries there is a misconception that the construction industry has been left behind and that it has not kept pace with an ever-increasing global economy. It has been viewed as a conservative, risk adverse industry in which projects appear to be slow to progress and where clients have traditionally employed a complex fragmented multidisciplinary, geographically dispersed temporary group of professionals, often using antiquated and bureaucratic processes.

The Design and Build Foundation (Lowe, 2000) found that clients wanted greater value for money for their buildings and identified two clear functional needs:

- Reduce **capital cost** and improve the quality of new buildings.
- Reduce **running costs** and improve the standard of existing buildings.

The Construction Industry Council (CIC) identifies its critical factors as: functionality, build quality and impact[16] which focus more on the built product and less on the client's business process – so the question raised by the client is: *How does a well designed building impact on our business process?*

The answer is to analyse the factors of design quality by treating the building as a physical artefact – the *quality* of the build, the *functionality* of the building and the *impact*. This framework still doesn't address how these buildings are going to act as facilitators for the client's business process. So how do we convince client's that good design equates to increased value?

Statistically it is difficult to prove, but it can be stated that a well –designed building is **more likely** to generate a better return on an asset. The concept can be illustrated with a highly symbolic building such as an art gallery: the Guggenheim Museum in Bilbao, Spain.[17] A star architect was commissioned to design a building of cultural significance in a run down area that time had passed by. Its symbolic value has established it as a cultural *Mecca* that people flock to and as a result the city has been revitalised, which clearly underpins our argument that 'good design' does equate to increased value. It may not immediately equate onto the balance sheet but it can be recognised that a host of benefits both economically, socially and environmentally do deliver better buildings and public spaces that 'add value' for clients.

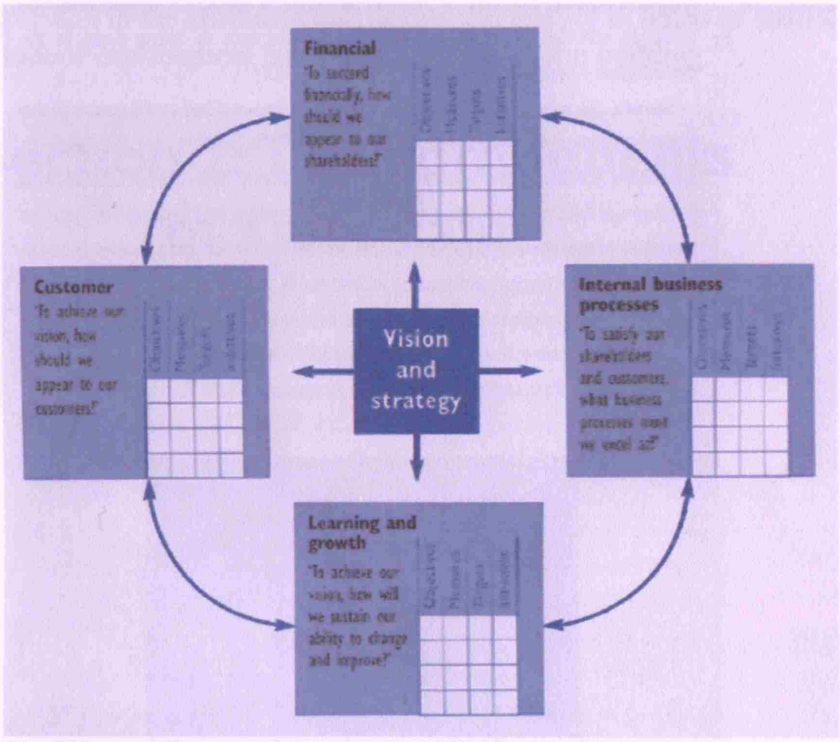
[16] What might colloquially be referred to as the ***'wow' factor.***

[17] Although this is an exceptional building and may not be considered as 'well designed' by everyone it does illustrate the concept that is being communicated here.

The Balanced Scorecard Approach

Research at the Harvard Business School has shown how the obsession with financial reporting has distorted decision making and undermined the long term viability of many companies[18] which resulted in a new approach to a business performance measurement tool: ***The Balanced Scorecard.*** Which is essentially a strategic management tool that allows the client or the organisation to set their vision and strategy for the future with the basic premise that financial and non-financial performance measurements must be considered as complimentary objectives to one another Four key perspectives are viewed:

The *financial* perspective
The *customer* perspective[19] .
The *internal business* perspective[20].
The *learning and growth* perspective[21]



The Balanced Scorecard Approach to Linking Performance Measures
source: Kaplan and Norton (1996) –as cited in Construction Industry Council (2002) How buildings add value for clients

[18] Hayes and Abernathy, 1980, Hayes and Gavin, 1982, Johnson and Kaplan 1987.

[19] Measured by customer surveys, feedback and delivery performance.

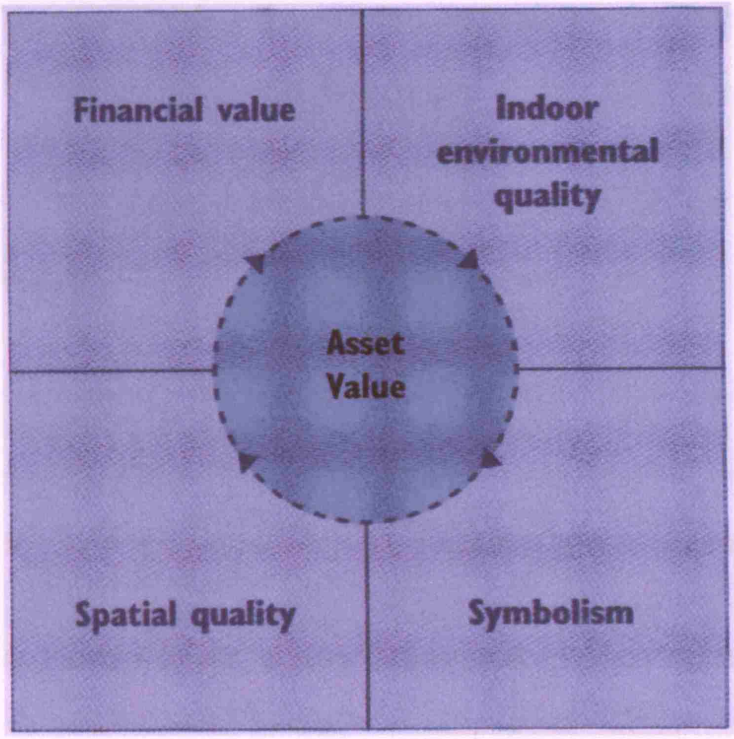
[20] Measured by using process management tools.

[21] Measured by employee surveys, employee competencies and team performance.

The financial perspective shows the results of *past* performance, the customer and internal business process reflect the *current* situation whilst the learning and growth looks to the *future* needs of the organisation. The model allows assessment to be made between short and long term objectives, between financial and non-financial, between lagging and leading indicators and internal and external business performance measurements, Kaplan and Johnson (1996). Thus the *Balanced Scorecard Approach* helps set key objectives and identifies the relationship between the operational and financial drivers of organisational performance.

The Asset Value Matrix

It is essential that a framework to encapsulate the *asset value* of a building is in keeping with the *balanced scorecard approach* and that the financial value should not be the sole measure of a buildings worth to the client. Ideally it should be appropriate for different types of buildings, clients and objectives with the finance considered in parallel to the attributes that dictate the quality in terms of spatial configuration, indoor environment and the symbolism of the building.[22]



The Balanced Attributes of Asset Value.
Source: Construction Industry Council (2002) How buildings add value for clients

[22] **Corporate personality** can be captured in the design of a building and can reflect the organisations ambitions and values – it sends out a clear message to its external environment and lets people know what it represents.

The Project Performance Gap

Morris & Hough (1997)[23] discuss the *project performance gap,* which they describe as the characteristics of the completed building and the client's requirements.

If the client communicates to the architects the type of building he/she desires and the architects have understood the brief so clearly that they can reproduce the image that the client has envisaged then the project performance gap has been insignificant. Sadly, this is often an unrealistic expectation: the client may know what they want; the architect may say that they understand but their view and that of the client may not match with the outcome largely determined by the individuals perspective.[24]

This alignment of values between both parties who are in agreement with what is **required** and what is **expected** leads to a clearer understanding of goals – in an *ideal world* if these objectives are all met then the project will have a **greater** chance of success. We can describe this process by breaking it down into a number of stages:

- ***The briefing problem*** is a term used to describe the gaps between the client's requirements and their interpretation by the design team.
- ***The design problem*** is the translation of these requirements into the building definition.
- ***The execution problem*** is converting this definition into a detailed description.
- ***The conformance problem*** is insuring that the construction on site is in accordance with the description of the project.

Considerable effort has gone into moving the line of visibility further into the project coalition's sphere of activity, thereby narrowing the gap between the client's expectations of the project outcome and the completed facility.

In simple terms it is a critical process that needs to be managed and well communicated between both parties at all times. Winch (1993) illustrates the concept as 'The Project Management Problem' on page 16, here it has been thought about as a continuous circuit[25] with no breakage as illustrated on page 17.

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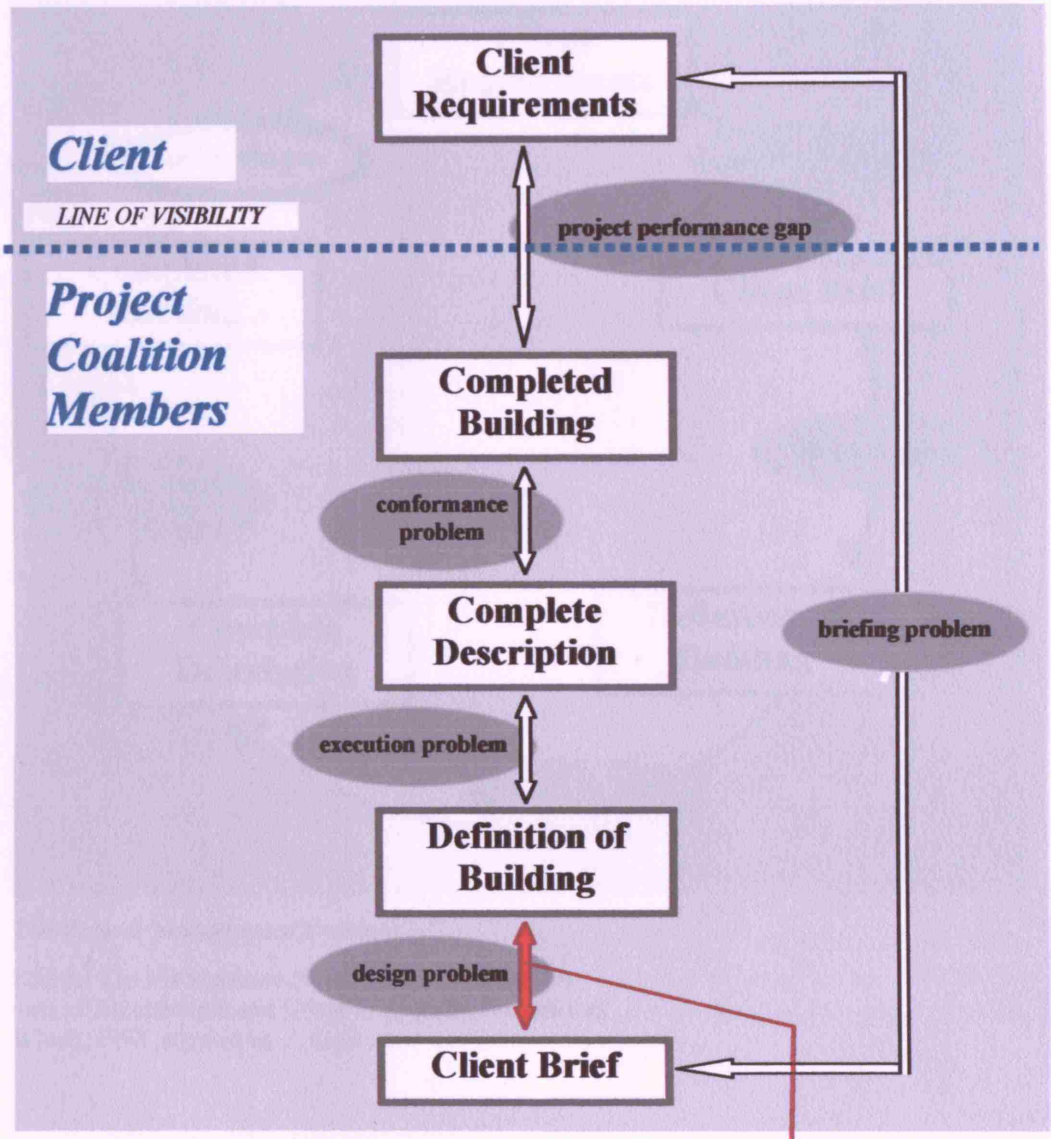
[23] In their book: **The Anatomy of Projects.**

[24] Perspective here is defined as ones values, beliefs and perceptions that need to be in sequence almost like some planetary alignment in the galaxy.

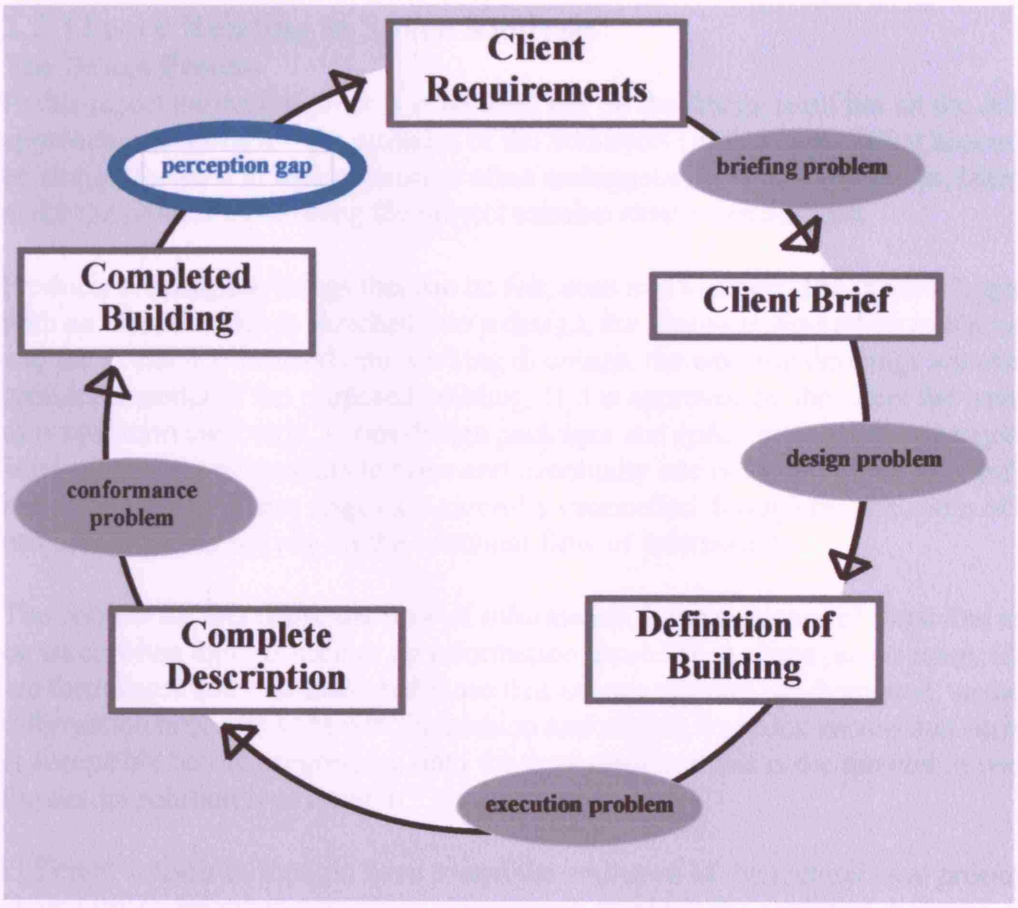
[25] The analogy here being that of an electrical circuit board where electricity has to flow through capacitors resistors, sockets and switches.



The Project Management Problem

Source: The Management of the Design Process: The case of Architectural and Urban Projects by Usmani and Winch, 1993.

This is the gap that is being looked at as the most important project phase for the appropriate definition of cultural buildings.



The Project Management Problem

Source: The Management of the Design Process: The case of Architectural and Urban Projects by Usmani and Winch, 1993, adapted by F. Graham.

2.2 Theory Relating to Space Analysis

The Design Process

In this report the design process is focused **not** on the design itself but on the different approaches towards it – the attitudes of the architects (in this case). What appears to be straightforward in design terms is often ambiguous, *tame* and *wicked* problems make the process of defining the project mission even more difficult.

Products are tangible things that can be felt, seen and touched. The process begins with an idea, the idea is sketched into a design, the design is worked up into a visual, and the visual is translated into working drawings, the working drawings are used to produce a model of the proposed building. If it is approved by the client the next stage of preparation can begin, varies design packages and specifications are put together to hand over to the contractors to price and eventually one of these will be selected to build the facility. These stages are carefully channelled through the life cycle of the project that relies heavily on the continual flow of information.

The context for this continual flow of information is the sequence of steps that need to be taken when there is little or no information available. As time passes many ideas are formulated and evaluated and those that are not relevant are dismissed, as more information becomes apparent. Discussion and critical feedback ensure that each step is acceptable before progressing onto the next stage and this is the method in which the design solution is **arrived** at.

Different schools of thought have traced the evolution of the architectural process. Hyde (1998) describes ***a traditional approach*** in which the continual dialogue between the client and the architect turns abstract ideas into a detailed and refined end product. As time has revolutionised the design and technology of our buildings it was argued that this approach was outdated to deal with all these wide ranging problems so Hyde developed three more models:

A systematic method – *'design by reason'* which suggests that information is collected at an early stage and analysed to develop the most appropriate objectives.

A conceptual model – *'design by discovery'* which relies on the architects perceptions and understanding of the design problems.

Design by ideas relies on *creativity* to generate a unique design and is the complete opposite of a methodological process.

This indicated that different architects will adopt their preferred method but to simplify matters there are basically two differing views between the design processes: the first group are ***the integrators*** who argue that the nature of the design process and the management are *one* and *the same* irrespective of their industry. The second group are ***the separators*** who argue that the design process is *fundamentally different* between various industries and therefore needs to be managed accordingly.

The integrators believe that the design process is independent of its discipline or product and that having a ***consensus model*** [26] where everyone adopts the same principles means that no distinction between various products is necessary. Asimov (1962) differentiates two structures in the design process the *'vertical structure'*, which deals with the chronological sequence of steps, needed throughout the life cycle of the project to arrive at completion and the *'horizontal structure'* which relies on the analysis and evaluation during each stage.

The separators believe that the design process is very much dependant on their product or processes. Cross (1984) backed up this assumption by providing a concise combination of various arguments from differing viewpoints that challenged the assumptions of the integrators. Rittel and Webber (1984) criticise the belief that design problems can be solved in a scientific manner on the basis that science has been developed to deal with ***'tame'*** problems, whereas planning and architectural problems are ***'wicked'*** problems. This is because problems in science are well defined with clear goals and criteria for testing those results. *Wicked problems* are *subjective* in that they have no definitive way of formulating problems and therefore identifying the relevant information is difficult.

Based on this notion the ***integrators*** are the supporters of *tame problems* and the ***separators*** the supporters of *wicked problems*. Whatever the view taken on tame or wicked problems, the success or failure of a project depends upon **the level of the performance required by the client and the end users**[27] as it is they who assess the delivered product. Adopting Winch's model as the flow of information through the life cycle of the project[28] allows us to adopt both sides of the argument.

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[26] ***The consensus model*** has been widely adopted and undisputed by many industries. The reason that it has been questioned is that the balance between the vertical and horizontal structures has been 'tipped' in favour of the vertical sequence of events not by its developers but by those using it which has lead to its misinterpretation.

[27] A successful project maybe difficult to define: clients may see it as their objectives being met or that the operational factors function in order to run their facility. They may define the measure of success as the amount of aggravation or lack of service they have had to endure over the duration of the project.

[28] Where uncertainty is reduced through time until all the information is available at completion and embodied in the finished asset.

Despite this lack of awareness many clients are becoming much more attuned to the ideas put forward here and as a result space syntax has become more accessible in that it has undergone a great deal of development over the last 18 years due to three factors:

- Space syntax is being used for a wider range of buildings and settlements (Hanson 1994, 1998, Hillier 1996).
- The development of sophisticated computer software has allowed researchers to numerically capture differences in the configuration of spaces (Penn et al., 1998; Turner, 2001)
- Three international conferences have highlighted the positive contribution that space syntax can make (2002, 1999, 1997).

Results indicate that integration and connectivity are powerful predictors of how **busy** or how **quiet** a space will be (Hanson 1998). Spaces are usually connected together in different ways that vary the distribution and flow throughout the structure, making some areas more accessible. This sequencing or *flow of people* regulates the interactions of those who use the facility and is particularly relevant in public cultural spaces and museums, which rely heavily on the physical layout of rooms, corridors and vertical connections to exert a strong influence over the pattern of activity.

Putting this theory into practise in 1994, space syntax was able to assure the trustees of the Tate that a new bridge between Tate Modern and St Paul's Cathedral would work because it would connect together two different parts of London. Norman Foster is a champion of the concept and is quoted as saying, *" I know these techniques work from the tough environment of practice. I love the world of analysis, observation, of research, but also passion, imprecision, the hunch. For this research we acknowledge the importance of space syntax to create value and ultimately create better more successful public spaces. Space syntax is the testing of the interaction of these opposing worlds".*

Chapter 3.0
Methodology: Case Studies

Why case studies
In view of the complexity of the design approach to public space, this research will compare real life case studies as a means of exploring some of these problems rather than taking an abstract approach.

Why museums
By looking at the design approach to public space museums illustrate the importance of being fully integrated within their environment and particularly when these public spaces are attached to a museum or a building of cultural significance. There are a number of notable examples in London that can be used to identify the general concepts and then narrow these down by specifically focusing on our individual case studies.

Introduction to Museums
Museums can be a popular and powerful cultural resource, which can be exploited further by making appropriate investments in their future.[1] Successful museums are never **static**; they have to evolve to keep pace with the demands and expectations that are put upon them.

The original objective of the museum was perceived as a form of continual lifelong learning with free admission to its citizens but now with so many different ways to gain knowledge, museums are no longer stuck in the 'doldrums of academia.' Their 'project mission' has shifted and expectations have changed.[2]

Our visits have become more enjoyable but we cannot forget that museums are in the **business of accumulating collections**. Current fashions dictate that special exhibitions are held as well as maintaining our permanent collections which both require increasing amounts of space.

[1] Nicholas Pevsner (1976) as cited in **A History of Building Types** categorised buildings according to their function but he had very little to say about museum development after the 1930's. Since the mid 1990's in the UK financial support has been provided by the National Lottery and particularly the Millennium Commission and the Heritage Lottery Fund which have generated much needed income for our cultural buildings.

[2] Visitors now expect restaurants, cafes and shops. Museums are always short of money so selling merchandise on their behalf helps generate much needed income. Schools and colleges need special areas for teaching and academic conferences promote cross fertilisation of ideas.

Government funding has made this possible in the form of the National Lottery, the Heritage Lottery Fund and particularly the Millennium Commission which have all contributed to developing our cultural buildings[3] and the three case studies explored here to see how they have captured their organisational strategy and how the project mission has transformed the space and whether we believe it to be a success or not.

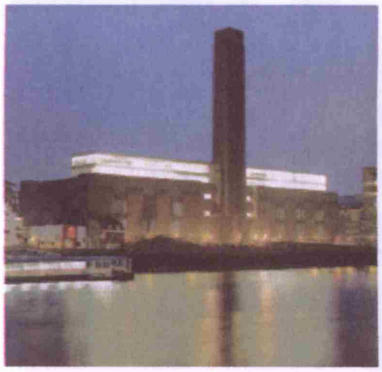
[3] Grants are provided on the basis that they are able to meet a predetermined set of criteria to qualify for their funding.

Selecting three case studies.

These three cultural institutions have been selected on the basis that all utilise areas of space previously inaccessible to the general public.

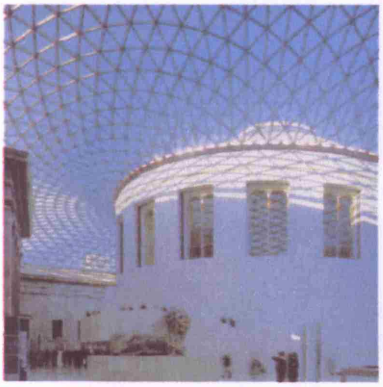
Somerset House

Funded: phase £1.33M & phase £2.15M
Design awarded in two phases.
Goal: Conceived as a major extension for the public domain, utilising areas previously inaccessible to the public.
Client: Somerset House is a Private Limited Company, bestowing a public asset on a lease of 150 years for their purposes.



Tate Modern

Funded: £134M
Design awarded by architectural competition.
Goal: Conceived as a major public art gallery, transforming an area through recycling of an industrial monument.
Client: Tate Modern is a Private Corporation.



Great Court, The British Museum

Funded: £100M
Design awarded by architectural competition
Goal: Conceived as a major public space, utilising areas inaccessible to the public.
Client: The British Museum is a Public Corporation.

Somerset House

Museums have to address the balance between preserving our heritage and creating access for the public to view their collections against a backdrop of ever-increasing demands. Restoring and creating a new use for a building of national importance with government and private funding draws much public attention and carries the possibility that it may not be well received. Somerset House is unique in that as a government building much of it was *off-limits* to the general public but has been handed back for public use. No preconceptions by the public has meant that it can be judged on its own merit.

Building history

Somerset House was designed by Sir William Chambers for George III and completed in 1788. Designed as a government office to accommodate naval and other departments as well as the Royal Academy and Society of Arts. As a piece of architecture it has two very distinctive aspects: one a formal enclosed square, the other open to the river. The construction of the Embankment in the nineteenth century was detrimental to its integrity and separated it from the Thames.[4] Successive additions, alterations and so-called improvements[5] meant that the original concept had been eroded and lost.

Project Intention

A massive rebuilding programme was initiated[6] in January 1998 to recapture the grandeur of the original concept not only to restore the building but to open up the surrounding spaces. The architects Peter Inksip and Peter Jenkins were asked to report on the possible reuse of the building and to incorporate a fully air-conditioned museum to house the Gilbert Collection.[7] The architects recognised that the interiors did not immediately lend Somerset House to conventional large-scale public use and therefore focused their restoration plan on the external spaces.

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[4]The Great Arch into which the river flowed was a focal point and the destination for barges to deliver their merchandise.

[5] So called improvements in this context refer to the filling-in of the east and west streets with buildings that destroyed all sense of these streets connecting the terrace and the river with the Aldwych.

[6] By the gift to the nation of the Gilbert Collection.

[7] The building's former use that appears on plan as a series of cells replicated over the floors form the galleries. Each government department had its own entrance, staircase and rooms which consisted of five metre square offices occasionally punctuated by a doubling up of these to provide a board-room.

Aerial View
Source; Architecture Today, 112, October 2000.

The Courtyard before redevelopment.
Source; Architecture Today, 112, October 2000.

The Courtyard after redevelopment.
Source; Architecture Today, 112, October 2000.

A competition was held by the Trustees of Somerset House to find the right concept for the house. Subsequently Jeremy Dixon and Edward Jones were awarded the commission based on their concept for the fountains, café and footbridge[8] with Donald Insall Associates being responsible for the refurbishment of the Great Court and the River Terrace.

Project at a glance	
1990	Courtauld Galleries arrive.
1996	Peter Inksip and Peter Jenkins to report on the reuse of the building: commissioned for £33 million phase 1 of the project to accommodate the Gilbert Collection.
June 1997	Somerset House Trust established.
Jan 1998	Construction of the Gilbert Collection starts.
1998	Jeremy Dixon and Edward Jones appointed for café, bridge and fountain concepts.
Sept1999	Donald Insall Associates commissioned for £15 million phase 2. Refurbishment of the great court and the river terrace starts.
May 2000	Gilbert Collection, court and the river terrace open to the public.
Aug 2000	Fountains switched on.
End 2000	Hermitage Rooms open.

The aim here is to present the project as a whole and to pick out the key factors that are relevant for this paper: the importance of the concept and how the site has been integrated it within its environment.[9]

Key Factors

- It is a usage led project based on good design.
- The architects have respected the buildings historical context to recapture the original concept.
- The architects treatment of the public spaces specifically the Great Court have established Somerset House as a significant cultural space.
- The architects and trustees correct intention to turn Somerset House into a pedestrian route.
- Somerset House is a private ltd company bestowing a public asset on a lease of 150 years for their purposes and therefore very much the client for their own facility.

[8] The footbridge links the river terrace to Waterloo Bridge and creates a shortcut for commuters and students wishing to get from Waterloo to the Inns of Court, the London School of Economics and Kings College.

[9] The nuances of the project are not looked at.

Tate Modern

Art museums always have to address the relation between art and the public, and never more so than in the case of a new building. Perception is a difficult balance to get right because public opinion is understandably based on what is already known and therefore anything new or radical could be deemed a failure.

Building history

During the fifteenth century the site was a pleasure garden but later it was occupied by light industry, warehouses and wharves. Giles Gilbert Scott designed Bankside power station in 1947 which was subsequently decommissioned in 1981 and lay derelict until the site was selected as the home of Tate Modern in 1994.

Project Intention:

Even before the architects for Tate Modern had been chosen the current climate of thinking conditioned the gallery's decision on the location which was very persuasive: it **wasn't** a listed building that needed protecting, it **wasn't** in a controversial area and it **wasn't** considered a highly desirable landmark. All that made it readily available and allowed it not only to satisfy its own needs but a host of others to include regenerating the surrounding area.[10] The Millennium Bridge was a separate design competition won by Sir Norman Foster. The timing of the bridge was organised to coincide with that of the opening of Tate Modern.

The selection of the architects, Herzog & de Meuron, in an well-organised International competition was an inspired decision.[11] The planning strategy was to create large spaces like those found in exterior city landscapes: the main entrance is a massive ramp that leads down from the ground level past the bookshop to the vast turbine hall. This sets up how the scale is to be read throughout the building, which comprises of three floors containing the galleries,[12] an auditorium, a bookshop and the 'light beam' above.

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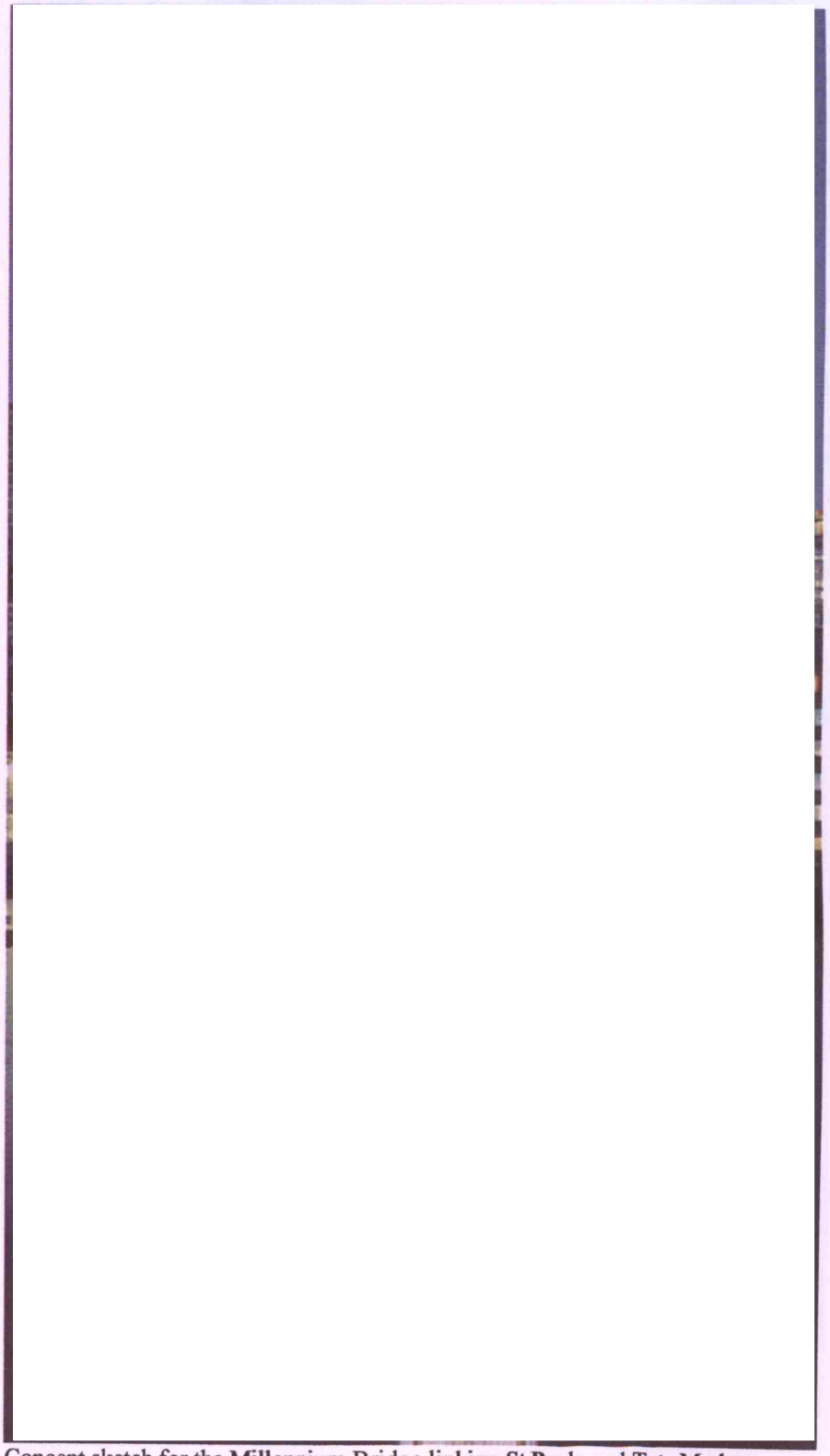
[10] The British have a fascination for preserving their heritage (traditional and institutional thinking). Bankside Power Station was already embedded in the psyche of the public and the British art establishment. Their belief was that old buildings have some kind of *magic* that cannot be captured in new buildings: if old equals '*good*' then the choice of building was appropriate and the path of least resistance was chosen. (The only disgruntled stakeholders would be those that favoured a new building but this could be argued away on the grounds of cost: Bankside would be a less expensive option).

[11] As a practice they were relatively new to large-scale buildings and had not established their reputation outside Switzerland. For the trustees it was a brave decision but they were able to recognise the quality of Herzog & de Meuron's work and their ideals (client & architect) were well matched.

[12] When designing galleries two schools of thought are used:
a) **highly specific approach** which tends to be spectacular, sculptural and individualistic,
b) **supermarket approach**, which tends to focus on way finding and gives the spectator an overview that puts everything in the same light.
In Tate Modern there are three floors of exhibition spaces with no hierarchy: there is no main level with large rooms for monumental works or vice versa for small formats. Spatial variety is created by adding or removing walls thus allowing dimensions and scale to be tailored to special installations.

Aerial view of the partially built power station1951
Source: R. Moore & R Ryan (2000) Building Tate Modern: Herzog & De Meuron transforming Giles Gilbert Scott.



Concept sketch for the Millennium Bridge linking St.Pauls and Tate Modern
Source: R. Moore & R Ryan (2000) Building Tate Modern: Herzog & De Meuron transforming Giles Gilbert Scott.

Tate Modern as completed in 2000
Source: R. Moore & R Ryan (2000) Building Tate Modern: Herzog & De Meuron transforming Giles Gilbert Scott.

Escalators run within the space overlooking the turbine hall and connect the floors to the galleries leading off these areas which are configured as a progression of interconnecting galleries several rooms deep.[13] The gardens are important on a number of different levels in that they integrate and anchor the building to its surrounding space as well as 'blurring' the distinction between the inside and outside spaces.

Project at a glance/ Bankside History	
1400's	The site was a pleasure garden; later it was occupied by light industry, warehouses and wharves.
1947	Sir Giles Gilbert Scott designs Bankside power station.
1963	Bankside opens. The oil-fired power station replaces a coal-fired station, supplying electricity to much of the city.
1981	Bankside decommissioned.
1990	Acquired by Nuclear Electric.
1994	Selected for Tate Modern.
1995	Herzog & de Meuron appointed. Millennium Commission announces a grant of £50m.
1996	In May a £12m investment by English Partnerships allows the Tate to secure the site, acquire the building and remove machinery. Southwark grants permission for conversion. Building stripped back to steel structure and brickwork.
1997	Further demolitions prior to construction start in autumn.
1998	Turbine Hall roof replaced entrance ramp complete and the new structure containing the galleries built, plus the light beam.
July 1999	Construction complete. Fit-out and installation of artworks.
May 2000	Official and public openings.

The aim here is to present the project as a whole and to pick out the key factors that are relevant for this paper: the importance of the concept and how the site has been integrated within its environment with reference to the connection of the Millennium Bridge.[14]

[13] Only some of the galleries have a window to the exterior and none have an opening wider than a door to the concourse side which allows rooms for projected video to be mixed together with rooms lit for painting, sculpture, and installation.

[14] The nuances of the project are not looked at.

Key Factors

- It is a usage led project based on good design.
- Tate Modern is a private corporation with the trustees as the *clients for their own facility.*[15]
- From a space syntax perspective[16] the Millennium Bridge acts as a focal point in that it links two areas on opposite sides of the river.
- The Millennium Bridge enforces the view that people perceive Tate Modern as being accessible to the city and not as an isolated piece of wasteland.

[15] Tate Modern management was fully engaged in the delivery process by taking full responsibility for their decisions which meant owning any problems that may have arisen as a result of their proactive approach.

[16] Space Syntax was commissioned by the trustees of the Tate Gallery to undertake a feasibility study on the benefits of a new pedestrian footbridge.

The Great Court at the British Museum.

Museums have to address the balance between preserving our heritage and creating access for the public to view their collections against a backdrop of ever-increasing demands. A new extension to a building of national importance largely sponsored by the lottery carries a significant risk should it be deemed anything less than a total success.[17]

Building History:

In 1821 Sir Robert Smirke was called in to solve the continuing lack of space within the museum. He proposed two parallel wings to be built to the north to resolve the situation, which worsened when King George IV decided to transfer the library of his late father, King George III to the museum. It was at this time that the idea of a quadrangle emerged one of whose sides would comprise of Montague House which on completion was demolished to make way for a new southern building to complete the museum.

The museums collections continued to expand and the pressure mounted for the development of the courtyard, which created endless schemes for covering over or building in the quadrangle.[18] The space crisis was partly created by the then Director of the Library Panizzi who established a programme of expansion for the library by purchasing new material and enforcing the Copyright Act.[19] His aim was to accommodate the readers and the storage of books, which resulted in his concept for the Circular Reading Room.[20]

In 1972 The British Library Act separated the library from the rest of the museum and it became an entity in its own right and the government finally agreed that a new site should be found to relocate the British Library.[21] This was the starting point to recreate a major new public space and a competition was held to find the architect for the project with Sir Norman Foster emerging as the winner.

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[17] Perception is a difficult balance to get right because public opinion is understandably based on what is already known and therefore anything new or radical could be deemed a possible failure.

[18] Charles Barry submitted his scheme: '*a glass canopy covering the courtyard supported on fifty pillars to create a hall of antiquities.*'

[19] Copyright Act during the 1830's required copies of all books to be deposited in the museum by their publishers.

[20] An ever increasing amount of books determined that four quadrant book stacks were erected in the courtyard which obliterated the renowned architectural facades and the garden that had once occupied this space was lost.

[21] The old Library relocated to its new building in St Pancras in 1998.

The Courtyard after redevelopment.
Source; Architecture Today, 112, October 2000.

The Courtyard Reading Room proposal
Source; Architecture Today, 112, October 2000.

Project Intention

The Great Court was conceived as the 'engine' of the museum to provide much needed facilities[22] and the reading room was restored and extended into an oval shape to help incorporate some of these requirements without diminishing the public space. A pedestrian urban route was created from Great Russell Street through the Great Court and out onto Montague Place into the heart of Bloomsbury.[23]

Project at a glance	
1753	The site of a large mansion, Montague House was purchased.
1759	The British Museum in Montague House opens its doors to the public.
1802	The growing lack of space results in a plan to expand the museum northwards into the gardens of Montague House.
1816	The architect Sir Robert Smirke is appointed to oversee the design of the museum.
1821	Sir Robert Smirke recommends two parallel wings to be built to the North.
1823	King George IV who decides to transfer the library of his late father King George III to the Museum exacerbates the lack of space. Smirke proposed to build a quadrangle one of whose sides would comprise of Montague House. After this had been completed, Montague House was demolished and a new Southern building with elaborate portico was constructed to complete the museum. Enclosed by the quadrangle was the courtyard.
1854	Work commences on the reading room.
1857	The reading room is completed.
1972	The British Library Act separated the library from the rest of the museum and it became an entity in its own right.
1978	The government commits to relocating the old library.
1994	Foster and Partners were declared winners of the redevelopment project.
1998	The old Library is relocated to a new building in St. Pancras.
2000	The Great Court had to be finished by December to qualify for the Millennium Commission.

[22] In the form of galleries, education facilities, an auditorium, cafes, shops and a restaurant.

[23] This route extends from the British Library, the great railway termini and the University of London in the North, through the Museum to Covent Garden, Soho, Trafalgar Square and the Thames in the South. Criticism have been raised: Andrew Whalley, as cited in Architecture Today, Feb 2001 does not view the connection of the Great Court through to Montague Street as a new urban route but a way through the museum's back-door.

Key Factors

- As a public corporation[24] the British Museum is much more complex than our other two case studies.
- The intention of the Great Court space is ambiguous as to whether it is an expansion of the museum, a piazza or a public square.
- Aesthetically the Great Court is both radical and daring the new construction is as important as the old.
- The Great Court creates a new route through Bloomsbury as part of a continuous pedestrian route extending from the new British Library, the great railway termini and the University of London in the north through to Covent Garden, Soho, Trafalgar Square and the Thames.

[24] The British Museum is a public institution (more accountable to the government than Somerset House or Tate Modern) Less freedom may have meant that they were not always the clients for their own facility in the same way that our other two case studies were.

Chapter 4.0
The Comparative Analysis of the Projects

The comparative analysis will take the following format:

- The quality of the conception by the architects and museum trustees (in this case) in terms of maintaining or exceeding the buildings integrity will be summarised.

- The quality of the conception by the architects and museum trustees (in this case) in terms of their approach or project delivery will be summarised.

- The quality of spatial articulation in terms of its contribution to the environment will be summarised and illustrated by a map for each site indicating The quality of the conception the accessibility, proximity and relationship of other important landmarks to it.

Somerset House

The Trustees and architects of Somerset House have conceived the various phases of the renovation to recapture the buildings original concept. The restoration of the Courtyard has established Somerset House as a high quality public space[1] within Central London.

The trustees and architects approach that cultural public spaces should be integrated with their environment is shown throughout their scheme and indicated accordingly on the map overleaf:

- The pedestrian route between the Strand and the Embankment.

- The pedestrian route connecting the river terrace to Waterloo Bridge.

- The pedestrian route across the river to the South Bank.

[1] All sorts of events can be staged: an ice rink in the winter and fountains in the summer.

Somerset House
Source: A-Z London Street Map, adapted by FG with recommendations from Space Syntax Ltd.

Tate Modern

- As an organisation they have captured their 'corporate strategy' by strong leadership[2] and a proactive approach (with the trustees falling in line) which has made them very much the 'clients of their own facility.'

- The organisations (trustees) choice of architects was critical to reinforce their corporate strategy and has been encapsulated by the architects desire to make a powerful statement of contemporary architecture whilst still respecting the buildings original integrity (as encapsulated in the architects quote below).[3]

- The architect's and the Tate Trustees vision (corporate strategy) were in alignment, what in project management terms would be referred to as minimising the *project perception gap.*

- The project delivery process with the other external stakeholders (other consultants[4]) was not a harmonious one. It was so problematic[5] that differences of opinion had to be resolved at a major meeting in which the *project definition* had to be redefined as the finest gallery ever.[6]

- The external stakeholders (other consultants) major criticisms of the project have been that the galleries are poorly laid out in architectural terms and that they are not natural to way finding.

- From a space syntax perspective[7] Tate Modern's integration within its surrounding environment is enhanced by the Millennium Bridge, which acts as a focal point in that it links two areas on opposite sides of the river, please refer to map overleaf.

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[2] By Tate Modern director Nicholas Serota.

[3] Herzog & de Meuron's approach has been encapsulated in the following statement: *"You cannot always start from scratch and when you don't start from scratch you need specific architectural strategies that are not primarily motivated by taste or stylistic preferences. Our strategy was to accept the physical power of Bankside's massive structure and try to enhance it, rather than break it or try to diminish it. This is a kind of Aikido Strategy where you use your enemy's energy for your own purposes. Instead of fighting it you take all the energy and shape it in an unexpected and new way".*

[4] The collaboration between Herzog & de Meuron with the UK based architects Sheppard Robson. From Herzog & de Meuron's account these players were largely oblivious to the content of the scheme and unaware of the way that architecture of this type needs to be developed.

[6] Herzog & de Meuron's approach to deal with the tight timetable, strict cost levels and the procurement process, was to use materials and techniques that were familiar to contractors, which related well to the utilitarian quality of the existing building.

[7] Space Syntax was commissioned by the Trustees of the Tate Gallery to undertake a feasibility study on the benefits of a new pedestrian footbridge.

Tate Modern
Source: A-Z London Street Map, adapted by FG with recommendations from Space Syntax Ltd.

The Great Court at the British Museum

- As a public corporation the British Museum is much more complex than our other two case studies but it doesn't change the fact that their core business is preserving our heritage and creating access for the public to view it.

- Aesthetically the Great Court is breath taking but it can not be analysed in isolation as it is part of the museum. It is for this reason that the impact of the Great Court and the gallery spaces have to be understood to determine its success.

- As an organisation it could be questioned whether the British Museums objectives were in alignment with their organisational goals[8] (corporate strategy) or perhaps these requirements were stipulated to meet government funding.[9] The project definition is unclear: is the Great Court an expansion of the museum, a piazza or a public square?

- As an organisation the irony for the British Museum is that the very success of the Great Court is also its downfall as Sat Vinder Jandu[10] explains: *"it sucks people in like a vacuum and often takes them away from some of our main collections."*

- From a space syntax perspective it is difficult to find our way around the Great Court as the Reading Room obliterates the lines of vision and creates a blockage in terms of way finding.

- The Great Court creates a new route through Bloomsbury as part of a continuous pedestrian route extending from the new British Library, the great railway termini and the University of London in the north through to Covent Garden, Soho, Trafalgar Square and the Thames.

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[8] It can only be speculated that the British Museum as a public institution was weighted down with more bureaucracy than Somerset House or Tate Modern. Less freedom may have meant that they were not always ***the clients for their own facility*** in the same way that our other two case studies were.

[9] "The Lottery's £30 million boost for the British Museum **expansion**" was the heading in the Daily Telegraph newspaper. According to Anderson (2000): "the bid had been drawn up so that the scheme was seen not so much as an **expansion** but as the provision of a covered public square for London." As a consequence, the commissioners insisted that there should be no admission fee to the Great Court and that it's opening hours had to be significantly longer than those of the surrounding museum are. Having secured 30% of the total cost the British Museum still needed to secure more funding and so a second bid was presented to the Heritage Lottery Fund who specified that their objectives had to be distinctly different.

[10] Head of facilities management at the British Museum.

- The north-south link through the museum[11] is not a clear straight-line route out and is hindered by a staircase that goes both up and down blocking the axis out which makes it difficult to find.

- One could argue that Montague place is not a main thoroughfare for the general public, it might be particularly useful for its local residents or for those heading north to a specific end point.

- The ultimate form of integration is a bridge over the river that links two areas together which the British Museum doesn't have.

[11] The staircase that links the north entrance to the Wellcome gallery needs to be reorganised to provide a clear straight-line route through the museum.

British Museum
Source: A-Z London Street Map, adapted by FG with recommendations from Space Syntax Ltd.

Chapter 5.0
Conclusions and Recommendations

Based on our success factors, as the quality of the conception in terms of maintaining the buildings integrity and its spatial articulation in terms of its contribution to the environment Somerset House is a success. It has retained much of its initial architectural integrity and the stakeholders[1] responsible for the project delivery have realised the importance of integrating the building to its environment by turning Somerset House into a pedestrian route from the Strand to the Embankment, the river terrace to Waterloo Bridge and across to the South Bank. This could have been further integrated had West Street been developed with commercial outlets that were somehow linked to the public spaces of Somerset House to achieve an even greater flow of people as the proposal on page 47 indicates.

Tate Modern is also a success based on the criteria but could have been even more successful had the site been further integrated into its environment. Tate Moderns monumental structure has been kept intact, its integrity reinterpreted not only to satisfy a host of different stakeholder views[2] but to provide a museum of Modern Art and revive a disused industrial area. The most successful element is the Millennium Bridge which is the link from the city that makes Tate Modern accessible, it connects the north and south of the river and enforces the view that Tate Modern isn't in a piece of isolated wasteland.

Tate Moderns location of has been fortuitous in that it is in direct alignment with St Paul's Cathedral. The Bridge doesn't just provide access from the city across the river to Southwark but it unites two monumental buildings of importance at either end and in doing so gives Tate Modern greater status (symbolic value) than it would otherwise have had on its own.

[1] The trustees and architects in this case.

[2] Client stakeholders, (the trustees of the museum).
The stakeholders prioritise the design objectives, (the architects and space planners).
The representing stakeholders (those organisations acting on behalf of the general public).

Recommendation: West Street to be developed.

Plan of Somerset House showing public routes.
Source: Architecture Today, 112, October 2000.

Had the Millennium Bridge and Tate Modern "been connected" by carrying the axis of movement through the Tate and out onto Great Guildford Street, it would have contributed more to the local environment as proposed by Space Syntax.[3] This did not materialise due to different stakeholder values[4] and can only be speculated on why it was not put into action.[5]

Compared to the other two case studies, the British Museum is by a far the most complex and difficult to understand both in terms of its business and organisational goals. Unlike the other two case studies, it is a public corporation and is seen much more as the property of the nation. Representative stakeholders[6] are responsible for ensuring both financially and 'symbolically' that museums do deliver on their agreed objectives.[7] Balancing all these different expectations and reaching a general consensus can often lead to a fragmented outcome or an ambiguity in the *project definition.*[8] It begs the question as to whether the British Museum as an organisation were the 'clients for their own facility' in perhaps the same way that Somerset House and Tate Modern were for theirs.

Regardless of the politics that surround such projects, the Great Court is aesthetically breath taking and its execution is a marvel. The British Museum has had continual development, unlike Somerset House or Bankside Power Station for Tate Modern. The Great Court project has restored the historic facades and given us a new architectural

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[3] Space Syntax ltd was commissioned by the Tate Gallery Trustees to undertake an independent study on the feasibility of a new pedestrian bridge at Bankside in their report: **Bankside Bridge: Would it work** (1995) Bartlett Research.

[4] Stakeholder values in this case are defined as those people prioritising the design objectives: the architects and those acting on behalf of the general public such as government bodies and local authorities which we shall refer to as the representative stakeholders. By their values it is meant that the Millennium Bridge was a 'Foster concept.' and Tate Modern a 'Herzog and de Meuron concept.' If the idea is visualised as the 'place' where one concept ends and the next begins we cross 'an invisible boundary' of stakeholders territory or 'no mans land' which symbolises where this continuity was broken and why this 'no mans land' was not perceived as the responsibility of either stakeholder involved.

[5] It is not known if the Tate Trustees communicated the proposal to the project architects or perhaps they didn't want to step on their 'creative toes'. The architects themselves may have dismissed the idea or found the continuation of the 'Foster concept' running through ***their vision*** as unthinkable, whatever the reason the proposal didn't materialise.

[6] Representative stakeholders from various government bodies act on behalf of the general public particularly in the case of state funded projects where people take a keen interest to know how their money is being spent and whether they believe the cause is worthy or not.

[7] Projects of this type have to offer 'value' to the public, museum organisation is held to account to deliver on the agreed objectives (symbolic value) that are set out at the start of the project.

[8] Project definition is the necessity to identify the project goals from the start as these are the criteria that are *set in stone* and which will be used as the measure of success by those that judge it.

feature in the unsupported clear glazed roof which resembles a soft form that seems to float on air, it's apparent simplicity belying its ingenuity of engineering.[9] The dynamic tension between old and new has led the Great Court to become an 'entity in its own right' and by far the most ambitious and daring of the three case studies.

However the Great Court can **not** be viewed as 'an entity in its own right' it does not sit in isolation from the museum and for that reason alone it has to be understood how the spaces impact on each other.[10] If we look at the Great Court as part of the museum (which it is) **its very success has been the museums downfall**. The Great Court is now the focus of the British Museum the place visitors 'flock to' and as such the museums collections (their core business) have taken a secondary role.

Spatial articulation in terms of the buildings contribution to the environment is not as successful as the other two case studies. The British Museum is not strategically placed like Somerset House or Tate Modern, in that it doesn't link two opposite sides of the river. The pedestrian urban route north that was supposed to join the Great Court and the new British Library building is difficult to find unless one has prior knowledge of its existence. A staircase blocks the line of vision and the door onto Montegue Place is often locked due to operational and security reasons.
Refer to illustrations on page 50 and 51 to see how difference between the concept and reality of the pedestrian route.

At present Space Syntax ltd have been commissioned by the British Museum Trustees to undertake a study to help improve the distribution of people and which recognise some of the issues that have been discussed. There is no quick fix for the Great Court but a number of recommendations that may help, such as:

- Creating new lines of vision past the Reading room[11] which would allow people to see the galleries leading off this space[12]
- Artwork and sculpture could be strategically placed and used as 'attractors' to help people navigate and find their way back into the galleries.
- The staircase leading of the 'Welcome Gallery' and out onto the Montegue Place exit could be rearranged.

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[9] The supports for the lattice roof structure span from all four sides of the quadrangle into a ring of 20 columns surrounding the Reading Room, which are hidden behind the new stone cladding.

[10] Here the distinction is between the British Museums collections and the Great Court.

[11] This means new openings, although they maybe detrimental to the integrity of the facades and is therefore questionable whether it is a feasible option.

[12] As well as being able to see stairs or lifts that would help to create a sense of connectivity to the other parts of the museum.

The main focus is to integrate and reunite the Great Court back to the museums collections whilst still maintaining the buildings integrity which would ultimately make it more successful in terms of the criteria that we have used to benchmark our research on winning cultural spaces.

The Concept.
Impression of the British Museum from the South showing a sequence of public spaces stretching from the forecourt through the front hall, Great Court and North Library to the Montegue place Entrance:
source Anderson, R (2000) The Great Court at the British Museum.

The Reality.
Plan of the design of the Great Court ground floor:
Source Anderson, R (2000) The Great Court at the British Museum.

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Appendix
Interviews

Somerset House

The researcher Francesca Graham interviewed **Duncan Wilson**, the then Chief Executive for the Trustees of Somerset House on 27th July 2005.

Francesca Graham: Can you tell me how Somerset House evolved and why it has been so successful?
Duncan Wilson: *The starting point for Somerset House was that it was a usage led project, based on good design – it was a long term decision, where we able to borrow capital against a rental stream: to do this we had to invest now to see the value. It was an iterative process – when Dixon Jones started the commission they focused on* the public circulation – the *terrace and the courtyard as the master plan had moved on*[1]. *Part of the success of Somerset House can be put down to the live relay of Fidelio in the summer of 1998 in the Great Court, which set the tone for high quality open spaces within Central London. It showed us that all sorts of events could be staged, including an ice rink in the winter* [2] *and fountains* [3] *in the summer.*

FG: Why have the fountains been so successful?
DW: *The fountains are a simple linear design based on a rectangular grid, which fits perfectly with the formality of Somerset House and the light well that runs around the perimeter has been utilized as a drainage gully.*

FG: What sort of organization is Somerset House?
DW: *Somerset House is a private ltd company bestowing a public asset on a lease of 150 years for their purposes. One of the advantages unlike its competitors is that Somerset House can borrow capital and carry finance over from one year to the next however the downside of having no political appointments means that funding from central government isn't always guaranteed.*

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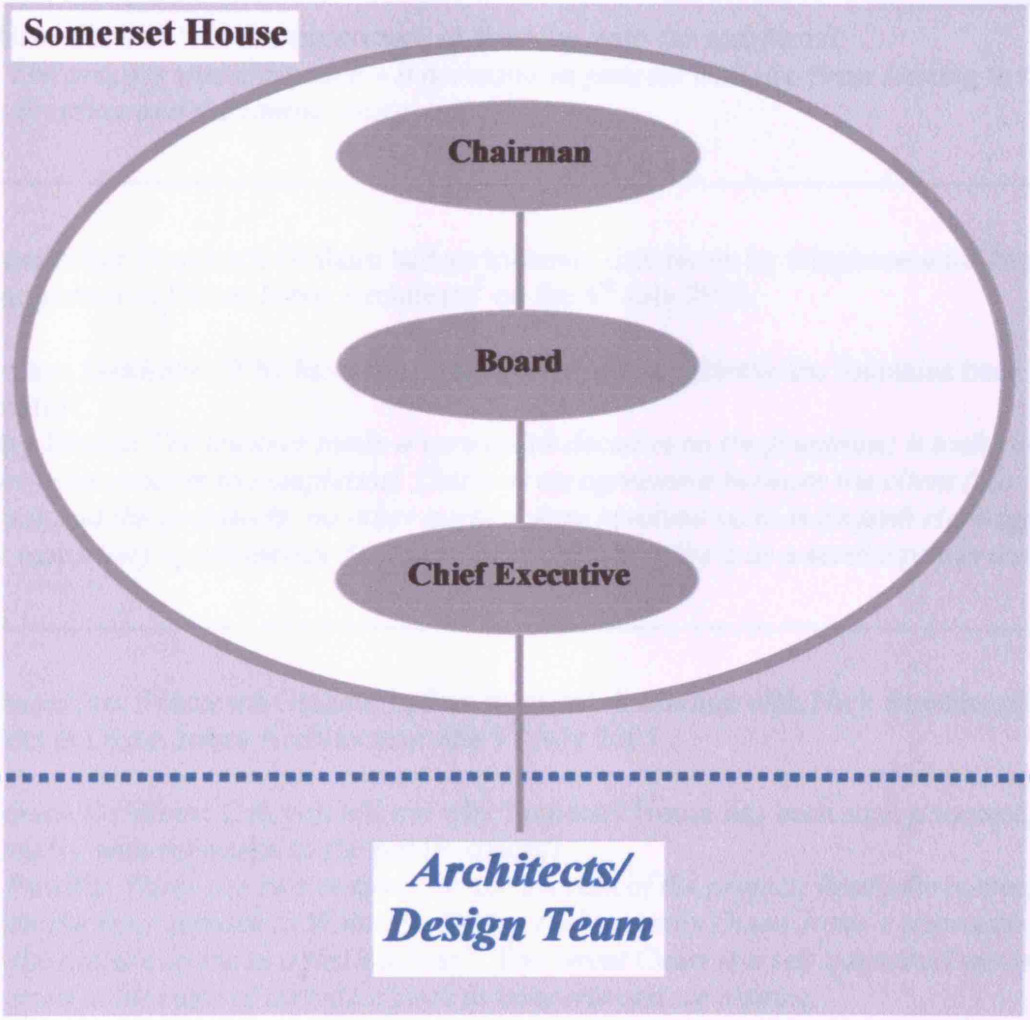
[1] The key was to enliven these spaces as they could be cold in the winter and hot in the summer.

[2] The architects Dixon Jones were careful to look at the design of this ice rink to make sure that it had the correct theatrical scale for Somerset House.

[3] The fountains are very versatile and can be switched off when they are not needed to make way for concerts and other activities.

FG: What sort of organization structure did Somerset House employ?
DW: *Somerset House was comprised of a small group of people with me (Duncan Wilson) being accountable to the board of trustees. This meant that rapid decisions could be made especially as one of the constraints of the renovation was that it must be completed by February 2000* [4].



The Somerset House Design Project Process

Source: As illustrated by Duncan Wilson, Chief Executive for the Trustees for Somerset House, on 21.07.2005.

[4] The Heritage Fund had not been forthcoming with the capital needed (September 1999) and Somerset House had to complete the financing plan by raising £7M or £8M.

FG: Who were the architects you worked with on Somerset House and what were their roles?
DW: *Donald Insall Architects are recognized as leading conservation architects and they worked on the fountain concept. Dixon Jones Architects are recognized as strategic master planners in the context of historical buildings and they worked on the cafe and the bridge.*

FG: How did you find the experience of working with the architects?
DW: *The process was enjoyable – a harmonious process with two firms looking in the same direction and the timing was good.*

The researcher Francesca Graham had an informal discussion by telephone with **Jeremy Dixon**: partner at Dixon Jones Architects[5] on the 4th July 2005.

Francesca Graham: Why have the Great Court and particularly the fountains been so successful?
Jeremy Dixon: *The trustees made a very quick decision on the fountains; it took two months from concept to completion. This was an agreement between the client (the trustees) and the architects, no other parties were involved such as English Heritage [6] and it was a very spontaneous decision. I can only describe it as a serendipity process [7]".*

The researcher Francesca Graham had an informal discussion with **Nick Pawlik:** project architect at Dixon Jones Architects on the 5th July 2005.

Francesca Graham: Can you tell me why Somerset House has been such a success, particularly with reference to the public spaces?
Nick Pawlik: *There are two reasons for the success of the project; firstly the connection between the river terrace to Waterloo Bridge and secondly Dixon Jones's approach to using the outside space in a flexible* way[8]. The *Great Court is a self-contained space that lends itself to all sorts of activities such as concerts and ice-skating.*

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[5] Dixon Jones Architects were responsible for the cafe, bridge and fountain concepts (1999).

[6] JD explains that this is very unusual as English Heritage and other bodies usually have to be consulted before a general consensus is reached.

[7] Serendipity process in this context means the faculty of making happy and unexpected discoveries by accident.

[8] Here NP refers to the Great Court and explains that the fountains can be switched on and off.

FG: How did the idea of the fountains originate?
NP: *The Trustees were keen on the idea of the fountains and inadvertently knew of someone who would sponsor the idea* [9] *– this fortuitous connection led to there being realization. The funding was given in two parts: the capital cost to build the fountains and a separate fund to maintain them. The benefit of this arrangement is that there is no financial responsibility on the Trustees of Somerset House.*

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[9] His wife Lily to commemorate her husband donated the Edmond J. Saffra Fountain Court.

British Museum Great Court.

The researcher Francesca Graham Interviewed **Sat Vinder Jandu:**[10] Head of Facilities Management at the British Museum on **Thursday** 21st July 2005.

Francesca Graham: Can you tell me what was the catalyst for this ambitious project?
Sat Vinder Jandu: *I joined The British Museum in 1994. At that time the Trustees felt that the museum should be more forward looking. The prospect of funding their vision became more realistic with the advent of the National Lottery. Based on this a brief was put together and an international competition was held to find the design scheme. 1996 was the true point at which the project started and the reality of the challenge: big cultural projects can be big unwieldy things that call for educated clients.*

FG: What is the most important factor to ensure success on a project of this type?
SVJ: *The importance of working with the architects at the earliest possible time is critical to the process of developing the right brief. A competition brief is one thing but the reality of the detail of the brief is another – there is often a conflict to find a balance between the two.*

FG: In retrospect what do you believe could have been done differently based on the above assumption?
SVJ: *The British Museum should have been more robust with the critical factors and stakeholders. Different parties have a tendency to do their own thing – including the trustees so 'managing the loop' in terms of keeping everyone involved is essential. The way to do this is to 'control and manage' the process very carefully by defining people's roles clearly, creating regular dialogue and putting a structure in place whereby the channels of dialogue come from one source alone. The capacity to be flexible is also important but at the same time there must be a robust way of dealing with issues – a protocol.*

FG: Can you please draw me a diagram[11] of what this process you have described looks like?
See diagram on following page

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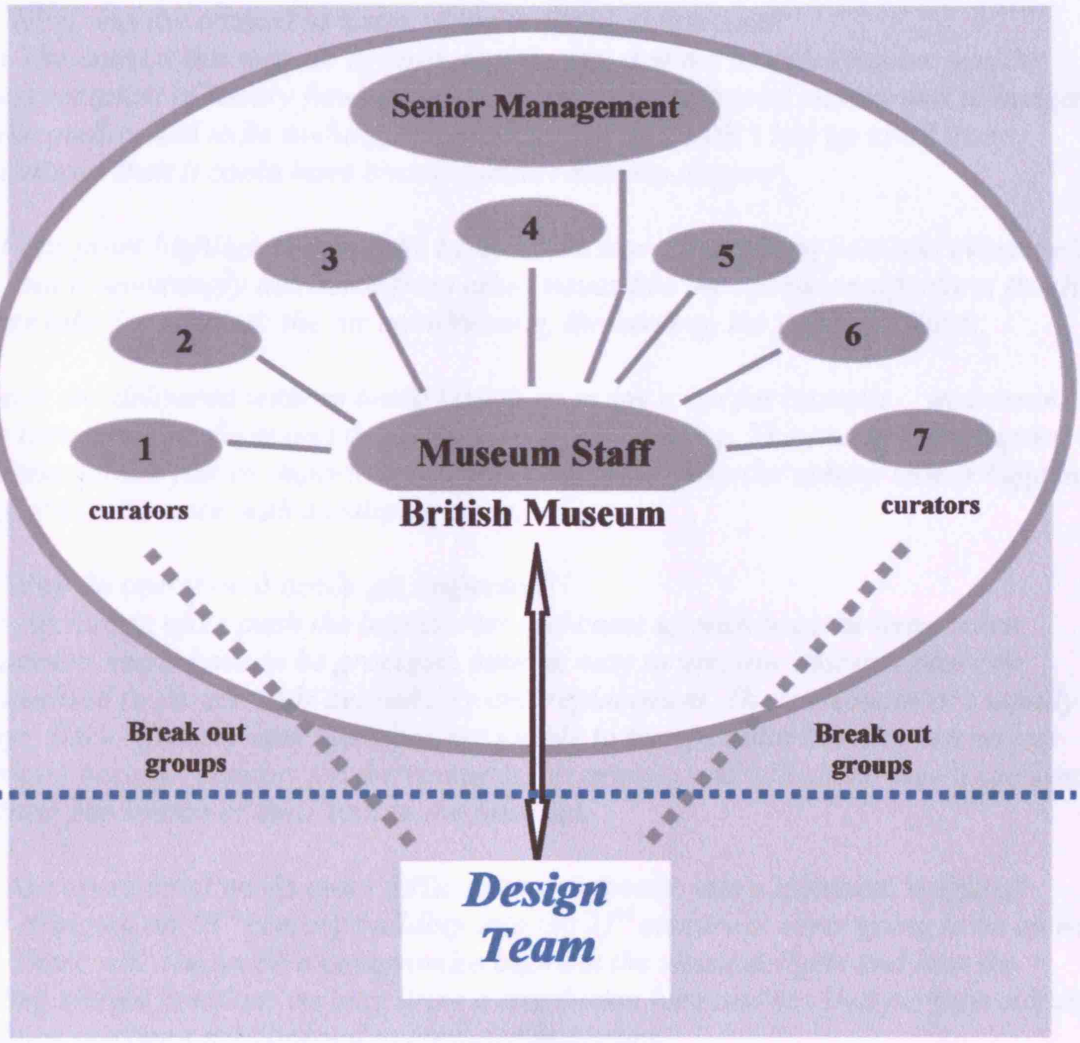
[10] Professor Alan Penn suggested I contact Sat Vinder Jandu, Head of Facilities Management at the British Museum to gain an insight into 'the project as a whole.' FG has built up an understanding by an ongoing dialogue by phone and email and this has culminated in the above interview.

[11] SV draws the diagram on the following page to explain how the internal stakeholders tend to focus on their own specific needs, as opposed to going through a process of general consensus with the rest of the group. (These stakeholders that do not follow the protocol he terms as breakout groups).



The British Museum Design Project Process

Source: As illustrated by Sat Vindu, Head of Facilities Management British Museum, on 21.07.2005.

FG: Can you tell me about the set up and who the team were?
***SVJ*:** The British Museum had a very disciplined team: those people who make up what constitutes the museum: the director, the trustees, the expertise of all our curators, the facilities manager and all the people who operate the building to bring the 'dream alive'. The world-renowned architect Sir Norman Foster led the design team and Mace undertook the construction. We had the highest calibre of 'players' to work on one of the most important cultural buildings.

FG: What was the context in terms of the thinking at this time?
SVJ: *The context this was set against was the fact that the British Museum was the biggest recipient of lottery funded money. It had to be delivered on time and to budget and the quality had to be nothing less than perfect. If it didn't live up to all these expectations then it could have been a public relations disaster.*

What this point highlights is that the Millennium was the finishing post and everyone's focus but it unwittingly detracted from other issues like the operational factors: the things that we take for granted: the air conditioning, the heating, the public facilities.

Projects are delivered without being tested: as in say a car for example – we cannot know how it will perform and the same is true of a building. The energy consumption and maintenance are just as important as the aesthetic qualities the upkeep side is huge in terms of maintenance with escalating costs.

FG: Why do operational needs get neglected?
SVJ: *Architects often push the boundaries and come up with bespoke items when operational needs have to be practical, simple, easy to use, low cost and possibly standardised to ensure their availability and replacement. These elements are usually always 'back of house' and therefore not visible to the spectator but they are no less important because comfort for the visitor is top priority and will shape their experience and their perception of their visit to the museum.*

FG: Are operational needs more difficult to incorporate into a historical building?
SVJ: *Bringing an 18th century building into the 21st century is never going to be an easy task. There will always be a compromise between the visual delights and how the building should function: we may draw a conclusion here and say that perhaps cultural buildings are more predisposed to consider aesthetics.*

FG: In the literature review[12] it states that the Great Court was perceived not only as the hub of the museum but as a public space linking various areas together. Can the exit out onto Montague Place[13] really be considered as a pedestrian route connecting the museum Bloomsbury and beyond to the New British Library?
SVJ: The British Museum is not a major thoroughfare.

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[12] Anderson, R (2000) The Great Court at the British Museum.

[13] The exit out onto Montague Place is not a major pedestrian route and is only probably used by a small minority of people who live or work in the adjoining area.

FG: From an operational perspective why does this exit through Montague Place not work?
SVJ: *The reason it does not work on an operational level is that it is logistically difficult to man. In terms of staffing around the clock it is a drain on our resources. Longer opening hour's mean that it attracts 'undesirable characters' that having gained entry can wander of into a multitude of different places. It would take an army of staff positioned in every conceivable hiding place to find these people and therefore it is a security risk.*[14]

FG: Is the Great Court a public space or part of the museum as both spaces seem to have very different identities and there doesn't appear to be much unity between them. What is your opinion of this observation?
SVJ: *The museum does not support the Great Court and the Great Court does not support the Museum. At present Space Syntax is doing a study to help us understand how to create better flows of people.*[15] *The downside of the Great Court being such a success is that it 'sucks people in like a vacuum' and often takes them away from some of our main collections.*

FG: In terms of making the Great Court function with the aim of attracting more visitors to the museums main collections what can be done to improve this?
SVJ: *We are at the moment looking at way finding and circulation as well as using specific objects that are strategically placed to act as visual reminders to help people navigate.*

FG: Apart from the British Museums brief what has also influenced the way in which the Great Court has been realised.
SVJ: *Increasing government pressure means that we have to deliver and perform against a whole serious of indicators and programmes to draw in more diverse people. The intent is right but a formulaic approach across the board*[16] *may not be realistic, as no two projects are the same; the level of flexibility just doesn't seem to be there. Institutions do need to be challenged –public funded aid is necessary to look after our collections but we need to strike the right balance.*

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[14] Especially with the heightened security risks of suicide bombers (7th July 2005) and in fact on the day of this interview 2.30 p.m. on 21st July there were also reported incidents of more suicide bombers on London Transport.

[15] One of the problems is that the Reading Room obliterates the *lines of vision* and creates a blockage in terms of way finding.

[16] In terms of what is expected from museums in general, regardless of their size, location, funding and speciality.

FG: Does the Reading Room in the Great Court get well used?
SVJ: *The Reading Room does very little for the museum*[17]*. In terms of space it occupies a huge volume of the Great Court. The Old British Library has gone and this is a remnant that doesn't represent the museum anymore or add value. The general consensus is that this space ought to be doing something 'magical' – perhaps have a different function such as: a concert hall, an amphitheatre, a place to demonstrate cross cultural material or an arena for public consultation are some of the suggestions that have been put forward.*
The challenge is to take the Great Court onto a different level and to somehow use the space to give it a 'sense of breadth.'

[17] An opinion held by the British Museum and expressed by Sat Vinder Jandu on how the Reading Room does not reflect what their core business is about. The question here is if we talk about **Product Integrity,** how much do we need to adhere to the original intention, does the past need to dictate the present or is it inevitable that time should change our focus.