

## What is effective Design Management?

Design Management is becoming increasingly recognised as critical to the success of complex construction projects. However, the role of the Design Manager is poorly defined and Design Management is a discipline without robust terms of reference.

This paper reviews the need for Design Management and the day to day challenges facing Design Managers. It concludes by setting out Adept Management's Design Management Framework which provides clarity and structure to this emerging profession.

Should you have any queries relating to this paper please contact:

Andrew Newton  
Director of Design Management  
Adept Management Ltd  
The Technocentre  
Puma Way  
Coventry  
CV1 2TW

t: +44 (0)2476 236929

f: +44 (0)2476 236930

E-mail: [andrew.newton@adeptmanagement.com](mailto:andrew.newton@adeptmanagement.com)

Web site: [www.adeptmanagement.com](http://www.adeptmanagement.com)

## The Arguments for the Better Management of Design

Would any commercial enterprise look to construct a new facility or asset without a detailed schedule of the work or without a management function to co-ordinate the delivery? Would this company leave the various tradesmen to their own devices to co-ordinate the timing and integration of their work with that of others? This approach would undoubtedly reduce overhead but the threat of disputes, along with likely cost and time overruns usually precludes this as a realistic approach to delivering construction.

If experience and simple common sense tell us that this is not the way to manage the construction, why does this sound business logic not always apply to managing the designing of that facility? Design is an inherently more complex process than construction: you do not know what the outcome is going to look like when you start; it's creative; it's iterative; yet on many projects we let those involved in the process, the designers, plan and manage the work themselves. Year on year measurement of the design performance in the UK<sup>1</sup> shows the folly of this approach.

Year	% of Projects where Design & Engineering phase overspends	% of Projects where Design & Engineering is delivered late
2000	36%	63%
2006	36%	42%

Whilst poor design performance in itself is unacceptable, it is merely the tip of the iceberg. The real concern is the subsequent impact on construction performance, where the risks and capital expenditure are usually tens times greater. Again the following figures taken from the same projects clearly demonstrate the effect of poor design performance on construction.

	% of Projects where Construction phase overspends	% of Projects where construction phase is delivered late
2000	55%	38%
2006	51%	38%

While these figures alone are all persuasive for design to be managed more effectively, it is pertinent to explore some of the trends and influences on modern design processes to understand some of the issues that give rise to these figures and increase the demand for properly and professionally managed design.

<sup>1</sup> These figures have been taken KPIs commissioned by Construction Excellence. For more details please refer to [www.constructingexcellence.org.uk/zones/kpizone](http://www.constructingexcellence.org.uk/zones/kpizone)

## Emerging Trends in Design

The construction industry has changed markedly over the last twenty years and this has put an increasing pressure on design teams and design professionals to deliver. The key trends affecting design team performance can be summarized in the following three areas:

### Contractors at the Heart of the Design Process

The introduction of Design-Build procurement, along with the increasing use of private finance to fund public procurement has led to the contractor being involved much earlier in the project process. Contractors now find themselves at the heart of the design process, usually in a position where they can influence and control design outcomes. Whilst this has undoubtedly eliminated many buildability issues from projects, contractors' mind sets and management approaches are not necessarily compatible with the creative and iterative process of design. In the worst examples of contractor-led projects the design team is treated as just another member of the supply chain and inherent importance of good design to the built environment is often lost by a one dimensional approach to its management. Typical construction management methods are not applicable to design and new methods need to be developed and adopted for managing design work.

### Increasing Specialisms within Design

The complexity of modern day materials, systems and solutions require more defined specialist knowledge meaning that designers have had to move from being generalists to specialists. This has resulted in more design consultants being involved in design, which is compounded still further by the increasing importance of design input from trade contractors. With more parties and more technically complex solutions involved, even the most experienced of design teams will fail to ensure that correct information is supplied at the correct time without the help of a good Design Manager.

### Recognition that Design is a Process

The traditionally held view is that as all designs are unique and therefore they cannot be planned or managed. This view is outdated and no longer valid; design is a process, which if correctly understood and represented can be largely repeated from one project to the next and therefore can be defined, measured and improved upon. In the same manner that construction work is usually paid for on completion of elements of work or against an activity schedule, it is now possible to pay design teams in a similar manner, based on their performance, rather than a traditional regular fee draw down, that often leaves the client or contractor with remaining design work to be done but with the entire fee spent. By defining the process and measuring the design team's output against it, the design team can be properly managed and their fee be based on performance rather time spent.

## Defining Design Management & the Role of the Design Manager

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The terms Design Manager, Design Team Leader, Lead Designer, Lead Consultant, Design Co-ordinator are often used interchangeably causing confusion over roles and responsibilities. It is important to define these roles and a useful starting point is that offered by Hughes & Gray<sup>2</sup>, who succinctly define the two issues associated with effective design delivery as:

- (i) The provision of accurate fully coordinated and complete information; and
- (ii) The timely provision of that information.

The first issue is the responsibility of the Lead Consultant, usually the architect (alternatively called the Design Team Leader or Lead Designer). Their work is checked usually by the Contractor's Design Co-ordinator.

The second issue is one of management and it is the responsibility of the Design Manager to ensure that necessary framework is in place to allow the design team to produce fully coordinated and complete information in the timely manner.

In Adept Management's view Design Management is the management of the process of design - not the co-ordination of the product - that remains the role of the design team, primarily the Lead Consultant. To be successful, a design manager must maintain control without limiting creativity.

In the following sections we look at Adept Management's approach to Design Management in more detail.

## Adept Management's Design Management Framework

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Adept Management does not wish to prescribe exactly what Design Management is or how it should be done. What we have developed, through experience in delivering a wide ranging services to projects, is a framework for Design Management that captures the key components and enablers that allow design to be managed efficiently and effectively. Adept Management's Design Management Framework<sup>TM</sup>, shown overleaf, provides a common basis and reference point against which individual Design Managers can develop their own style and skills whilst, importantly, positioning the tool-sets that are at their disposal.

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<sup>2</sup> Managing Building Design, 2001, Colin Gray & Will Hughes, ISBN 0750650702



Figure 1: Adept Management's Design Management Framework™

### Customer engagement

The customer is at the heart of any design process and this component looks to ensuring that the Customer and Stakeholders are properly engaged on the project. The tools, techniques and methods deployed should ensure that consistent and timely briefing information is delivered to the design team and that this information is properly documented. Techniques such as Value & Risk Management, Briefing workshops, room data sheets, and so on could be used. Just as important in the engagement of the customer is the introduction of agreed approvals and sign off processes; these are essential to ensuring commitment from the customer as the project proceeds.

### Collaborative Working

This element relates to ensuring that the necessary project culture, protocols and processes are in place to promote collaborative working between members of the design and project teams. Design Managers must promote collaborative working at two levels: i) it is important to understand and manage the dynamics of the team as this is critical to the success of a project; and ii) recognizing the role that ICT can play in assisting and supporting collaborative working dynamic in practice. As with all software, the technology is only part of the answer; the process by which it is introduced is equally crucial. It might be as simple as ensuring that Information exchange protocols or CAD layering conventions are in place or that a project extranet is implemented.

### Consultant Appointment

Confirming scopes of works of each of the design team members and defining the role of the Lead Consultant is essential in setting the project off on the right basis. The basis on which each of the design consultants are appointed should, therefore, be determined by the Design Manager and not left solely as a procurement department decision. Using simple tools such as responsibility matrices, scope sheets and the appropriate appointment documents will minimize any mismatch between designers and designers and trade contractors.

## Design Team Leadership

Design Team Leadership in the context of Design Management aims to ensure effective performance design team performance by guiding and influencing how the team interacts to draw on the strengths of its constituent parts (the individual members). The way people work in a group depends upon their 'Task focus' - the specialist knowledge, qualifications, experience, the team members bring and their 'Team focus' - the way they work with and contribute to the group, thereby enhancing its effectiveness. Design Teams are often hampered by 'group think' and conflict often results. The Design Manager must maintain the team (promote teamwork) through effective leadership, social maintenance and team selection.

## Defining the Design Process

It is crucial that the design process is defined, both in terms of the high-level project stages, and the detailed scope of each of the design team members involved. Creating a high-level design process definition involves setting high level project milestones or gateways that the team can work towards. There are a number of well recognised definitions or descriptions of the building design process, such as the Architect's Plan of Work published by the RIBA that help the Design Manager define this high level route map through the design process. Prior to any design being undertaken, it is important that the Design Manager works with the team to fully define and document the scope of work for each design discipline. This will both form part of the Consultant's Contract of Appointment and act as a precursor to any Integrated Design Planning activity.

## Integrated Design Planning

Planning design is often ignored as the design process is poorly understood and poorly defined, making the planning of the process virtually impossible. Planning of design must be based on a detailed definition of the design process and a detailed understanding of the information flow between all parties. Techniques such as 'ADePT' can then be used to optimise the design process, understand the critical decisions required and plan out the design in an integrated fashion between designers and also with procurement. The ADePT *Design Builder* software is an invaluable tool for enabling this.

## Process Control

It is essential that the Design Manager controls the completion of activities, the associated production of information, and the release of Design Deliverable in line with the Integrated Design Programme. Process control must not just concentrate on backward looking performance and progress reporting; it must instead look ahead and proactively remove any barriers and constraints that could stop the design team performing. The ADePT *Design Manager* software is an invaluable tool for enabling this.

## Design Development & Control

Ensuring that the design being developed is technically compliant is clearly the responsibility of the design team. However, it is essential that the Design Manager has an understanding of these requirements and ensures that technical reviews and audits take place at key intervention points within the design process. Also essential is an effective design change control procedure.

## Commercial Control

To ensure project success, it is essential that design is developed in line with agreed affordability criteria. All too often, however, a lack of commercial awareness amongst the design team members leads to unrealistic and unworkable solutions being produced. Thus, another critical function of the Design Manager is to introduce and maintain commercial control over the evolving design. There are many simple approaches to ensuring that this happens e.g., sharing the cost plan with the design team or ensuring that key cost drivers on the project are explored fully and the best value solution adopted by the design team. The Design Manager needs to be capable of introducing and facilitating these approaches throughout the design delivery process.

## About Adept Management

Adept Management is a design management & project services consultancy with core expertise in the management of design across all sectors and scales of projects. Working with our customers, Adept Management reduce the risk from poorly managed and co-ordinated design by using the Design Management Framework described above to plan and manage design teams, project processes and design development more effectively. We have a number of unique methods of planning and managing projects that we collectively call ADePT (the Analytical Design Planning Technique), and we are confident that our methods and experience provides greater predictability to projects and, in many cases, lead to reductions in project costs and timescales.

## How can we help?

We pride ourselves on our ability to make a positive difference on projects and this is reflected in the high proportion of repeat work and the frequency with which customers expand our commissions.

We offer complete flexibility in our approach to supporting customers in all aspects of the Adept Management Way:

- We can provide interim design or bid managers into your projects for any period of time, providing any of the services described above.
- We can provide discrete services such as the production of integrated design programmes or work flow using our ADePT approach; &
- We can provide specific consultancy advice or training on any aspect of the Design Management Frameworks;

## Our Team

The majority of our staff have trained as designers which, allied to extensive project management skills, provides the perfect skill set to plan and manage the work of design and project teams.