

W H I T E P A P E R

TIME FOR CHANGE

REDUCING DELAY AND DISRUPTION RISKS
BY TRANSFORMING CONSTRUCTION TIME
AND PROJECT MANAGEMENT

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INTRODUCTION

The construction industry has a terrible record in terms of on-time project completions. As a result millions of pounds each year are lost because of poor time management, project controls and record keeping. Projects often end in dispute between contractors and employers, with each party determinedly seeking financial recompense. All too often such disputes feature significant disagreement about what has gone wrong and why, sometimes creating a field day for industry media.

When trying to manage and minimise the risks of a delay and disruption claim, good project time management is an obvious essential since disputes are principally centred on time. It has become crystal clear that a real problem exists, and the Chartered Institute of Building (CIOB) has taken a leadership role in examining and analysing just why that is. The CIOB has conducted research, analysed it carefully and compiled a range of good advice about the power of best practices and the need for auditable records.

Solving the problem will take more than good resolutions about record-keeping. Although it is acknowledged that some fault lies in the lack of professional standards, training and accreditation on project time management, unless each construction contractor and employer takes a hard look at their own practices, little can change. Those who take up the challenge and invest time and energy in the practices and skills associated with improvement in project time management will slowly gain competitive advantage over those who do not. Those organisations will achieve an enhanced ability to plan and avoid the instability and reputational damage that inadequate planning, delays and consequent complaints and claims almost inevitably cause.

Succeeding through this transformation means more than developing an understanding of the legal principles underpinning project delay and disruption, it is also about appreciating and implementing the range of techniques and tools that can be employed.

This paper sets out a practical basic overview of the background, the legal framework, the role of effective records and information, the tough questions that are asked in delay analysis and dispute proceedings and some of the starting actions contractors should be taking to minimise their risks.

SETTING THE SCENE

The problem of late completion has dogged the construction industry for many years and been the subject of numerous enquiries and initiatives ever since the 1994 Latham report. In 1998 the Rethinking Construction report by Sir John Egan set out an ambitious target of 20% year-on-year on-time completion improvement. By 2009, however, the KPIs outlined in the Constructing Excellence report suggested that still only 45% of major projects were being completed on time.

Over the past few years the CIOB has tried to shine a light on the root causes. It has flagged up numerous factors, differences and issues between employers and contractors which relate to delays and how project time management is conducted.

TIME MANAGEMENT IS A CRITICAL SUCCESS FACTOR FOR ALL PROJECTS

Cost, quality and time are the factors that typically determine project success, yet of all of these time is least understood and least often approached with rigour and with the support of formal models, benchmarks or tools.

Time management in construction project management is nothing like the simplistic management models which seek to improve personal productivity, but is fundamentally linked to the productivity of the contractor and effective management of its entire supply chain. It sits behind the dependable achievement of incremental project goals and milestones as well as to the successful on-time delivery of the total project.

The CIOB report “Managing the risk of delayed completion in the 21st century”¹ observed that the more complex a project the more this becomes a serious issue, and reflected this in its eventual “Guide to good practice in the management of time in complex projects”². The more complex a project the more disproportionate are the effects and impacts of time and other aspects of project slippage, and the more intense the need for effective project controls.

Is it only complex projects which require good time and project management? Of course not. The more complex a project, however, the greater the need for a rigorous approach. The CIOB team concluded that simple, repetitive construction projects (such as low-rise buildings) may generally be completed intuitively, that is, without any sophisticated project time management controls, whereas more complex construction projects have every chance of being delivered late without more attention to the project time management strategies, systems and processes.

Simple projects are carried out to a single completion date and without phased possession or completion dates, for example. Complex projects it defines as having multiple key dates or sectional completion dates and with multiple possessions or access dates.

INTUITION AND GUESSWORK IS NOT ENOUGH

In the tough current economic climate, project completion issues create an unnecessary risk to the bottom line, yet a lack of professionalism and rigour in managing the time aspect of major projects has long since been evident. One of the main issues is that on many construction projects, personnel with responsibility for time are often learning as they go along, although this is no fault of their own. Owing to a lack of formal professional training or accreditation, many have been self-taught, whilst others have transitioned into project management roles from other professional disciplines in construction, such as architecture, design or even quantity surveying.

Project time management seems the poor relation of the other pillars of successful project management, like Cost Management and Quality Management. Quantity Surveyors are trained and have professional bodies to govern their performance and advise on techniques; it’s a specific and recognised discipline. Yet there are no such standards, training models or a defined professional body for the time-related aspects. Time management is simply a feature of the project management software people use, and so often regarded simply as a sub-set of the Project Manager’s job – unless another member of the project volunteers or if there is a designated project Planner or Scheduler. It is often treated as an additional headache, without any specific techniques or strategies for managing time-related project factors.

Small wonder, then, that time-related issues such as delays have such a disproportionate impact when they go wrong. Intuition and experimentation is not enough. It is imperative to continue to push for best practice in terms of tools for better project management and proper training for project managers and other key people in understanding the time dynamic and standards for time management.

“Using the industry standard [Asta Powerproject] has raised our profile and given us recognition as a credible, established industry player capable of managing the largest and most complex project efficiently.”

Simon Head, Managing Director, Cooper James Consultancy

1 http://www.ciob.org.uk/sites/ciob.org.uk/files/WEB-INF/files/documents/TM_summary_web.pdf

2 The “Guide to Good Practice in the Management of Time in Complex Projects” by CIOB, is available from Amazon

Executive summary extract from “Managing the risk of delayed completion in the 21st century,” published by the CIOB

It is the experience of those responding to the survey that:

- ▶ The design team is rarely consulted by the contractor about time-management strategy.
- ▶ The more complex the project the less likely it is to be completed on time.
- ▶ A high proportion of complex projects are likely to be completed more than six months late.
- ▶ The type of construction contract and procurement method has no discernable effect on the incidence of delayed completion.
- ▶ The contractor is predominantly held at fault for delayed completion.
- ▶ Records of resources used and work performed are usually inadequate for effective time control.
- ▶ Very few projects are currently managed by reference to modern methods of time control.
- ▶ Delayed progress is not often notified promptly or widely.
- ▶ Improved facilities for the education, training and accreditation of planning engineers and project schedulers are needed.

It is the conclusion of those conducting the survey that:

- ▶ Projects that suffer from disputes about delay also suffer from poor time control.
- ▶ Too many projects suffer from delayed completion.
- ▶ Time efficiency is rarely considered at the design stage.
- ▶ Contracts do not encourage effective time control.
- ▶ Time control is generally left to the contractor.
- ▶ There is a shortage in the industry of planning engineers and project schedulers.
- ▶ The professional status of planning engineers and project schedulers needs to be recognised.
- ▶ Few professionals understand the contribution that planning engineers and project schedulers make to effective time control.

The CIOB infers that there is a connection between the incidence of delayed completion of complex projects and:

- ▶ Economic failure of contracting organisations.
- ▶ The sufficiency of planning engineers and project schedulers in the industry.
- ▶ An understanding amongst other professionals of the contribution that planning engineers and project schedulers make to effective time control.

UNDERSTANDING DELAY AND DISRUPTION

WHAT IS IT?

Delay is anything which impacts timely completion of a project or project stage. Disruption is the mess which has occurred by trying to deliver to time, which may or may not have a direct relationship with project delay. It has been the subject of litigation for many years and, until 20 years ago, was often a case of complex composite 'global claims' which were hard to disentangle for lawyers and had little substantiation of cause and effect. Since that time, however, the rise of computer-based planning, recording and communication has changed the landscape completely to the point where full, forensic analysis of the causes of and responses to delays can be conducted. While this provides a context for the avoidance of some lawsuits, it provides the fodder for others.

The Delay and Disruption Protocol (the SCL Protocol), published in 2002 by the Society of Construction Law, remains a core definition of key aspects and factors of delay and disruption.³ In effect the SCL Protocol accepts that there are some legitimate or predictable causes of delay and disruption and sets out processes and protocols for delay-related applications and compensations, in a bid to lay out a standardised method of dealing with disputes around delay and disruption.

“Without effective time management there can be no effective resource management, cost management, nor allocation of liability for slippage, its recovery, or accountability.”

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DISPUTE PROCESS

Disputes around delay and disruption can come from two directions – either from an employer seeking damages from delayed project completion and the consequences of that, or from a contractor needing to secure what it sees as a legitimate extension of time (EOT) versus an original contract agreement or compensation for a disruption to its normal working methods which has lowered its speed and efficiency, resulting in delays.

From whichever direction the dispute originates, the process of dispute resolution follows roughly the same path.

The first stage of delay and disruption analysis is for the contractor to prepare (possibly in conjunction with its advisors) its contractual entitlement for more time, and usually more money, linked to delays arising within the contract.

Having prepared detailed evidence and given the other party time to consider that evidence and respond accordingly, the parties may reach agreement. If they have not, the matter may be referred to adjudication.

The strategic intent of the adjudication process is to resolve construction disputes in a quick and economical manner. However, it is fair to say that a raft of consultants make a very good living from supporting clients through this stage, and many solicitors and lawyers now get involved to help them through the legally sticky areas, such as 'jurisdiction.' What was designed to be a simple and cheap process has become anything but that.

If the adjudication process fails or the contract demands a different route to dispute resolution, litigation or arbitration are the next options. Arbitration is a slightly more discreet option than litigation, which is conducted in the public domain with significant potential media scrutiny and associated reputational risk. This is full legal territory with representation from law firms, use of expert witnesses, and with judges and barristers in the driving seats.

³ The D&D protocol can be downloaded from <http://www.scl.org.uk/>

Planning and project management come under serious scrutiny during any process of litigation or arbitration – and the information that each party can provide, in combination with the associated analysis of information, is central to the outcome. Analysis of delay-related information and facts is often the starting point for a consulting advisor, as well as the focus of legal proceedings. Understanding the role and importance of that information is fundamental to putting better practices and training in place to ensure you can manage delay and disruption risks more effectively.

THE ROLE OF INFORMATION

Information about why, when and how delays and consequent disruption arose is the basis for all delay-related claims and negotiations.

There are two reasons why EOT claims are often left until the end of the project before they are addressed. Firstly, the lack of real-time access to information between all parties has a direct consequence of clouding their ability to see the long-term impact of any individual event. So, for some, the first indication of a delay event having occurred is some time further down the line when the effect of the delay is felt or if the matter is raised during dispute proceedings. Often this is because systems and processes for establishing what should be happening based upon accurate assessments of progress and change, then managing their implications, are simply lacking.

Secondly, there is often an understandable reluctance on the part of some contractors to rattle the employer by flagging up issues in the middle of a project. However, if negotiations about EOT are only commenced at the end of the contract, the employer may very well be already considering its options for damages. Thus it is argued that the contractor will typically be setting itself up for what is a more expensive, complicated and probably contentious set of negotiations or proceedings than was actually necessary.

The SCL Protocol holds the timeliness of information to be important, stating that applications for an extension of time should be made and dealt with as close in time as possible to the actual delay event. Regardless of this, in both cases, the gathering and subsequent analysis of information is necessarily retrospective, and this creates a real problem. Information gathered retrospectively is fundamentally less accurate and objective than information gathered on a real-time basis. Information can be partial, inconsistent, and the relationships between different data points hard to identify. Most importantly, it becomes subjectively skewed by the parties involved as they post-rationalise their decision-making.

DELAY ANALYSIS

The analysis of delay is driven to a large degree by what the dispute referee needs to know and understand in order to reach a reasonable decision, their judgement generally being based on the following principle:

“With the facts that were available at the time the delay happens, what decisions should the project administrator or project manager have made? Does this differ from what really happened?”

The first area of scrutiny is always the contract programme – and far too often this is inadequate or not actually signed off by all the parties involved. The second area of scrutiny is to look at the facts of the case to identify what the delay was and how it happened. For those responsible for analysis this can be a very tough job if information has not been consistently and logically gathered in real time, organised and made accessible. It can be a nightmare challenge of digging out information which is not readily available and disjointed, and trying to build a coherent picture. Having established a chronology of events, even more digging is required to back up the observations and conclusions found. The electronic and physical paper trail, who said what to whom, who did what and when, becomes vital.

There are many tough questions that contractors are called upon to answer, and it is upon these areas that a delay analysis consultant will focus. The granularity of the information required to fulfil these information needs and the scrutiny under which information is placed can come as a shock to many facing a delay and disruption proceeding for the first time, and it has tripped up many ‘expert’ and corporate witnesses.

12 TOUGH QUESTIONS

1. Has the programme being relied upon actually been signed off by the client as the contract programme?
2. Have all strategic assumptions associated with the programme been recorded e.g. key activity durations, the strategy of the programme logic, third-party interface requirements, etc.?
3. Is progress data entered accurately and are remaining durations accurate at each progress period?
4. Are there records in place to corroborate contemporary progress and change events?
5. Is there sufficient and specific evidence to support each change event?
6. Can all the project and programme records be easily retrieved and organised?
7. Do the available records match those of the other parties?
8. Is the remaining scope of work shown on the contemporary programme realistic and accurate?
9. Are the contract provisions being relied upon fulfilled and have any conditions precedent been satisfied?
10. Do the records show clearly the resources that were planned against those that were deployed? Is there clear evidence of the activities that each of the resources was engaged upon?
11. Is there a clear, accurate and agreed schedule of when information was released, revised and approved?
12. Is there a clear, accurate and agreed schedule of when procurement actions were completed?

Delay analysis often calls into question the promises made at the outset, the quality of the planning from the start, the communication between contractor and employer, the project management competencies of individuals involved and the administrative procedures of the contractor.

Any of the above is enough to make those who find themselves in the witness box squirm and an interested reporter to sit up and listen. The reputations of major companies come under real and intense scrutiny in these situations. This alone, if it were not for the significant punitive damages risk inherent in many disputes, should be enough for leaders to say: enough is enough. It's too big a risk – it's time to shape up.

NEUTRALISING DELAY AND DISRUPTION RISKS

Let us now consider what would be the ideal basis for managing or defending such claims.

- ▼ **An agreed contract programme** – if at any point parties wish to consider a view of the differences between their expectations, a clear and agreed starting point is essential. The onus for this is on both parties, because it is also essential that the employer and contractor agree on contract administration planning which clearly defines responsibilities and expectations. Most importantly it ensures that there is agreement that the project aims are manageable, achievable and agreed. The SCL Protocol mandates the appointment of a nominated Contract Administrator for this.

“The most effective time-management strategy starts in the design stages of a project. In the same way that, to some extent, it is possible on all projects to identify a cost-effective way of achieving the same quality, so projects can be designed to be time-effective without compromising out-turn cost, or quality.”

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- ▼ **A single version of the truth** – what if throughout the project there was a trail of communications and a shared repository of project reporting which was equally accessible to both contractor and employer? If both parties must acknowledge they were equally informed, it would be possible to resolve disputes based on real facts, not conjectures or retrospective justifications.
- ▼ **A clear view of reality** – for anyone working within a complex programme or project, seeing the totality of what is going on is nearly impossible. There are always multiple activity streams, which can be loosely or closely dependent upon one another. A delaying event in one work stream that may seem inconsequential may well be more significant to the project time-line if other work streams are adjusted.
- ▼ **A platform for regular review and re-planning** - establishing systems for undertaking a 'what if' analysis whenever required, and entering changes as they happen, brings a far greater ability to look ahead in order to predict problems and manage their implications. Demonstrating that time has been taken at each stage of a project to assess the situation and test assumptions by creating a 'what if' analysis, using a tool such as Asta Powerproject, is more than showing good management. It creates snapshots of the situation as it was seen at particular points during the project and what adjustments were needed at what points, and can be a strong piece of defensive evidence.

“A planning strategy which facilitates the effective management of changing subject matter, work content, sequences and resources and other intervening events is thus a prerequisite of the effective management of time on major projects.”

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To achieve this takes more than good intentions; it depends on two things:

- ▼ **Choosing the right solution platform** – ensuring that there is a capable software solution which provides planning and scheduling capabilities and project controls to enable your Project Time Manager to see the live project data and to be able to measure progress and the impact of delays. Software is increasingly important to the overall project management challenge, also enabling better and clearer communication between contractor and employer, effective planning and forward projections. It must be easily available wherever it is needed, whether on the project office desktop PC or site office laptop. Asta Powerproject is a good example of such a platform, supporting good planning, timely and accurate procurement, cost control and efficient resource management across any projects; all these aspects are vital to ensure that each project not only meets its objectives but does so profitably for the firm and on time for the customer.

ESSENTIAL TIME MANAGEMENT FUNCTIONS

The following functions, contained within Asta Powerproject, are the essential capabilities for any platform intended to support effective project time management and project scheduling:

- ▼ Critical Path Analysis
- ▼ Multiple links between tasks
- ▼ Unlimited Baselines (comparison)
- ▼ 'What if' Analysis
- ▼ Sectional Completions (force critical)
- ▼ Multiple Calendars
- ▼ Constraints
- ▼ Risk Analysis
- ▼ Resource Management
- ▼ Progress Reporting (see impact)
- ▼ As Built programme

- ▼ **Toolbox of Project Time Management techniques** this is exactly where the 'Guide' recently published by the CIOB focuses. The Guide is designed to provide a practical route-map for both strategic project time management issues within the context of the project, and the detailed requirements necessary to develop, manage and communicate planning, scheduling and project controls systems. Some examples include:

 - ▼ Within section 2 of the Guide (Strategy) advice is provided with regard to the development of effective communication systems such that all parties may access the core programme data. It states that "the employer, contractor, consultants and others responsible for any work performed under the contract should have equal access to the same information regarding sequencing of the work to be performed."
 - ▼ Section 3 of the Guide (Developing the Time Model), provides advice on the development of work breakdown structures, methods of determining activity durations and the use of effective critical path analysis practices, to name but a few.
 - ▼ Major significance is also attached to the management of the project time model, where, in section 4 (Managing the Time Model) practical issues associated with record keeping, change management and progress monitoring are each discussed. All three are essential components of project time management.

The solution choice that companies make can help make many aspects of project time management requirements eminently practical. For example, Asta Powerproject's multi-user option is designed specifically to allow for shared views and collaboration between individuals working on projects, or between contractor and employer, through a central database. It also supports timely and regular communication with the employer, supporting on-demand status reporting, the flexibility to devise exactly the reports you need, and the ability to share those reports easily with your clients no matter what other systems they might use.

“Asta Powerproject is ideal for dealing with changes and coping with those inevitable situations when things don't go to plan.”

Phil Solomon, Planning Operations Director, Mace

“The purpose of the time-model is to indicate when in the future and in what sequence the planned work is to be performed, so that the intended work and the consequences of any changes or departures from that intention can be predicted, communicated and managed efficiently.”

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CONCLUSIONS

Minimising the potential risks that disputes around delay and disruption can create is a must for any contractor or employer. Taking the time to evaluate these in relation to a business and putting a proactive strategy in place for training and tools that improve project time management will pay immediate and long-term dividends.

Investment in effective project time management systems, software and processes will always ultimately yield a financial return, but the business benefits go far beyond that. Building a reputation for good project time management within an industry which struggles with this issue creates a distinct competitive edge. Having the backup of strong project information systems that can show how plans may have adapted throughout the course of a project to cope with deviations provides a strong defensive tool for when things go awry. Better planning tools coupled with better training will create better project managers who are able to truly optimise their performance.

A holistic business approach to project management and project time management will benefit personnel directly as well as align them with the organisation's goals, and should incorporate formal routes to enable individuals to improve their knowledge, skills and professionalism. Training and development investments should be supportive of their ability to analyse and manage project risks as they occur, as well as their ability to recall and report on project issues after the fact.

Construction contractors are urged to recognise Planning, Scheduling and Project Controls as a key and core discipline, and encourage continuous professional development training in relation to these for relevant staff. To that end, the CIOB will shortly finalise its Project Time Management qualification, providing a recognised professional qualification which will become a recruitment factor in the future, and accredited courses will deliver real career value.

“ An effective time-management strategy will recognise that time expires at a regular and consistent rate, from inception to completion, whether it is used effectively, or not used at all. Accordingly, an effective planning strategy will demonstrate the most effective use of available time, in all circumstances. ”

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“ Planning was complex for Rockliffe Hall and our use of Asta Powerproject certainly supported the team's ability to draw up precise schedules and project manage effectively and efficiently. ”

Neil Matthias, Project Manager,
Shepherd Construction

REPORT AUTHORS

David Tyerman is Managing Director of Athena Project Services, a specialist provider of training and consultancy services relative to planning, scheduling and project controls. He is a member of the CIOB team who prepared the Guide and Chairman of the working group which is currently preparing the Project Time Management qualification and accreditation structure.

Paul Bamforth is Managing Director of Asta Development, a leading international developer of project, programme and resource management software. He has been an evangelist for how Asta's flagship project management solution, Asta Powerproject, plays a key role in implementing good project management practice.

TRAINING COURSE: PRACTICAL MANAGEMENT OF CONSTRUCTION DELAY & DISRUPTION

Asta in conjunction with Athena is presenting a CPD course on the topic. The Practical Management of Construction Delay and Disruption course is designed specifically to equip delegates with a framework within which they may effectively manage emerging project delay issues within their own work environment. The course will seek to equip delegates with an understanding of key legal and contractual implications such as the importance of the project critical path, dealing with programme float and concurrency, whilst also facilitating a practical understanding of the range of delay analysis techniques that are typically utilised to analyse delay. Given the importance afforded to the communication of issues between parties, the course will also look to provide advice on report writing, whilst understanding the strengths of clear communication through some gentle cross-examination by a Chartered Arbitrator.

ABOUT ASTA POWERPROJECT

Asta Powerproject is the central pillar of Asta Development's construction software family. It is recognised as a worldwide standard for professional project management software for the construction industry. Asta Powerproject provides construction planners with the power to plan, manage and successfully deliver construction projects of any size and complexity. It is used to create professional tender plans, manage the contract programme, record progress, manage labour requirements and for client and management reporting. What makes it truly unique is the way it combines ease of use with 'full power' construction-specific project management functionality. In addition, the licensing options make it cost-effective for everyone: individual planners, project teams and as an organisation-wide solution which can be integrated with other key business systems.

ABOUT ASTA DEVELOPMENT

Asta Development is a leading international developer of project, programme and resource management software. The company's two distinct lines of business focus on the construction and engineering markets, and the IT and professional services markets. Asta Development is part of Eleco plc, a holding company listed on the London Stock Exchange Alternative Investment Market. More information about Asta Development and its products can be found at www.astadev.com. More information about Eleco plc can be found at www.eleco.com.



ABOUT ATHENA PROJECT SERVICES

Athena Project Services is the exclusive provider in the UK and Europe of assessment and training services for project planning, scheduling and project controls aligned to the CIOB's Project Time Management accreditation scheme. In addition, it is expert in matters of delay and disruption, risk analysis, earned value management and the development and management of effective planning, scheduling and project controls systems and processes, as well as being able to provide assessed and accredited project time management personnel. It is also able to provide a free assessment and profiling tool for individuals and organisations in planning, scheduling and project controls systems and techniques which is the precursor to bespoke or standard courses.



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