



Technical

Programmes: Content and Formation

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Predicting the Future

1. To monitor progress and report the position of any project, regardless of its size, there needs to be something in place to measure or compare progress against. This can be a plan, a programme, a schedule or simply a list of objectives that have been qualified with dates and durations.
2. However, as with most things in life, construction projects inevitably do not go to plan. There are many factors that can affect the sequence, duration and timing of planned work. These factors include incorrect drawings, wrong or defective specifications, inclement weather, late deliveries, resource shortages and a whole host of other circumstances too numerous to list.
3. Also, it is very difficult to predict the future and implement the perfect plan. A plan is essentially a guide on how to achieve an overall objective, whether it be the construction of a road, building a house or a nuclear power station.
4. As detailed above, things will not always go according to plan. However, if there is no plan in place, there is nothing to measure against and you may be unable to mitigate the problems when they arise.

"It is not necessarily a crime to be running late, but it is always a crime not to know that you are running late".¹

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5. For effective project management, it is necessary to have a plan in place with which to monitor the project and measure progress against so that the Project Team, Board of Directors or other interested parties know what is happening at any given point in time. The plan can be adjusted to recognise change and can include for any unforeseen circumstances whilst maintaining the overall objective.
6. Where there are weak project management systems in place, this disclosure and reporting is bound to be poor and ineffective. This is discussed in greater detail by Anthony Morgan and Sena Gbedemah in their paper; *“How Poor Project Governance Causes Delays”*². This paper discusses the risks that could lead to failures in project delivery and how they are mitigated by implementing effective management systems and employing competent project managers.
7. Therefore, it is vital that the programme or plan is dynamic to facilitate the management of time whilst also showing the remaining planned works and sequences in the future. It should also allow for knowledge growth as the project moves forward as details and designs evolve. This is considered in detail by Keith Pickavance in his paper; *“Managing the Risk of Delayed Completion in the 21st Century”*³.
8. This paper considers in detail the requirements for successful time management, using planning and scheduling, and that both are required within any project to ensure a successful outcome.
9. It is also noted, in our experience, that there are 2 common factors which exist when projects fail to achieve their planned completion dates; poor project scheduling and poor record keeping. Without robust project schedules and programmes and/or progress monitoring there is a lack of accurate forecasting throughout the project which inevitably results in a delayed completion date.

Build Before You Build

10. Successful project management requires the need for effective project governance, where

*“Governance refers to the set of policies, regulations, functions, processes, procedures and responsibilities that define the establishment, management and control of projects, programmes and portfolio”*⁴,

and their implementation at appropriate stages relevant to the project.

11. At each stage of the project lifecycle (from inception to completion and even maintenance) the careful planning of a project is pivotal to its success. Wherever this is lacking there will usually be something which will affect the outcome of that stage and possibly the entire project. So, careful planning and scheduling of “*What if?*” scenarios in advance or “*Building before you Build*” will help to mitigate or even prevent delays and disruption.
12. The CIOB Code of Practice for Project Management⁵ suggests that there are 8 stages to any construction project:
 - I. Inception.
 - II. Feasibility.
 - III. Strategy.
 - IV. Pre-Construction.
 - V. Construction.
 - VI. Testing and commissioning.
 - VII. Completion, handover and operation.
 - VIII. Post-completion review and in use.
13. Project governance, project organisation and control processes are required and should be present throughout all of these stages, as detailed in the CIOB Code of Practice for Project Management⁶.
14. The project programme is not always a Contract Document under most Standard Forms of Contract as, to be of any use, the programme needs to be fluid and changeable to make it effective for time management. This fluidity and changeability is often incompatible with Contract interpretation and can create a significant administrative burden.
15. However, most forms of Contract require, or at least allude to, some form of programme to be utilised throughout the project, but the content and/or method of presentation of a programme is not usually prescribed. In our experience, the clauses relating to a programme are often amended to incorporate some degree of programme requirement.
16. Under the NEC Form of Contract it states;

“If a programme is not identified in the Contract Data, the Contractor submits a first programme to the Project Manager for acceptance within the period stated in the Contract Data”.⁷
17. Most of the JCT Suite of Contracts require the Contractor to commence on a defined date, “*Date of Possession*”, and proceed regularly and diligently and complete on the Completion Date (for example see

SBC/Q 2016 Clause 2.4⁸ or DB 2016 Clause 2.3⁹). However, whilst the Contractor is also required to produce a “*Master Programme*” under SBC/Q 2016⁸ Clause 2.9.1.2 with or without a Critical Path (deleted as appropriate). There is no requirement for a master programme under DB 2016.

18. FIDIC Clause 8.3¹⁰ describes what the Contractor should provide in a programme of works stating;

“(a) the order in which the Contractor intends to carry out the Works, including the anticipated timing of each stage of design (if any), Contractor’s Documents, procurement, manufacture of Plant, delivery to Site, construction, erection and testing”.¹⁰

The programme must also include a supporting report describing the methods which the Contractor is to adopt and a reasonable estimate of the resources required.

19. Furthermore, whilst certain forms of JCT state simply that “a *programme*” needs to be submitted, they do not indicate the form, content or methodology. The FIDIC Sub-Contract and NEC, however, are clearly far more prescriptive. FIDIC (Annex F¹¹) lists some 17 separate requirements for programmes under Annex F¹¹ and Clause 31 of the NEC also includes 17 separate requirements which are similar to the FIDIC Sub-Contract.
20. Our advice is to always check the Contract for amendments regarding programmes, as amendments of this nature are becoming more and more prevalent.

The Programme/Schedule

21. The details of the programme are usually left to the discretion of the party producing it. The experience of each organisation and the level of information provided from the outset (Tender Stage) will impact upon the content of the programme.
22. To produce a programme/schedule that can be utilised to manage time effectively throughout a Contract is essential to adopt a strategy starting at the design and procurement stages and compiling a method statement to identify constraints, barriers and risks to the project as well as assumptions being made from the outset.

23. The SCL Delay and Disruption Protocol¹² “*Guidance Part B – Programme*” (1.39 to 1.64) a commentary of how a programme should be produced, updated and accepted.
24. In Stephen Briggs’ paper (presented to the SCL in September 2013); “*Time Management: Understanding and Managing Time*”¹³, the SCL protocol is discussed (1st Edition) as is the CIOB Guide (page 4).
25. This paper also highlights a myriad of matters to be considered when assembling a programme and its mechanics including, but not limited to, the programme users, who should it be prepared by, type of programme (resourced, critical path etc.), software packages, presentation (hard or soft copy), level of detail, other documents that it relates to and how it will be updated and used effectively. There are many items to consider, with each project presenting its own specific requirements.
26. Tasks can be generic or simple task lines covering a multitude of processes, or they can be more detailed breaking the project activities into the numerous tasks that are required to complete the project depending upon the complexity of the project.
27. The plan is normally in the form of a Linked Bar Chart (common to most of the scheduling software packages) which is a combination of many Bar Charts or Gantt Charts (illustrative only), Line of Balance diagrams (resource based), Time/Chainage Charts (linear projects) and Arrow/Precedence networks commonly known as PERT (Project Evaluations and Review Techniques) which identifies the critical/longest path.
28. The activities and tasks are represented by bars illustrated against a timescale with durations, start and finish dates. Where tasks are over a substantial period they should be broken down into smaller bars to make progress reporting more accurate.
29. The bars are commonly logic linked together to determine the overall sequence, creating the plan or programme. This also facilitates the identification of the tasks that are essential to completing the project on time and this is commonly referred to as the “*critical*” tasks or path.

Summary

30. To manage any construction or engineering project successfully it is necessary for the company undertaking the project to have workable procedures in place that allow the management and control of projects from the outset.

31. Within the established control procedures a robust policy needs to be implemented on how a construction programme is to be formed, taking into consideration that change needs to be managed effectually, yet still allowing its active use on a day to day basis by the Project Team all in accordance with the Contract Documents.
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35. Society of Construction Law – Delay & Disruption Protocol 2017, Papers D106, D113 and D164.

Footnotes

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 5. Figure 0.2 Project lifecycle, page 5 – Code of Practice for Project Management for Construction and Development, 5th Edition, CIOB
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