Accelerated Development – "The need for Planning"

Richard Adrian HUCKER, United Kingdom

Key words: Affordable housing; Capacity building; Implementation of plans; Risk management; Urban renewal; Planning Skills.

SUMMARY

From the survey of a small site to the building of the Pyramids all projects need to be planned to be successful.

- Why do we need to plan?
- What do we mean by a Project?
- What are the basic steps to Planning?
- Why is this more important for Accelerated Development?
- How can we manage the Risks associated with Accelerated Development?

This paper sets out to review these questions and to provide a guide to the planning skills required to meet the needs of accelerated developments.

Comments:
It is intended that this paper will provide a guide to UK best practice for one of the management skills included in the remit of Working Group 10.3 "Planning & Project Management".

TS 7F – Planning and Development   1/11
Richard A. Hucker
Accelerated Development – "The Need for Planning"

FIG Working Week 2009
Surveyors Key Role in Accelerated Development
Eilat, Israel, 3-8 May 2009

Accelerated Development – "The need for Planning"

Richard Adrian HUCKER, United Kingdom

1. INTRODUCTION

From the survey of a small site to the building of the Pyramids all projects need to be planned to be successful.

The more time that is spent on planning and the more detailed the analysis the better chance of completing a project on time, within budget with all of the objectives met.

Accelerated development implies change. A change to the period allowed - accelerating and thus shortening the time allowed for the project. Development can also imply change – a change in the process or methodology in arriving at a project.

2. WHAT IS PLANNING

2.1 Intellectual

The thought process required to forecast the development of a plan with the preparation of scenarios of what the outcomes will be.

2.2 Organizational

The organizational process of creating and maintaining a plan

2.3 Procedural

The creation of documents and meetings to disseminate the issues, the objectives, and the strategy.

2.4 Developmental

The plan needs to be capable of describing what is expected to happen in the future, but also to be capable of incorporating change.

3. WHY DO WE NEED TO PLAN?

3.1 Preparation for the Future

The need to organise and prepare for future actions.
The need to allow for flexibility in dealing with contingencies.
The need to allow for the impact of our plan on our environment.
Plans may be short, medium or long-term

TS 7F – Planning and Development   2/11
Richard A. Hucker
Accelerated Development – "The Need for Planning"

FIG Working Week 2009
Surveyors Key Role in Accelerated Development
Eilat, Israel, 3-8 May 2009

3.2 Importance

Lack of a plan will invariably lead to failure
A properly prepared plan will encapsulate objectives and constraints.
Plans clarify the future and form a basis to build future actions upon.
Plans provide a benchmark against which performance may be measured and against which the consequences of change may be considered and reported against.
A good plan, properly consulted, can engage a team in a common objective.

3.3 Planning for Surveyors

Most Planning prepared by or for Surveyors will be in preparation for the actions required by a Project

4. WHAT DO WE MEAN BY A PROJECT?

4.1 Definition

A Project is a temporary one-off exercise to create a unique product or service.
A Project is not considered to be a process, which creates the same product or service repeatedly.

4.2 Project Range for Surveyors

4.2.1 Products

Considering products these may range from a modest house extension to multi – billion $ multi - disciplined tasks.

4.2.2 Services

Considering Services, these may range from a modest land survey to a multi billion $ flotation.

4.3 Managing a Project

All projects need managing to ensure delivery of a defined scope and performance to quality, time and cost criteria.

5. WHAT ARE THE BASIC STEPS TO PLANNING?

There are a many proprietary products, which may be used for developing a Plan. I have taken the format of Microsoft Project to explain a typical working example.

TS 7F – Planning and Development   3/11
Richard A. Hucker
Accelerated Development – "The Need for Planning"

FIG Working Week 2009
Surveyors Key Role in Accelerated Development
Eilat, Israel, 3-8 May 2009

5.1 Define the Project

5.1.1 Objectives

Set the target or goal for the planning.
Identify the main issues that need to be included

5.1.2 Dates

What is the extent of the forecast being prepared? Is it a short, medium or long-term view? When should it start and finish? What level of detail is appropriate e.g. weekly, daily, hourly subdivisions.

5.2 Define General Working Times

5.2.1 Calendar

What calendar is to be used to define working and non-working time, bearing in mind the overall project duration and level of detail expected?

5.2.2 Non-Working Time

What other non-working time should be shown, such as Public Holidays.

5.2.3 Working Time

If using a standard Gregorian calendar define the working hours per day; hours per week; days per month that will be taken as standard.

If using typical programming software – will some resources require different calendars?

5.3 List the Tasks in the Project

5.3.1 Task Names

List the tasks that will have to be performed to achieve the objectives. This list has to be prepared from experience, knowledge and a view to the level of detail required for the forecast. It is better to list the Tasks in approximate chronological order and ideally each task should have a unique description containing a verb and noun. E.g. Traverse Western Plateaux. This assists tasks to be clear and have an associated deliverable.

Consider whether combining activities within a task makes subsequent resourcing or analysis less distinct. The discipline of keeping tasks solely assignable allows targeted reporting later.

TS 7F – Planning and Development   4/11
Richard A. Hucker
Accelerated Development – ”The Need for Planning”

FIG Working Week 2009
Surveyors Key Role in Accelerated Development
Eilat, Israel, 3-8 May 2009

5.3.2 Phasing

Most Plans are developed from the Largest Phases of a Project and then the individual Tasks in that Phase are detailed.

5.3.3 Durations

Once the Task list is complete, list the expected duration of the Tasks. Even if not sure put some duration down (with a ?) to develop an initial shape to the plan.

5.3.4 Milestones

Identify Milestones which represent major event in a project e.g. in a survey the completion of the fieldwork would represent a milestone in the Survey Project.

5.4 Organise Tasks into Phases

5.4.1 Hierarchy

Organise Tasks under headings or Summary Tasks. With software this may be arranged by indenting the Tasks under the Headings. Summary Tasks or Headings will then show all tasks, which are completed within the time frame of the Summary.

5.4.2 Work Breakdown Structures (WBS)

WBS codes are generally alphanumeric codes that identify each task's unique place in the structure of the project. WBS codes can be used for reporting schedules and tracking costs.

5.5 Schedule the Tasks

5.5.1 Logic

Put Logic into the plan which links by experience the various tasks, their sequence and inter-dependencies, consider at this time how the links might need to function once items are in progress.

5.5.2 Links

Linking Tasks to demonstrate logic links may be arranged using software by setting typically "Finish to Start"; "Start to Start" or "Finish to Finish" links. Most Tasks depend on others for completion. All must fit within the overall framework of the Project.

Avoid simply setting dates without links. This will restrict the ability to have a dynamic plan which changes with the circumstances.

TS 7F – Planning and Development   5/11
Richard A. Hucker
Accelerated Development – "The Need for Planning"

FIG Working Week 2009
Surveyors Key Role in Accelerated Development
Eilat, Israel, 3-8 May 2009

5.5.3 Resources

Some resources will have a critical impact on the Project Plan and need to be allowed for. Software will allow resources to be added to Tasks and for Tasks to be levelled against critical resources.

5.6 Review

Once the Plan is complete it will need review and possibly re-iteration. Have the objectives been met within the set timeframe?

5.6.1 Duration

A review of the start and finish dates of the Plan will indicate if the Time objectives have been met

5.6.2 Resources

A review of the resources used (including cash) will indicate if the budget objectives have been met.

5.6.3 Critical Path

The critical path is a Task or series of Tasks that dictates the finish date of the project. Items on the critical path will have no float (slack) and will be linked by dependencies. There may be more than one critical path. Software programmes generally allow criteria to be set which allow a number of paths if the slack is within a defined range. The critical path may vary as the project proceeds and tasks are completed. When the last task in the critical path is completed, the project is completed.

By knowing and tracking the critical path of the project, as well as the resources assigned to critical tasks, it is possible to determine which tasks can affect the project's finish date.
If the duration is exceeded these will be the first activities to review and modify.

5.6.4 Resource Levelling

The efficiency of the Project Plan may be improved by levelling the resources employed within the overall Project Time objectives.

5.7 Presentation

Project Plans may be presented in a number of different ways. The most usual are:-

TS 7F – Planning and Development   6/11
Richard A. Hucker
Accelerated Development – "The Need for Planning"

FIG Working Week 2009
Surveyors Key Role in Accelerated Development
Eilat, Israel, 3-8 May 2009

5.7.1 Gantt Chart

Gantt charts show activities (tasks) as bars on a chart with the vertical axis as activities and the horizontal axis as time. They are best when limited to the number of activities shown.

5.7.2 Critical Path Network

Critical Path networks show graphically the relationship between activities with arrows representing activities and nodes representing the beginning and ends of activities. Satrt and finish times are shown in the nodes.

5.7.3 Precedence Network

Similar to Critical path networks but the Activities are the nodes and arrows between them show the interdependencies. Activity nodes show start and finish times

5.7.4 Resource Charts

Graphs of resources available and used, against time.

6. MANAGEMENT OF RISKS

Risks are actions or events which are uncertain and which can affect the objectives of the plan.

Risks can generally be attributed to the activities used to develop the plan.

Risks may provide an "opportunity" to improve or a "threat" to impede the completion of the objectives of the plan. Risks may be associated with quality, scope, cost or time or a combination.

Not all Risks (threats or opportunities) affect time. Risks affecting time need to be separately identified and evaluated.

Identifying potential Risks improves the vision of what the outcome of the plan will ba and how change might be incorporated.

6.1 Process for Managing Risks

Production of a Register of Risks forces identification of events which can affect the plan.

The plan will have already evolved from identification of terms of reference and scope. The appropriate level of Risk needs to be identified. These may be strategic – affecting the whole

TS 7F – Planning and Development   7/11
Richard A. Hucker
Accelerated Development – "The Need for Planning"

FIG Working Week 2009
Surveyors Key Role in Accelerated Development
Eilat, Israel, 3-8 May 2009

plan; programme – affecting the duration of the plan; or activity based - affecting the quality, scope or cost of activities within the plan.

The Risk register needs to identify the Impact and probability of the event and mitigation which can be allowed.

6.2 Gathering Information

Uncertainties need to be identified and recorded on the Risk Register.

- How likely is a particular risk to occur and how often.
- What is the likely effect of a Risk if it occurs.
- When in the plan might the Risk occur
- What can be done to mitigate the Risk
- What residual Risk remains after mitigation.

6.3 Process

Having identified Risks determine the priority.
Cost and quality Risk will affect the ability to meet the objectives.
Programme and resource Risks will affect the overall duration
Risks are normally identified through workshops, brainstorming and experience.
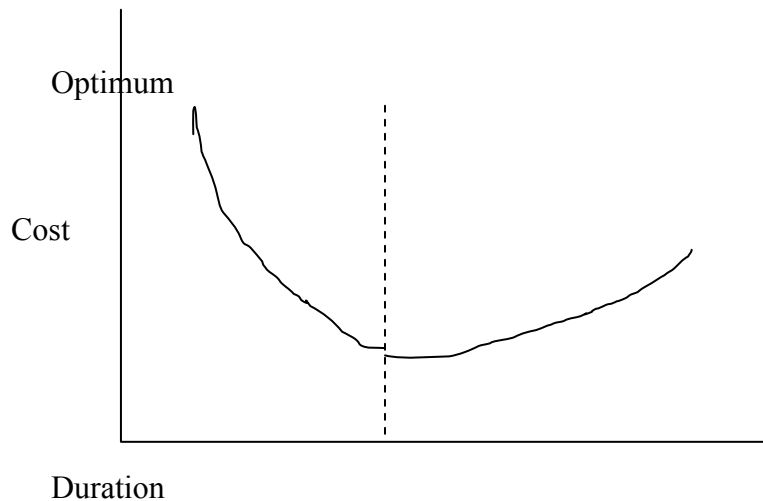
7. ACCELERATED DEVELOPMENT

7.1 Definition

As covered in the introduction accelerated development implies change; shortening the period allowed for the plan and/or changing the process or methodology in arriving at a project.

7.2 Shortening the period

Shortening the period requires a re-appraisal of the plan to develop the project. Without full and comprehensive consideration of the impact the accelerated plan is likely to fail. "More haste less speed" is an idiom that could apply. Acceleration can often lead to more interference and mistakes within activities, which then take longer than the original plan.

Risks will need to be re-examined. Shortening the period will impact on quality, cost, resources and the critical path.

TS 7F – Planning and Development   8/11
Richard A. Hucker
Accelerated Development – "The Need for Planning"

FIG Working Week 2009
Surveyors Key Role in Accelerated Development
Eilat, Israel, 3-8 May 2009

Optimum

Cost

Duration

<u>Typical relationship between cost and duration</u>.

As durations reduce the costs reduce but for durations less than the optimum costs rise exponentially.

A comparison of the impact on the main components of a plan explains why this graph will vary dependant on the type of project and the ratio of the components

	Labour	Material	Plant	Time Related Overheads	Risk
Accelerated	Inefficient	Increased waste	Inefficient	Reduced	Increased
Standard	Efficient	Normal waste	Efficient	Standard	Standard
Slowed	Less efficient	Slight reduction in waste	Less efficient	Increased	Time related Reduced

7.3 Developing the Process

Changing the process or methodology also requires a re-appraisal of the plan and the Risks associated with the change.

Development normally implies improvement but changing the process is also likely to impact on quality, cost, resources and critical path.

7.4 Shortening and developing the process

Clearly combining acceleration with development of a scheme extenuates the need to review the plan and Risk profile.

8. CONCLUSIONS

Planning is a tool used to promote improvements to forecasting.
Risk analysis is a tool to evaluate the effects on that planning of changes and other un-forecast events.

Both tools require a thorough understanding of the subject.
Both, if intelligently applied can significantly improve the chances of a successful outcome of a project.

Planning and Risk software programmes are tools for the use of programmers and commercial staff; they are not solutions and can lead to "more art with less substance"

Accelerated development by its definition increases the risks of interference within the plan and requires knowledge and vision to achieve its objective.

Faster delivery will provide clients with their product earlier but may be at a cost to quality or budget.

Good planning and risk analysis, particularly for accelerated development needs good staff experienced in best practice if the benefits which can be made to the project are to be realised.

REFERENCES

Wikipedia
Microsoft Project

BIOGRAPHICAL NOTES

Richard Hucker MBE BSc.(Hons) FICE, F.Inst.CES, F.ZwE., ICIOB is a Chartered Civil Engineer who has been involved in the Development & Construction of Civil Engineering Projects, for over 40 years, . Richard graduated from City University and worked on a variety of different major civils projects in the UK before becoming an Agent for a major UK contractor. Richard then moved to the Middle East on a marine project progressing through UK, Europe, Oman, Zimbabwe, Botswana and Malaysia as Country Manager before setting up a Project Management company in Egypt. Richard has been involved in the development of skills through his involvement in local institutions, setting standards for membership and sitting on panels reviewing national standards. Richard presented a paper in 2007 at the Hong Kong working week on Planning & Development in Northern Iraq having been awarded an MBE in 2006 for his services to British business in Iraq. Richard also gave papers in 2008 in Stockholm on Recruitment & Retention of Surveyors. Richard is a member of the Management Panel for the Institution of Civil Engineers is a Fellow of the Institution of Civil Engineering Surveyors and Chairman of FIG working Group "10.3 - Project and Programme Management" Richard currently works for Costain as a Senior Manager leading Proposal and Estimating teams for Major Projects.

TS 7F – Planning and Development   10/11
Richard A. Hucker
Accelerated Development – "The Need for Planning"

FIG Working Week 2009
Surveyors Key Role in Accelerated Development
Eilat, Israel, 3-8 May 2009

CONTACTS

Richard Adrian Hucker
Institution of Civil Engineering Surveyors
111 Westminster Bridge Road
London SE1 7UE
UK
Tel. +44 7753 892025
Email: richard.hucker@costain.com
Web site: www.costain.com

TS 7F – Planning and Development   11/11
Richard A. Hucker
Accelerated Development – "The Need for Planning"

FIG Working Week 2009
Surveyors Key Role in Accelerated Development
Eilat, Israel, 3-8 May 2009