PROJECT MANAGEMENT AND FIT SIGMA – PART 2

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This is part two of the article of which we featured the first part in the SBR no. 1, 2012. This final part of the article describes the benefits of applying the systematic FIT Sigma approach to project management from the perspectives of time management, budgeting and quality management.

With computer packages, it is possible to calculate and show 'early start', 'late start', 'baseline start', 'schedule start', 'actual start', 'duration', 'float', 'baseline float', 'remaining float', 'remaining duration', 'early finish', 'late finish', 'baseline finish', 'schedule finish', and 'actual finish' for each activity. The baseline is as per the original plan and normally should not be changed. The other times and floats should be upgraded as each activity is completed. It is not uncommon for people to say that their project has come in on time and on budget, but overlook that the baseline has been long discarded, so that in fact they are only coming in on time and against budget due to repeatedly changing the schedule at each review meeting.

A change in any one of 'scope', 'time' and 'budget' will cause a change in one of the others. For example, more scope will mean more time and more cost and less scope might mean less time and less cost. But when things go wrong, such as a key activity has fallen behind schedule, the decision will be between reducing scope and finishing on time, or adding extra resource (cost) to try and make up for lost time, or not changing the scope and finishing late. Not changing the scope and finishing late will generally result in increased cost. Thus, although time in itself is not the be all and end all of a project, a time delay might mean a change in scope and almost certainly will add to the cost.

The management of time begins in knowing the desired completion date, and working back and determining the date that each milestone must be finished by if the overall target date is going to be achieved. From this backward pass at scheduling, the amount of time available for each milestone and for each subordinate activity making up the chunks of work can be calculated. Knowing how much time is available for each activity will have a bearing on how much resource will be needed. As several tasks can be carried out in parallel, generally shown as 'paths' on a precedence diagram, it will be found that there is a float of spare time for some activities within the overall time limit of the project. Some activities will have no float, and these activities will be critical to the overall project completing on due date. The obvious approach is to give these critical activities special consideration so that they do not fall behind schedule and delay the completion date. The problem that then arises is that if other activities are not sufficiently monitored, delays can occur for these activities and they can fall behind schedule to such an extent that they in turn put achievement of the desired completion date in jeopardy.

With FIT Sigma, a buffer of time between every activity, including critical activities, when scheduling resources is recommended. As Obeng (1994) says, this buffer should be considered as a separate activity in its own right. Goldratt (1997) demonstrates how float gained by the early completion of an activity will be lost if resource is not made available for subsequent activities right through the whole project. Our recommended steps to control time are:

1. Set the start time, the amount of time (duration), and the finish time for each activity. Treat float as a separate activity and where there is no float build in a buffer activity. This will become the baseline schedule which should not be changed.
2. Do not be overly concerned with the calculations of early finish/late finish scenarios, but concentrate on the actual progress of each activity.

3. Manage and schedule resources to be available for the start date, monitor to ensure that activities finish on time, but by having a built-in buffer, do not be unduly concerned if some of the buffer for each activity is consumed.
4. At the end of each activity, update the schedule, but do not change the baseline. If a buffer has not been consumed, move all activities forward and schedule resource accordingly. Add unused float or buffer to subsequent buffers (unless already behind the baseline).
5. If an activity falls behind schedule and the buffer or float is in danger of being used up for that activity, make the client aware of the situation, and the likely effect on whether the final baseline is going to be achieved.
6. When delays occur that will affect the overall finish date, after consultation with the client agree on remedial action.

FIT SIGMA AND BUDGET

Resources cost money, thus, working out the time schedule provides the basis for cost calculations. As generally, there will be a budget in the terms of reference and a time line. Time and cost are mutually dependent – a change in one will almost certainly mean a change for the other. In the same manner as the time baseline was calculated, a budget baseline should also be set at the outset, which will include a budget for each activity. The control of the baseline budget is similar to the monitoring and control of any expense budget. Computer printouts will provide 'budget to date', 'actual to date', 'variance' for the whole project and, likewise, for each activity and for each milestone. The aim should be to get budget and actual cost reports as soon as possible, but often it will be several weeks before invoices have been received from suppliers and entered into the computer. Thus, budget reports are received after the money has been committed. The FIT Sigma approach is to know ahead of time for each stage.

Our approach is to identify the big costs and the fixed costs, and to make a daily allowance for all other costs. Wages (a major cost for most projects) will be a known cost and, if keeping to the baseline, will be a fixed cost. The wage amount for each person used on the project should be calculated in advance to give a daily or even hourly rate. The cost of materials will be known when ordered. Other major costs will be sub contractors, but again their charge on a daily basis should be known in advance. The hire of special equipment might be a major cost, but there is no reason why this cannot be calculated on a daily basis in advance. All other costs should be allowed for as one fixed figure which can be termed the ongoing cost. Ongoing cost can be allowed for at a daily rate based on actual costs incurred in previous projects. The ongoing cost figure should be a constant, until actual costs are reported by the accountant (usually six weeks after the event). Once the actual costs are known, it might be necessary to increase the ongoing cost daily figure.

The project manager can have a 'feel' for the daily cost of a project on an ongoing daily basis when the daily wages and the daily cost of hired equipment and sub contractors is known (there is no valid reason as to why these costs can't be known in advance), and if a daily allowance for all other costs is added. It might be necessary to have an assistant to keep this record, but if the project manager concentrates on only the major costs and does not get bogged down in precise details to the last decimal place, then a rough calculation can be made daily within 30 minutes. →

If it is obvious that costs are ahead of the baseline budget, then the client should be immediately informed. If the costs are not recoverable from the client, then the project manager's senior management will need to be informed! It is a forlorn hope that costs can be recovered at a later stage. Even if it is thought that savings can be made, it is best to be upfront when the problem occurs, and to suggest remedial action. This last point – suggesting remedial actions – is important. It is not enough to say 'we have a problem'; *it is the duty of the project manager to suggest ways of alleviating the problem.*

FIT SIGMA AND QUALITY

Quality of a project as perceived by the client is generally based on intangibles. That scope, budget and time will be achieved will at the outset be taken for granted by the client. Thus, quality from a client's perception refers to the basics of scope, cost and time *plus* the intangibles of working relationship with the team, ability of project team to accommodate changes to the scope, open communication, ease of transfer/implementation from project to ongoing operation, training, and follow-up service after handover. For tangible projects (such as for a construction project), quality will also include a judgement on the standard of finish, cleanliness of site, etc.

From the project manager's point of view, quality includes all of the above plus the costs of non conformance resulting in delays, overtime, rework, wasted materials, idle time, putting right, etc. One of the key issues for project managers is the building of team spirit and fostering a quality culture with all sharing the same 'can do' philosophy. It goes without saying that with a FIT Sigma programme, the safety and health of people doing the work must be of paramount importance to the programme manager. Project managers have to co-ordinate a number of complex issues, including the human, social, environmental, technological, and financial inputs to their projects, which are not always identified during project review meetings. Therefore, it is a good practice to carry out periodic 'health fitness checks' covering all aspects of the project including the softer issues related to human resource management. It is said that project management is good at 'harder' management issues such as cost and time, but relatively weak on the 'softer' issues of human resource management, Turner et al (1996). FIT Sigma is strong on learning and cultural features which can be adapted to project management to address this gap. Good human resource management includes open communication, transparency and trust.

HANDOVER AND FOLLOW-UP

If the completed project does not from the clients perspective achieve full ongoing benefits, any shortcomings will be blamed on the project manager. It is therefore in the project manager's interest for the completed project to deliver what was intended. A good project manager follows up, and provides 'after sales service'. This is nothing less than sound business practice and can lead to further business from the client or referred business.

FIT SIGMA METHODOLOGY AND TOOLS FOR PROJECT MANAGEMENT

The key stages of a FIT Sigma programme is the traditional plan-do-check-act cycle, as shown in figure 2. The PLAN stage of Fit Sigma corresponds to 'authorise' through to 'issue the plan'; the DO stage relates to 'secure and issue funds' and 'instruct work to start'; the CHECK stage is from 'monitor progress' to ' negotiate changes'; the final ACT stage is 'modify plans' and 'repeat'. Although quality is one of the four key elements of project management, traditionally, project managers focus on time and budget and quality was accepted as meeting the specifications (achieving the scope). Thus, various guidelines to quality in project management have been documented to address this gap. One such document is ISO 10.006: Guidelines to Quality in Project Management. Ten project management processes are identified in the guide, but it does not identify specific techniques or develop how these areas should be managed. It provides a good checklist around four

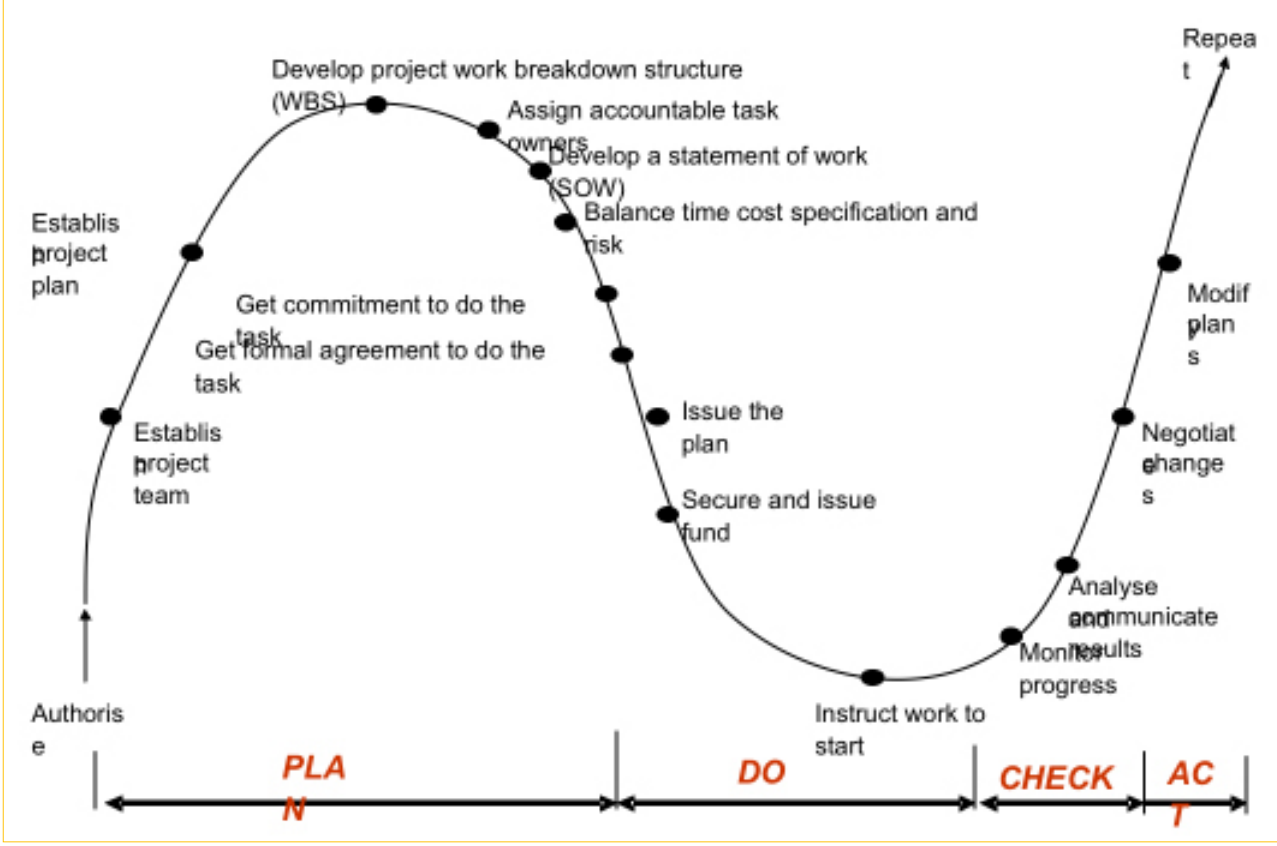

Figure 2: The project management process flow and FIT Sigma

key elements – scope, time, cost and quality. The FIT Sigma approach complements the guidelines of ISO 10.006.

Without doubt, project management has to be flexible to meet changing needs during the various stages of a project. Fit for purpose and maintaining fitness does not mean a rigid conformance to standards, it requires an open mind and a willingness to listen and to adapt.

SUMMARY

This chapter has centred on the key aspects of 'scope', 'time', 'budget' and 'quality' in project management. None of these four can be considered in isolation. A change in one will have an effect on the other three. Nonetheless, as the standard approach in project literature is to discuss these issues under separate headings, this paper has followed the same pattern and added FIT Sigma wisdom to each. It is contended that the adoption of FIT Sigma will make the project manager's life easier, increase client satisfaction, and reduce costs.

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