

**THE ADOPTION OF THE PRINCIPLES OF BENCHMARKING AND
OTHER EVALUATIVE TOOLS AS PART OF THE MANAGEMENT
IMPROVEMENT PROCESS.**

By

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ABSTRACT

Comparing the role of world-class performers through benchmarking and adopting their principles is just one evaluation tool in the overall learning before doing improvement process. The use of benchmarking is made in the context of gaining the maximum benefit from a project, not only in outcomes for the immediate project but also by improving the performance of management in future projects. The maximum benefit can in part be obtained by effectively evaluating the quality of project management. Two approaches will be discussed in this paper, namely, learn by doing and learn before doing. Benchmarking and auditing are two key evaluation tools that fall into these categories. This paper shows how these two evaluation methods can be used in a complementary fashion to maximise the improvement processes of management.

Key Words: Benchmarking, Auditing, Balanced Score Card, Project Management, Evaluation

1. INTRODUCTION

This paper aims to demonstrate that by using evaluation tools such as benchmarking and auditing in a complementary manner the management processes of projects can become a learning process within a project management organisation. A distinction will be made between evaluation of the management of a project and the evaluation of projects per se. Often confusion occurs when this distinction is blurred. The role of benchmarking as an outward looking evaluation tool compared with the inward evaluations targeted by auditing management processes can be seen as complementary roles. It is concluded that the planning of projects should include the roles of evaluation of management processes throughout the project life cycle rather than being unplanned and left to the completion or termination of the project.

This paper initially explains the distinction between the management of a project and the project task. Included in this section is a summary of the difficulties of benchmarking a unique management process. The second section part of the paper will explain some of the internal evaluations that can be applied to the management processes of projects. The similarities and differences between benchmarking and project management auditing as methods to evaluate the quality of management in projects are tabled. This will occur in the third part, which will present a table of the purposes and limitations of the different evaluation tools. The final section will argue that the inclusion of a variety of evaluation tools is a central, as well as practical way, for project organisations to improve their management processes for future projects. The benefits of each technique will be explored. The key difference between benchmarking and project management auditing is one of perspective, function and timing. The paper advocates that a continuous 'learn by doing' approach can be documented by the use of a range of evaluation tools. It is proposed that benchmarking and auditing are complementary, with both techniques able to contribute to improving the quality of management processes of projects.

"Considering the role of world-class performers through benchmarking and adopting their principles is just one tool in the improvement process." (Maylor, 1999, p255.) Maylor's statement regarding benchmarking is made in the context of gaining the maximum benefit from a project, not only in outcomes for the immediate project but also by improving the performance of management in future projects. The maximum benefit that Maylor describes, can in part be obtained by effectively evaluating the quality of project management.

2. KEY DISTINCTION BETWEEN MANAGEMENT PROCESSES AND PROJECT TASK.

A distinction between the evaluation of the management of a project and the project itself is the starting point of this discussion. Maylor. (1999) includes the following in his description of a project: a non-repetitive activity that: is goal oriented; a process being pursued with a particular end or goal in mind; particular constraints usually centred around time and resources; possesses measurable outputs; and results in some change.

The primary purpose of evaluating a project is to ensure that the project goals and outcomes will contribute to organisational goals. By evaluating different aspects of a

project, a better understanding of the project's strengths and weaknesses are gained. Project evaluations such as cost benefit analysis and cost effectiveness analysis are common evaluation tools that are used to evaluate individual projects. Project appraisals are carried out prior to project selection. Post project evaluations confirm that the project objectives were achieved. Recommendations from these forms of evaluation of individual projects can be used help improve similar and future projects. (Meredith & Mantel, 1995, 2001)

The UK Association of Project Management defines project management as: “*The planning, organising, monitoring and controlling of all aspects of a project and the motivation of all involved to achieve the project objectives safely, and within agreed time, cost and performance criteria.*” (Association of Project Management 2001)

Previously, the main tool for measuring how well the project manager has discharged his or her duties was by the customer assessing the finished product or project acceptance criteria. To a large extent this sort of assessment centred on the project not on the management processes. Typically the management was judged by the project task being delivered on time, within budget and to quality. In more recent times more elements of measure have been brought into the performance equation, namely the improvement process. Evaluation of the management now includes: change environment managerial strategies, leadership, team selection and well being, interface management, stakeholder appreciation and organisational structure. Managerial skills such as communication, understanding conflict, managing and resolving conflict, negotiation abilities, managing stress as well as using influence, power and politics in a project environment all come under a managerial umbrella for evaluation.

3. IMPROVEMENT PROCESS

In 1986 Deming described a process for project management as having four phases. It was called the Deming Cycle. Within this cycle was an evaluation phase that required follow-up actions. It occurred in the post project period and prior to the next project being planned and undertaken. (See Figure 1.)

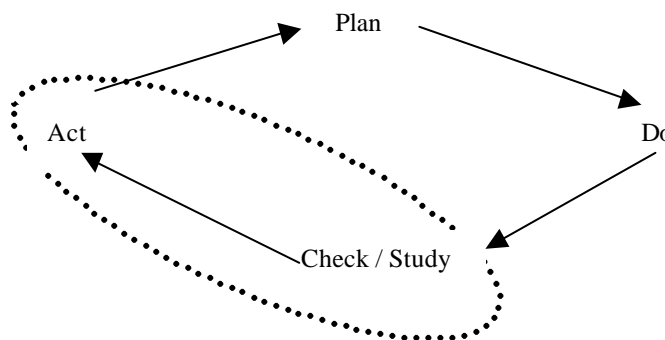


Figure 1 – Deming Cycle

Maylor (1999) refined the process into three phases. The phase that altered involved the continuous learning or improvement phase. Instead of reviewing and then acting on the evaluation results Maylor combined these two phases into the development phase. He emphasised the concept that it is a continuous process of evaluating progress, learning from experience and improving the management process accordingly. The “Develop” phase to Maylor was couched in terms of a continuous cycle. The post hand over period, the ‘develop-it’, ‘check/study’ or ‘learn by doing’ phase is the period that Maylor (1999) is referring to as the improvement process. This improvement is one of the ways that the professional project manager becomes better at his or her trade. The other is ‘learn before doing’. (See Figure 2)

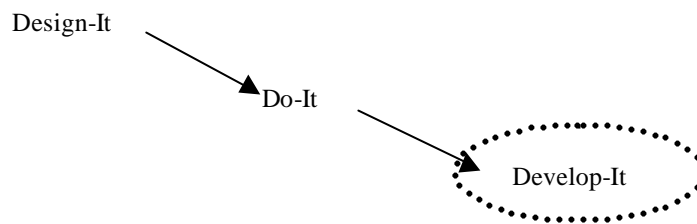


Figure 2 – Maylor’s 3 D Cycle

In both Figures 1 and 2 the dotted circles have been added to indicate the evolution of the project management profession via this critical improvement phase. Change in the profession has evolved from the traditional scenario of an engineer being requested to ensure that the job gets done and then return back to his/her normal functional or line job to one of a professional project manager. The important task of reviewing and evaluating what he or she has done as the project team leader, evaluating how the team completed the task and most importantly, how they could do similar projects better in the future is the process of improving the management of projects.

There are a number of evaluation tools that project managers use to ‘develop’ their practices. These include a variety of procedures, for example, audits, reviews, scorecards and lessons learnt. The other method involved in the improvement process is ‘Learn Before Doing’. Benchmarking bridges both the ‘Learn Before Doing’ and the ‘Learn By Doing’. Skills and competencies and other training also fit into the ‘Learn Before Doing’ phase of the improvement process. Diagrammatically this is shown in the Figure 3.

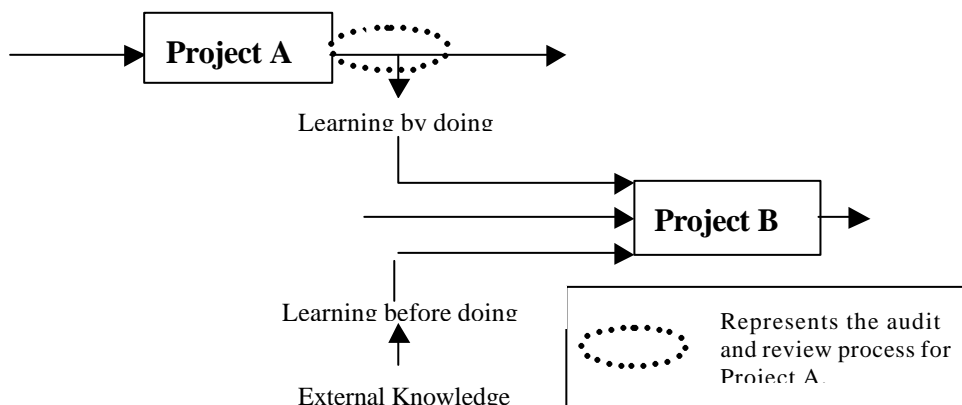


Figure Three Learning Options

The following sections of this paper will discuss a number of these evaluation tools and show where they fit into the improvement process. The ‘Learn By Doing’ phase will be discussed first and followed by the ‘Learn Before Doing’ phase.

4. LEARN BY DOING

One of the review or evaluation tools that can be used in the ‘check/study’ role is the audit and review process. Maylor provides seven management performance indicators to be considered in the review and audit criteria. (See Table 1)

Criteria	Procedural	Performance
Financial	Audit on accounting systems	Assess return on investment, assess cost variances to plan
Time	Conformance to plan	Customer satisfaction with the timeliness of completion and the costs required to provide this
Quality	Conformance to quality manual	Performance level of project output, perceptions of quality by customers and stakeholders
Human Resources	Treatment IAW contract/legal conditions of employment, or organisation policy	Team spirit, motivation, attitude survey
Environmental	Conformance to policy set out in environmental management manual	Absolute level of environmental impact of project activities
Project Planning	Conformance to plan	Cost of the planning process assessed and appropriateness of techniques
Project Control	Were measures in place and did corrective action take place?	Did the control activities provide the basis for significant improvement actions?

Table 1 – Review and Audit Criteria (Maylor, 1999)

Managers have developed many other methods by which they try to best asses what they have done in previous projects, and to educate and equip themselves to be able to do the next project better.

Kaplan and Norton (2001) developed the Balanced Scorecard to act as a conduit to provide managers a better method for analysis than purely financial based checks and balances. This tool included a range of assessment criteria that were not historically used due to intangibility. Although the scorecard approach is often used to improve processes rather target management specific functions it is the project manager’s

performance that can be improved by the use of the scorecard approach improving overall productivity. The main difference between using a scorecard method and an intra or inter-company benchmark process is that the scorecard is able to generate results by identifying, auditing and reviewing criteria internally. This method can maintain the knowledge edge without compromise, and without relying on data sources from other competitive divisions or companies that might not be reliable.

4.BENCHMARKING

Benchmarking is one method for assessing the quality of the project's management. A simple definition given by Macneil (1994) is 'copying best practice processes'. Another definition asserted by Pearce and Robinson is:

"...benchmarking is comparing the way 'our' company performs a specific activity with a competitor or other company doing the same thing. The ultimate aim in benchmarking is to identify the 'best practices' in performing an activity, to learn how to have lower costs, fewer defects, or to ensure other outcomes linked to excellence are achieved." (Pearce and Robinson, 2000, p.217)

The Australian Institute for Project Management (AIPM) has developed the National Standards for the Competencies of Project Management (NSCPM). The AIPM, in conjunction within the Australian Quality Council (AQC), has established a benchmarking network of public and private sector organisations wishing to improve the management of their projects. (AQC website, 2001) The joint AQC/AIPM network identifies the following areas that can be benchmarked against internal or external projects: integration, scope, schedule management, cost management, quality management, human resources/teams, communication management, risk management; and contracting and procurement. (AQC website, 2001) These areas cover all major areas listed in the project management body of knowledge and an organisation can decide whether to assess one particular activity or range of management activities within the project.

5. AUDITING

The other evaluation method examined in this paper is project management auditing. A project management audit is a thorough examination of the management of the project, its methodology and procedures, records, budgets, resources and degree of completion. (Meredith & Mantel 1995, p.571) It is a review of all or various aspects of the management of the project. A project management audit may focus on the entire project or just one specific element of project management, for example reporting or conflict resolution. The primary purpose of an audit is to aid in achieving the project's goals as a contribution to the parent or client organisation's goals. It is used to ensure that the project is being managed properly, and that deficiencies can be identified and corrected during the project's lifecycle to ensure the project is successful. It is designed to determine the true status of work performed and its conformance with the project statement of work including schedule and budget constraints.

A formal project management audit should at a minimum examine and report on the following issues: the current status of the project, its future status, status of crucial

tasks, a risk assessment, information relevant to other current and future projects and the parameters of the audit. Some of the benefits of implementing a project management audit are: identifying and correcting mistakes, clarifying, assessing and improving performance, analysing cost and time relationships, reducing costs, identifying and avoiding the same mistakes in the future.

Experience has demonstrated that where project management audits are implemented they can identify and correct typical project deficiencies such as: poorly developed techniques for estimation, poorly monitored schedule progress, failure to manage schedule slippage, or poor allocation of time resources. (Chilstrom 1988, p.623)

One framework that could be used to audit the management of a project is the criteria established by the Australian Institute of Project Management (AIPM) under their 'Registered Project Manager Program and Competency Standard' for assessing the experience of a project manager. The assessment is based on the self-analysis table for the level of AIPM Master Project Director and covers the core functions of project management. (See Appendix A). Each criterion is further divided into specific areas; for example, the scope function is divided into three sub-functions such as project authorisation, project planning and definition of project scope, and management of project scope.

By using these criteria, a project management auditing team could examine; how well the planning function was conducted during the initial stages of the project, the quality of the action plans, and the accuracy of the work breakdown structures and scheduling networks. As the project progresses, the audit team could assess how well the project manager manages the resource schedules and how accurately the project budgeted costs match the actual costs, through examination of earned value. It could also assess the effectiveness of management in monitoring the critical path or paths of the project, and how effective the management is at crashing paths with significant amounts of slack.

A further most important aspect of an audit would be the evaluation of the management of human resources. Specific areas under the human resource category that could be examined include: project organisation and staffing, staff performance, leadership, conflict resolution, and, communication skills. Another important aspect of conducting a project management audit is the timing, as timing has as strong correlation with the audit's focus. An audit initiated in the scope or planning phase may examine areas such as project planning, scheduling and initial client liaison. As the project moves through the lifecycle, issues such as budget and time conformance are matters of primary interest. At the end of the lifecycle, the audit may focus on client satisfaction or on quality and cost. After project termination, the audit function can examine the accountability of funds and resources, which have been allocated to the project. (Meredith & Mantel 1995)

5. COMPARISON BETWEEN BENCHMARKING AND PROJECT MANAGEMENT AUDITING

The similarities between benchmarking and the project management audit pivot on the fact that both can examine all aspects of project management. They are both an evaluative method that uses a set of comparative criteria to assess the performance of

the project managers and the quality of their management. The other major similarity between the two methods is the ultimate objectives. Both project management auditing and benchmarking are exercises in learning about project management and how to improve and develop new methods for improving the management of future projects.

The differences between the two techniques relate to timing, function, perspective and relevance. These differences are highlighted in Table 1.

	Project management auditing	Benchmarking
Perspective	Comparison of estimated and actual project criteria; inward looking.	Comparison of project management practices from an internal project with a project that has demonstrated best practice; outward looking.
Function	To identify and correct deficiencies in current projects.	To improve project management in future projects.
Timing	To achieve the most benefit auditing mechanisms should be initiated in the planning stage. With set milestones throughout the project.	Best practices should be identified and implemented before commencing a project.
Relevance	Is essential for monitoring and controlling all projects.	Is beneficial but not essential for all projects.

Table 1: Differences of Benchmarking and Auditing

One function of benchmarking is to compare all or specific aspects of two completed projects, with the objective of learning and improving the management of future projects undertaken by the organisation. In other words, its is learning from external sources and then applying the knowledge ‘before doing’. When evaluating a project using a benchmarking process, the project team can use external data to plan ‘better’ management practices in the current project. They will not obtain feedback to assist a current project that may be suffering from management problems because benchmarking can be a time consuming effort and depending on the life cycle stage of the project benchmarking may not be appropriate. In the early planning processes an external review of similar projects that have finished can occur and methods from the ‘best in class’ may be implemented. Benchmarking cannot be used in the latter stages of the project. Furthermore, benchmarking cannot be used as a control mechanism to conduct ongoing monitoring of the project’s management.

Another important difference between benchmarking and project management auditing is the outward looking perspective of benchmarking. When benchmarking a project, it is a comparison of one project with another internal or external project. It may be a project conducted by a competitor or through the AIPM benchmarking network. Benchmarking looks outside the boundaries of a project to obtain information on methods used by organisations that are considered leaders in their fields. On the other hand, project management auditing has an inward looking perspective and evaluates the actual management of the project compared with the

project proposal and plans drafted in the initial stages. Project management auditing may also evaluate the project planning, and the initial customer requirements with the final project outcomes.

Relevance is another important aspect of the two techniques. Project management auditing is an essential part of project management as it is a means by which senior management of the firm can assess throughout the different phases of the project if the project will meet its objectives. In contrast, benchmarking may be implemented only on an as needs basis.

6. CONCLUSION

This paper has examined the differences and similarities of benchmarking with project management auditing. It is apparent that these two techniques are complementary rather than mutually exclusive. A project management audit is a tool that can compare the actual work of the project with the plans and estimates. Certain aspects of the project management audit can be used as milestones or gates, to ensure project performance remains on track. Project management auditing can identify deficiencies and flaws that the organisation can learn from, to benefit the current and future projects.

In contrast benchmarking is an outward looking tool. It compares the performance of project management activities against the performance of project management conducted by leading companies or competitors. The knowledge gained is knowledge from external sources yet this knowledge can also be used to improve the project management and future projects.

As mentioned earlier, the ultimate aim in benchmarking is to identify the 'best practices' in performing an activity, to learn how to have lower costs, reduce defects, or to ensure other outcomes linked to excellence are achieved. Whereas the primary benefit of a project management audit is to ensure that the project is being managed properly, and that deficiencies can be identified and corrected to ensure the project is successful.

Appendix A – Body of Knowledge

1. Manage Project Integration	Manage Integration of the nine functions of management
	Manage within internal and external environment
	Manage project throughout lifecycle
2. Manage Scope	Manage project authorisation
	Define and plan project scope
	Manage project scope.
3. Manage Time	Develop project schedules
	Manage project schedules
	Analyse time management outcomes
4. Manage Cost	Determine project budget
	Manage project costs
	Manage financial completion
5. Manage Quality	Develop quality requirements
	Manage quality assurance
	Improve project quality
6. Manage Human Resources	Manage project organisation
	Manage staff performance
	Lead the project team
7. Manage Communications	Plan project communications
	Manage project information
	Manage communications
	Analyse communications management
8. Manage Risks	Plan risk management
	Manage project risk
	Assess risk management outcomes
9. Manage Procurement	Plan project procurement
	Set up procurement process
	Manage procurement process
	Manage contracts
	Finalise contracts

7. REFERENCES

Australian Institute of Project Management, **A Guide to the Registered Project Management Program** (AIPM Website April 2001)

Australian Institute of Project Management, **RegPM Program and Competency Standards** website 2001, [online] <http://www.aipm.com.au/competen.htm> [Accessed 06/04/01]

Association of Project Management, **Project Management Body of Knowledge** website 2001 [online] <http://www.apm.org.uk/pub/bok.htm> [Accessed 04/04/01]

Australian Quality Council website 2001 [online] http://www.aqc.org.au/benchmkg/networks/nw_current_31.html [Accessed 03-04-2001]

Camp, R., **Benchmarking - The search for industry best practices that lead to superior performance**, Milwaukee Wisconsin Quality Press, 1989.

Chilstrom, K., **Project Needs and Techniques for Management Audits**, ed W.R.King and D.I. Clelend (New York Van Nostrand Reinhold, 1988), pp. 620-637.

Gattorna, J.L. and Walters, D.W., **Managing the Supply Chain: A Strategic Perspective**, Macmillan Press, 1996.

Grant, R. M., **Contemporary Strategic Analysis**, 3rd ed., Blackwell Publishers In Massachusetts USA, 1998.

Kerzner, H, **Applied Project Management: Best Practices on Implementation**, John Wiley & Sons, 2000.

Levine, H. A., **Computers in Project Management**, ed., W.R.King and D.I. Clelend (New York Van Nostrand Reinhold, 1988), pp. 692-737

Macneil, J. Testi, J. Cupples, J. Rimmer, M., **Benchmarking Australia: Linking Enterprises to World Best Practice**, Longman, 1994.

Meredith, J. R. and Mantel, S. J. **Project Management : A Managerial Approach**, 3rd ed., John Wiley & Sons, New York, 1995.

Peace, J. and Robinson, R., **Strategic Management: Formulation, Implementation and Control**, 7th ed., McGraw Hill, Singapore, 2000

Reichelt, K. and Lyneis, J. The dynamics of project performance: Benchmarking the driver of cost and schedule overrun, **European Management Journal**, 17 (2), 135-150,1999.