

14 OCTOBER 1998

**NINETY-NINE RULES FOR MANAGING**  
**“FASTER, BETTER, CHEAPER” PROJECTS**

Developed by

Dr. **Alexander Laufer**, Visiting Professor of Civil Engineering,  
University of Maryland ([allaufer@eng.umd.edu](mailto:allaufer@eng.umd.edu))

and

Dr. **Edward J. Hoffman**, Office of Training and Development,  
NASA Headquarters ([ed.hoffman@hq.nasa.gov](mailto:ed.hoffman@hq.nasa.gov))

The well-known law of cybernetics -- “Only variety can absorb variety” -- states that a system cannot meet increasing variety in its environment unless it increases the range of its response repertoire (Ashby’s law of requisite variety, 1956). In lay terms it means one has to be just as messy as the surrounding situation. The following 99 rules describe the rich repertoire of responses that master project managers employ to cope successfully with the demand for “faster, better, cheaper” projects.

The 99 rules are drawn from “war stories” of master project managers that are presented in Laufer’s book *Simultaneous Management: Managing Projects in a Dynamic Environment* (AMACOM, The American Management Association, 1996). The Simultaneous Management model is a result of 10 years of intensive research and testing conducted with the active participation of master project managers from leading private organizations such as AT&T, DuPont, Exxon, General Motors, IBM, Motorola and Procter & Gamble. In a more recent study, led by Hoffman, it was found that master project managers in leading public organizations employ most of the 99 rules (Fast Track Study, NASA, PPMI, 1996). Both studies, in private and public organizations, found that a dynamic environment calls for dynamic management.

**TABLE OF CONTENTS**

**Principle One: Systematic and Integrative Planning**

**Principle Two: Timely Decisions Adjusted to Uncertainty**

**Principle Three: Isolation and Absorption**

**Principle Four: Inward and Outward Leadership**

**Principle Five: Teamwork**

**Principle Six: Overlapping Phases**

**Principle Seven: Simple Procedures**

**Principle Eight: Intensive Communication**

**Principle Nine: Systematic Monitoring**

### **Principle One: Systematic and Integrative Planning**

1. The maximum potential for influencing project outcomes occurs early in the conceptual and definition phases of the project. Autopsies of most failed projects indicate that the disasters were “well planned” to happen from the start. Therefore, even in an era of uncertainty and accelerated speed, don’t rush to execution with only superficial preparations -- invest quality time in early planning.
2. In a dynamic environment, project management is not about performing according to plan, with minimal changes. It is about meeting customer needs, while coping successfully with unavoidable changes. Therefore, the planning system should be capable of coping with changes.
3. Prior to project planning, it is imperative to establish the project’s objectives or you might find yourself trying to do the task right without necessarily focusing on the right tasks. The customer’s needs must dictate the project’s objectives, and in a dynamic environment, invariably one of these objectives is flexibility.
4. The distinctive conduct that marks successful project teams is this: They know there is a time to diverge and a time to converge. That is, in each of the project planning phases (e. g., feasibility, conceptual, definition, execution), the team first moves outward (diverge) to gather information and ideas and to generate alternatives - - only then does the team move inward (converge) to focus, evaluate, and select.
5. The project team should prepare various functional project plans; e. g., organization, cost, schedule, engineering, and procurement. These plans play multiple roles. They provide a basis for authorization of project objectives and means, and for contractual commitments. They also provide a yardstick for monitoring and reviewing, as well as facilitate communication and coordination. However, the ultimate goal of planning is the implementation of plans. One is interested in the planning process and its product -- the plan, only insofar that it leads to the effective execution of the project.
6. The success of the project depends not only on preparing high quality individual plans, but also on addressing the inter-relatedness of those plans effectively. Synthesis of project plans is not a simple summing up of the independent contributions of decision-makers from different disciplines. Successful project teams address the planning decisions by tackling all functional plans simultaneously and interdependently.
7. You can ensure high commitment to implementing a decision if you involve those most affected by that decision early in the decision-making process. Involving your customer in early planning facilitates project implementation and reduces the need for future changes.
8. Even in situations where information is missing and changing, and when there is a great demand for speed, it is essential to identify areas where the search for optimal solutions is worthwhile. Being selective is the key.
9. Actual budget reduction does not result from an artificial treatment of overhead cost, or from arbitrary or wishful decisions concerning project outcomes (e. g., arbitrary reduction of contingency cost allowance). The simple truth is that project

scope drives project cost, not vice versa. Therefore, real reduction requires thorough examination of project scope.

10. Management's demands to pursue unrealistic objectives not only fail to ensure the achievement of those objectives, but they frequently lead to failure. For example, excessively high or low cost estimates result in greater final costs. The greater the overestimate or underestimate, the greater the actual expenditure.
11. Planning requires two strong beliefs – that unless something is done a desired future state is not likely to occur, and that something can be done to increase the chance a desired state will occur. In a dynamic environment a project team that underestimates uncertainty will lack the belief that unless something is done a desired future state is not likely to occur. On the other hand, if the team will recognize uncertainty but will not address it explicitly and systematically, it might be overwhelmed by it, to the point the team will lack the belief that something can be done to increase the chance a desired state will occur.
12. Ostrich-like thinking does not belong in the age of dynamic change. You must identify potential changes and risks early, and then take preemptive action. Formal, quantitative risk analysis techniques are essential and useful in the technical areas of the project such as safety, health, and environment. In the business and management areas of the project, they are useful only at the approval and funding stages. Later, quantitative risk analysis techniques, which are based on probability estimates, are very rarely employed, due to lack of data or time, or both.
13. In a dynamic environment, analysis of risk early in the project and only by a staff specialist is insufficient. Continuous management of uncertainty throughout the project life cycle by the entire team is required. Management that includes measures of anticipating, reducing, and absorbing uncertainty, enables the team to detect and cope with changes early rather than late in the project life cycle. These measures, which do not require extensive data processing, are explained later.
14. Plans are always based upon various assumptions; e. g., there will be sufficient skilled human resources for the next phase of the project. A planning assumption is deemed critical when major planning decisions are strongly dependent on its validity, and when it is judged by the team to suffer from a considerable degree of uncertainty. By detecting changes in the critical assumptions early -- before these changes influence many subsequent decisions and actions -- the team is able to anticipate uncertainty, and to mitigate the impact of the changes in a relatively quick and easy way.

### **Principle Two: Timely Decisions Adjusted to Uncertainty**

15. Master project managers believe that “objectives first, the means later,” is still the most fundamental premise of successful project planning. However, they have found that under conditions of uncertainty, it is impossible to finalize all project objectives “once and for all” at the outset. In order to set stable project objectives they must sometimes first explore the means.
16. The “reflection first, action later” model is sometimes ignored by master project managers who do just the opposite. To accelerate learning they implement small

actions with limited or very little prior planning. By quickly accumulating feedback that is essential for further planning, they are able to reduce uncertainty.

17. The idea that the customers should clearly know, in total and final detail, what they want before briefing the designers, is expecting too much. Insight into possible solutions and the available alternatives influence the customers' ideas of what they really want, and of what they can afford.
18. Often, in order to do it quickly and right, the project team must be willing to do it wrong first. When information concerning "what to do" is missing, prototyping is an efficient way to acquire the missing information. By building a physical model of crucial elements of the ultimate product, successful teams are able to rapidly develop, extract, and present the customer's needs. Prototyping can efficiently and quickly help bring about a stable definition of the project by incrementally refining the model, as understanding of the problem and possible solutions evolve in parallel.
19. When information concerning "how to do" is missing, small experiments are efficient ways to acquire the missing information. While experimenting consumes time and resources, it does ensure the gradual development of valid knowledge. In the final analysis, it brings about the early completion of stable design that requires few changes.
20. "Perfection is in the details," but not too early. Under conditions of uncertainty, avoid preparing a full and detailed plan too early. Adjust the timing of decisions and their degree of detail to the completeness and stability of information. Instead of maintaining a constant level of detail across time, prepare a general master plan for the entire project and a detailed short-term plan.

### **Principle Three: Isolation and Absorption**

21. If we were to examine a project that begins with a fairly high level of certainty, we would find that in time, the relatively few uncertain tasks begin to proliferate, introducing uncertainty into all the components of the project. This "one rotten apple" syndrome destabilizes the entire project plan. That is why successful teams take pains to organize project tasks in a structure that can easily maintain stability. In particular, these teams focus on the connections between the tasks.
22. Loosening the connections between moderately uncertain tasks, and isolating highly uncertain tasks, can enable you to prepare robust project plans and maintain rapid progress. However, there is no free lunch. To loosen the connections between moderately uncertain tasks or to isolate uncertain tasks, you must build in redundancy.
23. Sound judgment is required in order to select the appropriate amount of redundancy -- enough to absorb uncertainty and establish a stable plan, but not so much as to waste excessive resources. You can create a flexible plan by deliberately and carefully combining selected redundancies with an otherwise efficient plan. You get a balanced plan with maximum reliability, and adaptability, which includes the capability to absorb many future changes.
24. You should be aware of the distinct difference between absorbing uncertainty in project cost estimating and in scheduling. In drawing up a cost estimate, any

monetary deviation in one task will generally not have a direct influence on the other tasks. Therefore, creating a global cost reserve is an effective means of absorbing uncertainty. On the other hand, a global time reserve is not an effective solution for a project schedule, since a delay in one task usually affects several other tasks. To create a stable plan you must deal with the specific uncertain tasks. For example, in drawing up a short-term project schedule, introduce local time buffers between uncertain tasks, thus loosening the connections between these tasks. These time buffers enhance the resilience of the entire plan, which is now both stable and adaptable.

25. If uncertain tasks are not intensively managed today, they will create the new critical path tomorrow. Thus, successful teams first focus on and closely monitor the uncertain tasks, especially those closest to the critical path. They will deal with the classical critical path only after they have stabilized the plan.

26. The stability of a system composed of connected elements that suffer from uncertainty is sharply reduced when the number of elements exceeds a certain critical value. Therefore, in uncertain conditions, splitting a large program into several independent projects will enhance stability. In uncertain situations, splitting a large program will also help cope with the information processing needs. Large programs composed of tasks that are highly uncertain create a need for more information to be processed. The result is an information overload for program leadership, delayed decision-making, and poor responsiveness. Creating a decentralized organization by dividing the program into small, autonomous and independent projects will reduce information overload, move the decision point closer to information sources, and improve responsiveness.

27. Dividing a large program into small projects requires, however, the use of additional resources. Overhead costs tend to increase since some resources that would have been employed as a common resource for the entire program, may now be required by each small project. More resources are also required for coordinating and integrating the small projects. Otherwise, the program manager runs the risk that the decisions made by the small projects, which are naturally dictated by local perspective, will not support the main mission.

28. Innovative tasks must often be divided into small, concrete sub-tasks that will be implemented successively. Their implementation will bring about small wins. Once a small win has been accomplished, natural forces are set in motion that encourage moving forward to the next small win. Small wins build momentum, provide evidence that the costs are justified, and provide feedback regarding the objectives and the plan.

#### **Principle Four: Inward and Outward Leadership**

29. Leadership means coping with uncertainty and change. Managing means coping with complexity in stable conditions. Project managers have to assume both roles, leadership and managerial. They are expected to lead the effort in fine-tuning project direction, as well as to manage project planning and implementation. They are expected to do the right things (lead), and to do them right (manage).

30. To cope with the dynamic environment, project managers should be given as much power and support as possible.
31. Master project managers see themselves as the ones who are ultimately responsible for their own project.
32. Master project managers see themselves as responsible for motivating the multiple internal and external participants of the project. They manage by personal example. They understand the power of their most inconsequential actions and are not afraid to be water-carriers for their people.
33. Power is an expandable pie. Sharing power and responsibility results in more committed and accountable team members. Project leaders who delegate power gain more power in return.
34. Master project managers serve as the pacesetters of their project, maintaining its forward momentum. They function like a metronome, a timekeeping mechanism designed to keep a number of diverse elements responsive to a central “beat” or common rhythm. In successful projects, the project’s diverse parties respond to the “beat” of the project manager’s metronome, rather than to their own internal unit rhythm.
35. Master project managers do not make many decisions on their own, because of time constraints and because they lack the technical expertise. Rather, they manage the decision-making process. They ensure that the information and participants who need to be involved are identified and available when needed.
36. Although they don’t make many decisions, master project managers influence them to a great extent. They influence decision-making by shaping the decision criteria and by determining decision-making time constraints.
37. You must know your time constraints and limit the number of the decisions in which you are involved. This will allow you to deal with urgent and really important problems thoroughly and immediately.
38. Master project managers constantly scan the project’s external environment and identify the key people with whom they must maintain contact. They know that maintaining constant communication with the project’s stakeholders about essential issues helps secure their support and responsiveness when needed.
39. Master project managers know that it is essential to develop the capability to obtain fast, reliable information. They don’t wait for a problem to arise. Anticipating troubles, they proactively gather information by networking with firsthand sources.
40. To accelerate project speed, master project managers instill a sense of urgency right from the beginning and throughout the project life cycle.
41. In today’s projects, “putting out fires” occurs more often than the old mindset of rational, scientific management would like us to believe. Master project managers plan and attempt to anticipate, yet at the same time they develop a state of readiness to respond quickly to frequent, unanticipated events. They take immediate action to address a problem, demonstrating that to move out quickly you have to respond quickly.
42. In areas critical to the success of the project, stand up for your opinion. When necessary, challenge senior management and negotiate project objectives or the

resources needed to accomplish them.

43. Master project managers know that often the only way to achieve ambitious project objectives is by challenging some of the bureaucratic rules.

### **Principle Five: Teamwork**

44. Two parties (and certainly more than two) of a speedy project launched with incomplete information will find it impossible to sustain an ongoing relationship based on a fixed agreement that was made between them at the beginning of the project. A more flexible mechanism, based on teamwork and collaboration, is needed to handle the unexpected changes that are bound to arise. Therefore, contracting should emphasize cooperation rather than risk allocation.

45. Project success depends on successful teamwork. Establishing a multifunctional group with team spirit facilitates both communication and coordination, and it promotes strong loyalty to the project. Such a team can make quality decisions that represent all disciplines.

46. No real teamwork can take place in an organization that maintains the traditional division of labor, because R&D, marketing, engineering and production people are loyal primarily to their respective disciplines, departments and managers. Therefore, breaking down the organization's functional walls is the minimum essential condition for teamwork.

47. Assign people for the duration of the project. Team member continuity is vital for better accountability and commitment. Since team knowledge lies in the shared viewpoints and experience that team members develop over an extended period, greater continuity means better decision-making and faster projects.

48. Master project managers pay great attention to the size of their project team. They create the smallest team possible that includes all the necessary skills.

49. A project team should first concentrate on getting to know one other and then on deciding on how best to function as a team. Sharing clear expectations, appreciating cultural differences between organizations, and understanding the different reward systems of these organizations will reduce the time it takes to form a finely tuned, effective team.

50. Trusting relationships are conducive to full and open exchange of information within the team. In contrast, when project parties distrust each other, they withhold relevant information and distort intentions, thus adding uncertainty to the project. Trust reduces the cost of planning and monitoring transactions between organizations.

51. Once you stereotype a team member, prejudice shapes what you see and how you act. Thus, initial opinions of the individuals entering the project are important in shaping its final outcome. These initial opinions can force the project into a spiral of increasing or decreasing trust. Therefore, if possible, don't select team members who start the project distrusting you. Build trust incrementally by making statements of intent, which express your desire to trust the other party, followed by actions that support and comply with these statements.

52. You should make sure that members of your team feel dependent upon each other, and share a belief that they are mutually responsible for project results. A

group of people who don't feel dependent upon each other is a committee, not a team.

53. You can't manufacture extraordinary team performance merely by designing the right structure, selecting the right people, providing the right vision and rewards, and facilitating the right work processes. All these are very helpful, but to achieve peak team performance you must develop rich, intimate, and emotional relationships among skilled people who trust one another and who enjoy spending time with one other.
54. Dedicated teamwork does not require the ultimate sublimation of the individual. On the contrary, as a leader you should empower team members to be constantly at their peak by giving them the necessary discretion and autonomy to make things happen.
55. Having members with diverse professional orientations and different organizational interests and cultures can have only negative implications, and this is the reason why projects and conflicts are always bound to be synonymous. True? No! Definitely false. In a collaborative environment these differences may provide the crucial positive edge that leads to innovative solutions.
56. Don't ignore space and neighborhood management. Teams must spend a lot of time together, especially at the beginning. The chances are considerably better that geographic proximity allows people to come to appreciate and even like one another. Also, in co-located teams many informal face-to-face interactions occur daily. This frequent face-to-face communication clarifies understanding and accelerates speed.
57. Don't overlook the intangibles, such as team culture, language, and ritual. They help create team identity, establish a sense of order, build team spirit, release tension, and cope with time pressure and uncertainty.
58. If you are having fun, you aren't working, right? No -- that's absolutely wrong! Look for the many natural opportunities to celebrate team accomplishments and hard effort. Use these events to give team members the high visibility and special recognition they have earned. In successful teams, fun both sustains and is sustained by team achievements.
59. To sustain performance, teamwork requires constant massaging. Therefore, throughout the project life cycle, master project managers ensure alignment on project objectives, assess team functioning, and renew team energy.

### **Principle Six: Overlapping Phases**

60. The true causes for acceleration and deceleration of project schedule occur at the beginning of the project but become conspicuous only during the advanced phases of project execution and start-up. Therefore, to shorten project duration, pay great attention to the pre-execution activities.
61. Too many technological innovations lead to changes that decelerate project speed. In a fast track project you must learn to overcome the tendency to add state-of-the-art technology incrementally to make the final product a blockbuster. You have to limit technological innovations and development to only those essential to achieve project objectives.



62. In situations in which information is incomplete and changing frequently, and when you have to proceed quickly, your objective is to reduce uncertainty by learning as soon as possible about the obstacles that lie ahead (see Principle Two). In these situations, accelerated speed comes mainly from learning faster, not from working faster.
63. When information or knowledge concerning “how to do” is incomplete, early involvement of downstream representatives in upstream planning is the best way to acquire the missing information. By bringing the people in who can ask the right questions early enough, quick learning is accomplished.
64. To compete better in a relay race, the next runner is warmed up and actually starts running before the baton is handed off. In addition to quick learning, early involvement of downstream representatives in upstream planning ensures that when the time comes for responsibility to be passed, there is no stop-and-start because the leadership of the downstream phase is already up to full speed.
65. Overlapping project phases is vital in order to accelerate speed. This step can be applied easily when phases are independent of one another. Very often, however, phases are highly dependent on each other, and overlapping without maintaining essential conditions can be very costly. Since completing tasks too early may bring about a need to redo them, overlapping without maintaining essential conditions may even add time to the project.
66. The most crucial steps for effective overlap of project phases are maintaining flexibility of plans and behavior, and employing frequent two-way communication between the overlapping phases. You can achieve flexibility of the plans by enhancing their ability to absorb changes (Principle Three). You can enable flexibility of behavior by establishing an autonomous leadership (Principle Four) and a collaborative orientation (Principle Five).
67. Compressing schedules by overlapping engineering and production requires breaking engineering work down into small increments, adjusted to production schedule. To maintain smooth progress, engineering must be flexible and cater to production needs. At the same time, however, production must be willing to shape its demands according to engineering constraints, in particular to its lack of information. This mutual adjustment can be maintained by continuous coordination and frequent two-way communication between engineering and production.
68. In cases of extremely high speed, it is necessary to overlap phases to a greater extent. Small batches of intermediate output must be transferred from one phase to another, thus creating a situation in which there is a continuous flow of transfer of bits of work from one phase to the other. In this mode of work, it is impossible for upper management to conduct formal reviews at the end of each phase. Review is accomplished in real time by the project team, which should be granted substantial autonomy.
69. Even when projects are launched with high certainty, extreme speed in and of itself causes high uncertainty. Highly accelerated projects that are planned like a football game and rehearsed like a symphony orchestra, quickly turn into a basketball game with its spontaneous moves, and ultimately deteriorate into improvised jazz.

### **Principle Seven: Simple Procedures**

70. Standard project procedures prevent reinventing the wheel, they save time and energy, and they contribute significantly to the parties' ability to maintain tight cooperation efficiently, even in the face of uncertainty. They also provide a common vocabulary and avoid ambiguity, and help establish internal stability.
71. Standard project procedures also serve as the organizational retention system, where the accumulated organizational knowledge about project management methodology and systems is stored, for purposes of formal and on-the-job training and continuous organizational learning.
72. Employ standard project procedures, not for top-down control, but rather for lateral cooperation, within and among the various project teams.
73. Employ standard procedures that are simply presented in quick and easy-to-understand form, and that are easy to implement.
74. Simple procedures do not attempt to address all possible situations. To deal with less-common situations, the project manager is expected to modify the standard project procedures or even develop ad hoc procedures. "Standard *and* flexible procedures" is an oxymoron. Knowing when and how to modify the standard procedures is one of the hallmarks of experienced project managers. Through years of experience, of successes and failures, they have acquired an ability to diagnose the situation properly and to fit the procedures to the project context.
75. Success stories that underscore the need for flexibility and that present examples of flexible behavior may complement standard project procedures. Use stories as inspirational training tools, and to foster organizational identity and values, as well as organizational learning.
76. Bureaucracy and speed do not mix. In cases of extremely high speed, you should eliminate bureaucracy whenever possible. You should form a small team, adopt very simple and informal working procedures, and reduce documentation requirements.

### **Principle Eight: Intensive Communication**

77. Pay great attention to fitting the intensity and mode of communication to the situation.
78. High interdependence between functional groups, coupled with uncertainty and speed, will require more frequent sharing of large volumes of information.
79. The value of information is directly related to timeliness. It is more important to have partial but timely information than to have it complete but late. Likewise, it is more important to have approximate but timely data, than to have precise, processed and detailed data later.
80. How well you communicate is determined by how well you are understood, not by how well you express yourself.
81. Modern electronic communication devices are no substitute for human contact, especially in situations of uncertainty and speed. The structure of face-to-face interaction offers an unusual capacity for interruption, repair, feedback, and learning.

This instantaneous two-way feedback, which enables immediate correction and interpretation, is essential to avoid misunderstandings.

82. People who work together, but distant from each other, need face-to-face, rapport-building opportunities to lay a foundation for all the communication that will follow. Once you have established the required trust and openness among team members, then you can make extensive use of modern information technologies.
83. The degree to which communication is formal or informal correlates to a great extent with the phase of the project. During the earliest planning phases, communication modes are primarily informal. By contrast, during the latter phases of the project, more communication is carried out through formal plans, reports, and standard forms.
84. Yet, since uncertainty and change in most projects do not subside, even toward the end of start-up, face-to-face meetings should be carried out throughout the project life.

### **Principle Nine: Systematic Monitoring**

85. The need to monitor project performance systematically is based upon the homegrown truth that identifying a small problem is difficult; correcting it is easy. Identifying a big problem is easy; correcting it is difficult.
86. In a dynamic environment you must simultaneously monitor the validity of the objectives, the achievement of the objectives (effectiveness), and the utilization of the means (efficiency).
87. In unsuccessful projects there's never enough time to do it right, but there's always time to do it over.
88. Management systems can't control projects. Only people can, helped by management systems. A management control system that does not lead to decisions and actions is a total waste.
89. Only team members who are directly responsible for project implementation can control projects. Staff specialists cannot control them.
90. Only what is yet to come can be controlled. Last week's performance is relevant to the project team only when knowledge of it helps them decide how to do next week's work better. Analysis of the gap between planned and actual performance is justified only in cases where the future is similar to the past. Such is rare in today's projects.
91. More paperwork does not ensure greater information reliability or accuracy -- it only adds to the non-value-added cost. It only *seems* that adding more measurement and reporting means better control. The illusion of control may partially explain an obsession with control.
92. Excessive control through an elaborate administrative information system often "encourages" employees to systematically distort the data or to develop aberrant practices. If you distrust your employees, they will not disappoint you. Their behavior will prove you right. The vicious cycle never ends. As

employees suppress critical information for fear of management reprisal, they provoke even greater management suspicion and scrutiny.

93. Successful teams know that effective project control does not result from reviewing and analyzing performance reports. Since the maximum potential for influencing project outcomes occurs early in planning, successful teams control their projects primarily by carrying out effective front-end planning.
94. Managers who maintain a stationary position are forced to make complex judgments with incomplete cues. They have no choice but to imagine the environment and rely on inferential processes, while their senses may play tricks on them and generate unsound conclusions. Great amounts of formal information create information overload, but do not ensure understanding. Can you imagine basketball coaches remaining in the locker room, trying to guide their teams without watching the game? Even if the game's statistics were conveyed on-line, using the most advanced information technology, without actually seeing the game the coaches' understanding of what's going on would be minimal.
95. Master project managers control the project by employing formal performance reports and by moving about.
96. Moving about contributes not only to the "understanding" component of control, but also to the "influencing" component. Management-by-walking-around allows project leaders a natural, subtle, and timely influence on project activities. It also motivates team members.
97. When uncertainty is low, control is best implemented by measuring performance and then by taking corrective steps to adjust performance to the plan. As project uncertainty increases, control is less of a "governor" of execution (ensuring that implementation conforms to plans), and more of a data collection function for continuous planning.
98. In uncertain conditions, "control" should systematically provide feedback for planning, and thus its emphasis should be on looking ahead with anticipation rather than looking back with justification. That is, in uncertain conditions the main question should not be: "Why didn't your performance yesterday conform to the original plan?" Rather, it should be: "What kind of feedback can help you learn faster and perform better tomorrow?"
99. When uncertainty is outstandingly high, the best way to control the project is through the staffing process. By selecting adaptable and responsive people, you can cope with conditions in which classical planning and control have little meaning.