PUTT'S LAW

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THE SUCCESSFUL TECHNOCRAT

How to Win in the Information Age

Archibald Putt

Illustrated by Dennis H. Driscoll

IEEE PRESS

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Author's Note

This book is about people and organizations that work with modern technology. The people, organizations, and events are fictitious—except in obvious cases when they are real. The factors that affect them and the pressures that drive them are always real.

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Preface

When the first edition of *Putt's Law and the Successful Technocrat* was published, I often enjoyed finding myself in a group of engineers who were discussing the book. Because it was published under the pseudonym, Archibald Putt, they did not know that I was the author. Being a celebrity is fun. Being an unknown celebrity is, well, a different type of fun.

A number of colleagues who know my secret identity have urged me to publish a new edition, noting that thousands of references to Putt's Law can be found on the Internet, some in the Dutch, Finnish, and German literature, often with the notation, "author unknown." This evidence of continuing worldwide interest helped convince me that a new generation of technocrats (and those who must work with them) would enjoy and benefit from my book.

I was also encouraged by the dearth of superior advice for ambitious technocrats in more recent literature. For example, *The Dilbert Principle* by Scott Adams provides wonderful insights and chuckles for nonmanagers but little guidance for ambitious employees who want to advance in management.

Revising my book was gratifying. All of the original laws and corollaries are still valid, so I changed none, but I did add many new ones. The most significant additions relate to advances in information technologies that have changed forever

the way people work and interact with each other. New analyses, first revealed in this edition, will be valuable to all who aspire to win in the Information Age.

I have also introduced my recently developed Method of Rational Exuberance, which practically guarantees a rapid rise in management. And I have answered the often asked question, "Can Putt's Law be broken?"

Some scholarly types have suggested that my writings should be viewed merely as humorous satire. Holding that view can inhibit your success. It is not the view of many successful technocrats who studied and used the lessons of my book. While winning the game, they laughed just as often as others, especially on the way to the bank.

Some readers may occasionally be confronted by unfamiliar technical terms and scientific analyses, which are essential to the acceptance of the book by the technical community. If such a passage confounds you, simply reread it with an air of confidence or boredom while occasionally muttering a knowing "uh-huh." With practice you will find your comprehension is greatly improved, and you will soon have mastered one of the most important techniques of the successful technocrat.

ARCHIBALD PUTT

Part One

PUTT'S PRIMER

Putt's Law and Corollary

Years of study of the sociology of organizations that develop or work primarily with sophisticated new technologies have convinced me that such organizations are quite different from those in other fields. Thus, the excellent P-literature by Parkinson, Peter, and Potter, which describes so clearly most social hierarchies, is inadequate and misleading when applied to fields of high technology.

The Peter Principle, for example, states that "in a hierarchy every employee tends to rise to his level of incompetence."* We are all familiar with the workings of this principle in typical organizations. Employees are eligible for promotion until they reach a level in which they can no longer perform effectively. They then have reached their level of incompetence and are no longer promotable.

Upon reflection, the Peter Principle seems to be self-evident. Why, then, did it take so long to be recognized? Its corollary, "In time, every post tends to be occupied by an employee who is incompetent to carry out its duties," explains why even simple things are so often bungled in large organizations.

It is virtually impossible for a person to avoid reaching a level of incompetence in a hierarchy. Once a promotion has

*From *The Peter Principle,* by Laurence J. Peter and Raymond Hull, Morrow, NY, 1969.

been offered, ego conspires with social pressure to force its acceptance. The hapless engineer who turns down a managerial job because he or she prefers working as an engineer can only expect problems. How can they explain this to their family? And how can their spouse explain this lack of ambition to parents or to friends? The engineer may refuse the first offer of a promotion, but is unlikely to refuse the next. Thus begins the inexorable rise to his or her level of incompetence.

CREATIVE INCOMPETENCE

The only satisfactory way to avoid reaching one's level of incompetence, according to Peter, is through *creative incompetence.* This is achieved by developing a high level of incompetence in some area that does not affect present performance, but does assure that there will be no further offers of promotion. This is an uncommon tactic in typical hierarchies.

It may readily be observed, however, that creative incompetence is the rule rather than the exception in hierarchies that work with science and technology. Consider, for example, the case of Bob Bottomly who had been employed in the development laboratory of a large electronics firm for several years. He learned that his superior was to be promoted and that he was the most likely candidate for the vacated position. The next day he took off his shirt in the laboratory and continued to work in his undershirt, complaining loudly about the heat. When his superior was promoted, it was another member of the group who was chosen to fill the vacancy. Bob Bottomly soon returned to wearing a shirt, except on the rare occasions when he felt promotions might be under consideration.

Then there is the case of Dr. Schwartz, whose phenomenal grasp of the literature in physical chemistry made her a great asset in the central research laboratory of a major corporation. She was able to carry hundreds of references to the literature in her head and had many thousands carefully organized in her computer. A query to her about almost any subject in this field would produce more information in a few minutes than could be obtained by searching for hours on the Internet or for many days in a reference library.

Dr. Schwartz was under consideration to become the manager of the chemistry group until it was learned that she continually misplaced administrative records and failed to attend management briefings. Such traits were unacceptable for a manager, and so Dr. Schwartz continued for years doing her own research and keeping a well-organized file of chemical literature as a service for herself and others in the laboratory.

Perhaps the best-known case is that of Albert Einstein, the preeminent scientist of the twentieth century. In a time when long hair was not common, his was long and bushy. He typically wore an open-collared shirt, an old sweater, baggy trousers, and no socks. Thus, he seldom had to contemplate major administrative jobs and spent his time in positions where he could concentrate on theoretical physics.

Such examples of creative incompetence are so numerous in science and technology that many low-level positions remain staffed by competent people who never reach their level of incompetence. These people find their satisfaction in technical work and would be bored and frustrated by administrative responsibility.

Successful technocrats, however, are not found among the ranks of plodders of such limited ambition. Instead, they are found among those who aspire to eminence through their *position* in the technical hierarchy. Such people will find their climb made easier by the many individuals who choose to remain behind by practicing creative incompetence.

NO CRITERION FOR COMPETENCE

If the large number of people practicing creative incompetence were the only anomaly in technological hierarchies, we might conclude that persons aspiring to higher placement would be promoted to their level of incompetence, as is typical in most hierarchies. However, there is yet another anomaly with most interesting consequences: there frequently is no way to judge whether an individual is competent to hold a given position. Stated another way, there is no adequate *competence criterion* for technical managers.

Consider, for example, the first U.S. space laboratory. When it was placed into orbit in May 1973, its meteoroid and

thermal shielding and one of its solar cell wings were torn away. Another solar cell wing was jammed closed so that only two of the wings deployed properly. This threatened the mission with failure. Should the project leader have been fired for failure to prevent this problem or should he have been given a citation for erecting a makeshift parasol to shield the laboratory from the sun and getting the jammed wing deployed during a space walk by the astronauts?

Then there is the case of a small research group in the Pfizer Central Research Laboratory in Sandwich, England. Beginning in 1986, their leader set the objective of developing a drug for treating hypertension. Two years later, he changed the primary objective to the treatment of angina pectoris. Progress was slow. In 1992, clinical trials were undertaken to test patient-toleration levels for the compound known as UK-92,480. Among the side effects observed at different dosage levels were indigestion, back aches, and leg pains.

"Oh, there are also some reports of penile erections," one clinician observed. But this observation was not thought to be particularly significant. Thus, it was not until 1994 that clinical trials were undertaken of compound UK-92,480 (sildenafil citrate) for erectile dysfunction. The results were excellent, but a market analysis indicated that sales would be small.

In March 1998, U.S. FDA approval was given for the sale of sildenafil citrate for treating erectile dysfunction. Given the name Viagra, three million prescriptions were written during its first three months in the market—dramatically more than Pfizer anticipated. Sales rose rapidly, grossing Pfizer $1.7 billion during its fifth year in the market. Viagra had become a blockbuster drug, providing Pfizer with unprecedented publicity and profits.

Should the researchers have been chastised for failing to accomplish their original objectives, or should they have been praised for finding an unexpected use for their compound? Should someone have been fired for responding so slowly when clinical tests revealed penile erections to be a "side effect"? And what about the marketing study that grossly underestimated the demand for such a drug?

In an advanced research or development project, success or failure is largely determined by the goals and objectives set before a manager is chosen. Although a hardworking and dili-

gent manager can increase the chances of success, the outcome of the project is most strongly affected by preexisting, but unknown, technological and societal factors. Sometimes, a manager can save a project from failure by changing its objective. But the likelihood of success is still more a matter of luck than planning. The success or failure of a project should, therefore, not be used as the primary measure of a manager's competence.

PUTT'S LAW IS PROMULGATED

Without an adequate competence criterion for technical managers, there is no way to determine when a person has reached his or her level of incompetence. Thus, a clever and ambitious person may be promoted from one level of incompetence to another. This phenomenon, combined with the practice of creative incompetence by those who understand technology best, provides the basis for Putt's Law, which can be stated in an intuitive and nonmathematical form:

> Technology is dominated by two types of people:
> those who understand what they do not manage
> and those who manage what they do not understand.

Just as in any other hierarchy, the majority of people neither understand nor manage much of anything. This does not create an exception to Putt's Law because such persons do not dominate the hierarchy.

At the same time that many outstanding technical people choose to stay near the bottom of the hierarchy, ambitious individuals with less understanding of technology will be promoted again and again until one of them reaches the very top. This ultimate result of Putt's Law is well described by Putt's Corollary, which is more formally known as the First Corollary to Putt's Law:

> Every technical hierarchy, in time,
> develops a competence inversion.