Elements of Support for New Technology
by

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A very personal and biased view of the required elements for efficient financial support of ***new*** technology is presented here, as summarized from the authors' extensive experience in exploratory research. The present quest for a new thrust into alternative energy generation methods prompts this note that is designed to diminish the need for a standard business proposal writing in such an inherently foggy area.

Definitions
NEW: An important word needing an exact definition for this discussion is ***new***. Its use is often sloppily applied to a slight variation on an old stunt but it cannot be employed in that context here. For present purposes, *new* means that the effect sought has never before been physically accomplished, and quite possibly, never will be. It is not even a sophisticated extension of an existing object or product. It must be as mysterious and misunderstood as cold fusion or zero point energy. It must be exploratory in nature and not a more predictable development project.

ACADEMIC METHOD: Since we will be talking about a method of proceeding into uncharted regions, it is prudent to compare methods. The two listed for comparison here are the academic method and the explorers' method, as they are quite separate when the connotation of *new* is used to its proper extent. The basic difference between the two methods is teaching. The explorer should not be burdened with teaching anyone until he has finished his job to a previously defined point. If that point is attained, the explorer is free to teach if he so chooses.

By definition, the academic method is a collegial effort involving many people that can readily form into the usual cliques and clubs easily capable of censure of non-conforming individuals. This almost certainly leads to constraints not beneficial to efficiently exploring new areas. Even the publication requirements of academia constrain to a much higher degree than desirable for sensitive, exploratory work. In fact, publication in any form is an undue constraint that should not be imposed on explorers, as it is primarily an unnecessary teaching function. Publish only when the exploration is done. This is particularly true of patent publications with their business orientation.

Throughout this process of comparison, it is absolutely necessary to keep efficiency in mind; otherwise, the two methods can flux over, blend together and become indistinguishable. Exploring, the way the author defines it, is a necessarily efficient and parsimonious process permitting minimal dispersion of either time or money. Accuracy, often a requirement of the academic method, is rarely necessary in finding great answers. The work can be cleaned up better after the exploration is done and mistakes have been cast aside.

Examples From The Past
Although it may be just a fable, there is a reported time of scientific renaissance when a Prince sought knowledge for its own sake and not merely to add power to his domain. However, I am sure the Prince was properly positioned to take full advantage of whatever was found as a result of his funding of exploration. This seems only reasonable.

In the good old days of science, the scientist supported himself. He could do this because he was independently wealthy and had the time to do so as a hobby. Those days may be gone forever, as the world now seems to be divided between those who make money and those who are employed by them. It seems that the wealthy must now work so hard making money that they have no time for science hobbies.

Also, the paradigm for the good life has shifted over time and it is no longer stylish to be a hobby scientist while occupying a fashionable social position, as that seems to be going against the implied grain. In addition, science has arguably grown more complicated, thus taking more time away from the pursuit of money, the illusion of real value. With this growth of complications, science is now relegated to the status of employer and employee causing the scientist to seek employment wherever it can be found. This now emerges as the Princely method of new science support.

A Bad Structure

Business is a methodology designed primarily for competitive warfare and is antagonistic to new science as it represents an uncertain change. Change is the enemy of business because business flourishes in status quo. How then can these two separate states coexist peacefully? The answer is likely to be, they cannot. With only slight variations, the control and dictatorial elements of government support place it in the same category as a business.

Operating under the mandate of control, a business must extract a proposal for work to be done in the future by a scientist trying to do new work that cannot be guaranteed. Under these conditions, an invalid proposal is all that results and this sets the stage for acrimony between the employer and employee. Since a valid proposal can have no accurate projection of either time or money, a detailed financial proposal represents nothing but lies due to the ubiquitous inability to foresee the future. In lieu of a detailed proposal, it is easily possible to impose financial limitations on the proposed project as a grant without using any other controls. Lacking this grant from business, the proper action for the proposing scientist is to turn away from the financially driven business entity and seek a Prince.

Additional failure points are predominant in mixing new science with business. It is clear that a business mentality is not beneficial as it directs too strongly where no accurate guidance is possible from a business standpoint. As an example, business interests are likely to demand patent filings before the invention intended reaches the point of reality. In honestly new work, no one can predict the outcome of incomplete work and much effort can be lost writing about and defending what will not likely happen. It is certain that the patent office is not qualified to determine the validity of anything new as that is far away from their natural domain and their burden of economics will allow nothing else. Early in the discovery cycle, patents present a very negative effect on exploration.

The dangers of publication abound as it demands accuracy in new work where there should only be guidance generated. Leave the publication to developers or educators having time to fight through the peer review process where there are no real peers available in such a new field. Even then, the peer review process should never involve a club member trying to sustain his club credentials above all else, as is usually done. The moral of all of this is: don’t publish tentative results too soon.

Attributes of the Working Method

Financial support should have the structure of a grant with no demanding business extensions whereby the methods used by the working group determine everything of value. By necessity, new work demands a small, efficient group that is fiscally responsible and parsimonious by nature. An explorer must naturally have these qualities and be comfortable living with them. It is not a life of plenty.

The author has found, in his many years of doing scientific exploration, a series of occurrences somewhat at variance with the imagined norm, but being a normal part of frontier work, which also seem essential. As strange as it might seem, there is very little help available from the scientific literature as it is either not there at all or is misleading. Some of the basic qualities available from past science can be used, but mostly, the common vernacular of engineering is usually adequate. In a parallel to this, there is no help from conferences or symposiums, as appropriate ones will come only when the exploration is done. For the authors’ own work, there has been absolutely no help available from existing mathematical tools when foraging through the frontiers.

Additional negative factors that must be subdued to have a good working method is keeping in mind that whatever you are doing is likely to be rejected by whoever you talk to, as it is still too new to be a part of their genre acquired through daily contact. Along with this are myriad other insidious negative influences inherent in our social structure designed to set apart anyone whose life departs from the norm. This ostracism is not surprising considering some of the practices needed to succeed on the frontier. One example the author has found interesting is the need to keep from using a standard name for a project or otherwise the work is inextricably driven toward the known word meaning instead of the yet-to-be acquired goal. With this necessary kind of behavior, no wonder the frontier scientist is excommunicated.

Preferred Financial Support Method

In this fantasy of new science support, either individuals or small groups with a financial surplus will tender help just as it was in the good old days of science, and so we see nothing has changed. The immutable rule that can be seen here is that workers require lunch money and without that money, there is no work. No work means there will be no new technology and that means no progress. If we can believe in and live with that conclusion, we have no problem with scientific support as we can simply ignore it.

In lieu of the usual business proposal method, future prediction of results for the support foundation can be based on past performance of the people and methods involved, although this places an extra burden on the newcomer to the exploratory field. The best way around this, and around all selection problems, is to have a sensitive and astute person doing the selection process as to who and what is supported. This human selection process is perhaps even harder to do than the scientific exploratory work lying ahead.

An ineffectual solution to the sponsorship of new technology returns us to either the inefficient academic process or the stunted, business/government method.

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