

hence elaborate cost-benefit analyses are likely to confront them with conclusions that are based on concealed policy decisions that should be their responsibility. If the conclusions offend their common sense, any scepticism they might express may meet with the reply that it results from detailed analyses by experts, and, in view of the cost of the computing machine that was used, its conclusions should not be despised.

Another difficulty in cost-benefit analysis of research is the inclusion of provision for the very important but very uncertain factors other than research that are involved in the hazards of innovation and successful competitive marketing.

They include decisions of management, teething troubles in perfecting the final product, patent problems, prior successes by aggressive competitors, and the unpredictable whims of the market. Accordingly the apparent authoritative decisiveness of the conclusions of a cost-benefit analysis may be quite unreal.

Another cause of futility in applying cost-benefit analysis to research and to innovation is the impossibility of foreseeing when benefit will end. One innovation leads to another in an unpredictable sequence. However, the chain may be ended unexpectedly by the appearance of a better innovation from an entirely different antecedent sequence.

The spectacular successes of cost-benefit analysis have been in applications where the benefit can be uniquely described and soon can be tested. For example, operational research in warfare and production control in a commercial