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Hugo Rehesaar

*University of New South Wales, [h.rehesaar@unsw.edu.au](mailto:h.rehesaar@unsw.edu.au)*

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## Promoting User Satisfaction

Hugo Rehesaar

School of Information Systems, Technology and Management  
University of New South Wales, Sydney, Australia  
h.rehesaar@unsw.edu.au

### Abstract

*Three of the five main concerns about IT from senior executives in Europe and the USA are related to poor user satisfaction. The current spend justification paradigm, cost benefit analysis, is that the justification for an IT purchase is done only after a decision has been made to procure that technology. User needs are a minor factor. The proposed alternative, Benefit Cost Analysis, is one of recognising the required gains first and then deciding on specific IT that will help deliver them. The result is lower investment and higher user satisfaction with IT.*

### Keywords

User satisfaction, IS investment, cost benefit analysis, IS project selection

## INTRODUCTION

Boehm and Sullivan (1999) observed that “increasing competition is driving organizations to focus intensely on the connections between technical activities and economic results”. This observation highlights one of the problems facing today’s IT manager – the focus on ‘economic results’, rather than ‘business goals’. The current spend justification paradigm is one where the justification for an IT purchase is done only after a decision has been made (formally or informally) to buy that technology. Changchit et al (1998) observed that “proposers were compelled to use the benefit identification process to persuade the organisation to be committed to the project”. Thus we are driven by technology first rather than business goals; justification of technology rather than procurement of technology which delivers goals. As a result of this, user satisfaction remains an elusive goal.

The basis of the Cost Benefit Paradigm is to determine the costs first and then calculate the benefits gained from this expenditure. An alternative to the Cost Benefit Analysis is required, which determines business benefits first and then calculates the costs of achieving them. Furthermore, if the means of achieving these benefits are seen as enablers from the viewpoint of users, then user satisfaction is all but ensured. The notion that user satisfaction is positively related to the provision of user needs has been long established (Cyert and March, 1963; Ives, Olsen and Baroudi; Linnell, 1990).

## BACKGROUND

The ‘top five’ complaints about IT from senior executives in Europe or the USA are typically:

- IT investments are unrelated to business strategy
- Payoff from IT investments is inadequate
- There’s too much technology for technology’s sake
- Relations between IT users and IT specialists are poor
- System designers do not consider users’ preferences and work habits. (Bensaou and Earl, 1998)

Of these, three relate to user satisfaction. Bensaou and Earl (1998) found that such complaints are unheard of in Japan, due largely to the different ways of approaching IT management decisions. While western executives “design the most technically elegant system possible and ask employees to adapt to it”, the Japanese executive “designs the system to make use of the tacit and explicit knowledge that employees already possess”. While the west believes that “technology offers the smartest, cheapest way to improve performance”, the Japanese will “identify a performance goal and then select a technology that helps them achieve it in a way that supports the people doing the job”. IT is chosen for its ability to assist the users, rather than disrupt their work patterns. The result of these strategies is lower investment in IT and higher satisfaction with IT.

## THE PROPOSAL

While the Western bias is ‘technology for the sake of technology’, the Japanese espouse the “principle of appropriate technology; sometimes the most advanced form of IT makes sense, and sometimes simpler, older

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forms will do. Sometimes high tech should cohabit with low tech” (Bensaou and Earl, 1998). The principle therefore is to determine the direction that the business should be going first, without thought given to how it is to be achieved or the cost of it. Agreement on the gains to be achieved, and how to measure them, should be then reached by all levels within the business. Finally, determine the IT, if any, that is needed to achieve these gains. The philosophy is one of harmony. Users should not need to adapt to IT, rather IT is chosen and implemented in a way that promotes harmony with the users and existing methods. The result is a far higher level of user satisfaction than is currently enjoyed.

By determining goals, and developing a way of measuring achievement of them, we can ensure that only that technology (including not only hardware, but also all components of IT acquisition, implementation and maintenance for the life of the system) is purchased which will contribute towards achievement of these goals. Furthermore, only that technology which continues to contribute will be maintained, and further purchases will be made based on their ability to contribute.

This process can be facilitated by the adoption of the two following principles.

### The Benefit Cost Analysis Paradigm

The key to choosing appropriate solutions, whether technology based or not, is that there is an overall benefit. The tradition view has been that there is a total cost of ownership (TCO) related to IT. I propose that if IT is chosen correctly not only will there be an increase in user satisfaction, but also the organization will experience a total benefit of ownership (TBO).

In the vast majority of cases, TCO is calculated by summing only the costs of IT over its lifetime, without inclusion of the balancing effect of benefits. This is largely due to the difficulty in measuring benefits (as opposed to estimating their value during a cost benefit exercise). The actual TCO should be calculated as:

$TCO = ITI - MBO$ , where TCO is the total cost of ownership, ITI is the total information technology investment, and MBO is the measured benefit of ownership.

While the measurement of IT investment is relatively straight forward, and quite often determined by financial/accounting policies, it is the quantitative determination of the benefits that remains incomplete. This is largely due to many benefits being seen as intangibles and thus not being included in the equation.

The greater the number of benefits that we can identify, and subsequently quantify and measure, the lower the total cost of ownership. Similarly, the lower the ITI, the lower the TCO. Taking it to the extreme, when the measurable benefits are greater than the investment, we have a negative TCO. This I have called the Total Benefit of Ownership (TBO). The key lies in investing only in technology that produces measurable benefits of greater value than the investment in IT. The greater part of these benefits is operational gains by satisfied users.

*The Modified Equation:*  $TBO = MBO - ITI$

The result of this is that we determine the desired benefits first and then calculate the investment required to achieve these business gains. This paradigm I have called the **Benefit Cost Analysis**.

As shown in Table 1, there are two main differences between these two paradigms. One is that of developing benefits which justify the IT investment, as opposed to investing in IT in order to achieve benefits. The other is that approval for a project is based on how much is paid for a benefit, as opposed to gaining approval for the benefit and then determining how best to achieve it.

COST BENEFIT ANALYSIS	BENEFIT COST ANALYSIS
Initiate IT project	Agree on business goals/metrics
Develop benefits to justify IT	Gain approval based on business benefits
Gain approval based on ROI	Choose IT to achieve benefits
Implement IT project	Implement business project

Table 1: Cost Benefit Analysis and Benefit Cost Analysis

### The GQM Paradigm

The Goal Question Metric paradigm was developed by Basili and Weiss (1984) as a method of facilitating the development of customised software metrics. Its use has gained favour among companies such as Hewlett Packard and Motorola. Its strength lies in the introduction of a formal approach to the measurement of change and an adaptation of it is employed in this proposed approach to measuring the achieved benefits of IT implementations, Benefit Cost Analysis.

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## THE BENEFIT COST ANALYSIS METHODOLOGY

The Benefit Cost Analysis methodology consists of 4 steps: steps 1 to 3 focus on the determination and measurement of benefits, while Step 4 brings them into synergy with the IT investment.

### Step 1: Determine the Business Goals (Benefits) for IT Investment

There are many reasons for determining investments in particular IT. These are the four main high level reasons:

- Want to be the first
- Everyone else has done it
- Cannot afford not to (in order to avoid losses)
- There will be benefits or gains

Each of these is a valid reason, in its own way. However, only the last two are true business related goals and have measurable benefits – although it is unlikely that even for them all the benefits can be captured accurately and fully.

Mostly, benefits are measured in an unstructured way – unlike costs. The taxation department is one very good reason why organisations are more concerned with costs, than benefits. However it is of key importance that benefits are also measured rigorously in order to evaluate the need for IT investments.

The procedure begins with these 3 steps:

- (i) (i) Determine your business goals. Determine the benefits (qualitatively) that you expect.
- (ii) (ii) Choose those which require additional investment in IT if you are to achieve them.
- (iii) (iii) Determine the particular IT to acquire. Why and how much are you investing in this particular IT?

The first two steps may be a little difficult to implement without changing the basic culture of the company. They may be substituted by the following 2 steps, which are sympathetic to the cost benefit paradigm:

- (i) Determine the ‘high level’ reason for the IT investment.
- (ii) If the reason relates to business benefits, then continue.

### Step 2: Determine success indicators

Direct measurement of the success or otherwise of goals is usually not possible, and indicators are used in lieu, often subconsciously. Some indicators are very effective and relate well to the actual situation. Some indicators appear at first to be appropriate but in fact represent some other characteristic. For example, does an examination really indicate a student’s ability to perform a task? Or does it simply represent the student’s ability to remember?

For an indicator to be useful, it must exhibit *all* of the following characteristics.

- (i) relates directly to the specified goal or characteristic
- (ii) relates *only* to that goal or characteristic
- (iii) is simple (rather than complex)
- (iv) relates to the physical rather than the abstract
- (v) is easy to understand
- (vi) can have at least one metric with which to measure it

### Step 3: Develop metrics for measuring achievement of the business goal.

Characteristic 6 of a good indicator requires the indicator to have at least one metric associated with it, that is, it must be able to be measured.

A metric may be either simple (measuring one ‘thing’) or complex (made up of two or more simple metrics), depending on the goal. Our choice of metric is dependent on why we need a measurement. The metric must be congruent with or aligned to the business benefit which is sought.

Furthermore, for the metric to be truly useful, it must have the following characteristics:

- (i) (i) objective and repeatable over time
  - (ii) objective and repeatable with different users
  - (iii) related to only one particular purpose/goal
  - (iv) economical to gather the data and use
  - (v) easy to understand
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#### **Step 4: Choose the appropriate IT to achieve the goals**

Having now found which of our original business goals can actually be quantified, and thus can be justified in business terms, we investigate how best they can be achieved. The most common alternatives are:

- Use current manual methods, unchanged or with some changes
- Adopt new manual methods
- Use current IT, unchanged or with some changes
- Procure new IT
- Any combination of above

The choice will be made on the basis of the best achievable benefit. Regardless of which alternative is adopted, there will be an investment of time and/or money. It is this investment that must be quantified and compared with the expected benefits, in order to determine whether there will be an overall benefit in choosing that particular solution.

#### **CONCLUSION**

Despite the best efforts of western accountants to adapt traditional capital-budgeting processes to IT investments, the repeated and universal achievements of overall benefits from IT expenditure remains elusive. The complaints that relations between IT users and professionals is poor and that users' preferences and work habits are not considered by systems designers rank among the top five complaints from senior executives. The Japanese do not experience these same problems. Their investment in IT is a result of a clear and measurable operational need.

Achieving commitment from top management remains one of the major tasks for a project manager in the western culture, since benefits justify a project rather than drive it. Under traditional Cost Benefit Analysis we choose the IT and then justify it with benefits (quantitative and qualitative) in order to gain top management support. By using Benefit Cost Analysis, we determine the benefits first, gain top management support for these business gains, and then choose appropriate IT to achieve these measurable business gains.

This paper proposes the adoption of the determination of IT investments based on gains in operational performance. An adaptation of the GQM paradigm has been developed as a means of developing metrics for measuring these gains prior to the conception of a project. The Benefit Cost Analysis paradigm then enables the expected, measurable benefits to be compared with the proposed investment in appropriate IT. Finally, to achieve these performance gains, IT investments are made as direct enablers of users in response to users' needs, thus promoting user satisfaction.

#### **REFERENCES:**

- Basili, V.R. and Weiss, D.M. (1984) A Methodology for Collecting Valid Software Engineering Data, *IEEE Transactions on Software Engineering*, 10,6.
- Bensaou, M. and Earl, M. (1998) The Right Mind-set for Managing Information Technology, *Harvard Business Review*, Sept-Oct, 118-128.
- Boehm, B. and Sullivan, K. (1999) Software economics: status and prospects, *Information and Software Technology*, 41, 937-946.
- Chanchit, C., Joshi, K.D. and Lederer, A.L. (1998) Process and reality in information systems benefit analysis, *Information Systems Journal*, 8, 2, 145-162.
- Cyert, R.M. and March, I.G. (1963) *A Behavioral Theory of the Firm*. Prentice-Hall, Englewood Cliffs, N.J.
- Ives, B., Olsen, M.H. and Baroudi, J.J. (1983) The Measurement of User Information Satisfaction. *Communications of the A.C.M.* 28, 10, 785-793.
- Linnel, E.R. (1990) *Total Quality Management*. TTC, Sydney, Australia.

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