

Measurement of Information Value

By Preben Sepstrup*)

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1. Introduction

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Discussions of measurement of information value have normally been related to management's use of and acquisition of information. The problem has normally been tackled through statistical and mathematical approaches. (See e.g. Green and Tull, 1964).

In the enormous amount of literature about the communication process between the firm and the consumer almost nothing is found about how to measure the value of information. There is no doubt that this is due to the traditional stressing of communication effects *as seen from the sender's point of view*.

In marketing in general the so called "marketing concept" idea has been accepted for a long time. The day must be very near when the same basic ideas will be accepted when we talk about the planning of information processes between firms, organizations, authorities and the individual. The starting point in the planning will then be: what kind and amount of information does the receiver want and how does he want it? To-day unfortunately, it is more common to start with the question: What do we want to tell the receiver?

When this presumed change has taken place it will be necessary for communicators explicitly to concentrate on the value of information *as seen from the receiver's point of view*. This is in opposition to a concentration on the effects of the communication as seen from the sender's point of view.

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If this idea shall become more than a change at the “nice thinking level”, it will be necessary to concentrate on, how to evaluate information in receiver criteria, or if it is possible, how to measure the receiver’s perceived value of information. There is, of course, also a heavily felt need for this by those who work with information acquisition and information processing in consumer (buyer) behavior. (E.g. Brabb and Morrison (1965), Cox (1963 and 1967), Farley (1964), Stigler (1961) and Sepstrup (1971).

2. Existing Proposals (The Bayesian Approach)

When talking about information evaluation in firms the most accepted formal approach is the Bayesian approach. It has empirically neither been proved nor disproved that consumers behave as “Bayesians” (Green). Before further empirical investigations of a similar kind it is important to think through if it is at all possible to use the Bayesian approach if in a certain connection we want to evaluate a receiver’s perception of information value in a communication process.

1) In the Bayesian approach it is assumed that it is the information as such which is evaluated. Is that true in the consumer/citizen case? Basically yes. But it seems near at hand to suppose that what is really evaluated at the factual level is the source of information. This evaluation is of course again based on some idea about the contents of information of the sources. But we run into several problems if we try to evaluate (measure) the receiver’s evaluation of the value of information at this level. E.g. we run into the problem of information units. Besides the practical aspects, it also seems logical to try to evaluate the value of information at the “source level”.

2) In the Bayesian approach the value of information is based on the expected value of the results following from the strategy or choice to which the acquired information leads.

Expected value of results is an acceptable measure in the management context. This is basically because information has no value in itself. The only value is the result of the decision based on the information contrary to results achieved without information. At least this is true when we talk about constructions of information systems, but it is not true in the consumer/citizen case. It seems quite clear that information here often will have a value of its own due to e.g. general information aspects or entertainment aspects.

3) It is much more difficult and often less relevant to use economic units for evaluation of the expected results in the consumer/citizen

context than in a management situation. Together with the fact that it will be very difficult for the communicators to get the necessary information, it seems obvious that the Bayesian approach will be a nice frame of reference but not the solution to the problem treated here.

3. A New Proposal For Information Evaluation

In descriptions of the functioning of marketing systems or evaluations of the utility in products one can find some utility concepts which seem promising for a first proposal for a solution to the problem discussed in this article. These concepts are: form utility, time utility, place utility and maybe possession utility.

It is proposed that the receiver's evaluation of an information source on the basis of the criteria behind these concepts will be a usable measure of his perceived evaluation of the value of information contained in a given information source. As these concepts are developed in the following, one will see that many aspects are close to factors which are considered important when evaluating the efficiency of a planned campaign. This should be no surprise. It just emphasizes that a) for practical purposes it is not as difficult as has normally been said to measure the receiver's evaluation of information value and b) working from the receiver end of the problem is not a revolution but an evolution.

Form utility increases as the form of information more closely matches the requirements of the receiver. Appearance, degree of detail, understandability, and volume may be elements of form utility. E.g. format, jargon and symbolic system may be elements of understandability. Communication of a change in a social well-fare law has a higher form utility when communicated through newspaper-advertisements using the citizens' daily vocabulary than when communicated through a kind of "official law-journal".

Time utility increases as the moment for receiving the information approaches the moment when the information is needed. (Though not as obvious this is also true when considering the general information and entertainment aspects). A time lag between these two moments is one of the most obvious faults in the existing information processes between authorities and citizens. Information with a much higher value is produced in a system where the citizen can call for information when needed than in a system, where the authorities send out information when they think it is time for it. The same is true for advertisements versus consumer journals or for the information value in a campaign where advertisements are repeated more often than in others.

Place utility increases with the degree of accordance between the physi-

cal location of the receiver and the wanted information. Place utility may also be viewed upon as dependent on the accessibility of information in general. This last conceptualization may be dangerous because it comes close to what maybe should be considered as information costs. Place utility depends much on the factual situation because it depends heavily on the location of the consumer at the time he needs the information.

Form, time, and place utility are the most important aspects to be taken into consideration. It is also worth considering the concept of possession utility. It should then be translated into an evaluation of the source as a "bad" or "good" one depending on who has the information. The difficulty will be that there are so many aspects of "bad" and "good" in this connection, e.g. competence and trustworthiness.

What has been set up here is first of all a hypothesis about important parts of the receiver's evaluation criteria. Therefore they are also important variables in the planning of a communication or an information process. It should be advantageous to both sender and receiver if the sender has an idea about the way in which the receiver perceives form, time, place and possession utility in a certain context.

It is important to remember that the evaluation of information is a subjective process. When this is said it should also be mentioned that it is possible to formalize the "look into" the receiver's perception of different utilities into a kind of measurement. It should e.g. be possible to use semantic differential scales, or to set up a check-list and let the potential or real receiver decide about the absence or presence of the utility component. This can be done at several levels, such as in relation to a total campaign, in relation to an information source in general (e.g. shops) or in relation to a specific information source (e.g. a certain advertisement). It is assumed that it is possible to measure in general or in connection with a certain product.

4. Summary and Conclusion

There are many reasons why knowledge of the consumers'/citizens' evaluation of information value is important. It is normally considered a very difficult task to acquire this kind of insight about the buying process. In other contexts it is normally accepted that the value of information is best evaluated in terms of expected results. It is proposed there that there may be characteristics of the information itself which are indicative of its value. It is further proposed that the concept of form, time, place and possession utility are important in this connection. It is not to be expected that an evaluation of the receiver's perception of these utilities alone will form a valid measure of the per-

ceived information value. What is set up here is not *the* way to measure information value, but one possible way. Presumably this way will turn out to be most successful when one is analysing the choice of information source, and when the results of using the information (in the Bayesian sense) are taken into consideration through an evaluation of the information need, e.g. through measurements of situation-conditioned uncertainty as proposed in Sepstrup (1971).

The model provides guidelines, not absolute measures of information. The consumers'/citizens' determination of the value of information is a subjective process dependent upon the evaluator's perception of the above mentioned features. The way in which the receiver perceives the source, format, focus and so forth of the information, is the real determinant of information value.

References:

1. Alderson, Wroe and Paul E. Green: *Planning and Problem Solving in Marketing*. Rich. D. Irwin. Illinois, 1964.
2. Brabb, G. F. and E. D. Morrison: *The Evaluation of Subjective Information*. Journal of Marketing Research. Nov. 1964.
3. Bucklin, Louis P.: *The Informative Role of Advertising*. Journal of Advertising Research. No. 3, 1965.
4. Cox, Donald F.: *Risk Taking and Information Handling in Consumer Behavior*. Harvard University. Boston, 1967.
5. Cox, Donald F.: *The Measurement of Information Value* in Decker and Williams (eds): *Emerging Concepts in Marketing*. AMA. Chicago, 1963.
6. Farley, John U.: *Brand Loyalty and the Economics of Information*. Journal of Business. Oct., 1964.
7. Stigler, George J.: *The Economics of Information*. Journal of Political Economy. June, 1961.
8. Sepstrup, Preben: *En studie af forbrugernes anvendelse af information i købsprocessen*. Institut for Markedsøkonomi, Handelshøjskolen i Århus. Skriftserie E nr. 1, 1971.