

Free literature review on the value of information

[Technology](#), [Development](#)



Abstract

This paper seeks to explain the views by the various literatures about the value of information. Information as seen exhibits some characteristics which include expandable, compressible, substitutable, transportable and diffusible and as such this paper will explain the characteristics of information.

Information in the economy is considered a distinctive good and its unique features can be seen in the basic consideration of costs. The paper will explain the explain information as an economic good and the paradoxes that are brought about by the analysis of the economy. Also information services are regarded as a public good as most of its qualities are similar to those of public goods. Finally, the distinction between information products and information is very important when looking at the intermediaries of human information and this paper will be helpful in showing this. This paper will help in giving an insight to the value of information.

Introduction

Information is the total of all the ideas and facts that are available to known by an individual at a particular moment in time. Information however has value to every individual whether positive or negative. Information has played a major role in our economy. The amount of information that exists has not actually expanded much in the past times. What has actually changed is that information has dramatically become accessible due to the technological advances that took place in the twentieth century such as radio, telephones, television, motion pictures and computers. This

advancement has enabled to increase speed in the flow and widening the availability of information.

Characteristic of information

Information is expandable

Some information for some purposes can be said to be depletive over a certain time but for the most part of it as indicated by Magda McHale and John, information continues to expand as it is being used. Industries such as scientific research, computer software, technology transfer, public relations, and publishing agencies then have been exploiting this characteristic to spread the word. Due to this aspect that information is expandable with no obvious limits, all the facts are never in and are also availed in small doses which leads to uncertainty being an important factor when planning. The more societies continue to make a living as a result of manipulation of information, the more people will be caught in a continued struggle of reducing the information overloads in their lives in the quest of reducing the uncertainty of what to do.

Information is compressible

Even though information is expandable, it can be integrated, concentrated and summarized so that it can be handled easily. It is possible to store a lot of complex cases in one theorem, put many insights from different masses of data to one formula, and write down many lessons that have been learned from past experiences in single manual of procedure. In the process of selection and compression of information, some of that information is bound to get lost and this information could be however important.

Information is substitutable

Information can replace labor, capital, or the physical materials. Automation and robotics used in offices and factories have continued to replace employees and such a transformation in the labor force is necessitated. Those employees who have been in the non-information services helping to extract, grow or make things will have to learn so to become information workers otherwise they will continue being replaced.

Information is transportable

Information can be transported at the speed of light and even faster than that through telepathy. In less than a century, the world has witnessed a major change in volumes and speeds of human activity and more so a change in transportation of resources that is even larger than the multi-millennial change from travelling on foot to use of supersonic jets.

Information is diffusive

Information has a tendency to leak and the more it continues to leak, the more of the information people have. Information is described as being aggressive in its efforts to get out of the bonds of secrecy where people try to hold it. Information in its efforts to get out affects those people who get it whether they receive it through gossip or from satellite broadcasting.

Information is shareable

Colin Cherry before he died wrote that " Information by nature cannot give rise to exchange transaction, only to sharing transactions". Unlike sharing items such as flowers and gifts where one is left without, sharing of

information leaves you with the same information or even with better information as the other person may share their ideas.

Information as an economic good

Information is with no a doubt a commodity that is peculiar. It has opposed several attempts at both measurement and definition, in general limiting the efforts at quantification to the consideration of external indicators of information as a flow and the indicators of aggregate value. Due to the absence of measures or consensual definition of information, the scholarly work regarding information consideration have essentially remained theoretical and even at this level, the concept of information has remained problematic.

The unique aspects of information as a good to the economy have resulted to the several paradoxes that are brought about by attempts to subject information the analyses of the economy. One of the paradoxes is in the question of whether information is a private or a public economic good. Another paradox lies in the question of whether the information goods due to their nature, have to inherently fail in meeting the social welfare and social efficiency conditions.

Several scholars have traced the problematic qualities of information in the economic analysis to the shortage in analytical treatment of information as a good to the economy. Some argue that past considerations did not incorporate the crucial qualities of information. Others say that the traditional considerations of information did factor in the aspects of value and cost. At the same time, others have argued that most of the problematic qualities of information result from the an improper view on the physical

manifestation of information instead of the information itself.

The issue of indeterminacy comes from a thread very common to almost all considerations of economics of information, backed by the notion that the value of certain information is not constant or fixed. A basic approach to valuation of information in some recent research has its traces from Arrow (1962) who had an argument that the complete value of information can only be known when it has been put into use by the user since the circumstances of how the information is used affects its value. However, taking the step from a deterministic perspective in the analysis, most of problematic qualities of indeterminacy in the valuation can be resolved. Development of fields such as decision theory and decision analysis has provided theoretical framework to deal with questions of uncertainty by application of probabilistic approaches.

A major concept in these analyses is the “ expected value” which is basically an average of the possible value of an outcome or good which is weighted by the respective likelihood. The expected value of information gives a mechanism that enables analyst to view the value of information as being fixed in their subsequent analyses. Information can be regarded as a distinctive good whose unique aspects are evident in the common and more basic considerations of costs. The production of information can be characterized by high fixed components that are related to acquiring or developing information and also a low variable cost component related to the replication of information. This component of low variable shows two different characteristics of information which are: information is basically nonmaterial and requires no use of other resources in replication, and the

other characteristic is that information is infinitely reproducible. It should however be noted that the distribution of information physically requires the use of communication medium or channel where costs may be involved in the distribution and replication of the information.

A paradox that is related entails some information goods such as advertisements whose distribution has been subsidized by the provider of the information. Advertisements messages are costly information goods to distribute and produce, yet they are distributed very widely with their cost not burdened to the consumer. Additionally, advertising is usually used in the subsidization of other information goods, meaning that marginal revenue of advertisements may actually be negative. However, the traditional analysis of information good does not consider that there is a probability for marginal costs to be reduced to less than zero and as such they suggest that the information goods like advertisements would violate the efficiency of the economy and optimality conditions that require equality of marginal revenues and costs.

Other aspects in the uniqueness of information as an economic good give an insight to the resolution of the apparent difficulty. The value for information has been described as deriving from benefits that are related to its use. One can therefore extend the conceptualization of the value that include the concept which suggests the use of information can create value not only to the users but also to others as well. However, the value that is created may positive or negative.

The use of information in a system acts upon that system to reduce or increase the level of uncertainty. As Ludwig von Bertalanffy put it, the

process of acquiring information and using it is the process of adjusting to contingencies of an outer environment. The use of information results to changes in the system and not only to those individuals using that information but also to others. Clearly, these changes to the system may result to changes in the relationships, status and the opportunities of other people that are within that system to effectively create value (negative or positive) that ancillary to the one received by the users of the information. The most common example of such an effect in economics is the use of insider trading in the stock market. In such cases, the value of information is dependent not only on the ability of an individual to utilize it, but also on how others will use it. In this situation, the value of information lies in the ability to make profit from acting on the information of future prices of the stock. Use of the information however, whether by the individual or by the others, brings the current prices close to the future prices hence reducing the potential for making profits. This example shows that the value of information is very much influenced by the level to which it is utilized, both by the individual and the other people.

Information as a public good

Products are considered to be public goods if they directly convey benefits to individuals who do not have interdependence in the consumption. The goods are then supplied to community in a manner that benefits are collectively accrued to the society. Information cannot be appropriated by individuals. It cannot be divided into units that can be given away separately. The consumption of information by a single person cannot reduce the amount that is available to other people. The common examples of public goods

include roads, streets, public libraries and national security. It is however very obvious that most information services and products share the characteristics of public goods. In spite of the many attempts of privatizing information for example, copyrights and patents, most stock of valuable information is available and financed by governments.

The characteristics of information have resulted to much discussions among the economists. Most support is given to the idea that information is partially a public good and that its markets can be developed. The arguments against the development include the idea that the social or the external benefits acquired from the use of information where the approach of public good is again supported. Even though it is impossible to make definite conclusions in the matter, description of information is adequate to determine the features of information as a product.

Information as a product

The distinction between information and information product is very important even though it is rarely made by the economists. From the thoughts of economists information products are described as the services, products, channels and systems that carry information. Emphasis is not placed on the difference between the information products and services for the reason that only few economists pay attention to the distinction. This distinction however is very important because of the special attention that has to be given to the intermediaries of human information.

Some interesting ideas on information products have been put forward by Feinman. He goes on to rename information product to knowledge-information-communication package to better describe the characteristics

and come up with fascinating ideas about the information industry through use of banking as analogy. The money is described as an analogous to the information and he argues that money can be treated like money in the societies. The idea by Feinman of the central information bank which controls the life span and value of information seems to be rather a danger, because it does not consider the varying information's importance to individuals according to motivation, ability and intention to use the information. This thinking is however is an important tool in demonstrating the effects of trying to describe information to be purely a product.

Conclusion

Benjamin Bates traces the problematic aspects of information in the economic analyses to the deficiencies in the analytic treatment of information as an economic good. He argues that traditional treatment of information does not consider some aspects of value and costs. He also argues that many problematic aspect of information are as a result of physical manifestations rather than the information itself.

Aato J. Repo reviews and analyzes the research that is performed by the accounting researchers, economists and management scientists in the field of economics of information. He emphasizes on the approaches that are taken to measure and describe the value of information. He suggests that information is a phenomenon that reduces uncertainty which is studied in terms of exchange value.

Harlan Cleveland suggests that information is refined into knowledge and wisdom and that information is our crucial resource. He goes on to use the characteristics of information to give us clues to the vigorous rethinking

about information.

Abbe Mowshowitz lays the conceptual foundations for the study of market value of information commodities and also gives a sound basis for pricing. He also analyzes the market information in terms of supply and demand. Jose-Marie Griffith addresses the value of information and information systems, services and products and puts them into two categories which include that which describes the concept of value and the approaches to measuring the value, and that which defines the application of the measures to the information services and products.

The art of estimating the value of information and the related products, services and systems has significantly advanced over the recent times. In such times where we are going through economic restraints and budget cuts, the importance of assessing value of information is becoming clear to the operators, funders and the users of information. Assessing the value of information helps in measuring how it is useful to the economy of our country and the manner in which it affects prices of commodities. It helps in viewing the value of information as a public good and as a product which gives a distinction between information and information product.

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