

Why do People Pay for Information?

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ABSTRACT *This paper investigates the situations where there are incentives for people to pay a premium over the channel costs for information content. It concludes that there are at least four: premium low relative to channel costs and monopoly, which are less interesting as they are not specific to information; where the information need is idiosyncratic; and where the quality of the information source is critical.*

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Introduction

Why do people pay for information? Note that the question is why DO they, not why ought they to—it is not a normative study indicating how people ought to behave if they were rational, but an explanatory study of why people's existing behaviour can be interpreted to be rational. To do this, we first clarify the concept of information, to get a better idea of what we are talking about. We then examine the costs of information delivery, which are minimally the costs of the goods, services or energy required to embody and transmit the information. Finally we are in a position to consider several situations in which a rational consumer is willing to pay a premium over these minimal costs which can be attributed to the intangible information content.

What is Information?

In order to investigate why people pay for information; we must have a clear idea as to what information is—what is being paid for. This is not an easy task. Information is an amorphous concept, and no clear definition of information seems to exist in the literature. In order to say anything definite about information, one must limit the concept. Different researchers therefore focus on specific classes of information.

For example, Arrow¹ looks at technical information as it permits improved processes or new products. This class of information is often embodied in the skills and knowledge of workers. Arrow recognises that this particular class does not

exhaust the concept of information, but claims that his conclusions are not limited to the specific class of technical information, although he states that the results of his analysis do not apply to all types of information.

Sveiby,² on the other hand, looks at information such as is used to support share market trading decisions. Lessons from his work do not necessarily apply to all types of information, either, but his work can be learned from if applied with care. Similarly, Mandeville³ studies technical information, but more from a producer point of view than Arrow, whose focus is primarily on the consumer of such information. As for the others, Mandeville's results can be applied more generally, but not universally.

In this paper, my primary concern is with information that can be published or sought in publications, in particular, information that can be published or sought on the Internet. It thus subsumes the type of information considered by Sveiby. Publication need not be active—it is sufficient for information to be stored in some sort of repository which can be accessed by a seeker. The repository can at the extreme be a person, of whom the seeker can ask questions, or the publication can be in the form of a lecture or performance. The type of information treated thus covers most of the class considered by Mandeville, except that the seeker will interact with a repository located in a person only by asking questions rather than requesting the performance of a technical service. Further, this paper is not concerned with technical information such as is embodied in physical products or physical tools.

The seeker of information in this work is looking for something published in the above strong sense. They are not seeking a physical product nor an active service, although the information they are seeking might be intended for use in deciding to purchase a physical product or an active service. The seeker might be looking for information in Arrow's sense, but the present work is not concerned with what the seeker intends to do with the information sought, nor with the internal structure nor information flow within organisations, so there is little overlap with Arrow's concerns. The seeker might be looking for information not as an input into production, but as an ultimate consumer—much of what the entertainment industry does is publish information in the present sense.

Even the restriction of the type of information to that published or sought is insufficient to make definite claims—we need some definite properties which are not necessarily universally present in what might be called published information, so will limit consideration to economic goods which have three of the properties described by Lamberton⁴—information is intangible, inexhaustible and of the nature of a public good.⁵ There are goods that are intangible but not information by these criteria:

1. A work of art is not information, since it is exhaustible. A copy is information, however.
2. A speech act is not information for the same reason. A copy of a cheque is not a cheque. A report of a speech act is information.
3. An event like the Sydney 2000 Olympics opening ceremony is not information. It, too, is exhaustible since there are only a finite number of seats in the stadium. A television recording is information, since the recording can be copied or re-broadcast.

Besides these criterion properties, information in the present sense has some other properties, which are relevant to the present work. The first of these is that

information tends to have a substantial cost of use.⁶ That is to say, once a consumer has a desired body of information, that consumer may have to spend considerable time and other resources to assimilate it.

Cost of use is another amorphous concept. It includes monetary costs, of course, and other resource consumption which can be converted into monetary costs. However, the costs of use of information include irreducible personal time and effort, which cannot be traded. For example, if one wants to appreciate *Faust* in the Goethe's original German, then there is nothing to do but learn German. One can't pay someone else to do it. One might be able to monetarise these costs using opportunity costs. However, in the present work costs of use are never explicitly represented. These costs appear here as rationalisations for choices made by information seekers or consumers of one source over another.

On the publishers' side, costs are standard monetary units which are commensurate with the price the seeker or consumer is willing to pay, but the price the consumer must pay is not necessarily all of their costs.

Cost of use is an issue whether the information is a consumption good or an input for further production. It takes 20 hours to experience Wagner's *Ring* cycle. Some people find this intensely pleasurable and experience it again and again. It also takes considerable time to learn the programming language SQL in order to be able to effectively use it to extract information from a large and complex database, given the information input of a textbook, series of lectures, tutorials and advice in practical sessions.

It does not always take a large amount of time and effort on the part of the consumer to use information, though. Tony, in *West Side Story*, gets intense pleasure from hearing the name of his beloved ('I cannot stop saying Maria'), which takes a fraction of a second. A day trader on the stock market may take only a few seconds to execute a buy order on receipt of some inside information.

The second relevant property is that information may be more or less codified.⁷ This concept is presented in the context of technology—knowledge, which has a high procedural content, is highly uncoded. For example, someone may have Codd's original paper on extracting information from large data banks, knowledge of a programming language, and a large data bank consisting of a collection of computer files. It may take months of trial and error to be able to effectively write a program to answer a particular question in a particular circumstance, even given full access to the knowledge stated. As the procedures are formalised and written down, they become more codified. If a programmer has a good textbook outlining the various possible situations and what should be done in each, it is much quicker to use—much trial and error is avoided. As they are embodied in information products like Microsoft *Access* or Oracle *Designer 2000*, it is even quicker to obtain a desired analysis. Latour describes the process of codification in great detail⁸ as a process of universalisation and decontextualisation of knowledge as tools. Once a scientific theory becomes fully codified, people in a wide variety of areas can use it without consideration of, or even necessarily knowledge of, its origin and context of development.

Codification also applies to information for consumption purposes. A person might get intense pleasure from only parts of the *Ring*—say Thor's striking the anvil in *Das Rheingold*, the ride of the Valkyries in *Die Walkure*, the forest bird scene in *Seigfreid* and Seigfreid's funeral in *Gotterdammerung*—and might find most of the rest rather tedious. A recording of extracts including those might be far preferable to a recording of the entire cycle.

The third relevant property is added value, as described by Sveiby⁹ in the context of information used in the share trading industry. Simple reports of stock prices are low value-added, addition of news reports adds more value, while analysis adds more yet. In this industry, the information is used to make buy and sell decisions on the stock market. The raw prices from current transactions must be interpreted in the light of changes in prices and world events, and also in the light of fundamentals of the economics of the relevant industries and how those might be changing. The more added value, the less work must be done by the trader to use the information. The concept applies to information used for consumption, as well. The pleasure obtained from an experience of the *Ring* might be greatly enhanced by the German and English texts, analysis of the occurrence and transformation of the *leitmotifs*, the history of the legend on which the plot is based, and Wagner's private circumstances at the time. Here, of course, the time spent consuming the information is even greater than the 20 hours needed to experience the music drama on its own.

These three contingent properties are interrelated. In particular, codification and added value are very similar. In the former, a great mass of material is brought more and more into organised form so that it is easier to apply in the case of a producer input or to enjoy in the case of a consumer good. In the latter, more and more material is combined and organised so that it is easier to apply or more pleasurable to consume. The two concepts differ mainly in the domains from which they arise, although in the former the body of information remains fairly constant and is better organised, while in the latter more and more context-related information is added, the resulting increased body being organised.

To some extent, codification and added value correlate with a reduced cost of use—the more codified or the more value added, the less the information costs to use. That is to say, the purpose of codification and value added is to reduce the cost of use. (In the case of the value-added *Ring*, the relevant comparative cost is the cost of doing the research to assemble the additional information.) But they don't always lead to lower costs of consumption.

Codification of database access procedures reduces the cost of use for someone who wants to perform an analysis on a particular data bank. However, consider someone who wants to understand the basic principles on which this highly codified product is based, perhaps to assess whether it makes sense to adopt it for a class of problem different from that which it was originally developed. For this purpose, reading Codd's original paper and an hour's discussion with an experienced person might give the least cost of use, especially compared to the enormous task of reverse engineering the bare product in order to understand its basic principles. Similarly, for someone whose greatest joy is to experience the *Ring* in its entirety, to seek to reconstruct some semblance of a complete performance from extracts and compilations is a huge task. Witness the enormous effort expended to reconstruct the original works of Heraclitus or Parmenides, which survive only in quotations and commentaries.

Similarly for added value. Adding value to information is essentially Arrow's¹⁰ concept of reduction of information in a channel. The existence of a channel implies a specialised use of information, for which the reduction reduces the cost of use. If, however, the consumer of the channel is doubtful about the value added, access to the underlying low value-added information could be essential to resolving these doubts. In this case, high added value information, where the source data is highly

condensed, is much more costly to use. This sort of situation is common in the sciences, when an unusual or controversial result is put forward.

The lack of correlation of codification or added value with cost of use suggests that we need a concept of assimilability—information is more assimilable if it costs less to use. Assimilability is a property not only of a body of information, but also of its intended use. It is impossible to assess the assimilability of an information product except in some context of use. This is in fact consistent with the concepts of codifiability and added value. Even though they are presented as absolute properties of a body of information, they in fact assume a context of consumption. Assimilability is codification or value added—for a purpose.

Irreducible Costs of Information

Information may be intangible, but in order for it to be used it must have a tangible representation (bits must be represented in atoms, or at least movement of electrons) as a good or service. Information never exists except in embodiment. When the last embodiment is dispersed, the information is lost forever. We will never see Aristotle's Dialogues, nor understand the meaning of Stonehenge to its builders.

Therefore any information transmitted is transmitted via a commodity. A book or CD is a commodity. A television transmission is a commodity, involving labour and energy, as well as the equipment required to play and reconstruct the recording. A performance of a play is a commodity, involving the labour of the cast and crew. So is a lecture—it involves the labour of the lecturer and the use of the theatre.

An information transmission thus has a minimal cost, that of the commodity in which it is embodied. It is easy to see this. A book or CD containing nonsense syllables or white noise costs just as much to produce as a printing of *Wealth of Nations* or a copy of a recording of the *Ring*. A play costs just as much to produce if the script is a telephone book as if it were *Hamlet*, just as a lecturer reading the weather reports for the past 10 years costs just as much as a lecturer speaking on Information Economics. This cost is part of the cost of the information channel in Arrow's terminology,¹¹ and might be called the external channel costs, since it is the part of the channel external to the firm, therefore part of the firm's market environment.

So, the price of the product is independent of cost of information in it. The question of this paper is when does it make sense for a consumer to pay a premium for the information content of the external channel.

It is clear that information has a cost of production, so that it must be paid for somehow. It takes much longer to produce a superb performance/recording of the *Ring* than to produce the master of a white noise CD, and similarly for the other examples adduced. It has also been established that information can have substantial costs of use, some of which are monetary or can be monetarised as opportunity costs, but are manifested in choices made by the consumer.

However, cost of production is irrelevant to price, since information has characteristics of public good. The products embodying the information can be manufactured relatively cheaply. Additional people can be trained to perform the services. It is much cheaper to train someone to teach differential calculus than it cost for Newton and Leibnitz to invent it. Therefore competition will reduce the price of information to the cost of the external channel.

Cost of use can be significant. Checkland and Howell document the enormous organisation that had to be established to make effective use of radar in the Battle of Britain.¹² But the costs of use would be the same even if the transmission and acquisition costs of information were free, so gives no incentive to pay a premium for information content.

So, the fact that information has a cost to produce, a cost to transmit, and a cost to use does not provide any incentive for a consumer to pay a premium over the channel cost for it.

On the other hand, information has value, so there is a capacity to pay for it. There is certainly a value for consumption information—people are willing to pay thousands of dollars and travel long distances to experience a live performance of the *Ring* at Bayreuth or Adelaide. Information also has value as a producer input. Arrow argues¹³ that information has economic value if it reduces uncertainty, particularly if it has predictive value. In an unstable economic period such as the present, novelty has great value, either as a source of new products or as the basis of products, which are threats to established ones. Companies devote considerable resources to identifying new ideas and tracking potentially emerging trends, especially in the fashion industry¹⁴ and in electronic commerce.¹⁵

Why Does Information Have a Price?

We have established that information has a cost to produce, to distribute and to consume, and also that it has economic value. However, because information is in the nature of a public good, there seems to be no incentive to pay a premium over the cost of the channel. This brings us to the central question of this paper: why are people willing to pay a premium over the external channel cost for information?

One reason is inertia. If the premium is small compared with the external channel costs and the costs of use, then bounded rationality¹⁶ explains why people might not bother to seek a lower cost channel. The limited computational capacity of the consumer is better devoted to reducing other, larger, costs or to investigating other, more potentially profitable opportunities.

A second reason for paying for information is that the channel might have a monopoly. There are several ways this could be. The medium could be difficult to copy. When CDs first came out, the equipment to manufacture them was expensive, so it was expensive to set up a facility to copy them. Similarly, the printed version of the *Encyclopedia Britannica* is expensive to copy, consisting as it did of 32,000 pages. The information might be diffuse in the source, so difficult for someone else to assemble comprehensively. An online version of the *Encyclopedia Britannica* which only answers specific questions or a statistical source responding only to specific queries has this characteristic. (Of course, if the *Encyclopedia Britannica* or the Census is published as a CD-ROM, copying is then quite easy.) Finally, the most common method of maintaining monopoly control of an information source is legal enforcement of copyright.

In all these cases, the information source can charge a premium over the bare external channel costs, which can be attributed to its information content.

In the inertia and monopoly situations, a premium over the external channel costs can be charged for information, but the same reasoning applies to any commodities—bounded rationality means that people rarely pay the minimum possible price for anything, and monopoly is defined as the ability to enforce a

monopoly premium over the free market price. So the premium has nothing especially due to information.

A third situation where a premium can be obtained is where the consumer's information requirement is idiosyncratic. I might want to know whether my great-grandfather was really guilty of a crime for which he was convicted and executed. It is said to be common for police to pay informants for information related to a particular investigation, and it is certainly common for large rewards to be offered for information in particular cases. Chequebook journalism is commonplace. More generally, a significant requirement for information is in support of deliberations regarding a decision of some kind. Every decision is made in a different context, so that the information required is in some degree unique.

A particular example of this class of payment for information is the practice of many Internet service providers to give users a free PC or free access in return for personal information from the user and an agreement to accept a certain number of advertisements.¹⁷

In some cases the information exists but in its usual form has a low assimilability for a particular, somewhat idiosyncratic purpose. A source having a facility to make the information much more assimilable in that situation could command a premium up to the difference in the value the user places on user costs between the usual form and the more assimilable form. Clandestine purchase of trade or weapons secrets falls into this category—the fact of the atomic bomb plus basic nuclear physics is far less assimilable than the designs and production plans of the bomb itself.

In all these cases, there is no incentive to copy the information. Its value is highly local, so there is a limited market. The consumer has a strong incentive to get someone to fill the channel, while those holding the information have no competition, so no reason to sell cheaply. This situation is much like the monopoly situation, except that the market power comes from occasional opportunity in a fleeting market rather than from structural properties of an established market.

Furthermore, it is much harder to find physical goods or services that fit this pattern, so it is much more clearly an information situation. The search for an idiosyncratic good, such as a part for a 1953 Goggomobile, might be one, except that at the high end the search becomes for a machine shop capable of making one. The latter is a market of the more conventional kind. The search for the missing volume of a 1934 edition of the complete works of O Henry, in a similar condition to the remaining volumes in my collection, might be one except that its value to a second-hand book dealer is limited to an average purchaser, so the dealer is unlikely to charge a premium. The book would have to be in private hands, and not on the market, for a comparable premium to be charged.

There is a fourth situation, which is perhaps most interesting, as it appears to require a deeper use of information economics to explain. It depends on two facts. First, information cannot be assessed for quality until it has been absorbed, that is until it has been paid for and its use cost also paid. Second, especially in decision-making, the quality of information is critical to its value. Information that a long shot in a horse race is going to win is only valuable (to a bettor) if the horse does actually win. Information that a robbery is to be carried out at a given time and place is valuable (to the police) only if it in fact does take place there and then. Information that a large cash payroll is to be transferred at a

given time and place is also valuable (to a robber) only if the event does occur. Sveiby sums up these two aspects¹⁸

Since recipients cannot know until afterward whether it was worth spending [the time necessary to absorb information], information that is worthless is really worth less than nothing.

Less dramatically, we have established above that information differs in assimilability. Again, it is impossible to assess the assimilability of a body of information until it is actually assimilated. Sveiby's observation generalises to the idea that the quality of information can be crucial to its value, and that the quality cannot be assessed before consumption. Further examples can be multiplied: a pirate copy of Microsoft Excel may be a beta test version with many errors in it, and with incorrect or missing documentation; a marine weather forecast may be hours out of date, with catastrophic effect on sailing boat crews encountering a sudden storm; a web site dispensing tax planning advice may be based on incomplete or out-of-date tax law and cases; a course on SQL or medical information on a disease condition may be incomprehensible.

Since there is no way to assess the quality of information before purchase, the only way to increase the likelihood of high quality information is to obtain it from a source which has in the past provided high quality information, either to the consumer or to someone the consumer trusts. In other words, a channel has a certain reputation for quality.

When considering obtaining information from another source, perhaps consisting of purported copies of information from a highly reputed source, the consumer is faced with a source of unknown reputation, and the possibility of paying less for information worth less than nothing. Establishing the likely quality of the new channel is itself a task requiring information. It is necessary to open a third channel to assess the quality of the proposed new channel. This is, in itself, a costly exercise—the cost consisting not only of any premium for the information in the quality-assessing channel, but also the external and internal channel costs and the costs of assimilation of the quality assessment.

This is to say that in order to pay a reduced premium over the external channel cost of a particular information source, the consumer has to pay the full cost of another information channel to assess the quality of the proposed alternative. Therefore a channel for information whose value is sensitive to quality has considerable leeway to charge a premium for information content. This is especially true for sources with high assimilability, since the cost of use of the existing source is relatively low, and that of the new source is unknown. This last reason for paying a premium for information content is almost purely an information economic issue.

Conclusion

The conclusion of this study is that there are situations where a consumer of information may be willing to pay a premium over the channel and consumption costs for the information content of an information channel. The four types of situation identified are:

1. the premium is low compared with the channel cost;
2. there is a monopoly on the information;

3. the information demand is idiosyncratic, so that there is no incentive for providers to fill the channel; and
4. the information's value is highly sensitive to quality, so that the channel's quality reputation is important.

This suggests that a feasibly profitable information business is one where the information is directed at decision-making where the quality of information is critical. The site must be able to take the user's situation into account in such a way that the assimilability of the information by the user is high. It would be essential to either begin with a good reputation for quality or to quickly establish one. The premium charged for the information should be small compared to channel costs; it should be difficult for someone else to obtain the body of information; and whatever intellectual property protection is available should be sought.

Notes and References

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5. This method of identifying the domain of discourse can be taken as a principled decision. Some thinkers, notably Karl Popper, argue against essentialism—the attempt to find the 'essence' of sociological constructs—on the grounds that theoretical constructs do not necessarily designate a 'thing in itself' in external reality, and in any case if they did we could never tell. He argues (*The Open Society and its Enemies*, Volume 1, Routledge and Kegan Paul, London, 1966, pp. 31ff) that it is much more productive to think of sociological constructs in technological terms—criteria for design and for evaluation, as we have done here.
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