

The Role of Information in Decision Making

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INTRODUCTION

The advent of the World Wide Web and other communication technologies has significantly changed how we access information, the amount of information available to us, and the cost of collecting that information. Individuals and businesses alike collect and interpret information in their decision-making activities and use this information for personal or economic gain. Underlying this description is the assumption that the information we need exists, is freely available, and easy to interpret. Yet in many instances this may not be the case at all.

In some situations, information may be hidden, costly to assimilate, or difficult to interpret to ones own circumstances. In addition, two individuals who look at the same information can reach different conclusions as to its value. One person may see it as just a collection of numbers, another sees a market opportunity. In the latter case, information is used in an entrepreneurial way to create a business opportunity. Advances in technology have created opportunities to do this by creating information systems that can support business decision-making activities. Such decision support systems are playing an increasingly important role in determining not only the efficiency of businesses but also as business opportunities themselves through the design and implementation of such systems for other markets and businesses.

However all is not easy as it may first seem. Quality decision making and effective decision support systems require high quality information. The implicit assumption in talking about decision support systems is that the required information is always available. It is somewhere "out there" and must just be collated to make use of it. However, very often this is not the case. Information that is scarce or inaccessible is often more valuable and can be the very reason for many firm's existence. The importance for firms to process

information to do with its business environment on issues such as, market trends, events, competitors, and technological innovations relevant to their success is prevalent in the management and IS literature.¹

The theme of this article is to analyse the role information plays in managerial decision making at individual, group, and firm level from an economics perspective. We argue that access to information is essential for effective decision making and look at problems associated with insufficient information; the effects that such information deficits have in shaping and designing markets are then explored. We start by exploring the nature of information and the issue of asymmetric information. We examine the different solutions put forward to address information deficits, such as advertising, licensing, and regulation. Finally we conclude by outlining likely future research in markets with information deficits.

BACKGROUND

A crucial characteristic of a market place is the distribution of information between supplier and client. There are two types of information involved in such cases. The first is costly information, where, for example, a consumer must invest time and effort to search for the lowest price of a particular product or service. The second is asymmetric information, where the consumer may not be in a position to judge quality or make comparisons between different suppliers because in most circumstances the consumer is not as well informed as the provider of the service. Consumers may also be open to opportunistic behaviour by suppliers because most people purchase some services infrequently (for example, professional services, housing, and cars).

Over the last 35 years, the theory of markets with asymmetric information has been seen as an important field of economic research. The theory has been

applied to many areas from traditional agricultural markets to modern financial markets in both developing and developed countries. The founding fathers of this research field began their work in the 1970s with applications and extensions to this work continuing to this day. Three economists in particular are recognised as the pioneers of this field. They are; George Akerlof, Michael Spence, and Joseph Stiglitz, and they received the Bank of Sweden Prize in Economic Sciences in Memory of Alfred Nobel, 2001, “for their analyses of markets with asymmetric information.”

Akerlof's (1970) seminal article called “The Market for Lemons” is seen as the single most important study in the literature on the economics of information. He analysed markets where the producer has more information than the consumer regarding the quality of the product and applied this to the market for used cars. He concluded that information asymmetries in the car market could increase the cost of organising markets and thus lead to market failure. Up to that time it was assumed that a competitive market would result in an equilibrium price for each additional unit of quality being reflected by its marginal valuation.

Two implications exist from such asymmetric information. First, individual producers cannot signal to clients that their good is of a better quality. The market price will only reflect the average quality level and therefore, high quality sellers will be driven out of the market, or will reduce the quality of their service. It will then lead in a downward spiral of falling quality perception and market price, and a further reduction in quality. High-quality producers have to share with all other producers, the returns from a similar price. These producers do not receive anything extra for their higher quality service. This is classified as adverse selection, that is, bad quality services drive good quality services out of the market.

The second implication is that of moral hazard, where a producer can put in minimal effort for a low fee-paying consumer and yet claim that their best efforts were made, in order to concentrate on higher fee-paying clients. The low fee-paying consumer, not knowing the details, cannot make a judgement on the producer's efforts. In the worst case scenario, the information problem can either cause an entire market to collapse or contract into an adverse selection of low-quality products. Other examples of adverse selection demonstrated by Akerlof's include credit markets in India in the 1960s, difficulties for the elderly to acquire

individual health insurance and employment discrimination of minority groups.

Spence (1971) successfully demonstrated how better informed people in a market could credibly transmit their information to less informed people, and in doing so avoid the problems associated with adverse selection. Such “signalling” requires market participants to take measures that are both visible and costly, in order to convince other participants of the quality of their products. Spence's contribution involved formalising this theory and demonstrating its applications with his analysis of labour markets. A crucial point in this analysis is that signalling will not be effective unless the cost of signalling differs sufficiently among the different market participants sending such signals. Examples of market signals are costly advertising and generous guarantees as signals of quality, price wars as signals of market power and strength, and delaying tactics in wage offers as a signal of bargaining power.

Rothschild and Stiglitz's (1976) contribution to this field was to show how an uninformed market participant could sometimes capture the information of a better-informed participant through screening. For example, insurance companies divide their customers into risk classes and offer them different policies where lower premiums are offered to low risk customers. Other forms of insurance, such as health insurance, operate in a similar way.

The crucial point to take for these seminal authors is that our understanding of markets and business decision making is likely to be incorrect if we disregard informational asymmetries. The widespread and clear message is that with asymmetric information many markets take on a completely different form, as do the conclusions we reach from our analysis of them. For businesses and entrepreneurs, asymmetric information, therefore implies profit opportunities if the ability to exploit information deficits can be harnessed.

THE IMPORTANCE OF INFORMATION IN DECISION MAKING

Information is often difficult to acquire and to process. The more difficult it is to find, the more valuable it is for decision making. Therefore in assessing the true value of information the costs of acquisition and the value of that information have to be considered. If the benefits exceed the costs, the entrepreneur has the necessary

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