

# Social Interaction Effects

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## INTRODUCTION

Direct social interactions between economic agents (people) are important in determining their choices. When choosing a new car, you will likely ask some of your friends or acquaintances what their opinion is on different types and brands of cars. When choosing a new photo camera, you are likely to visit an Internet forum to see what other peoples' opinions are on the different brands and types of cameras. These are examples of social interaction. Social interaction effects are therefore important in determining buying behavior. The rise of the Internet has considerably facilitated such social interactions, making social interaction effects even more important.

## BACKGROUND

### Rising Interest

As from the 1980s, social interaction effects (or adaptive expectations), a form of increasing returns, attracted a lot of interest in economics and management sciences. This was mainly due to the work of Arthur (1988, 1989, 1990). While the subjects of returns to scale in companies had a long tradition in economics, social interaction effects (i.e., increasing returns in market) had hardly been addressed (Den Hartigh, 2005).

In economics, it is typically assumed that the behavior of economic agents is not directly influenced by the behavior of others. Of course, in economic terms, agents do influence each other, but always indirectly, namely through the price mechanism in the market. With social interaction effects, there is *direct social interaction* between economic agents.<sup>1</sup>

While relatively new to economics, mechanisms of direct social interaction between agents had been studied for a long time in sociology. It had been known under the label theory of collective action (e.g., Granovetter, 1978; Marwell, Oliver, & Pahl, 1988; Oliver, Marwell, & Teixeira, 1985), bandwagon effects (Granovetter &

Soong, 1986), information cascades (Bikhchandani, Hirschleifer, & Welch, 1992), or network analysis (Burt (1987, 1992). Gradually this work has penetrated into the management sciences (Granovetter, 1985; Gulati, 1995, 1998; Westphal, Gulati, & Shortell, 1997).

## MAIN FOCUS OF THE ARTICLE

### Definition

*Social interaction effects* are also known as *social network effects* (Abrahamson & Rosenkopf, 1997) or *social contagion* (Burt, 1987; Kretschmer, Klimis, & Choi, 1999). Social interaction effects occur when a customer's purchase intention, or a supplier's supply intention, is dependent on the opinions or expectations of other (potential) customers and suppliers. We refer to interdependence of opinions as *information exchange* and to interdependence of expectations as *self-reinforcing expectations*.

### Information Exchange

As previously stated, we refer to social interdependence of customers and suppliers' opinions as information exchange. Information exchange effects mainly occur with high-involvement products that are relatively unknown, the quality of which cannot be assessed before purchase and with products of which the purchase entails a large network risk. This may be an *economic network risk* (e.g., the risk of buying into the wrong technology) or a *social network risk* (e.g., the risk of buying into the wrong fashion style or social group). With the purchase of products such as computers or cellular phones, customers buy into a technological network of compatible products. If the technology life cycle of this network is very short, or if the network does not develop into the market standard, the customer's investment is lost. To assess the risks of investing in such a technological network, customers search for information by consulting opinion leaders and existing product users before

they buy the product. This information search behavior generates interaction (i.e., information exchange) between customers. Arthur and Lane (1993) refer to this interaction as *information contagion*. It is more probable that a customer will find favorable information about a product with a large market share than about a product with a small market share. Customers perceive the purchase of the former product to be less risky and will be more inclined to buy it. Consequently, the market share of this product increases, increasingly at the expense of the small market share product. In this way, information exchange causes positive feedback effects in market shares.

Apart from product-specific information exchange, customers also exchange non-product-related information. Feick and Price (1987) refer to the person who supplies this kind of information to other customers as market mavens (Feick et al., 1987). Market mavens are defined as “individuals who have information about many kinds of products, places to shop, and other facets of markets and initiate discussions with consumers and respond to requests from consumers for market information” (Feick et al., 1987, p. 85). In particular, in the case of network technologies, where the complete network of complementary products rather than a single product is at stake, the influence of the market maven on the purchase intentions of other customers can be substantial.

### Self-Reinforcing Expectations

Furthermore, customers have an interest in investing in products that are compatible to a long-living technology network that is widely supported and recognized as a market standard. To assess the risk of investing in a technological network, customers form expectations about the size of competing networks (Katz & Shapiro, 1985). This expected size is dependent on the number of suppliers and customers who have already invested in this network, or will do so in the future. When a substantial number of suppliers and customers expect that a particular network will dominate the market, they will be more inclined to invest in this network. As a result, the size of the network will increase, reinforcing the expectations of customers and thereby attracting even more customers, and because of these self-reinforcing expectations, there is a high probability that eventually this network will indeed dominate the market.

### Product-Related and Technology-Related Social Interaction Effect

Two levels of social interaction effects can be distinguished: the product level and the technology level. At the product level, there is information exchange and the formation of self-reinforcing expectations between customers and between customers and suppliers regarding the adoption of products based on a common technology standard.

At the technology level, we are dealing with mutual influences between different kinds of suppliers (i.e., technology sponsors, technology licensees, and those who have not yet decided) regarding the adoption of technologies that form the basis of goods and services produced. When investment in such technologies entails a large network risk (i.e., a risk of investing in a network that does not become the dominant network) suppliers who have not adopted yet will try to assess that risk by looking around to see which other well-known suppliers are sponsoring these technologies and which well-known suppliers have adopted these technologies. On the basis of this information, suppliers may show mimetic behavior. As Westphal et al. (1997, p. 372) state: “[...] communication ties could help disseminate information about legitimate forms of innovative adoption, while also possibly increasing normative pressure to conform to those practices.”

Like customers, suppliers also form expectations about the potential size of competing technology networks. On the basis of these expectations they decide to either invest or to announce that they are committed to investing in a technology. They do this by co-sponsoring, by buying licenses, or by announcing or developing new products based on this technology. These commitments reinforce the expectations of other suppliers, increasing the pressure for them to make a choice whether or not to commit themselves to investing. When large enough quantities of important suppliers have committed themselves, the expectations regarding which network will dominate the market may become self-reinforcing. On top of this, product and technology level social interaction effects will be mutually reinforcing.

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