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## Predicting the market demand for an innovation based on the concept of social contagion

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## 7 Summary in English

### *Predicting the Market Demand for an Innovation Based on the Concept of Social Contagion*

This dissertation focuses on a social process of interpersonal influence, also known as 'social contagion'. The central theme is to develop our understanding of how social contagion comes about in relation to the consumer adoption of new products.

The research described here has two main objectives. Firstly, we aim to develop a new methodology for assessing to what extent a new product will stimulate social contagion within its target consumer market. We investigate how this methodology can be used to make pre-introduction predictions of the future consumer demand for a new product. Secondly, we aim to improve our understanding of the role of social contagion in the process of new product adoption by identifying which characteristics of consumers and of products drive this process and, in turn, affect the consumer demand for a new product.

We propose a new approach for making theory-based estimates of consumer demand, to be carried out during product development, for radical innovations and really new products. We choose to focus on products which incorporate information and communication technology. We do this because this is an industry which produces a relatively high number of innovations intended for release into the consumer market and because for such products it is difficult to make pre-launch estimations of the likely market demand.

An increasing number of studies are showing the importance of social contagion during the adoption and diffusion of new products (Dijksterhuis and Bargh, 2001; Hurley and Chater, 2005; Manchanda et al., 2008; Tanner et al., 2008; Van den Bulte and Stremersch, 2004). Despite this growing evidence, there remain a number of significant gaps in our knowledge on this matter and we specify six research questions which are subsequently addressed in the articles:

1. To what extent are traditionally applied methods of market research applicable in situations where new product innovations are being developed?
2. How can the concept of social contagion be used to make predictions about the consumer demand for a new product?

3. How can such a method, based on social contagion, be applied in practice to answer important product development and marketing questions prior to the market introduction of a new product?
4. How valid are the estimations of consumer demand for a new product using this social contagion approach?
5. What are the determinants of social contagion?
6. What is the strength of the effect of social contagion on the actual adoption of new products?

## 7.1 Main Findings

Tackling our first research question in chapter 2, we conclude that in situations where new product innovations are being developed two dominant market research approaches, concept testing and needs assessment, are not readily applicable. Many of the assumptions that these methods make are invalid during the development of innovative new products. Our conclusion from these findings is that alternative approaches for estimating the likely future consumer demand for a new product are needed. We propose four such alternatives: (1) adapting existing methods; (2) combining consumer research with market structure analysis or futures research; (3) using theoretic models; and (4) using trial and error methods. Each of these requires successively fewer assumptions and can therefore be applied to increasingly innovative situations.

The idea of social contagion has been applied to new product diffusion through a market but this has been in a descriptive manner, not predictive, and it has been done after the product has been introduced, not before (Van den Bulte and Stremersch, 2004). Answering our second research question, in chapter 3 we show how a new instrument which uses the concept of social contagion to make pre-introduction estimations of consumer demand has been developed. We describe the theory of social contagion on which the instrument is based, known as memetics, and propose that the instrument be a combination of information regarding the product's characteristics and the consumers' personality traits. By decomposing innovative product concepts into a number of behavioural elements we are able to estimate the probability that a person with certain personality traits will imitate these behavioural elements and, as a consequence, will adopt the new product. In chapter 4 we specify in more detail how the instrument works and list the product and consumer characteristics used.

Our third research question relates to the types of product development question that our new approach can answer in practice and we provide a summary in the Managerial Implications section (7.2) below. Our next research question is whether our theory-

based approach of measuring the likely social contagion of a new product is able to provide valid estimations of consumer demand for that product. In the study presented in chapter 5 we analyze data from 124 product-segment combinations of information and communication technology products from the telecom and financial sectors. We find that our measurement of social contagion has a strong, positive relationship with consumer demand, with the variance in actual consumer demand explained by social contagion being 33% in the telecom sector and 32% in the financial sector. As a comparison, the time the products have been on the market accounts for only about 2% of the variance in actual consumer demand. We can conclude that our approach is able to provide valid estimations of consumer demand for these products. It is important to note that at the stage when our approach is intended to be applied, early in the product development process, there is no relevant data available regarding the market uptake of the product. At this stage many other market analysis methods cannot be applied, particularly when the product in question is innovative and therefore dissimilar to existing products. In this light, the validity of the estimations of consumer demand made by our approach is relatively high.

There is as yet a lack of studies identifying determinants of social contagion. The literature which does look at the role of social contagion places it as antecedent to consumer demand without investigating how the process of social contagion comes about or the ways in which one new product may be more socially contagious than another. However, if we are to improve our understanding of social contagion it is insufficient to consider it a black-box which *somehow* drives consumer demand. This issue is of prime importance in the scientific debate surrounding this issue at the moment and forms our fifth research question: What are the determinants of social contagion? During the study we report in chapter 3, we carry out a literature search looking for product characteristics that can be related to copying behaviour and also for personality traits that might influence the copying behaviour of an individual, resulting in two long lists of characteristics. We then narrow these long lists down by expert judgment during a process of discussions in which consensus was reached to produce the short lists reported in Tables 4.1 and 4.2. In chapter 5 we create a structural equation model to link these product and consumer characteristics via the concept of social contagion to consumer demand. We identify the main determinants of social contagion and we find the strongest effect from product attributes which stimulate people to begin using that product (Memetics calls this *fecundity*) as opposed to the consumer characteristics or other product attributes such as those encouraging people to carry out the product-related behaviour accurately (*fidelity*) or to keep on using the product over an extended period of time (*longevity*). This is the first time that determinants of social contagion have been identified as well as the first time that their relative importance in driving consumer demand has been assessed.

Our final research question, also addressed in chapter 5, is: What is the strength of the effect of social contagion on the actual adoption of new products? This has been investigated for certain types of products, such as contagion effects between medical doctors prescribing new medicines (e.g. Burt, 1987; Manchanda, Xie and Youn, 2008) and for consumer durables (Van den Bulte and Stremersch, 2004) but as yet not for innovative information and communication technology products. We show that the effect size of social contagion on actual consumer demand is around 0.57 in both the telecom and the financial sectors (see Table 5.2), which compares very favourably with similar studies using other factors as independent variables (see Table 6.1).

## 7.2 Managerial implications

From the outset, an objective of this research has been to develop a well-founded and workable instrument for firms to apply in practice. When managers develop new innovative products they make many decisions based on what they expect will happen once that product is made available to consumers. The method presented in this dissertation can benefit firms, particularly prior to market launch, by helping them to choose between various products in the development pipe-line as well as by focusing product development activities to improve a new product's social contagion properties. In chapter 4 we propose a simple procedure for applying the new instrument which can easily be carried out during the new product development process. We describe how we have applied this procedure in a number of case study settings, including during the development of the service 'broadcast TV for mobile phones' and at the concept stage of the service 'mobile friend network'. The case studies show how the new instrument can help to answer a number of key questions for both product development managers and marketers who base many of their decisions on what they expect will happen once that product is made available. These questions include: Which market segments or consumer types are most likely to buy and use the product? Which elements of the basic design of the new product need to be improved, so as to optimise social contagion? What are the strengths of the product which, when highlighted in the marketing communication, would have the strongest effect on market demand? Besides these specific product development and marketing questions, the main decisions made during new product development are based to a large extent on the overall estimate of consumer demand for the new product in question. In all of the case studies these estimates were made and presented to the development teams. Our findings relating to the validity of these estimates are described in section 6.2.2.

The approach presented in this dissertation has some differences compared to standard approaches making it an interesting addition. Importantly, it can be applied prior to the market launch of the product, when there is no direct market data available. Most standard methods require real market data or at least a working

prototype which can be costly to produce whereas our approach can be applied at the concept stage thus saving time and money. Also, our approach can be applied to innovative new products which are dissimilar to existing products. For example, it allows us to assess consumer demand for a new product without relying on potential consumers to evaluate the product. It makes no assumptions about potential consumers' knowledge of the product or its possible impact on their daily lives and it does not assume that consumers can adequately articulate their future needs.

### 7.3 Concluding remarks

The research described in this dissertation has shown for the first time that it is possible to estimate the social contagion that a new product will bring about. It is possible to do this whilst that product is still in the process of being developed such that improvements can be implemented prior to market introduction. Additionally, we have shown that these estimations are valid predictions of the actual market demand for the new product and we have focussed on the practical application of the new approach for product developers and marketers. We have identified for the first time the most important determinants of social contagion from a set of product characteristics and consumer characteristics. We believe that we have shown that there is much benefit to be gained by firms if they make use of the social contagion approach we propose during their new product development process.

### 7.4 References

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