ADOPTION OF DYNAMIC PRODUCT INFORMATION: AN EMPIRICAL INVESTIGATION OF SUPPORTING PURCHASE DECISIONS ON PRODUCT BUNDLES

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Abstract

Up until now, brick-and-mortar stores provide consumers with static product information in the form of printed product labels. This kind of product information does neither adapt to consumer needs nor facilitates new business models (e.g. consumer experience or ad hoc product bundling by products itself). By contrast, dynamic product information provided by mobile recommendation agents (MRA) may leverage these limitations. In this article we formulate a Simplified Consumer Choice (SCC) model that is used as a reference model for investigating dynamic product information provided by MRA. We evaluate this model by implying technology acceptance (TAM) and innovation diffusion theory (IDT). In addition, we assess the SCC model according to decision making theory and analyze whether cognitive load can be reduced by the use of dynamic product information compared with static product information. An experiment (n=37) was conducted to evaluate our hypotheses in which subjects were asked to buy a bundle of two compatible consumer products. Results indicate that the perceived constructs relative advantage and ease of use predict the intention to use dynamic product information. Decision time to buy the product bundle was not significantly reduced if dynamic product information was available. However, cognitive load is suggested to be reduced by dynamic product information in more complex purchase situations. Discussed limitations indicate directions for further research.

Keywords: Adoption, dynamic product information, mobile recommendation agent, retailing, decision making, ambient intelligence

1   INTRODUCTION

After a long period of consolidation, adapting in-store shopping situations to customer needs is part of changing business models of retailers that puts customer experience into the centre of their strategy by leveraging information technologies. The design of customer experience in shopping situations currently undergoes unprecedented innovation shifts by adaptation of product offerings to consumer needs (Rigby and Vishwanath 2006) by IS-supported analysis of consumer in-store behaviour. Technology drivers are most of all cheap light-weight object identification technologies, such as RFID or 2D-Barcodes, increased use of business intelligence systems, such as used by Wal-Mart's Retail Link, and extended digital product representations, such as EPC global.

For online shopping situations, the impact of recommendation agents (RA) on decision making tasks has been intensively investigated (e.g., Häubl and Murray 2006, Komiak and Benbasat 2006, Senecal and Nantel 2004, Swaminathan 2003, Xiao and Benbasat 2007). All these studies indicate that the broad class of RAs are used by consumers to reduce their cognitive load during purchase decision making. For in-store situations little is known about the impact of mobile recommendation agents (MRA) (Kleijnen et al. 2007, van der Heijden 2006). Mobile recommendation agents provide consumers with decision support anywhere and anytime when they are actually in a retail store. MRA merge local information directly accessible by the consumer with global information provided by online content sources and present results according to user preferences and context information.

In all studies on online RAs product information was given by one-directional information offerings, i.e., products were annotated with information via web sites or mobile services but user-initiated dialogues were not considered. But for in-store situations consumers have learned complex sales dialogue schemes for interaction with sales persons (Leigh 1987). Within this research gap, we investigate in a laboratory setting how dynamic product information given by MRA is intended to be used and whether it affects consumer's cognitive load in in-store shopping situations. We define *dynamic product information* (DPI) as information on products that is presented according to consumer demands. The study was conducted with the help of a self-developed MRA and a middleware that determines product bundles by semantic relations and delivers DPI by a Natural Language question-and-answer interface (Maass and Filler 2006, Maass and Janzen 2007). A product bundling task has been selected because it is reported to increase product complexities and consumer's cognitive load which is assumed to strengthen effects compared to one-product choice scenarios.

Our research fully applies a build-and-evaluate loop as proposed by Hevner et al. (2004). First, we identified environmental settings of in-store shopping situations before we developed a series of MRA systems. They have been evaluated by several case studies reported in other publications. After reaching a robust technological MRA platform we deduced a *Simple Consumer Choice* (SCC) model from different social theories on consumer behaviour (section 3). The evaluation of this model is done in two steps. First, we conduct a series of lab experiments on MRA before detailed field studies in retail stores will be performed. Results of the first lab experiment are reported here. In summary, by application of this approach we aim for relevant contributions of rigorously evaluated MRA which hopefully pave the ground for further research on both sides.

2   RECOMMENDATION AGENTS AND PRODUCT INFORMATION

Product recommendation services within online shopping situations have recently gained major interest in the Information Systems research community (Ting-Peng et al. 2006, Xiao and Benbasat 2007). Xiao and Benbasat (2007, p. 137) define integrated sets of recommendation services as "software agents that elicit the interest or preferences of individual users for products either explicitly or implicitly, and make recommendations accordingly". Several studies showed that RAs provide value-added services that help to reduce customer's information overload in shopping situations and

reduce search complexity (Häubl and Trifts 2000, Todd and Benbasat 1999), improve decision quality (Pereira 2001), and increase trust in decisions (Gregor and Benbasat 1999). MRAs are subsumed under the class of RA with a specialisation on in-store situations (van der Heijden 2006). Purchase decisions within in-store shopping situations depend on product information that can be "imperfect for a number of reasons, such as the proliferation of competing brands, the difficulties of exhaustive search or sampling, biases in product evaluation, constant product innovation or consumer mobility" (Stahl and Freudenschuss 2006). This information asymmetry between producers and consumers results in emphasizing price and quality attributes during purchase decisions at the point of sale (Tellis and Gaeth 1990). If a consumer knows little about the product's quality, he will optimise his choice according to price considerations. With increased product information about expected quality, consumers tend towards rational decisions on the expected utility over both attributes (Tellis and Gaeth 1990).

Research on experience shopping indicates the importance of designing shopping as an adventure in a temporal social context (Groeppel and Bloch 1990) with the goal to provide overall satisfaction of customers (Donovan and Rossiter 1994). Influences on shopping experience are distinguished into emotional impressions that affect customer's moods and product information that affects rational decision making (e.g., Groeppel and Bloch 1990). Product recommendation services provided by mobile applications are intrinsically focused on communication of product information (van der Heijden 2006) as it will also be the main focus in this article.

Mobile recommendation services are a rather new research field that specialises research on recommendation services by consideration of spatial anchoring, stronger emphasis of physical and social contexts, and limitations given by smaller technical devices. Recent studies showed that the importance of efficient information coding systems help to reduce cognitive load (van der Heijden 2006). Kleijnen et al. (2007) showed that benefits, i.e. time convenience, user control and service compatibility, and costs, i.e. risk and cognitive effort, affect the intention to use mobile recommendation services. But on the business side consumers are currently not willing to pay for mobile services for cost reasons and lack of appropriate content (AT Kearney 2005).[1]

Product information can be classified into *singular product information* or *relational product information*. Singular product information describes a particular product on type or instance level. Relational product information describes product sets and can be either about *product bundles* or *product similarity sets*. Several techniques have been used for automatic derivation of product similarity sets, such as statistical methods based on keywords, cosine measurements, Bayesian classifiers, decision trees, neural networks, collaborative filtering or case-based reasoning (cf. Kurkovsky and Harihar 2006). Product similarity sets are further classified whether they are solely derived from product features (content-based recommendations) or indirectly via preferences and decisions of other users (social recommendations) (Goy et al. 2007).

3   A SIMPLIFIED CONSUMER CHOICE MODEL FOR MOBILE RECOMMENDATION AGENTS

Our empirical investigation is contextualised by theories of social sciences that conceptualise individual's adoption of technology, in particular the Theory of Reasoned Action (TRA) (Fishbein and Ajzen 1975), Technology Acceptance Model (TAM) (Davis 1989) as a specialisation of TRA, Theory of Planned Behavior (Ajzen 1991) as an extension of TRA, Innovation Diffusion Theory (IDT) (Rogers 2003), and IDT's specialisation by Moore and Benbasat (1991). Based on the work of Moore and Benbasat and Davis we present a conceptual model that identifies perceived relative advantage of DPI provided by mobile devices in stores and its perceived ease of use as influencing constructs of an

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[1] http://www.atkearney.com/shared_res/pdf/Mobinet_2005_Detailed_Results.pdf

individual's behavioural intention to use DPI. Additionally the hypothesis is made that DPI provided by MRA in in-store situations will generally reduce individual cognitive load during purchase decision tasks which is a preferable state under the assumption of bounded rationality (Bettman et al. 1998, Simon 1955). The impact of RAs in online shopping situations has been found to be greater for complex products (Swaminathan 2003). For better understanding of the impact of DPI, product complexity was increased by using a product bundling task so that subjects had to determine one other product that they intend to purchase together with the main product. The perceived value of RAs differs for experience and search products. Experience products are reported to be better supported by RAs than search products (Senecal and Nantel 2004) so that we used in our experiment items from the product class "mobile navigation systems" that provide features of experience products.
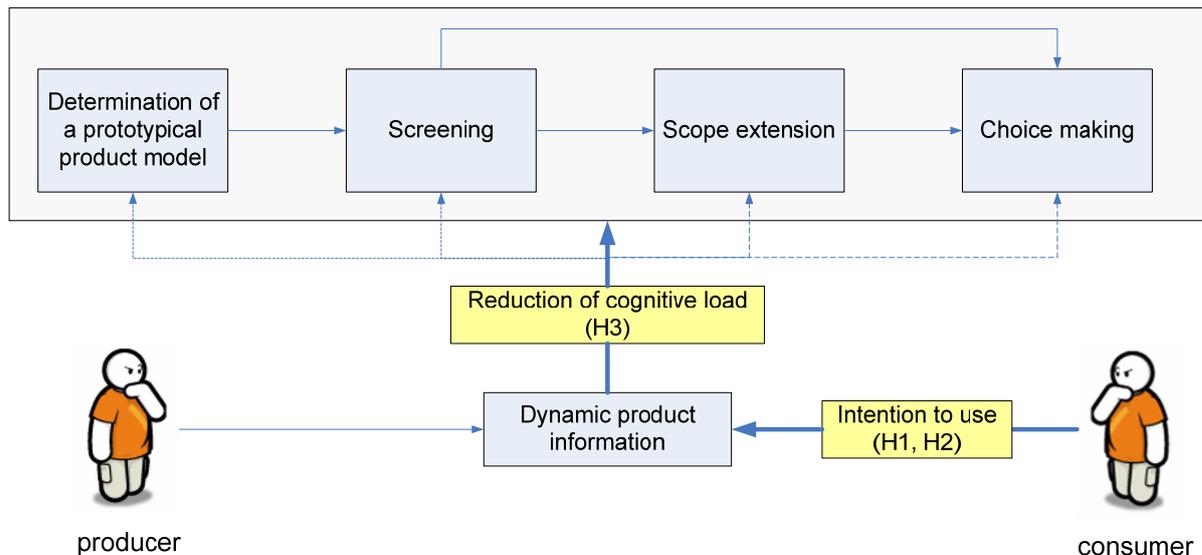

Figure 1.   Simplified consumer choice model (SCC)

Consistent with the model of an adaptive decision maker, consumers adapt their purchase decision making strategies to situations, maximise decision accuracy while simultaneously minimize cognitive effort (Bettman et al. 1998). Based on Constructive Consumer Choice Process model (Bettman et al. 1998), we use a tentative purchase decision making process with four phases. First, a consumer conceptualises a prototypical product model on a particular level of detail. The dimensions of this product model are subject to change, for instance, by consumer's deliberations or external influences towards particular features (Häubl and Trifts 2000). Next, products are screened against this prototypical product model on a rough level of detail, which results in a rather small preference set (Payne et al. 1988). Screening is strongly influenced by processes that guide perception and attention (Bettman et al. 1998, Feldman and Lynch Jr 1988) such as ordering of products (Häubl and Murray 2003, Häubl and Trifts 2000). By the third phase, products from the preference set are extended by complementary products (scope extension). Scope extension is optional and can be initiated by consumer needs or external evocation, such as hints by salespersons or advertisements, which results in a modified preference set of potentially different granularity. It shall be noted that scope extension can become recursive, i.e., a complex product consisting of sets of products can be extended by further products. Scope extension can be initiated by offering product bundles which is a typical sales strategy (Garfinkel et al. 2006, Stremersch and Tellis 2002). During the fourth phase preference sets are evaluated in detail by applying choice making strategies (Bettman et al. 1998) which results in purchase intentions. Between all phases feedback loops are assumed.

Each phase is target of consumer's cognitive efforts. Hence, efficiency-accuracy tradeoffs can be assumed overall and for each phase (Bettman et al. 1998), i.e. consumers try to balance the number of considered products and depth of search and analysis of product information. The consumer's decision

quality can be measured according to the domination of selected products, score of selected alternatives, quality of a consideration set, by product switching considerations, and confidence in her purchase decisions (Xiao and Benbasat 2007). Recent studies indicate that consumers use online recommendation agents to externalise and "out-source" cognitive loads in online shopping situations (Häubl and Trifts 2000, Xiao and Benbasat 2007).

RAs have been widely investigated in online shopping situations. Online shopping situations largely differ from in-store situations. For instance, products in stores can be perceived by more senses than in online situations, e.g., by touch and smell. Online shopping is typically an isolated activity while shopping in stores is a social event with friends, strangers and salespersons. Another issue is the use of RAs on mobile devices which is rather new and unfamiliar compared to desktop-based browser interactions with online RAs. Therefore it is an open issue whether results on RAs for online shopping situations can be replicated for MRA in in-store shopping situations.

The SCC model as illustrated in Figure 1 has been used to determine several research questions from which two key questions shall be discussed in this article. The first research question discussed in this article focuses on the consumer's intention to use DPI provided by a MRA. In contrast to most studies on online RAs (Xiao and Benbasat 2007), we deployed a dialogue-based MRA so that consumers could ask a set of questions. The second part of this investigation looked at a consumer's relative cognitive effort represented by the decision time till a purchase intention was made.

3.1 Intention to use dynamic product information

The adoption of DPI is studied by applying models of diffusion of innovation and technology acceptance research. DPI provided by MRA therefore represents an innovation that the user can adopt for application in purchase decision situations. Two streams of research can be identified in the adoption of innovations. First, diffusion of innovation research takes a social science perspective into account, whereby perceived characteristics of innovations such as relative advantage, compatibility, complexity among others are identified as determinants for adopting or rejecting new innovations (Rogers 2003).

The second line of research studies intention-based models to understand the adoption of IT. Accordingly, corresponding models such as the theory of planned behaviour (Ajzen 1991) are taken from the field of social psychology to identify attitudes, social influences and facilitating conditions that predict the intention of usage. The behavioural intention to use DPI predicts their adoption, respectively. For instance, TAM is based upon this line of research (Davis 1989).

In addition, several studies successfully integrate both research domains due to some similarities such as Rogers' relative advantage and the construct of perceived usefulness from Davis. In particular, the work of Venkatesh et al. (2003a) and Moore and Benbasat (1991) integrate those constructs. Consistent with the latter, this article takes both perspectives into account, too.
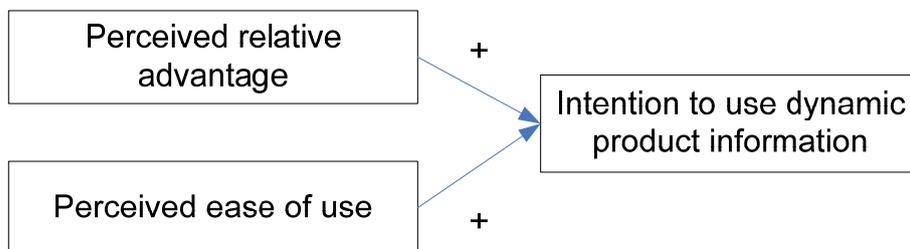

Figure 2.   Perceived relative advantage and ease of use related to the intention to use dynamic product information

Two constructs are adequate for utilization within in-store purchase situations with MRAs that provide DPI. The first is relative advantage, which is defined as the degree "to which an innovation is perceived as better than the idea it supercedes" (Rogers 2003, p. 476). In our context, DPI represents the innovation that adapts to the consumer's needs in purchase decisions and thus supercedes static product information as it can be found traditionally in brick-and-mortar stores. As we focus on the purchase process of a product bundle, we hypothesize the following relationship:

H1   Compared with static product information perceived relative advantage of DPI provided by MRA has a positive relation with the intention to use DPI for buying a product bundle.

Perceived ease of use is the second construct adequate for our approach. It refers to the degree "to which a person believes that using a particular system would be free of effort" (Davis 1989, p. 320). Here, our MRA supports the consumer with a dialog-based system, which is used to ask for product information on demand. The consumer is therefore able to choose information, which she perceives as relevant for her purchase decision. In particular, ease of use becomes obvious, if the MRA recommends only those products that are compatible with each other in case of a bundle purchase. Thus, we postulate the second hypothesis as follows:

H2   Perceived ease of use of DPI provided by MRA has a positive relation with the intention to use DPI for buying a product bundle.

To summarize, Figure 2 illustrates the independent variables perceived relative advantage and perceived ease of use of DPI provided by MRA positively relate to the intention to use DPI compared to static product information.

3.2   Reduction of cognitive load on decision efforts

In alignment with other research on RAs we start from the decision effort / decision quality (efficiency / accuracy) trade-off of decision making (Payne et al. 1993, Todd and Benbasat 1999). Several studies report that consumers use RAs to "out-source" their cognitive load with the intention to reduce their decision effort, e.g. Häubl and Trifts (2000). Mixed findings are reported for the impact of RAs on the decision quality (Swaminathan 2003). Häubl and Trifts showed that RAs support consumers for screening of alternatives and in-depth comparisons of selected alternatives. Furthermore the use of RAs had significant effects on the amount of search for product information, size and quality of a consumer's consideration sets, and the quality of their purchase decisions (Häubl and Trifts 2000).

Reported studies have solely used single product choices. In our research we extend this by consideration of product bundles. Bundling is defined as the sale of two or more separate products in one package for one price (Adams and Yellen 1976, Stremersch and Tellis 2002). Products are separated if separate markets for each product exist. Thereby we investigate more complex purchase decisions with the underlying assumption that this will increase the utility of MRA. Following other studies (Hostler et al. 2005, Vijayasarathy and Jones 2001), we measure cognitive effort by time spent for reaching a purchase decision on a particular product bundle. This leads to the third hypothesis:

H3   Compared with static product information the time for choice making on product bundles is reduced if DPI provided by MRA is available.

4   METHOD

In order to proof the hypotheses, we conducted a lab experiment. In the first part of this experiment, subjects were asked to select a product bundle consisting of two products: one mobile navigation unit and one accessory. There were four navigation units and eight accessories available for selection. The only precondition for this selection task was the compatibility of the two products as each of them supported one or more standards (Appendix 1). Five information types were presented for each product: product name, producer, description on how this product can be used, technical standards,

and price. The MRA is part of the Tip 'n Tell web service infrastructure (Maass and Filler 2006). The server components manage the semantic data pool using a semantic framework (Jena2) to allow the user to ask questions on the product and its relations to other products like accessories. Each product has a semantic product description object (SPDO). Together with formal rules (SWRL) valid product bundles can be deduced on demand. The communication between the MRA and the server is based on the SOAP web service standard. In comparison to the first MRA prototype (Maass and Filler 2006) we now use a Compact Flash reader (Socket 6E) that is integrated into a smart phone (HP iPaq Pocket PC). By pointing at a product a test person can select a product that is equipped with a RFID tag (ISO15693, HF 13.56 MHz, proximity range) (Maass et al. 2008).

All subjects had to select the products in two experimental settings, (1) shopping with the help of DPI provided by a MRA and (2) shopping without such assistance. In addition to the first setting, subjects were given instructions on how to use the MRA. As one of its key features, the MRA suggested only those accessories that were compatible to a chosen mobile navigation unit. By contrast, the second experimental setting provided subjects with printed labels containing all standards that a product supported. Thus, cognitive effort for selecting a product bundle was more complex in the second setting as subjects had to find compatible products by comparing the labels on their own instead of using the MRA. The order of the two settings was changed after each subject and the time used to choose for a product bundle was measured only in the first selection round of each subject.

In the second part of the experiment, subjects were given a questionnaire according to the perceived characteristics relative advantage and ease of use. Corresponding items were adapted from Moore and Benbasat (1991) and Davis (1989). In addition, two items have been created to measure the behavioural intention to use dynamic product information. According to Ajzen and Fishbein (1980), both statements cover the four behavioural elements action (usage), target (DPI provided by MRA), context (buying a product bundle), and time (the next three years) when measuring the behaviour in question (Appendix 2). Consistent with prior research on the adoption of IT, all items were based on seven-point Likert scales, ranging from extremely agree to extremely disagree. At last, the questionnaire was used to collect demographic data and to ask for the length and comprehensibility of the experiment.

5   RESULTS

Thirty male and seven female students of a technical university participated in the lab experiment. Their age ranged from 20 to 24 (N = 23), 25 to 29 (N = 13) and 30 to 34 (N = 1). Overall, the instructions of the experiment and the questionnaire were perceived as being reasonable and acceptable on its length. Cronbach's alpha reliability yielded viable .91 and .79 for the perceived constructs relative advantage and ease of use, respectively. Alpha for the intention to use construct resulted in .80.

Correlation coefficients were used to test the hypotheses which is consistent with prior research such as the work of Davis (1989). Both perceived relative advantage and perceived ease of use were significantly correlated with the intention to use DPI for buying a product bundle (r = .65, p < .001). Therefore, the first two hypotheses were supported by the findings of the lab experiment. Due to the high correlations of both perceived constructs with the intention to use (.65), we calculated the correlation coefficient between relative advantage and ease of use, which resulted in .64 at a .001 level. Thus, perceived relative advantage and ease of use also influence each other, which are discussed in Section 6.

According to the reduction of cognitive effort, the results show that the time for selecting a product bundle averaged at 121.5 seconds (N = 18, SD = 44.8) if DPI was provided by the MRA. By contrast, subjects required in average 15 seconds more (136.5 s, N = 19, SD = 58.3) if printed labels were available only. However, variance analysis yielded that the mean values of the decision time of both

experimental groups does not differ significantly (p > .10). Thus, the third hypothesis is not supported by our experiment.

6 DISCUSSION

This study provides evidence for the utility of DPI delivered by MRA in in-store situations. Traditionally access to product information in in-store situations is delivered by sales persons or static information displays. MRA provide new means to reduce information asymmetries between consumers, retailers and producers. Online shopping at home differs in many ways from mobile contexts (Venkatesh et al. 2003b). In-store situations are far more interactive and dialogue-oriented. This strongly differs from current online shopping situations where consumers integrate product information in a self-service fashion from a broad set of heterogeneous information services that has been typically found via additional search services. According to these requirements, we used a sophisticated MRA system that presented DPI in a question-and-answer mode as a typical form of sales dialogues. DPI delivered by MRA can assist consumers in all phases of purchase decision making as conceptualised by the SCC model, i.e., it supports screening of available products, scope extension and choice making. Although not significant, the reduction of time needed for making purchase decisions provides a first hint that MRA are used to "out-source" mental processes for reducing cognitive load and increasing decision efficiency in the same way as online RAs (Payne et al. 1993, Todd and Benbasat 1999). This applies especially to more complex buying decisions with dozens of products, which are usually available in bricks-and-mortar stores. Thus, we will test the reduction of cognitive load by using DPI in more complex shopping scenarios.

Furthermore we found that the intention to use DPI is predicted by the constructs relative advantage and ease of use. This indicates that product information provided in current shopping situations is perceived as being sub-optimal for at least some of the subjects. Evidence is also given that usage of DPI via question-answer patterns fits well to in-store shopping situations. These are astonishingly clear results that are moderated by the fact that subjects were mostly technically savvy individuals. Hence, it is expected that individuals with less technical knowledge will show smaller effects. The correlation between ease of use and relative advantage extends the effect to MRA that relative advantage of online RA is influenced by its perceived ease of use as found by Davis (1989).

In summary, this study provides initial evidences that MRA have similar effects on purchase decisions as online RA.

7 CONCLUSION AND FUTURE RESEARCH

To our knowledge, this study is the initial investigation on three research issues related to MRA: (1) DPI provided by MRA in in-store situations, (2) the use of MRA for purchase decision, and (3) purchase decision making on product bundles supported by RA in general and for in-store situations supported by MRA in particular.

For the first issue we found that perceived relative advantage and ease of use predict the intention to use DPI on MRA. Consumers are better supported by DPI in purchase decisions because they can ask questions similar to dialogues with sales persons and therefore DPI taps into existing knowledge on communication behaviour. This result is interesting because applied dialogues were based on simple question-answer schemes only. Currently we integrate dialogue schemes acquired by field studies into a sophisticated Natural Language processing service. It is expected that more natural dialogues will increase the relative advantage of DPI (Maass and Janzen 2007).

MRA are currently emerging in various prototypical designs. In particular retailers are testing their potentials. Our study indicates that MRA are perceived as a means for delivering product information into in-store purchase decision situations. This is a bit astonishing because our MRA was not designed

to particularly fulfil usability standards. This might support the conclusion that MRA are a highly attractive class of future RAs.

In-store decision making is suggested to become more efficient by DPI delivered by our MRA. This could relate to changing usage patterns of mobile applications. Based on well-established mobile communication forms, such as SMS and mobile telephony together with knowledge about online applications, users have developed dedicated predispositions about how MRA should work in principle. In this study the MRA had no significant effect on decision efficiency. Results in online shopping domains indicate that cognitive load is moderated by task complexity Häubl and Trifts 2000, Todd and Benbasat 1999. Therefore a replication of this experiment is intended in more complex situations.

DPI can be deployed on any kind of digital device. Several retailers use information terminal for various kinds of information services. A comparison study between terminal-based and MRA-based DPI could shed light on how spatial proximity influences the perceived utility of product information. A first empirical study on end-of-aisle displays indicate that proximity is highly influential (Reitberger et al. 2007) which argues for significantly higher perceived benefits of MRA-based DPI over terminal-based DPI.

As indicated, this study has several limitations that are mainly due to its scouting character in the area of DPI and MRA. Further studies are planned to investigate the impact of emotions, problem size, time pressure, attribute correlation, completeness of information, and information format (Bettman et al. 1998, p. 199). Other relevant constructs outside the scope of our study have been collected by Xiao and Benbasat (2007), such as trust and satisfaction, user-MRA interaction, product characteristics, and the credibility of a MRA provider.

Another issue is how expertise on the use of MRA for buying product bundles affects decision efficiency and decision quality. It is assumed that expertise has proportional effects on both. As stated above, the MRA concept has been implemented based on some arbitrary design choices on technical and information design level. The presentation of DPI was tested in several domains over a period of one year. A more rigorous variation of different technical implementations and different presentation modes for product information are required to analyse its impact of relative advantages on a more detailed level. The latter could be used to replicate a study on online RAs (Zhenhui and Benbasat 2004).

In this study we have only initially investigated the SCC model as an integrated construct for purchase decision making. In our current work we analyse relationships between different phases with a special focus on the scope extension phase. Here it will become especially helpful that our MRA system uses semantic technologies for product representations that can be used for intelligent support of purchase decisions on highly complex product bundles in different situations. In this study the SCC model is used as research framework that helps to guide and locate our investigations.

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Appendix 1: Product Data

Becker Mobile Navigation Units (MNU) and Accessories (A)

No.	Name	Supported Standards for Compatibility
MNU1	Traffic Assist Highspeed	12V-Power, Proprietary Power, Holder I and III
MNU2	Traffic Assist Highspeed II	12V-Power, USB, Holder III, Antennen
MNU3	Traffic Assist Pro	USB, Holder II and III
MNU4	Traffic Assist Pro Ferrari	Proprietary Power, USB, Holder I, Antenna
A1	AC-Power Cable	12V-Power
A2	Power Cable II	Proprietary Power
A3	Cigarette Lighter Cable	USB
A4	Suction Cup Holder	Holder I
A5	USB-Adapter	USB
A6	Bicycle Mounting Kit	Holder III
A7	Suction Cup Holder Type II	Holder II
A8	Antenna Extension Cable	Antenna

Appendix 2: List of items by construct

DPI = dynamic product information; SPI = static product information.

Perceived Relative Advantage

PRA1: Using DPI enables me to buy a product bundle more quickly than with SPI.

PRA2: Using DPI improves the quality of buying a product bundle in contrast to SPI.

PRA3: Using DPI makes it easier for me to buy a product bundle than with SPI.

PRA4: Using DPI increases my productivity to buy a product bundle compared with SPI.

PRA5: I would find DPI more useful to buy a product bundle than SPI.

PRA6: I would find DPI more helpful to buy a product bundle than SPI.

Perceived Ease of Use

PEU1: I believe that DPI is cumbersome to use for buying a product bundle.

PEU2: It is easy for me to remember how to buy a product bundle using DPI.

PEU3: My using DPI for buying a product bundle requires a lot of mental effort.

PEU4: Using DPI for buying a product bundle is often frustrating.

PEU5: My interaction with DPI is clear and understandable to buy a product bundle.

PEU6: Learning to operate with DPI for buying a product bundle is easy for me.

PEU7: Overall, I believe that DPI is easy to use for buying a product bundle.

Intention to use

IU1: I would use DPI to buy a product bundle in the next three years.

IU2: I intend to use DPI to buy a product bundle in the next three years.