1. Introduction

Calling people, sending messages, receiving emails, sharing pictures and videos, *facebooking* or *tweeting*, is now part of everyday life for many and this can all be achieved by just using one tool: a smartphone. By using such devices consumers participate in the creation and dissemination of new products and services (Solomon, 2011) which marketers describe as customer-led marketing. Groover (2011) predicts that by 2013 more people will be shopping via a mobile device than from a laptop and companies planning to put mobile bar codes on all products in its stores and accessible via the smartphone. Thus, the smartphone will play an active role in our decision making and buying behaviour in the future. It determines how and what information we share (Koufaris, 2002; Bhattachjee, 2001; Dholakia & Bagozzi, 2001, Hoffman & Novak, 1998, Jarvenpaa & Todd, 1996) which in turn can change the way we consume.

While one could argue that consumers purchasing items or searching for information via smartphones might behave similar to online consumers as suggested by the flow construct concept adopted by Hoffman & Novak (1990), or the mind-set approach suggested by Dholakia & Bagozzi (2001), the technical possibilities smartphone applications offer such as simultaneous interaction with other users/ consumers might affect consumer behaviour differently. Smartphone applications enable and encourage consumers to share information remotely and collectively (e.g. discussing the choice of dinner via video messaging). Smartphone applications are seen as an extension of the web (Mutchler et al, 2011), which indicates a change in the Internet landscape towards modifying websites for the use of smartphone apps. These factors contribute to a new type of consumer behaviour: smartphone consumer behaviour (SCB). Studying and understanding ‘smartphone consumer behaviour’ might require a different conceptual approach; One that considers the collective element a smartphone provides. The model of collaborative information management behaviour has been found to address this aspect and at the same time takes aspects of perception, cognition and action into account. However, the term collaboration needs to be replaced with the term “collective”, as smartphone applications are not primarily designed to support collaboration in a traditional manner, but encourage collective decision making and thinking, hence collective information management.

The next section will discuss the literature in regards to online consumer behaviour, smartphone use and information management. This will be followed by the conceptual framework suggested to study smartphone consumer behaviour, a discussion to highlight differences between online and smartphone consumer behaviour and suggestions for the design of smartphone apps to meet customers’ needs.
2. Literature Review

Online consumer behaviour has been researched widely (Jarvenpaa & Todd, 1996, Hoffman & Novak, 1998, Bhattacherjee, 2001; Dholakia & Bagozzi, 2001, Koufaris, 2002; Cheung et al, 2003). Most theories explain how and why people shop online but solely focus on the individual and the intention of buying (Jarvenpaa & Todd, 1996; Bhattacherjee, 2001), as opposed to considering pre-buying processes such as obtaining and managing information. However, Hoffman and Novak’s adopted (1998) flow construct theory and Dholakia & Bagozzi (2001) mind-set concept include aspects of processing information and as such seem more relevant for this study. The flow construct theory explores to which extent an individual perceives a sense of control while navigating the web, the perception of the users’ attention and web interaction and the degree of curiosity during interaction (Hoffman & Novak’s, 1998). The mind-set concept focuses on action and cognitive orientation, consumer intention to collect and process information and post consumption decision making to serve goal attainment (Dholakia & Bagozzi, 2001).

While these theoretical approaches consider the type of interaction, consumers actions and the cognitive level of information processing, the collective aspect a smartphone offers its users is neglected. The use of smartphones and smartphone applications is a recent but rapidly growing phenomenon, thus research in regards to smartphone consumer behaviour is necessary. Recent studies focused on the effect of smartphone applications such as the examination of information services in the travel (Wang et al, 2011) and health care industry (Mutchler et al, 2011; Boulos et al, 2011, Park & Chen, 2007) and the use of smartphone applications as learning and assessment tool (Cochrane and Bateman, 2010; Backer, 2010), independent m/u-learning, and motivation (Backer, 2010; Shina et al, 2011). Findings of these studies emphasised that smartphone applications can change user, consumer and student behaviour, specifically buying behaviour, decision making, and information search and management. Wang et al (2011) studied the use of smartphone applications in the travel industry. Findings showed that the information services provided by means of smartphone applications change tourist’s behaviour. As each application offers limited but focused and personalised information, tourists can make decisions on the go and may act collectively. Thus, smartphone applications have an experience sharing function. People can share information anytime anywhere which allows fast and flexible decision making. Shina et al (2011) studied the use of smartphone apps in higher education. An environment that encourages students to work collaboratively by sharing information often via technology co-located (Bluetooth) and remotely (sending documents and links). Thus, applying the concept of collaborative information management behaviour to the use of smartphone applications seems a viable solution to gain further insight into the early stages of smartphone consumer behaviour.

Understanding collective information management behaviour requires the consideration of individual information management (Wilson, 1999; Kuhlthau, 1991; Spink, 1997; Xie, 2000). Kuhlthau’s widely accepted model of information-seeking process (ISP) reflects a phenomenological perspective of information-seeking, illustrated in seven stages: initiation, selection, exploration, formulation, collection, presentation and assessment. An individual
seeking for information goes through each stage with certain feelings and thoughts and approaches each stage by carrying out specific actions. This aspect is crucial for any type of consumer behaviour but even more so for collective information management resulting in decision making. Hyldegård & Ingwersen (2007) applied Kuhlthau’s model (1991) for information management behaviour in group-based problem solving. The key features of this study are that group members were endowed with different cognitive abilities, and constantly shifted between an individual and group level, highlighting that collective information management is not a linear but a circular process.

Based on these insights, three questions have been developed: How is smartphone consumer behaviour different to online consumer behaviour? What conceptual framework can help understanding smartphone consumer behaviour? How can marketers use information to support the customer experience?


The model of Collaborative Information Management Behaviour (CIMB) has been derived from qualitative and quantitative findings of a study interested in understanding remote tabletop collaboration (Glaser et al, 2008). The data analysed in this study was collected from four video recordings of two-person distributed teams carrying out a collaborative information management task over a shared digital workspace and video. Based on qualitative and quantitative findings theoretical propositions have been deduced and concepts defined to develop a model for CIMB.

Figure 1 shows the CIMB of two users (user A and user B) going through five behavioural stages: Initiation, Identification, Formulation, Structuring and (in-between or Final) Decision Making. The following example demonstrates the applicability of the model for the purpose of this paper: Two users in different locations communicate via a smartphone in order to find a restaurant that suits both needs in regards to taste, distance and travel time. In the beginning both users are in the stage Initiation. User A seeks for information by accessing different apps that hold information about nearby restaurants. User A is reading, acquiring knowledge and learning about restaurants and offers. User B also browses for similar information. At this point the process is individually driven. User A has found a restaurant and shares the acquired knowledge with user B by sending relevant information to user B using a shared-link option provided by the app. Thus, user A has identified and categorised specific information and entered the next stage: Identification. User B receives the link, reads the information and gives feedback. Both users view, identify and categorise the same information. Then, user B finds another interesting restaurant and also sends a link to user A. The collective information management process has reached the third stage, Formulation, pre-selection of the information, which includes analysing and comparing information (e.g. of different restaurants). User A starts to interpret the information provided by user B and himself by messaging user B his thoughts, which leads to the next stage: Structuring. In this stage users review the pre-selected information, which enables them to create contextual meaning of the information for their purpose. Structuring information can lead either to final decision making or in-between decision making. After comparing and interpreting information user A
makes a judgement about the information send by User B to strengthen his choice. But user B really doesn’t want to go to a chain restaurant and so he argues for his suggestion. At this point user A and B might go back to any of the previous stages and compare and interpret the information until they have reached agreement, the final decision.

![Fig 1: Model for Collaborative Information Management Behaviour (from Glaser, 2008)](image)

### 4. Discussion of Collective Information Management Behaviour (CoIMB)

The example above demonstrates how the CIMB model can be applied to the use of smartphones, consumer behaviour and collective processes of information management. Although the scenario above indicates that both users might use a smartphone, other forms of interaction should not be excluded (e.g. one person uses a smartphone another one a tablet). The new adopted module, CoIMB, is a viable concept to illustrate the information management and interaction process of two people using different technology.

At the same time, the above example highlights specific aspects marketers should take into account when designing smartphone applications. Similar to the flow construct theory (Hoffman & Novak, 1998) and the mind-set concept (Dholakia & Bagozzi, 2001), the CoIMB model considers consumers’ actions and cognitive processes of individual
information management. Including the collective aspect which is reflected in giving feedback and sharing information via different communication channels, adds another analytical layer to our understanding of consumer behaviour and in particular to the use of smartphone applications relevant for the design of smartphone apps.

The ability to instantly give feedback and share information can be understood as the key difference between online consumer behaviour, and smartphone consumer behaviour; an aspect existing online consumer behaviour theories have not yet considered. Sharing information remotely, expressing one’s opinion, and being able to instantly give feedback to one’s choice, also offer new ways to reach customers. Being aware of the circular process of collective information management behaviour and implementing these stages into an application can help building strong relationships with (existing and new) customers. Relationships could be created by offering gateways for sharing information with multiple users. It also gives users the option to review, compare and assess information at any time. Smartphones and smartphone apps in particular, encourage us to share our opinion with other people, consequently we value different views which in turn determine our decision making but also shape brand awareness and loyalty.

6. Conclusion

Rethinking the applicability of existing online consumer behaviour theories and adopting models derived from other disciplines is a controversial and yet novel approach. The rapid growth and use of digital technologies such as smartphones require new approaches and concepts that can help researchers and marketers understand emerging consumer behaviour. Discussing the difference between online and smartphone consumer behaviour is necessary to clarify the need of further research, and to identify factors that might affect smartphone consumer behaviour. Two distinct aspects have been highlighted in this paper: collectively sharing information and giving feedback. Acknowledging these aspects helped finding and adopting an existing model originally used to study remote tabletop collaboration. The model, CoIMB, has been found useful to conceptually understand the pre-buying process of consumers while communicating via smartphones and apps. Based on the application of this model initial theoretical insights have been deduced relevant for the design of smartphone apps. It has been suggested that marketers should incorporate the collective element smartphone technologies offer in order to build relationships with existing and new customers, increase brand awareness and loyalty and contribute to the overall costumer experience. However, testing the applicability of the model is necessary to verify its applicability and gain further insights into smartphone consumer behaviour.
7. References


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