

# The effect of different configurations of mobile advertisement components to the advertisement performance

Case: Dairy Foods

Marketing

Master's thesis

Elina Koskinen

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## Abstract

This study aims to identify the configurations of mobile advertisement components that lead to high performance in terms of commonly used digital marketing metrics. The effectiveness of advertisement is measured by click-through-rate (CTR) and cost-per-click (eCPC)-values. The case company is a global dairy supplier called Dairy Foods. The data is gathered from the company's mobile campaign reports conducted by a third party - the company's media agency Digi Media. The data comprises only advertisements that are produced and displayed in Finnish markets.

The academic research of the field of mobile marketing has been accumulating rapidly in recent years. However the main focus has been on examining consumer attitudes and acceptance towards mobile marketing, and there is an obvious lack of studies of the effectiveness of the mobile advertising campaigns. Thus, this thesis focuses on exploring the factors that have found to have an effect on consumer attitudes towards mobile advertising and examine if these factors have an influence on the measurable outcomes of the advertisements.

The objectives of this research are both managerial and methodological. A novel research approach called fuzzy set Qualitative Comparative Analysis (fsQCA) is applied in this study as an approach and a methodology (Ragin, 2000; Rihoux & Ragin, 2009). Most marketing research is focusing on measuring linear causality, even though marketing performance is rarely resulting because of a single factor. Instead, commonly marketing performance is an outcome of multiple different factors occurring simultaneously. The QCA technique enables to uncover different configurations of the selected conditions that lead to high or low performance outcomes - this can yield managerially relevant information that would otherwise be difficult or impossible to interpret. Hence, the secondary aim of the study is to illustrate the benefits of the configurational analysis in studying the effectiveness of digital advertising.

The results of this thesis suggest that there cannot be found a direct and simple answer to the research question. The most important contribution of the study is that there can be found several factors explaining the success of the mobile advertisement. Content of the advertisement seems to be the main determinant of the success of the advertisement. Different combinations of advertisement components work better with different products - the main reason behind this might be the target audience of the advertised products and the differing behavior in mobile environment. Also, the study reaffirms the suitability of fsQCA in marketing research.

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**Keywords:** mobile marketing, marketing effectiveness, digital marketing, fuzzy set Qualitative Comparative Analysis, fsQCA

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### Tiivistelmä

Tässä tutkielmassa pyritään tunnistamaan mobiilimainosten eri komponenttien konfiguraatioita, jotka johtavat hyviin tuloksiin digitaalisessa markkinoinnissa yleisesti käytettyjen mittareiden valossa. Mainosten tuloksia mitataan click-through-rate (CTR) ja cost-per-click – lukujen (eCPC) mukaan. Tapausyrityksenä on kansainvälinen maitotuotteita tuottava yritys, jota kutsutaan tutkielmassa nimellä Dairy Foods. Aineisto kerättiin tutkimusyhtiön kampanjaraporteista raporteista, jotka on tuottanut yrityksen käyttämä digimainontaan erikoistunut mainostoimisto Digi Media. Tutkielmassa keskitytään tarkastelemaan ja analysoimaan yrityksen Suomessa tuottamia ja esitettyjä mobiilimainoksia.

Akateeminen tutkimus mobiilimarkkinoinnista on kasvanut viime vuosien aikana nopeasti. Tällä hetkellä aihetta käsittelevä tutkimus keskittyy tarkastelemaan kuluttajien asenteita mobiilimainoksia kohtaan sekä mielipiteitä mainonnan vastaanottamisesta, mutta tekijöitä jotka vaikuttavat mobiilimainosten tehokkuuteen yleisesti käytettyjen mittareiden valossa ole tutkittu laajemmin. Tämä tutkimus keskittyykin tutkimaan tekijöitä jotka ovat todettu vaikuttavan positiivisesti kuluttajien asenteisiin mobiilimainontaa kohtaan ja selvittää nostavatko nämä tekijät mainosten tehokkuutta myös valittujen mittareiden valossa.

Tämän tutkielman tavoitteet ovat sekä metodologiset että teoreettiset. Tutkielmassa käytetään markkinoinnin kontekstissa tuoretta metodia nimeltä fuzzy set Qualitative Comparative Analysis (fsQCA), joka on sekä lähestymistapa että metodologia. Markkinoinnin tutkimus keskittyy nykyisellään lähinnä lineaaristen kausaalisuhteiden tutkimiseen, vaikka vain harvoin mainonnan tulokset ovat vain yhden yksittäisen tekijän seuraamuksia. Sen sijaan, että yksittäisillä tekijöillä olisi tietty nettovaikutus lopputulokseen, mainonnan tuloksen yleensä syntyvät konfiguraationaalisesti monen eri tekijän kokonaisuudesta. QCA menetelmä sallii näiden konfiguraatioiden tunnistamisen, jota kautta voidaan saada kiinnostavaa informaatiota, jota muuten olisi hyvin hankala tai jopa mahdotonta selvittää. Tutkimuksen toissijainen tavoite onkin todistaa fsQCA menetelmän toimivuus myös digitaalisen markkinoinnin tutkimuksissa.

Tutkimustulosten mukaan ei ole löydettävissä yhtä selkeää vastausta tutkimuskysymykseen. Tutkielman tärkein kontribuutio onkin se, että monet eri tekijät vaikuttavat mobiilimainoksen menestymiseen. Mainoksen sisältö näyttäisi olevan tärkein tekijä sen menestymiselle. Tuloksista voi tulkita mainosten eri komponenttien kombinaatioiden toimivan eri tuotteita mainostavien mainosten kanssa – tärkein syy tähän voi olla eri kohderyhmät jolle tuotteet ovat suunnattu ja heidän erilainen mobiilikäyttäytyminen. Lisäksi tämä tutkielma vahvistaa, että fsQCA on soveltuva metodi käytettäväksi markkinoinnin tutkimuksessa selittämään mainonnan tuloksia.

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**Avainsanat:** mobiilimarkkinointi, markkinoinnin tehokkuus, digitaalinen markkinointi, fuzzy set Qualitative Comparative Analysis , fsQCA,

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# 1 INTRODUCTION

The penetration of mobile devices has been rapid since the mid-1990s (e.g. Bauer, Barnes, Neumann, & Reichardt, 2005; Peters, Amato, & Hollenbeck, 2007; ITU 2014) and mobile phones have turned out to be the fastest adopted consumer product of all time (Peters et al, 2007). Today, almost 95 % of the total world population is mobile-cellular subscribers and the mobile wireless network users in developed countries is estimated to reach 84% by the end of 2015 (ITU, 2014). In Finland the penetration of smart phoned has reach 70 % of the whole population, and most rapidly increasing user group are the 55 to 65 -years old (Tilastokeskus, 2014). Due to the high number of smartphone users and advanced technology enabling 3G and 4G wireless networks, the potential market value of mobiles is remarkable (Peters et al, 2007).

Mobile devices are very effective communication tools for companies to interactively communicate with their customers. Through the mobile Internet, consumers are able to access the same sources of information and entertainment as they are with their laptops, but even quicker and regardless of time and place (Smutkupt, Krairit, & Esichaikul, 2010). Naturally, research of the subject has been accumulating quickly during the past few years. However, in the existing literature, the focus of the research has been mainly on consumer attitudes and acceptance towards mobile marketing, there is a lack of studies of consumer behavior in mobile Internet and the effectiveness of the mobile advertising campaigns. Thus, this study focuses on exploring the factors that have found to have an effect on consumer attitudes toward mobile advertising and examine if these factors have an influence on the commonly used outcome measures of digital advertisements.

Dairy Foods was chosen as the case company for the thesis, because they are operating in business field where the focus of marketing activities is mostly on traditional marketing channels such as TV and print. Even though the incremental potential of digital channels and especially mobile has been noted, managers have not found the best practices to fully exploited the channel yet. This study aims to create some guidelines for the managers to implement more effective mobile marketing campaigns in the future.

Qualitative comparative analysis (QCA) technique is applied as an approach and methodology in this study. Most marketing research is focusing mostly on exploring linear causality.



However, outcomes rarely have any single cause (Greckhamer, Misangyi, Elms, & Lacey, 2008). Instead of individual conditions having its own isolated net effect on the outcome, marketing and advertising performance usually comprises of causal configurations of actions. QCA allows identifying how variables combine into configurations to generate an outcome (Rihoux & Ragin, 2009) and thus the technique can yield managerially relevant information that would otherwise be difficult or impossible to interpret.

## **1.1 Background**

The incremental potential of mobile as an advertising medium has attracted researchers from various fields, such as IT, consumer psychology, and consumer behavior. Thus, the literature on the subject is accumulating, but the research is still inconsistent and fragmented (Varnali & Toker, 2010). By far, the most comprehensively studied phenomenon in field of mobile marketing are consumer acceptance and consumer attitudes towards mobile marketing. For example Tsang, Ho, and Liang (2004) studied the consumers' attitudes toward mobile marketing and the relationship between attitude and behavior, Leppäniemi and Karjaluoto (2005) studied the factors influencing consumers' willingness to accept mobile advertising, similarly to Bauer et al (2005) who examined the factors effecting the acceptance of mobile marketing. Related to the acceptance and attitude towards mobile marketing, permission based mobile marketing has been studied widely for example by Barwise and Strong (2002) and Kavassalis, Spyropoulou, Drossos, Mitrokostas, Gikas, and Hatzistamatiou (2003). Also, the field of mobile commerce has been under examination for the past years (eg. Clarke 2001; Ngai & Gunasekara, 2007; Liu & Liou, 2011). The few consumer behaviour studies available are studying the decision making and purchasing process through mobile channels (Lee 2005; Wu & Wang 2005), which is controversial to the fact that relatively low amount of products is actually purchased on mobile (Liu & Liou, 2011).

In online marketing, on laptops or table computers, consumer behaviour is quite widely studied field. For example Pavlou and Fygenon (2006) utilized the Theory of Planned Behavior (TPB) (Ajzen's 1991) framework to explain consumers' online behaviour. The TPB framework is drawn from Fishbein and Ajzen's (1970) theory of reasoned action (TRA). In TRA Fishbein and Ajzen (1970) propose a model that links attitude, intention and behavior by proposing that beliefs influence attitudes, which leads to intentions, which in turn eventually generate actual behavior. Later on the model has been extended to technology acceptance model (Davis,

Bagozzi, & Warshaw, 1989) and the relationship between attitude, intention, and behavior in both traditional online and mobile online environments has been confirmed by numerous studies (e.g. Tsang et al 2004; Leppäniemi & Karjaluo, 2005; Gao et al, 2009). The existing literature suggests that certain features of an advertisement can increase the perceived interactivity, which in turn, increases the positive attitude toward a digital advertisement (Tsang et al 2004; Leppäniemi & Karjaluo, 2005; Gao et al, 2009).

Like being said, the effectiveness of mobile display advertising (MDA) is still relatively undiscovered field. Bart, Stephen, and Sarvary (2014) research of MDA effect on consumer attitudes and purchase intentions was one of the first extensive field data studies of MDA effectiveness. To my best knowledge, there has not been conducted any extensive research examining effectiveness in terms of actual behaviour (e.g. clicks, purchases). This can be explained by that consumers are still not comfortable making purchases other than music or mobile apps or such on mobile. Also, the mobile advertisements commonly do not aim to trigger direct behaviour, but to rather change consumer attitudes or intentions.

Evidently, there is an obvious lack of research in consumer behaviour in mobile marketing context, explaining why some campaigns are more effective than others in terms of commonly used digital marketing metrics. There is strong evidence that interactivity benefits the effectiveness of mobile advertisements but very limited knowledge and guidelines of how to actually design an effective advertisement (Gao et al, 2009). Thus, in this study, it is assumed that certain components of a mobile advertisement have a positive influence on consumer attitudes, which eventually generates behavior, e.g. increases the performance metrics of the advertisements.

The company studied in this research is operating in food industry as a supplier. Due to the industry's operational nature, traditional TV-, out of home- and in store -marketing are usually the main marketing channels for the suppliers and digital marketing is commonly utilized for supporting the traditional channels. However, because of the significant incremental potential of mobile marketing, the channel could be far more exploited. This study aims to set guidelines for the case company Dairy Foods where to concentrate with their mobile marketing and also provide insights of the local mobile marketing trends in the field for the media agencies.

## **1.2 Research question and objectives**

This study focuses on identifying the most effective combination of advertiser-controlled factors for mobile advertisements. In this case, effectiveness of the advertisement is measured by click-through rate (CTR) and cost-per-click (eCPC). These measures have become the market standard lately. The aim of this study is to provide a better understanding for designing mobile marketing advertisements by testing which combination of the marketer controlled components provide the best outcomes. The advertisements are viewed as wholes, where the combination of the components determines the success of the advertisement, instead of focusing on the effects of an individual variable. Also, secondary objective of the study is to test the uncommonly used fsQCA approach for explaining marketing performance outcomes. Derived from this, the following research question is stated:

*Which configurations of mobile advertisement components have the highest effect on the success of the advertisement?*

To better understand and more accurately explain the research question, the sub-questions are defined as following:

*Can there be found combinations of mobile advertisement components that consistently yield to higher than average performance outcomes?*

*Can there be found combinations of mobile advertisement components that consistently yield to lower than average performance outcomes?*

*When measuring the success with different key performance indicators, are the same advertisements successful?*

The term mobile device comprises both mobile phones and tablets but this research focuses merely on mobile phones, since tablets are commonly used by the whole house hold at home, similar to laptops. Thus, the unique characters of mobile devices; ubiquity, personal and almost always on and with the user, describe better mobile phone use than tablets.

### **1.3 Research methodology**

In this thesis a fresh approach called Fuzzy Set Qualitative Comparative Analysis (fsQCA) is used as an approach and a methodology. The fsQCA is an unusual approach for marketing studies, but it offers a fresh, systematic way of exploring configurations of cases. In this thesis each mobile advertisement is considered as a case. The approach will help to explain the causal link between the advertiser-controlled components of a mobile advertisement and the advertisement performance. Vassinen (2012) successfully proved in his doctoral dissertation that fsQCA approach can be used to explain marketing performance that result from combinations of causal conditions. Vassinen's (2012) research demonstrated that utilizing the method can yield such managerial knowledge that would be otherwise difficult to obtain.

The empirical part of the thesis is implemented as a case study. The case company Dairy Foods is a global supplier of dairy products, but since the marketing activities are fulfilled locally, only activities executed in Finnish markets are in the focus of this research. The data is gathered from the final reports of eight individual campaigns conducted by the company's media agency.

### **1.4 Structure**

There are six chapters in this thesis. The introduction chapter (chapter 1) is followed by the literature review (chapter 2). In the chapter 3 is presented the methodology and approach, fsQCA, of the study. The case study is introduced in the chapter 4 and the results of the analysis are presented in the following chapter 5. The final chapter, chapter 6, includes the discussions and conclusions, as well as the limitations and suggestions for further research.

## **2 LITERATURE REVIEW**

Like stated above, the field of mobile marketing has attracted numerous researchers in recent years. However, up to today, most of the studies are focusing on studying the consumer attitudes and acceptance of the marketing activities rather than the actual performance of the advertisements. Thus, this literature review focuses on exploring unique features of mobile advertisements that have been recognized to increase the acceptance of the mobile marketing activities in the existing literature and the advertisement structures that the marketers can modify in order to enhance the performance. Finally the actual performance metrics noted in the existing literature are introduced.

### **2.1 Mobile marketing**

Despite the field of mobile marketing being increasingly researched, there still cannot be found a common definition for the term. For example Kaplan (2012) defines mobile marketing as *"any marketing activity conducted through a ubiquitous network to which consumers are constantly connected using a personal mobile device"*, whereas Dickinger, Haghirian, Murphy, and Scharl (2004) use the definition of *"using interactive wireless media to provide customers with time and location sensitive, personalized information that promotes goods, services and ideas, thereby generating value for all stakeholders"*, and Shankar, Venkatesh, and Balasubramanian (2009, 118) define the term as *"the two-way or multi-way communication and promotion of an offer between a firm and its customers using a mobile medium, device or technology"*.

In general, mobile advertising comprehends text, graphic or video based commercial messages that are consumed via mobile devices. There are several different channels for marketers to connect with the user. The most traditional channel is short message service (SMS), which is a message up to 160 characters in length, and multimedia messaging service (MMS), which is an extended version of SMS allowing the use of text, video, images, and audio (Peters et al, 2007). However, the use of SMS and MMS for commercial purposes is declining rapidly, mainly because of the high penetration of smartphones has caused a change in the consumers' usage habits. The developed devices with an access to 3G and 4G Internet, simultaneously allow more and more creative opportunities for marketers but also challenges them to exploit new innovative forms of advertisement (Smutkupt, Krairit, & Esichaikul, 2010). For example, today

smartphones are commonly used as a browser, which has forced the mobile advertising to adjust to mobile Internet environment (Peters et al, 2007).

Digital advertisements that users can interact with are commonly called rich media advertisements. Such advertisements are usually utilizing Flash, sound or video, and can be presented for example in forms of floating advertisements, page take-overs, and tear-backs (Lemonnier, 2008). Mobile display advertising (MDA) and full-screen interstitials utilizing rich media have become the most common forms of mobile advertising. Basically, this means banners on mobile web pages and in applications. (Bart et al, 2014) Other commonly used mobile marketing tools are QR-codes and app-based marketing. QR-codes allow the user to visit a web page by scanning a 2D image with their phone and in app-based marketing the advertisements are built inside applications for example as banners.

Some marketing concepts which have been developed for marketing in traditional channels, such as coupons and incentives, have been modified to mobile and have become a regular part of mobile marketing campaigns as the devices enable a more convenient distribution channel for these promotional tools. However, mobile promotions are found to be most efficient when they are used as a complementary tool for traditional media. (Smutkupt et al, 2010)

**Push and pull strategies.** Traditionally mobile marketing communication methods have been divided into push and pull advertising. When using push strategy marketers send information and messages directly to customers without their request. In the early ages of mobiles, mobile advertising followed usually push strategies by sending SMS and MMS marketing messages to consumers (Chen & Hsieh, 2012; Barnes, 2003; Smutkupt et al, 2010). From the one-way push-strategies, mobile advertising has been developing step by step towards more interactive and intelligent marketing strategies (Leppäniemi & Karjaluoto, 2005). The trend has shifted towards utilizing pull strategies and today they play a significantly greater role in mobile advertising (Smutkupt et al, 2010). In such strategies the commercial messages are delivered upon the receivers request or placed on browsed mobile content. Generally the consumer attitudes are significantly more positive if the advertisement is received with permission. (Barnes, 2003)

### **2.1.1 Unique features of mobile devices as marketing channel**

Mobile devices are an extremely attractive channel for marketers to exploit new business opportunities. However, due to lack of experience and knowledge, these opportunities have not

fully been capitalized yet. According to current literature (e.g. Clarke, 2001; Bauer et al, 2005; Smutkupt et al, 2010) there can be identified certain characters that make mobile devices such unique and valuable channels for marketers. The six attributes described below are drawn from Clarke's (2001) value proposition of mobile marketing and modified based on the most recent literature available. Even though technology is developing constantly, ubiquity, localization, personalization and two-way communication can be seen as the most relevant and interesting attributes of mobile for marketing purposes.

**Ubiquity.** Users are reachable anytime, anywhere. This enables the consumers to receive information and make transactions regardless of time and place. Also, mobile users usually have their devices on and with them at all times and rarely leave it unguarded. (Clarke 2001) This feature has been identified as the main advantage of mobile devices by several researchers (Clarke, 2001; Bauer et al, 2005; Smutkupt et al, 2010).

**Localization.** With location-based technologies, such as GPS (Global Positioning System) the geographical location of the mobile can be identified (Clarke, 2001). This technology creates an opportunity for marketers to identify potential customers by their location and send customized advertisements based on it (Smutkupt et al, 2010; Chen & Hsieh, 2012). Providing real-time, location based, interactive multimedia content to consumers can be seen as one of the significant assets of mobile advertising market (Zoller, Matthews, & Van Housen, 2001; Chen & Hsieh, 2012) and thus, the GPS services are predicted to play even greater role in mobile marketing in the future (Bauer et al, 2005).

**Personalization.** Mobile phones are highly personal, since they are rarely used by any other user than the owner. Therefore, mobile is an ideal medium for direct and personalized communication between a company and a customer. (Clarke, 2001; Bauer et al, 2005; Smutkupt et al, 2010) Because of the other unique characteristics of mobile, the advertising content can be personalized based on a variety of factors, such as demographic features, location of the user, time, or customer buying behavior - even traditional online marketing doesn't allow this level of personalization.

**Two-way communication.** In addition of mobile device being usually personal, it allows reciprocal communication (Clarke, 2001; Bauer et al, 2005; Smutkupt et al, 2010). The recipient is able to reply to a message immediately and directly, which enables interactive

communication directly between the marketer and the potential customer (Bauer et al, 2005). In addition, the fact mobile devices are usually on and within reach of the customer, contribute even greater potential for two-way communication (Smutkupt et al, 2010).

These attributes form a unique and significantly potential marketing channel for innovative communication possibilities (Bauer et al, 2005; Park & Young, 2006). The characters above allow companies to communicate with their potential customers personally, continually and interactively (Gao et al. 2009) and to offer them optimal information that is relevant based upon their current location and activities (Lee, 2005).

## **2.2 Interactive marketing**

Several researchers have demonstrated the importance of interactivity in online marketing (e.g. Lee, 2005; Lustria, 2007; Rosenkrans, 2010) and it has regarded to be the one of the most crucial elements to online marketing success by several researchers (see Lee, 2005, 165). In mobile-online environment, interactivity is suggested to play even more crucial role due to the unique characters of the devices (Tsang et al, 2004; Lee, 2005). Thus, there can be identified some components of interactivity that are unique merely to mobiles and not available to online environment.

Tsang et al (2004) studied the relationship between consumer attitudes towards mobile marketing and consumer behavior. According to the research, consumers' attitudes towards receiving mobile advertisements are generally negative. The authors suggest the reason for this is the highly personal character of mobiles - the consumers find mobile advertising irritating since mobile phones are perceived as intimate and personal tools and thus, the advertisements are invading the personal territory of the receiver. (Barwise, & Strong, 2002; Leppäniemi & Karjaluoto, 2005; Tsang et al, 2004) However, the existing research agrees that higher level of interactivity increases the acceptance of mobile marketing and influences on the attitude by generating more positive feelings towards the advertisements. (Barwise, & Strong, 2002; Tsang et al, 2004; Leppäniemi & Karjaluoto, 2005; Bauer et al, 2005; Drossos, Giaglis, Lekakos, Kokkinaki, & Stravraki, 2007; Cho & Leckenby, 1999; Gao et al 2009; Yu, 2013). Also there has been found evidence of positive correlation between interactivity and attitude toward the brand and purchase intentions (Cho & Leckenby, 1999).



### 2.2.1 Definition of interactivity

The conceptualization of the term interactivity is still very fragmented, even though it has been widely researched field for the past 20 years (Gao et al, 2009). Different researchers have explained the term slightly differently based on the primary focus of their study (McMillan and Hwang, 2002). For example Ha and James (1998) defined the term as *“the extent to which the communicator and the audience respond to each other’s communication needs. There are five characteristics of interactivity: playfulness, choice, connectedness, information collection, and reciprocal communication”* whereas Liu and Schrum (2002, 54) describe interactivity as *“the degree to which two or more communication parties can act on each other, on the communication media, and on the messages and the degree to which such influences are synchronized”* and Cho and Cheon (2005, 102) defined interactivity as *“the degree to which consumers engage in marketing processing by actively interacting with marketing communication messages, with marketers, and with other consumers”*.

To better understand interactivity in online and mobile marketing, it is often divided into smaller components. Gao et al (2009; 2010) have identified six structural features that can be seen critical for the perception of interactivity in mobile online environment. Thus, in this thesis, interactivity is divided into six components based on Gao et al (2009; 2010) review of interactivity studies and my own observations of the existing literature. The components are as following:

**User control.** The degree which the user feels in control of the interaction experience. The perceived level of control can be increased by giving the user an option to choose the content, timing, and sequence of the communication. (Dholakia, Zhao, Dholakia, & Fortin, 2000) Also, minimizing the effort in the achievement of a certain task and the ease of adding information can enhance the users feeling of control (Gao et al, 2009). Especially in mobile marketing the perception of control is critical due to the personal nature of the devices. The users get easily irritated if they are not able to control the timing and content of the advertisements (ibid, 2010).

**Responsiveness.** An interactive advertisement allows two-way communication and the sequence of messages of the communication should be related to each other. In other words, neither of the participants of the conversation should be a passive receiver. Instead, the user should be able to give feedback based on the received messages (Rafaeli, 1988; Gao et al 2009; 2010). This factor is suggested to be one of the strongest assets of mobile phones, since two

way communication is a core function of mobile devices. Unlike laptops, mobile phones were originally designed for reciprocal communication, so users are more used to and thus, more likely to give feedback via mobile phones than laptops. This feature gives marketers a chance to start a reciprocal conversation with the customer. (Gao et al, 2010) Also, since consumers are able to access mobile Internet services and connect with companies and their offers regardless of time and place, perceived responsiveness is enhanced (Lee, 2005).

**Synchronicity.** The term refers to the speed the marketing message is delivered and responded. Usually, the faster the delivery time and response is, the higher the perceived level of interaction is. Again, with mobile devices due instant messaging services and the unique characteristics of it (always on and with the consumer) a synchronized conversation is almost always possible, regardless of time and place. (Gao et al, 2009)

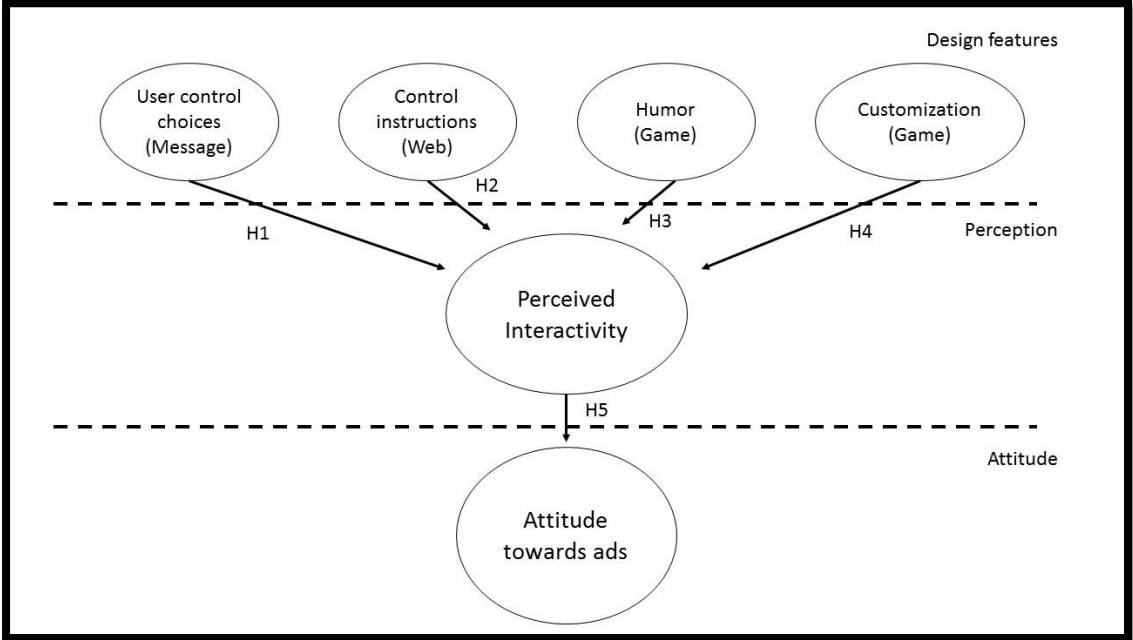
**Connectedness.** Gao et al (2009) broadened the Ha and James (1998) definition of connectedness to better fit in mobile marketing context. The term refers to that consumer feels they are connected to more resources or information related to the advertisement provider outside the specific environment. Due to its personal identity and localization features, mobiles offer a possibility to send contextual offers to the users, such as links to topics related to the advertised product or service and alerts to on-going events that the consumer might be interested in (Lee, 2005).

**Playfulness.** Several mobile marketing studies have shown that entertaining and playful content helps attracting consumers and encourages participating (e.g. Dickinger et al, 2004). Since mobile devices are commonly used for entertainment purposes, entertaining advertisements naturally attracts the consumers. Consequently, entertaining marketing content has found to improve the perceived interactivity especially in mobile marketing context (Gao et al, 2009).

**Interpersonal communication.** By this, is referred to the degree to which the promotional conversation resembles standard interpersonal communication (Gao et al., 2009). According to past research (Heeter, 1989), the more a conversation in digital environment resembles an interpersonal communication, the more interactive it feels to the participants.

In practice, advertiser can try to control and increase the perception of the six variables listed above by controlling the structures of an advertisement – advertisement types, formats, and features and the message content (Rodgers &Thorson, 2000; Gao et al 2009; 2010). By modifying these constructs advertisers may be able to effect consumer's perception of

interaction which shows as positive attitude towards the advertisement, which in turn, is assumed to eventually generate behaviour (Tsang et al 2004; Leppäniemi & Karjaluoto, 2005; Gao et al 2009; 2010). The figure 2.1 below (Gao et al, 2009) demonstrates this relationship of perceived interactivity and attitude towards mobile advertisements.



**Figure 2.1 Factors influencing perceived interactivity and its influence on attitude toward advertisements (Gao et al 2009).**

In addition to these marketer-generated variables, there are also several other factors that have an effect on the perceived interactivity, but cannot be controlled by the company. These consumer-generated factors can be, for example, the consumers’ involvement with the brand and their attitude towards the brand. Based on an extensive mobile marketing literature overview, Park Shenoy, and Salvendy (2008) make a generalization that experience, affect, and cognition are three most important elements for explaining consumer behavior in mobile online context. Furthermore, consumers may process information differently under different conditions. (ibid.) However, since these factors are out of marketers’ control, this study is focusing merely on exploring the effects of the variables that can be controlled by the company.

**2.2.2 Advertisement components**

Based on extensive review over related advertisement studies, Park et al (2008) identify three factors that have a significant influence on the effectiveness of advertising - advertisement

factors; environmental factors; and audience factors. Like mentioned above, this thesis focuses on the advertisement factors, since they are the only ones that a company can directly control and modify.

The results are consistent that certain features, such as entertaining, informative and credible content of the advertisements or utilizing rich media advertisements, can increase perceived interactivity. Also, the target consumer characteristics, structural characters of the advertisement, and the channel where the advertisement is displayed can be modified in order to increase the receiver's perception of interaction. (Tsang et al 2004; Leppäniemi & Karjaluoto, 2005; Gao et al, 2009)

The goal of this study is to find the best combination of these marketer controlled variables that yield to the highest click-through-rates and/or cost-per-click values. All the following components support each other, and thus each advertisement is examined as a case, where the components are evaluated and examined as wholes instead of focusing on the effects of an independent variable.

### ***Advertised product***

Consumers with young age and more experience of Internet have found to be more likely to perceive interactivity of mobile advertisement. Gao et al (2010) analyzed the relationship between respondents' personal variables and interactivity perception with mobile advertisements. They found that users' age correlates negatively and years of using Internet correlate positively with the perceived interactivity. Interestingly, according to Gao et al. (2010, 42) *"no other variable, such as respondents' gender, education, monthly income, years of using cell phone, monthly cell phone charges, monthly cost for data service on cell phone nor the previous experience with mobile advertisement seemed to have an influence"*.

Generally, studies show that young adults (preferably consumers between 21 and 30 of age) have more positive attitude towards advertising than older consumers. Consequently, young adults also seem to have more positive attitude toward mobile advertisements than older generations. (Kaasinen, 2003; Haghirianand and Madlberger's, 2005; Heinonen & Strandvik, 2007; Gao et al 2009; 2010) The penetration of mobile devices and especially smartphones is higher among young people (Bart et al, 2014) and they are more active users of mobile devices in general (Dickinger, et al., 2004, Bart et al, 2014) which naturally makes the younger audience more open and receptive for mobile marketing. Drawn from this, it can be assumed that mobile

is more lucrative marketing channel for products that are targeted to young adults. (Bart et al, 2014)

In their research Bart et al (2014) found evidence that MDA campaign effectiveness varies significantly based on the advertised product - certain characters make some products more suitable for mobile advertising. The effectiveness of MDAs seems to be higher with high involvement and utilitarian products (vs. low involvement and hedonic). However, in this specific research the product characters do not play a significant role, since all the advertised products are within the same category (dairy products), and they can be assumed to be equally utilitarian and high/low involvement products. Therefore, the differences between the effectiveness of specific product advertisements could be explained by different target consumers rather than differences in product characters. Some of the advertisements studied are targeted for mainly young consumers whereas some are distinctly for older consumer groups.

Thus, it can be concluded that products targeting younger consumers are better suited to be advertised with MDAs (Kaasinen, 2003; Haghirianand & Madlberger's, 2005; Heinonen & Strandvik, 2007; Gao et al 2009; 2010; Bart et al 2014) since young consumers are commonly more experienced users of Internet, more comfortable and active mobile devices users and thus more likely to perceive interactivity on mobile advertisements (Gao et al 2009; 2010; Bart et al 2014). Gao et al (2009; 2010) argue that when the advertised product is targeted to middle age, marketers should try different approaches for building interactive communication.

### ***Advertisement format***

Because of the technical constraints on the banner size and placement, the execution options for mobile advertisements are somewhat limited. Like being said before, mobile display advertising (MDA) utilizing rich media is the most common type of mobile advertising these days. (Bart et al 2014) In order to utilize the full potential of mobile, the advertisement structure should be carefully designed so that it allows developing truly two-way communication between the customer and the company. Rich media advertisements have been noticed to improve the results of traditional online advertisements in laptops compared to statistic banners; in general, they capture more attention, enhance interactivity, and yield higher click through rates (Cho & Hongsik, 2004; Rosenkrans 2010). The same effects have found to apply in mobile online environment as well (Barnes, 2003; Park, Baek, Ohm, & Chang, 2014) - for example

according to Park et al (2014) research, animated pictures on banner advertisements yield to more positive attitude towards the advertisements compared to still pictures. Consequently, advertisements with animated pictures have more positive effects on brand attitudes and purchase intentions as well (ibid.).

Also, banner size has found to have an effect on the CTR - the larger the banner, the higher the CTR rates. However, advertisers have commonly avoided using large-size advertisements, which occupy majority of the screens since they are believed to irritate the mobile user. Interestingly, on pop-up advertisements the effects of the picture type (animated vs. still) disappear. (Park et al, 2014) However, according to Park et al (2014) research, pop up ads seemed to have a stronger positive effect on the receivers attitudes and purchase intentions than banner advertisements.

Like mentioned above, there are certain constraints with mobile advertisements compared to online advertising on laptops because of smaller screen size. Even though advertisers are able to deliver information rich messages on mobile through text, image, audio or video, or even with combination of these, the advertisement is usually preferred to hold minimal information so that all the devices are able to run it. The device features and mobile Internet connection speeds vary tremendously, and the same advertisements should render properly on all devices. (Shankar & Balasubramanian, 2009; Rosenkrans, 2010; Park et al, 2014)

### ***Message content***

Naturally, the advertising message content has a major impact on the respondents' attitude toward the advertisement via mobile (Haghirianand and Madlberger, 2005). Similar to traditional advertising, advertisements that are perceived highly entertaining or contain valuable information for the receiver, increase the advertising value of mobile advertisements. If a mobile advertisement is considered funny or entertaining, it captures the receivers' attention more easily and thus is a successful way to attract and keep the customers interested (Bauer et al, 2004; Haghirianand & Madlberger, 2005). Bauer et al (2004) findings support previous studies implemented in online environment as they highlight the importance of entertaining and informative mobile marketing messages. They suggest that consumers will develop a positive attitude towards the advertisement only if the advertisement is considered entertaining or consequently provides highly informative content.

Gao et al (2009; 2010) suggest that entertaining content plays even greater role in mobile, since mobiles are often used for entertainment purposes, even more often than laptops. Consequently, people often seek entertaining and playful content on their mobile devices. Existing research evidently supports the assumption that entertaining content in mobile also encourages participating (Scharl, Dickinger, & Murphy, 2005; Gao et al, 2009; 2010). For example a survey conducted by DMA in 2008 supports the utilization of entertaining content in mobile marketing. The results of the survey show that the entertaining business, such as music or video product business, not only utilize mobile marketing the most (44% of all mobile marketing in 2008 was conducted by entertaining business), but the response rates to the advertisements were higher among the entertainment business consumers than of other product categories. This supports the assumption that mobile marketing is most effective for entertainment products and services (Scharl et al 2005; Gao et al, 2009; 2010; Venkatesh, & Balasubramanian, 2009). Interestingly, entertainment-oriented consumers have also found to spend more purchases on mobile than those who are more-information oriented (Merisavo, Vesanen, Arponen, & Kajalo, 2006).

Again, in this research the advertised products are within the same category. However, some of the advertising campaigns are more informative, some purely entertaining so certain variation can be assumed to find on the ad outcomes caused by the message content.

### ***Advertisement medium***

In addition to the quality of information an advertisement holds, the perceived informativeness can be increased by accuracy and usefulness to the customers content of use (Haghirianand & Madlberger, 2005) The marketing messages should be tailored to the customers' interests, and delivered on a time that is relevant for the customer (Robins, 2003). As Heinonen and Standvik (2007, 603) state, "*consumer responsiveness (to a mobile advertisement) is a function of the perceived relevance of the marketing message and the acceptance of the medium of the message.*" By relevance is referred to the content of the message – more precisely to the value the receiver gets from the message they are exposed to. Acceptance refers to the context of the communication – when and where the marketing message is received and is it relevant to the specific context. Thus, the acceptance is basically determined by the advertising medium e.g. the site where the advertisement is displayed. (ibid.)

If the content of the advertisement is perceived less relevant to the medium where it is displayed, the advertisement is easily perceived interruptive and thus irritates the receiver (Heinonen and

Standvik, 2003; 2007). In other words, for as high consumer responsiveness as possible, the message content should be relevant to the medium where it is displayed and in an ideal case the medium represents the consumer interests. Such scenario could be for example a cooking product advertisement on a cooking blog.

Advertising credibility is formed by fulfilling the promises of the advertising messages. The company's credibility, the bearer of the message, and the advertising medium have found to influence the advertisements credibility. Interestingly, according to Marshall and WoonBong's (2003) results, an advertising message from a weak brand on the Internet is perceived as less credible than on printed media. On the other hand, for strong brands, there was no significant difference found. Up to my knowledge, a similar study has not been conducted with mobile but it could be assumed that the results are comparable to the online marketing results because of the similar characteristics of the mediums.

### **2.3 Metrics**

By online advertising, companies are either aiming to increase the perceived brand value or to increase sales (Park et al 2008; Bjarnik & Gabrielli, 2010). On marketers' perspective, measuring the effectiveness of a digital advertisement is easier and more concrete than in traditional media since online advertising allows identifying individual customers and analyzing their behavior. Online marketing and marketing in mobile wireless network have many similar features. (Tsang et al, 2004, 68) Because of the similar nature and structure of the advertisements, it can be assumed that similar measurements can be used measuring the effectiveness of the advertisements in both environments. However, there are some usability constraints with mobiles compared to traditional e-marketing on laptops due to the smaller screens, more inconvenient input (Gao et al, 2010) and the unique characters of the devices (Tsang et al, 2004). Because of the personal and intimate nature of phones, mobile marketing should be even more carefully targeted and personalized than online marketing for laptops (Clarke, 2001; Tsang et al 2004). Consequently, the existing research in mobile marketing is consistent with the view that marketers should focus on time and location factors when designing mobile promotions in order to enhance the effectiveness and response rates of their campaigns (Barwise, & Strong 2002; Venkatesh, Ramesh, & Massey, 2003; Tsang et al 2004; Leppäniemi & Karjaluoto, 2005; Park et al, 2008).



Like discussed before, the results of Rosenkrans (2010, 269) study suggest that *“in online advertising (for table computers and laptops), interactive advertising enhances brand awareness of the advertiser and usually results in higher click-through-rates than other types of online advertisement”*. Similarly, interactivity is considered one of the core elements that can increase the effectiveness of a mobile advertisement. (e.g. Rodgers & Thorson 2000; Park et al 2006; Gao et al, 2009). According to Gao et al (2009, 501) *“the best results in mobile are achieved with interactive advertisements where the users are empowered to select what they would like to experience. In this case, the consumers are voluntarily getting involved with the campaign and the company, which can be assumed to lead to more positive responses and affective attitude towards the brand and the company. Also, the users are able to have more control over their experience and find the most relevant offers for them”*.

The existing literature suggests that in mobile, all the relevant information should be found “one click away” from the advertisement, because of the smaller screen size decreases the surfability of the sites and thus the consumer is less likely to continue to the next site (Clarke, 2001; Rosenkrans, 2010). According to Clarke (2001), some researchers even claim that in mobile online environment, every additional click-through reduces the possibility of a transaction by 50%. Thus, to improve the effectiveness of a campaign and mobile site, they should be design as simple as possible without complex click-through sequences.

Since mobile is becoming more and more popular marketing channel, the mobile users are exposed to increasing amounts of advertisement clutter and spam on their mobiles. Similar to online marketing in desktop computers, mobile marketing can also suffer from “banner blindness” of the consumers, which is caused by the overload of marketing messages on the screen. Online marketing studies have shown that consumers tend to avoid the big, flashy banners on top of the web page even the banner would contain information they are seeking (Benway 1998; Heinonen & Standvik, 2003; 2007; Bart et al, 2014). To avoid spamming and irritating the consumers, and benefit the opportunities of the channel, mobile campaigns should be designed carefully without interrupting or grabbing the user’s attention rudely. (Heinonen & Standvik, 2003; 2007; Bart et al, 2014). Furthermore, Bart et al (2014) argue that since mobile users are commonly on the move, when they are exposed to the advertisements, they do not pay as much attention to it as they pay on laptops. The consumers are far more likely to be distracted by other environmental stimuli at the same time when the advertisement is displayed, than laptop users, who usually are focusing exclusively on the laptop. (ibid.)

### 2.3.1 Measurement objectives

Researchers (Rodgers & Thorson, 2010; Rosenkrans, 2010; Bjarnik & Gabrielli, 2010) have suggested that there are several different measures applicable to indicate how much attention is devoted to an online advertisement. Bjarnik and Gabrielli (2010) categorized the advertisement measurements into three categories. These are exposure measurements, interaction-based measurements and out-come based measurements. Depending on the campaign goals and circumstances, different metrics are important and more valuable measuring the success of the specific campaign.

**Exposure measurements** are measuring the reach of the advertisements, where the success of an advertisement is determined by the impressions. A commonly used measure for this is “*cost per thousand impressions*” (CPM) (Bjarnik & Gabrielli, 2010). The advertisers pay by the displays of the advertisement and number of consumers that are exposed to the online advertisement determines the price of the advertisement. The “*frequency*” value explains how many times a unique person is exposed to the advertisement. There are not common guidelines or recommendations for the optimal frequency value, and thus most agencies define recommendations based on their own experience of the best practices in the industry. Based on the leading Finnish mobile marketing agency, the optimal frequency of an FMCG –supplier advertisement is from 3 to 5. When the frequency is between 3 to 5, the memory trait of a customer has found to be the highest and also increase the purchase intentions the most. (With Mobile, 2015)

**Interaction-based metrics** measure the actions that the advertisement has generated and the companies pay-for-performance (Rosenkrans, 2010; Bjarnik & Gabrielli, 2010). Commonly used measures are “click-through” (CTR), cost-per-click (eCPC), and “hit” –rate. CTR measures the number of clicks the specific advertisement has generated, and it is probably still the most commonly used measure to indicate the consumers’ behavioral response to online advertisements (Rosenkarans 2010). However, since there are no cursors on mobile screens, the mobile advertisement should be designed differently than on Web pages. Commonly on a Web page, the cursor changes when its put over to a clickable image so the customers knows clicking the advertisement leads to another page. To overcome this problem in mobile, studies have shown that a “click- here” text on banner advertisements is as affective in terms of click through (Gao et al, 2009). eCPC is the monetary value of each click, as the value is calculated by the ad

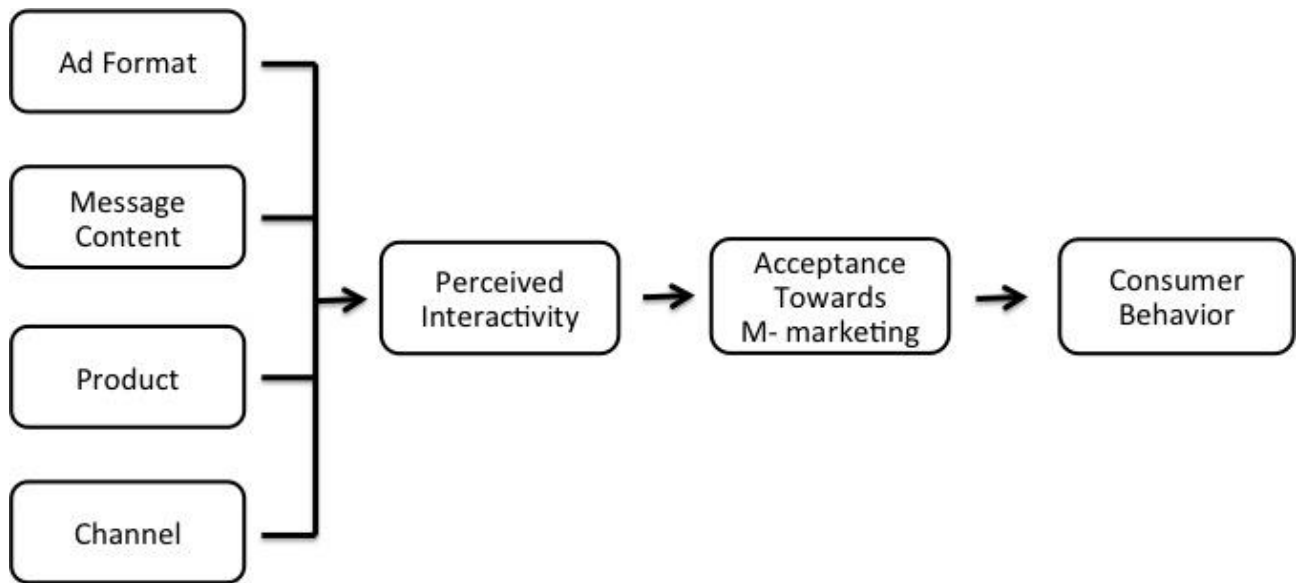
budget divided by the clicks.

A “hit” is a visit by individuals to the certain site. The “hits” are usually tracked by depositing a cookie with a visitor so that the future visits by the same URL can be identified (Rodgers & Thorson, 2010). Like being said, mobile devices are rarely used by any other person than the owner, so hits are very likely to be from the same person and thus, this can be assumed to be a very accurate measurement in mobile environment (Rodgers & Thorson, 2010; Rosenkrans, 2010). The time spent at a website is similar measurement that the response time that is used measuring traditional media advertisement, as it informs how much attention is given to the information in that specific campaign site (Tsang et al, 2004).

**Out-come based measurements** are measuring performance, such as the lead generation, registrations and purchases. However, these measures are mainly focusing on measuring direct performance and disregarding brand building goals. (Bjarnik & Gabrielli, 2010) Thus, in this study, the exposure- and interaction- based measures are mainly examined.

## **2.4 Framework**

The figure 2.2 represent the framework for this thesis. The advertiser-controlled components of a mobile advertisement are assumed to increase the perceived interactivity of the advertisement. Further on, the increased perception of interactivity is assumed to effect on the consumer behavior - e.g. increase the interaction-based measurements of the advertisements studied



**Figure 2.2 Advertiser-controlled components of mobile advertisements that are assumed to increase the performance of the advertisement.**

I suggest that by examining the causal complexity and causes behind the advertisement performance outcomes, the company can better plan and understand their mobile advertisement performance in the future. Even though the current measures measuring digital advertisement performance are quite comprehensive, new approaches for understanding the reasons behind the results are needed. Vassinen (2012) has already approved in his dissertation that fsQCA is a proper tool for discovering configurational explanations for marketing outcomes in analytically suitable research content.

### **3 QUALITATIVE COMPARATIVE ANALYSIS AS AN APPROACH AND METHODOLOGY**

QCA is both a methodology and an approach where an empirical phenomenon is observed and analyzed in analytical units of cases. (Rihoux & Ragin 2009, 222). Originally QCA was developed as a 'macro-comparative' approach for political science and historical sociology in the late 1980. (Vassinen 2012; Ragin, 2009; Berg-Schlosser and Quenter, 1996). The main benefit of QCA approach is that it combines quantitative and qualitative properties, aiming to utilize the advantages of both case oriented qualitative methods and variable-oriented quantitative methods (Berg-Schlosser, De Meur, Rihoux & Ragin 2009) to construct analytical generalizations (Vassinen, 2011). However, rather than observing collections of variable values, the cases are observed as interconnected wholes by qualitatively depth (Vassinen, 2011). Due to this, QCA techniques are more strongly positioned in case research than in statistics.

Typically case research is interested in actions that have occurred in the past but the findings may still broaden the current understanding and possibly effect on future actions. (Perry & Gummesso, 2004). According to Perry (1998), three main benefits of case research can be stated as: (1) case studies allow to study contemporary, dynamic phenomena (2) and carry the examinations out in real-life context, where the boundaries between the cases, their background and outcomes are often complex. Finally, (3) case studies enable to explain causal links, where there may not be a single outcome. Explaining the causal links is often impossible with surveys or other experimental methods.

As explained above, QCA approach is closely related to case studies. The aim of QCA is to identify the key characteristics of the different causal configurations observable in interactions among the selected cases. The method aims to build causal propositions relying on formal logical analysis - it systematically compares case data by emphasizing qualitative understanding, transparency and replicability.

Since QCA techniques are designed to deal with cases instead of independent variables the method provides a deep, throughout understanding of that specific case (Rihoux & Ragin 2009). On the downside, this also leads to the main limitation of the method, since the findings are usually not generalizable to larger scale. Instead, they often only explain the relationship

between the phenomenon and its context for that single case. However, since generalizations are an important part of scientific study, a well- executed QCA study should be able to form modest generalizations. Careful propositions can be stated after a systematic comparison with comparable cases, if the cases share a reasonable amount of characteristics with the original cases used in the study (Berg-Schlosser et al. 2009, 11-12).

### **3.1 QCA in Marketing Context**

QCA is often referred as “small-N” approach. It was originally developed and still commonly used for studying complex social formations like entire societies or economies. For example the states in USA or countries of Africa could be the units of analysis in QCA– which naturally limits the number of relevant cases and thus the sample size. Still today, the approach is most commonly used in political science and sociology studies, but its potential has been notified also elsewhere and the number of applications of QCA is growing steadily in other disciplines also. In marketing context, the approach has not yet been utilized in wider scale. However, the method’s suitability in context of discovering configurational explanations for marketing outcomes has been proved for example by Vassinen (2012). In his dissertation, Vassinen (2012) argues that since QCA supposes the system outcomes result from various arrangements of causal factors (Fiss, 2007), the same phenomena can be found in all levels of marketing. From strategic marketing to the tactical operations, usually more than one causal factors acting in configurations lead to the outcome, rather than of just one individual variable. This is why it is beneficial to identify these factors, which in combination lead to the desired outcome.

The performance of an individual mobile ad results from complex set of factors. When exploring the performance of an ad, it is more interesting to identify the factors that as combined lead to the outcome, rather than trying to only find correlations between certain variables. Thus, in order to identify the most efficient set of factors combined, a configurational approach called Fuzzy set QCA is applied in this research.

#### **3.1.1 Key characteristics of QCA**

Even though QCA is primarily seen as qualitative method, it combines features from both qualitative and quantitative methods. The approach allows to examine larger set of cases than would be possible or meaningful with traditional qualitative approaches. (Rihoux & Lobe 2009) On the other hand, ‘pure’ statistical methods, where a large sample size selected randomly from

even a bigger number of cases is observed, differ from QCA by a number of fundamental points when it comes to approach to populations and sampling. (Rihoux & Lobe 2009; Rihoux & Ragin, 2009) The QCA techniques can only deal with a limited number of complex cases, and thus it is mostly seen as case-oriented approach.

### ***Holistic approach, configurational causality and dialogue with data***

There can be identified three key aspects that make QCA approach suitable for small N -sizes. First of all, it is a **(1) *holistic approach*** of QCA where the data viewed as integral wholes in which the components relate to each other. QCA aims to find the key causes of different causal configurations that are distinguishable in interactions among the cases instead of explaining all empirical variation. As mentioned above, QCA is a holistic, case-sensitive approach, in which every individual case is considered as a complex entity. What differentiates QCA from other methods usually implied in social sciences is that it leaves room for complexity by developing a conception of causality. (Vassinen, 2012). QCA allows that several different combinations of independent variables can produce the same phenomenon and also, in different contexts, the same independent variables may have a different impact to the phenomenon. In other words, the same outcome can be reached by multiple different causal paths (Rihoux 2006)

Due to the holistic approach the components are seeing as combinations that evidence **(2) *configurational causality***, rather than as independent variable values. It means that multiple parallel routes can lead to same outcomes and the components of the observed case interact in complex, contextually idiosyncratic, and causally heterogeneous ways. Several assumptions of many commonly used statistical techniques are rejected in QCA. The main difference between studying causality and correlation is that the relations in causality are fundamentally asymmetrical (Ragin, 2008). This means that causality is not permanent, but instead it is context special. (Fiss, 2007; Ragin, 2008) When many statistical techniques believe in additivity, which means that each variable has a its own unique impact to the outcome, in QCA it is assumed that several causes can occur at the same time and together constitute the causal combinations which leads to the outcome. Thus, the results are not generalizable in wider context. (Berg-Schlusser et al., 2009)

Finally, QCA requires an extensive **(3) *dialogue with data***, which is present in all stages of the process. Reporting the choices thorough the study with as great transparency as possible is a

major advantage in QCA techniques. The most important role it plays in building the configurational model where the theoretical knowledge guides the selection of the conditions and in the qualitative interpretation stage when calibrating the fuzzy set membership score. (Vassinen, 2012 p. 44) Also during the analysis process the researcher should constantly refer back to the cases. (Berg-Schlosser et al., 2009)

### ***Necessary and sufficient conditions***

To be able to form the systematic comparative analysis of complex cases, the concerned cases have to be transformed into configurations first. A configuration is the set of factors that yield the outcome (Rihoux & Ragin, 2009). In QCA terminology, the factors are called conditions. To be able to identify relevant configurations that produce the focal outcome, the key is to discover the necessary and/or sufficient conditions to the outcome (Berg-Schlosser et al., 2009). If the outcome cannot occur without the condition, it is considered *necessary*. If the presence of a certain condition always leads to the outcome, the condition is seen as *sufficient*. (Ragin, 2008, Rihoux & Ragin, 2009) For example, if we have to outcome 0, and the conditions A, B, and C, and:

$$A \wedge B \rightarrow 0$$

$$A \wedge C \rightarrow 0$$

When observing the combinations (A, B) and (A, C) separately, both of them are sufficient combinations of conditions leading to the outcome 0. However, if these two combinations represent the only paths that would lead to the outcome 0, condition A is necessary for it to occur. On the other hand, if these two paths are the only ones that can lead to the outcome 0 to occur, the condition A needs to be combined with either condition B or C, since it is not sufficient on its own. (Vassinen, 2012, 49-50)

### ***Replicability***

Even though many of the basic assumptions of commonly used statistical methods do not apply to QCA, the method still follows some fixed and stable rules. (Rihoux & Lobe, 2009) This enables the replicability of the QCA studies, which is one of the key benefits that QCA shares with quantitative methods. QCA techniques are based on Boolean algebra and set theory (Berg-Schlosser et al. 2009, 14). In Boolean algebra, the cases are reduced to a series of variable,



condition and an outcome in QCA vocabulary. (Rihoux & Lobe, 2009) Having these formal, fixed, and stable rules for the approach enables the replicability of the research – this offers a possibility for another researcher to redo the study and receive the same outcomes, when using the same data and membership numbers. Also, the use of correct vocabulary in QCA research is extremely important in order to ensure the replicability of the study (Vassinen, 2012).

### **3.2 fsQCA**

fsQCA is developed by Ragin (2000) to prolong and expand the logic of the basic ‘crisp-set’ QCA. Other extension to the QCA are Multi-Value QCA (mvQCA), and ‘Most Similar, Different Outcome’ (MSDO) and ‘Most Different, Similar Outcome’ (MDSO). (Rihoux and Ragin, 2009). Vassinen (2012) argues that out of the QCA variants, the fuzzy-set has by far the greatest potential to be applied in marketing research and especially measuring marketing performance. Marketing phenomenon is usually measured by metrics that involve degrees of differences, such as high consumer engagement, lower consumer engagement, and no consumer engagement at all. However, in certain cases where the alternatives are mutually exclusive, the csQCA or MSDO/MDSO QCA may still be more suitable.

Fuzzy sets QCA offer a ‘middle path’ that overcomes many of the limitations that are faced with both qualitative and quantitative methods. In addition to the benefits of qualitative approach of QCA, Fuzzy set also utilizes more benefits from quantitative approaches. A key benefit of fuzzy sets is that it enables to make generalizations by allowing to analyse a larger set of cases than in typical case-oriented studies. Compared to original QCA, fsQCA can handle a larger number of cases, and assess conditions that vary in multiple degrees rather than just by presence or absence like in crisp sets. On the other hand, by allowing to analyze the data in more complex manner, it also requires more richness of information of the data set. (Ragin, 2000) This is looked in more detail in the next chapter.

The implementation of fsQCA can be seen as a four step process. (1) First, the researcher must gain a thorough and comprehensive understanding of the theory and data (2) next, the factors affecting the outcome are identified and the variables are calibrated and converted into measures of set memberships (in the range of 0-1) (3) then characteristics that have a necessary or sufficient relationships to the outcome are identified, and (4) finally the truth table is constructed based on the data of are formed and the results are analyzed based on this.

### 3.2.1 Membership degree

First of all, before calculating the membership degrees, it is important to acknowledge the differences in diversity. Diversity can be divided into two main categories: *diversity in kind* and *degree in membership*. *Diversity in kind* are the categorical distinctions, such as cats and dogs, where *degree in membership* is quantitative categorical distinctions, such as small cats, medium size, etc. (Ragin, 2000 p. 149-150). Crisp set QCA is suitable for studying the diversity in kind, whereas fuzzy sets are particularly suitable for exploring diversity in degree in membership.

In the table 3.1. the general idea behind fuzzy sets is defined. The researcher has to sort the case material into these qualitative anchors based on theoretically and qualitatively justified manner. This is a fundamental stage in FS/QCA since even a small difference in the observed range of variation can be critical to the outcome. Therefore, when assigning the membership score into conditions, the researcher should be at all times aware of what each of the numbers represents and which variation might be relevant for the outcome.

Crisp set	Three-value fuzzy set	Four-value fuzzy set	Six-value fuzzy set	Continuous fuzzy set
1.00 = fully in	1.0 = fully in	1.00 = fully in	1.00 = fully in	1.00 = fully in
0.00 = fully out	0.50 = neither fully in nor fully out	0.67 = more in than out	0.90 = mostly but not fully	Degree of membership is more in than out $0.50 < X_i < 1.00$
	0.00 = fully out	0.33 = more out than in	0.60 = more or less in	0.50 = Cross-over: neither in or out
		0.00 = fully out	0.40 = more or less out	Degree of membership is more out than in $0.00 < X_i < 0.50$
			0.10 = mostly but not fully out	
			0.00 = fully out	

**Table 3.1 Crisp set compared to different fuzzy sets (Ragin 2009, p. 91)**

The two-category fuzzy set is generally a ‘crisp-set’ QCA. Like mentioned above, ‘crisp-sets’ capture only qualitative variation, where categorical distinctions are established by either fully including or fully excluding an element from a set. To denote the status of the membership,

Boolean values are utilized - the value 1 (or true) indicates a full membership and value 0 (or false) stands for non-membership. (Ragin, 2000, p. 153-154)

Fuzzy sets follow the same logic as crisp sets, but instead of being able to deal with only two categories, fuzzy sets allow to express the membership scores between 0.0 and 1.0. Similar to crisp-sets, a case with full membership represents a fuzzy membership score of 1.0. and a complete nonmember of the set has a membership score of 0.0. In addition to these two variables, in fuzzy sets have a crossover point at 0.5 - a case with a membership score of 0.5 represents maximum ambiguity, being exactly as much a member and a nonmember of the fuzzy set. In other words, any value between the 'fully out' (0) and 'fully in' (1.0) indicates a partial membership, where values close to 1.0 demonstrate a strong membership and values close to 0.0 a weak membership. These three points are called the *qualitative anchors* in QCA dialogue. Each case of the set has a separate vector position in *the property space*. The vector position of a case is determined by the case's fuzzy set memberships, for example a three property space dimensions could possess the values of (1.0, 0.45, 0.15). (Ragin, 2008)

### **3.2.2 Calibration of fuzzy sets**

The calibration of the data to the fuzzy membership scores requires extremely careful and thorough monitoring and analyzing the concerned theory and data (Ragin 2009, 93). The process demands an extremely high level of transparency, since it is the key determinant for the reliability and validity of the study. The calibration is based on the researcher's theoretical knowledge and thus, in case the theoretical justifications are not sufficient, the validity of the model may suffer. The researcher can utilize two distinct strategies when calibrating interval-scale to fuzzy sets – the direct method and the indirect method. Only the direct method is used in this thesis, and thus it is discussed in more detail in the following chapter.

Both of the methods yield precise calibrations of set membership scores based upon qualitative groupings. The indirect calibration is based on the researcher estimates of the case's degree of membership. The estimates should be reflected from the existing theoretical knowledge (Ragin, 2008). Despite which method is used in the calibration process, the direct or indirect method, the set membership score should be similar to each other if the calibration is done with great care. However, despite the use of same general criteria, some important differences are likely

to arise because the indirect method’s mandatory reliance on regression estimations. Still Ragin (2008, 84) argues that indirect method is as valid and useful as the direct method for calibrating

***The direct method***

When following the direct method, defining interval scale values that correspond to the three breakpoints of fuzzy sets – the full membership (1.0), crossover point (0.5), and full non-membership (0.0) – is the key operation (Ragin, 2008, 90). The qualitative anchors enable to identify irrelevant and relevant variation in data. In fuzzy set perspective, an unusually high variation in data is not relevant, and thus it is eliminated by setting the qualitative anchors.

The table 3-2 below represents the mathematical translations of verbal labels when calibrating interval-scaled data. In the first column are presented the verbal labels of fuzzy set and followed by these in the second column are presented the degrees fuzzy set memberships associated with each of the label (Ragin, 2008, 90). The values in columns 2 through 4 represent the same mathematical value, only using different metrics. The second column displays the membership scores associated to each label, and the odds of full membership are listed in the third column. Finally, in the last column the natural logarithm of the odds is reported.

<b>Verbal label</b>	<b>Degree of membership</b>	<b>Associated odds</b>	<b>Log odds of full membership</b>
Full membership	0.99	148.41	5.00
Threshold of full membership	0.95	20.9	3.00
Mostly in	0.88	7.39	2.00
More in than out	0.62	1.65	0.50
Cross-over point	0.50	1.00	0.00
More out than in	0.38	0.61	-0.50
Mostly out	0.12	0.14	-2.00
Threshold of full nonmembership	0.05	0.05	-3.00
Full nonmembership	0.01	0.01	-5.00

**Table 3.2 Mathematical translations of verbal labels (Ragin 2008, p. 88)**

The calibration of the degrees can be done after the three qualitative points (0.0; 0.5; 1.0) are defined. The calibration process is done in two parts; separately for values above and below the crossover point 0.5. The following equation can be used for calculating the log odd values for both, the values above and below the point 0.5.

$$P_{observation} = \Delta_{observation} * (P_{threshold} / \Delta_{threshold})$$

The  $\Delta_{observation}$  represents the deviation from the observation value associated with the point 0.5. The value is either 3.0 for values above the crossover point, or -3.0 for values below the crossover point (Ragin, 2008, 90–91). The  $P_{threshold}$  is the log odds of membership at threshold for either full inclusion or full exclusion. The value is divided by the  $\Delta_{threshold}$ , which is the deviation of the threshold value for either full membership full or non-membership from the crossover point. After this equation, the values are in the log odd metric and can be converted into fuzzy set membership scores (values between 0.0 and 1.0). This is done by the following formula:

$$\mu_x = e^p / (1 + e^p)$$

In the formula, the p represents the log likelihood of full membership of the case and e is the mathematical constant. It is important to note that the membership scores (between 0.0. and 1.0) demonstrate truth values instead of probabilities, since the classifications are based on the known qualitative nature of a case instead of likelihood of a membership. (Ragin, 2008, 90–91)

Further on, when the set membership scores are solved, the odds of membership (column 3) can be calculated by the following equation:

$$\text{odds of membership} = (\text{degree of membership}) / [1 - (\text{degree of membership})]$$

The log odds of a full membership value (presented in the fourth column) offers a standard and robust method for data calibration. Both the floor nor ceiling effects do not effect on the metric of log odds and the metric is completely symmetric around 0.0 (Ragin, 2008, 87). By this it is ensured that if a value in the log of odds is very large number (either positive or negative) its translation to degree of membership still stays within 0.0. to 1.0 – which is obligatory for fuzzy

membership scores. The main goal of calibration is to convert the interval-scale variables into the log odds metrics in such way that the verbal labels of column 1 are respected.

Utilizing these equations demonstrated above and the three qualitative points is the *direct method* of calibrating interval- or ratio –scale variables into fuzzy membership scores.

### ***Negation, Logical OR/ Logical AND and subsets***

Negation, logical AND and logical OR are three most commonly used operations with fuzzy sets. (Ragin 2009, 94). Negation means that the set label and value are reversed. For example, the negation of high CTR is labeled as not-high CTR. Similarly, the membership scores are be reversed so that high scores are close to full non-membership and low scores close to full membership. A tilde is commonly used for representing a negation of a fuzzy set, and it can be calculated by using the following formula (ibid.):

$$\begin{aligned} &(\text{membership in set not-}A) = 1 - (\text{membership in set } A), \text{ or} \\ &\sim A = 1 - A \end{aligned}$$

Two or more sets can be combined by using either logical AND or logical OR operation. Logical AND indicates the degree of membership for a combination of two or more sets. The minimum membership score of all the sets that are combined in their union of sets indicates the logical AND. In other words, the “weakest link” of the set defines the membership score when two or more sets are combined with logical AND (Ragin, 2009, 96). When two or more sets are combined with Logical OR, the maximum score of the union of sets defines the degree of membership in that combination of sets.

The *subset relation* is the key set-theoretic relation in studying causal complexity. A subset of instances of the outcome is formed when cases sharing several causally relevant conditions uniformly experience the same outcome. (Ragin, 2009, 99) The *subset principle* of fuzzy sets states that “a causally relevant condition is necessary but not sufficient only if it can be demonstrated that instances of the outcome are a subset of the instances of the cause” (Ragin, 2000, 213). In addition, there can also be found fuzzy subset relations where the cause is sufficient but not necessary to the outcome (Vassinen, 2012, 53).

### 3.2.3 The truth table –property space, consistency, and coverage

After the calibration is done, the truth table can be created. A truth table is the key tool for examining the possible causal configurations. In the truth table, all the logically possible combinations of conditions are listed, and the cases are fitted into rows based on which set of conditions they match the best. (Ragin, 2008, 124) The number of the rows is determined by an exponential function of the number of different causal conditions (k):

$$\text{number of combinations} = 2^k$$

In the formula above, the k represents the number of different conditions in the truth table (ibid).

The truth table analysis yields two important outputs - consistency and coverage. After identifying the empirically relevant causal conditions, each configuration's *consistency* as a subset of the outcome is evaluated. The purpose of this is to figure out the degree of empirical support the subset in question has for the configuration as whole. In other words, if the consistency level is low, it refers to low support of empirical evidence by that subset. The degree of consistency can be solved by the following equation (Ragin, 2008, 99):

$$\text{Consistency } (X_i \leq Y_i) = \sum \min (X_i Y_i) / \sum X_i$$

where the consistency of the condition X is calculated as a subset of an outcome Y. The sum of minimums of each value of condition  $X_i$  and outcome  $Y_i$  is divided by the sum of all values of that specific condition. If the consistency score is 1.0, all the values of condition  $X_i$  are less or equal than the outcome Y, which refers to full consistency. (ibid.)

*Coverage* indicates the degree, which the combination in question accounts of all the instances of the outcome. The *coverage* of a single configuration can be low in case there are several different paths to the same outcome. In case the coverage value is low, but the consistency is high, the configuration be still be theoretically significant in explaining relevant alternative combination or distinct causal mechanisms. (Ragin 2008, 44).

When analyzing a truth table, a consistency threshold must be set to indicate the minimum requirement for the combination of cases in order for them to be noted as a consistent subset of

the outcome. The current literature suggests that consistency threshold values as close to 1.0 as possible should be chosen, and any values below 0.75 to be avoided. (Ragin 2009, 107) After removing the combinations from the truth table that do not meet the consistency threshold results, the final step is to interpret the minimal formulae which represents the causal configurations. At this point the researcher have to return to the cases and deliver qualitative statements about the causal mechanisms involving the presence or absence of specific conditions to produce the certain outcome. (ibid.)



## **4 CASE**

The empirical study is conducted by exploring the effectiveness of mobile marketing actions of a fast moving consumer goods (FMCG) -supplier delivering dairy products. The company is called Dairy Foods in this thesis. The effectiveness of Dairy Foods' mobile advertising is examined from the company's digital advertising-report, where all the mobile campaigns put in to practice in a certain time span are summarized, and supplemented with the company's internal database.

Like being mentioned before, the primary focus of FMCG -marketing is still on the traditional channels, such as TV commercials, Out of Home- and In Store -advertising. The role of digital marketing is to supplement the overall marketing strategy – the FMCG suppliers are more or less going digital because it is seen vital these days, and commonly they are not the most innovative operators in the digital channels. Despite being a small fraction of the overall mobile marketing actions for the case company, the results of the mobile campaigns have turned out to be very promising, as the channel reaches especially the younger customers very cost effectively and inventively.

The company's mobile operations objectives are to increase the brand awareness and engagement. Thus I will be focusing on the interaction-based measurements, such as, CTR and eCPC.

### **4.1 Selecting cases and defining the outcome**

In this study, an individual mobile advertisement represents a case. The initial data comprises eight different campaigns, which all include from 1 to 6 different types of advertisements, so all together there was data available from almost 30 cases. However, the number of cases was finally reduced to 23 due to several reasons. First of all, in order to fulfil a comparative analysis, the cases must be comparable to each other on certain predestined dimensions. The rule is that the cases included in the final version must be like enough in some of the background characteristics so that the data allows a meaningful comparison (Berg- Schlosser et al, 2009). A large number of cases were dismissed due to differences in some crucial dimensions, which lead to that the same policies do not apply to these advertisements. For example several QR-code advertisements were ruled out due to their completely different kind of operation logic.

Also the lack of information forced to disregard some of the cases. In the table below 4.1. is listed all the mobile advertisements (the cases in QCA terminology) that the company has conducted from 2013 up to the spring 2015 that there was data available. On the left side is listed the abbreviation that is used in the truth table and on the right side is the campaign and the advertisement name following the campaign number the advertisement belongs to.

Case Abbreviation	Advertised product	Campaign number
SB1	Coffee drinks	1
SB2	Coffee drinks	1
SB3	Coffee drinks	1
SB4	Coffee drinks	1
ALLinONE	Cooking cream	2
APQ4_1	Salad cheese	3
APQ4_2	Salad cheese	3
APQ2_1	Salad cheese	4
APQ2_2	Salad cheese	4
APQ2_3	Salad cheese	4
APQ2_4	Salad cheese	4
PRO_1	Protein products	5
PRO_2	Protein products	5
PRO_3	Protein products	5
PRO_4	Protein products	5
PRO_5	Protein products	5
PRO_6	Protein products	5
PJ_1	Ice cream	6
PJ_2	Ice cream	6
PJ_3	Ice cream	6
AP_2015Q1_1	Salad cheese	7
AP_2015Q1_2	Salad cheese	7
CC_1	Cooking cream	8

**Table 4.1** *Final selection of the cases*

In order to be able to select the most relevant cases, the outcome factor has to be carefully defined in an early stage of the research (Berg- Schlosser et al, 2009). Defining the background

characteristics and the outcome factor enables to find the cases that are relevant for this specific study. In this study, the click-through-rate (CTR) of each advertisement is indicated as the outcome factor. The CTR -value is reported similarly in all the cases and also the industry specific local (all the FMCG-operators in Finnish market) average for the value is defined (With Mobile, 2015). Also, the eCPC (cost-per-click) is tested as an outcome factor to check the congruence of the results.

Within QCA, aspiring maximum heterogeneity is valuable and desirable, in both within the degree of causal conditions as well as in the degree of outcome. This means that also negative outcomes, and outcomes with low levels of focal outcome, are regarded, since they offer some valuable insights for the casual arguments (Ragin, 2000, 60-61). Thus, also the advertisements that yielded lower than the industry average CTR as well as above the average eCPC-values are included to the study.

## **4.2 Data collection**

After thorough examination of the case company's mobile marketing strategy and the advertisements that have been put into action, I was able to identify the conditions that will be examined in this research. Based on the most recent theory, these conditions have evidently found to increase the mobile advertisement success in terms of the desired outcome.

The case company uses a media agency to plan and implement their mobile marketing actions. The media agency (referred as Digi Media in this study) suggests a mobile marketing strategy as part of an overall digital marketing strategy. After the media agency has planned the strategy, they co-operate with several different agencies specialized in mobile marketing to optimize the distribution of the advertisements. The data for this thesis is gathered mainly from the media agency's reports and the information from one of the main co-operative mobile marketing agency's data, a company called With Mobile in this study. This data was supplemented with data from several smaller co-operator agencies. Due to this, the data gathering turned out to be more challenging than I expected since all the different agencies have a unique way of reporting the results. The agencies specialized in mobile marketing obtain more specific data when the case company's media agency presents the data in such manner that is most relevant for the supplier. The industry specific data, from Finnish FMCG -suppliers' mobile marketing, is from With Mobile's internally conducted analysis and research.

The raw data from the media agencies is complemented with the case company's internal databases, media plans and informal discussions and interviews. For example the target consumer group for each product is defined from internal database and category managers own insights.

### **4.3 Selecting conditions**

After the cases and outcomes have been defined, the components of the advertisement (conditions, in QCA terminology) that are causally relevant to the outcome must be defined. In the property space table 4.2. below is listed all the potentially interesting conditions that may have an effect on the outcome. Regardless of the fact that all the factors listed below most likely have a certain effect to the outcome, the final property space must be trimmed and the conditions reduced. Thus, the purpose of the table 4.2. is to sketch all the possibly intriguing conditions and then, after careful examination of data and discussions with the case company and their media agency's representatives, reduce the conditions. The main purpose of this action is to find the most interesting and causally relevant conditions to the focal outcome. Secondly, the incompleteness of the data sets certain limitations when defining the final conditions to the property space. Like mentioned above, all the agencies have their unique reporting manners and thus, all the information is not reported similarly or not available at all by all of the agencies. Finally, the final property space must be trimmed down to a form that is suitable for the current fsQCA software.

Condition	Description
Targeting	
Target audience	Is the ad targeted for consumers under or above the age of 30
Channel	Is the ad displayed on a site which is targeted for its target audience
Entertainment	
Competition	Promoting a competition (e.g. Share your own recipe on a campaign site)
Lottery	Promoting a lottery (e.g. "fill in your information and win a vacation in Italy")
Celebrity	Celebrity endorser
Ad structure	
Advertisement format	Interactive / Statistic
Size	Full-screen pop-up, 300x300, banner
Audio	Is there sound included to the ad
Campaign specific	
Time of the year	For example summer or Christmas season
Length of the campaign	How many days the ad is been displayed
Impression	How many times an ad is displayed
Frequency	How many times an ad is seen by a unique consumer
Budget	Money spent on the ad
Time on site	Time spent on the campaign site
Returning visits	How many times a unique person visits to the campaign site
eCPC	Cost-per-Click of the ad (in euros)
CTR	Click-through-rate of the ad

**Table 4.2** *Initial property space*

## **5 RESULTS**

In this chapter, the final property space is presented and selected conditions are first calibrated with as great transparency as possible. The calibration process is followed by an analysis of the fsQCA results.

### **5.1 Calibrating conditions**

In order to implement the fsQCA analysis, the conditions need to be calibrated by following the procedures presented in the chapter 3 (Ragin, 2009). In the table 5.1. below is listed the final conditions that are included for the study. Like stated on the chapter 4.3, where the initial property space is presented, the conditions must be trimmed down so that the final property space comprehends only the most relevant condition for the study. Hence, the following conditions are selected to be included for the final property space:

Condition	Description	Sample data	Calibration method	Distribution	Abbreviation
Targeting					
Target audience	Is the advertisement targeted for consumers under or above the age of 30	No	Boolean	Dichotomous	Young
Channel	Is the advertisement displayed on a well optimized site	yes	Boolean	Dichotomous	Channel
Entertainment					
Activation	Competition and/or lottery	no	Boolean	Dichotomous	Competition
Celebrity	Celebrity endorser	Yes	Boolean	Dichotomous	Celebrity
Advertisement structure					
Advertisement format	Interactive / statistic	3D Swipe	Boolean	Dichotomous	Interactive
Campaign specific					
Impression	How many times an advertisement is displayed	1 200 000	Direct method	Continuos	High no. of impressions
Outcome factors					
CTR	Click-through-rate of the advertisement	1.45	Direct method	Continuos	CTR
eCPC	Cost-per-Click of the advertisement (€)	0.56	Direct method	Continuos	eCPC

**Table 5.1 Final property space**

Due to the varying nature of the conditions, some of the values will be translated into Boolean values, while the rest are calibrated by following the direct method. In order to be as transparent as possible, the calibrating process of all the conditions is discussed in detail below. Like mentioned, transparency at this stage is the key determinant for the reliability and validity of the research.

### 5.1.1 The outcome conditions

**CTR.** This is the outcome condition in this study. The CTR rates are commonly used for evaluating the success of digital advertisements and there is a set standard for calculating the value. The condition is calibrated by using direct method. The cross-overt point is set at 0.8. According to With Mobile (2015) 0.8 is the FMCG -industry average click-through-rate in the

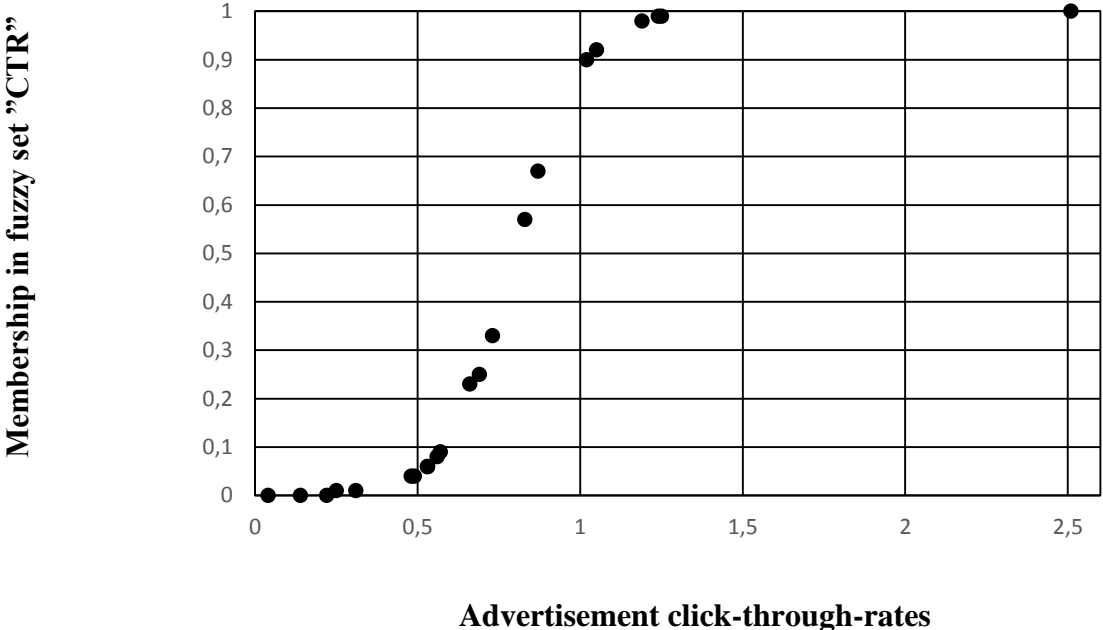


Finnish markets. The upper threshold is set at 1.15 (maximum values was 2.51) and the lower threshold 0.5 (minimum value was 0.04). The calibration is done within the fsQCA-software ([www.fsqca.com](http://www.fsqca.com)).

Case	CTR %	Calibrated membership score
SB1	0.53	0.06
SB2	1.24	0.99
SB3	0.53	0.06
SB4	0.66	0.23
APQ4_1	0.56	0.08
APQ4_2	0.83	0.57
APQ2_1	0.73	0.33
APQ2_2	0.87	0.67
APQ2_3	0.57	0.09
APQ2_4	0.31	0.01
PRO_1	0.48	0.04
PRO_2	0.53	0.06
PRO_3	1.19	0.98
PRO_4	1.05	0.92
PRO_5	0.04	0.00
PRO_6	1.02	0.90
PJ_1	0.49	0.04
PJ_2	0.22	0.00
PJ_3	0.69	0.25
AP_2015Q1_1	1.25	0.99
AP_2015Q1_2	0.14	0.00
CC_1	2.51	1.00
ALLinONE	0.25	0.01

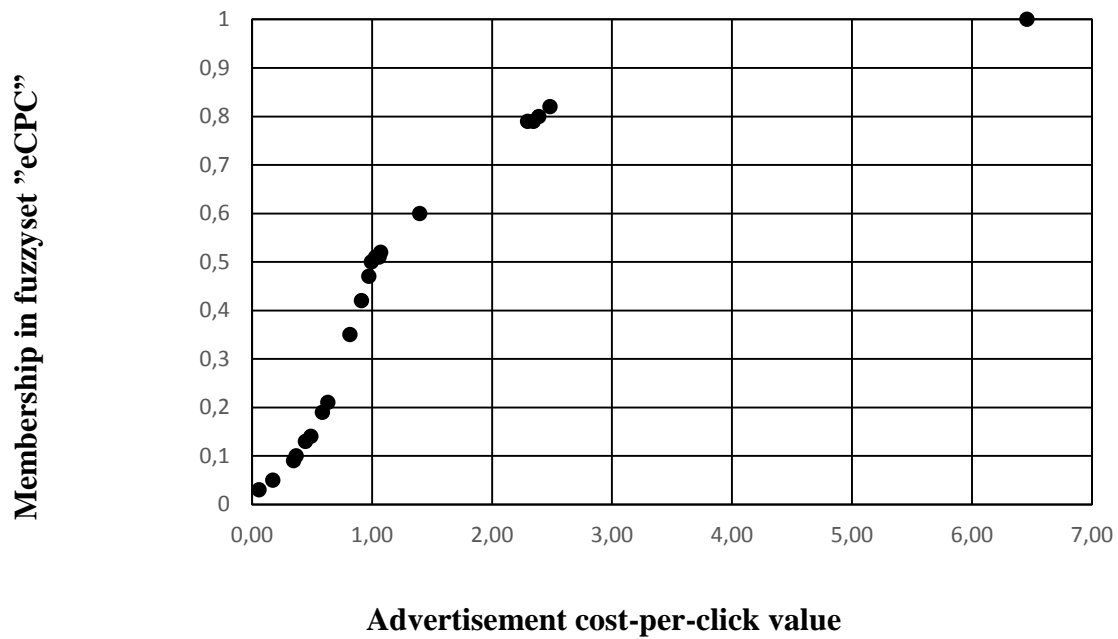
**Table 5.2 Calibration of the outcome condition (CTR)**

The distribution of values in comparison to fuzzy membership score is presented in the following figure 5.1.



**Figure 5.1 Calibration of the outcome factor CTR**

**eCPC.** The cost-per-click value is used as the secondary outcome condition. The eCPC defines the cost of a single click of the advertisement. It is calculated by the advertisement budget divided by the amount of clicks the advertisement has generated. This condition is also calibrated by following the direct method within the fsQCA -software. Since the condition represents the value of a single click, in this case lower values are naturally more desirable. Thus, the outcome factor is set as negated. The upper threshold is set at 4.0 (the maximum value was 76.15), cross-over point at 1, and the lower threshold at 0.15 (the minimum value was 0.06). The distribution of values in comparison to fuzzy membership score is presented in the following figure 5.2.



**Figure 5.2** Calibration of outcome factor eCPC

### 5.1.2 Exposure

**Impressions.** Impression value is the number of times the advertisement has been displayed. The value does not give the unique impressions (how many times a single person has seen the advertisement), instead it includes all the time the advertisement has been displayed. Hence, it means that one person may have seen, and most likely has seen, the advertisement several times. The value is calibrated by following the direct method within the fsQCA -software. The upper threshold is set at 2 000 000 and the lower threshold at 200 000. The cross-over point is at 800 000. The following figure 5.3 presents the distribution of values in comparison to fuzzy membership score.

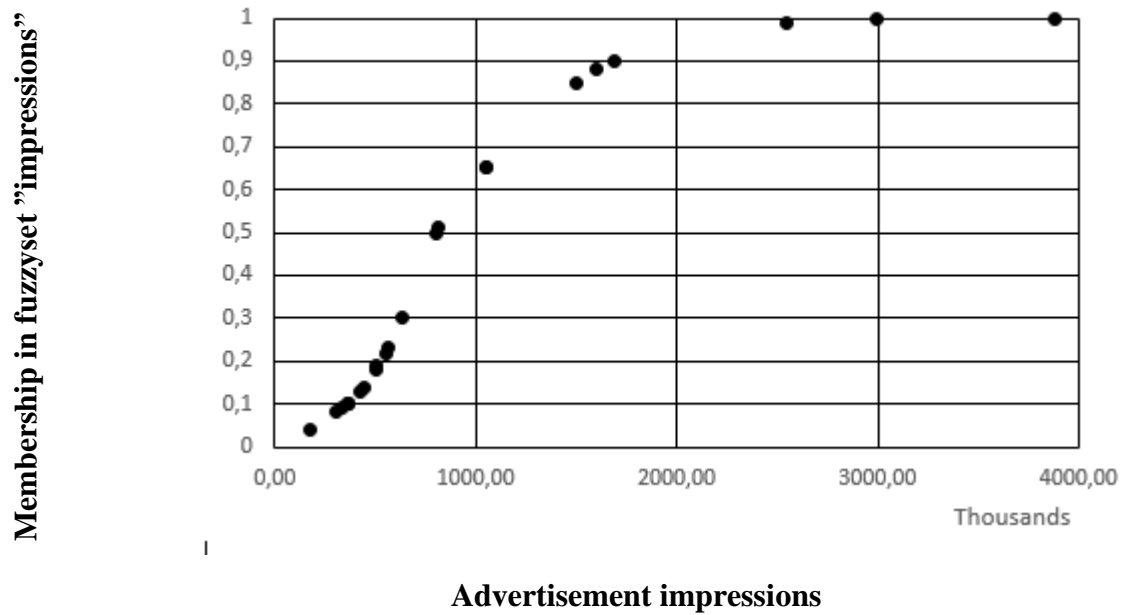


Figure 5.3 . Calibration of impressions

### 5.1.3 Targeting

**Target consumers.** The target group for each product is defined based on category manager interviews and other internal data. The current research has recognized the young adults (21 to 30-years old) as the most potential customer group for mobile marketing. For customers above the age of 30 there has not been found a significant difference in their attitudes towards mobile marketing that could be explained by age. Thus, I chose to use the Boolean values for calibrating the condition. The Boolean value 1 (fully in) stands for products targeted for consumers below 30 and the value 0 (fully in) represents products targeted for consumers above the age of 31. Out of the 23 cases, 10 represent the value 1 and 13 cases represent the value 0. In the truth table the condition in designated as *young*.

**Channel.** Some of the advertisements are strategically placed to mobile websites, which target similar consumer groups as the product advertised. For example one of the coffee drink advertisements is displayed in *Indiedays.fi*, a blogger portal website visited mainly by teenage girls and young women. The rest of the advertisements are displayed in more “general” sites, such as *HS.fi*, *Iltasanomat.fi*, and *Iltalehti.fi*, where the site visitors can assumed to be significantly more heterogeneous group. The medium condition is seen as dichotomous set and

can only have two values: fully in (1) or fully out (0). Here the value 1 (fully in) represents medium that is targeted for the product and the value 0 (fully out) medium that is not targeted.

#### **5.1.4 Entertainment**

**Celebrity & Competition.** The “entertainment” value of an advertisement is measured by two conditions – if there is (a) a celebrity endorser featuring the advertisement or (b) if the advertisement encourages the consumers to attend to a competition or lottery. Both of these conditions are dichotomous sets as they can only have two values. For the condition (a) value 1 (full membership) stands for the presence of a celebrity endorser and the value 0 (full non-membership) determines the absence of celebrity endorser. Similarly, for condition (b) value 1 (fully in) indicates the presence of competition or lottery and value 0 (fully out) stands for the absence of competition or lottery. Out of 23 cases, 10 of them include a celebrity and 10 of them include a lottery or a competition. Also, it should be noted that five of the 23 cases include both of the entertaining conditions. On the table 5.3. is presented the calibrated cases.

Case	Celebrity	Competition
SB1	0	1
SB2	0	1
SB3	0	1
SB4	0	1
APQ4_1	0	0
APQ4_2	0	0
APQ2_1	1	1
APQ2_2	1	1
APQ2_3	1	1
APQ2_4	1	1
PRO_1	1	0
PRO_2	1	0
PRO_3	1	0
PRO_4	1	0
PRO_5	1	0
PRO_6	1	0
PJ_1	0	1
PJ_2	0	1
PJ_3	0	1
AP_2015Q1_1	0	0
AP_2015Q1_2	0	0
ALLinONE	0	1
CC_1	1	1

**Table 5.3** *Calibration of the entertainment conditions*

### 5.1.5 Advertisement structure

**Format.** For calibrating the advertisement format values, again the Boolean values are used. According to the research, different advertisement formats have significant effect the perception of interaction. Generally video advertisements are perceived as the most interactive and statistic

banners as the least interactive. However, in the advertisements included in this study, based on the information available, there are only two types of advertisements used. The value 1 (fully in) represents a swipe 3D advertisement, where the advertisement can include some audio or video elements and the consumer is persuaded to swipe the advertisement in order to get more information. A statistic banner represents value 0 (fully out). All together 10 advertisements represent the value 1 in this condition.

## 5.2 FS/QCA Analysis

For the logical analysis, fsQCA software (version 2.5 for Windows) is used. It can be downloaded for free from [www.fsqca.com](http://www.fsqca.com). The truth table analysis (TTA) consists of two stages. First, (1) fuzzy sets are converted into a truth table and then (2) the sufficient configurations in the truth table are minimized to more parsimonious causal recipes. These activities can be done within the software. In the truth table, all the logically possible combinations of causal conditions are listed. The number of different possible combinations of conditions can be calculated with the formula  $=2^k$ . This value represents the number of rows in the truth table. In this research the final property space comprises of six conditions in addition to the outcome, thus there is  $2^6 = 64$  corners (different configurations) in the truth table. All the truth tables analyzed for this research are listed in the Appendix A.

The interpretation for the output is the most crucial stage of the analysis. In order not to make any unjustified speculations, the assumptions have to be grounded by the theory. (Elliot, 2013) The TTA output provides three different kind of solutions; complex, intermediate, and parsimonious solution. All of the three solutions are represented and discussed in more detail in the following chapters.

The TTA output presents all the necessary information for analyzing the results. On the left side is listed the combinations of conditions that remain after the minimization of the truth table. These combinations, or causal recipes in QCA dialogue, represent the alternative sufficient paths to the outcome. In QCA dialogue, the tilde represents negation, multiplication represents logical AND, and plus sign represents logical OR. The raw coverage, displayed in the first column, shows the extent to which each of the combinations can explain the outcome. The unique coverage in the second column indicates the percentage that can be explained exclusively by that recipe. In the last column is displayed the recipe's consistency score.

Finally, below the pathways is presented the solution consistency and coverage. The solution consistency represents the consistency of the causal recipes in combined. The solution coverage represents the proportion of membership in the outcome that is explained by the membership in the causal recipes listed in the solution. (Elliot, 2013)

Similar to fuzzy sets and Boolean values, value 0 resembles no consistency and value 1 full consistency. Coverage represents the measure of empirical relevance. The consistency cutoff is set at 0.8 in all of the analysis. All of the three solutions below give an example of causal complexity – when being part of different configurations, a condition may have a different affect to the outcome. For example in the parsimonious solution presented in the chapter 5.2.1, in some cases the absence of celebrity leads to positive outcome while in one of the configurations the presence of celebrity leads to positive outcome.

**5.2.1 Parsimonious solution**

	<b>raw coverage</b>	<b>unique coverage</b>	<b>consistency</b>
(1) interactive*~celebrity*~young	0.12	0.12	1.00
(2) ~high no. of impressions*~interactive *young	0.26	0.20	0.99
(3) high no. of impressions *celebrity*~young	0.18	0.18	0.89
(4) high no. of impressions *~celebrity*young	0.10	0.03	0.93
solution coverage: 0.59			
solution consistency: 0.94			

**Table 5.4 Parsimonious solution, CTR as the outcome factor**

The parsimonious solution is the simplest version of the three given solutions. In parsimonious solution, the remainder rows are included in the solution only if they can help to create a more simple solution. Minimizing the primitive expressions enables to divide the cases with only minor differences between them into configurations. (Elliot, 2013) This solution includes four pathways. The full solution’s consistency is relatively high at 0.94 and coverage is also satisfying at 0.59. There are no necessary nor sufficient conditions in this solution. These configurations all include only one case, except the second configuration, which includes three



cases; PJ\_3, PRO\_6, PRO\_4 (2). The other cases and configurations are as following; (1) AP\_2015Q\_1, (3) CC\_1, (4) PRO\_2.

We can examine the paths more closely based on the advertisement's target audience. The first pathway (*interactive\*~celebrity \*~young*) displays that advertisements advertising products targeted for the over 31-year olds, a presence of interactive format combined with an absence of a celebrity yield to positive outcome. The third pathway (*high no. of impressions\*celebrity\*~young*) indicates that an advertisement featuring a celebrity, combined with higher than average number of impressions, and over 31-year olds as target audience yields to higher than average click-through-rates. In other words, advertisements advertising products targeted for older consumer with a celebrity endorser and higher than average number of impressions yield high CTR.

These paths are coherent with the existing literature as they suggest that an entertainment factor or an interactive format is needed in order to yield higher than average CTR –rates. The importance of these may even be emphasized with that advertisements that are targeted for older consumer group. As stated in the existing literature, older consumers are not as active mobile Internet users. Thus, they would not be as likely to see the advertisement, and also they would be less likely to click or participate as easily as younger audience since they are not as familiar with the use of mobile Internet. In order for the advertisement to reach the older audience as well, the advertisement naturally requires higher than average impression numbers. Also, the content of the advertisement needs to be alluring for the target audience, so that they participate and click the advertisement. However, it might be assumed that the content of the advertisement has been interesting for also the younger audience, since the advertisements placement is not targeted and it has still managed to reach higher than average click-through-rates.

The second pathway (*~high no. of impressions \*~interactive \*young*) represents that advertisements advertising products targeted for consumers under 30-year-olds, combined with statistic format and lower than average impression numbers yield a positive outcome. The advertisements that belong to this group are PJ\_3, PRO\_6 and PRO\_4. The last pathway (*high no. of impressions \*~celebrity \*young*) displays that the presence of higher than average impression numbers, and absence of celebrity yield to positive outcome. This indicates that the advertisements advertising products targeted for younger consumers yield higher than average

click-through-rate when the impressions are high and there is no celebrity in the advertisement. The advertisement belonging to this group is PRO\_4.

At first, the paths 2 and 4 seem contradictory when comparing to the existing literature, but are in fact logical when taking a closer look. All the advertisements that represent either the path 2 or 4, are advertising protein products. At the time the advertisements were displayed, there was a “protein boom” among young adults. Protein products, especially quarks, were very popular and heavily marketed in other channels as well. Thus, the products advertised were already very well-known and the target audience was already very interested of the products. From this can be interpret that advertisements targeted for younger audience yield higher than average click-through-rates, if the product advertised itself is interesting enough.

The parsimonious solution may leave out some important information of the cases and causal mechanisms since it offers the simplest solution of these three. In order to get deeper understanding of the cases and condition, the intermediate and complex solution is analyzed next.

**5.2.2 Intermediate solution**

	raw coverage	unique coverage	Consistency
(1) young*~competition*celebrity*~interactive*~high no. of impressions	0.20	0.20	0.98
(2) ~young*~competition*~celebrity*interactive*channel	0.08	0.08	1.00
(3) ~young * competition *celebrity*~interactive *~channel*high no. of impressions	0.12	0.12	0.85
(4) young*competition*~celebrity*~interactive*channel*high no. of impressions	0.06	0.06	1.00
solution coverage: 0.47			
solution consistency: 0.95			

**Table 5.5 Intermediate solution, CTR as the outcome factor**

The intermediate solution is usually the most relevant and interesting of the three solutions, since the assumptions are justified. The solution distinguishes between easy and difficult

assumptions, and for the simplified solution, only easy remainders are included. In this case, all the conditions are set as present, since based on the theory we can assume that the presence of these conditions lead to the outcome. (Elliot, 2013) The overall of this solution consistency is again at a good level at 0.95 and coverage is also at relatively satisfying level at 0.47. This solution does not contain any necessary nor sufficient conditions either.

Let's examine these paths more closely. According to the first path (*young \*~competition \*celebrity \*~interactive\*~high no. of impressions*) a statistic advertisement advertising products that are targeted for under 30-year-olds containing a celebrity but not a competition and has been displayed less than average, will gain high CTR. This path has coverage of only 0.20 but high consistency of 0.98. The cases representing this configuration are PRO\_6 and PRO\_4. The last path (*young \*competition \*~celebrity \*~interactive \*channel \*high no. of impressions*) has a low unique and raw coverage (0.06) but a full consistency (1.0). The path suggests that statistic advertisements that are advertising products targeted for younger audience, combined with a competition but no celebrity endorser and high number of impressions and targeted placement yield to higher than average CTR.

These findings are consistent with each other as well as with the theory, since the same trends can be found. When a statistic advertisement is used, it seems that an entertainment factor should be used or the placement should be well optimized in order for the ad to yield high CTR.

The second path (*~young \*~competition \*~celebrity \*interactive \*channel*) indicates that advertisements advertising products targeted for over the 31-year-olds combined with interactive format and targeted placement combined with an absence of celebrity and competition will lead to positive results. The coverage of this path is only 0.08 but it has a full consistency (1.0), the case representing this path is AP\_2015Q1\_1. This finding suggests that when an interactive advertisement itself is well targeted, it doesn't need an entertaining component to gain high results.

According to the third path (*~young \*competition \*celebrity \*~interactive \*~channel \*high no. of impressions*) advertisements advertising products targeted for above 31-year-old consumers with statistic format and untargeted placement need to be combined with higher than average impression numbers and a competition and celebrity to yield positive results. The unique and raw coverage of this path is 0.12 but the consistency is slightly lower (0.85) than on the other

paths. This finding supports the configuration of the first path, as it suggest that an advertisement should have an entertainment factor when the format is statistic and the placement is not targeted.

Similarly to the previous findings, the findings of the intermediate solution might indicate that an interactive format captures the mobile user’s attention more easily, and thus the user is more likely to click the advertisement. When the advertisement is statistic there needs to be an entertainment factor so that it captures the user’s attention and motivates the user to click the advertisement. Targeting of the advertisements seems to be also an important success factor. On the absence of a celebrity or a competition, advertisements targeted for consumers over the age of 31 should be interactive with well-targeted placement.

### 5.2.3 Complex solution

	raw co- verage	unique co- verage	consis tency
(1) ~high no. of impressions*~interactive*celebrity*~competition*young	1.00	1.00	0.98
(2) high no. of impressions*channel*interactive*~celebrity *~competition* ~young	0.08	0.08	1.00
(3) high no. of impressions*~channel*~interactive*celebrity *competition* ~young	0.12	0.12	0.85
(4) high no. of impressions*channel*~interactive*~celebrity *competition* young	0.06	0.06	1.00
solution coverage: 0.47			
solution consistency: 0.95			

**Table 5.6 Complex solution, CTR as the outcome factor**

As the name indicates, this is the most complex of the solutions of the TTA output. It can be seen as the opposite of parsimonious solution, since there is no simplifying assumptions made and the use of the "remainders" (the rows without cases) in the solution is avoided. Thus, if there is a large number of causal conditions, it can lead to complicated solution. (Elliot, 2013)

According to the solution displayed above, there are also four paths in the complex solution. The consistency of the solution is 0.95 and the coverage of this solution is slightly lower than on the two other solutions, 0.47. The results of the complex solution are otherwise identical with the intermediate solution, with the exception of the second path. On the second path (*high no. of impression\*channel\* interactive \*~celebrity\*~competition\*~young*) of the complex solution, higher than average impression numbers are added to the combination. Naturally, the same case (AP\_2015Q1\_1) represents this path as the second path on the intermediate solution.

**5.2.4 Negated CTR outcome**

With the negated solutions we can examine the configurations that lead to lower than average results. Over half of the advertisements (65%) did not reach the industry average 0.8 click-through-rate, so it can be useful to investigate the configurations behind also the unsuccessful ads.

	<b>raw coverage</b>	<b>unique coverage</b>	<b>consistency</b>
(1) ~interactive*~celebrity*~young	0.40	0.15	0.85
(2) high no. of impressions*~interactive *~competition	0.22	0.08	0.87
(3) ~high no. of impressions*~interactive*competition	0.16	0.06	0.78
(4) channel*interactive*competition	0.21	0.21	0.94
solution coverage: 0.75			
solution consistency: 0.85			

**Table 5.7 Parsimonious solution, negated CTR as the outcome factor**

The parsimonious solution gives four paths that can lead to lower than average CTR. The overall solution coverage is quite high at 0.75 and the solution consistency is also at decent level at 0.85. Again, there are no necessary or sufficient conditions.

The first path displays that the absence of the components interactive, celebrity and young lead to lower than industry average performance. In other words, advertisements targeted for over 31 -year olds with statistic format and without a celebrity endorser lead to lower than average

CTR. This finding is coherent with the existing literature, as all of the three components (young audience, entertainment factor and interactive format) have found to increase the consumer acceptance towards mobile advertising (e.g. Park et al, 2014; Gao et al 2009:2010). Thus, it is logical that the combined absence of the components leads to lower than industry average results.

The second path suggests that high number of impressions combined with statistic format and absence of competition lead to lower than average CTR. There are three cases that support this (APQ4\_2, PS\_2015Q1\_2, APQ4\_1). Again, the path is coherent with the existing literature, as an advertisement with statistic format and the absence of an entertainment factor yields lower than industry average results.

According to the third path (*~no. of impressions \*~ interactive \*competition*), statistic advertisements with a competition and low impression numbers lead to lower than average click-through-rates. This finding is also supported by the existing literature. Even though there is an entertainment factor, a competition, it may not be attractive enough when it is combined with statistic advertisements if the content of the advertisement is not interesting enough. Two cases are following this configuration, PJ\_1, PJ\_3. These advertisements are part of the same campaign, so it can be interpreted that the products or the overall content of the campaign was not influential for the audience.

The last path displays that interactive advertisements with competition and targeted placement lead to lower than average results. In total of four cases (SB1, SB3, SB4, APQ2\_3) support this, which represents 26 % of the total number of the cases that have below 0.5 in the membership score. This finding is surprising since there is a clear contradiction with the theory. According to the theory, all of the three components should increase the click-through-rates. To be able to make further conclusions of the reason behind this, the advertisements need to be examined further. Three out of the four advertisements are part of a same campaign, advertising new energy drinks from globally very well-known coffee brand. The campaign is targeted for young (15-30 -years old) female consumers, and the advertisements are carefully targeted and well-designed. The advertisement encourages consumers to vote for their favorite picture among some popular Finnish bloggers. In total 3.4% of all the consumers who clicked the advertisement, also voted.

There are several reasons that can explain the low click-through rates. The connection between the competition and the product might not have been clear to the consumers. Regardless of the brand being very well know, consumers may still not be familiar with the new line extension to energy drinks. This may decrease the success of the advertisements. Also, even though blog readers’ average profile is well in line with the product’s target group, the advertisement did not seem to interest the audience and get them to participate to the competition. There should not be done any major conclusions solely based on this one metric, but the low CTR with well targeted placement and entertaining content might suggest that the target group should be re-evaluated. However, this proposal cannot be confirmed by the data and further and more extend market research is needed in order to prove this statement.

**5.2.5 Negated eCPC results**

In order to test if the results are consistent with other performance measures as well, a truth table analysis is also tested with eCPC as the outcome factor. The eCPC is the cost-per-click measure, which is calculated by the ad budget divided by the amount of clicks. Naturally lower cost-per-click values are desired, thus outcome factor is negated in this solution.

	<b>raw coverage</b>	<b>unique coverage</b>	<b>consistency</b>
(1) channel*~ interactive*young	0.17	0.17	0.86
(2) ~channel*~ interactive *~young	0.37	0.37	0.83
(3) interactive*~celebrity*~young	0.08	0.08	0.91
solution coverage: 0.61			
solution consistency: 0.85			

**Table 5.8 Parsimonious solution, negated eCPC as the outcome factor**

The parsimonious solution gives three paths to the outcome. The solution coverage is rather high (0.61) and the solution consistency is also decent at (0.85). Again, there are no necessary nor sufficient conditions in this solution.

According to the first path (*channel\*~interactive\*young*), well placed statistic advertisements targeted for younger consumers lead to lower than average cost-per-click values. The result consistency is 0.86 and the cases representing this path are SB2, PRO\_4 and PRO\_6. This result is consistent with the previous results, as it suggests that when the advertisement is targeted for young audience and the channel is well optimized, statistic advertisements can yield above average results.

However, the second path (*~channel\*~ interactive \*~young*) seems controversial to both existing literature and previous results. This path indicates that statistic advertisements advertising products targeted for above 31 -year olds, and are not placed on targeted mobile web sites yield lower than average eCPC values. However, the result can be explained when looking closer into the cases. There are four cases in total representing this path - CC\_1, ALLinONE, PJ\_1 and PJ\_2. Two of the cases, PJ\_1 and PJ\_2, are part of the same campaign, and the media's were bought CPC-based. This means that the advertisements are paid only by the clicks. The same pricing model was also used with the case ALLinONE. If the advertisement content is not interesting to the consumers, the clicks of the advertisement remain low. Naturally, this decreases the cost per click values, even though by other performance indicators the advertisements were not as successful - for example all three of these advertisements have lower than the industry average click-through-rates. CC\_1 however makes an exception to this. The advertisement's click-through-rate is 2.51, which is significantly higher than the industry average. Also the impression numbers of the advertisement are one of the highest of all the cases included to this study. In that case, the content of the advertisement may have been interesting for the consumers, since even though the advertisement did not contain any of the features that have found to increase the success of mobile advertisements, it has allured consumers to participate significantly more often than an industry average advertisement.

The last path (*interactive\*~celebrity\*~young*) displays that advertisements advertising products for over 31 -year olds with interactive format and no celebrity endorser lead to lower than average cost-per-click values. The coverage of this path is only 0.08, and only one case is consistent with this path. The case is AP\_2015Q1\_1. This solution is quite consistent with the other results as well – if the content of the advertisement is interesting enough, an interactive advertisement without an entertainment factor can lead to better than average performance.



### 5.3 Discussion of results

The results of this study are mainly in line with the existing literature. It seems that the same components that are found to increase the perception of interactivity of mobile advertisements, also increase the values of CTR or eCPC. The contradictions with the results of this study and the existing literature may be explained by the content of the advertisements - if the content is not perceived interesting, the advertisement does not perform well in terms of the performance metrics.

This can be interpreted from several stages of the findings. For example, the parsimonious solution supports the conclusion, as one of the configurations suggests the advertisements advertising products that are already interesting and “hot” among the target group do not necessarily need an entertainment factor (a celebrity or a competition or a combination of these) or interactive format in order to yield higher than average click-through-rates. In this case, it can be interpreted that the product advertised are interesting enough for the target audience by itself.

The negated CTR solution seems to be mainly in line with these results. Statistic advertisements combined with the absence of an entertaining factor or interactive format were mainly found to yield lower than average click-through-rates. However, the neglected solution yields an interesting finding which is clearly controversial with the existing literature. A combination of *channel \*format \*competition* was found to yield lower than average click-through-rates, when according to existing research these factors should increase the performance of mobile ads. Three out of four ads that belong to this group were from the same campaign so the explanatory factor can be again the content of the advertisements - the content of the advertisement may not have been alluring for the target audience and thus the advertisements of the campaign did not perform well.

Also the results of the last solution, where the negated eCPC value was set as the outcome factor supported the findings of current literature apart from the second path (*~channel\*~format\*~young*). The contradiction of this path can be explained by the different pricing model. The cost-per-click pricing model naturally decreases the costs of a single click. The click-through-rates of the advertisements that represented this path were mainly lower than the industry average rates, which could refer to that the advertisements were not interesting for

the audience. However, if these advertisements are evaluated only by the eCPC, they seem to have performed well. By this finding should be noted that the success of each advertisement should be measured by KPI's that support the advertisement objectives the best.

Logically, the results suggest that when the advertisements promoting goods targeted for consumers over the age of 30 are placed in well targeted sites, the ads yield positive results in terms of CTR. Like being said, young consumers are more active mobile users and they may to use mobile for different purposes than the consumers over the age of 31. Young consumers tend to use their mobile more as browser, where the older consumer group may not utilize the Internet features as much. This may lead to that the advertisements targeted for above the age of 31 do not reach the target group as easily, and due to this the carefully targeted placement is even more crucial for this group. Also, usually the advertisements targeted for this group need more impressions in order to reach the correct target group. Logically trying to reach a small user group with high number of impressions would decrease the CTR. Thus, when advertising products for the older consumer groups, it could be justifiable to use the CPC pricing model and measure the success in eCPC. However, in order to maintain decent click-through-rates for the advertisements advertising products targeted for above 31 -years old consumers, the content of the advertisements should be attractive for younger audience as well. Since the younger consumers are more active mobile users they are exposed to the advertisements more, but if they are not interested of the product or the content of the advertisement the advertisement is ignored.

In addition with the condition young, the condition interactive was either present or absent in most of the configurations. This suggests that the interactive format has a great influence on the CTR and also on the eCPC values. This finding reaffirms the findings by Barnes (2003) and Park et al. (2014) that the interactive format has a great impact on how the audience perceives mobile advertisements. When comparing the parsimonious solutions of CTR and negated CTR as the outcome factor, the effect of format can be demonstrated. The path  $interactive^* \sim celebrity^* \sim young$  leads to above average CTR. When replacing the interactive format with statistic format, the otherwise similar path leads to lower than industry average results. In the negated CTR solution, in three out of five of the paths that lead to lower than industry average results, the component interactive was absent. These findings reaffirm the importance of interactivity with mobile advertising.

Also the condition high number of impressions was included to majority of the configurations. Impression numbers naturally have a great impact on the selected performance metric CTR, since the metric is calculated by clicks divided by impressions. If the pricing model of the advertisement is cost-per-click (CPC) the ad is displayed as long as the set budget is used. If the content of the advertisement is not attractive for the consumers it is displayed, it requires a higher amount of impressions in order to reach the target. In this case, the cost-per-click may remain low, but the click-through rates can be far below the industry average. It would have been interesting to evaluate whether the pricing model has an impact to the eCPC or CTR values of the advertisements but unfortunately the pricing models of the campaigns were not available for this study.

#### **5.4 Validity and reliability**

The researcher plays a far more active role in interpreting the fsQCA results than in many other statistical techniques usually. QCA techniques require active interaction between the researcher and the cases as well as the software tools (Rihoux & Lobe, 2009, 238). Transparency is the key to better validity and replicability when using QCA. Hence, the technique demands high level of transparency thorough the analysis process in order to ensure the validity and reliability of the research. The formal rules of QCA, that are fixed and stable, offer replicability. By providing relevant and detailed material in all stages of the analysis, such as detailed information of the calibration process of the data, the truth tables, and all relevant information of the cases, the replicability of the study was able to be increased.

In this thesis the minimum outcome consistency criterion for inclusion of cases is above 0.8 for all the solutions. According to Vassinen (2013, 133) the minimum outcome consistency should not be set below 0.8 in any case. The solution consistency is also above 0.8 in all expect one solution (see chapter 5.2.3, path 3) - this should improve the reliability of the results.

There was no arbitrary case selection, since all the mobile advertisements conducted by the company Dairy Foods between the beginning of 2013 and the spring 2015 were included to the study. There was no available data on the mobile advertisements conducted before 2013, and also I was not able to get the data of some of the latest campaigns conducted in April and May 2015. The variation in the reporting of the data between the different agencies may decrease the reliability and validity of the results.

## **6 DISCUSSION**

The aim of this study was to explore if there can be identified combinations of mobile advertisement components that lead to higher than average results, where the click-through-rates and cost-per-click values are being used as performance metrics. Especially in Nordic countries the penetration of smart phones is getting close to 100%. Thus, mobile has quickly become an extremely important marketing channel for all marketers, regardless of the field they operate in. Naturally the topic has also bred an increasing amount of academic interest. Despite of the accumulating academic research, there is still an obvious gap of studies where the advertisement performance is studied in the light of the performance metrics. This is the gap that this study aims to fill. This study utilizes a rather new approach in marketing context, Fuzzy Set Qualitative Comparative Analysis. The potential and benefits of using fsQCA in marketing context approach and methodology is successfully reaffirmed by this research. The methodology enables to understand the configurations of causal conditions that lead to certain outcomes that would be difficult or impossible to recognize otherwise. The case company Dairy Foods offered an interesting, though limited, data for the study.

### **6.1 Contributions**

The main goal of the thesis was to identify configurations of mobile advertisement components that have the highest effect on the success of the advertisement. As the results of the previous section suggest, there cannot be found a direct and simple answer to the research question set in the beginning. The main contribution of this study is that there can be demonstrated some relationships of the components of the advertisement that seem to improve the performance of it. The fsQCA analysis demonstrated that there can be found several factors that may explain the success of certain advertisements, as the content of the advertisement seems to arise as the most important factor. Also, different combinations seem to work better with different products - the main reason behind this might be the target audience of the products. Similarly as the previous studies have shown, young consumers are the most active on mobile and thus the consumer group is also effectively reached through mobile.

The combination of entertainment factors and the advertised product's target group seems to be an important configurations that has the highest effect on the success of the advertisement. The content needs to be relevant and attracting for the target audience. Also, when the product is targeted for above 31 –years old consumers, the advertisement should also attract younger

consumers in order to reach high CTR if the advertisement is not well placed on websites for similar target group. Accurate placement of the advertisement allows to design content of the advertisement more specifically just for the target audience of the product. Interestingly, it seems that with both target groups, either well targeted placement or an entertainment factor is enough for reaching above average results – both are not needed.

There cannot be found a clear factors that could explain the lower than average results. As expected from the existing literature, interactivity is critical for the success of the advertisement. In majority of the configurations that lead to lower than industry average results, the component interactive was absent. However, in the configurations of the negated CTR solution that were somewhat controversial with the existing literature, the content might again be the explanatory factor that explains the lower than industry average results.

Based on the findings, it seems that same advertisements are often successful with both of the key performance indicators (CTR, eCPC). However, there are some exceptions. These might be explained by the different pricing models of the advertisements. Unfortunately the pricing models are not available for most of the campaigns so this argument cannot be proved.

## **6.2 Managerial implications**

Typically case research is interested in actions that have occurred in the past but the findings may still broaden the current understanding and possibly effect on future actions (Perry & Gummesson, 2004). The findings of this study yield several important and interesting managerial implications that should be noted when planning and implementing mobile campaigns in the future. The findings suggest that there are multiple combinations of advertisement factors that can yield to successful performance. The target audience of the advertisement seems to be the main influence of which factors should be highlighted – for different target audiences, different combinations of components seem to yield better results. For example, for products targeted for young consumers, mobile seems to be a very attractive marketing channel. The target group can be very cost-effectively reached and engaged to participate with the brand. When promoting products targeted for over 31 -years old, finding the correct channels for displaying the advertisements seems to be one of the key factors for success.

Due to the facts stated in the section 5.3., the impression number itself is not very relevant indicator. Instead of impressions, it might be more interesting to monitor the frequency numbers, which indicate the average numbers of how many times a single consumer has seen the advertisement. According to With Mobile (2014) studies, an ideal frequency number is between 3 and 5. If a consumer is exposed to the advertisement more than five times, it decreases the effectivity of the advertisement. Thus, very high impression numbers may actually decrease the success of the advertisement. In the future, marketers should require for the frequency numbers to be reported as well in order to make more accurate analysis of the mobile marketing reports.

The pricing model seems to be extremely important factor when analyzing the results of the advertisements. In fact, the pricing models should be carefully considered already in the camping planning stage so that it supports the aims of the campaign. If the main goal of the campaign is to get consumers to participate to a competition or engage with the brand, the CPC -model could be more suitable pricing model for the purpose. On the other hand, if the goal is to raise awareness, paying by the impression may be more appropriate. Also, the pricing models plays an important role when deciding the key performance indicators of the advertisements, so that the measures used are reflecting the actual results as precisely as possible.

The data of this study is very limited and fragmented since all the agencies have their own priorities of gathering and representing it. Thus, it is recommended that the agencies would be instructed to report similar data so that the reports would be comparable with each other.

### **6.3 Limitations and future research directions**

There are several limitations present to this study. To be able to make greater generalizations of the results, further research is needed. fsQCA methodology needs still more testing in order to ensure of its suitability for marketing research. Regardless of that I was able to identify configurations that lead to higher than average click-through-rates and lower than average cost-per-click, the causal connections cannot be proofed. However, replicability of the study is ensured by completing the fsQCA process with as great transparency as possible.

The data is gathered from a single company's mobile marketing actions, and this might limit the generalization of the results to other companies. Further on, at the moment the company's

mobile advertisement data is very limited and more mobile data from the future mobile advertisements would be needed in order to get more accurate and generalizable results. Since the company's mobile advertisements are implemented by several different mobile marketing agencies, there are several limitations when it comes to comparing the values of the different reports. For example the frequency number would have been more accurate and informative component than the impression rates for the purposes of this study, but unfortunately the digit was reported by only some of the agencies.

There are multiple interesting opportunities in the field for future research. It would be highly interesting to apply the similar research setting for other companies operating in the same industry to compare the results. Also, the fsQCA methodology could be used for analyzing the marketing performance of other digital marketing campaigns the company has performed.

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**APPENDIX A – Truth Tables**

impres.	channel	format	celeb.	compet.	young	number	~outc.	raw consist.	PRI consist	SYM consist
1	1	1	0	0	0	1	1	1.00	1.00	1.00
1	1	0	0	1	1	1	1	1.00	1.00	1.00
0	0	0	1	0	1	1	1	0.98	0.97	0.97
0	1	0	1	0	1	1	1	0.96	0.95	0.95
1	0	0	1	1	0	1	1	0.85	0.85	0.85
0	1	1	1	0	1	2	1	0.50	0.48	0.48
0	0	1	1	1	0	2	0	0.40	0.22	0.26
1	1	0	1	0	1	1	0	0.38	0.23	0.23
0	1	0	0	1	0	1	0	0.38	0.00	0.00
1	1	0	0	0	0	3	0	0.34	0.08	0.09
0	0	0	0	1	0	1	0	0.30	0.00	0.00
0	1	1	0	1	1	3	0	0.18	0.00	0.00
0	1	1	1	1	0	1	0	0.13	0.00	0.00
1	0	0	0	1	0	1	0	0.08	0.00	0.00
1	1	0	0	1	0	1	0	0.07	0.00	0.00
0	0	0	1	1	0	1	0	0.01	0.00	0.00

**Truth table 1, positive outcome (CTR)**

impres.	channel	format	celeb.	compet.	young	number	~outc.	raw consist.	PRI consist	SYM consist
0	0	0	0	1	0	1	1	1.00	1.00	1.00
0	0	0	1	1	0	1	1	1.00	1.00	1.00
0	1	0	0	1	0	1	1	1.00	1.00	1.00
1	1	0	0	1	0	1	1	1.00	1.00	1.00
0	1	1	0	1	1	3	1	1.00	1.00	1.00
1	0	0	0	1	0	1	1	0.99	0.99	1.00
0	1	1	1	1	0	1	1	0.98	0.97	1.00
1	1	0	0	0	0	3	1	0.89	0.85	0.91
1	1	0	1	0	1	1	1	0.82	0.77	0.77
0	0	1	1	1	0	2	0	0.74	0.63	0.74
0	1	1	1	0	1	2	0	0.54	0.52	0.52
0	0	0	1	0	1	1	0	0.32	0.03	0.03
0	1	0	1	0	1	1	0	0.32	0.05	0.05
1	0	0	1	1	0	1	0	0.16	0.15	0.15
1	1	0	0	1	1	1	0	0.08	0.00	0.00
1	1	1	0	0	0	1	0	0.02	0.00	0.00

**Truth table 2, negated outcome (CTR)**

impres.	channel	format	celeb.	compet.	young	number	~eCPC	raw consist.	PRI consist	SYM consist
1	1	1	0	0	0	1	1	1.00	1.00	1.00
1	1	0	0	1	1	1	1	1.00	1.00	1.00
1	0	0	1	1	0	1	1	0.97	0.97	1.00
1	0	0	0	1	0	2	1	0.96	0.95	1.00
0	0	0	0	1	0	1	1	0.89	0.70	1.00
0	1	0	1	0	1	2	1	0.86	0.72	0.92
0	1	0	0	1	0	1	0	0.79	0.30	1.00
1	0	0	1	0	1	1	0	0.71	0.00	0.00
1	1	0	0	0	0	3	0	0.66	0.60	0.60
0	0	1	1	1	0	2	0	0.44	0.00	0.00
0	1	1	0	1	1	3	0	0.40	0.10	0.13
0	1	1	1	0	1	2	0	0.37	0.00	0.00
0	1	1	1	1	0	1	0	0.31	0.00	0.00
0	1	0	1	1	0	1	0	0.00	0.00	0.00

**Truth table 3**, negated outcome (eCPC)

## APPENDIX B – Truth Table Analyses

### Outcome condition: CTR

Model:  $o = f(im, ch, fo, ce, co, yo)$

	raw co- verage	unique co- verage	consis- tency
<b>COMPLEX SOLUTION</b>			
frequency cutoff: 1.00			
consistency cutoff: 0.85			
(1) ~high no. of impressions*~interactive*celebrity*~competition*young	1.00	1.00	0.98
(2) high no. of impressions*channel*interactive*~celebrity*~competition* ~young	0.08	0.08	1.00
(3) high no. of impressions*~channel*~interactive*celebrity*competition* ~young	0.12	0.12	0.85
(4) high no. of impressions*channel*~interactive*~celebrity*competition* young	0.06	0.06	1.00
solution coverage: 0.47			
solution consistency: 0.95			

**Table 1**, Outcome condition: CTR

	raw coverage	unique coverage	consistency
<b>PARSIMONIOUS SOLUTION</b>			
frequency cutoff: 1.00			
consistency cutoff: 0.85			
(1) interactivity*~celebrity*~young	0.12	0.12	1.00
(2) ~ high nro. of impressions*~interactivity *young	0.26	0.20	0.99
(3) high nro. of impressions *celebrity*~young	0.18	0.18	0.89
(4) high nro. of impressions *~celebrity*young	0.10	0.03	0.93
solution coverage: 0.59			
solution consistency: 0.94			

**Table 2**, Outcome condition: CTR

**INTERMEDIATE SOLUTION**

frequency cutoff: 1.0

consistency cutoff: 0.85

	<b>raw cove- rage</b>	<b>unique cove- rage</b>	<b>Consist ency</b>
(1) young*~competition*celebrity*~interactive*~high nro. of impressions	0.20	0.20	0.98
(2) ~young*~competition*~celebrity*interactive*channel	0.08	0.08	1.00
(3) ~young * competition *celebrity*~ interactive *~channel* high nro. of impressions	0.12	0.12	0.85
(4) young*competition*~celebrity*~ interactive*channel*high nro. of impressions	0.06	0.06	1.00

solution coverage: 0.47

solution consistency: 0.95

**Table 3**, Outcome condition: CTR



**Outcome condition: negated CTR**

Model: ~o = f(im, ch, fo, ce, co, yo)

<b>COMPLEX SOLUTION</b>			
frequency cutoff: 1.0			
consistency cutoff: 0.82			
	<b>raw coverage</b>	<b>unique coverage</b>	<b>consistency</b>
(1) ~ interactive*~celebrity*competition*~young	0.24	0.12	0.91
(2) ~ high no. of impression*~channel*~interactive*competition*~young	0.14	0.05	1.00
(3) high no. of impression*channel*~interactive*~celebrity*~young	0.17	0.12	0.92
(4) ~ high no. of impression*channel*interactive*celebrity*~competition*~young	0.06	0.06	0.98
(5) high no. of impression*channel*~interactive*celebrity*~competition*~young	0.05	0.05	0.82
(6) ~high no. of impression*channel*interactive*~celebrity*~competition*~young	0.15	0.15	1.00
solution coverage: 0.68			
solution consistency: 0.93			

**Table 4**, Outcome condition: negated CTR

<b>PARSIMONIOUS SOLUTION</b>			
frequency cutoff: 1.00			
consistency cutoff: 0.82			
	<b>raw coverage</b>	<b>unique coverage</b>	<b>consistency</b>
(1) ~interactive*~celebrity*~young	0.40	0.15	0.85
(2) high no. of impressions*~interactive*~competition	0.22	0.08	0.87
(3) ~high no. of impressions*~interactive*competition	0.16	0.06	0.78
(4) channel*interactive*competition	0.21	0.21	0.94
solution coverage: 0.75			
solution consistency: 0.85			

**Table 5**, Outcome condition: negated CTR

**INTERMEDIATE SOLUTION**

frequency cutoff: 1.00

consistency cutoff: 0.82

	<b>raw coverage</b>	<b>unique coverage</b>	<b>consistency</b>
(1) ~young*competition*~celebrity*~interactive	0.24	0.12	0.91
(2)~young*competition*~interactive*~channel*~high no. of impression	0.14	0.05	1.00
(3) ~young*~celebrity*~interactive*channel* high no. of impression	0.17	0.12	0.92
(4)young*competition*~celebrity*interactive*channel*~high no. of impression	0.15	0.15	1.00
(5)~young*competition*celebrity*interactive*channel*~high no. of impression	0.06	0.06	0.98
(6)young*~competition*celebrity*~interactive*channel*high no. of impression	0.05	0.05	0.82

solution coverage: 0.68

solution consistency: 0.93

**Table 6**, Outcome condition: negated CTR

**Outcome condition: negated eCPC**

Model:  $\sim\text{ecpc} = f(\text{im}, \text{ch}, \text{fo}, \text{ce}, \text{co}, \text{yo})$

<b>COMPLEX SOLUTION</b>			
frequency cutoff: 1.00			
consistency cutoff: 0.86			
	<b>raw coverage</b>	<b>unique coverage</b>	<b>consistency</b>
(1) $\sim\text{channel}*\sim\text{interactive}*\sim\text{celebrity}*\text{competition}*\sim\text{young}$	0.23	0.06	0.84
(2) high no. of impression $*\sim\text{channel}*\sim\text{interactive}*\text{competition}*\sim\text{young}$	0.25	0.08	0.96
(3) high no. of impression $*\text{channel}*\text{interactive}*\sim\text{celebrity}*\sim\text{competition}*\sim\text{young}$	0.05	0.05	1.00
(4) $\sim\text{high no. of impression}*\text{channel}*\sim\text{interactive}*\text{celebrity}*\sim\text{competition}*\text{young}$	0.10	0.10	0.86
(5) high no. of impression $*\text{channel}*\sim\text{interactive}*\sim\text{celebrity}*\text{competition}*\text{young}$	0.04	0.04	1.00
solution coverage: 0.51			
solution consistency: 0.89			

**Table 7**, Outcome condition: negated eCPC

<b>PARSIMONIOUS SOLUTION</b>			
frequency cutoff: 1.00			
consistency cutoff: 0.86			
	<b>raw coverage</b>	<b>unique coverage</b>	<b>consistency</b>
(1) $\text{channel}*\sim\text{interactive}*\text{young}$	0.17	0.17	0.86
(2) $\sim\text{channel}*\sim\text{interactive}*\sim\text{young}$	0.37	0.37	0.83
(3) $\text{interactive}*\sim\text{celebrity}*\sim\text{young}$	0.08	0.08	0.91
solution coverage: 0.61			
solution consistency: 0.85			

**Table 8**, Outcome condition: negated eCPC

**INTERMEDIATE SOLUTION**

frequency cutoff: 1.00

consistency cutoff: 0.86

	<b>raw coverage</b>	<b>unique coverage</b>	<b>consistency</b>
(1) ~young*comp*~celebrity*~format*~channel	0.23	0.06	0.84
(2) ~young*comp*~format*~channel*impression	0.25	0.08	0.96
(3) young*~comp*celebrity*~format*channel *~impression	0.10	0.10	0.86
(4)~young*~comp*~celebrity*format*channel *impression	0.05	0.05	1.00
(5) young*comp*~celebrity*~format*channel *impression	0.04	0.04	1.00

solution coverage: 0.51

solution consistency: 0.89

**Table 9**, Outcome condition: negated eCPC