

Mobile Marketing: A Synthesis and Prognosis

Venkatesh Shankar^{a,*} & Sridhar Balasubramanian^b

^a Professor of Marketing and Coleman Chair in Marketing, Mays Business School, Texas A&M University, College Station, TX 77843, USA

^b Roy & Alice H. Richards Bicentennial Scholar and Associate Professor of Marketing, University of North Carolina at Chapel Hill, NC 27599, USA

Abstract

Mobile marketing refers to the two- or multi-way communication and promotion of an offer between a firm and its customers using a mobile medium, device, or technology. We present the conceptual underpinnings of mobile marketing and a synthesis of the relevant literature. We identify and discuss four key issues: drivers of mobile device/service adoption, the influence of mobile marketing on customer decision-making, formulation of a mobile marketing strategy, and mobile marketing in the global context. We outline research directions related to these issues and conclude by delineating the managerial implications of mobile marketing insights.

© 2009 Direct Marketing Educational Foundation, Inc. Published by Elsevier B.V. All rights reserved.

Keywords: Mobile media; Wireless; Technology; Marketing communication; Marketing strategy; Promotions

Introduction

The demand for mobile devices – equipment such as cell phones, PDAs, and digital music players that are typically used on an anytime, anywhere basis without being connected by wires – and services that use these mobile devices (mobile services) is growing rapidly worldwide. The global market for mobile entertainment goods and services is expected to grow from \$17.3 billion in 2006 to \$76.9 billion in 2011 (Gibson 2006). Total non-messaging mobile content revenues are expected to increase from \$70.7 billion in 2007 to \$187.9 billion in 2012 (Uglow 2007). Furthermore, mobile services such as global positioning system (GPS) navigation, mobile email, and text and video messaging are growing at a significant pace.

Amid such a surge in markets for mobile devices and applications, mobile marketing – the set of marketing initiatives that use mobile devices and media (the vehicles of communication that involve mobile devices) – is gaining importance. For example, spending on mobile advertising in the U.S., now at about \$644 million, is anticipated to rise to over \$3.5 billion by 2011 (eMarketer 2007a). Similarly, spending on mobile message marketing in the U.S., now pegged at \$4.2 billion, is

expected to grow to \$12 billion in 2011 (eMarketer 2007b). Not surprisingly, mobile marketing is an emerging topic of interest to both academics and practitioners.

Formally, we define mobile marketing as the two-way or multi-way communication and promotion of an offer between a firm and its customers¹ using a mobile medium, device, or technology. Because it involves two-way or multi-way communication, mobile marketing is primarily interactive in nature, and could include mobile advertising, promotion, customer support, and other relationship-building activities. Such interactive marketing activities are becoming increasingly important in the changing business landscape (Ancarani and Shankar 2003; Bolton and Saxena-Iyer 2009; Deighton and Kornfeld 2009).

Research on mobile commerce has primarily addressed the role of technology in facilitating the growth of transactions through mobile devices. However, research on mobile marketing is nascent. Existing research has yielded some insights, but these remain scattered across disciplines.

In this paper, we provide an integrative framework for the analysis of mobile marketing, identify key issues of interest within this domain, delineate gaps in our knowledge of mobile marketing that require managerial and research attention, and outline managerial implications of insights related to mobile marketing.

* Corresponding author.

E-mail addresses: vshankar@mays.tamu.edu (V. Shankar), sridhar_balasubramanian@kenan-flagler.unc.edu (S. Balasubramanian).

¹ For expositional ease, we use the terms, consumer and customer, interchangeably throughout the paper.

Synthesis of key issues: existing knowledge and knowledge gaps

To better understand mobile marketing, it is useful to briefly review the key characteristics of mobile media and devices, and to compare mobile and mass marketing. The mobile channel – the marketing channel involving mobile devices – is growing rapidly in the multichannel environment (Neslin and Shankar 2009). All mobile devices incorporate one or more of the following capabilities: audio, text/data, and video. Furthermore, the following properties of mobile devices have key marketing implications.

Location-specificity

Many mobile devices, including car navigation systems, have GPS capabilities to identify their physical location. This property provides marketers the opportunity to target location-sensitive promotional offers to mobile device users. Conventional marketing media such as billboards also allow location-specific messages, but with mobile devices, such information can be actually targeted at the location of the individual user based on their stated preferences and revealed behaviors. Such targeting raises some privacy concerns and must be carefully managed. Nevertheless, customers have rapidly adopted location-based mobile services, with the number of worldwide users of such services expected to increase from 61 million today to 329 million in 2011 (eMarketer 2008).

Portability

An important benefit of a mobile device to consumers is its ultra small size and the ease with which it can be carried (Balasubramanian et al. 2002). A mobile device is not only portable, but because it fits in a hand, it is a constant companion to the user and is used on a continuous basis. This property makes it easier for marketers to quickly communicate with the user at any point in time, but the small screen size does not allow information-intensive messages to be delivered.

Untethered/wireless feature

Unlike other frequently used devices such as the desktop PC, the typical mobile device is not tethered or connected by wires for the majority of the time that it is in use. This property promotes increased usage, creating more opportunities for marketers to convey marketing messages. At the same time, the short duration of the typical usage occasion forces marketers to be concise in their messages.

Based on these properties, the key differences between mass marketing (typically conducted through mass media such as magazines and television) and mobile marketing are detailed in Table 1. Mass marketing addresses a broad range of existing and potential customers. Mobile marketing, in contrast, is restricted to owners of mobile devices, and in many cases, to a subset of those owners who opt-in to receive communications from marketers. Bandwidth capacity and tight screen size constraints

Table 1
Differences between mass marketing and mobile marketing.

Dimension	Mass marketing	Mobile marketing
Scope of audience	All existing and potential users of the product	Existing and potential product users owing mobile devices who opt-in to receive communication
Potential type of communication	Text, voice, and video in rich formats	Text, voice, and video in very limited visual space with limitations in transmission speed
Typical direction of communication	Marketer-to-consumer	Interactive between marketer and consumer
Ability to deliver message by target location	Low	High
Ability to measure and track response	Low	High
Consumer targetability	Low	Medium
Cost per target audience	High	Low

related to mobile devices further restrict the types of communications possible in a mobile marketing context. However, the brevity of communication through a mobile device can also enable more frequent interactions between the marketer and the customer. Furthermore, with mobile marketing, the seller can more precisely target customers at a specific location and at a particular time, better measure and track consumer response, and have lower unit costs of communication with the target audience than those associated with mass marketing.

We now outline a set of key issues and discuss the relevant managerial and research questions. For each issue, we review existing knowledge and delineate the areas that need research attention. Table 2 presents a summary of these issues. In this summary, we outline the key issue and the critical questions, current knowledge, and the unexplored research questions related to the issue.

Customer adoption of mobile devices and services

Consistent with the drivers of the adoption of any innovation, the key drivers of a consumer's decision to adopt a mobile device or service include the relative advantage of the innovation, the innovation's fit with existing usage patterns, the perceived complexity of the innovation, the ability to try out the innovation, the perceived risk related to adoption, and the degree to which adoption and use of the innovation is observable by others (Rogers 1995). In addition, the Technology Adoption Model (TAM, Davis 1989), which is derived from the Theory of Reasoned Action/TRA (Fishbein and Ajzen 1975), posits that perceived usefulness and perceived ease of use influence attitudes toward an innovation, and ultimately, its adoption. Unlike the TRA, the TAM allows perceived usefulness and ease of use to directly drive adoption, reflecting the notion that a positive attitude may not be required for adoption to occur. For example, norms and pressures from a social group can induce customers within that group to adopt an innovation, according to the TAM2 model (Venkatesh and

Table 2
Summary of key issues in mobile marketing.

Key issue	Critical questions	What we know — current evidence	Some unexplored questions
Customer adoption of mobile devices and services	<ul style="list-style-type: none"> -What drivers are common to the adoption of all innovations? -What drivers are unique to the adoption of mobile innovations? 	<ul style="list-style-type: none"> -General innovation adoption drivers, perceived ease of use, perceived usefulness, content relevance, personalization, and a host of social and economic influences determine adoption of mobile device/services. -Relevance of content, ease of use, and personalization more important for wireless websites than for Internet websites. 	<ul style="list-style-type: none"> -What are the key factors that inhibit greater use of mobile devices and services for information search and purchase of products and services? -Are these inhibitors related to a lack of knowledge about these services, a lack of confidence in the customer's ability to use these services, inability to project the cost of using these services, or technological limitations related to mobile browsing and/or communication bandwidth? -What is the role of trust in the adoption of mobile devices and services? -Can a marketer use these differences as a basis for customer segmentation in the mobile marketing context?
The impact of mobile marketing on customer preferences and decision-making	<ul style="list-style-type: none"> -What stages of decision-making does mobile marketing have the greatest impact? -What are the relative sizes of the direct and indirect effects of mobile marketing? 	<ul style="list-style-type: none"> -Mobile marketing directly impacts all the five stages of customer decision-making. -It moderates the effects of influencers such as economic, social, and competitive forces. 	<ul style="list-style-type: none"> -To what extent must such segmentation be guided more by attitudes toward mobile marketing at the various stages of the decision-making process than by revealed behaviors at these stages? -Should the marketer pursue different segmentation schemes at different stages of decision-making? -Can mobile marketing be used to improve customer loyalty? -Will the opportunity to create content and consume content developed by other users enhance customer loyalty in the mobile context?
Formulation of a mobile marketing strategy and choice of mobile marketing methods	<ul style="list-style-type: none"> -What framework exists for mobile marketing strategy formulation? -What are the key determinants of mobile marketing strategy? -What mobile marketing methods should be used? -Does mobile marketing create economies of scale? -Does mobile marketing create economies of scope? -Does mobile marketing create synergy with other marketing forms? 	<ul style="list-style-type: none"> -Firms can use a framework based on two dimensions: the degree of change to business model and the degree of organizational transformation needed and choose one of three strategies, operational performance, reach and range, and new business models. -The choice of mobile marketing methods depends on the pros and cons of the methods, synergies among the methods and methods used by competitors. -Firms can effectively use mobile advertising and mobile promotion synergistically with other marketing forms. 	<ul style="list-style-type: none"> -How does the firm's mobile strategy mesh with the firm's overall marketing strategy? How should the mobile strategy complement or substitute elements of overall marketing strategy? -How should advertising campaigns be redesigned to include a mobile element, and how should that element link to initiatives in mass media or on the Internet? -How should a firm's mobile marketing strategy evolve across (a) the product life cycle, and (b) the customer life cycle?
Mobile marketing in the global context	<ul style="list-style-type: none"> -How does adoption of mobile devices and media differ across countries? -How does mobile marketing differ across countries? -How will mobile marketing evolve relative to marketing through the personal computer in different countries? 	<ul style="list-style-type: none"> -Digital divide reversed in BRIC countries. -Response rates to mobile offers differ across countries. Among Western European countries, Spain has the highest response rate (29%), while Germany has the lowest response rate (3%). -Behavioral intent toward mobile promotions differs across the U.S. and developing countries. 	<ul style="list-style-type: none"> -To what extent are the differences in mobile marketing adoption and usage across countries driven by economic divides and by variations in culturally ingrained values and norms? -To what extent are these differences driven by the stage of mobile technology adoption? -Which differences are likely to endure even after adoption levels have peaked? What are the differences in how marketing managers across countries perceive the promise and perils of mobile devices and services? -How can Internet-based marketing initiatives that are now predominantly implemented and accessed through the personal computer be replaced by mobile marketing initiatives?

Davis 2000). These additional drivers apply to mobile devices and services as well.

The Theory of Planned Behavior/TPB (Ajzen 1985) builds on the TRA, but is more sensitive to the fact that motivation to adopt an innovation may not always translate into action due to (a) social, environmental, and personal behavioral controls, and (b) other resource-related constraints that ultimately hinder adoption behavior. The decomposed TPB takes this perspective one step further, and decomposes the beliefs that drive adoption behavior into attitudinal beliefs (e.g., beliefs that relate to perceived usefulness and ease of use), subjective norm-related beliefs (e.g., beliefs that the potential adopter's peers expect him or her to adopt the innovation), and behavioral control beliefs (e.g., beliefs that personal and organizational resources and capabilities will or will not support adoption of the innovation, and the cost of adopting the innovation). Interestingly, the decomposed TPB comes close to the Motivation–Opportunity–Ability perspective that has been applied to explain a range of individual- and firm-level behaviors (e.g., Siemsen et al. 2008). Overall, as summarized in the SEP model of innovation adoption and usage, a range of inter-related influences of social (S), economic (E), and psychological (P) origins can influence the adoption of an innovation such as a mobile device or service (Konana and Balasubramanian 2005).

Two aspects of a mobile innovation's adoption are relevant from a marketing manager's viewpoint: perceived usefulness and usability. The usefulness and enjoyment derived in using an innovation will likely lead to increased loyalty and future use (e.g., Henderson et al. 1998). Furthermore, the design of the user interface of the innovation, in particular, the visual design elements, can increase consumer trust in the service provider (Kim and Moon 2000). Some research on the usability of technology-intensive devices such as personal computers and websites (Balasubramanian, Konana, and Menon 2003) may extend to mobile devices and services as well.

However, not all findings regarding the evaluation of websites and personal computers may directly apply to mobile devices. Venkatesh et al. (2003) studied how technology users differentially weighted the importance of the five categories in the Microsoft Usability Guidelines (MUG) – namely, content (including informational and transactional capabilities), ease of use, personalization (the customization of the site to reflect the user's needs), promotion (advertising of the site), and emotion (affective reactions invoked by the site) – across devices. They found that whereas content was equally important across Internet and wireless websites at the aggregate level, that content was more relevant for wireless websites than for Internet websites. Furthermore, ease of use and personalization were relatively more important, while promotion and emotion were less important in the wireless context than in the Internet context. Some of these differences are ostensibly driven by the more constrained nature of the mobile medium, including device and display limitations and interface challenges.

With the steady expansion in information transmission bandwidths and the rapid introduction of more sophisticated mobile applications, mobile device usability is now as important as mobile website usability. However, early chal-

lenges to usability in the m-commerce environment were primarily related to services than devices. Interestingly, based on a study of the adoption of Wireless Application Protocol (WAP) services, a key criticism advanced is that the usability of wireless-oriented sites was significantly reduced because of the misguided application of the design principles from the area of traditional Web design (Ramsay and Nielsen 2000). In particular, insufficient attention to the “mobility” aspect of m-commerce in user tasks and information exchange processes may hinder user adoption (Chan and Fang 2001). To incorporate the role of mobility and the user environment, Kim et al. (2002) analyzed the role of three contextual factors — hand (how many hands are being used on the device), leg (whether the device is being used in a state of motion or not) and co-location (whether the device is being used in a space where other individuals are present or not).² Their findings together suggest that, whereas some general principles of user-centered design may well be applicable in the mobile context, the design and usability of wireless sites and devices also require some specialized research attention.

An integration of scattered theoretical perspectives can provide a better understanding of decisions to adopt a technological innovation such as a mobile device or service (Konana and Balasubramanian 2005). Consistent with this notion, Nysveen et al. (2005) combine information system theories from organizational contexts with theories that explain technology usage in everyday life to innovation adoption. The latter include uses and gratification theory (e.g., Leung and Wei 2000), which focuses on non-utilitarian benefits from adoption such as expressiveness and enjoyment, and domestication theory (e.g., Silverstone and Hirsch 1992; Skog 2002), which focuses on how customers “tame” technologies to fit them into their lives. Nysveen et al. demonstrate that the intention to use mobile devices can be driven by perceived expressiveness of the mobile device (i.e., its ability to express fashion and style, and to serve as a symbol), perceptions of enjoyment, usefulness and ease of use, normative pressure, and behavioral controls. However, some of these effects are mediated by the attitude toward the use of mobile services. Interestingly, the strengths of these influences varied across four mobile service areas: person-to-person interactive text messaging, contact services (which extend text messaging to a larger social network), payment services, and gaming services. These services differ in terms of whether they are machine-interactive versus person-interactive, and whether they involve goal-directed versus experiential processes. Specifically, Nysveen et al. found that ease of use was a stronger motivation for using goal-directed mobile services whereas enjoyment and expressiveness were stronger motivators for experiential services. Normative pressures and the attitudes toward use were stronger motivators of adoption for person-interactive services compared to machine-interactive

² Interestingly, users encountered fewer problems accessing and using mobile websites when others were present around them. However, as noted by Kim et al. (2002), this may be an artifact which simply reflects the reality that mobile applications could potentially be more difficult to access in remote places.

services, ostensibly reflecting the more pronounced role of social interactions in the former.

Pagani (2004) empirically examined the determinants of adoption of third generation mobile multimedia service in the Italian market. She found that perceived usefulness, ease of use, price, and speed of use, in that order, were the most important determinants of adoption of multimedia mobile services. She also showed that the importance of determinants differed across segments based on age.

Kleijnen, de Ruyter, and Wetzels (2004) studied the drivers of mobile gaming adoption using a survey of mobile game users in the Netherlands. They found that perceived risk, followed by complexity and compatibility were the most important drivers of adoption. Their analysis, however, revealed that the key drivers differed by consumer segments. For value seekers, compatibility was the critical driver; for risk avoiders, perceived risk was the key determinant, and for game players, navigation, communicability and payment options were the driving factors.

Despite these advances, existing research on adoption behavior in the specific context of mobile devices and services is sparse. Whereas mobile device and service penetration rates are high, the use of mobile services beyond interactive conversations is comparatively low. There are significant adoption-related hurdles for mobile marketing. One such barrier is the penetration of video capability. In the U.S., cell phone has a penetration of 86% with a user base of 260 million. Of these, about 60% use short-message-service (SMS). However, the number of video-capable mobile devices is only 12 million (Shahnaz 2007). The penetration of such devices is not expected to go up anytime soon. By 2011, only 25 million devices are expected to have video capability (Shahnaz 2007). Importantly, about 79% of U.S. consumers do not view a mobile advertisement (Nielsen Mobile 2008). Furthermore, about 82% of mobile device users in the U.S. do not trust SMS (Nielsen Mobile 2008). Trust is a key issue in online marketing (Bart et al. 2005; Urban, Amyx, and Lorenzon 2009) and could be important in mobile marketing as well.

Based on the preceding review of adoption of mobile devices and services, the following questions are worthy of exploration. What are the key factors that inhibit greater use of mobile devices and services for information search and purchase of products and services? Are these inhibitors related to a lack of knowledge about these services, a lack of confidence in the customer's ability to use these services, an inability to project the cost of using these services, or technological limitations related to mobile browsing and/or communication bandwidth? What is the role of trust in the adoption of mobile devices and services? Answers to these questions will enhance our knowledge of adoption of mobile devices and services.

The impact of mobile marketing on customer preferences and decision-making

How does mobile marketing influence customer preference and decision-making? There is scant academic research on this issue. However, industry reports offer an early glimpse into customer perceptions and behavior in this context. Specifically,

a survey by DMA (2008) of 800 U.S. teenage and young adult users of mobile phone services revealed that responders to mobile marketing offers were more likely to be males, teens and young adults, individuals with higher incomes, and individuals with heavier usage of mobile phones and data features. Thus, mobile marketing appears to work better for some customer demographics than for others.

The study further showed that the use of mobile marketing was highest in the entertainment, music and video product category (44%), followed by food/beverage (21%), and beauty/personal care (15%). According to the study, the automotive/transportation, business services, consumer electronics, financial services, and vacation/travel categories each accounted for 12% of the mobile offers. In terms of response, however, the study found that buyers of entertainment, music and video products were more responsive than consumers of other product categories, suggesting that mobile marketing works best for entertainment products and services.

The study also showed that text messages for products or services elicited the highest response rates (70%), followed by mobile survey participation (41%). According to the study, mobile email, Web, and coupons were less effective in eliciting response. These results suggest that brief messages elicit better response than do complex messages, consistent with the portability and untethered properties of a mobile device.

The study also revealed consumer attitudes toward mobile marketing: less than 10% of the respondents expressed an interest in receiving offers or viewing ads in videos; and more than two-thirds of the respondents preferred a "do not email/message" or a "do not call" registry for mobile phones. Almost two-thirds believed that text ads on their mobile phones were annoying, but only 43% of the responders to mobile offers thought that text ads were annoying, and almost half (45%) of the non-responders to mobile offers reported a lack of interest in the mobile offers that they received, according to the study. These findings suggest that consumer receptivity to mobile marketing is generally low.

Consumers' attitude toward mobile marketing, in turn, influences their responses to mobile promotions. A survey of 370 mobile phone users in Austria revealed that customers' attitudes toward and perceived control of mobile (m)-coupons affected their intention to redeem such coupons (Dickinger and Kleijnen 2008). Specifically, the study showed that the effort involved in redeeming m-coupons strongly affected customer attitudes toward m-coupons and fear of mobile spam influenced customers' perceived control in the context of mobile marketing. In general, much of mobile marketing today is viewed as being intrusive (Shankar and Hollinger 2007).

The findings suggest that marketers will have to work diligently to enhance customer receptiveness to mobile marketing in the broader population, and, in the short run, need to focus on customers who are receptive to these initiatives. Furthermore, marketers will need to conduct further research to identify and pursue specific product categories and marketing activities that are amenable to mobile marketing initiatives. The ability to contact and send messages to customers on an anytime, anywhere basis offers a wealth of new opportunities

but also the temptation to overuse or misuse those opportunities. The challenge is to utilize interactive mobile technologies to disseminate marketing messages in a sophisticated manner that customizes the offering(s) to target customers.

Moving forward, to further understand the implications of managerial decisions related to mobile marketing, it is necessary to explore how consumers can be affected by such marketing at various stages of their own decision processes. Knowledge about these effects can inform managers about the nature and timing of appropriate mobile marketing efforts. We propose that the framework described in Fig. 1 can anchor future research in the area.

The framework describes two metastages in the customer decision sequence related to mobile marketing. The first metastage relates to mobile device or service adoption discussed earlier. This stage is important because, without such adoption, subsequent mobile marketing initiatives are irrelevant. The second metastage of the framework comprises the well-known stages in the customer decision-making process — need recognition, information search, alternative evaluation, purchase and post-purchase (e.g., Balasubramanian et al. 2005; Widing et al. 2003). Researchers can examine how mobile marketing initiatives can affect each of these stages. The framework highlights two important issues. First, it stresses the need to examine how mobile marketing can potentially exert economic, sociological, and psychological influences on customer decision-making at each of these stages. Second, it suggests that researchers must carefully consider how competition, the product or service type, and the integration of mobile marketing with overall marketing strategy moderate these influences.

Deconstructing the customer decision sequence as described in Fig. 1 can provide insights into the effect of mobile marketing

on each stage. For example, consider how mobile marketing may affect need creation/recognition. To be effective, advertising messages need to overcome the physical (sensory) and psychological (emotional) barriers erected by customers. In this regard, mobile advertising lacks the persuasive power of the print and TV media due to the highly constrained screen size and the sparseness of information that can be presented within the typical mobile interface. However, location-based advertising can provide timely and actionable information to customers. Drawing from the Elaboration Likelihood Model/ELM (Petty and Cacioppo 1986), it appears that mobile advertising is best suited for highlighting existing needs and possibly creating new needs in the context of products and services that call for low customer involvement levels from potential customers. Specifically, in line with the ELM, mobile advertising can tap into consumers' peripheral route to persuasion that focuses on the presentation of timely and attention-catching information to the customer, rather than into the central route to persuasion that calls for intensive processing of detailed information.

Alternatively, mobile advertising can be used to supply specific pieces of information to facilitate a high-involvement purchase. For example, to encourage a quick transaction from a proximate customer, an electronics store could communicate a targeted price-reduction coupon for a large screen TV set to a customer who has asked to be informed about price promotions on that TV set. In particular, for high-involvement products and services, the more information-rich channels such as the Internet and print media would be required to build the case for the customer to choose the offer. The mobile channel can then play its role at an appropriate stage of the purchase process. Similarly, we can analyze the other stages of the decision-making process.

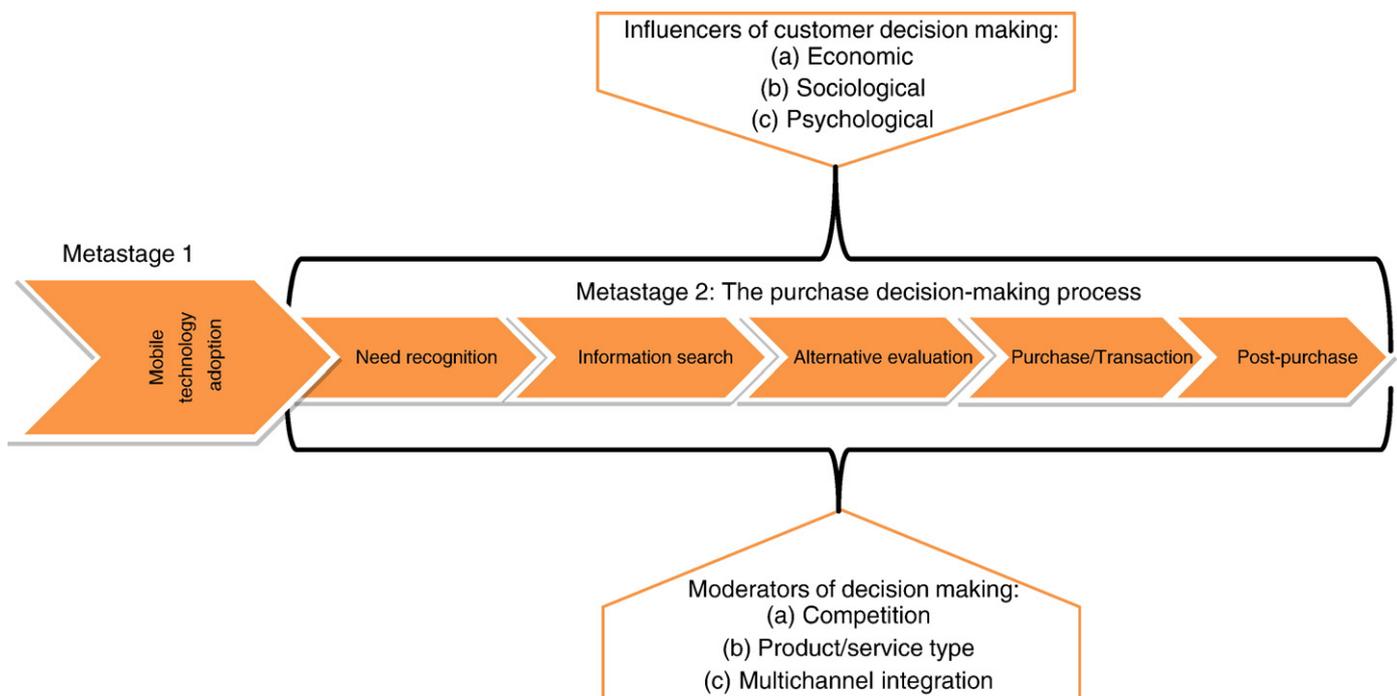


Fig. 1. The impact of mobile marketing on customer decision-making: a framework.

Apart from providing a better understanding of customer decision-making in the context of mobile marketing, the framework suggests some unanswered questions that are ripe for research. Customers differ in their response to mobile marketing initiatives and the use of mobile media to acquire products and services. How does customer decision-making vary across the decision-making stages in Fig. 1? Can a marketer use these differences as a basis for customer segmentation in the mobile marketing context? To what extent should such segmentation be guided by attitudes toward mobile marketing within the various stages of the decision-making process, relative to revealed behaviors at these stages?

With regard to post-purchase behavior, research shows that after controlling for selection, online customers are more loyal than offline customers, so migrating customers from offline to online could enhance customer loyalty (Shankar, Smith, and Rangaswamy 2003). In a similar vein, can mobile marketing be used to improve customer loyalty? User-generated-content (UGC) or consumer-generated content is becoming popular on the Internet through sites such as YouTube.com and MySpace.com. Such sites are being replicated in the mobile environment through services such as Cyworld in South Korea and SeeMeTV in the U.K. (Holdern 2007). Will the opportunity to create content and consume content developed by other users through mobile devices enhance customer loyalty to a firm? These questions merit deep investigation.

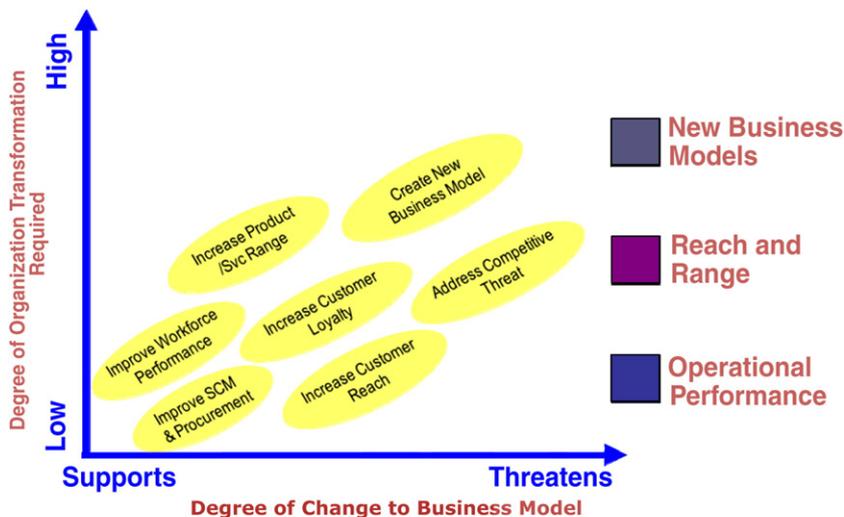
Formulation of a mobile marketing strategy and choice of methods

With a better understanding of the drivers of mobile device and services adoption and the role of mobile marketing in customer decision-making, marketers can develop a more effective mobile marketing strategy. The framework that Shankar, O’Driscoll, and Reibstein (2003) suggest (see Fig. 2)

is useful in formulating a firm’s mobile marketing strategy. The strategy can be viewed along two dimensions: the degree of change to the business model, and the degree of organizational transformation required. Depending on the combinations of the levels of these dimensions, a firm can adopt one of three overall mobile marketing strategies.

When both the need to change the business model and the need for organizational transformation are low, then the firm should follow the “operational performance” strategy. This strategy involves the use of mobile media and communications for supply chain and workforce productivity improvement. When both the need to change the business model and the need for organizational change are at moderate levels, then the recommended strategy is a “reach and range” strategy. Initiatives under this strategy include enhancing product/service range, improving loyalty, and increasing customer reach. When both the need to change the business model and the need for organizational transformation are high, then the firm should adopt a “new business models” strategy. Under this strategy, the firm fundamentally alters its structure and market strategy, or changes the way it does business to address competitive threats.

Once a firm formulates a suitable mobile marketing strategy, it needs to select appropriate mobile marketing methods that are consistent with the chosen strategy. Mobile marketing or mobile advertising methods include text messaging, integrated content, games, interactive voice response, wireless access protocol (WAP) sites, ring-tones and ring-back tones, viral, geotargeting, mobile broadcast advertising, cell phone sponsorships, and mobile telemarketing. A summary of the methods with their cost, pros and cons are shown in Table 3 (Advertising Age 2005). Text messaging, the most popular mobile marketing method, is useful for sweepstakes, contest voting, and instantly redeemable offers. The main advantages of text messaging are that it is simple for both the marketer and the consumer, measurable, and has high response and conversion rates. Mobile



Source: Shankar, O’Driscoll, and Reibstein (2003)

Fig. 2. A framework for analyzing mobile marketing strategy.

Table 3
Mobile media advertising methods.

Advertising approach	Summary	Cost	Positive	Negative
Text messaging	Mobile version of direct marketing can be used for sweepstakes, voting in contents, instant wins, offering consumer stats and other data.	Creative is from free to \$3000 or so, but messages cost marketers 3¢ to 5¢ depending on volume, down from about 10¢ last year.	Easiest form of mobile marketing to execute; simple to fold into integrated-marketing campaigns; reaches young target; consumers get it and its technical demands don't overwhelm most U.S. phones. Some marketers report a 90% response rate and 30% conversion rate, all very measurable both in number of responses, how long it took to get a response, what a carriers and handsets were used, and where the texting originated.	Consumers unhappy when marketers assume a response to a text message assumes a blast of future messages; somewhat limited from a multimedia point of view.
Integrated content	Ideal for content providers such as movie studios, media companies, financial or sports teams, with offerings such as custom news or alerts.	Cheap, \$15,000 to \$20,000 and packages often include a bundle of messages, plus 3¢ to 5¢ charges for additional messages.	Upside: Consumer gets relevant, valuable content.	Downside: Messages not well targeted can be viewed as annoying.
Games	Branded offerings can range from simple puzzles to custom multiplayer, multilevel adver—games that can take months to develop depending on complexity	From \$10,000 for repurposing standard generic games, say a racing game, by placing a logo over the cars, to \$60,000 for a made-to-order concept.	Marketers investing in well-designed custom mobile games might find consumers willing to pay the \$2.99 garnered by some games, making the mobile play a revenue generator.	Currently only an estimated 30 million of the 190 million handsets in the U.S. are equipped for games.
Interactive voice response	Opt-in consumers receive mobile phone calls from star endorsers or other talent with live updates on events, such as a huffing and puffing athlete announcing he just won a race. Variations include calls from celebrities endorsing products or teasing other content.	3¢ to 5¢ per call.	A branding play capable of a compelling personal message, with devotees such as young girls making repeat calls, and a nice added dimension for traditional, online and other media.	Messages need to be short, smart and relevant or else consumers hang up.
WAP sites	Translating existing websites into those which are wireless friendly so consumers can easily download and read PC content, download ringtones or wallpaper.	Depends on complexity of site.	Somewhat improved downloads; primarily back end for text messaging fulfillment.	Difficult to Web surf.
Ringtones and ring-back tones	Marketers have been giving away brand-related tones and screen savers or wallpaper, but this summer's promotions will up the ante with giveaways of tones previously costing consumers \$2 or more.	\$15,000 or more.	When a corporate jingle is a cellphone's ringtone, every phone call to that number is a new broadcast of the jingle.	Ringtones are borderline obsolete because users can now make their own. Ring-back tones, those heard by callers to certain phone numbers, are hosted by carriers and would cost them extra to use for marketing.
Viral	Promotions designed to spread peer-to-peer, such as one for Budweiser that allows Web visitors to send a cellphone message to a friend inviting them for beer at a specific time and place.	\$15,000 to \$50,000 depending on the program, Web design, hosting, etc., plus messaging costs of 3¢ to 5¢, depending on use.	Rapid spread as evidenced by distribution of ringtones among mobile-phone users, plus the ability for real-time usage reporting and other in-depth measuring.	Recipient could consider the message unsolicited, and blame the company for telephone spam.
Geotargeting	Use of GPS to ring consumers walking past a product or store with a special offer or reminder. Location-based marketing is limited but might grow starting next year when more carriers have it available	Use of third party list of opt-in numbers can result in a \$100 to \$150 CPM.	A marketer's dream of reaching the right customer at the right time with the right message.	Privacy concerns and possible consumer backlash.
Advertising on mobile broadcast	Some bumper ads are showing up on video clips. For live programming ads will stream through.	No rates yet established, though most rebroadcast of live TV on mobile phones at this time are allowing for free or inexpensive pass through to mobile.	The TV in your pocket, combined with other technologies such as location-based marketing, could be one of the most powerful marketing tools ever.	Only an estimated 1 million of the 190 million cellphones in use in the U.S. are video-enabled. Consumers also may resent viewing ads when they are paying for video service.

(continued on next page)

Table 3 (continued).

Advertising approach	Summary	Cost	Positive	Negative
Sponsorships/subsidizing cellphone costs	Marketers offset the cost of mobile service, programs or content for consumers who agree to see ads.	The sky's the limit.	Consumers get free mobile phones, service, content, perks, etc., marketers get benefit of offering something for free. Deals would help carriers hold onto customers longer.	It's not happening now.
Mobile telemarketing	Cellphone calling is prohibited under federal regulations, but lists of consumers who have opted in are available.	Lists cost \$100 or more per CPM.	Impressive response.	Backlash from consumers if list proves faulty, or consumers forgot they opted in. Mobile-phone spam could trigger significant consumer, carrier and government ire.

Source: Advertising Age/IPSH/
Freestyle Interactive/OgilvyOne.

telemarketing also has favorable response rates among those who opt-in, but if the wrong message is delivered to the wrong person at the wrong time, it can incur the wrath of consumers, carrier and government.

In selecting the mobile marketing methods to use for a campaign, mobile marketers need to (1) balance the pros and cons of each method, (2) consider the synergies among the methods, and (3) the methods used by competitors. Both business-to-consumer (B2C) and business-to-business (B2B) marketers are using these mobile marketing methods (Shankar and Hollinger 2007). In the B2C space, Johnson & Johnson uses text messaging for its optical products. A poster asks optometry patients with mobile devices to type in "MYEYE" while they wait at the optician's or the optometrist's office. J&J then sends a reminder message or/and promotional message about its products when the patient is in the doctor's office (Cuno 2005). In the B2B space, Federal Express (FedEx) uses the text messaging and geotargeting methods synergistically. It sends messages to business executives who have chosen to receive FedEx message about document services when they are near a FedEx Kinko's location.

Whereas a sound mobile marketing strategy pursued with appropriate methods can be effective, we expect that few firms will rely solely on mobile marketing. Rather, mobile marketing may be a powerful complement to other marketing activities of a firm, and a substitute for only a limited set of those activities. Accordingly, it appears that mobile marketing best fits into the "reach and range" strategy. The key marketing decisions under a mobile marketing strategy include those on marketing communication (advertising and sales promotion), delivery of digital products and services, and customer relationship management (customer service and support).

At a high level, a number of questions remain unresolved in the context of a firm's mobile marketing strategy. A central issue relates to how the firm's mobile strategy meshes with the firm's overall marketing strategy. In this context, how should the mobile strategy complement or substitute elements of the firm's overall marketing strategy? Specifically, how should advertising campaigns be redesigned to include a mobile

element, and how should that element link to initiatives in mass media or on the Internet? Mobile marketing may be associated with economies of scope in this context, in which case it can increase overall marketing efficiency and effectiveness. For example, customer response rates may improve significantly if mobile marketing campaigns are pursued in coordination with email and/or direct mail campaigns than when they are uncoordinated. Furthermore, how should a firm's mobile marketing strategy evolve across (a) the product life cycle, and (b) the customer life cycle? These questions suggest that there are ample research opportunities related to the development and execution of a mobile marketing strategy.

Mobile marketing in the global context

Whereas much of the existing research on mobile technology usage and mobile marketing has been conducted in developed economies, the most rapid growth is now occurring in developing economies, both large and small. For example, China already has the largest pool of mobile device users (360 million) and India has the largest number of new mobile adopters every month (about 3 million). Furthermore, the mobile user base is increasing manifold in many African countries, which have skipped over landline telephones and have moved directly to mobile technology. In fact, Chircu and Mahajan (2007) note that the "digital divide" – the difference between developed and developing countries in digital technology adoption and usage – may have reversed in the context of the BRIC countries (Brazil, Russia, India, and China). They claim that out of 34 categories of mobile services available worldwide, the BRIC countries have leapfrogged developed economies in mobile data, transaction, information, and video services.

Customer perceptions and firm-level marketing implications of the Internet differ across countries (Shankar and Meyer 2009; Steenkamp and Geyskens 2006). Similarly, customer behaviors and firm strategies in the mobile marketing context may also differ across countries. A few exploratory studies provide some initial evidence of such

differences. For example, among western European countries, Spain has the highest response rate (29%) to text message ads, Germany has the poorest response rate (3%), with the U.K. pegged at 18% and France at 10% (M-Metrics 2006). Compared to these countries, the response rate in the U.S. is about 7% (M-Metrics 2006). Some differences in mobile marketing across countries could be due to differences in mobile infrastructures. However, in the case of western European countries, the mobile infrastructures are similar. These arguments suggest that other factors, such as cultural influences could be responsible for some of the cross-country variations. Sultan, Rohm, and Gao (in press) draw from technology acceptance and user gratification theories to study how antecedent variables (such as consumer innovativeness, social influence, personal attachment, and privacy vulnerability) impact behavioral intent related to mobile marketing in an established market (the U.S.) and an emerging market (Pakistan). They also examine how this impact is mediated by attitudes toward mobile communications and mobile phone usage characteristics. Their findings across these two markets reflect cross-market similarities and differences related to the influence of consumer acceptance factors.

Despite these advances, on balance, relatively little is known about how the drivers of mobile device and services adoption and usage vary across countries, and about the consequences of those differences. The following questions deserve research attention in this context. To what extent are the differences in mobile marketing adoption and usage across countries driven by economic divides and by variations in culturally ingrained values and norms? To what extent are these differences driven by the stage of mobile device or service adoption, and which differences are likely to endure even in a steady state where adoption levels have peaked? What are the differences in how marketing managers across countries perceive the promises and perils of mobile devices and services? Many developing countries have poor fixed or landline-based information infrastructure, including widespread access to the Internet, but have rapidly adopted mobile devices or services. In such a scenario, how can Internet-based marketing initiatives that are now predominantly implemented and accessed through the personal computer, be replaced by mobile marketing initiatives? The answers to these questions will enrich our understanding of mobile marketing in the international context.

In addition, several other issues deserve research attention. Researchers can examine how customers define the bounds of privacy in the mobile context, and under what conditions they are willing to allow companies to breach those bounds. Likewise, researchers could examine how next-generation smart cards, which could store information about customer needs and preferences, can facilitate mobile marketing initiatives. Finally, the functionalities of multiple devices such as personal digital assistants (PDAs), cell phones, music players, cameras, and video recorders, are rapidly converging into single, multifunctional mobile devices. The relevance of such convergence for mobile marketing can be studied. Whereas a detailed discussion of these issues is beyond the scope of this paper, they merit independent investigation.

Conclusion and managerial implications

We have presented the conceptual underpinnings of mobile marketing and a synthesis of relevant literature by identifying and discussing four key issues: the drivers of mobile device/service adoption, the influence of mobile marketing on customer decision-making, the development of mobile marketing strategy, and mobile marketing in the global context. Our synthesis offers some useful insights and several directions for future research on mobile marketing. Our review reveals the following normative implications for managers of mobile marketing.

Rethink the value proposition in the mobile context

A mobile device is not a standard personal computer. It is a frequently used, location-sensitive device with very limited visual space. A mobile message will be most effective if it is brief, memorable, and well-coordinated with time and the user's location. Simply transporting a company's Internet marketing strategy to mobile marketing strategy could be a recipe for failure.

Get customers to opt-in

A substantial majority of customers do not appreciate unsolicited intrusions into their mobile space (Barwise and Strong 2002). Therefore, it is important to get the users to opt-in to receive mobile marketing communications through other media such as the TV, print, and the Web.³ Users opt-in when they experience significant benefits of receiving messages (Blum and McClellan 2006). Initially, the messages could deliver direct and tangible benefits such as a complimentary offer for a desired product or service, but in the long-run, the messages have to be highly relevant to the customer to be successful (BusinessWeek.com 2007).

Focus first on learning about customer behavior and then on return on investment (ROI)

Customer behavior in the mobile environment is rapidly evolving. At this stage, heavy investments in mobile marketing initiatives are unlikely to yield satisfactory returns in the short run. Instead, firms must move toward placing "small bets" that, in the spirit of low-risk experimentation, allow them to probe

³ According to Gratton (2002), informed consent could include a mutual agreement between the mobile service provider and the customer about: (a) the number and frequency of messages; (b) the specific providers of messages — this could relate to companies sending the message, or even specific offerings about which information is transmitted; (c) the types of information transmitted; (d) the times during which such information can be transmitted; (e) the (customer) locations at which messages can be transmitted (in the case of location-based advertising); (f) the length of time the consent agreement is valid; and (g) procedures to resolve complaints and ask for deletion of customer data. From a marketing manager's viewpoint, obtaining and monitoring compliance with such consent agreements can call for significant time and resources.

and learn about how customers behave with respect to the mobile medium, and about what works and what does not work in that medium.

Look for social networking opportunities

The ability to network with friends and relatives is a major benefit for customers in online environments. The mobile device's attractive properties make it an ideal device for social communications. Mobile marketers need to look for ways to creatively embed social networking opportunities within their mobile marketing strategy.

Tie the offering to location-based benefits

In some sense, location-specificity is the most important distinguishing feature of mobile marketing. Internet marketing is far superior to mobile marketing on dimensions such as the richness of information, access to a lot of information, and applications of information that involve computations. But Internet-based marketing lacks location-specificity. Therefore, managers should focus on identifying mobile marketing opportunities that adequately leverage the customer's physical location.

Avoid overwhelming the customer with offers and messages

Managers must focus on targeting carefully customized messages to selected customers rather than indiscriminately broadcasting messages to the entire mobile customer base. Developing a database of mobile customer profiles and preferences, often using data that are collected outside the mobile medium, is a crucial first step in this context. Mobile messages should be carefully customized to customers or, at a minimum, customer groups.

We have synthesized the existing literature on mobile marketing and have delineated some of its key implications. However, much remains to be learned about mobile marketing. The growth in mobile device and services adoption and in mobile marketing offers us increased data on customer behavior. The availability of such data can spawn research relating to the many questions we have identified as fruitful areas for future research. We hope our review spurs such research and contributes to the development of additional insights on mobile marketing.

References

- Advertising Age (2005), "The Ad Age Guide to Mobile Marketing," (May 2).
- Ancarani, Fabio and Venkatesh Shankar (2003), "Symbian: Customer Interactions through Collaboration and Competition in a Convergent Industry," *Journal of Interactive Marketing*, 17 (1), 56–76.
- Ajzen, I. (1985), "From Intentions to Actions: A Theory of Planned Behavior," in *Action Control: From Cognition to Behavior*, J. Kuhl and J. Beckmann, eds. Heidelberg:Springer, 11–39
- Balasubramanian, Sridhar, Robert A. Peterson, and Sirkka L. Jarvenpaa (2002), "Exploring the Implications of M-Commerce for Markets and Marketing," *Journal of Academy of Marketing Science*, 30 (4), 348–61.
- , Prabhudev Konana, and Nirup Menon (2003), "Customer Satisfaction in Virtual Environments: A Study of Online Investing," *Management Science*, 49 (7) 871–89.
- , Raj Raghunathan, and Vijay Mahajan (2005), "Consumers in a MultiChannel Environment: Product Utility, Process Utility, and Channel Choice," *Journal of Interactive Marketing*, 19 (2) 12–30.
- Bart, Yakov, Venkatesh Shankar, and Glen L. Urban (2005), "Are the Drivers and Role of Online Trust the Same for All Web Sites and Consumers? A Large-Scale Exploratory Empirical Study," *Journal of Marketing*, 69 (4), 133–52.
- Barwise, Patrick and C. Strong (2002), "Permission-Based Mobile Advertising," *Journal of Interactive Marketing*, 16 (1), 14–24.
- Blum, L. and S. McClellan (2006), "Mobile Users Welcome the Ads They Ask For," *Adweek* 11, 11, September.
- Bolton, Ruth N. and Shruti-Saxena Iyer (2009), "Interactive Services: Framework, Synthesis and Research Directions," *Journal of Interactive Marketing*, 23 (1), 91–104.
- BusinessWeek.com (2007), "Mobile Ad Biz Comes of Age," (accessed August 16, 2007), [available at http://www.businessweek.com/globalbiz/content/may2007/gb20070514_450138.htm?chan=innovation_branding_industry+trends].
- Chan, S.S. and X. Fang (2001), "User Interface for Mobile Commerce," DePaul University, Unpublished manuscript.
- Chircu, Alina and Vijay Mahajan (2007), "Revisiting Digital Divide: An Analysis of Mobile Technology Depth and Service Breadth in the BRIC Countries," Working Paper, University of Texas at Austin, TX.
- Cuno, Alice Z. (2005), "Marketers Get Real Serious about the Third Screen," *Advertising Age*, 11 (July).
- Davis, Fred D. (1989), "Perceived Usefulness, Perceived Ease of Use and User Acceptance of Information Technology," *MIS Quarterly*, 13, 319–39.
- Deighton, John, and Leora Kornfeld (2009), "Interactivity's unanticipated consequences for markets and marketing," *Journal of Interactive Marketing*, 23 (1), 4–10.
- Dickinger Astrid, and Mirella Kleijnen (2008), "Coupons Going Wireless: Determinants of Adoption of Consumer Intentions to Redeem Mobile Coupons," *Journal of Interactive Marketing*, 22 (3), 23–39.
- DMA (2008), "Mobile Marketing: Consumer Perspectives," New York, NY: Direct Marketing Association (July).
- eMarketer (2007a), "Mobile Brand Advertising Report," New York, NY: eMarketer (October).
- eMarketer (2007b), "Mobile Message Marketing Report," New York, NY: eMarketer (November).
- eMarketer (2008), "Mobile Location-Based Services on the Move Report," New York, NY:eMarketer (October).
- Fishbein, M. and I. Ajzen (1975), "Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research," Reading, MA:Addison-Wesley.
- Gratton, E. (2002), "M-Commerce: The Notion of Consumer Consent in Receiving Location-based Advertising," *Canadian Journal of Law and Technology*, 1 (3), 59–77.
- Henderson, R., D. Rickwood, and P. Roberts (1998), "Beta Test of an Electronic Supermarket," *Interacting with Computers* 10, 385–99.
- Holdem, Windsor (2007), "Mobile Content from the Masses," excerpted from *Mobile User-Generated Content: Dating, Social Networking, and Personal Content Delivery 2007–2012*, Juniper Research.
- Gibson, Bruce (2006), "Entertaining Mobile," excerpted from *Mobile Entertainment Markets Opportunities & Forecasts, 2006–2011*, Juniper Research.
- Kim K. J.J. Kim, Y. Lee, M. Chae, and Y. Choi (2002), "An Empirical Study of the Use Contexts and Usability Problems in Mobile Internet," *Proceedings of the 35th Annual Hawaii International Conference on System Sciences*, Los Alamitos, CA:IEEE Computer Society Press.
- Kim J. and J. Moon (2000), "Designing Towards Emotional Usability in Customer Interfaces — Trustworthiness of Cyber-Banking System Interfaces," *Interacting with Computers*, 10, 1–29.
- Kleijnen, Mirella, Ko De Ruyter, and MartinWetzels (2004), "Consumer Adoption of Wireless Services: Discovering the Rules, While Playing the Game," *Journal of Interactive Marketing*, 18 (2), 51–61.

- Konana, Prabhudev, and Sridhar Balasubramanian (2005), "The Social–Economic–Psychological (SEP) Model of Technology Adoption and Usage: An Application to Online Investing," *Decision Support Systems*, 19 (3), 505–24.
- Leung, Louis and Ran Wei (2000), "More than Just Talk on the Move: Uses and Gratifications of the Cellular Phone," *Journalism and Mass Communication Quarterly*, 77, 308–20.
- M-Metrics (2006), Report on Mobile Content Consumption in Western Europe.
- Neslin, Scott A. and Venkatesh Shankar (2009), "Key Issues in Multichannel Management: Current Knowledge and Future Directions," *Journal of Interactive Marketing*, 23 (1), 70–81.
- Nielsen Mobile (2008), "Critical Mass: The Worldwide State of the Mobile Web," IL: The Nielsen Company.
- Nysveen, H., P.E. Pedersen, and H. Thorbjørnsen (2005), "Intentions to Use Mobile Services: Antecedents and Cross-Service Comparisons," *Journal of the Academy of Marketing Science*, 33 (3), 330–46.
- Petty, R.E. and J.T. Cacioppo (1986), "The Elaboration Likelihood Model of Persuasion," in *Advances in Experimental Social Psychology*, Vol. 19, L. Berkovitz, ed. New York, Academic Press, 123–205.
- Pagani, Margherita (2004), "Determination of Adoption of Third Generation Mobile Multimedia Services," *Journal of Interactive Marketing*, 18 (3), 46–59.
- Ramsay, Marc (2000), "WAP usability report," Nielsen Norman Group.
- Rogers, Everett M (1995), "Diffusion of Innovations," (4th ed.), New York: The Free Press.
- Shahnaz, M (2007), "What Keeps Putting Mobile Video on Hold?," *Adweek*, 48 (35), 10 2007;48(35):10.
- Shankar, Venkatesh and Marie Hollinger, (2007), Online and Mobile Advertising: Current Scenario, Emerging trends, and Future Directions. Marketing Science Institute Special Report, 07–206.
- Shankar, Venkatesh and Jeff Meyer (2009), "Internet and International Marketing," *Handbook of International Marketing*, Masaki Kotabe and Christiaan Helsen, eds. Sage, 451–467.
- Shankar, Venkatesh and Tony O'Driscoll (2003), "Rational Exuberance: The Wireless Industry's Killer 'B,' Strategy+Business," 31 (Summer), 68–77.
- Shankar, Venkatesh, Amy Smith, and Arvind Rangaswamy (2003), "Customer Satisfaction and Loyalty in Online and Offline Environments," *International Journal of Research in Marketing*, 20 (2), 153–75.
- Siemsen, Enno, Aleda Roth, and Sridhar Balasubramanian (2008), "How Motivation, Opportunity, and Ability Drive Knowledge Sharing: The Constraining Factor Model," *Journal of Operations Management*, 26, 426–45.
- Silverstone, Roger and Eric Hirsch (1992), "Consuming Technologies," London: Routledge.
- Skog, Berit (2002), "Mobiles and the Norwegian Teen: Identity, Gender and Class," in *Perpetual Contact*, James E. Katz and Mark Aakhus, eds. New York: Cambridge University Press.
- Steenkamp, Jan, Benedict EM, and Inge Geyskens (2006), "How Country Characteristics Affect the Perceived Value of Web Sites," *Journal of Marketing*, 70 (July), 136–50.
- Sultan, Fareena, Andrew J. Rohm, and Tao Gao, (in press), "Consumer Acceptance of Mobile Marketing Practices Across Established and Emerging Markets," *Journal of Interactive Marketing*.
- Uglow, Sue (2007), "The Race for Mobile Content Revenues," excerpted from *Business Models for Mobile Content Providers: Strategic Options and Scenarios, 2007–2012*, Juniper Research.
- Urban, Glen., Cinda Amyx, and Antonio Lorenzon (2009), "Online trust: State of the Art, New Frontiers, and Research Potential," *Journal of Interactive Marketing*, 23 (2), 179–190.
- Venkatesh, Viswanath, and Fred D. Davis (2000), "A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies," *Management Science*, 46 (2), 186–204.
- and Anne P. Massey (2003), "Understanding Usability in Mobile Commerce," *Communications of the ACM*, 46 (12), 53–6.
- Widing R. Jagdeesh N. Sheth, S. Pulendran, B. Mittal, and B.I. Newman (2003), "Customer Behaviour – Consumer Behaviour and Beyond," Australia, Canada: Pacific Rim Ed., Thomson.