

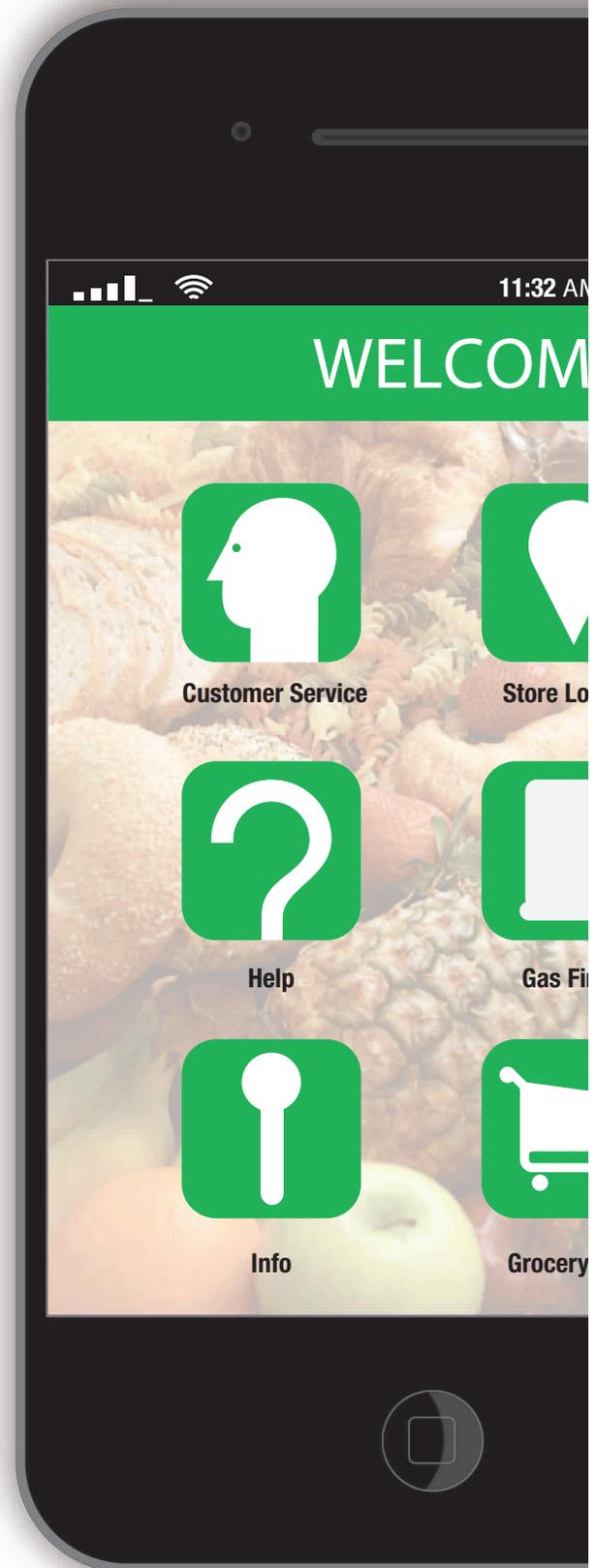
# DIGITAL GROCERY COMMERCE: EXPLORING THE POTENTIAL FOR GROCERY SHOPPING

APPS

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## THE PECK FELLOWSHIP YEAR ONE RESEARCH REPORT 2013

By Nancy M. Childs, Ph. D  
Professor of Food Marketing and Gerald E. Peck Fellow  
Saint Joseph's University





# **Digital Grocery Commerce:**

## **Exploring the Potential for Grocery Shopping Apps**

Peck Fellowship Year One Report - 2013

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## **Introduction**

Today's reach of mobile smartphone technology and the personal and commercial blend of social media networks permit instantaneous consumer interactivity on grocery products, pricing and information access. This potential for consumers to access information, savings, and convenience through a mobile app enables a dramatic transformation in food shopping on a global basis. A revolution well underway and continually morphing, new grocery shopping behaviors represent both a challenge to comprehend and an opportunity to manage for increasing revenue and competitive advantage. Understanding consumer grocery shopping behavior in the mobile age requires fresh approaches to defining the consumer's grocery shopping experience, motivation, and value equation.

Sophisticated understanding of food culture occasions, purchase occasions, and retail provision of experience are critical to succeeding and retaining today's consumers<sup>1</sup>. Their interface with technology, enabling the purchase occasion, is their logical facilitator for integrating their product needs, desire to economize, and search for experience appropriate to their purchase situation.

The above, written a year ago in the Peck Fellowship application, anticipated the evolution of digital media and grocery shopping during the past twelve months from summer 2012 to June 2013. Research investigations and consultant prognostications are proliferating and consumer digital behavior is both advancing and clarifying. The Peck Fellowship challenge is an exceptionally broad topic exploring an area of accelerating technological innovation across changing consumer behaviors and demographics.

## **Rationale for Exploring Grocery Shopper Apps**

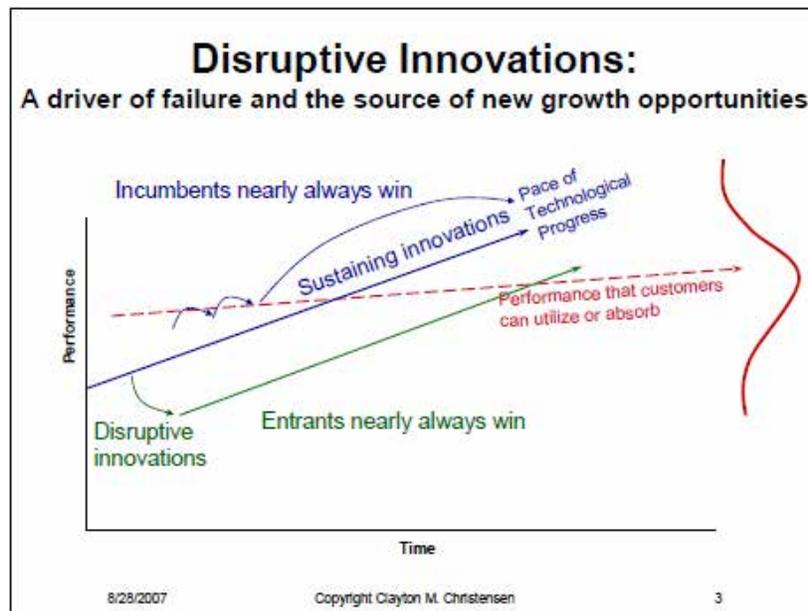
A wide review of industry reports, presentations, and articles identified grocery shopping apps as an area of retailer interest without clear understanding of the best functions and shopper segments for their use. It also is a topic lacking a consensus of best approach and practice. It appears to be an under-researched area, in both the private sector and in academia. Accordingly it was identified as a high priority area for Peck research to focus as it would address both a retailer need and add to the existing research base.

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<sup>1</sup> FMI 2012, "Challenging Consumer Financial Realities = In-Store Opportunities," Harvey Hartman, The Hartman Group, April 2012.

## Innovation, Smartphones, and Grocery Apps for m-Assisted Retailing

The current and expanding characteristics of the grocery digital commerce situation may be framed by Clayton Christensen's chart below depicting disruptive innovation. The multitude of current and anticipated mobile apps, e-commerce, and m-commerce formats are sustaining innovations (blue line). Most grocery app functions can be described as "sustaining" or "evolutionary innovation" with a command and control interface offering familiar and obvious benefits of information, convenience, and savings. This is in contrast to a more organic disruptive innovation (changes in shopping channel access; anticipatory, fuzzy logic, and artificial intelligence applications which suggest individual needs and likes)<sup>2</sup> depicted as the green line. The sustaining technologies, characteristic of many grocery app functions, may be out running the general consumers' interest in utilizing them (red line), much like the current reticent consumer reception of QR codes.



Source: C. Christensen<sup>3</sup>

<sup>2</sup> McKinsey&Company, The Impact of Disruptive Technology: A Conversation with Eric Schmidt, 2013.

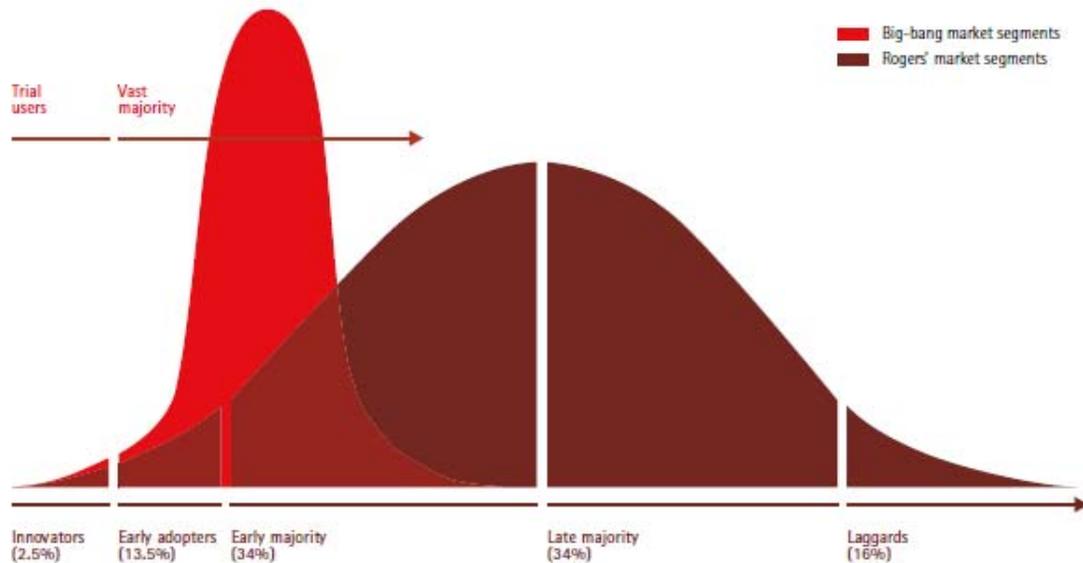
<sup>3</sup> Disruptive innovation, sourced <http://www.claytonchristensen.com/key-concepts/> June 2013.

Peck sponsored qualitative research in May 2013 with grocery consumers who were aware but not using grocery shopping apps indicated there are several perceptual and mechanical deterrents to their engaging in digital commerce at grocery. For younger and tech savvy e-commerce shoppers the grocery app benefit model was insufficient to entice use. Their smaller household and limited grocery basket did not generate an economic or convenience rationale that superseded their perceived cost of using the app. An investigation of various functions for grocery apps identifies those apps that might be more sustaining innovations for grocery shoppers, thereby supporting the likelihood of the incumbent's (e.g. retailer) success.

A primary interest is the emergence of new “disruptive innovation” approaches to shopping the center of the store (green line) – what they are and who is utilizing them. These disruptive innovations are likely to come from out of industry and are as likely to be championed by brand manufacturers and other channel players as by grocery retailers. Such disruptions are also the consequence of changing consumer behavior in another independent realm. For example, millennials’ strong embracement of sustainability is exhibited in a growing number of lifestyle changes including less driving, more use of public transit, and less physical commuting overall. This behavior change can have profound impact on their grocery shopping behaviors, as well as their reception of new grocery shopping models.

New disruptive technologies may or may not be in the form of transformative app uses, and may engage new retail channels such as imagined by AmazonFresh’s market entry, but enhanced by intelligent recommendations derived from consumer online searches and from the universe of their shopping purchases. To date disintermediation of grocery shopping is relatively minor and characterized by higher value, bulky, non-perishable, high usage categories such as diapers, paper towels, and such non-food items characteristic of a price and convenience driven model.

Traditional technology adoption versus big-bang disruption



Source: Accenture analysis

<sup>4</sup> Source: Accenture, 2013.

The smartphone itself is an excellent example of a disruptive technology which displaces many former products such as digital cameras, calculators, organizers, alarm clocks, landlines, navigation units, and increasingly laptops, e-readers, video cameras, and handheld gaming devices. In Accenture's chart above, smartphone penetration of 58% reported by Pew Research Center in May 2013, is now entering the late majority phase of adoption and offering incremental innovation.

Accenture argues today's IT based "big bang" disruption leverages information, moves quickly, and provides exceptional "customer intimacy" based on one's own personal data, thereby creating a dramatic individual value proposition. At present the retailer and more broadly, consumer financial intermediaries, hold the consumers' retail purchase data. Sophisticated grocery app-loyalty card linkage has the potential to influence, rather than simply enable, easier shopping based only on information and digitized convenience. More importantly, this type of interactive platform enables extensive communication and learning opportunities with the retailer, and more importantly, within the retailer's shopper community to integrate and share, create, review, and suggest ideas between shoppers, and

<sup>4</sup> P. Nunes and L. Downes, Big Bang Disruption: The Innovator's Disaster, Accenture, 2013.

with the retailer. When done well this approach generates a feedback loop for incremental improvement and innovation.

M-assisted shopping, through smartphone grocery apps, has the potential to move through tiers of functionality, from information provision and shopper convenience, to more interactive, personalized and anticipatory capabilities, including a dimension of gamification and entertainment. The dilemma is grocery shopping is not occasional or inconsequential. It is an ingrained, routine, essential, and frequent behavior, and of meaningful size in the household's budget. It's a necessary endeavor and not limited to just the earliest innovators and adopters. The "big bang" innovation model advocating a quick in and out market approach - drop, run, and move on – minimizing quality control and support, creates a dilemma in satisfying and keeping loyal shoppers. As grocery app users indicated in qualitative research, they require assurance of ease of use and a tangible value proposition. Grocery apps, with all their promise, need to be thoughtfully studied, prepared and presented for sustainable success with grocery shoppers.

***Retailer takeaway:*** *Grocery apps are sustainable innovations which benefit the incumbent (the retailer) for competitive advantage and growth. Such apps succeed when they keep pace with consumers for relevance and desired performance. The Peck Research Panel of industry experts identified the following grocery apps "provide exclusive discounts to app users," the ability to "track loyalty points and incentive programs," and proactive "identification of coupons and sales offers" as the most important grocery app functions for shoppers in the next eighteen months. Performance issues of most concern in the future are excessive surveys and inquiries generated by the app, "slow signal response time in the store environment," and "app glitches and cumbersome app navigation."*

## Digital Grocery Shopping: Key Findings

The Peck Fellowship used the first year to aggressively understand the food retailer’s e- and m-commerce and commercial social media landscape, and the consumers operating within this space. As of May 2013 nearly 60% of American adults and nearly 40% of teens have a telephone operating on a smartphone platform,<sup>5</sup> and smartphone penetration is accelerating at a linear 10% annually for several years. Consumers using smartphones can no longer be characterized as innovators and early adopters as they’ve quickly penetrated into the late majority space.

A year ago consumers reported the excitement of mobile was driven by the convenience and connectivity, as visualized in a word cloud composed of their responses. The access to apps, internet and email was seen among the top advantage to owning a smartphone.

### WHAT RESPONDENTS LIKE MOST ABOUT OWNING A MOBILE PHONE:



Source: Pew Internet Study, research conducted April/ May 2012.<sup>6</sup>

Data developed by Booz & Company for FMI report almost as many shoppers are using their mobile while shopping (31%) as shoppers using online coupons (32%). (See Appendix 2 and 3). A powerful potential in grocery app development for smartphones is the consumer’s natural desire to use the

<sup>5</sup> A. Smith, Smartphone Ownership Update – 2013, Pew Research Center, June 5, 2013.

<sup>6</sup> A. Smith, The Best (and Worst) of Mobile Connectivity, Pew Research Center, 2012.

smartphone to serve as a multimedia digital communication device, through texts, tweets, email, Instagram, and a multitude of social media sites. Calling someone on their cell today almost seems too intrusive. This ability to digitally connect and create exchange between the consumer and retailer, and consumer to consumer, is powerful. The smartphone is the natural location for the digital discussion.

**Retailer takeaway:** *Digital connection with the shopper via the app is sensitive. An important set point exists for each consumer between their desired level of interchange and annoyance. Allowing each consumer to establish this comfort point is important, as is devising receptive ways to strengthen the consumer's need for the depth and frequency of this interchange via the app. The consumer needs to feel in control.*

Least liked, in 2012, were the phone's intrusive interruptions, billing, and the mechanical difficulties of battery life, dropped calls, signals and such difficulties. Appendix 4 introduces a summary chart of the devices-functions array that presently exists. Peck research indicates the cost-benefit ratio of the smartphone proposition is still under consideration by most users.

### WHAT RESPONDENTS LIKE LEAST ABOUT OWNING A MOBILE PHONE:



Source: Pew Internet Study, research conducted April/ May 2012.<sup>7</sup>

<sup>7</sup> A. Smith, The Best (and Worst) of Mobile Connectivity, Pew Research Center, 2012.

An appealing aspect to the retailer in grocery app development is that the consumer provides the hardware, their smartphone, and that it is the consumer's desire and routine to be engaged with the phone as they shop. It also is an inherent disadvantage in that some respondents find having to view the screen of a handheld device while shopping (unlike Bluetooth conversation with the smartphone in the pocket) is awkward and perhaps unsafe. The screen is small and many are concerned about smartphone theft.

**Retailer takeaway:** *Hardware/software performance concerns remain a dilemma. As grocery apps are developed in the future, issues of platform, signal, and multiple concerns of coordinated hardware and software across multiple devices will continue to hinder the achievement of consumer expectations. Consumers are unforgiving when an app disappoints. This area will remain a challenge in shopper acceptance of grocery apps.*

## Penetration of e-Commerce in Grocery Shopping

Grocery shopping is one of the consumer's most frequent and ingrained retail shopping habits. Despite extensive study and thoughtful intervention the consumer's path to purchase remains difficult to influence. From early years of observing mom's shopping habits through establishing one's own household and accompanying responsibilities, consumers become ingrained in a pattern of sales circular review, price comparison, and familiarity with a limited set of products, brands, retailers, and recipes that are relied upon for feeding and satisfying their family. Coupons remain an important part of their behavior. Channel blurring cannibalizes grocery fill-in and stock-up shopping, but for the majority of shoppers, major trips remain relatively unchanged. Information seeking, recipe access, and coupon search behaviors show the most change. Consumers have tended over the years to expand the role of foodservice and takeout to fulfill their family's meal needs rather than to alter their routine grocery shopping behavior in significant ways. While their grocery shopping behavior change is slow, especially in established households, it is occurring.

While the social and digital world vastly expands the variety and ease of engaging the consumers' involvement in food, the evolution in grocery shopping behavior is slower, on the edges of majority behavior, is more significant in smaller consumer segments, and driven by special need situations. The Hartman Group deconstructs digital involvement with food into the four phases of meal planning,

shopping, preparing, and eating.<sup>8</sup> Each stage is a separate opportunity to strategically engage the shopper's food experience through social media and m-assisted shopping. The Hartman Group research indicates grocery opportunities lie more with recognizing that grocery shopping behavior is dominated by browsing (66%) rather than search and retrieve (32%). The consumer's desire to be engaged in food selection, especially the increasingly important fresh and prepared categories, challenges the grocery online shopping model.

In March 2012, The Hartman Group reported 57% of consumers sought a relationship with their primary grocery store, and more importantly, the vast majority wanted the store to communicate with them online via email (66%), Facebook (17%), corporate website (17%), or text (7%).<sup>9</sup> A year later NGA/Brick Meets Click research with grocery shoppers from seven retail banners echoed these shopper desires reporting they connect with their retailer by website (average 68% of shoppers), email (53% average), and Facebook (20% average).<sup>10</sup>

***Retailer takeaway:*** *The retailer's opportunity is building communication and relationship via digital to sustain the in-store experience rather than eliminating the in-store experience with digital commerce. The quality and purpose of the digital conversation becomes critical, demanding relevance and interchange. It is not an "on-sale" push model that provides information already available in the retailer's traditional media. Grocery smartphone apps need to deliver added benefit, perceptually and in execution, at strategically selected phases of a meal's development (planning, shopping, preparing, eating). Recognizing the most desired app functions, the meal phase they impact, and addressing app barriers are critical for retailer success.*

The inertia hindering change in grocery shopping is one of the reasons that online grocery shopping has one of the lowest penetrations of e-commerce among retail categories. McKinsey&Company research indicates 95% of consumers report that their last grocery purchase was made in the store, that only 1% was online, and that the remaining 4% purchased in other locations, likely boutiques and the growing

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<sup>8</sup> Harvey Hartman, "The Online Grocery Opportunity," The Hartman Group, 2012.

<sup>9</sup> The Hartman Group, Shopper Topography, 2012.

<sup>10</sup> NGA/Brick Meets Click, Shoppers are Ready for Digital Connections with Their Food Retailers, Digital Check-up for Grocery, 2013

farmer’s market channel.<sup>11</sup> As PwC’s research shows, as recently as 6 months ago, nearly 90% of grocery shoppers still prefer to shop in store, and most prefer to do so without involving online research.

**Figure 3: The purchase journey across selected categories**

Q: Which method would you most prefer for researching and buying?



Sample size: 11,067 online shoppers

Source: PwC, 2013<sup>12</sup>

McKinsey&Company concludes that the grocery channel, relative to other channels, is an online e-commerce laggard and not likely to be in the “digital battleground” in the near future. They also do not see significant differences in online purchase by age in the grocery category.<sup>13</sup> The NGA/Brick Meets

<sup>11</sup> P. Dazell-Payne, J. Liebowitz, and K. Roche, How is the American online consumer evolving?, Consumer & Shopper Insights, McKinsey&Company, September 2012.

<sup>12</sup> Demystifying the Online Shopper, PwC

<sup>13</sup> P. Dazell-Payne, J. Liebowitz, and K. Roche, How is the American online consumer evolving?, Consumer & Shopper Insights, McKinsey&Company, September 2012.

Click 2013 research reports 10-16% of shoppers from seven selected grocery banners bought some groceries online in the past 30 days.<sup>14</sup>

Low grocery online shopping is somewhat surprising given the advancing penetration of smartphones and the wide experience consumers have with general online shopping. Peck qualitative research confirms the shopper's reticence to shop online for groceries. Their grocery shopping ritual is habitual and tends towards experiential as it is prone to browsing not search behavior. Grocery stores are ubiquitous. Price saving opportunities at grocery are not as prevalent or substantial as other online categories with larger margins to discount. Online grocery savings often are erased by delivery costs. While online is useful for shoppers with specific circumstances, it is not yet a broadly attractive model.

**Retailer takeaway:** *In general shoppers are savvy about the "full cost" of shopping and do not perceive enormous value saved with online grocery shopping. Without specific needs for convenience, or lack of transportation, they do not perceive a high value ratio with grocery online. US grocery stores are ubiquitous. Their prices are competitive and do not result in compelling opportunities overall for digital savings. Online grocery shopping will increase but m- assisted shopping behavior will dominate.*

## Segmenting Shopper Digital Behaviors

For many, technology has penetrated their grocery shopping behavior in small ways and for specific functions, such as web coupon access and electronically stored shopping lists, and has made inroads with small segments of consumers. SymphonyIRI's research with their Consumer Network panel on digital shopper behavior only identified 12% of shoppers in their active *digitize me!* shopper segment and another 23% who were a less engaged but a potential group to cultivate.<sup>15</sup> They were labeled *wired for work* and are digitally savvy but currently disinterested in using technology for shopping. Other digitally active shopper segments exist but are not as active in expanding their digital activities into their grocery shopping routine.

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<sup>14</sup> NGA/Brick Meets Click, Shoppers are Ready for Digital Connections with Their Food Retailers, Digital Check-up for Grocery, 2013

<sup>15</sup> C. Edstrom and S. Gupta, A New Divide & Conquer: Targeting Marketing Campaigns Based on Shoppers' Digital Behavior, SymphonyIRI Group, 2012.

In particular, SymphonyIRI identified the five following active internet user segments:

**Technophobes** – least online-savvy, older segment, prefer face-to-face communication over online, feel overwhelmed by technology: 28% of Consumer Network panel, median income of \$43,000.

**Socializers** – use internet for communication and social media, little product research, coupon search, or price comparison: 14%, median income \$27,000.

**Wired for Work** – primarily use digital media at work, proficient digitally but not for shopping: 23%, median income \$76,000.

**Show Me the Money** - use technology to save money, embrace the internet, not involved with social media, buy and sell online, somewhat older: 23%, median income \$50,000.

**Digitize Me!** fully engaged online for shopping, product discovery, interact with brands online, write blogs and reviews, use social networks, youngest segment: 12%, median income \$65,000.

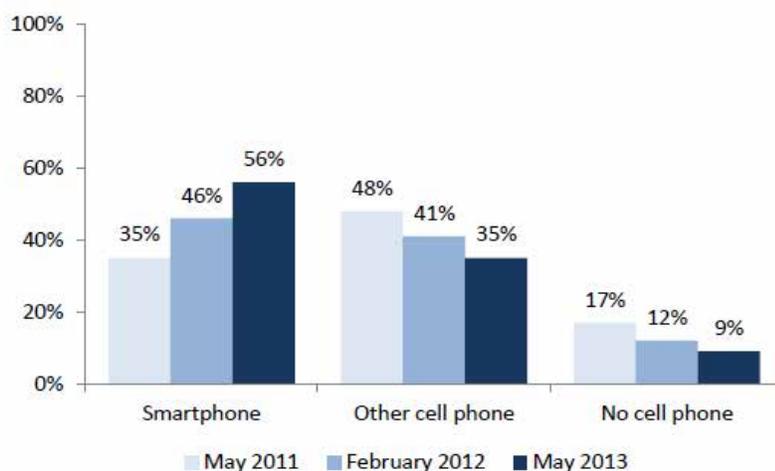
**Retailer takeaway:** *Consumer use of online for shopping varies widely. Understanding digital shopper behavior by segment anticipates the type of digital interchange that will work best to build brand relationships with each shopper group. In particular, understanding the shopper's preference for grocery app functions enables better grocery app development and promotion.*

## Smartphone Penetration

In May 2013 The Pew Research Center reported 58% of US adults (age 18 and over) own a mobile phone operating on a smartphone platform, defined as iPhone, Android phone, Blackberry, or Windows phone.<sup>16</sup> The past three years show a linear increase of 10% per year in smartphone ownership. In addition, as of March 2013, 37% of teens age 12-17 have their own smartphone.<sup>17</sup> Teenage girls are slightly ahead of boys in smartphone, tablet, and computer ownership. The penetration of smartphone technology is substantial, growing, and assures its growing involvement in shopping behaviors.

### Changes in smartphone ownership, 2011–2013

*% of all U.S. adults who own...*



**Source:** Pew Research Center's Internet & American Life Project April 26-May 22, 2011, January 20-February 19, 2012, and April 17-May 19, 2013 tracking surveys. For 2013 data, n=2,252 adults and survey includes 1,127 cell phone interviews. All surveys include Spanish-language interviews.

Source: Pew Research Center<sup>18</sup>

<sup>16</sup> A. Smith, Smartphone Ownership Update – 2013, Pew Research Center, June 5, 2013.

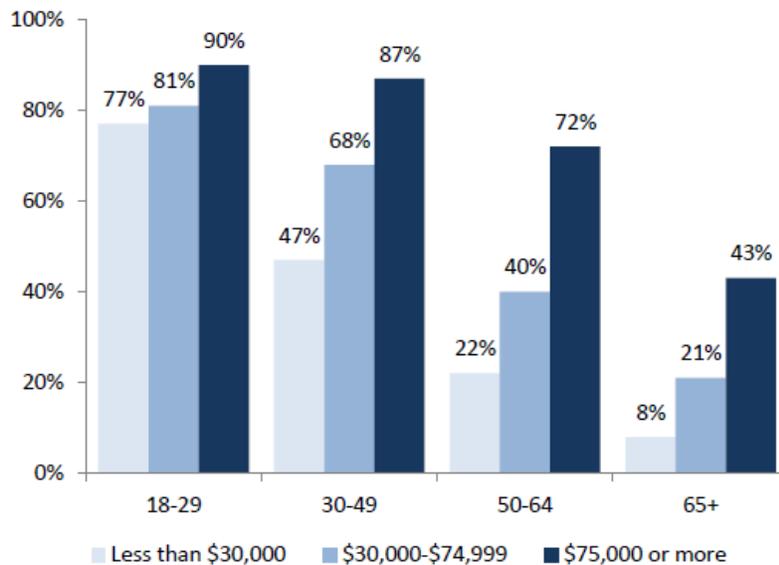
<sup>17</sup> M. Madden, A. Lenhart, M. Duggan, S. Cortesi, and U. Gasser, Teens and Technology 2013, Pew Research Center, March 13, 2013.

<sup>18</sup> A. Smith, Smartphone Ownership Update – 2013, Pew Research Center, June 5, 2013.

More importantly, adult smartphone adoption displays both an income and age effect as shown in the next chart. For adults under age 50, regardless of income level, smartphones are their choice.

### Smartphone ownership by income/age grouping

*% within each age/income grouping who own a smartphone (example: 77% of 18-29 year olds with an annual household income of less than \$30,000 are smartphone owners)*



**Source:** Pew Research Center’s Internet & American Life Project April 26-May 22, 2011, January 20-February 19, 2012, and April 17-May 19, 2013 tracking surveys. For 2013 data, n=2,252 adults and survey includes 1,127 cell phone interviews. All surveys include Spanish-language interviews.

Source: Pew Research Center, May 2013<sup>19</sup>

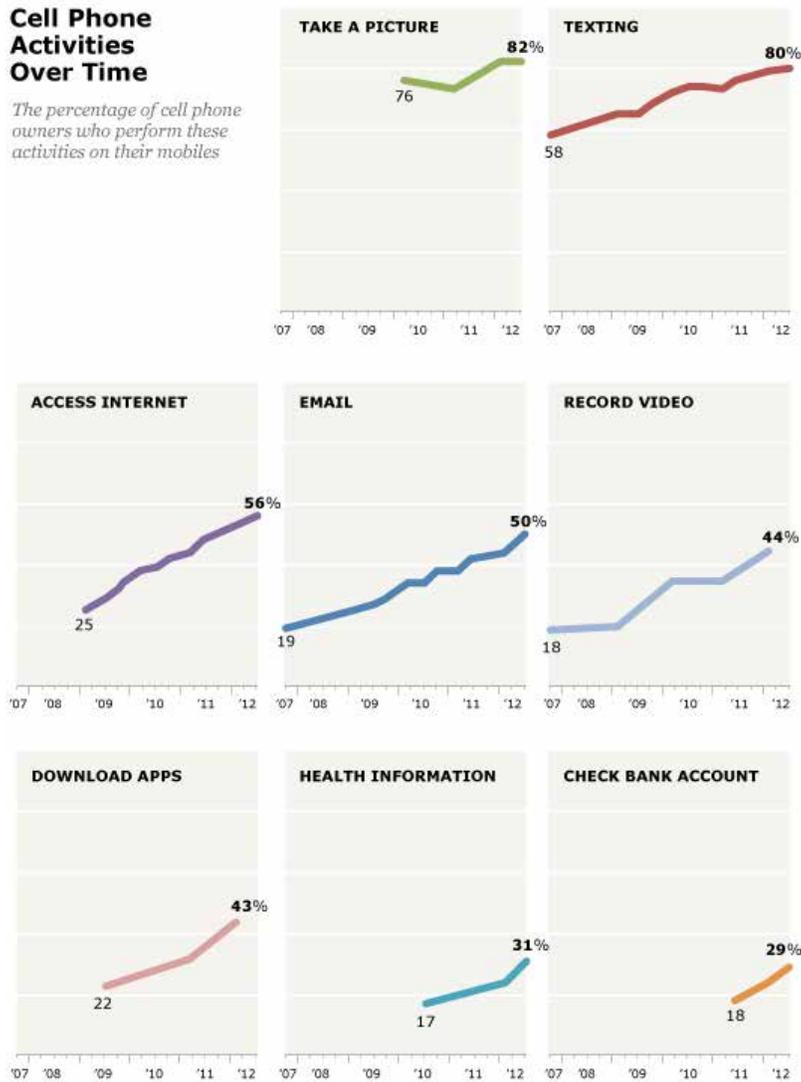
## Smartphone Use

Picture taking and texting dominate as reported cell phone uses, 82% and 80% respectively, but accessing the internet and downloading apps are faster growing uses. By late 2012, 56% of cell phone owners reported accessing the internet and 43% were downloading apps. These latter behaviors are essential for m-commerce and m-assisted shopping.

<sup>19</sup> A. Smith, Smartphone Ownership Update – 2013, Pew Research Center, June 5, 2013.

## Cell Phone Activities Over Time

The percentage of cell phone owners who perform these activities on their mobiles



PEW INTERNET & AMERICAN LIFE PROJECT

Source: Pew Research Center 2012.<sup>20</sup>

While the general behavior of downloading apps is more prevalent among owners under age 50 and increases with income, in 2012 owners in all classifications other than age 65+ were actively pursuing

<sup>20</sup> M. Duggan and L. Rainie. Cell Phone Activities 2012. Pew Internet & American Life Project, November 25, 2012. <http://www.pewinternet.org/Reports/2012/Cell-Activities.aspx>

apps. This activity, also relevant to tablet owners, is increasing as apps proliferate, users discover the versatility and convenience provided by apps, and app technology and reliability improve.

## Downloading apps

*% of cell phone owners who have downloaded an app to their phone*

<b>All cell phone owners (n=1,954)</b>	<b>43%</b>
Men (n=895)	45
Women (n=1,059)	41
<b>Age</b>	
18-29 (n=340)	65***
30-49 (n=562)	53**
50-64 (n=587)	25*
65+ (n=429)	8
<b>Race/ethnicity</b>	
White, Non-Hispanic (n=1,404)	40
Black, Non-Hispanic (n=234)	50*
Hispanic (n=180)	44
<b>Annual household income</b>	
Less than \$30,000/yr (n=447)	32
\$30,000-\$49,999 (n=316)	41*
\$50,000-\$74,999 (n=272)	50*
\$75,000+ (n=538)	57**
<b>Education level</b>	
No high school diploma (n=156)	32
High school grad (n=542)	37
Some College (n=490)	44**
College + (n=752)	52***

Source: Pew Research Center's Internet & American Life Project, Spring Tracking Survey, March 15-April 3, 2012. N=1,954 cell phone owning adults ages 18 and older. Interviews were conducted in English and Spanish and on landline and cell phones (903 cell calls were completed). Margin of error is +/- 2.6 percentage points.

\* indicates statistically significant difference compared with others in same grouping

Source: Pew Research Center, 2012<sup>21</sup>

<sup>21</sup> M. Duggan and L. Rainie, Cell Phone Activities 2012, Pew Research Center, November 25, 2012.

The chart below prepared by SymphonyIRI illustrates digital shopping behaviors and which behaviors are increasing digital involvement for specific shopping tasks.



Source: SymphonyIRI, 100,000 person Consumer Network panel, emphasis added<sup>22</sup>

While consumers are engaging with food on-line, especially through social media sites, their digital behavior regarding grocery shopping is limited and exists within discrete, but growing, consumer segments. As smartphone penetration increases and as smartphone familiarity, especially with the availability and sophistication of effective consumer friendly apps, their involvement in grocery shopping will increase. This involvement will still focus primarily on mobile assisted in-store shopping. On their website, FMI reports data on smartphone usage showing price comparison ranks first, followed by product review for about a third of smartphone users. A quarter of the smartphone users engage in coupon search, purchasing, and scanning for price or product information.<sup>23</sup>

<sup>22</sup> C. Edstrom and S. Gupta, A New Divide & Conquer: Targeting Marketing Campaigns Based on Shoppers’ Digital Behavior, Symphony IRI Group, 2012. p.4.

<sup>23</sup> FMI, Food Retailing 2013, Tomorrow’s Trends Delivered Today.

**Retailer takeaway:** Understanding your shopper’s digital behavior is critical for successful app development, promotion, and targeting. Different digital shopper behavior segments will vary in their interest in specific app functions and their perception of app difficulties. Matching your shopper’s m-assisted shopping behavior with their brand and product preference and their individualized shopping behavior will offer wide opportunities for promotion and partnership.

## Grocery Apps and Mobile Assisted Grocery Shopping

Grocery shopping apps for use on mobile smartphones are available from individual grocers, such as Wegmans, Giant and ShopRite in the local area, and universal grocery shopping apps such as Grocery iQ are available for grocery shoppers independent of the retailers they patronize. Grocery shopping apps can have single function, such as constructing a shopping list, linking with coupons, or providing nutrition information when the product UPC is scanned. The grocery app can be more multi-functional. Some sync and share with multiple devices and users. Many, but not all universal apps involve a fee. Most grocer specific apps are free and are linked to the store’s loyalty card.

The Wall Street Journal reviewed universal grocery shopping apps in May 2013 and found a variety of platforms (iPhone, Android, Blackberry, iPad and PC) were accessible. The reviewed shopping list apps were favorably received, but most demanded a fee. The Journal’s review of four top apps is below. These are four available apps among a large selection. During Peck research, Grocery iQ, Grocery Gadgets, Aisle 411, Mighty Grocery Shopping List and others were mentioned.

### Honey, We Need Milk and ...

Here’s how four grocery-list apps compare with each other:

APP	PRICE & PLATFORM	FEATURES	COMMENT
<b>Out of Milk</b> (outofmilk.com)	Free version for the iPhone; free and pro (\$1.99) versions for Android and PC.	Shopping, pantry and to-do lists; syncs lists; scans bar codes; and allows for notes to be added.	The bar-code scanning feature only works for national brands. Adding details for individual items can be time-consuming the first time.
<b>OurGroceries</b> (ourgroceries.com)	Free; \$4.99 for ad-free version. Available for iPhone, BlackBerry, Android and PC.	Syncs lists and has a section for recipes. Bar-code scanning is available for Android only.	The free version has constantly scrolling ads. Recipe section doesn’t include recipes, just allows you to manually input ingredients.
<b>Food on the Table</b> (foodonthetable.com)	Free for basic membership; \$9.95 a month or \$69.95 a year for premium membership, which includes unlimited meal planning. For PC, iPhone and Android.	Offers tons of recipes, meal planning with calendars and lots of ways to personalize the app.	Ingredients can easily be added to shopping lists. No syncing ability with other accounts but multiple users can share the same account, and no scanning capability.
<b>Grocery iQ</b> (groceryiq.com)	Free for PC, iPhone, iPad and Android.	Syncs lists and prints out lists and coupons. Can enter items via bar-code scanning or voice recognition. Ability to add notes to lists.	Scan only works for national brands. When inputting items without a bar-code scan, lots of choices and brand names pop up.

Source: WSJ, 2013 <sup>24</sup>

<sup>24</sup> E. Garone, Apps to Make Sure You Don’t Forget the Eggs, Wall Street Journal, May 22, 2012, p. D2.

## Qualitative Research: Grocery App Users and Aware non-Users

As part of the Peck Fellow research agenda, focus groups in May 2013 were conducted with grocery app users and aware non-users of grocery apps in the Philadelphia area. Many insights were gleaned for further quantitative exploration. Important findings included the demographic breadth of mobile apps users. With smartphones now available to an increasing majority of adult consumers with accelerating interest in using their smartphone to access the internet and download apps, there is a wide variety of consumers technically able to engage in m-commerce and m-assisted shopping for groceries.

Peck sponsored qualitative research revealed that app users enjoy discovering apps, find them almost addictive, and enjoy sharing them. To gain interest, an app must be eye catching, offer an obvious and meaningful benefit of information, money saving, entertainment, or convenience and be user-friendly and free of glitches.

Word of mouth is a primary method of app discovery. Grocery app downloads occurred spontaneously in the focus groups, when respondents learned of specific grocery shopping apps favorably described by others.

When a user considers downloading an app they first read the app reviews to be assured it is a “glitch free,” user-friendly, and agile app which doesn’t consume excessive memory space, require frequent updating, and isn’t cumbersome to operate. A 5-star review is preferred, and any review under 4 stars is considered unacceptable. There is a real reticence to pay for an app, even though the actual fees are minimal (under \$5 quoted as a threshold). App users literally have hundreds of thousands of apps available to them, with the number growing daily, so any fee is a barrier when the buyer is not assured of the app offering personal value and assuring ease of use. App users are quick to delete or abandon apps that don’t offer immediate benefit.

***Retailer takeaway:*** *There are several criteria in deciding to download an app. WOM is most powerful, but a positive app review is critical before downloading. The retailer needs to strategically promote their app’s benefits and ease of use. The app’s learning curve must be low and the immediate benefit must be high.*

## General Findings on Grocery App Awareness and Usage

While the straightforward demographics of smartphone ownership would suggest younger and higher income consumers will dominate app use at grocery retail there is reason to challenge this assumption with quantitative research. Qualitative research suggests individuals and two person households find app use for grocery shopping too cumbersome for the savings involved, given their smaller grocery baskets. Larger households, across a larger age and income range, can achieve a scale of savings and convenience with their larger grocery basket that makes the effort to master a grocery app worthwhile. These households are more budget conscious and appreciate the added control the app brings to their shopping experience. Also health (higher frequency of prescription fills or dietary restrictions), or convenience challenged families (young or disabled children in their care, or caretaker of another), find more direct value in mastering the use of a grocery app. “Millennial Moms” with young families may find adequate benefit in using grocery apps.

A primary finding is that grocery apps are under promoted. Many interested general app users are simply unaware they exist. Even grocery app users, usually introduced to the app on line, admit the app receives almost no retailer promotion in store, and little overall, given the array of marketing avenues utilized by retailers. This finding aligns with reported concerns that companies are under resourcing and under marketing their digital programs for consumers.<sup>25</sup>

A major obstacle to current grocery app users is that they perceive themselves as better informed than store personnel on sales, product availability, coupons, or loyalty incentives provided on the app. This results in awkward interchanges with store personnel or embarrassment at check out when the cashier is either untrained or unfamiliar with m-coupons and m-provided incentives for application at checkout. Respondents commented these situations made the app user feel uncomfortable, and often like a “cheat” claiming something undeserved. Expressed politely, one grocery app user shared *“They (cashiers) are kinder to users of physical coupons.”*

Grocery app users believe they should be offered an exclusive and additional benefit not available to non-users, otherwise this app’s use is not worth the investment of their time. The benefit, preferably savings, would be exclusive and not available on the web or in the circular. The exclusivity could take various forms including one suggestion for a *“Disneylike front of the line reward”* that could be earned.

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<sup>25</sup> T. Breen and B. Whipple, *Melding Marketing and IT: Are You Ready for the Digital Revolution?*, Accenture, 2011.

They emphasize it should be an exclusive benefit, not just another avenue for accessing existing offers as many retailer grocery apps presently operate.

Grocery app users usually have multiple grocery shopping apps with each of the retailers they frequent as well as some universal apps such as Keyring to manage loyalty accounts and Passport which assist with manufacturer couponing.

**Retailer takeaway:** *The current grocery apps' cost benefit value favors shoppers with larger baskets, or extra homebound demands, over younger tech savvy shoppers who are unimpressed with the savings or benefits they will gain. The app's value proposition is enhanced with exclusive offers to the app user, and the user expects this reward for engaging with the retailer's app. Grocery app users have multiple retailer apps yet grocery apps are under promoted, creating a missed opportunity for m-assisted retailing and relationship building with active mobile shoppers.*

*Store personnel are not familiar or receptive to the apps' functions, thus deterring app users. Frontend training is essential for an app's success.*

## Suggested Grocery App Functions

Users mentioned many of the grocery shopping app functions listed below as either presently available or desired. Aware but non-users of grocery apps could also articulate beneficial functions but tended to suggest more ambitious operations, involving convenience and personalization, then the straightforward functions reported by users. Shoppers thought an app that automatically matches available coupons with their purchase at checkout – essentially eliminating the shopper's need to seek coupons – as a strong incentive. A respondent described this as a “WOW moment of savings,” when the app would identify a store coupon and the manufacturer's coupon for a product. Another felt an app's ability to identify sales on their shopping items would allow “buying in bulk without going to the bulk store.” Another defined a successful m-assisted shopping experience as one that “works best when an app works so well you are unaware until it's not there.”

## **GROCERY SHOPPING APP FUNCTIONS**

### **SUGGESTED BY RESPONDENTS & CATERGORIZED BY PURPOSE**

#### **Convenience:**

- Create shopping list
- Suggest store route for shopping
- Locate specific products in store
- Provide weekly circular
- Check out / scanning capability
- Recommend substitute products
- Recipe recommendations
- Ingredient list for selected recipe
- Provide access to customer service
- Provide nutrition info on product

#### **Economics:**

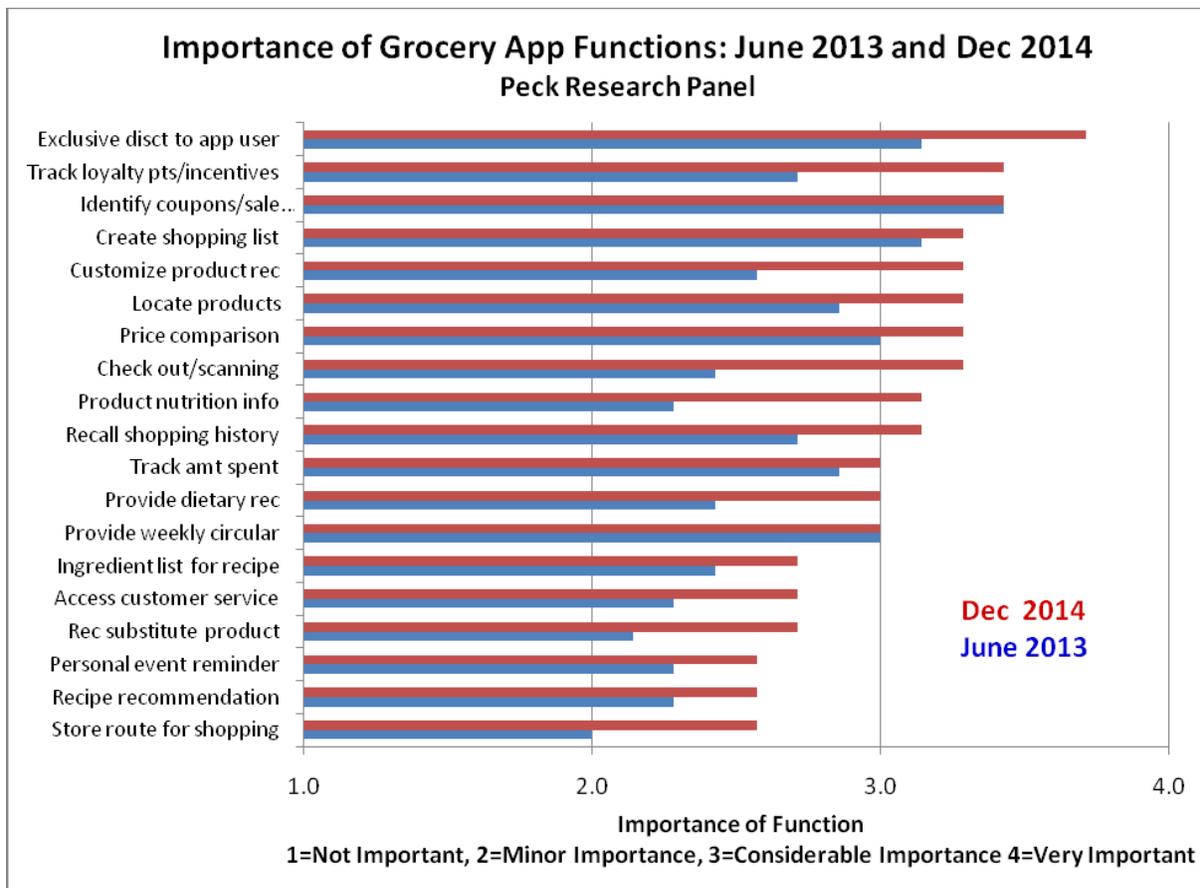
- Price comparison
- Identify coupons and sale offers
- Track amount as spent (size of basket)
- Provide exclusive discount to app user

#### **Personalization:**

- Remember past shopping history
- Customized product recommendations
- Personal event reminders (holiday, birthday, anniversary, etc.)
- Track loyalty points and incentive programs
- Provide specific dietary recommendations

Future research will explore the interest in these functions by shopper digital behavior segment. This research will help delineate those functions of greatest interest to grocery shoppers who are most inclined to use digital assisted functions in their grocery shopping.

Our Peck Research Panel has weighed in with their view of the above grocery shopping app functions and their importance over time. They felt all app functions listed above would increase in importance in the next eighteen months with “exclusive discounts to app users,” “tracking loyalty points and incentives,” and “coupon and sale offers” the most important. The “tracking loyalty points and incentives” function is expected to increase the most in importance.



The next group of grocery app functions, for importance, included creating a shopping list, customized product recommendations, locate products, price comparison, and checkout/scanning. None of the listed app functions were seen as unimportant. Apps providing an economic purpose were seen as more important by the Peck Research panel versus the other categories.

## Barriers to Use of Grocery Shopping Apps

Respondents aware of grocery shopping apps but not presently using them were queried on their reasons why not. They projected onto grocery shopping apps their concerns, based on past app experience, that the grocery shopping apps would be too time consuming to use for the benefit gained.

Grocery shopping is a familiar exercise. For non-users it is hard for them to imagine apps providing adequate efficiency or savings to make mastering the app worthwhile. They cite an ingrained routine they use to organize their grocery list, involving the review of circulars and collection of coupons. They are familiar with their regular retailers and their specialties, either in unique offerings or known

discounted categories, and their store layouts. These popularly promoted advantages of grocery shopper apps don't appear essential to these potential users.

There also is a subtle satisfaction in the consumer's traditional do-it-yourself approach with circulars that the shopper is being more diligent about their savings and that the app won't locate the best offers. One grocery app user expressed that she needed the app to prove that she was taking savings serious so it would validate that she was a frugal and savvy shopper with the family grocery budget. Apps aren't just offering utilitarian savings, they also provide a self-validation that the shopper is doing the best job economizing for their family. It's not just the savings provided, it's also the reinforcement that they've succeeded with technology. As one "millennial mom" reported her grocery app is her "*generational coup*" which documents to her parents that she's careful with her budget, and doing it her way.

When asked to elaborate on their concerns regarding grocery shopping app use a number of concerns were identified. Many of these trace back to the explosive and uneven evolution of apps in general. Many apps, especially initial ones, are poorly designed, inadequately tested, frustrating to use, and under deliver their promised functionality. In short, many apps have aggravating glitches and interfere with the smartphone operation by draining the battery life, frequently updating, or pushing messages with annoying frequency. Concerns were expressed regarding their data plans and the availability of Wi-Fi connectivity. Consumers are wary of these issues with new apps. These are the common concerns with apps and they are typical of initial app development and purposeful disruptive innovation which promotes speed to market and intentional obsolescence.

Personalization takes on multiple faces, not just prompting targeted savings but also needed expenditures. Several wanted the grocery app to tickle them with dates for birthdays, anniversaries, and holidays and suggest gift and menu items available in store for the occasion. Respondents seemed split on privacy concerns. Some fear the intrusiveness and others accept it as the necessity to secure personal advantages. All are aware that past purchase decisions trigger future coupon offers. Foursquare, which tracks the user, stood out as a flashpoint, respondents either embraced it or objected strongly that it was an example of excessive intrusiveness.

The barriers reported below cluster as either mechanical in nature involving the smartphone's operation or perceptual concerns that the app will under deliver on savings, information or create additional concerns of theft, hassles with checkout, or privacy invasion. Some of the itemized barriers include the following:

**Digital Grocery Commerce: Exploring the Potential for Grocery Shopping Apps**

## **RESPONDENT REPORTED BARRIERS TO USING GROCERY SHOPPING APPS:**

### **Mechanical Concerns:**

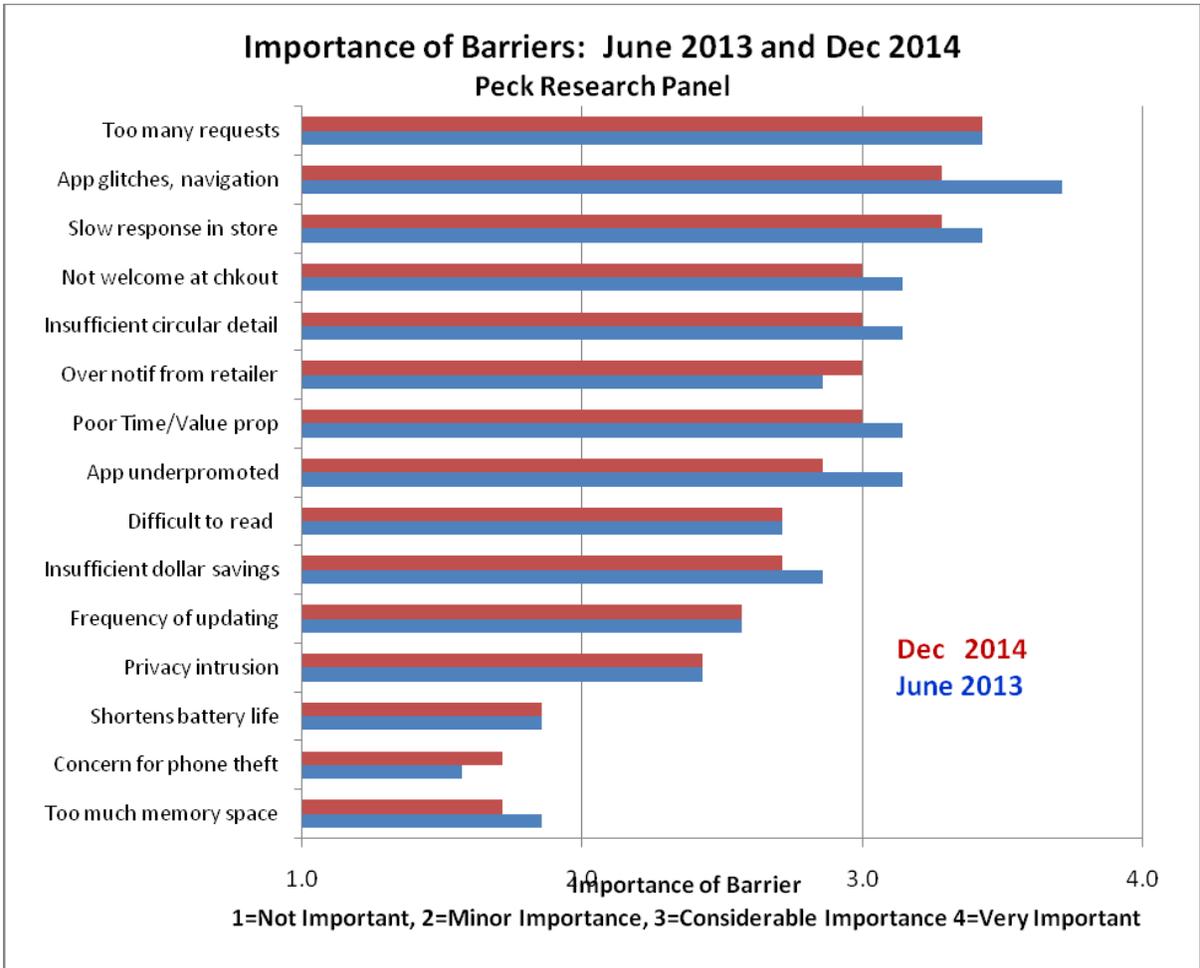
- Shortens phone's battery life
- Not confident store layout will be accurate
- Difficult to read information on display panel
- Over notification from retailer
- Frequency of updating
- Amount of memory space required
- Slow response time within the store's environment
- App glitches and cumbersome navigation

### **Perceptual Concerns:**

- Time/value proposition is not adequate
- Doesn't deliver sufficient dollar savings
- App is under promoted (lack of awareness)
- Doesn't provide circular's detail
- Smartphone coupons not welcomed at checkout
- Concern for smartphone theft
- Privacy intrusion
- Too many undesired requests (surveys, personal info, etc.)

Future quantitative research will explore the importance of these barriers within different digital shopper behavior segments to help determine which barriers are most important to address within each group. This information, coupled with knowledge of the most appealing grocery shopping app functions within different digital shopping segments should optimize the promotion and marketing of grocery apps.

Additional and relevant insight is offered by the Peck Research Panel as they assess the likelihood of barriers remaining challenges into the next year. They anticipate only slight declines in the importance of the barriers listed. The largest decline occurred with "app glitches - cumbersome navigation" yet it remains an important intractable barrier.



Overall, “unrequested surveys and information requests” is forecasted as the most troublesome barrier, accompanied with “app glitches” and “slow response time in store.” Of much less importance, and anticipated to be transient, are barriers of “required memory space,” “theft,” and “shortens battery life.” Overall, the expert panel sees sustaining innovation slightly decreasing app mechanical and perceptual barriers as the app universe and accompanying technology evolve, app quality and dependability improve, and consumer experience and confidence with smartphone app use increase.

**Retailer takeaway:** *A variety of app functions remain important, but especially so are the functions of “exclusive discounts to app users,” “tracking loyalty points and incentives,” and “coupon and sale offers.” Emphasizing personal incentives holds promise for a winning app. Apps have strong potential to give satisfaction, affirmation, and encouragement. These emotional validations are often greater than the actual amount saved and are relevant to how the app is designed and promoted.*

*Barriers also remain important, with “unrequested surveys and information requests” forecasted as the most troublesome barrier, accompanied with “app glitches” and “slow response time in store.” Of much less importance, and anticipated to be transient are concerns for “theft,” “required memory space,” and “shortened battery life.” Successful apps will overcome mechanical barriers and avoid intrusive interruptions leaving the shopper sharing control in the relationship.*

Shopper exploration of grocery apps will accelerate as apps become more relevant and dependable and shoppers gain more familiarity with smartphone app operation. Success will not be automatic. Grocery apps need to be strategically promoted, supported in store with employee training, offer the user exclusive and tangible benefits in savings, convenience, or entertainment, and be nearly flawless in operation. Functions provided via a grocery shopping app must be relevant and desired by the targeted digital shopper segment. Barriers, as confined to differing digital shopper segments, need to be neutralized. An obvious and favorable value proposition is necessary.

In conclusion, m-assisted grocery shopping holds potential in a rapidly growing world of digitally connected smartphone owners. The user group, and hence the opportunity, may be larger than anticipated. Research which unveils the grocery shoppers’ behaviors and preferences in the digital space offers winning insight for successful sustainable innovation for retailers by building digital relationships and anticipating shopper needs.

## **Methodology**

Much of year one was spent exploring and synthesizing a vast body of secondary research material on grocery shopping behavior regarding e- and m-grocery commerce. The resources consulted for the year one overview report included perusal of nearly fifty major industry and consultant reports itemized in Appendix 1, significantly more industry articles, and numerous specialty websites such as Brick Meets Click, Progressive Grocer's Technology Trends, and Shopper Technology. In addition three major industry conferences were attended (FMI-GMA, NGA and SJU Food Industry Summit) where state of the technology was reviewed. An academic literature search was pursued to identify useful studies and gaps in research on mobile and apps use.

### **Qualitative research with Aware Grocery Apps Users and Non-Users**

Qualitative focus group research was conducted in Philadelphia in May 2013 with primary or shared grocery shoppers age 25-65 with household income of \$35,000 or more, who owned a smartphone, were general app users, and were aware of grocery shopping apps (unprompted grocery app identification). One group were frequent grocery app users (a grocery app used at least several times within past three weeks), and one group were aware of grocery apps but non-users.

### **Peck Research Panel: Emphasis on thought leader insights**

A small panel of recognized experts, researchers, and industry executives in the digital grocery space were identified and invited to contribute on selected research topics as members of the Peck Research Panel. The panel is polled electronically to add insight to consumer research findings. The Peck Research Panel is anonymous by choice. Their insights are integrated into the larger research project. They provide grounded synergistic application of consumer research findings to retailer needs. Their involvement assures the research has real world relevance to the retailer in this rapidly evolving digital space.

## **APPENDIX 1: Major Reports Examined as Background for Year 1 Research**

### **ACCENTURE REPORTS**

Melding Marketing and IT: Are you ready for the Digital Revolution? (2011)  
Multi-Channel Attribution (2012)  
Context Retailing: Providing Insight in the Purchase Decision Process (2012)  
Shoppers Without Borders (2012)  
Retail Creating a > Experience for Customers (2012)  
Accenture Technology Vision 2012: Social Commerce (2012)  
Making Mobile POS Happen (2012)  
Today's Shopper Preferences: Channels, Social Media, Privacy and Personalized Experience (2012)  
Big Bang Disruption: The Innovator's Disaster (2013)  
Why Gamification is Serious Business (2013)  
Seamless Retail: Customize. Connect. Converge. Collaborate. (2013)

### **COCA-COLA RETAILER RESEARCH COUNCIL**

Untangling the Social Web: Parts 1-7 (2012-2013)

### **EUROMONITOR**

The Mobile Wallet: Global Opportunities and Challenges of Making M-Payment Mainstream (2012)

### **FMI**

US Grocery Shopper Trends 2012 (2012)  
Food Retailing 2013: Tomorrow's Trends Delivered Today (2013)

### **THE HARTMAN GROUP**

The Online Grocery Opportunity (2012)  
Clicks and Cravings: The Impact of Social Technology on Food Culture (2012)  
Shopping Topography (2012)  
Online Grocery Shopper 2013: What attracts consumers to online shopping? (2013)  
AmazonFresh: Grocery domination ahead? HartBeat Newsletter (2013)

### **IBM and NYU**

Retail 2020 – Reinventing Retailing Once Again (2012)

### **McKINSEY&COMPANY**

How is the American Online Consumer Evolving? (2012)  
Altering the Approach: Mobile Operators and Online Consumers (2012)  
The Impact of Disruptive Technology: A conversation with Eric Schmidt (2013)

### **MOBILE MARKETING ASSOCIATION**

The Current State and Promise of Mobile Couponing (2013)

### **NIELSEN REPORTS**

US Buying Trends (2013)  
US Consumer Trends (2013)

**Digital Grocery Commerce: Exploring the Potential for Grocery Shopping Apps**

US Retail Trends (2013)

**PEW INTERNET PROJECT**

Two-thirds of Young Adults and those with Higher Incomes are Smartphone Owners (2012)

The Best (and Worst) of Mobile Connectivity (2012)

Cell Phone Activities 2012 (2012)

Just-in-Time Information Through Global Connections (2012)

Teens and Technology-2013 (2013)

Smartphone Ownership – 2013 Update (2013)

**PLANET RETAIL**

Mobile Technology: The future of shopping is in the palms of consumers' hands (2012)

Retail and Social Media: How and why are successful retailers tapping into social networking channels? (2012)

**PROGRESSIVE GROCER**

Retail 3.0: Bringing Mobile to the Forefront (2012)

**PwC**

Impact of 'Deal of the Day' Offers on Retail and Consumer Products Companies (2011)

Experience Radar 2013: Lessons from the US Grocery Industry (2012)

Retailing 2020: Winning in a Polarized World (2012)

Understanding How US Online Shoppers are Reshaping the Retail Experience (2012)

Demystifying the Online Shopper: 10 Myths of Multichannel Retailing (2013)

**SYMPHONYIRI**

A New Divide and Conquer: Targeting Marketing Campaigns Based on Shoppers' Digital Behaviors (2012)

Digital Media Shopper Segmentation (2012)

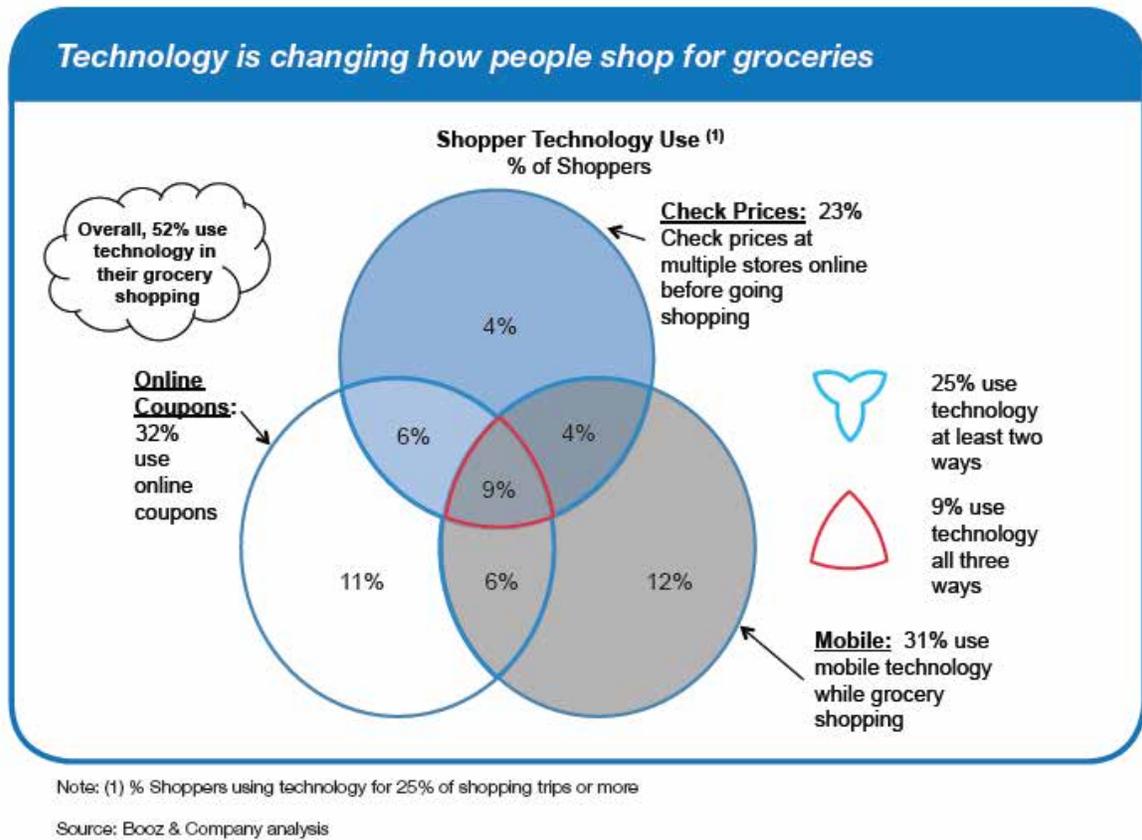
**ADDITIONAL REPORTS**

Gamification 101. Bunchball (2012)

2013 Coupon Trends 2012 Yearend Report, inmar (2013)

Plus several dozen articles from Brick Meets Click, a variety of industry websites such as Progressive Grocers' Technology Trends and Shopper Technology, and academic journals. Presentation PowerPoint from the FMI, NGA and SJU Food Industry Summit conferences.

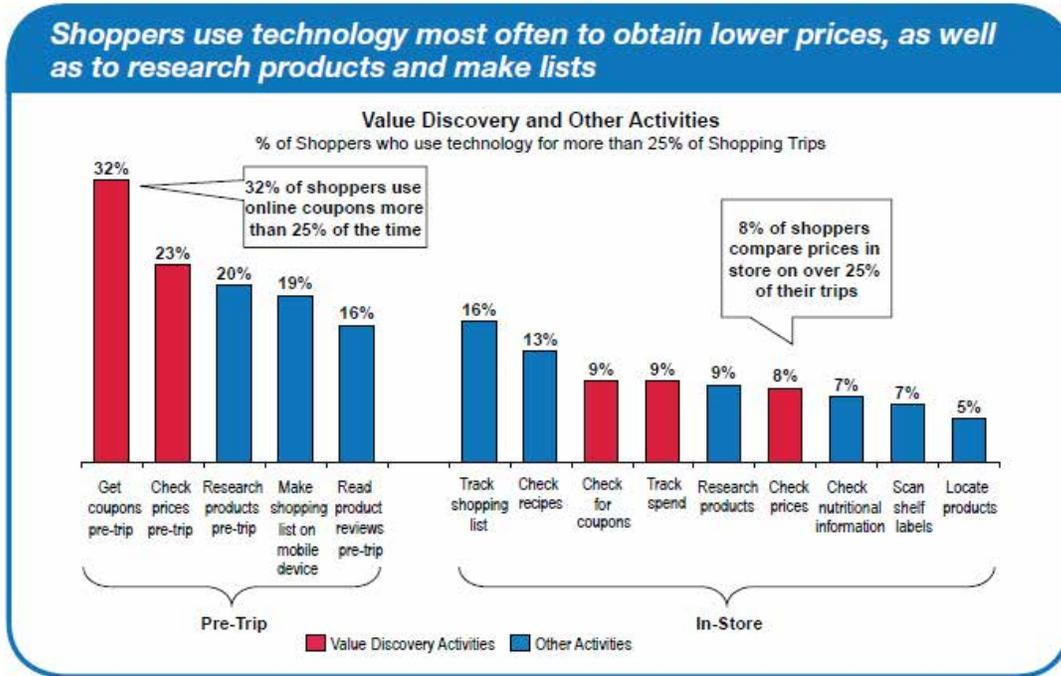
**APPENDIX 2:**



<sup>26</sup> Source: FMI, 2012.

<sup>26</sup> FMI, U.S. Grocery Shopper Trends 2012 Executive Summary, 2012

### APPENDIX 3:



<sup>27</sup> Source: FMI, 2012.

<sup>27</sup> FMI, U.S. Grocery Shopper Trends 2012 Executive Summary, 2012

## APPENDIX 4: Grocery Shopping Devices – Functions Matrix,

Hardware	Software	Applications	Functions
<ul style="list-style-type: none"> <li>• Smartphone</li> <li>• Running Apple iOS, Android, Windows</li> <li>• Square</li> <li>• Transactional Aid</li> </ul>	<ul style="list-style-type: none"> <li>• Pointinside</li> <li>• Wifi Positioning</li> <li>• Apple's Passbook</li> <li>• Google Wallet</li> <li>• Isis</li> <li>• <a href="https://www.paywiththis.com/">https://www.paywiththis.com/</a></li> <li>• Paypal</li> <li>• Red Laser</li> <li>• Mobile Scanning</li> </ul>	<ul style="list-style-type: none"> <li>• Aisle 411</li> <li>• Grocery Gadget</li> <li>• GroceryIQ</li> <li>• Meijer Find-It</li> <li>• Q-Thru <ul style="list-style-type: none"> <li>• West Coast Startup</li> <li>• Stop &amp; Shop's Scan It!</li> </ul> </li> <li>• Walgreens</li> <li>• Target</li> <li>• Instacart <ul style="list-style-type: none"> <li>• West Coast Grocery Delivery</li> <li>• Safeway "Just for U"</li> <li>• Publix Deli Easy Order</li> <li>• Tesco HomePlus</li> <li>• Scannable food items in public</li> <li>• Shoprite Weekly Specials App</li> </ul> </li> <li>• Shopwell <ul style="list-style-type: none"> <li>• Well Being Aid</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• NFC (Near Field Communications)</li> <li>• Self Scanning</li> <li>• Promotions/Coupons</li> <li>• Suggestions from Purchase History</li> <li>• Big Data, CRM Systems</li> <li>• Knowledge Based Functions</li> <li>• Sourcing Information</li> <li>• Nutritional Information</li> <li>• Loyalty Card Points</li> <li>• Gamification</li> <li>• Price Compare</li> <li>• Social Media</li> <li>• Augmented Reality</li> <li>• Recipes</li> <li>• Shopping Lists</li> <li>• Wifi Location Finder</li> <li>• In Store Map</li> <li>• Gas Incentive <ul style="list-style-type: none"> <li>• Show Pump Line Waiting Time</li> <li>• Refill Prescriptions</li> <li>• Print Digital Photos</li> <li>• Deli Order from phone</li> <li>• Automatic vs Manual Check In</li> </ul> </li> </ul>

Source: Mike Dinerman, Graduate Assistant, Peck Research Fellow

