

The Next Big Thing in Retail

I'm fascinated by innovation. Not so much the Dr. Frankenstein moment when the lever is yanked and the electricity animates, but rather the evolution of innovation: the period of time from an idea's inception to the edge of adoption.

With digital innovation, this pattern often begins in the Silicon Valley technology "galactic core" and spirals outward to the limbs of other industries. In my line of work, I'm especially intrigued by how this pattern impacts retail. I believe there are five specific areas of innovation that exist in the Valley today that will be especially consequential to retail in the not-to-distant future. This installment covers the first of these.

But first, three clarifying comments:

I'm not a Northern California technology elitist. I'll be the first to admit that innovation later applied to retail does not always originate from Silicon Valley technologies. For example, UCLA and the U.S. government jointly developed the forerunner to the Internet, ARPANET¹; and without the innovation demonstrated by a small UK team in the mid-80s, we wouldn't have the chip design that made the first iPhone possible.²

But a large portion of digital retail innovation *does* originate from the technology sector in the 1500 square miles designated as Silicon Valley. Consider the impact of these technologies on modern retail: the iPhone and Android phones; tablets; SQL; the microprocessor; Google's search engine and ranking; social networks Facebook and Twitter; and secure online communication (SSL). These Silicon Valley contributions have changed online retail forever and when taken together have laid the foundation for the next wave in e-commerce.

I hate reading articles that are too theoretical. For me, too much theory is like eating a rice cake: somewhat filling but not at all satisfying. So my advice is intended for retailers who, convinced of these eventualities, want to take action.

I'm not a futurist, but I may seem to contradict this below. So while I'm still waiting for my jet pack promised by that 1980's issue of *Popular Mechanics*, everything I discuss here exists today. You may challenge the applicability of these innovations to retail, but their existence is fact, with one exception. This exception has to do with an imminent innovation with consequences to retail that are arguably the most profound. To describe this innovation, I'll begin with an appropriately dramatized title like...

The Death of the Credit Card

Before making the case for the beginning of the end of the credit card, I'll start with its humble origins. First, the credit card was not always a card – in fact, there's evidence of credit cards being used in the late 19th century Europe. These early incarnations were often metal coins or plates, and were carried by places of business such as department stores, hotels, telegraph services and similar direct-to-consumer businesses.³ Here are some examples:



3 Early Credit Cards

These instruments represented an efficiency gain for businesses transacting with loyal customers. Sometimes the customers would carry the cards, plates or coins. In other instances, a customer would walk into the store, identify himself, and the clerk behind the counter would pull the charge plate and effect the transaction.⁴ *The purpose of the instrument was to verify that the customer's credit was good and recognized by the store.*

But imagine the hassle. You would need one of these tokens for every place of business that you frequented. Even if you were to go to the same department store in a different town, the token would be useless.

The first credit card useable at multiple locations had its origins at a New York restaurant in 1949. Three men - Frank McNamara (head of the Hamilton Credit Corporation), Alfred Bloomingdale (grandson of the Bloomingdale's founder), and Ralph Sneider (McNamara's attorney and a man who would quickly fade into obscurity) - went out to dinner at Major's Cabin Grill right next to the Empire State Building.

The three discussed a matter concerning a financial pickle one of Hamilton's customers had gotten into. This customer had lent several of his "credit cards" to some of his poorer neighbors in exchange for a small fee. His neighbors were unable to pay him back, and he was required to borrow money to pay the ensuing bills.

After the meal, McNamara reached into his pocket for his wallet and discovered he had forgotten it. A frantic call to his wife resolved the situation, but not before

inspiration struck. He construed a model where the credit agency vouched for the credit worthiness of the customer, in effect becoming the middleman for a credit card that could be used at many businesses. The Diners Club card was born.⁵



1955 Diners Club Card

Later, modern credit cards would add magnetic strips, expiration dates, and with the dawn of the Web, CVN codes. If you think about it though, all of these enhancements are improvements upon the same instrument; an instrument whose sole purpose is to provide businesses access to someone's credit account. Anachronisms left over from a non-digital age.

But all of that is about to change.

Enter the eWallet

Beginning next year and evolving into mainstream use over the next three years, near-field technologies will be integrated into the next iteration of every smartphone model we use today and will ultimately end the use of credit cards as we know it.

How does it work and what's *near-field*? Well, an eWallet is really just a mobile application running on a phone. In a typical scenario, a customer in a shop will simply wave the phone near another device operated by the merchant (which, incidentally, could also be another phone). Using near-field technology, the two devices communicate to each other, providing the information which a) authorizes the customer's identity and b) provides access to that customer's credit account. The customer types in a passcode to provide a second form of verification required to secure the transaction, and the purchase is complete. No cards required.

What makes me so sure this is right around the corner? Two key data points support my conclusion: 1) the number of technology companies backing some sort of near-field eWallet venture and 2) the recent behavior of companies critical to their adoption.

First, I'll start with the companies that belong to the NFC (**Near Field Communications**) forum. This forum is the preeminent working group on NFC

standards. In order to have voting status in this community, you must be a sponsor or a principal member. There are 29 members in both of these categories, and they are required to pay a minimum of \$25,000 USD per year to remain there.⁶ Here is a subset⁷:

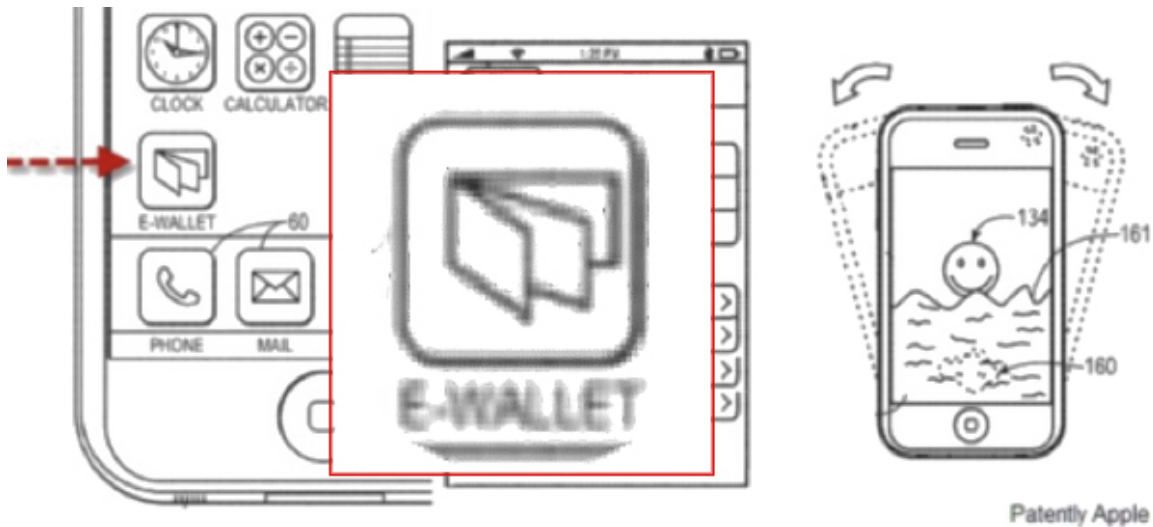
- Biggest credit card companies: American Express, MasterCard, Visa
- Largest phone manufacturers: RIM, Motorola, Nokia, Sony, LG, Samsung
- Telecoms: AT&T, Qualcomm, Rogers
- Tech hardware: Intel, Marvell, Texas Instruments, NXP Semiconductor
- Google and Microsoft

Conspicuously missing is Apple, and this is not new Apple behavior. Rumors about the iPhone NFC-enabled prototypes cite NXP Semiconductor as the NFC technology provider integrated into their phones.⁸ Apple's history of secrecy is well documented, as is their use of partner companies as proxies (in Apple's yearlong negotiations with Cingular (AT&T Wireless) for example, Apple executives signed into Cingular's offices as *Infineon* employees, the manufacturers of the iPhone's transmitter).⁹

Other companies have been more transparent. Nokia announced plans to provide NFC on every new smart phone rolled out in 2011¹⁰ and Isis, an NFC joint venture of three of the four largest U.S. mobile operators is in collaboration with the Discover Financial Services retail network.¹¹

Even Google is getting in on the action. Google is purportedly building an eWallet nicknamed Cream targeted for NFC-enabled Android phones.¹² Google CEO Eric Schmidt showed up at the Web 2.0 conference last November with a near-field enabled phone (brand name covered with black tape).¹³ Cream would be a default, pre-installed application on these phones.

And then there's Apple. Reports from *The New York Times*, *China Times* and, most recently, *Forbes* cite credible sources that NFC will be resident in the iPhone 5.¹⁴ Those reports coupled with this diagram filed by Apple as part of an unrelated patent application¹⁵ demonstrate a high likelihood of the eWallet's proliferation across all mobile platforms soon:



Apple Patent Application for Photo Booth

So what? All of these companies seem to be working feverishly on this technology, but will consumers care? After all, introducing a technology is one thing, but securing adoption is another. For example, Verifone - dominating between 60-65% of the US market for point of sale (POS) systems¹⁶ - stated that near-field capable POS comprises less than 2% of all systems as of March 2011. At least 25-30% of POS systems would need to be NFC-capable for general consumer adoption to occur¹⁷ - which is why in February 2011, VeriFone CEO Douglas Bergeron hinted that NFC would be standard issue on every new POS terminal they produced. He cited “merchant resistance” as the reason behind the decision to bundle NFC with every POS.¹⁸ Said another way, he’s not leaving it up to retailers - they won’t be given a choice.

Verifone also recently announced plans to acquire Hypercom as part of its expansion strategy into European markets.¹⁹ This consolidates the POS market from three major regional players to two global players. And if these two companies want NFC in physical stores, it’s going to happen - and it will happen everywhere.

With all of the technology and financial heavyweights pushing NFC and the largest POS terminal providers driving in-store adoption, the eWallet will become the way consumers transact both in-store and via their mobile device. This adoption process is going to start in a matter of months.

This innovation impacts retailers in two fundamental ways. First, during the in-store experience as customers begin to “bump” their phones before pulling out plastic. Once customers become comfortable using eWallets, the checkout experience for mobile retail applications will become streamlined and mobile conversion rates will soar. Mobile retail applications will accordingly cease to be experimental point solutions as well-designed phone and tablet applications for

retail will become digital channels in their own right, just as significant as the Web experience that preceded them.

What To Do About It

I promised some takeaway lessons, so here they are. Retailers who are galvanized into action would do well to consider the following three actions:

1. *Focus smart phone and tablet investment on product discovery and not on streamlining the checkout process to improve conversion.* The checkout process will dramatically change soon enough. Hold off an investment in that area until 2012.
2. *Wait to upgrade your POS terminals.* Hold off, but make room in the 2012 budget. Near-field capability is currently an add-on to most terminals, costing real money. Manufacturers and payment providers looking to create and sustain a market will likely absorb these extra costs in the near future.
3. *Integrate analytics across all channels today.* NFC isn't just about the eWallet as it also enables location-based interactions with the physical world – for example, “tapping” a phone on a product in-store to load specifications and reviews. Each of these types of interactions can be logged and reported on and the sum total of these interactions will make in-store customer behavior far more measurable.

The smartphone is poised to become something new -- your wallet. This transformation will flip the ease of purchase to favor the phone. The improved conversion on tablets and phones will herald a flurry of retail IT investment into these platforms.

Once this happens, your average retail IT organization will go from managing one digital consumer Web application to several. Moreover, each of these new applications lives on the client (a customer's phone or tablet). The ramification of this difference is the requirement not only for the support of several applications, but for the support of all the subsequent versions of those applications. In the next installment, I focus on this impending operational concern.

About the Author

Chris Andrasick is the co-founder and CEO of Tacit Knowledge (www.tacitknowledge.com). Tacit Knowledge is the digital commerce consultancy that delivers Silicon Valley innovation to retail organizations around the world. Founded in 2002 by a group of software engineers, Tacit implements packaged applications and builds custom software for globally recognized multichannel organizations, including some of Internet Retailer's Top 25. The company is headquartered in San Francisco and employs more than 80 people across five international offices.

-
- ¹ “Arpanet -- the First Internet”, The Internet, 23 May 2011, <http://www.livinginternet.com/i/ii_arpanet.htm>
- ² “The History of the ARM CPU”, 23 May 2011, <<http://www.ot1.com/arm/armchap1.html>>
- ³ Emily Starbuck Gerson, “Pre-plastic credit: Charge plates, coins, celluloids”, 23 May 2011, <<http://www.creditcards.com/credit-card-news/credit-collectible-coins-charge-plate-1264.php>>
- ⁴ Gerson and Woolsey, “The History of Credit Cards”, 23 May 2011, <<http://www.creditcards.com/credit-card-news/credit-cards-history-1264.php>>
- ⁵ Jennifer Rosenberg, “The First Credit Card”, 20th Century History, 23 May 2011, <<http://history1900s.about.com/od/1950s/a/firstcreditcard.htm>>
- ⁶ “Membership Benefits”, NFC Forum, 23 May 2011, <http://www.nfc-forum.org/join/membership_benefits/>
- ⁷ “Members”, NFC Forum, 23 May 2011, <http://www.nfc-forum.org/member_companies/>
- ⁸ Anders Bylund, “NXP Semiconductors Popped: What You Need to Know”, Motley Fool, 25 Jan. 2011, 23 May 2011, <<http://www.fool.com/investing/general/2011/01/25/nxp-semiconductors-popped-what-you-need-to-know.aspx>>
- ⁹ Fred Vogelstein, “The Untold Story: How the iPhone Blew Up the Wireless Industry”, Wired, 9 Jan. 2008, 23 May 2011, <http://www.wired.com/gadgets/wireless/magazine/16-02/ff_iphone?currentPage=all>
- ¹⁰ Bill Ray, “NFC will be in all Nokia smartphones from 2011”, The Register, 17 June 2010, 23 May 2011, <http://www.theregister.co.uk/2010/06/17/nokia_nfc_commitment/>
- ¹¹ Sarah Clark, “AT&T, Verizon, T-Mobile confirm Isis mobile payments joint venture”, Near Field Communications World, 16 November 2010, 23 May 2011, <<http://www.nearfieldcommunicationsworld.com/2010/11/16/35043/att-verizon-t-mobile-confirm-isis-mobile-payments-joint-venture/>>
- ¹² Dan Balaban, “Google Building an NFC Mobile Wallet; U.S. Banks are Interested”, NFC Times, 6 Jan. 2011, 23 May 2011, <<http://www.nfctimes.com/news/google-builds-nfc-mobile-wallet-us-banks-interested>>
- ¹³ Kyle Van Hemert, “Eric Schmidt Says Android Gingerbread Will Have NFC Walletphone Magic”, Gizmodo, 15 Nov. 2010, 23 May 2011, <<http://gizmodo.com/5690705/eric-schmidt-says-android-gingerbread-will-have-nfc>>
- ¹⁴ Elizabeth Woyke, “Source: iPhone 5 May Have NFC Contactless Capability”, Forbes, 17 March 2011, 23 May 2011, <<http://blogs.forbes.com/elizabethwoyke/2011/03/17/source-apple-iphone-5-may-have-nfc-contactless-capability/>>
- ¹⁵ Alex, “Patent News: A Peek At E-Wallet Icon and Photo Booth for iPhone”, iPhone Download Blog, 24 Feb. 2011, 23 May 2011, <<http://www.iphonedownloadblog.com/2011/02/24/patent-news-a-peek-at-e-wallet-icon-and-photo-booth-for-the-iphone/>>
- ¹⁶ Dan Butcher, “Battle lines being drawn in NFC arena”, Mobile Commerce Daily, 30 Mar. 2011, 23 May 2011, <<http://www.mobilecommercedaily.com/2011/03/30/battle-lines-being-drawn-in-nfc-arena>>
- ¹⁷ Dan Balaban, “VeriFone: New NFC Players to Change Point-of-Sale Landscape”, NFC Times, 11 Mar. 2011, 23 May 2011, <<http://nfctimes.com/news/verifone-sees-new-nfc-players-changing-pos-terminal-landscape>>
- ¹⁸ Christopher Brown, “Verifone to include NFC in all new POS terminals”, Near Field Communications World, 3 Mar. 2011, 23 May 2011, <<http://www.nearfieldcommunicationsworld.com/2011/03/03/36359/verifone-to-include-nfc-in-all-new-pos-terminals/>>
- ¹⁹ “VeriFone to Acquire Hypercom to Accelerate Global Expansion”, VeriFone, Nov. 2010, 23 May 2011, <<http://www.verifone.com/2010/verifone-to-acquire-hypercom-to-accelerate-global-expansion.aspx>>