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Project Sample

Client: VCT
Credit Cards: Disposable Plastic
or Consumer Electronic Device?

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Credit Cards: Disposable Plastic or Consumer Electronic Device?



*By Rome Jetté,
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The plastic card industry is becoming more sophisticated as financial institutions and retail marketing teams raise the bar in their strategies to gain more loyal customers. As a result, greater emphasis is being placed on both card design and card innovation.

One of the new innovations that we see at Versatile Card Technology (VCT) is a line of credit and gift cards that will also be electronic devices. These cards will be powered by batteries.

For years, card innovators have been unsuccessful in their efforts to introduce the latest electronic technologies into the card market. This has largely been due to the lack of a thin, flexible, battery that could be commercially embedded into a plastic card. That has changed with a new generation of batteries specifically designed for the card market.

Recent development of a powered card platform created by VCT in partnership with CardLAB and Solicore, indicates that these electronic innovations now have a path to market. Ultimately, these powered components may lead to a change in the way consumers and issuers view credit and gift cards. Today, these cards are seen as disposable plastic. With a powered card platform, cards now become consumer electronic devices.

Some of the first applications of battery-operated cards will be novelty based with simple features such as gift cards that use LCD's for a decorative effect, tiny speakers that play holiday music, and even a card with

an embedded game. Other powered card projects are more practical and include a credit card with an embedded fingerprint reader combined with an electronic magnetic stripe. This bankcard will be capable of Match-on-Card biometrics that in turn activates the card's electronic magnetic stripe – which is compatible with existing point-of-sale devices.

These new developments in card technology follow a long dry spell of innovation – a period of about 40 years when the first magnetic stripes were invented and applied to credit cards to carry electronic data. By contrast, the arrival of magnetic tape for audio recording and playback came at about the same time with the introduction of reel-to-reel tape recorders. What followed were 8-track tapes and cassette tapes. Then came compact discs and DVDs. The innovation and miniaturization that drove the electronics industry for decades never had an effect on the card manufacturing industry.

Instead, the card industry found itself dealing in commodities – pieces of plastic that were required to conform to ISO standards – standards that remained unchanged and in force during the same period that bag phones and brick phones fell victim to miniaturization and Blackberries replaced pagers.

During the decades after Mastercard and VISA got together with the ISO to establish card manufacturing standards, nothing about plastic cards changed. Innovation was everywhere, but not in the card manufacturing sector, not if it meant tinkering with ISO standards.



The advent of other form factors – the possibility that cards could come in different shapes and sizes – served as a wakeup call across the industry when Discover introduced a key card style and American Express launched its clear Blue Card. What's more, the Blue Card came with an embedded chip that ignited card issuer marketing departments.

When Mastercard and VISA approved the release of Bank of America's mini VISA card, there was no turning back to the days of ISO standards. Since then tens of millions of the mini cards have been manufactured, which has led to new card sizes, new forms of magnetic strip encoding, security features, holograms, embossing – features that for so long remained outside the realm of ISO-mandated industry standardization.

Institutions like banks have been under a great deal of pressure to grow. However, they operate in mature markets where not a lot of potential new business exists. To grow market share in this kind of environment requires innovative approaches to luring customers away from competitors. Innovation, especially when it comes to bank cards, is but one way to succeed. The bank card business is a profitable one, so competing for new customers by changing the shape of a card can affect consumer impressions about the brand. If a consumer wants

that new card, the bank has a new customer.

By positioning a battery powered card as the next hot consumer electronic device, an issuer can win new customers and ease some of that competitive pressure. The same is true for retailers and the pressure they face in gaining additional market share. The only difference from banks is that retailers are focused on gift cards.

Powered gift cards are on the table now. Battery technology finally has developed to a point where an ultra-miniature power source can be laminated between very thin pieces of plastic. Since the 12-minute lamination process involves heat, the challenge has been to develop a battery that doesn't "boil" when heated to 125 degrees Celsius. Florida-based Solicore has a patent on a battery that can withstand the extreme heat during encapsulation.

A bigger challenge now is focused on the decades-old, ISO standards-imposed innovation hiatus and the fact that during all that time the card industry never saw a need for multi-disciplinary engineering. Without multi-disciplinary engineering, the

industry lacks the varied skills needed to move quickly and effectively toward new, innovative card technologies.

Perhaps a retailer has an idea for a card that flashes a marketing message. Or a bank wants to include a card feature that creates a unique, one-time user security password. For card manufacturers there is a great sense of frustration because they do not have the required multi-disciplinary skill sets under the same roof and no supply chain exists currently to pull these resources together.

For the moment, there is CardLAB, an organization created to bring together resources to make powered cards utilizing multi-disciplinary engineering.

CardLAB's goal is to help card manufacturers and issuers solve multiple-component production issues. A sampling of Cardlab's work includes:

- **Dynamic Mag Stripe** – Electric mag stripes can convey variable data to a magstripe reader such as a certain number of points on a card, changing authorization codes, encryption, encrypted data via data reader, variable data transmission, an on-off

feature that allows the user to lock the card, a biometric sensor that you can lock with your finger print;

- **Marketing Purposes** – Battery powered for entertainment applications such as a Valentine's Day card with light emitting diodes (LED) that offer the holder one of two wishes and when pressed either grants the wish or asks to try again;
- **A Birthday card** that allows holder to make a wish and electronically "blow out" tiny electric candles, and
- **Christmas tree cards** that play holiday music; greeting cards that allow holder to record a voice greeting for playback. 🎧

Rome Jetté is Vice President, Smart Cards for Versatile Card Technology (VCT). In his current position, Rome is responsible for the strategic vision behind VCT's entrance into the smart card market. With projects for high security smart cards for National & Military ID's to simple contactless cards for public transport; he has established VCT a leader in the manufacture of smart cards. Rome currently focuses his efforts on expanding VCT's business with strategic partnerships and product developments in over 27 countries. For more information contact Rome at rome@vct.com.