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Financial transactions get personalized and secure with Biometrics

Adding the human element to your virtual business communication

Abhishek Kumar Sinha
In a world where innovation and use of new technology is the buzz word, security concerns are a given. Biometrics help you identify the challenge and provide a solution as well. It can be used across all digital channels — online, mobile, social — and is capable of becoming a new norm for the industry as a whole.

Biometrics

the question and the answer

The question we are going to answer is how biometrics can help financial services institutions (FSIs) serve their customers better, and provide a user friendly and secure setup. The answer will be framed in terms of the technology required, its implementation across the financial transaction lifecycle, and possible consequences for the customer and FSIs.

Classification of biometric identification systems

Biometric identification systems may be broadly classified into physiological and behavioral systems.

Physiological

This form of biometrics consists of the following forms of recognition.

Facial recognition

This kind of identification is done based on various types of algorithms. Following are some widely-used algorithms for facial recognition:

- Principle component analysis (PCA)
- Linear discriminant analysis
- Elastic bunch graph matching

This is an approach where the gallery and probe image must be the same size and aligned to the eyes and mouth of the person. The comparison of the probe image to the gallery image is done based on the distance between their respective feature vectors. Full frontal of the face is required for this approach to work.

This is a statistical approach where unknown class samples are compared to known class samples. The idea is to maximize the variance across samples (different subjects) and minimize the variance within samples (same subject).

This approach works on non-linear characteristics such as illumination (indoor vs. outdoor lighting), pose, and expressions (like smiling, etc.).
Behavioral

This biometric system consists of the following elements:

**Keystroke**

Over a sustained period of computer usage, users develop a distinct way of typing, particularly in the case of frequently-typed words such as user names and passwords. The idea here is to identify parameters such as the length of time the key remains pressed and the time taken between key strokes.

**Signature verification**

This technique involves the dynamic analysis of a signature in order to authenticate a person. It is based on the measurement of certain parameters such as speed, pressure, and angle used by the person while she/he is signing. It has been used in e-business as well as other applications, where signatures are used for personal authentication.
Speech recognition

This method leverages the acoustic features of speech, which are distinct across individuals. The acoustic patterns consist of anatomical patterns such as mouth size – and learned-behavioral patterns such as voice pitch and speaking style.

Speaker recognition systems use three types of spoken input: text-dependent, text-prompted and text-independent. Most speaker-verification applications are based on text-dependent input, which involves the selection and enrollment of single or multiple voice passwords. Text-prompted input is used in scenarios where there is concern over the potential presence of imposters.

Advantages and drawbacks of various biometric systems

<table>
<thead>
<tr>
<th>Biometric system</th>
<th>Advantages</th>
<th>Drawbacks</th>
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</thead>
<tbody>
<tr>
<td>Finger print verification-based recognition</td>
<td>This approach is a proven and highly accurate one. Hence it is used widely and has the ability to enroll multiple fingers. The system comes with a wide range of deployment environments.</td>
<td>The verification system reminds one of law enforcement in the minds of the users. Impaired or damaged fingerprints can be difficult to verify. Standards for interoperability need to be established.</td>
</tr>
<tr>
<td>Iris and retinal scanning-based recognition</td>
<td>Operations are highly reliable and hands free, and the characteristic remains stable over a lifetime.</td>
<td>This is a highly sophisticated technology that needs proper training. Sometimes glasses with strong lenses can impact the performance of the system.</td>
</tr>
<tr>
<td>Hand geometry-based recognition</td>
<td>This can operate in challenging environments. It is perceived as a non-intrusive and highly-established technology.</td>
<td>Complications might arise when used with certain populations. There can be a perception of bio-hazard due to potential spread of germs. Possible changes to the shape of the hand can lead to failed authentication.</td>
</tr>
<tr>
<td>Facial recognition</td>
<td>This can operate without user compliance, work from a distance, and leverage existing image databases to establish identity.</td>
<td>The system is susceptible to error. Non-matching depends on factors such as lighting, camera angle, and facial alterations caused by surgery, accidents and the like.</td>
</tr>
</tbody>
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Design framework of a biometric system

![Figure 1: Design framework of a biometric system](image)
### Description of steps in a biometric system based on the framework in Figure 1

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
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<tbody>
<tr>
<td>1. Capture biometric data</td>
<td>The biometric data is presented to the capturing device by the user.</td>
</tr>
<tr>
<td>2. Pre-processing stage</td>
<td>The biometric data is captured and pre-processed by enhancing the input from the sensor, removing any background noise or any piece of input that is not required. Normalization is done on the input stream to enhance quality and correct any deformity in the input stream in order to attain the desired format for efficient feature extraction.</td>
</tr>
<tr>
<td>3. Feature extraction</td>
<td>The pre-processed data is then further worked upon and features extracted in an optimal way as all the data captured is not necessarily essential for biometric evaluation.</td>
</tr>
<tr>
<td>4. Template creation</td>
<td>A template is created from all the relevant characteristics extracted from the user. Elements of the biometric data that are not required for the comparison algorithm, are purged from the template to reduce file size and protect the identity of the user.</td>
</tr>
<tr>
<td>5. Storage of the template</td>
<td>The template is then stored in retrievable databases, which can be accessed while performing the matching process.</td>
</tr>
<tr>
<td>6. Matching / test phase</td>
<td>This step involves using an algorithm to perform a comparison between the obtained biometric template and the stored template in the system to determine a match. The output of the comparison is then passed on to some application device.</td>
</tr>
</tbody>
</table>

### Financial transaction lifecycle and biometrics

Financial transaction biometrics can help strengthen the security of financial transactions by providing an extra layer of security that is difficult to beat.

Following are the three layers of security all financial transactions are based on:

1. Something you have: token, key, card, or badge
2. Something you know: password, personal identification number (PIN), unique question, or incident
3. Something you are: biometric at both physiological and behavioral levels

### Financial transaction lifecycle: Where biometrics fits the jigsaw

Following is a high-level illustration of how biometrics works in a routine financial transaction:

*Figure 2: How biometrics works in a typical financial transaction lifecycle*
Use of biometrics at ATMs / kiosks

Let’s consider an ATM transaction, where you first insert your card and then enter the PIN number. In such a transaction, the use of a biometrics mechanism such as hand geometry, iris / retinal scan or fingerprint scan can greatly improve overall security.

BPS bank, in partnership with Hitachi, introduced biometric ATMs in Poland. The ATMs used technology that comprised finger vein identification. Finger vein identification is based on the leading-edge light transmission technology developed by Hitachi to perform pattern-matching and authentication. An infrared light passes through the finger and gets partially absorbed by the hemoglobin in the veins. This forms a unique finger-vein pattern profile, which is then matched with a pre-registered profile to verify individual identity.

The system is highly secure as the vein pattern is difficult to replicate because it is beneath the skin. It is more reliable than most forms of authentication, with a false acceptance rate of one out of a million (i.e. there is only one in a million chance of a record being mismatched!). Moreover, unlike bizarre depictions to the contrary in some movies the system does not work if the fingers are severed from the hand. This innovative technology is enabling the withdrawal and deposit of money as well as social benefit payments across Poland in a fast and efficient manner, thus decreasing waiting time for customers and enhancing customer experience. The system reduces identity frauds to the maximum extent possible.

The second country where a large number of ATMs are biometric-enabled is Japan. This happened as a response to the legislation passed in 2006, that made banks financially liable for withdrawals of money by fraudsters using stolen card information or the card itself. Vein-pattern recognition has been successfully used in many ATMs in Japan. Currently there are 80,000 biometric-enabled ATMs in Japan used by more than 15 million customers.

Ogaki Kyoritsu Bank in Japan has introduced a new system where you need to only scan your hand to conduct transactions at the ATM. All customers need to do is register their biometric information at a bank’s branch. Then they will be able to withdraw money from ATM(s) by just scanning their hand and providing their date of birth and PIN number. This new system comes as a response to the 2011 earthquake and tsunami in which many Japanese citizens lost their cards and important documents, and were therefore, unable to conduct banking transactions.
Biometrics in financial transactions on mobile channels

The best option for mobile channels in terms of biometrics is voice recognition and speech pattern recognition, as all mobile phones are enabled with voice receiving and voice transferring capabilities. This can be a very cost effective form of biometrics as no extra hardware is required. Additionally, greater financial inclusion can be achieved as mobile phone usage is common across the world.

Let’s consider some examples of mobile platforms being used for financial transactions. Airtel, one of India’s largest telecom companies, operates Airtel Money, a mobile platform that can be used to make bill payments, purchase movie tickets, transfer money, and more. Mobile banking services in India are also provided by banks such as ICICI Bank, Axis Bank, and State Bank of India. In the future, mobile banking channels will be able to use biometric systems based on both voice and camera-based phones with Internet facility. Mobile channels can be used to transfer information around facial, iris, and vein patterns over the phone and a picture or video file can be used to match with the stored template in the bank’s database. These days smartphones are the latest craze in the mobile industry, and the preferred medium for Internet access among many users. According to Google Intelligence, the smartphone market for biometric security products and services is expected to grow from around $30 million in 2011 to more than $161 million in 2015. Hence, biometrics can play the dual role of providing security for both the smartphone itself and the financial transactions performed on it; hence, there is a great financial opportunity to invest in biometrics on the mobile banking channel. Mobile banking is a strategic enabler of easier access to financial services as it has huge penetration worldwide.

Biometrics in financial transactions online

A biometrics system provides additional security over the current multi-factor authentication system used in Internet banking to perform transactions from a PC or a tablet.

Here’s how biometrics can prove a great enabler in online banking scenarios:

In a high value fund transfer, such as the trading of securities through a dematerialized account or any other banking activity that can be carried out online, voice recognition can be a great enabler, since it does not require significant hardware investments, apart from a voice receiver. And voice receivers, after all, are already present in most computers these days. Proprietary trading firms can implement biometrics deep in their organizational structure for measures, such as biometrics for each trading desk to avoid misuse of passwords.

Some examples of biometrics in online channels used for financial transactions:

- High value fund transfer systems
- Banking services offered through the Internet banking mode
- Online trading and buying of financial securities

Biometrics in financial transactions on social networking sites

Social networking sites are increasingly used for financial transactions such as, accessing bank accounts, buying online movie tickets, and trading online on financial markets. This platform is a way for participants in the financial services industry (FSIs) to enhance customer relationships and provide them with a more appealing and remarkable platform to conduct transactions. An example of a financial transaction on a social networking platform is the purchase of virtual goods and physical goods on Facebook. Axis Bank has promoted its platinum credit cards on Facebook in a novel way by integrating a transaction engine for booking movie tickets with its official Facebook page. The whole exercise was a part of the larger effort to attract more users to the official Axis Bank Facebook page.
ICICI Bank allows customers to check the balance in their accounts, request statements, checkbooks, upgrade debit cards, and so on, from their Facebook home page. HDFC Securities plans to integrate a stock-trading portal on Facebook with real-time information feeds through certain widgets. HDFC Securities is seeking permission for this initiative from India’s stock exchange regulator SEBI.

In addition to the basic user ID and password authentication on Facebook, biometrics can be easily incorporated in the form of facial, iris, and voice-based biometrics. This data can be easily captured using the webcam and microphone available in computers. The data will be stored on the site’s servers or on a separate third-party server. The major advantage of using biometrics with this set of users is that they are already tech-savvy, and may even prefer replacing their traditional Facebook user ID and password login combination with a fully biometric one.

Security measures for biometrics data use on mobile channels

Following are some security protocols that can help establish security measures for biometrics:

- **Mobile malware detection**
  This helps in identifying infections, vulnerabilities, rogue configurations, and potential security risks. The system uses updated databases of possible malware and keeps the system free of these.

- **Secure mobile browser**
  This browser blocks all security threats by validating online banking IP addresses and SSL certificates, and determining if they are genuine. In order to avoid fraud, only users using a secure connection are allowed by the bank’s application to transact.

- **Self-service account lockdown**
  This comes with the capability to turn online banking services on or off and is also user configurable. If a user wants to block online transaction after fifteen minutes of the first login to the system she/he can make configurations to that effect in her/his account.

- **Endpoint security dashboard**
  This is a dashboard that provides notifications of malware infections and device risks, and guides users with necessary advice on how to take action.

The global landscape of biometric implementations include:

- By Touch, a biometric payment system used in the US, facilitated payments via fingerprint scan. The company had enrolled a few million customers, before going bust in 2007.

- The use of government-issued ID documents in countries such as Chile and Brazil has resulted in the use of biometrics for personal identity at ATMs or service counters of banks.

- In South Africa, several large banks have started to implement biometrics-based security to prevent fraud.

- In India, the Aadhaar project aims to use biometric authentication. The implementation of such systems will ensure that government-sponsored benefits are provided to the right individuals. It will also promote financial inclusion by empowering the large unbanked population to shift from cash-based transactions to electronic payments. Visa and MasterCard have already announced solutions that will allow individuals to use their Aadhaar ID number for payments.

- Online broker TD Waterhouse, in collaboration with Datapoint, has implemented a voice authentication application for its phone service by using biometrics technology from VoiceVault. Once customers are enrolled, the authentication can happen over the system through their voiceprint, before being routed to the company agent to carry out their transaction.
As both fingerprints and irises are being captured with the help of three different biometrics providers using the latest technology sensors, the captured data has high levels of accuracy. Hence, the challenge of inaccurate input capture is being eliminated. Let’s look at some metrics around UIDAI. The failure to enroll (FTE) rate of the biometric system is at 0.14%, which means 99.86% of the population can be uniquely recognized by the biometric system. The exceptions (0.14%) are checked manually and processed. The false negative identification rate (FNIR) of the system is calculated to be around 0.035%, which means 99.965% of all duplicates processed by the biometric de-duplication system are correctly identified. The hardware requirements needed by the UIDAI system are well within the future design, and capabilities would not increase in a non-linear fashion.

Benefits of the UIDAI effort
It is easily verifiable online and in a cost-effective way. The system is unique and robust to purge a large number of duplicates and fake identities in both government and private databases. The random number obtained by the system is free from any form of profiling based on caste, creed, religion and geography. This single source of truth will help in financial inclusion, with deeper penetration of financial institutions, and smooth error-free distribution of benefits of government schemes. The total numbers of unique identities issued as of April 20, 2012 is 170 million. These numbers testify that biometrics is the way to go if governments want to ensure that the benefits of social programs and services are passed on to citizens. Companies that invest in biometric capabilities will have an edge in the future. Following are some details around the extent to which banks have been defrauded in the past:

- In 2010, nine of ten banks in the US reported debit card fraud at a cost of $955 million
- According to the Nielson Report, a well-known trade newsletter in the payments industry, 47% of global credit and debit card frauds originate currently in the US – even though it accounts for only 27% of worldwide card transactions. The major reason for this high fraud percentage is the slow adoption of newer technologies in fraud prevention. In 2010, the payment card fraud totaled $3.56 billion in the US and $7.6 billion at a global level
- Fraud losses for UK credit and debit cards were about £341 million
- In the UK, online banking fraud losses were just over £35 million
- In the UK, telephone banking fraud losses rose by 32% from 2010 to 2011, to a total of £16.7 million

These high losses further strengthen the case for using biometrics in financial transactions as the need of the hour is to minimize fraud to the greatest extent possible.
Business benefits of biometrics

- Biometrics is extensively used by financial institutions for the internal management of their staff and operations, in order to ensure that unauthorized personnel are kept out of the system. Some examples of this practice include protection of vaults and locker rooms using biometrics like iris, fingerprint scanning, and securing workstations using facial recognition, fingerprint scanning or other biometric security approaches.
- Reduction in operational losses resulting in lower capital provisioning required to cover the expected losses arising from operational risk.
- Higher customer retention and satisfaction.
- Multi-channel frauds involve fraudsters who capture customer account information through online channels, with the aim of committing frauds in other channels, such as wire transfers and checks. Biometrics can help in avoiding this breach as the program will trigger a biometric identification mismatch.
- Increased effectiveness of anti-money laundering (AML) guidelines since customers and transactions can be verified in real-time with the United Nations (UN) watch list for AML.
- Using biometrics for opening bank accounts, instead of the conventional KYC method, can lead to cost reductions and higher data accuracy.
- ATM frauds and risks inherent in high value fund transfers can be prevented or reduced to a great extent.

Impact of biometrics on customers

- Enhanced security in financial transactions means customers will have more faith in the financial institution, which translates to a potential opportunity to enhance brand loyalty.
- There is increased sense of personalization in the transaction processing cycle.

Challenges in biometrics implementation

Given the benefits of using biometric systems, why are they not widely used in markets such as the US, Canada or UK? The technology is available around the world in different markets with different vendors; however, the biggest challenge is the cost involved in implementation. Banks and financial institution already account for the loss from frauds and thefts by charging their customers a risk premium. Why should the customer pay for a fraud when he has trusted the bank’s system to be secure? The answer is simple: it lies in the degree of deregulation. Therefore, banks will only act when they are forced to. Even in the US, the general opinion is in favor of biometrics, as people think it can solve a number of fraud-related problems. Taking into consideration the examples above, it can be argued that first movers will have an edge against competition, and develop experience in maintaining biometric systems for authentication and fraud prevention. Banks need to think how these systems can be used to reduce losses from lawsuits related to fraud.

The second most important issue is data security and privacy. There is a need for stringent guidelines on the misuse of sensitive customer data along the same lines as other customer-specific information such as a demographic profile or a signature. Therefore, the information cannot be shared by banks with third parties without the consent of the client.

Biometrics implementation for FSIs

![Figure 3: Reference design flow for a biometrics system for an FSI](image-url)
Customer needs to visit a branch once she/he gets the ATM card and Internet banking details after opening the account. The visit is mandatory for the customer if she/he wants to have biometric authentication for her/his transactions.

Bank or the FSI will need to put in place devices to capture biometric data such as fingerprint, vein pattern, iris scan, retina scan, and feed it into their computer terminals to save them as a stored template. The data can also be stored on a smart card, which can be used by the customers while accessing ATMs.

This step is to check whether the system really works or not. Biometrics data is captured from multiple customer touchpoints, like ATMs, and online banking. The captured data is stored in a similar form as in Step 2. This step can be performed for only a sample of customers and can be skipped for the whole set.

Verification of the captured template with the stored template is performed in order to confirm the user.

In case of ‘match’, the registration is successful, and in case of ‘failure to match’ then the customer has to re-register the biometric details.

These simple steps will go a long way to ensure a very high degree of customer delight.

The way forward
Biometric systems can secure FSIs against a number of multi-channel frauds and thefts, while raising the bar on operational safety. This will help justify the investments made in these systems. The implementation of a biometrics system in the financial services space involves a clear understanding of the different approaches to implementation and their relative strengths and faultlines. Most financial institutions have a vision of biometrics in operational and employee management applications. From a customer’s perspective, it offers value in terms of convenience, cost and time efficiencies, and compliance with regulatory mandates – all of which bring a clear competitive advantage.

Moreover, FSIs seeking to embrace biometrics must be discerning enough to realize what method best works in their given circumstance. The thought leadership in FSIs needs to be increasingly clued-in to the popular discourse in the biometric space around (customer) experience vis-à-vis security. The customer needs security and safety of her/his assets as well as confidential customer information which lies with the bank. There is need for a happy trade-off between experience and security for the greater good of all participants in the biometrics ecosystem. Today, it is crucial to have multimodal biometrics – a more robust version that pulls together fingerprinting and iris scanning.

Globally, financial institutions are increasingly feeling the need to tap the wealth at the bottom of the economic pyramid and increase the depth and range of the banking channels. This is going to be a driver of biometrics in the future. Biometric ATMs are already in use in countries like Japan and Poland. India, the world’s largest democracy, is investing in a nationwide biometric database of close to 1.22 billion citizens, which it believes will help usher in a financial revolution of sorts in the country. In the light of all these developments, the future of biometrics is quite promising – not only in the financial services area, but in our social environment as well.

References
- Wikipedia and general Web search
- www.bankingtech.com/bankingtech/biometrics-the-case-for-convenience/20000209423.htm
- articles.economictimes.indiatimes.com/2012-03-03/news/31119605_1_social-media-facebook-home-icici-bank
- www.globalintelligence.com/insights-analysis/bulletins/banks-should-capitalize-on-growing-number-of-finan
- The Time for Biometrics Has Come, Temenos white paper
- General Web search
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Go digital, reduce fraud

How digital transformation is reducing fraud in the cards and payments industry

Jigar Gohel | Pankaj Agrawal | Chandra Nandakumar
The cards and payments industry is undergoing digital transformation with the introduction of EMV (Europay, MasterCard and VISA) chips, PIN cards and mobile wallets (leveraging contactless technology) making the industry more secure and reducing fraud.

The omnipresent digital channel

Digital transformation is being embraced across diverse areas, including financial services, because of the omnipresence of new digital channels such as social media and the mobile. The payments industry is also undergoing digital transformation with the introduction of newer payment methods and changing consumer preferences. The most important digital transformation initiatives in the payments industry have been EMV chips, PIN cards, and mobile wallets (leveraging contactless technology).
Magstripe card technology introduced in the 1960s, has dominated the payments industry since then. The key failing of the magstripe technology in the last decade has been with regard to security. The technology lacks sophisticated security and it is easy for a fraudster to create a duplicate card through a process called skimming. In recent years, a number of attacks of this nature have taken place over magstripe technology where either the card is stolen or duplicate cards were used. Data from the card has been used to withdraw cash, buy luxury goods, or perform card-present and card-not-present transactions. For example, 45 million card records were stolen from retail giant TJX in 2007[3]. 100 million card records were stolen from Heartland Payment Systems in 2009[4]. To address such security gaps, the payments card industry (PCI) is actively mandating worldwide compliance of its PCI DSS (data security standard) to secure magstripe card data. However, PCI DSS only focuses on securing the systems that process the card data but does not increase the security of the magstripe card itself. Hence, there was a dire need to address security gaps in the cards and payments area.

Digital initiatives to reduce fraud

Europay, MasterCard, and Visa jointly developed EMV standards in 1996[5] for chip and PIN cards that use embedded microprocessors for highly secure payment transactions. The EMV chip uses triple data encryption standards, offline, and online transaction verification, making the transaction significantly more secure, and counterfeiting more difficult.

Due to the rapid rise in the use of smartphones and wireless communication technology (especially short-range communication technologies such as Bluetooth, NFC, and RFID), there is a need from tech-savvy customers to make secure online transactions anytime, anywhere, without cards. This has led to the emergence of another short-range communication technology called near field communication (NFC), used in mobile wallets, like Google Wallet. Mobile wallets do not require a person to carry the plastic card, hence reducing the chances of card loss / theft and counterfeiting via skimming.

There are three key elements provided by the chip (card):

- Store card holder and payment information securely in encrypted form
- Perform payment processing
- Perform cryptographic processing[5]

EMV cards use the embedded chip to process data and communicate with the PoS terminal using radio waves. Secret keys are set in at the time of manufacturing so it is difficult to produce a counterfeit card. Moreover, it is compulsory to enter the 4-digit PIN at the PoS for any card-present transaction. Hence, if the EMV card is stolen, a successful transaction still requires entering the 4-digit PIN. This feature has proven to be very effective in reducing card-present fraud.
EMV features to enhance security

The following key characteristics of EMV help ensure fraud reduction:

**Fraud liability shift**: Once banks have completed the migration to EMV cards, the fraud liability shifts to non-compliant merchants. This is one of the main drivers for EMV migration by card issuers in the US. Issuers in the US have a strong inclination to migrate to EMV since they currently bear most of the card fraud losses. After EMV migration, loss liability will shift to non-EMV compliant merchants.

**Triple data encryption standard**: Triple data encryption standard is used with strong cryptography to authenticate the card.

**Secure chip**: The digitized chip stores the card holder and authorization verification securely in an encrypted form, which is difficult to counterfeit.

**Online / offline authentication**: Online authentication uses a symmetric key technology where the card generates a cryptogram that is authenticated by the issuer during the online transaction authorization request. Offline authentication of the card means that the EMV terminal and EMV card have to use public key technology. Offline authentication is designed for two specific occasions, when online authentication is not available or is very expensive. Offline authentication can take place in two ways:

1. Static data authentication (SDA): Most cards issued across the world are supported by SDA. Here, the cryptogram is calculated using a static public key certificate and static data elements.
2. Dynamic data authentication (DDA): In this case, the cryptogram is calculated with each transaction that is unique to the card and transaction.

**EMV online / offline authentication standards**: Card authentication EMV chip uses 8-byte Triple DES cryptogram. EMV chip uses SDA or DDA transaction authentication.

Transaction authorization approval sent to EMV issuer transaction authorization based on communication between EMV-compliant card and terminal.

Card holder authentication 4-digit PIN residing in chip.

**Geographical spread of EMV**: Many financial institutions in Europe, Canada, and Latin America have already adopted payment cards with EMV chips.
EMV helps reduce fraud in the UK

The US accounts for 47% of global credit and debit frauds according to the Nielsen Report on fraud. The country generates about 27% of the global volume of purchases and cash [11]. Plausible reasons could be because the US is slow with EMV adoption and still dominated by the magstripe technology.

According to the Bell ID paper ‘Six myths preventing EMV migration in the US’, nearly 50% of the US card holders faced difficulties paying by card in Europe during the last four years [11] (magstripe cards are not accepted at EMV terminals).

Many international travelers have faced numerous challenges using magstripe cards outside the US. Card issuers in the US are under a lot of pressure to satisfy consumer needs. With most of the developed countries and, more recently, developing countries as well, initiating the migration to EMV, US merchants will be at the receiving end of card fraud loss if they do not rethink their position.

However, EMV migration in the US is not easy. The US payments industry is facing many challenges in EMV adoption. The biggest challenge is the EMV migration cost.

Many financial institutions in the US, such as JPMorgan Chase and Wells Fargo, have started issuing EMV cards. Many retailers, including Wal-Mart, have already laid the path to deploying EMV-compliant terminals.

Why is the US expected to adopt EMV standards?

Banks can reduce card-present fraud significantly with migration to EMV smart cards. A relevant example of the efficiency of EMV migration (as a part of SEPA and PSD regulations) is in the UK, where adoption helped reduce fraud significantly. This was effective in the case of card-present transactions. After the EMV rollout in UK in 2005, card-present fraud losses reduced by nearly 60% in 2008 and 70% in 2009 [7]. Losses on retail transactions in the UK reduced from £218.8 million in 2004 to £72.1 million in 2009. According to the UK payments council, non-EMV cards are more at risk of fraud in Europe [7].

The recent Durbin amendment is expected to have a positive impact on the process of EMV adoption in the US by providing incentives to card issuers. The amendment will result in lower interchange fee for debit transactions for banks if they do not comply with fraud prevention standards. Banks that meet fraud standards will collect higher fees since it will include the technology costs of fraud prevention.

Fraud reduction with mobile wallets

The increasing convergence between smart mobile devices and the payments industry has led mobile payments to become one of the fastest growing sectors within the financial world. The popularity of the mobile payment channel is driving the growth of the second digital initiative – mobile wallet. NFC technology allows consumers to make contactless transactions. Mobile wallets will be able to leverage the contactless infrastructure for PoS transactions by using NFC technology, which is compatible with current contactless infrastructure for accepting credit/debit transactions using MasterCard’s PayWave, Visa’s PayPass and American Express’ ExpressPay. As per 2011 data, tablets and smartphone sales are outnumbering desktop PC sales and expected to continue to grow at an exponential rate [12].

NFC-enabled smartphone sales are projected to increase from 17.5 million in 2011 to 340 million in 2015. This is close to a 2000% rise. Also, with the rollout of 3G / 4G networks, consumers are steadily turning to smart mobile devices to make wireless payment transactions. Many companies such as Google, Apple, Wal-Mart, American Express, JPMorgan Chase, and Bank of America have already rolled out roadmaps for mobile wallets.

Google Wallet: Using NFC technology, Google Wallet partners with merchants such as American Eagle outfitters, Toys “R” Us, etc. Experts are wary of mobile payments due to security gaps such as secure transmitting of data from the mobile, authentication of user in case of mobile theft, etc. Hence, EMV chip standards are customized for mobile payments in order to make mobile transactions more secure. EMV and MasterCard are actively working on defining architecture and specifications for contactless mobile payments. This effort has been critical in supporting the successful pilot of NFC mobile payments in the UK, which uses an EMV-based payments infrastructure.
EMV plays a dual role in contactless mobile payment

In order to provide more security for mobile payments, there are a number of secure elements available such as embedded secure elements, UICCs (SIMs), micro SDs, and accessories that may be based on differing hardware, firmware, operating systems, and platforms. EMV standards do not specify requirements for each of the options or platforms but rather facilitate interoperability and co-existence with contactless mobile payments platform deployment\(^\text{14}\). EMV standards for NFC will make mobile wallet transactions much more secure and, therefore, increase customer trust in the future.

Other digital transformation recommendations to reduce card fraud

Banks could also focus on these digital measures to reduce payments and card fraud:

**Use of virtual card numbers**
Today, all banks issue credit or debit cards with pre-defined plastic and embedded 13-19 digit card numbers and CVV. Hence, it is very easy for a person to make fraudulent transactions with a lost or stolen card. However, this limitation can be overcome with virtual card numbers since new ones are generated with every transaction. It is no longer necessary to enter your account number or card number on a website. PayPal Plug-in and Citibank Virtual Account Number are examples of such a service.

**Chip authentication program (CAP)**
This additional security measure is used for transactions where the card is not present physically. A CAP reader is provided by the bank, which has a card slot, a decimal keypad, and a PIN entry device. The one time password (OTP) generated by the device needs to be entered while performing an online transaction. VISA provides this feature as a dynamic pass code authentication (DPA) service. Some banks, such as Bank of America, have already started similar kinds of services in the US.

**Data / transaction analytics**
Card transaction alert services may be adopted based on customer transaction analytics. Alerts and monitoring are based on the card-spending pattern, type of card spending and other such parameters to alert customers (through SMS, email, or VR calls) if any unusual activity is detected.
With growing transaction volumes and the introduction of new digital payment solutions, the biggest challenge for the payments industry is to keep the magnitude of frauds down and not compromise convenience for customers. The digitized chip is emerging as the global security standard, which has helped many countries, such as the UK and Canada, reduce plastic fraud. It will not be a surprise if banking regulatory bodies set a deadline for EMV migration for banks. The UK has migrated to EMV largely because of PSD regulations. Many other banking regulators have already set deadlines for EMV migration. For example, the Malaysian banking regulatory authority has already made it mandatory that only EMV-compliant chip and PIN cards be issued from January 2015. Also, EMV migration might provide incentives to issuers, as was the case with the US (Durbin amendment).

EMV standards have extended to new digital contactless mobile payments as well, for providing technical infrastructure and collaboration with various industry stakeholders. With secure mobile transactions, the possibilities of card misuse due to loss / theft and counterfeiting by skimming are virtually eliminated. Other digital transformation initiatives, such as the use of virtual card numbers, chip authentication programs, and use of data analytics, are helping many financial institutions reduce payments and card fraud. There has also been a lot of investment to create digitized biometrics authentication systems that can facilitate the elimination of fraud.

References

6. Available at www.ukpayments.org.uk/payments_industry/payment_fraud/, accessed at April-2012
7. Available at www.financialfraudaction.org.uk/, accessed at April-2012
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Financial institutions reduce fraud risk with social media

Is social media the answer that we have been waiting for when it comes to checking fraud?

Vinod Kumar  |  Nageswar Cherukupalli
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Financial institutions are introducing social media in their IT landscape. The focus is to leverage social media to help reduce risk.

The social check

Financial institutions have seen success in their social media initiatives in terms of engaging customers, resolving customer problems, marketing, and product research. Financial service institutions (FSIs) have started altering their offerings to suit various digital channels by integrating social media with their business applications. For example, American Express has launched its ‘Link, Like, Love’ service on Facebook. The campaign provides offers, discounts and experiences to cardholders based on their ‘likes’, interests and social media connections.

FSIs have been relying on traditional methods to assess customers’ credibility and their risk category to determine credit limits or loan amounts. To determine financial transaction risks, FSIs use customer credit ratings provided by various credit rating agencies. They can also use social media services to prevent fraud and impersonation such as identity theft.

How to use social media innovatively

A digital transformation journey is what financial institutions need to embark on. For starters they should be present on social media sites and start engaging customers. Once financial institutions become successful in establishing initial relationships with their customers, they can leverage the customers’ public social information and network. Their systems should be prepared for integration methods and processes to make a meaningful attempt at taking advantage of the public information of their customers on these social media sites.

With this, financial institutions can browse through customers’ details, activities and social patterns — thereby providing customized services and getting more insight into their social and economic wellness.
Using social graph to reduce credit risk

Financial institutions should leverage the social graph of their customers as one of the tools to evaluate credit rating. The social graph can determine if prospective customers are connected to individuals or communities with a good credit history. The graph can then be evaluated and analyzed to determine if the customer can be a trusted partner or not. Financial institutions can rate prospects by analyzing public social graphs. From public social connections, financial institutions can also analyze how customers are using their accounts.

Using customer location to prevent fraud

A financial institution might consider leveraging information on social sites with regard to finding a customer's most recent location. A location service provided by a social network allows a user to 'check-in' his current location and venue detail using a mobile application by selecting from a list of venues. Some mobile applications help users to 'check-in' the current location in an automatic manner. The service enables a user to know who else in his network is near or at that spot, and lets his friends know about his current 'check-ins'. Financial institutions can encourage their customers to privately allow them to use their location information through social media in order to serve them better and reduce misuse of their credit / debit cards.

Location information can enable a banker to detect fraud, particularly in the case of lost or cloned credit and debit cards. For example, a bank can deny a transaction if the debit or credit card used is from a location other than the customer's most recent location. Current internal processes are such that financial institutions react after a fraud has taken place or misuse is reported by the customer.

Use social data to combat impersonation

It is becoming very important for financial institutions to differentiate between real and fake ownership. Information through social media can be used to verify and prove the credibility of the customer. By carefully examining the customer's social activities, usage patterns, and his network activities, financial institutions can arrive at an educated conclusion about the authenticity of the customer and his credibility, thus minimizing the risk of fraud.

Moreover, if used innovatively by various other institutions, social data can be helpful in preventing other types of fraud. For example, an insurance claim for a house burglary can be reviewed by the insurance provider along with the information and social media activities of the insured customer. Not only the location of the customer but also personal information, videos, or photographs shared by the customer can be a source of data for theft and vital information for insurance companies.

Case in point

A major US credit card company has recently launched its service to associate a customer's social identity with their credit cards on popular social sites such as Facebook and Foursquare. The information on these social media websites is being used by the company for card offers, rewards, and marketing purposes. A combination of an innovative approach and customer information available on social media websites can be leveraged to reduce risk and fraud.
Ignoring social media can result in revenue and customer loss

Various survey results, as mentioned below, have shown that fraudulent activity related to fake ownership and transactions on lost or cloned credit/debit cards are increasing. This suggests that the existing processes and techniques employed within institutions are not sufficient and need to be upgraded by taking advantage of technological advancements. The advantage is that these innovative ways of using information originating from social networks can help prevent and reduce fraud.

Fraud due to fake ownership is on the rise

According to "Treasury Inspector General for Tax Administration (TIGTA) report" dated July 2012, "Undetected tax refund fraud results in significant unintended Federal outlays and erodes taxpayer confidence in our Nation’s tax system. Our analysis of tax returns using characteristics of identity theft confirmed by the IRS identified approximately 1.5 million undetected tax returns with potentially fraudulent tax refunds totaling in excess of $5.2 billion. TIGTA estimates the IRS could issue $21 billion in potentially fraudulent tax refunds resulting from identity theft over the next five years".

Payment frauds are rising

According to ‘Payments Fraud and Control Survey, J P Morgan’, March 2012, “twenty-eight percent of survey respondents report that incidents of fraud increased in 2011 vs. 2010. And the percentage of organizations affected by payments fraud via credit and debit cards was 12%”.

Potential of social media cannot be ignored

According to a survey report, it is predicted that, in the next couple of years companies will generate 50% of their web sales through social and mobile applications.
How can you leverage social networks to reduce credit risk and fraud?

It is important for financial institutions to understand their readiness to use social media to fight fraud and when to consider taking advantage of these networks. If institutions just jump into social media risk reduction without any prior experience or success with social media initiatives, their efforts may be wasted. An institution may want to consider using social media for fraud prevention after a series of successes in realizing their initial social media goals. Once these bridges have been crossed, it would make sense for the financial institution to start building new services to address credit risk and fraud concerns.

Financial institutions that have started using social media for various business reasons, and have been successful in their initiatives, should move to the next step.
Social media strategy and plan

Customers often do not feel comfortable accessing their financial accounts through social media due to various concerns – including information privacy, security breaches, and lack of trust. To build trust with their customers and use social media information, financial institutions should refine their social media strategy and roadmap to use social media innovatively in order to address concerns such as credit risk and fraud.

As a first step, irrespective of the financial institutions' social media maturity level, a financial institution should revisit its social media strategy and roadmap to enable fraud prevention and risk reduction services.

Before financial institutions leap into social media fraud prevention for their businesses, it is essential to do the background work that will provide the essential platform for launching these new security measures. Institutions should provide services to their customers on leading social media sites including Facebook, Twitter, and LinkedIn and encourage customers to link their social identities with financial accounts.

Financial institutions who are successful in gaining customers' confidence in allowing them to access their personal and social data from social profiles will find that it presents enormous opportunities to build and enable risk reduction services to access customers' social graph, location, and personal information.

Banks can enable customers to apply for various financial services such as a loan, credit card, or insurance through social media. While the new customer onboarding takes place through some other channel, banks can request customers' social identities. The institution can provide alerts and options to chat in a private manner through social media.

People regularly spend a significant amount of time on social networking sites every day. Hence, it is important to promote the use of these social services as an adjunct to other methods of fraud prevention. In that way, they will feel more comfortable in sharing what would otherwise be considered sensitive information.

Increase awareness among customers on how to access a client's location and social profile by financial institutions through popular social sites such as Foursquare or MySpace can help reduce fraud by providing extra safeguards to secure customers' financial transactions.

The way forward

Social media – like all tools – has a flip side to it. While it can be used to check fraud credibility of the information available on this medium, it needs to be corroborated. Credit risk and frauds are increasing every year. A strategy to combat these issues need to be modified from time-to-time to take advantage of innovative technologies. The use of social media is on the rise and is going to rise further. Social media, if not used sensibly by the customers, may worsen the situation. At the same time, it may prove to be an effective tool to prevent fraud and reduce risks.

References

- Wikipedia, the free encyclopedia www.wikipedia.org
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Disruptive technologies
Reinventing bank marketing with mobility

Going beyond the traditional functionality of the mobile

Navdeep Gill  |  Anurag Singh
In an attempt to be the banking partner for every occasion, banks have been embracing technology with a vengeance. Ironically, in this process, the bank’s personal touch with the consumer has withered. Banking as we know it, is dead. Digital banking is today's great enabler and deliverer. Many customers are missing the warmth. Tellson’s bank in Dickens ‘Tale of Two Cities’ was clearly old-fashioned, nevertheless very real. This article explores how we can give a smiling face and warm feel to digital banking, away from the intellectual and cold beauty it now is.

As the customer’s attention span diminishes, it’s becoming tougher for banks to grow their customer base and increase products per customer.

Ascent of the customer-connected banker

The current digital movement presents challenges and opportunities in equal measure. It has helped organizations attain growth and efficacy; it has also brought in new and important variables to the equation in the banking business, such as mobility and social media. In this digital era, financial products and services offered by different banks are almost similar – products are no longer a source of competitive advantage for banks. As the customer’s attention span diminishes, it’s becoming tougher for banks to grow their customer base and increase products per customer. Banks must connect with the customer through the media of their choice at their convenience.
Commoditization of bank products and services
When it comes to financial products and services, it’s difficult to distinguish one product from another. For example, a customer may open a fixed deposit with almost any bank, based on the rate of interest offered by the bank.

Data explosion in the digital world
With an explosion of data points, it has become even more complicated to harness customer behavior, which is constantly evolving as a result of widespread digital movement. Not just banks, other businesses are also looking for ways to address the negative customer sentiments spilling over into the blogosphere or social media.

Limited user attention
Marketing is finding it increasingly difficult to capture the consumer's attention, given the low attention span and the explosion of choices. It is estimated that, on average, a user has barely a second or two to spend on each item on her/his Facebook wall.

Competition in financial services
Competition from non-conventional sources has proliferated. For example, mobile service providers (MSPs) today offer mobile payment and e-wallet facilities, which, in the past, were offered only by financial service providers.

Diminishing effective touchpoints with reluctant customers
Within banking, customer touchpoints are diminishing. For example, in the past, a retail banking customer would visit her/his branch to transact. Today, customers prefer to do most transactions online or on their handhelds.

Financial institutions are unpopular
The enthusiasm of customers to purchase financial products is generally low. Financial services companies, banks in particular, are typically treated with caution rather than trust. Several surveys indicate that the popularity of banks is on the decline. Overall, profitability is under pressure in the banking business. While it is easy to increase the marketing budget to cater to digital trends, in our opinion, this linear approach adds cost while ignoring the mandate for the banking organization to reinvent its very approach to digital marketing.
Currently, banks lean heavily on online and social advertising, which includes online ad campaigns, circulation of QR codes and SMS campaigns, apart from the usual ways of targeting online and mobile users. These models are mostly extensions of traditional print marketing and tend to broadcast the very same marketing messages. These messages talk of what the bank wants to sell and is indifferent to whether or not the recipient (of the message) actually needs what the bank is offering. There is some faint chance that the bank’s messaging might coincide with the customer’s need, in which case, the customer might respond. This approach, though not very costly, is proving increasingly ineffective these days.

Some banks have started setting up socially-interactive channels, and are conducting customer sentiment analysis and social experiments — like building online communities, a network of influencers, or creating viral videos. However, these experiments are in their rudimentary stages and require a great deal of non-core expertise to accomplish. Normally, for this, banks engage digital marketing and creative agencies and these tend to drive up expenses. Such agencies might take time to understand the bank, its customers, competitors, and messaging requirements. And yet, the resulting campaign might still not prove fruitful and is likely to peter out — unless there is some strong affirmative action to constantly refresh the campaign.

Some better known, effective and creative examples of how banks improved digital marketing by using mobile media

**NFC-enabled mobile payment system from VISA-Samsung campaign for London 2012 Olympics**

This payment system enables mobile phone users with near field communication (NFC) capability to pay for purchases using their phone at over 60,000 locations in London. Payments via mobile phones were more convenient for shoppers, including athletes and visitors, and went a long way in boosting overall sales.

**Alliance Bank’s ‘chalkboard’ service in Malaysia**

This recent campaign is helping the bank share the latest products and services that are available. The availability is displayed on mobile phone applications and websites that form part of Chalkboard’s partnership network, wherever they are, within a 2-kilometer radius of any of the bank’s 90+ branches. The coverage, which expands to all of Malaysia, also includes over 500 merchants who offer Alliance Bank’s card promotions, wide-ranging daily deals, dining promotions, and installment payment plans to other perennial member privileges, thus attracting greater customer footfalls for merchants in real time.
Paying heed to customer need

Our case is for a deeper and more fundamental approach by the marketing organizations of banks — a succinct model that plays at deeper levels of consumer psychology has been investigated and found suitable. An intelligent, time, and context-sensitive automatic marketing system could mitigate common challenges touched upon in this article. The system comprises options shown in the graphic below.

Systematic listening

Mobility establishes a perpetual bi-directional connection with the digital consumer. Social media, when coupled with mobility, adds rich data like location, preferences and non-financial contexts. The following information could be assimilated by identifying:

- What are a particular person's likes and dislikes (for example, with regard to cuisine, activities, colors, and so on)?
- Is an important event due to take place in her/his social circle (for example, what are the customer's likes? What are her/his friends doing? What are her/his peers buying?)?
- What are the locations that the customer frequents?
- What are the transactions and transaction types that the user performs?

With the proliferation of smartphones, most customers prefer to use these devices for a wide range of functions, like online transactions, paying bills using e-wallets, and using QR code scanning for product comparisons. Thus, it provides an opportunity for the bank to get a better insight into what the customer is doing and what her/his preferences are. These information pieces can only be obtained if the person subscribes to the bank's mobile channel, and with a proper customer opt-in. This means that an important prerequisite to implementing this type of marketing is that the bank must create a trusted and engaging mobile initiative.

Once this is achieved, the bank can initiate the following steps to position its products and services better:

- Predict the customer's need, and offer to serve it by means of the best possible financing and cash-back offers
- Contextualize the bank's promotions based on what an individual may want and like, not based on what the bank wants to sell
Financial shopping is something repeatedly delayed till the end as it is not a matter of indulgence. But the decisions in financial shopping are always based on the touchpoints of the bank that the customer has encountered earlier. If those touchpoints are well laid out, there is a probability that the customer will stay loyal. Apart from the personalized context, the timing and location of these offers is of utmost importance. Mobility is a potential means of undertaking micro-marketing and generating direct leads, so the banks can cross-sell and up-sell products and also tie up with other strategic partners to offer seamless service to the customer.

This individual level listening and personalized marketing can only happen if the bank’s mobile channel is clued-in to the user’s behavior. Also offering prompt financial advice, offers on-the-go, and services based on customer convenience facilitates brand loyalty to a large extent. Following are some examples of such personalized promotions:

- Based on increasing personal credit over the past three months, inform customers about bargain deals, subtly hinting at savings and investments.
- Present the customer who walks into a retail store with a personalized offer around a certain brand of running shoes, based on her/his recent update on social networking sites, which show the customer’s ‘page likes’ for the brand’s social media page.
- For all upcoming birthdays and anniversaries coming up in a user’s social circle for the subsequent two months, offer a basket purchase through a retail partner, where the discount will be credited to a new gift. Automatically update the offer the following year, well in advance.
- For a customer’s upcoming camping trip, offer a standard basket of products such as batteries, torch, first-aid box, socks, sunscreen, and ropes. Point to offers on outdoor wear. Send aggregated info on her/his destination, including options for travel checks and insurance.

Contextual offers

What is more likely to induce commerce than an online banner ad is to use the mobile to match the user’s social network chatter or personal event timeline with relevant products and financial offers. The ability to pay instantly and conveniently from a mobile device is what is making m-commerce grow. Let’s take the illustration of mobile wallets to understand this. E-wallets typically have location-tracking services, which, based on the current location of the customer, provide offers pertaining to nearby stores and malls. These offers can be clubbed with attractive financing offers and discounts if the customer chooses to make the payment from her/his e-wallet, thus inducing sales and fostering brand loyalty. Another example: The mobile price comparison engines that provide a comparison of product prices at nearby stores, based on the user’s location. This helps the customer make her/his purchase decisions better and faster. Banks could also tie up with such comparison engines to bundle their financing offers with the

Offering prompt financial advice, offers on-the-go, and services based on customer convenience facilitates brand loyalty to a large extent

- Enable the user to keep track of family spend on health and wellness products and services. Offer a new co-branded credit card in this space before the next big spend cycle.
- Automatically send the user facts on investment products and services if negative sentiment for such products and services is detected from their social media updates.
- Provide the ability to tag all purchases made from the e-wallet or debit card into user-defined categories. These can then be used to provide simplified analytics to the user on the purchase pattern, monthly income versus expenditure charts, and so on. If a deficit is detected, suggest financing products, and contextualize them to the user’s current situation. Also suggest investments for surplus situations.
best price retailer. As a result, the customer can get a chance to view the best price, along with attractive financing offers, which builds trust and increases the probability of a sale.

If the initial location-based marketing push is done in partnership with key retailers, and coupled with convenient payments methods, it can sow the seed for an initial customer base – in which the two aspects of listening and contextualizing can be introduced. After the initial pull, the system should start to predict the consumer's need for commerce. It should actually precipitate commerce and be available at the exact time when the consumer will actually appreciate assistance or advice. The cornerstone of this approach is to invert the problem of user attention. Just increasing the amount of advertisements published might not grab the customer's fleeting attention. But being of personal use could.

Apart from other things, personalized offers and services also give the customer a sense of involvement, which is at the heart of the 'customer centricity' approach. In an era when customers change banks more frequently than ever, this sense of involvement builds trust and aids customer retention.

Convenient purchase options

From a technology standpoint, offering customers convenient and personalized offers involves unstructured data mining from multiple social networks, challenges like initial user acceptance, accurate contextual engine, powerful rules composition, analytics engine and intelligent prediction of the user's needs. Within the bank, such mobility-based systems need to interface and integrate with a number of legacy systems like:

- Online banking system
- Content management system that publishes dynamic content like tips and promotions to wallet users
- Customer relationship management system for personalized and contextual service, and follow-up
- Campaign management system for directed campaigns and cross-selling

The interplay of the mobile, Web applications, traditional marketing, and customer service has to be carefully planned. It is also important to script symbiotic partnerships with a network of retailers. There is a need to maintain the security of personal information that is collected, transmitted and stored over a solid infrastructure. The personal information should only be used to construct the context and not for hard-selling. The communication must be directed towards the customer and only over channels that she/he has opted for.

Overall, mobility-enabled bank marketing can deliver better conversion rates by exploiting early leads into the purchases. If this happens, the business is tuned into the customer at an individual level, and the customer, for his part, values the assistance being offered since it is both relevant and timely. Banks needn't always be peddling their products and services. Rather, this approach suggests that they can listen in to the customer's financial and commercial needs and help wherever they can.

The technology behind this marketing automation might be the strongest differentiator a bank can choose to have in the digital era

The technology behind this marketing automation at a micro-level is a complex one. And yet it might be the strongest differentiator a bank can choose to have in the digital era. Merely deploying mobile applications is inexpensive, although painstaking. But they don't necessarily capture new customers or retain existing customers. And every other competitor has the same set of applications. Channel-focused mobile applications generally have the effect of re-distributing the existing customer mindshare, rather than growing it. The approach presented in this article, however, is a growth-oriented scheme for digital marketing of banking products and services.
What is in it for the bank?

Banks have a lot to gain by hitching on the mobility bandwagon:

• Better conversion rates through predictive timing and contextually-matched product and service offerings

• Improved brand loyalty through prompt financial advice and increase in customer convenience through on-the-go services

• Reduced in-transaction costs – an average transaction cost in the US is US$0.10 each (compare with an average teller or phone transaction of US$2.36 each)

• A better connect with the customer, and without any kind of location constraint coming in the way – because mobile connectivity is available even in the remotest of places

• Ability to cross-sell and up-sell products better – now that the bank has a deeper understanding of the customer’s profile and transaction patterns

Many are feeling the pangs of building tomorrow’s banking organization. For banks that can brave the pain, there is certainly a pot of profitability at end of this rainbow; a flood of light at the end of this tunnel in the form of larger number of customers loyal to the brand. But to reach there, banks have a lot of homework to do, in terms of focusing extensively on the customer’s preferences and choices while designing their products and channels. They must increasingly consider social media and mobility as high-touch digital-marketing enablers. Now, more than ever before, it has become critically important for banks to clear the undergrowth of reactive and tactical initiatives covering their road to the future and build a broad-swathe strategy around the new digital wave.
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Delivering services for employees and customers
Managing data deluge across a diverse technology universe

Work on the go is one of the hottest trends today. Gone are the days when people were limited to working at just the workplace. The practice of using mobiles purely for messaging and making calls is now history. With the ever-changing trends and constant introduction of newer technologies — work using mobile devices (i.e. smartphones) has become today’s need.

Distributed applications provide the ability to access or work on the same applications using either a laptop or a compact version of the application on mobile (online or offline mode), without compromising functionality and features. The whole set of integrations are available and data can be brought onto the mobile platform with ease. At the end of the day, the important question is — how can data consistency be maintained throughout?

This article will give you insights on implementing distributed applications and configuring them for mobile platforms that include data synchronization across platforms, various methodologies currently available and take into account security considerations. As distributed applications emerge in the financial space, this paper also covers current developments in this area. We discuss the opportunities and potential challenges a financial institution may face when going mobile.
The IT industry has undergone plenty of trends including ‘.com’, virtualization, Web 2.0, social media, mobility, and cloud computing. With the explosion in mobile platform capabilities, expectations of end users, including customers and employees, are increasingly shifting towards mobility. The basic expectation is to enable the same set of operations and content on all media such as the Internet, laptop applications, mobile applications, kiosks, and more.

A recent study conducted by financial research and consulting firm Celent revealed that banks in Southeast Asia and the Middle East are struggling to keep pace with changing customer expectations, particularly when it comes to multi-channel areas such as social media and mobility. The research was conducted based on surveys across 100 banks, to know how prepared banks are to the needs of new-age customers. The findings revealed that most banks are not prepared, or do not have a roadmap to provide their customers with a multi-channel experience.

Celent researchers noted that while most customers are prolific online and are active mobile users, many of the surveyed banks do not offer a fully-integrated multi-channel experience. Only 34% Southeast Asian banks and 17% Middle Eastern banks currently have tablet offerings and most mobile banking offerings are still basic. Also, while 63% Asian banks now offer native apps (i.e. built for Android or iOS), only 25% are doing so in the Middle East. The survey also revealed that when it comes to online banking, less than 40% of the banks offer personalized landing pages. While 88% of the banks surveyed offer online bill payment and 69% P2P payment capability, just 39% offer personalized landing pages or the ability for users to tailor content. Of the banks surveyed, only 31% integrate their online experience with shopping or discount programs and even fewer (27%) offer personal financial management online.

All these factors and studies together have moved financial services and insurance enterprises to add mobility to their hot-button agenda, and act on expediting it. But how can these enterprises go mobile? What are the various components and factors to consider before doing so?

Data management: the first stop for ‘on the go’ services

There are two different modes by which users connect and use a distributed application — connected and disconnected modes. These two modes are applicable for both, laptops and mobiles.

In a scenario where applications have to support both modes of user operation, the applications should be able to talk to a miniature version of the database that resides locally on the customer's device. This miniature database will not hold all the data that resides on the central database servers or the cloud; it will hold the minimal amount of data needed for users to work in an offline mode. The whole logic of supporting the application in both modes lies in how the data is synchronized to maintain data consistency.

The best way to achieve data consistency is by replicating the data between the client's device and central servers. Data replication can ensure the smooth merger of data in both directions — from the client's device to the servers and vice versa. Bidirectional merging is needed as the client's device should be updated with the latest data from the servers.

The application can be made available to laptops, mobiles and tablets operating in both modes. If the client always uses the application in a ‘connected’ mode, all transactions can be directly synced with the central servers in a pooled or on-demand fashion. In case the user updates his mobile database, and instead of synchronizing it with the central servers, connects it to his laptop, both the laptop and mobile will be synchronized. The resultant merged database that now exists on both the devices can be synchronized with the central servers when either of them is connected to the central servers.

Both Oracle and Microsoft have miniature databases — Oracle Database Mobile and Microsoft SQL Server CE. Both platforms support the key features needed for this kind of a solution — including snapshot generation, merge replication, and push / pull subscriptions.
In banking applications, client account details, personal information, payment schedules, ‘X’ number of past transactions and any other such non-critical data can be maintained in the miniature database that resides on the client’s device. On a similar note, in an investment institution’s application, data such as a client’s account details, personal information, linked bank account details, last updated investment details, past performance history of his investments and any number of past transactions can be maintained on the client’s device. Whenever the client’s device is ‘connected’, any changes to the data in the miniature database can be synced with central servers. In the same way, the most recent transactions and account information can be downloaded back to the client’s device.

TruSync is a new class of data synchronization software from Infosys that handles a similar kind of data transfer in both connected and disconnected modes. It provides offline storage, compression, scheduled synchronization, automatic network detection for data synchronization, device authentication, and many other features.

Today, mobile technology has made its impact felt across all industry sectors. In a recent survey, it was estimated that 32% of US citizens are using banking and finance applications via mobile. These numbers are expected to grow rapidly with current trends. The convergence of financial services with technology, and mobility in particular, makes for optimized reach, in addition to streamlined and automated workflows translating to better results in a challenging global economy. The image below shows the current trends in the usage of applications in smartphones.

With the exponential increase in smartphone and tablet usage, all major vendors such as Google, Apple, RIM and Microsoft are playing key roles in platform development. Though financial institutions in the West already provide mobility services, most Asian and Middle Eastern financial institutions are yet to reap the benefits of these new trends (mobility and cloud). The future looks promising for these institutions. Even as smartphone penetration increases in these markets, thinking about and investing in mobile programs could pay big dividends, if done right.
While a few financial services institutions have already defined their technology roadmap after factoring mobility and cloud, a few more have already started using proof of concepts in mobile applications, a necessary step towards finalizing a roadmap that will have a long-term impact on enterprise IT architecture.

Two ways of implementing mobile applications are becoming increasingly commonplace. One, a dedicated application for a platform. Two, hosting the mobile Web application that functions uniformly across various platforms. ICICI Bank, a major Indian player, provides a mobile-based application called iMobile that enables its customers to perform basic tasks on mobiles or tablets. Wells Fargo provides both a mobile application and a dedicated mobile-based website.

The image below shows platform usage trends between 2011 and 2012, based on a recent survey conducted in the US.

Today, the mobile marketplace has a number of operating systems provided by different vendors. The main challenge that an institution faces is to maintain a consistent look and feel of the applications across all of the customer's devices (device-specific rendering based on configurations at the server side), security, and the speed at which the applications or websites can be deployed on all these platforms while keeping their functionality intact.

Achieving a uniform look and feel across devices / platforms is now simpler, with a number of application development platforms that address this need. Institutions can choose from proprietary platforms like Kony, Sybase MEAP, Pyxis Mobile, Sencha, Antenna, Syclo and open-source platforms like jQuery and PhoneGap.

Infosys mConnect is an end-to-end mobile application development platform from Infosys that has been available in the market for almost five years. Infosys has already implemented a few solutions for financial institutions based on this mobile platform.

The ‘cloudvolution’ of financial services

NYSE is providing IaaS (infrastructure-as-a-service) and PaaS (platform-as-a-service) community cloud service for the financial services industry that targets brokers, dealers, hedge funds, and other stakeholders. PaaS has been set up to host a variety of customer applications, along with services such as electronic trading, market data analysis algorithmic testing, and regulatory reporting.

Merrill Lynch is using IBM iDataPlex servers as part of its IaaS strategy to build and evaluate risk analysis programs. The implementation turns many computers into a pool of shared resources, i.e. a cloud. Morgan Stanley uses PaaS Cloud vendor Force.com for its recruiting applications and has extensive cloud penetration in analytics and strategy.

Banco Bilbao Vizcaya Argentaria (BBVA) is adopting Google Apps for email and collaboration and expects to have its 110,000 employees worldwide using the suite. BBVA’s implementation of Apps will be the largest ever for Google’s cloud-based communication and collaboration suite.
Recognizing the pros and cons

In this context, databases or applications that an organization wants to use can either be in-house (on-premise) or hosted on the ‘cloud’. But why does the cloud make for a compelling value proposition? For starters, cost and convenience. Cloud storage has inherent benefits of reduced expenses and elimination of equipment installation and maintenance. Furthermore, the cloud provides inherent backup and recovery systems, has no physical presence, requires no environmental conditions, requires no extra personnel and doesn’t require energy for power or cooling. However, there are concerns in store for financial services CIOs including performance, availability, incompatible interfaces, and a lack of standardization.

According to experts, security and access to data is the biggest stumbling block to large-scale cloud computing implementation across the world. Cloud-security-related standards are already defined and financial services firms can use this metric to evaluate a vendor. As the data being exposed on the cloud is likely to be sensitive, it seems more pertinent to commit to private clouds and implement additional security features such as filtering, patch management, hardening of VM instances, hypervisors. The key factors while deciding which storage mode to commit to are security, accessibility, availability and scalability.

Make security a priority for mobility and cloud services

Although the implementation of mobility and cloud looks promising for both, financial services institutions and employees, there is a lot of complexity involved. Some see it as erring on the side of caution. Since the data gets distributed across the world and people from various roles and geographies can access the applications and interact with the server, organizations need a highly-calculated approach while designing application security.

For example, the use of CAPTCHA images\(^1\) is a cost-effective mechanism to prevent spamming, hence its usage has increased exponentially. On the flip side, a software is being developed to utilize the audio version of these CAPTCHA images to recognize the words. Using multi-layer security (virtual keyboards\(^2\), one-time passwords\(^3\), grid-based session passwords\(^4\)), like ICICI Bank does, is a better way of securing the application. Providing secure IDs to customers, like HSBC does, is another good approach. But some may not like using multiple passwords, one-time passwords, grids or secure IDs for runtime checks. Digital certificates\(^5\) are a good way of implementing security. But generating client certificates is a costly affair. Considering all these factors, an organization can choose a hybrid solution to implement a multi-layered security system by using a combination of passwords, CAPTCHA and certificates.
An imperative for financial services institutions is understanding the changing socio-technological needs of customers and employees, and enabling them to use or work with applications on the go. With ever-increasing hardware and software capabilities, in the future, smartphones, PDAs and tablets may replace desktops and laptops. The time is right for financial services institutions to start thinking about including mobility and cloud into their roadmaps, if not already done. This will enable institutions to reach out to customers and employees with more friendly and personalized delivery of services, and will help them win new customers. The bottom line is to create a better user experience. What comes after is greater cross-sell opportunities, customer loyalty, and profitability.

1A CAPTCHA is a type of challenge-response test used in computing as an attempt to ensure that the response is generated by a person. The process usually involves a computer asking a user to complete a simple test, which the computer is able to grade. These tests are designed to be easy for a computer to generate, but difficult for a computer to solve, so if a correct solution is received, it can be presumed to have been entered by a human.

2A virtual keyboard is a software implementation of a keyboard with the keys arranged randomly and not as per the standard QWERTY layout. Users can use their mouse click to key in the passwords instead of using a normal keyboard wherein there is a threat of capturing the key strokes.

3A one time password (OTP) is a random number sent instantly to the user’s mobile on accessing the application in order to check the identity of the user. Users have to provide this password along with their original password in order to gain access to the applications.

4A grid password is a kind of table printed at the back of the customer’s ATM card. This table has a simple mapping of letters to numbers. The applications randomly ask for the mapped numbers. Users, upon providing the correct mapped data, will gain access to the application.

5In cryptography, a public key certificate (also known as a digital certificate or identity certificate) is an electronic document, which uses a digital signature to bind a public key with an identity — information such as the name of a person or an organization, their address, and so forth. The certificate can be used to verify that a public key belongs to an individual.

About the Author

His areas of specialization are Web Content Management, Web applications and content migrations. He has worked on multiple technologies like content management, portals, Web applications, mobile applications and embedded systems. Bharath has a bachelor’s degree in Information Sciences and Technology from Acharya Nagarjuna University, India. He can be reached at Srinivasa_Ponugupati@infosys.com

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Just what the insurer wanted:

A ‘tabletized’ future

If banking has taken a lead in capitalizing on the tablet, can the insurance industry be far behind?
Apple has launched the iPad mini. Samsung to launch new line of Expresso tablets. And, Toshiba to make quad-core Android 4.0 tablets in 7, 10, and 13-inch sizes. Has your insurance organization been tabletized yet? If not, get ready to.

Age of the tablet computer

Banks have armed their employees with tablets, and launched custom applications for tablets too. The insurance industry has been a tad slow in warming up to the tablet’s overtures. But the benefits that tablets can deliver across the insurance value chain are aplenty. As well as enabling insurance firms to lead through innovation and drive a competitive edge in the market, tablet adoption will help breathe more efficiency into their insurance distribution chain and drive customer perception.

The tablet’s features — such as its high-power processing capabilities, Internet access, and a large, interactive screen — make it a perfect fit for businesses. The need of the hour is quick access to communication tools and applications for recording and storing large amounts of critical information – and the tablet clearly addresses this need.

Tablet applications are here (to stay)

The tablet hysteria remains buoyant on the back of active adoption and technological advancement. First smartphones, now tablets. The mobile computing market continues to roll out newer devices and the uptake, too, has been staggering. It’s not just the retail customer who is lapping it up but businesses too — and very actively.

The early adoption of tablets by enterprises took manufacturers by surprise, as they had expected retail consumers to be the prime adopters. Industries across the world are adopting tablet applications (refer to the examples that follow) to improve productivity, customer relationships and processes, and the banking industry has been at the forefront. This paper discusses the prime areas and objectives of tablet banking in recent times, and where tablet banking is headed.

Key aspects of tablet-based banking

- **Mobile banking applications**: Allow customers to perform day-to-day banking transactions on the go, through a touch-based platform and eventually help increase customer satisfaction.
- **Research library applications**: Enable customers to access vital information on the go, which can help them efficiently manage their investing process.
- **Sales tools for field agents**: Improve the sales effectiveness by distributing tablets to field sales agents, who make presentations to high net-worth clients in areas like wealth management and investment.
Major financial services firms – Morgan Stanley, BNP Paribas, Citibank, Bank of America, Deutsche Bank – you name them; all of them have come up with their own apps for tablets:

Deutsche Bank’s Prime Services mobile application

Deutsche Bank (Global Prime Finance) launched a Prime Services mobile application for the iPad and iPhone. It allows clients to quickly retrieve margin information, and access portfolio reporting and other analysis tools. This application provides filters to help streamline report selection for mobile device users.

Bank of America (BoFA) Merrill Lynch’s Global Research Library iPad application

The Global Research Library iPad application from BoFA Merrill Lynch allows users to access their offerings, indices, portfolios, recommendations, analyst outlooks, forecast summaries, and asset allocation and investment strategies.

Citi Private Bank’s iPad application

This application provides information around Citi’s thought leadership in the area of private banking, economic commentaries from Citi Private Bank’s Chief Officers, stock research, and video interviews, among other things.

The banking industry has already taken a lead in capitalizing on the benefits offered by tablets. The insurance industry, on the other hand, is yet to gear up for this. But the benefits that tablets can deliver across the insurance value chain are aplenty, making it a worthwhile proposition to be seriously considered.
In the past few years, external and internal factors have buffeted the insurance industry. The economic and political uncertainty in US and Europe, regulatory changes that impact capital requirements and insurance operations, low interest rates, augmented competition, and the inability to quickly accommodate product changes – all of these have hampered the growth prospects of insurers. Most importantly, consumers have been showing an increasing preference for multi-channel experiences, which are also personalized, fast, and present a tough challenge for insurance carriers.

Today’s consumers are acutely conscious of the alternatives available in the insurance market. They are accustomed to real-time multimedia interactions in their day-to-day activities. Digital insurance buyers expect the same level of convenience, speed and accessibility from the buying and servicing processes in insurance. They expect an agile and custom insurance experience, where they are able to view videos and digitized learning material, get instant quotes, adjust insurance products in real-time, process claims instantly, receive proactive communications, and do much more on a channel that is convenient for them. Even so, the field sales force of the insurer still relies on manual and paper-based insurance processes that are at once cumbersome and productivity-unfriendly! And, this despite the fact that it is common knowledge that the field sales force is to the insurance sales engine, what the catalytic convertor is to a car engine: a very critical part.

### How tablets help to claim insurance

The insurance claim process, which is the most important link in the insurance value chain from a consumer perspective, and the way it is handled can leave a strong positive or negative impression on the insurance claimant. What’s more, inadequacies in the claim process also increase claim costs for the carrier. Yet the claim processes of today are saddled with time-consuming and manual operations (in a hyper-digital age!). Claims adjusters must carry a bagful of devices to the field, send forms to claimants for their signature, and wait till such time when these documents are signed. All these, obviously, consumes a good deal of quality time. Tablets come to the rescue by enabling insurers to tackle these and more challenges to enhance customer satisfaction and enrich operational efficiencies. Its large, shareable screen, Internet connectivity, and other rich features go a long way in transforming the insurance experience.

### Delivering the ‘wow’ in insurance

Tablets have a variety of applications in key elements of the insurance value chain. Here is a look at the potential applications and benefits.

- **Custom apps for clients**
  - Rich tablet apps with features like access to policy quotes, coverage and discount, bill payment feature, update claims appointments, location-based services and much more.

- **Paperless insurance sales for field force**
  - Tablets for the sales field force with pre-loaded sales presentations, videos and business apps with the capability to connect to existing web systems in real-time to adjust illustrations, manage leads and more.

- **Single handheld solution for adjusters**
  - Apps integrated with back-office insurance systems to enable claim adjusters to smoothly capture, detail and submit information using the high power processing capabilities of tablets.
Smartphone apps for insurance clients have already enjoyed a fair amount of success. These apps are enabling digital consumers to conduct insurance-related activities on the move, with a fair degree of success. Following are some of the features that are most common in insurance apps for smart phones:

- **Manage policy** – Pay bills, view coverage information, view claim details, view vehicle information
- **Get free quotes** – Use VIN barcode scanner or photo insurance card
- **Manage claims** – Report new claims, retrieve previous claims, find service centers, receive roadside assistance

If insurers are to see a remarkable uptake for their tablet apps, then customers must be able to do more with tablet apps than what they are able to do with their smart phone apps, at the moment. Below are some of the features that insurers should look to develop, so they can use the tablet’s large form factor in an optimal manner:

Servicing the policy is an important aspect of the insurance value chain. Many clients lack complete knowledge of how they can utilize the services associated with their policies and seek information through traditional channels that are cost-prohibitive. Rich audio-visuals supporting the ‘how to’ of insurance servicing can be of great benefit to both clients and insurers. The larger screen, high resolution display, and portability make the tablet a perfect device to impart knowledge through audio-visuals. Insurers can look to develop audio-visuals that can be integrated in the tablet app to reduce basic servicing queries.

Getting personalized assistance at critical junctures can be of great help to clients. The tablet’s in-built global positioning system (GPS) can offer location-based services like driving directions to the nearest doctor, dentist, or service center. Considering the nature of these requirements, location-based services can enable insurers to create a strong brand loyalty by ‘being there’ with the client, when the client needs them most.

The tablet’s large touch screen capability provides a good opportunity to offer interactive tools, which allow clients to manage and analyze policies, calculate premiums, and do much more by keying in and altering details as required. The results are displayed in a smart graphical format for ease of understanding.

Insurers are increasingly waking up to the possibility of social media integration as an informal way to connect with clients, test new product ideas, market products, manage campaigns, and generate leads through referrals.
Tablets ensure sales forces go paperless…

Tablets present the best transformation opportunity for the insurance field sales force. These agents are constantly on the move and typically spend most of their time away from office. Their schedule is mostly dependent on client availability and involves working irregular hours. Further, their interactions with prospects involve making sales presentations, sharing illustrations, printing or faxing quotes, filling forms, and so on—all in paper format. With tablet apps, agents are able to conduct a lot of sales activities online and eliminate paper-based transactions.

Business insurance apps with the facility to connect to backend systems can enable agents to eliminate paper-based quotes and conduct new client acquisitions on-the-spot through digital forms and signatures. In addition, tablets can provide a fantastic way for agents to interact with the client through videos, presentations, calculators, customizable illustrations, and so on. The portability, large touch screen and connectivity of the tablet mean that all this can be done on a single device, which can also be shared with the client for better transparency.

A few insurers, the early lights in this domain, have already taken a lead in this direction. John Hancock has developed an iPad app called i-Illustrate that provides agents with a rich platform to generate illustrations instantly during their interactions with clients. Once confirmed, they also have the ability to email the illustration directly from the iPad without the need to print or fax it.

Alfac, the Columbus, GA-based insurer, has developed an iPad app for agents to enhance client experience and optimize the sales process. Launchpad, another app, incorporates all sales presentations, videos, calculators, and much more onto the iPad. Before Launchpad came on the scene, agents had to carry a 46-page presentation during their client visits. Not only has the carrier been able to reduce paper costs, but also witnessed an 18% jump in sales in a month’s time.

...And the adjuster gets a one-stop solution

Insurance adjusters, too, are always in the field, and have to conduct all claim-related activities on the field. These activities involve document verification, signing documents, retrieving backend information, clicking photographs, recording statements, and so on. To accomplish this in the field, they need to carry a variety of devices, such as cell phone, camera, laptop, voice recorder, and GPS locator for claim processing and settlement. The tablet can be a single-stop answer to all of this and reduce the time spent on administrative activities, besides making the adjusters self-reliant.

Adjusters can leverage the tablet’s sensor capabilities and onboard media to submit content smoothly. Information can be augmented with rich content, like location information, through location-aware services and mapping provided by tablet’s GPS. Camera and microphone functionality can enable the collection of multimedia content like document images, videos and voice recordings of witness statements. The key benefits that the adjuster derives by using tablets are smooth claim settlement, improved customer service, and effective relationship management.
That the tablet’s multi-fold capabilities are perfect for turbocharging the insurance space is as clear as the common light of day. Hence, insurers should look toward increasingly leveraging the tablet’s power for multi-channel distribution.

Insurers need to meticulously pore over certain ‘tablet’ facts before deciding in favor of tablets. They need education around the tablet’s capabilities before they set out to define the business objectives that the tablet will successfully address. Doing an apple-to-apple comparison (to the extent possible) between the functionalities of the tablet and like devices (such as smartphones and laptops) should be a fruitful exercise for any insurer. This comparison shopping will help the insurer determine resource requirements, expected ROI, implementation efforts, deployment processes, and security issues. Based on the results of the study, insurers can determine in what way the tablet will help them drive business objectives.

Effective communication and education about the tablet and its business capabilities will be crucial for internal adoption. Insurers with strong mobile and Web capabilities will definitely have an upper hand in adopting tablets. Building relevant competency around the fundamentals of the tablet will help ensure optimal use of the tablet’s form factor.
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The social makeover of the financial services industry


Sujata Singh | Jatin Garg
With the widespread popularity of social networking, the financial services industry is undergoing significant transformation in the way it approaches customers. Social networking tools have forced financial institutions to get more proactive in reaching out to customers at a personal level and in real time, rather than waiting for a trigger from the customer’s side. The idea is to hear and tap information coming from customers at all levels with a view to improve service and product offerings. To date, the transformation in the area of social networking has been driven by two factors – first, newer disruptive technologies such as cloud computing, mobility and Web 2.0. And second, consumer behavior, which is now marked by increasing amounts of time spent online. Once again, technological developments have been successful in triggering change in the way banks and other financial institutions relate to their customers. Most banks worldwide have acknowledged the importance of being present in the social space, and have already debuted or are actively planning to debut in the social arena. The question before banks today is not ‘why go social?’, but ‘how and when to go social?’

The social frontiers

The use of social media for banking has given birth to new frontiers for the four major players involved in the social dynamic – banks, customers, regulators, and social technology vendors.

- Banks are increasingly looking at social media forums as important tools that can help them not only stay relevant with customers, but also act as steady and real-time sources of feedback on products and services.

- Customers view social banking as another communication medium with their bank and expect to be informed about exciting products, offers, and other promotional campaigns. They also want to know what other customers are saying about the bank’s services and products.

- Regulators, on the other hand, have a bigger challenge regarding how to devise rules and regulations around the new social media channel. What should come under the purview of the rules? What should the new reporting requirements look like?

- Social network technology vendors need to actively track the evolving needs of banks, customers and regulators in order to take technological advancements to the next level in the social space, and also stay afloat amidst tech startups and established players. The pace of technological developments has increased manifold, making it more difficult for these vendors to survive in this severely competitive and crowded space.
Before the social dive

Prior to discussing how social media can be used to augment business, banks need to understand and address the following aspects of social media:

- What is the role of social media in a bank’s overall strategy? What is the most important reason why a bank wants to go social?
- What differentiates social media from other channels? What is the impact of social media as a channel on existing banking channels?
- What are the benefits of social media presence for a bank? What does it mean for its customers, employees, and shareholders?
- What are the other factors that need to be considered by the bank while implementing a social media strategy?
- How do technological advancements affect the dynamics of social banking?
- What will the bank lose if it is not present in the social networking space?

What the social trend indicates

Trends indicate that most banks have understood the importance of social media and have already made their choice to go social, and rightly so. The data below provides ample justification for this current trend in banking:

Forrester Reports suggest that 42% of online adult users are willing to engage with their financial service provider in the social space.

Over 50% of the world’s population is under 30 years old; 96% of them have joined a social network.

By 2015, the number of online banking households in the US will increase from 54 million to 66 million – 40% of whom will belong to Generation Y. They are characterized by tech-savvy costumers, and are projected to be the heaviest set of users of social media.

According to a study made by Javelin Strategy and Research in 2009, by 2015, annual spend of Generation Y in the US alone is expected to be over US$2.45 trillion. By 2018, their projected income will be about US$3.39 trillion annually. By that time, their income will surpass that of baby boomers and close in rapidly on the income of Generation X.

This self-service and peer-to-peer service will help the bank cut down on costs, as is evident from a Forrester Research Report published in 2006. It states that self-service options cost US$0.25 on an average, while customer support averages US$12.

Banks need to clearly understand what social media can achieve, what it cannot, and its purpose. Once the bank has satisfactory answers to these basic questions, they should weigh their options, decide if they want to pursue this option and, if yes, begin formulating a social media strategy.
This is one of the biggest benefits of social media. Banks get almost instant feedback from customers on new and existing product offerings. Also, some of the ideas provided by customers can be turned into successful products.

The presence of banks on social media like Twitter or Facebook can give them an extended reach that virtually no other channel can offer. These social media sites are used by millions of users across the globe and can give banks an opportunity to really market their products on a global scale.

Social media can work as an excellent opportunity to improve customer service by addressing customer concerns in real-time. Customers can chat with bank officials on Facebook or ‘tweet’ their queries to get immediate resolution on their queries. This helps banks improve their image and draw more customers by virtue of high-quality and responsive customer service.

Banks can explore various opportunities to extend their services and remain competitive by collaborating with new players who are dominating the social space.

Banks need to be relevant with their customers and be present wherever their customers are in order to be able to tap into business opportunities and increase revenue potential.

The cost of creating a social media channel are lower than that of setting up any other channel. The cost saved while implementing this channel adds to the returns on investment (ROI).

Social media can be used as an excellent marketing tool to launch and spread awareness about a bank’s new products and services.
Some of the major banks in US are on Facebook, Twitter, and other social networking websites to provide information about their products and services.

Recent examples of financial institutions presence in social media

**Citibank’s page on Facebook**
The page carries the results of a recent survey conducted to understand the expectations from social media.

**Wells Fargo’s page on Facebook**
US user can view wall feeds and post their experience and comments on multiple threads.

**Bank of America’s page on the Web**
The concept of community banking starts with the formation of closed groups comprising customers and banking associates of a given branch on a social media channel. The main reason for engaging customers via social media is to help them relate to each other. The groups will be carefully formed after detailed analysis of the customer's demographics and other considerations. This will be a kind of 'virtual branch' where a relationship manager or group of relationship managers will be assigned to each group who will assist the users in conducting banking activities.

**Strengthening customer connect**

The relationship manager will be able to provide advisory services over the Web, attend and respond to complaints or feedback on a real-time basis. The customers will have direct access to the bank's personnel, contrary to what happens in a typical phone banking or branch banking setup. This way, the customer's waiting time is expected to be considerably reduced, resulting in greater customer satisfaction. Moreover, technological advancements will decide how social banking can help reduce, if not eliminate, customer footprints on other channels.
**Extend partnerships to Internet users and online communities**

Online community banking will help in creating an envelope around businesses, customers and other institutions. External relationships like B2B and B2C can be supported by online community banking on social media platforms. Businesses can reach out to their customers with attractive products and services, in which the role of the bank will be in the area of lending or payment services.

Banks need to recognize that non-traditional players like PayPal and Google Wallet have moved aggressively to capture the B2C space in e-commerce and m-commerce.

These players have caused disruption in the existing payment landscape by bringing in new business models, supported by technological advancements. They have started attracting customers away from financial institutions, a move that is already having negative effects on the profitability of banks. After e-commerce and the initial success of m-commerce, social commerce (financial transactions on a social media platform) is slowly but steadily coming into its own. The use of virtual currencies is being seen as a critical component in making social commerce successful and taking the medium to the masses. Banks must adapt to these changes and act as enablers, connecting multiple business communities with one another on a suitable platform that supports virtual currencies.

In addition, a new concept known as person-to-person (P2P) lending has begun to attract attention with the entry of players like Zopa and Prosper, and is gaining momentum rapidly. P2P lending is built on the concept of building a network of interconnected Internet users and community members. Until now, they have been operating in isolation, but with steady growth in the number of participants, these platforms are moving towards better price discovery and will eventually disrupt banks’ existing lending space. Banks must, therefore, extend their partnership with new partners in this rapidly-evolving ecosystem, instead of overlooking them.

**Interact through functional forums**

Within the virtual community bank, different functional forums meant that different customer segments can be supported through blogs, wikis, and sub-communities. The information and process flows within these forums will be distinct for different segments like small and medium business (SMB) services, auto loan, home loan, portfolio management and advisory services, foreign exchange (forex) management, account opening and servicing. These forums can function as open and transparent media for discussions around provisions, rules and regulations, and offerings. Interaction within forums will allow customers to identify their peers and obtain reviews about products and services, which will ultimately help them make informed decisions. Understandably, this is a risky approach, but customers appreciate transparency and will like to deal with a bank, which is more transparent about its dealings with customers. The presence of these forums on social media platforms can provide excellent cross-selling opportunities for banks by helping track customer visits. However, there is a need to integrate these forums with existing functional systems that support offline and online banking.

**Delivering smart services**

In social media applications, the wall feed is one of the most important sources of information to gauge a customer’s likes, dislikes, preferences, and behavior patterns. Banks can leverage this information to design products with features and options that customers pick and choose based on their preferences. In addition, the use of analytical tools in areas such as social media monitoring and predictive text analysis within forums will help banks understand the pulse of the customer segment as a whole, will enable the development of highly targeted products and services. These smart and personalized products and services can be supported using intelligent digital assistants. It will enhance the pre-purchase research and experience around a product or service. The integration of smart digital tools like calculators, modelers, and simulators will help buyers in comparing different products. It will also help the customers understand what steps they should take to achieve their financial goals, and seek guidance in broader financial matters such as wealth creation and retirement planning. This will help to bring transparency and eventually result in quick decision making by the customer.
The use of social monitoring tools to collect positive and negative feedback, relevant market information, and analytical information derived from big data can help banks redesign their products and services, and improve existing delivery processes. In conjunction with integrated digital channels that deliver products and services, this system can help reduce time-to-market, which is essential in today's competitive world.

For example, Citibank posted a recent survey on their Facebook site, asking customers if they would like to conduct their banking activities on Facebook. The move met with apprehension from most customers citing security concerns but was welcomed by others. Before rolling out a product or service, it is a good exercise to gather customers’ opinion using social media to assess their basic needs and identify their major concerns. This will give banks a deeper insight into the customer’s demands and help them tailor their products or services, accordingly. Additionally, it provides banks with an opportunity to see different perspectives at the same time.

A well-designed product or service will likely get ‘likes’, reviews and recommendations from customers, which can go a long way in making it popular. These ‘likes’ and recommendations can be linked to reward programs, where banks must try to convert satisfied customers into loyal advocates, who will then promote their products and services. The overall cost of running such programs on social media will be significantly lower than traditional channels for marketing, sales, and service.

‘Going social’ – How easy is that?

Every new change comes with its own set of challenges, and so is the case with social banking. Following are some of the most important challenges banks face internally and externally when rolling out social banking initiatives.

- Customers may not like social media for banking activities
- A recent survey conducted by Citibank confirms the apprehension within the customer’s mind
- Hacking of personal information from social sites like LinkedIn raised serious concerns on security
- Difficult for C-suite executives to keep on investing without setting proper and measurable ROI
- Banking on social media might be similar to opening doors of the house for criticism
- No clear cut regulatory requirements on social media
- FINRA and SEC are concerned about the strategies to be adopted by banks and financial institutions in the coming year
- Requires changes in the internal culture of an institution
- Employees need to be trained to adapt to the real-time, demanding nature of the social media channel
- Any laxity can result in serious reputational and financial risk for an institution
- Need to leverage the existing investment in banking infrastructure
- Should be able to store and handle large amounts of data and develop business intelligence around it to derive meaningful business information
Mitigating challenges

The challenges listed in the previous section can be mitigated through a well-thought strategy and careful execution. As with any business strategy, the core in this case lies in managing the expectations of the customer appropriately. Once a bank has developed a sound understanding of its customers’ expectations, the next task is to convince its internal customers — senior executives and employees. The level of detail to be presented to these different sets of internal customers will differ. When the social media strategy is being presented to executives, a valid business case must be prepared and facts stated from a strategic point of view. For example, when presenting issues like brand visibility, improved customer service, indirect addition to ROI, and costs are presented to customer-facing employees, such presentation needs to be more tactical. Employees need clarity about process, what their roles are going to be, and what is expected of them. Thereafter, the existing IT infrastructure should be analyzed to devise ways, so the existing infrastructure can be used to enhance the benefits of social media.

As is the case with any new channel, it is normal for customers to be wary and critical of new engagement channels as they are not sure how these can possibly help them. But with better and more proactive customer service, banks can influence a customer’s opinion about the new channel. Additionally, banks can prepare detailed educational kits that inform customers about the capability of the channel. The key is to address their concerns well in time, and use their feedback effectively to improve service.

Today, social media is not directly linked to ROI, but as this channel matures, it is possible to devise ways to link ‘likes’ and recommendations to the revenues generated by the bank. It can also be measured in terms of reduced customer complaints and reduced cost for other channels. Keeping in mind the long-term objectives of the bank and through constant engagement with customers, the champions of the social media channel can gain support from executives.

Employees of the bank are critical to the success of any social media initiative. The employees need to be trained and motivated well, so they can navigate the challenges in banking on the social media. Organizational policies must be revised keeping in mind the requirements of this new channel and to effectively foster communication, both internal and external.
The bank can leverage its existing infrastructure, especially online banking, so it can expand its ‘footprint’ on the Web. The bank may give customers an option to login to their Facebook or Twitter pages and conduct their usual banking activities through secure channels. It is critical to consider the following technical aspects involved in the implementation of a successful social media strategy.

A thorough assessment of existing applications is required to understand how these systems can be leveraged to execute the social media strategy. It will also help in understanding the organizational constraints and overlaps between social media and other channels. The assessment will be crucial in defining a viable and tactical approach to implementation. For example, the online banking site can be enhanced with live feeds around a product or offering from Facebook or Twitter. When a customer logs in to the online banking portal, she/he can not only view a particular product, but also see what other customers are saying about the product.

With the introduction of social media, business processes and guidelines need to be defined for line-of-businesses exposed to the channel. These new or modified business processes will, in turn, impact the applications supporting these business functions. Therefore, a thorough impact analysis is desired.

Once the impact on the technology applications has been analyzed, an implementation roadmap can be prepared. Priority may be assigned to different applications that are impacted, based on their criticality and other criteria. For a single application, there might be numerous changes that need to be implemented. The changes need to be prioritized: what changes should go first and what can go later.

The next task is to devise a communication plan to inform the business users and end customers, where applicable, about the dates when the proposed changes will go live.

Points of contact need to be identified to resolve issues faced by the business or end customers when using the new application or a modified version of the existing application. The service level agreements (SLAs) must be carefully stated and monitored.

In the event of technical challenges, a contingency plan should be prepared to plan a roll back of the changes made and decide on modifications. Such modifications should be communicated to the users.
Where is social banking headed?

Considering its sweeping reach and potential for making a deep impact, social banking is definitely a powerful metaphor for banks that are really looking to bank for tomorrow. Even so, social banking is a media that is coming into its own, and still has to prove its financial mettle. For the moment, its use is confined, for the most part, to advertisements, information gathering, and awareness campaigns, but industry watchers think it might have a better scope in the future. But, riding on the back of social banking, can banks really hope to provide full-blown banking services? Its fortunes are dependent on the continuing popularity of social sites like Facebook, Twitter, Google+, and the rest of its ilk. What if customers lose interest in these sites and social media fizzes? And, as if that were not enough, recent incidents of hacking on social business site LinkedIn has raised major concerns for social banking. Will consumers bank on this hyper-interactive and widely popular, and yet not-completely-secure channel? But there is one thing champions of social banking can be rest assured about. There has been a good deal of suspicion about almost every enabling technology when it first appeared in the market, including microwaves and mobile phones. However, a combination of customer education and process improvements has resulted in the demystification of these technologies over time. Technology advancements will play a pivotal role in shaping the course of social banking. But for now, social banking is in its infancy and whether it stands the test of the time or withers away remains to be seen.

References

- Forrester Research Report ‘How US Financial Firms should approach interacting with consumers on social websites’ by Brad Strothkamp, October 2010
- A White paper on Social media for banks and financial services firms, 2010 Zensar Technologies
- Citibank Survey, Citibank page on www.facebook.com

1 Zensar Whitepaper on social media for banks and financial services, 2010
ii Infosys internal research
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Digital transformation framework
Digital transformation framework

A step-by-step primer to accelerate your digital journey

Saravanan Balaraj
Are you a financial services enterprise looking for opportunities to unlock the business value in digital transformation platforms? How can you add the ‘digital edge’ to differentiate your services and create a sustainable advantage? **Let’s find out.**

**The new digital wave**

The financial services industry has undergone tremendous changes in recent years. The market has become highly commoditized, making it difficult for any enterprise to survive if it fails to differentiate. To remain competitive, it’s become a necessity that enterprises continuously innovate to reduce costs, increase customer reach, and improve process efficiency by adopting advanced technologies and frameworks.

The emergence of digital technologies and platforms has added flavor to—and had a significant impact on—the financial services industry. Just five years ago, smartphones, tablets, and cloud-based ecosystems didn’t exist or were on the fringe of broad acceptance. But now, business losses and customer demands around access to banking services delivered through digital channels are leaving enterprises with little choice but to adapt digital platforms. Customers may jump ship and go elsewhere if they do not experience a consistently satisfying experience across digital channels or if they find that the digital channels offered aren’t user friendly.

The objective of any financial services enterprise is to maximize margins by efficiently managing business processes while simultaneously delivering customer satisfaction and loyalty. To achieve this, enterprises are using the twin-pronged approach of proactively consolidating disparate systems, and leveraging digital technologies and platforms. Doing so is helping enterprises attract and retain more customers, a clear indication that a refocus on customer-centered digital strategies can pay dividends.

Customers may jump ship and go elsewhere if they do not experience a consistently satisfying experience across digital channels.
Impact of digital transformation on financial services

Competitive pressures, coupled with the customer’s ‘give-me-more-for-less’ expectations, have created the right impetus for companies to reorient their core strategies toward a broader series of channels, mostly digital. Many institutions have started working toward enhancing market share in these new digital channels with a view to gaining a competitive edge.

Financial services enterprises that invested in advanced digital technologies are starting to reap significant benefits. The digital transformation initiatives that have proven successful are typically focused on changing customer relationships and experiences, redefining value propositions, and optimizing business models and processes.

In the financial services industry, digital transformation has been instrumental in driving changes in the following areas:

1. **User experience**
   - In this digital era, consumers have become tech-savvy, socially active, and selective in their purchases. They prefer products and services that are personalized, matching their tastes and preferences. Self-service venues rule the day. Consumers search for information on the Web and read online opinions and experiences posted by other users, all of which influence their financial decisions to a large extent.

2. **Business processes**
   - Because the marketplace has become more dynamic than ever before, standard business processes have lost relevance in the digital era and are being replaced by adaptive processes. For customers, the cost of switching to another bank is almost negligible. Therefore, to retain existing customers and attract new ones, enterprises need proactive, customer-centric processes. Enterprises have started building agile business processes so their design and process changes can be handled quickly, in step with the changes in the market. This can help reduce lead time for new product development and in addressing customer complaints.

3. **Operating model**
   - Companies have started reshaping their boundaries by offering the same products and services on their e-commerce and offline platforms. Moreover, the digital wave has not only changed the way enterprises operate but also how employees work, communicate and engage with customers.

While the business opportunities of digitalization are obvious, there are a number of challenges for enterprises to overcome—and pitfalls to avoid—on their transformation journey. The three areas mentioned above are the building blocks of digital transformation.

Another critical challenge is deciding how far and how fast to traverse the digital journey. The answer lies in adopting a differentiated digital transformation framework that can help address that challenge. The following are some key issues that enterprises will need to address in the process of planning digital transformation.

**Digital transformation challenges**

- **Privacy and security**
- **Infrastructure issues**
- **Integration issues**
- **Risk vs. benefits**
- **Multichannel synchronization**
Financial institutions are generally skeptical about the benefits of digital technologies and tend to think that the risks involved outweigh the benefits.

In today’s digital era, security and privacy are major threats to the financial services industry. Many financial enterprises are wary of digital technologies for fear of the reputational loss and financial penalties involved in exposing or leaking confidential information.

The enterprise’s digital capabilities depend on its IT infrastructure. The lack of IT infrastructure and capabilities can be a disadvantage in relation to digital technology adoption.

The lack of coordination between processes and customer touchpoints can cause failure when adopting digital technologies.

The integration of various processes and operations is crucial to successful digital transformation. The value derived from digital transformation can be lost if integration fails.

One of the best approaches is to thoroughly analyze how well digital technology will ‘fit in’ with the enterprise’s processes and operations. The key determinants of enterprise-technology alignment are reliability, performance and compatibility with the existing IT infrastructure. The implementation of digital technologies should be based on cost-benefit analysis, value to the business, and potential return on investment.

Effective authentication and monitoring mechanisms can help achieve a high level of security for access to digital channels. For instance, the implementation of multilevel security tools, such as auto-wipe options in phones and tablets to protect confidential information if the device is lost or stolen, can go a long way in boosting mobility-based security.

Digital transformation will be easier if there is a strong bond between IT infrastructure and business functionality. Consolidating operations and IT infrastructure can help achieve this bond and enable execution of process changes that are facilitated by technology.

The enterprise’s vision should be clear and its strategy should ensure that its online business complements—not competes with—its offline business.

The integration of multiple processes should be effectively handled, and managed. Channel conflict arises due to coordination issues between new and traditional processes. The new processes need to complement and work seamlessly with existing processes.

To effectively embrace digital technologies, enterprises need a digital transformation framework that can clearly map their offerings to the customer’s expectations. The framework should target all critical business areas and identify appropriate digital technologies for successful execution.
Having a rigorous framework is the success mantra for digital transformation. Let’s understand how the digital transformation framework actually enables an organization to build tomorrow’s financial services enterprise by going digital and helping them capitalize on that power.

Value pillars

The digital transformation framework, below comprises three value pillars. These pillars are the disciplines that enable the enterprise to create customer value and, at the same time, achieve a competitive advantage in the market. These value drivers are what make the digital journey successful. Let’s take a close look at each of these value pillars.

Customer satisfaction

Customer satisfaction revolves around customers, their touchpoints, and experiences with the enterprise’s offerings. This value pillar is about understanding customers, their needs and preferences; and devising appropriate strategies to attract and retain them.

Iterative roadmap

There is an iterative four-step process, below for driving digital transformation and delivering a user experience that is at once engaging and differentiated:

- **Engage** with customers all the way from product discovery to the point-of-sale, by means of digital content
- **Collaborate** by means of digital communities
- **Personalize** products
- **Offer** products and services across multiple, integrated channels

**Value pillar 1**

**Customer satisfaction**

Customer satisfaction revolves around customers, their touchpoints, and experiences with the enterprise’s offerings. This value pillar is about understanding customers, their needs and preferences; and devising appropriate strategies to attract and retain them.

**Iterative roadmap**

There is an iterative four-step process, below for driving digital transformation and delivering a user experience that is at once engaging and differentiated:
Strategic initiative

The key strategic initiative to achieving customer satisfaction is getting social. Enterprises can capitalize on their customers' increased tech literacy and social activeness levels to build meaningful relationships and create business opportunities.

Social networks enable institutions to engage and collaborate with customers, and facilitate an enterprise to drive business through information-sharing and community-building. Online communities bring together like-minded customers and make it easier for banks and insurers to classify customers based on their preferences. An institution should leverage social and networking websites like blogs, Wikis, Twitter and Facebook to collaborate with customers outside their 'boundaries' and resolve issues faster. This is a win-win situation for both, customers and service companies—customers overcome challenges and grow their businesses while institutions build their customer base by offering financial products that match consumer preferences and interests.

Institutions can use these interactive communities for advising clients, and building both brand and loyalty bases. Social networks have made it easier for enterprises to:

- Identify prospective customers through online digital marketing initiatives
- Personalize offerings based on customer analytics
- Provide multi-channel delivery of financial products and solutions – integrated with mobile devices
- Resolve customer problems with intelligent insights

The uniqueness of a bank or an insurer's digital strategy in terms of how it addresses its customers' social inclination determines its level of competitive differentiation. Enterprises now have an environment that actively supports the transition from being just listeners to actively engaging and collaborating with customers to create long-lasting relationships for long-term business sustenance. If implemented efficiently, the strategy can result in success for the enterprise and customers. Satisfied customers often serve as social advocates, resulting in more business for the company.

Case study

American Express OPEN Forum (www.openforum.com) is an online resource hub for small business owners and entrepreneurs to communicate, collaborate and exchange thoughts. Through Connectodex, members can share, promote and market ideas. The Idea Hub feature offers perspectives from business experts in addition to encouraging interactions, articles and discussion boards. In 2011, it had more than 200 contributors and is now the leading resource for small businesses. Through this initiative, Bank of America aims to help customers collaborate with other members and benefit from experts' advice while the bank itself gains a deeper understanding of the business needs and imperatives of small business owners.
Process excellence

To cope with the changes in the market place in this digital era, it’s essential for financial service enterprises to ensure faster implementation of new processes, so they can meet quality standards and compliance requirements, while reducing time-to-market. For that, they need to move from a functional to a process-oriented mindset.

Iterative roadmap

Business process management focuses on the ways and means to automate and optimize operational practices. Below is an iterative four-step process for successful digital transformation of business processes:

- **Model the business processes**
  - Identify the business goals and the Key Performance Indicators (KPIs)
  - Model the processes to drive these metrics
  - The resource and process bottlenecks are to be continuously monitored and managed without affecting business continuity

- **Build to automate**
  - Automate the business processes
  - Processes must have competency and capability of handling business challenges

- **Optimize deviance**
  - Process excellence is achieved through process optimization by handling deviations between actual and KPIs
  - Processes are remodeled if needed

- **Manage and monitor**

Iterative roadmap for process excellence

Strategic initiative

The key strategic initiative to achieve business process excellence is business process management (BPM). BPM implementation can help enterprises create new avenues for growth, increase process efficiency, and improve competitive differentiation. It creates an agile platform and optimizes business processes, end-to-end. BPM implementation acts as an enabler in the development of new products and services by reducing the time-to-market and costs, improving customer service, and effectively managing compliance.

Some of the key processes for which financial service enterprises can leverage BPM are:

- **Regulatory compliance management**: Regulatory compliance is an ever-increasing ‘burden’ for financial organizations. Enterprises are looking for ways to efficiently respond and adhere to new regulations. BPM offers financial enterprises the visibility they need into their processes as well as variability required to manage regulatory changes.

- **Customer case management**: The concept of case management is gaining momentum among financial service enterprises. Case management represents a powerful approach to manage customer interactions across the customer relationship lifecycle. This enables enterprises to surpass customer expectations and increase profitability by up-selling and cross-selling new financial products.

- **New product development**: An important factor that determines the success of a new financial product is how quickly it reaches the market. Applying BPM in research and development can ensure collaboration across processes while streamlining both processes and tasks, thus helping speed the entire product development process.
Operational excellence

The operating model plays a significant role in achieving business excellence. With digital technologies inexorably driving financial business online, it is critical for enterprises to extend their boundaries by ‘going digital’.

The operating excellence paradigm focuses on the business model, customer engagements, delivering products and solutions in online and offline formats, integrating offline and online offerings, and optimizing the value chain across customer touchpoints.

Iterative roadmap

The following is a four-step process for building a successful operating model in the digital era:

1. Identify the cost-effective channel
2. Design without conflict
3. Leverage available information
4. Integrate value-delivery components

Strategic initiative

The key strategic initiative to achieving operational excellence is the cloud. Cloud computing creates win-win situations for both the firm and customer. From the customer’s view point, it brings better user experience and service while for an enterprise, transitioning to the cloud reduces risk and helps achieve faster returns on investment (ROI).

Some of the key applications that a financial enterprise can move to the cloud are:

- E-commerce
- Analytics, including data mining, text mining, and data warehousing
- Business services, including customer relationship management, purchase trend analysis, spend analysis, and loyalty management
- Pricing and promotions, including price discovery, promotional timings, and channel discovery
Social + BPM + Cloud:
Integration of strategic initiatives is crucial

Digital transformation in the financial services has brought significant changes for customers and for enterprise business processes and models. To remain sustainable in today's digital world, financial service companies must exceed customer expectations, optimize and manage business processes efficiently, and build a unique operating model that integrates multiple channels. To achieve this collective objective, service firms must integrate social networks, BPM, and cloud.

Cautionary note: To increase the likelihood of success, the digital transformation journey should ensure that both activities—adopting digital technologies / platforms, and implementing effective management of business processes and the operating model—are undertaken hand-in-hand. Simply focusing on going digital without proper BPM and robust operating model can result in failure.

An interactive social network helps in winning customer loyalty by creating a unique customer experience. BPM drives process excellence by impacting business processes. The cloud helps achieve operational excellence by influencing the operational model. This BPM-cloud-social network combination is a key enabler of business innovation.

What does the future hold?

Digital transformation in the financial services industry has built intense pressure on enterprises to redefine and rethink their interactions with customers, business processes, and business models. Leveraging the full potential of digital technology is the new imperative before financial service enterprises looking to gain a competitive edge in the market.

To fully exploit the potential business opportunities inherent in going digital, financial services firms need to build and execute a digital transformation framework powered by digital platforms and technologies.

The adoption and integration of BPM, cloud and social networks can make the digital transformation journey profitable and successful for enterprises. This digital trinity can help enterprises save costs, grow in scale, reduce time-to-market, and increase mobility, with the ultimate goal of driving innovation around products to ensure market leadership.

References

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Straight-through processing

Can this mantra make magic in producer lifecycle management?
Limitations remain. But it looks like producer lifecycle management is still going to change the rules of the game.

**Producer lifecycle management**

**Current state**

As financial industries look to increase their ‘producer’ workforce several fold in the next few years, they face the challenge of crunching their recruiting and on-boarding time for new staff. The current process involves manual steps at almost every stage in the producer lifecycle. The current producer on-boarding process in many companies falls well short of best practices. Only automation can help ensure more efficient recruitment and on-boarding.

Producer lifecycle management (PLM) in insurance lacks standardization at almost every step in the entire lifecycle. The application process varies with each company, as does every subsequent step in the producer lifecycle. At the moment, there are few vendors in the market who provide an end-to-end PLM solution. There is also a shortage of vendors who specialize in just one stage, such as producer on-boarding.

We propose the adoption of a more seamless process that involves increased automation and standardization of the entire PLM process. In the future, processes will be defined by an automated workflow, electronic signature, electronic content management, as well as integration with a system of business rule management. Insurers can consider working with the Association for Cooperative Operations Research and Development (ACORD), which develops standards for insurance industries and helps define a standard set of application questions that cover aspects such as contracting and registration.
The entire lifecycle of a producer, starting from recruitment through to termination is called producer lifecycle management. Although the PLM lifecycle might differ from company to company, some of the core building blocks remain unchanged across organizations. The following is a high-level representation of the core building blocks that comprise a typical PLM system.

PLM begins with sourcing candidates for producer and sales openings during the recruitment stage. After the recruitment process, candidates complete applications wherein they provide personal details, such as social security numbers, or details of cases against them that are either pending or have been closed. Candidates are then subjected to a rigorous underwriting process, in which insurance companies perform background checks using vendors, such as the Business Information Group (BIG) and the Financial Industry Regulatory Authority (FINRA) in the US. Agents must obtain licenses from the respective states before they can sell their products. At the end of this process, the candidates receive an employment contract that associates them with the financial firm.

In order to do business in the securities industry, an aspirant is required to clear certain qualifying examinations. For the candidate to be considered eligible to take the exam, the financial firm must submit Uniform Registration (U4) applications to FINRA, a process called 'registration'. The entire cycle of contracting, licensing, and registering a new agent is called 'producer on-boarding'.

Compensation is the next stage in PLM. Agents are primarily compensated by way of commissions, based on the magnitude of their product sales, in addition to other modes of compensation like salary, for instance. Like every other industry, producer compensation differs from insurer to insurer. If they are to be considered eligible to continue doing business, producers must retain their licenses by regularly completing the required courses in education and take the requisite examinations.

The other aspects of PLM include a need to alter the nature of these contracts or producer transfers between offices. The PLM process ends with producer retirement or termination.

Figure 1: A high-level representation of the core building blocks that comprise a typical PLM system
In a world that is getting digitized by the hour, paper-intensive manual processes continue to define the current state of PLM practices. Lack of automation in almost every step of the process has limited the firm’s ability in many cases to recruit at the rate they would have preferred. No single PLM solution or product can come to terms with the complexity of the issue. Also, there is no standard application form in life insurance for on-boarding producers. A paper world brings in its trail, serious concerns around storage and retrieval; manual processes mean additional staffing, resulting in increased spend.

PLM implementation – So what’s the problem?

Unified application form

There is no single application form that can be used across companies and it is difficult to develop a standard solution for PLM. The solution lies in standardizing the initial application process. The ACORD form that is used as a standard by various insurance segments can be used to standardize the application form for producers in the life insurance industry.

Straight-through processing

Companies are looking at a range of options that can help them cut cost, reduce manual effort, and increase efficiency. One of the answers is straight-through processing (STP). STP includes automating the handoff between systems with minimal or no manual intervention. It involves building a workflow with a pre-defined number of steps, with the system automatically progressing through each of these steps. The recruiting solution will automatically move candidates into the contracting process, which automatically generates a standardized application that the candidate must complete. Once the candidate completes and submits the application, the process automatically integrates with external service providers to perform the candidate’s background check, fingerprint verification, licenses, and so on. At the end of the process, an STP-enabled PLM system would generate the contract and submit it for a candidate’s e-signature. In STP, the workflow comes to a halt only if there is an error or issue with the application. This ensures that manual intervention is minimal and provided only where absolutely required. The graphic on the right is a high-level overview of STP as applied to PLM.

There are vendors in individual spaces such as recruitment, licensing, background checks, and compensation, but there are few single vendors who can offer a solution that can impact the entire process end-to-end or even impact the on-boarding process in its entirety. The vendors in these individual spaces do not have workflows built for their spaces, so there is no complete automation. In this setting, vendors who can help achieve STP with the following core components can claim the lion’s share of a market that is looking forward to an end-to-end solution.
Under the bonnet – Proposed solution for PLM solution

Following is a high-level depiction of the components of the proposed solution for PLM.

The system possesses workflow capabilities, in addition to capabilities for sending notifications to the appropriate parties. Additionally, the system will enable users to manage the business rules in the workflow. This is achieved by integrating the system with a business rules management system (BRMS), like iLog. This eliminates any need to involve the IT team when changing the rules in the system, which has been a serious limitation in the past.

Social media sites are increasingly proving to be treasure troves for companies trolling for leads. Recruiters search social media sites such as Facebook, for potential candidates. Key providers of recruiting solutions are planning to integrate with social media sites or have social media already included in their solution. Such recruiting solutions even interface with jobsites like CareerBuilder and Monster.com.

Recruiting solutions perform resume parsing in case of key experiences, as well as establish interfacing with social networks to do background checks. With increased use of social networks, integration with external systems will prove a windfall for recruiters. Recruiting solutions minimize the manual effort required in searching for candidates and increase the efficiency of the recruitment teams.

To realize effective automation, every aspect of the process has to be digitally transformed. The signing of documents using electronic means (electronic signature) is going to be a sheer necessity on the road to complete automation. There are various types of electronic signatures and attestations that an organization can choose from:

- Clicking a check box
- Entering a password and the date of signature
- Entering a password as well as answering some personal questions

The company’s legal department will have to take a call on the type of e-signature they would want to use for contracts and other documents. Most government agencies have now started to accept e-signatures including FINRA, who use them for background checks, and state governments in the US, who use it to license applications.
Automated document generation and automated check-in and check-out are going to be key features of electronic content management. Multiple versions of a document can be maintained and retrieved at any point in time. The document can provide auditors details such as date when added and user who added or changed the document.

Automated integration with external and internal systems is a key requirement to achieve STP. An STP workflow process will automatically trigger data exchange between systems at pre-defined stages. For example, the system can trigger the data exchange between the National Insurance Producer Registry (NIPR) for submitting and retrieving license information. Data that is exchanged between two systems could be automatically processed for accuracy and completeness. Here are some vendors who can implement automated integration: RegEd’s Xchange, for example, allows for integration with NIPR. It’s a system of record for all state licenses; BIG’s solution offering in PLM has an intuitive user interface for capturing data and performing background checks.

User data may be stored across different systems including systems for recruitment, compensation, and on-boarding. The proposed solution will integrate data and display all the producer-related data in a central repository, thus making life easier for users who can access all of their information at a single portal.

Currently, there are some limitations when it comes to including business rules in the code, but these can be easily overcome using a business rules engine such as iLog. These tools can externalize business rules in the form of plain sentences, instead of code. Thus, these rules can be managed by the producers themselves, thereby eliminating the need to depend on the information systems (IS) team for every rule change.

Integration with BRMS tools will be a bonus; though, there could possibly be performance issues when the system is required to check BRMS in case of every rule. Due to this limitation, the rules that go into BRMS must be carefully evaluated. A good thumb rule for determining if a rule is applicable for inclusion in BRMS is to see if the rule changes quite often. If it does, that means it contains calculations, making it a good candidate for BRMS.

The proposed solution provides producers with a portal that can host all their personal information and documents. The producers can use this portal to implement their changes (such as address changes, initiation of transfers, and contract changes) using the self-service route. This will remove a great deal of dependency on the part of home office users, while providing them with the flexibility they need to change the data at the appropriate time. Some of the changes may trigger a workflow process, and the proposed solution must take such scenarios into consideration. For example, a producer who has disclosed details of a recent arrest will be required to undergo the entire underwriting process.

Where’s PLM headed?

Despite all of its limitations, PLM promises real potential in driving significant improvement and growth in this, largely virgin market. Security remains a key area of concern, what with all the sensitive producer information stored in a digital format. Companies that are currently paper-based may have some reservations about moving to e-signature. However, with an increasing number of organizations and governments making a beeline for e-signatures, it is only a question of time before the security threats around PLM vaporize.

An STP-enabled PLM may limit the flexibility systems have in integrating with the company's internal systems. While it is possible to standardize the integration with external vendors, it might be difficult to integrate the producer data that companies have on their internal systems with the STP-enabled PLM systems. The most important advantage that comes from implementing an STP-based PLM system is the self-service capability of the producers, which enables candidates and producers to maintain their own profiles. It also ushers in a scenario in which rules can easily be modified to ensure compliance with federal and state government regulations, thus reducing resource requirements and driving cost savings. Finally, with a single application in action across all companies, changes will be controlled and auditing will see clear improvements. Above all, it will significantly improve the turnaround time for on-boarding producers.
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