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Emerging Opportunities - Emerging Economies

Near Field Communication (NFC)

Near Field Communication or NFC is a shopper's delight and mobile payment industry's next big hope. Near Field Communication (NFC) is a short-range wireless technology that enables the communication between devices over a distance of less than 10 cm. The NFC standard is defined in ISO/IEC 18092. The current state of consumer electronics is moving away from single purpose devices to multipurpose devices without having the networking glitch. NFC is the first step towards achieving it and thereby making life simple for end consumers. The interfaces operate in the unregulated RF band of 13.56 MHz. This means that no restrictions are applied and no licenses are required for the use of NFC devices in this RF band. The data transfer typically takes place at 424kbits/second. The devices have to be brought within 4cms of each other; communication then happens via electromagnetic induction between the two loops antennas forming an air core transformer. A touch or a wave can then establish this connection between the two devices. NFC has two modes of operation, one is the passive mode in which only the initiator establishes the RF and the target application uses the load modulation to transfer the data. Contrary to the passive mode in the active mode the initiator and the target both generate their own RF to carry data transfer.

But then how will the new technology be adopted by consumers who are already cluttered with a plethora of technological innovations? Does NFC have a future as a sustainable business venture? Have companies already started developing the required infrastructure for these devices? What is the state of infrastructure readiness in emerging economies? Has the technology already been implemented? What makes NFC so distinct from the already present devices such as Bluetooth or wireless Ethernet?

Through this article we will look at answering some of these questions and come to a conclusion on the future of NFC.

NFC is surely going to make life easy for the consumers, let's take a look at few of the examples how the NFC technology influences day to day behavior:

- NFC tags can be used on parking permits, credit cards, and money (RFID is used to track bills) to prove authenticity. An NFC hologram is copy-resistant and can be made invalid if it is stolen.
- Connecting devices becomes simple and fast. No networking glitches to set up a connection just hold the devices close to each other and the connection starts.

- Contactless payment speeds up check outs at unattended tolls and exit points like parking slots. Payment can be made using e-money stored on the NFC device.
- With NFC-enabled devices like mobile phones, you can buy tickets, receive them on your device, and go through turnstiles (at railway stations) while others wait. You can check your balance or update your tickets remotely. Contactless ticketing thus helps you save time and with their speed and flexibility.
- You can quickly download information (such as a bus timetable) by bringing your NFC-enabled phone close to a sign with NFC-readable information.

The inherent characteristic of the NFC is based on the contactless infrastructure already in place around the world and used by millions of users.

What is the business viability from the supplier point of view? Well NFC has many advantages from the supplier point of view, some of which are:-

- **Reduced ticketing costs** – Ticketing operators see reduced costs in operations with the introduction of NFC through electronic ticketing. Also because NFC is a secure technology, airlines have already adopted it in its "e-ticketing" module.
- **Revenue stream expansion through VAS** – Mobile Operators can see their revenue stream increase with the use of NFC technology because users will be surrounded with advertisements and other important information within its comfort reach.
- **Adoption of rich media content** – NFC paves way for users to adopt advanced personal devices that mainly used for entertainment, storage and media sharing purposes.
- **Ease of use** – ticketing is not a differentiator but the mode of payment and user convenience is, therefore NFC-enabled services makes payments options easier for the end user and this will fuel the adoption of contactless technology.

Retailers will be the main drivers of the contactless technology mainly through the ease of payment options and the reduced lead time between payments. Retail marketing via coupons and smart posters will fuel the growth of NFC transaction values from US$8bn in 2009 to $30bn within three years. Retailers have been quick to pounce on this information, making fundamental changes in their payment systems to increase customer loyalty and also to reduce lead time in payment options.

Industry estimates suggest that 16 % mobile subscribers worldwide will have a NFC capable mobile device by 2014 and that NFC represents $80 B+ opportunity. This opportunity is tremendous. Contactless Smart Cards Market in the world is estimated to become a $2-3 B in

size 5 years from now. Till now U.S and few regions across Asia-Pacific have provided growth and Asia-Pacific represents the largest market for contactless smart cards. **NFC chipsets cost $2-$2.5 today and forecasts are that the costs could go down to as much as $1 by 2013, thus making it perfectly viable for commercial use.**

To further illustrate the growing reach of NFC let us have a look at some of the existing players around the globe and understand their business models:-

- The market is currently dominated by FeliCa-enabled (Sony's) phones on Japanese mobile networks, where about 50 million FeliCa-enabled phones have been shipped to date. North America, Western Europe and Far East & China will be the leading regions by 2013, with each region having annual shipments in excess of 25% of total NFC phone shipments.

- In some smaller markets, successful mobile money initiatives have been implemented already. Mobilkom Austria rolled out the world's most extensive NFC service in September 2007 has made €50m in mobile payment revenues so far in 2009, a growth of more than 30 per cent on the year before.

- Infrastructure is already in place in certain countries and more companies are joining the bandwagon making it global phenomenon. The Maxis FastTap NFC service has gone live in Malaysia. In the U.S., an NFC pilot program involving payments processor First Data, Sprint, and San Francisco's Bay Area Rapid Transport system and burger chain Jack in the Box was signaled a success for mobile commerce.

- **In the developing world such as India a pilot project named Citi Tap and Pay was started in Bengaluru**. It allowed consumers who were holders of the Nokia 6212 handset (with embedded NFC chip) with a Vodafone connection to make payments at select retail outlets by just tapping their phones at the pre installed payment machines. NFC technology firm Vivotech Inc. supplied contactless terminals and over-the-air transaction software. A connection is established between the two NFC enables machines and the payments are debited from the Citibank MasterCard credit card. The project was launched in top 500 retail outlets across the city. The project provided deep insights into how the technology could be modified and to create user awareness about NFC payments. Talks are also on to include NFC enabled ticketing in Delhi Metro Project.

One major boost to NFC/Mobile transaction is due to the recent announcement made by RBI approving daily transaction of Rs50, 000, which has seen slow growth until now.

- China Unicom will officially launch its NFC service by 2010. It will only be used in subway stations and bus terminals where NFC terminals have been installed. This will be the first commercial deployment of the NFC service in China. The response to which has been overwhelming with the first lot NFC enabled handsets being sold out in 3 hours.

- Other pilot projects in China using NFC technology are taking place in three test areas:-

    - Shanghai – 6, ooo terminals equipped to support NFC based contactless payments. Functions available include mobile credit card bill payments, top-ups, utility bill payment, online shopping and both hotel and air ticket reservations.
    - Ningbo - consumers can use their mobile phone to shop at more than 7,000 merchants across the city and to pay for travel on ten bus lines within the city.
    - Changsha – contactless payment terminals established across discount stores, supermarkets, cinemas, Medicine stores etc.

But some mobile manufacturers do not want additional costs in their manufacturing and consumers don't want to replace existing phones too soon, thus the new technology might be delayed in its entry point. But none the less companies have been working on developing mobile phones that are NFC enabled in anticipation of the change in consumer sentiments because no one wants to be left behind in the race.

On the question of whether NFC will overlap the already existing wireless technology market, NFC does not intrude the market space of Wi-Fi or Bluetooth. Experts argue that NFC cannot be used to download images, or as a WLAN because data transfer using NFC is too slow and there are other faster mediums available. At speeds of less than the 424 Kbits/sec NFC is slower than other devices which offer speeds close to 1- or 7-Mbps of either Bluetooth or Wi-Fi.

Thus, we at Knowledgefaber believe that the NFC model can be quickly made viable for both the developed and the developing world. NFC seeks to make life comfortable for the consumer, the crux being the ease of use of the new technology. Bringing two objects close to each other for data exchange is rather intuitive and NFC combines the human touch with existing systems

to make the concept intriguing for the times to come. Hopefully we can have a world free of unwanted plastic cards, paperless transactions and increased security and transparency in transactions at the same time delivering all these at minimal costs.