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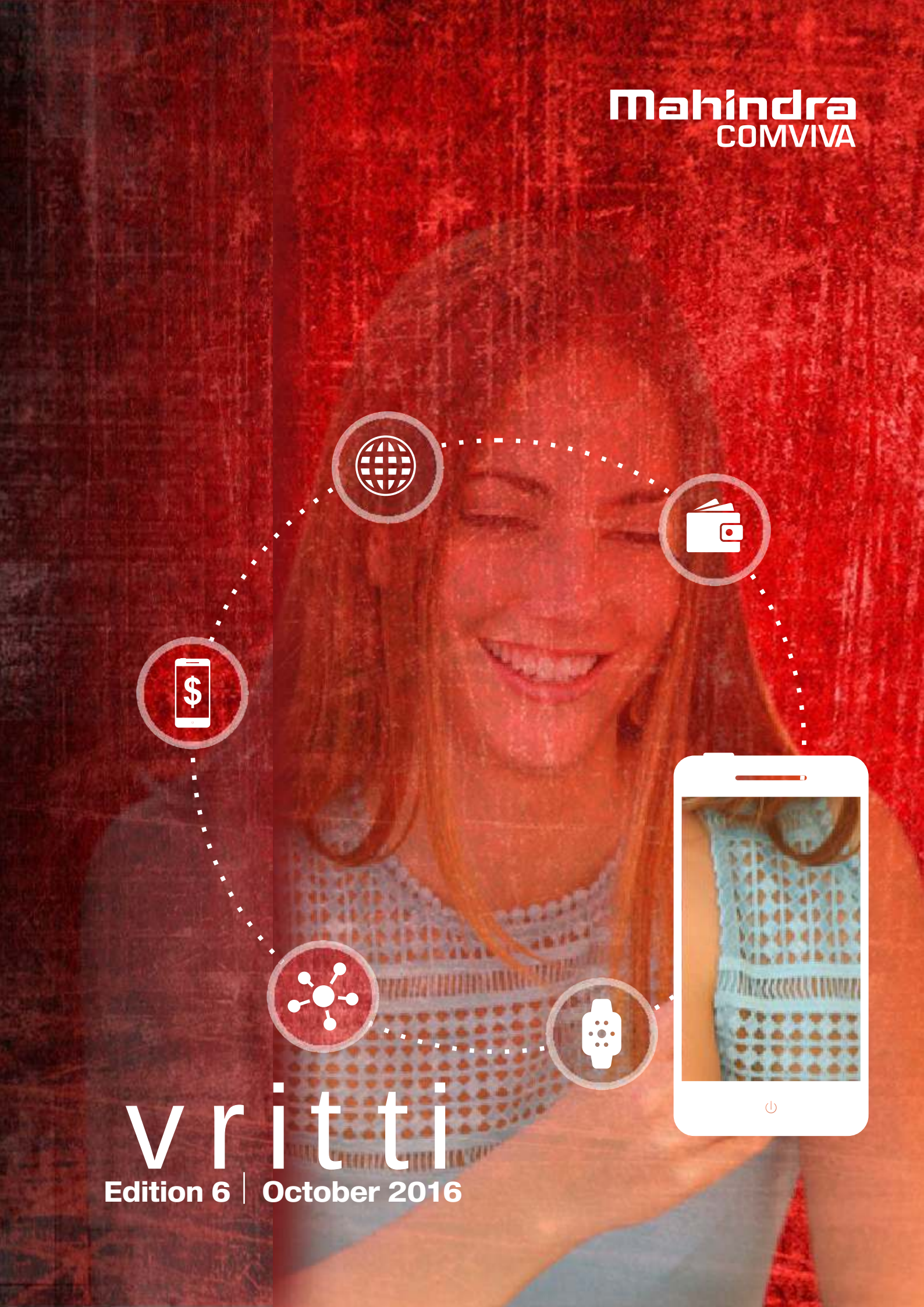


vritti

Edition 6 | October 2016

Blurb

Dear readers,

In this quarter's edition of Vritti we provide you with a rich selection of articles covering NFC, IOT, growing mobile wallet market in the Middle East and the role of mobile money in rehabilitating refugees in conflict zones.

In the article "Demystifying IOT", we focus on some of the amazing opportunities IOT provides, besides looking at the enabling system of standards and technologies needed for it to thrive.

In our "NFC 101" boot camp, you learn about various NFC usage cases, NFC technologies and some really neat parlour tricks, like instantly configuring your WiFi /Bluetooth with just a tap of your mobile NFC device.

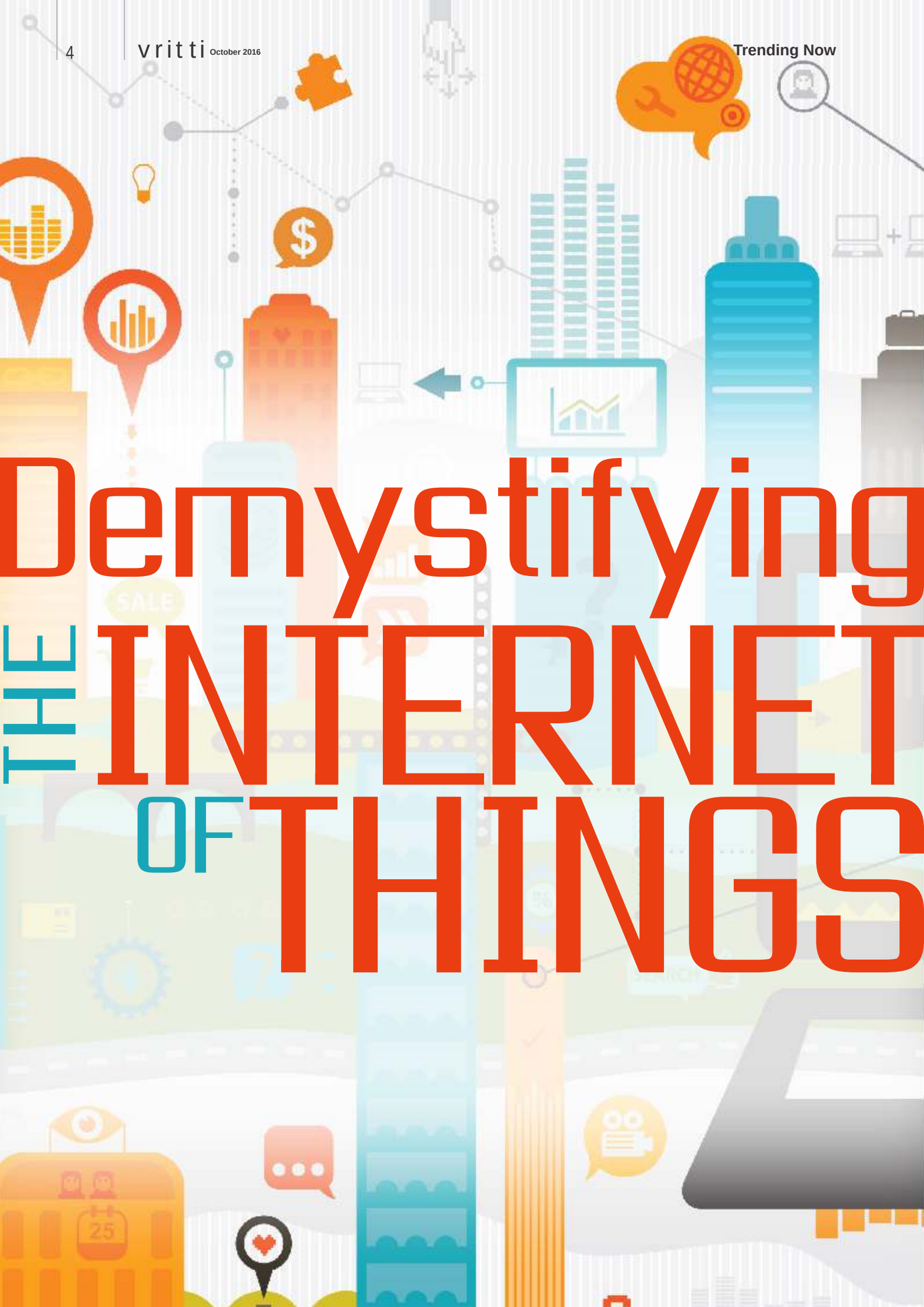
Next, we turn our attention to the Middle East with its increasing base of mobile wallet users. We have focussed our attention on the evolution of mobile payments in the region with our articles "Kick-Starting the Mobile Wallet Revolution in the GCC region" and "Iran: Poised for Mobile Wallet".

And finally, "Right to a Future: Empowering and Rehabilitating Refugees through Mobile Money" looks at how mobile money can play a big role in the economic rehabilitation of refugees by replacing food aid with digital cash aid.

I hope you enjoy reading our articles like we enjoy writing them for you.

Happy Reading!

Srinivas Nidugondi
SVP and Head of Mobile Financial Solutions
at Mahindra Comviva



Demystifying THE INTERNET OF THINGS

By Rajasekhara Reddy P

The concept of the “Internet of Things” (IoT) is no longer the stuff of science fiction but an essential part of the reality of our everyday lives. Today, there are more than 13 billion interconnected digital and electronic devices in operation globally, the equivalent of nearly 2 devices for every human on earth. Although the most common examples of IoT consist of the so-called “smart home” devices such as programmable thermostats and remote controlled appliances, future growth of IoT is more likely to come from applications of the technology in commercial and industrial environments and healthcare and public safety.

In payment industry, IoT provides device manufacturers with a path to embed secure payments into their connected devices, enabling anything from a watch to a car to initiate payments. Imagine with just a touch of a button, consumers could pay for gas/petrol, food or parking, toll gate, without leaving their connected car.

I will be briefing about the specific technologies that make the IoT possible, and provide details on current standards development activities in progress.

The Promise of the Internet of Things

The “Internet of Things” (sometimes also referred to as the “Internet of Everything,” or IoE) generally refers to the multiple networks of devices or technology platforms (“things”) that communicate with each other via wireless protocols and without direct human interaction. Connections made through IoT-enabled devices facilitate the rapid and efficient transfer of data needed to support a wide range of activities and operations.

Some research companies estimate that the global market value for IoT products and devices, currently about $655 billion (USD), will increase to $1.7 trillion by the year 2020, a compound annual growth rate (CAGR) of 16.9 percent. Today’s IoT is already bringing advanced technological capabilities to multiple consumers, commercial and industrial market segments. Some examples of current and potential applications for IoT technologies include.

Consumer and residential:

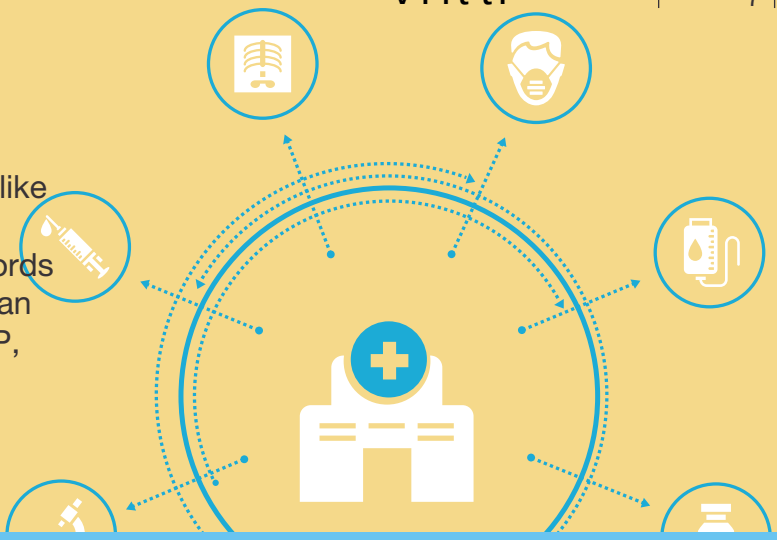
Remote monitoring , control appliances, lighting, heating , air conditioning, water usage, security for house, entertainment systems ,smart watches, eyeglasses.

IOT provides a number of usage cases in the consumer durables segment. Sensors embedded inside household appliances provide a steady stream of information that can throw light on the status of the device: how much energy/resource/time is the device consuming? Is it broken? When to schedule maintenance and repair? Connecting sensors to household devices can provide x-ray vision that can drive the behavioral changes that not only make our lives simple and seamless but also lead to better utilization of scant resources.

Now we have smart fridges that do the buying for us. Sensors fitted inside the fridge ensure that we never run out of eggs, milk, bread by placing orders before the provisions are about to run out. For insurance companies, smart fridges like these could help in fixing premium based on user’s lifestyle and eating habits.

Health and Healthcare

Under this category wearable devices like wrist bands provide real time data for doctors to update patient medical records from any location. Wearable devices can keep close tabs on vital metrics like BP, blood sugar, heart rate etc providing insurance companies with the data for fixing premiums.



Transportation

IoT applications in the transportation sector include smart cars and smart roadways that can help manage the flow of traffic and minimize congestion, and applications that identify vacant parking spaces. IoT transportation applications are also being applied to public transportation systems, helping to balance capacity with anticipated ridership in real time, and providing riders with accurate scheduling information. In payments, car sensors would debit your mobile money account with the requisite parking fees as soon as it senses that you have vacated the parking spot which would take away the day to day hassles of physical payments. Not only parking, today's connected car experience allows payments for petrol/diesel and toll fees, with just touch of a button.

Industrial and manufacturing

IoT has many industrial usages too. For example, with sensors embedded inside machines, it is possible to keep a close watch on various metrics like motion, temperature etc which can help to schedule maintenance. IoT technologies can monitor inventory levels at warehouses and retail outlets, helping to optimize inventory investment.

The environment

Finally, IoT technologies are being used to monitor environmental conditions that could affect human, animal or plant life. IoT-equipped sensors can be used to detect rising water levels in rivers and streams that could lead to flooding, increases in air pollution levels due to automobiles or industrial activity, localized atmospheric conditions that could portend an increased risk of forest fires, and even vibration patterns that could signal risk of an earthquake, landslide or avalanche.

These examples represent just a small sampling of the myriad of current IoT applications, and illustrate some of the many potential benefits that can come from the continued growth and deployment of IoT technologies.

The deployment of the IoT is based on a handful of enabling technologies. These include communications networks and protocols, hardware devices and components such as sensors, wireless charging technologies and software.

Communications Networks

An IoT network can be defined by the total area within which IoT devices are expected to operate. Smart home IOT can operate on LAN (Local area network) and consumer or residential applications can operate on Wide area network (WAN), PAN (Person Area Network) -based IoTs enable the wireless connection of computers with printers and other peripherals, entertainment systems with headsets and remote controls, body area networks (BANS) provide connectivity between a variety of wearable technologies and smart clothes, and even implanted devices.

Wireless Communications Protocols

Most IoT applications require the use of wireless communications protocols to enable the transmission of data between devices. Some of the Wireless communication protocol are Wi-Fi , Bluetooth and variant, NFC, Zigbee, ZWave, The appropriate wireless protocol for a given IoT device is usually prescribed by a number of factors, including the type of communications network with which the device is intended to operate, anticipated data rate requirements, the availability of energy needed to support communications transmissions, and any application-specific requirements regarding security.

Charging Technologies

Wireless charging technologies are becoming increasingly important for IOT as it eliminates power cards and cables for charging.

Software

Finally, like most technology platforms, IoT depends on multiple types of software. These include IoT platforms and protocols, embedded operating systems and dedicated IoT applications. Certain software tools are intended for use with specific IoT applications, such as those intended to support smart home devices. In addition, some software is proprietary and may be subject to certain commercial restrictions, while other software is open source and freely available for use.

Standards Development Activities by Key contributors

Huge efforts are currently underway to develop standards and protocols that will help to guide future IoT technology development. Some of the Key development activities are

IEEE P2413 - IEEE has created draft standard for an Architectural Framework for the Internet of Things (IoT). It intends to define common architectural elements for IoT technologies, and the relationships among various IoT applications.

Open Interconnect Consortium — The Open Interconnect Consortium (OIC) is working to develop open source specifications to support interoperability between various types of IoT technologies.

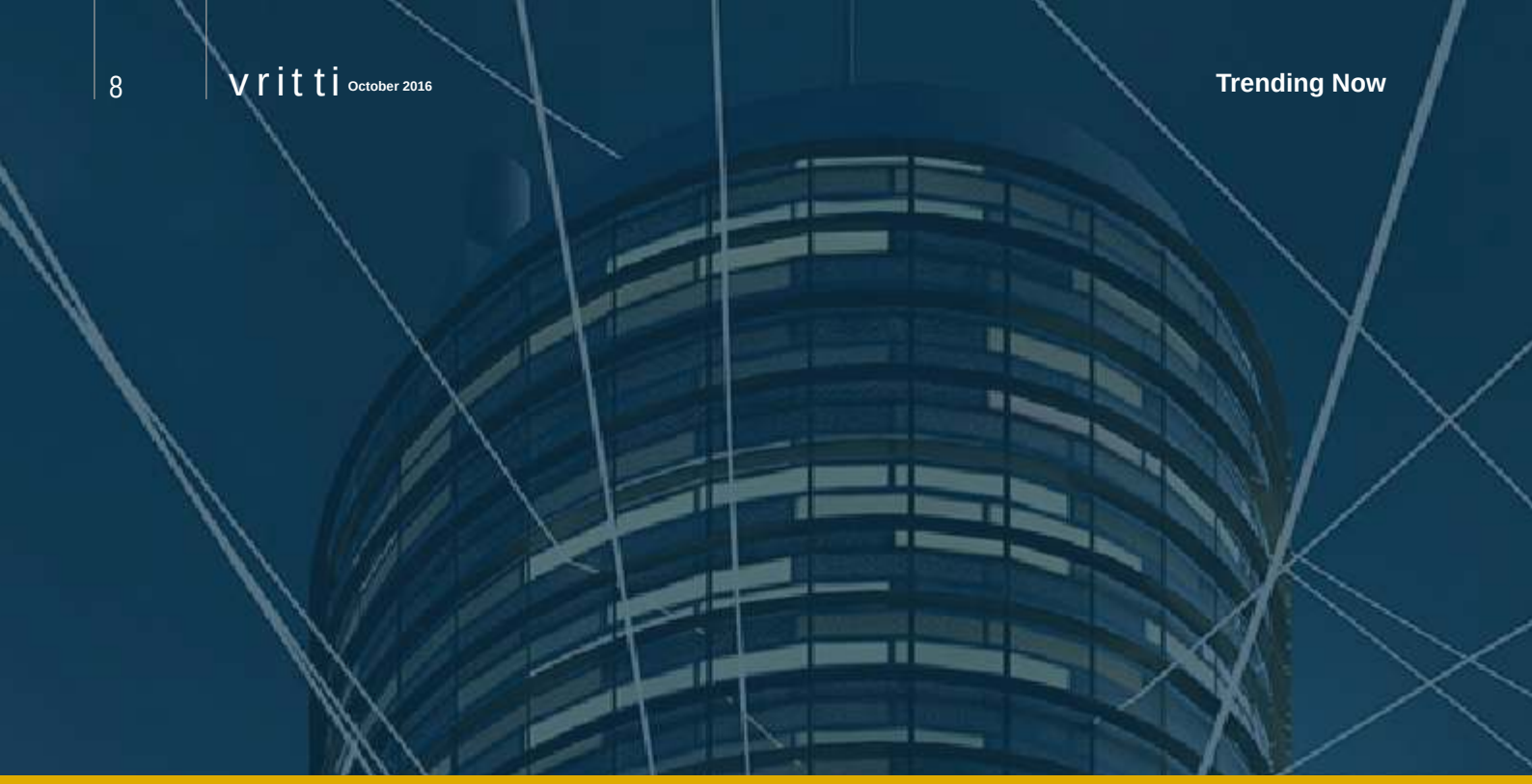
Industrial Interconnect Consortium — The Industrial Interconnect Consortium (IIC) is working to develop an open framework architecture, standard specifications and security requirements for IoT technologies. The IIC and OIC signed a strategic liaison agreement in February 2015 to foster collaboration between the two groups

Thread Group — This group promotes the interoperability of IoT technologies and devices used at home. Recently Thread group launched certification program which uses Thread Protocol along with UL .

Some of the other organizations like NFC Forum, AllSeen Alliance, AirFuel Alliance are working for IOT interoperability applications that run on most operating systems and platforms .

The industry has played an important role to date in the development of standards applicable to IoT technologies, as part of the larger effort to support interoperability between IoT devices and applications.

International Electrotechnical Commission (IEC) and International Organization for Standardization (ISO) are also working to define standards for IoT .



Conclusion

IoT has the potential to increase availability of information, and is likely to transform companies and organizations in virtually every industry around the world. As such, finding ways to leverage the power of IoT is expected to factor into the strategic objectives of most technology companies, regardless of their industry focus. The number of different technologies required to support the deployment and further growth of the IoT places a premium on interoperability, and has resulted in widespread efforts to develop standards and technical specifications that support seamless communication between IoT devices and components. Collaboration between various standards development groups and consolidation of some current efforts will eventually result in greater clarity for IoT technology companies

About the author: Rajasekhara Reddy P is a technical manager working for Mobile Financial Solutions division. He has over 14 years of experience in mobile solution space. He is a technology enthusiast with keen interest in the Payments space. He, along with his team has to their credit quite a number of patent filed.

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NFC 101

- By Parveen Rai

NFC is the hottest and most happening technology to dominate the contactless domain. The contactless card has evolved into an NFC Mobile Phone by adding the functionalities on a mobile phone. An NFC Mobile Phone has three advantages compared to existing contactless cards:

— Interactivity
— Remote multi-application management
— Remote user management.

What is NFC?

NFC stands for Near Field Communication. NFC is a short range wireless technology that allows communications to take place between devices that either touch or are momentarily held together usually by no more than a few centimetres. The technology works via magnetic field induction and operates on an unlicensed radio frequency band.

NFC operates on 13.56 MHz on ISO/IEC 18000-3 air interface at rates ranging from 106 to 424 kbit/s. NFC enables seamless integration of electronic devices by providing safe, simple and intuitive communication path among communicating devices.

How to establish NFC connection?

NFC is designed for intuitive, simple and safe interaction between electronic devices. NFC communication is enabled by bringing two NFC compatible devices over a shorter range. NFC itself can be used for the direct exchange of data or to call other contactless data transfer technologies, such as WLAN or Bluetooth®.

SOCIAL NETWORKING

NFC simplifies and expands social networking options:

File Sharing: Tap one NFC device to another to instantly share a contact, photo, song, application, video, or website link.

Electronic business card: Tap one NFC device to another to instantly share electronic business cards or resumes.

Electronic money: To pay a friend, you could tap the devices and enter the amount of the payment.

Mobile gaming: Tap one NFC device to another to enter a multiplayer game.

Friend-to-friend: You could touch NFC devices together to Facebook friend each other or share a resume or to "check-in" at a location.

BLUETOOTH AND WIFI CONNECTIONS

NFC can be used to initiate higher speed wireless connections for expanded content sharing.

Bluetooth: Instant Bluetooth Pairing can save searching, waiting, and entering codes. Touch the NFC devices together for instant pairing.

WiFi: Instant WiFi Configuration can configure a device to a WiFi network automatically. Tap an NFC device to an NFC enabled router.

eCOMMERCE

NFC expands eCommerce opportunities, increases transaction speed and accuracy, while reducing staffing requirements. A Personal identification number (PIN) is usually only required for payments.

- **Mobile payment:** An NFC device may make a payment like a credit card by touching a payment terminal at checkout or a vending machine when a PIN is entered.
- **PayPal:** PayPal may start a commercial NFC service in the second half of 2011.

  Google Wallet is an Android app that stores virtual versions of your credit cards for use at checkout when a PIN is used.
- **Ticketing:** Tap an NFC device to purchase rail, metro, airline, movie, concert, or event tickets. A PIN is required.
- **Boarding pass:** A NFC device may act as a boarding pass, reducing check-in delays and staffing requirements.
- **Point of Sale:** Tap a Smart Poster tag to see information, listen to an audio clip, watch a video, or see a movie trailer.
- **Coupons:** Tapping an NFC tag on a retail display or Smart Poster may give the user a coupon for the product.
- **Tour guide:** Tap a passive NFC tag for information or an audio or video presentation at a museum, monument, or retail display (much like a QR Code).

HEALTHCARE

Some medication packaging contains RF tags. An NFC app running on a NFC-enabled mobile phone could be used to help patients ensure they are taking the correct dose at the right time with just a tap of their phones.

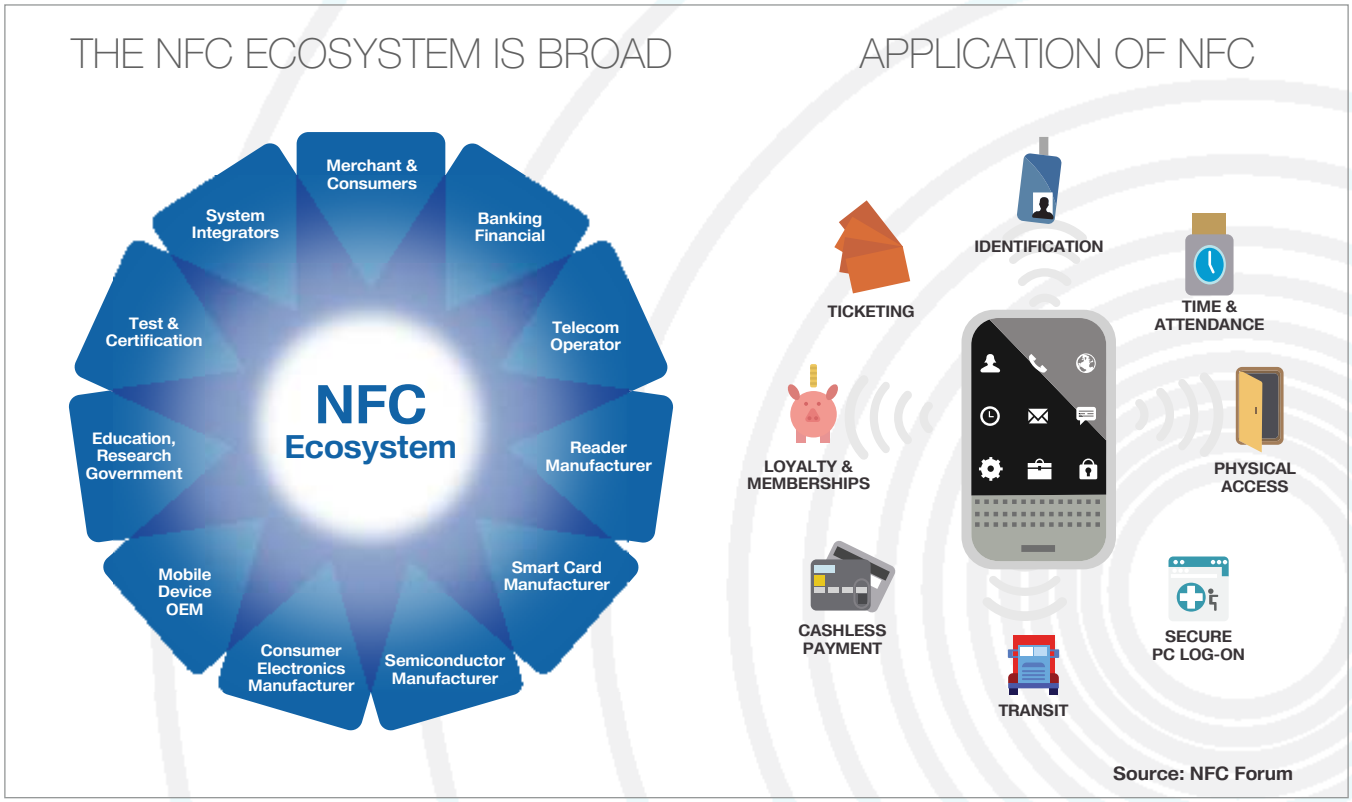
IDENTITY DOCUMENTS

NFC's short range helps keep encrypted identity documents private.

- **ID card:** An NFC enabled device can also act as an encrypted student, employee, or personal ID card or medical ID card.
- **Key card:** An NFC enabled device may serve as car, house, and office keys.
- **Rental Car and hotel keys:** NFC rental car or hotel room keys may allow fast VIP check-in and reduce staffing requirements.

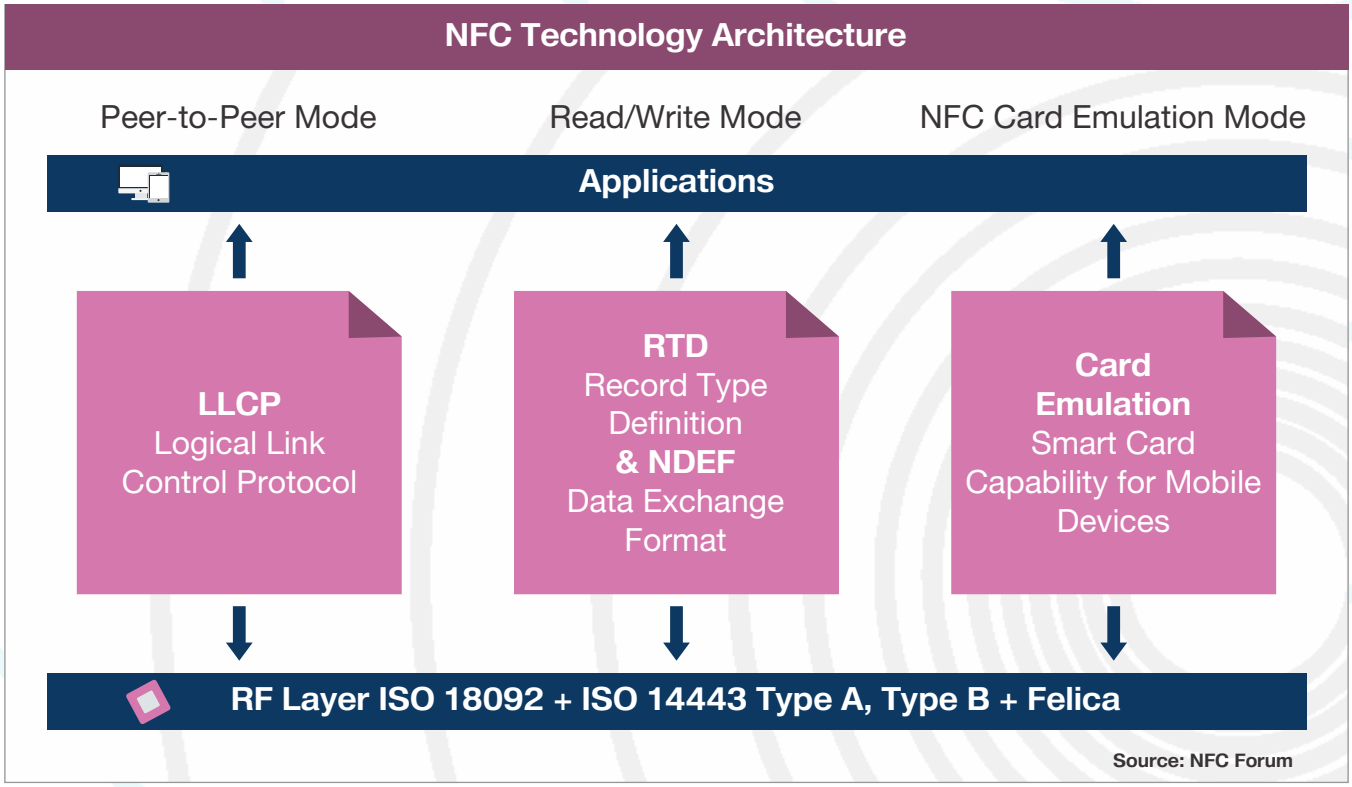
What is the difference between NFC enabled device and an NFC tag?

NFC device represents an active device, which generates radio signals to communicate with the tags. The reader powers the passive device in case of passive mode of communication. But an NFC tag is a passive device which just stores information which is read by NFC active devices.



What are the uses of NFC?

The uses of NFC are categorized into three major sections which are as below.

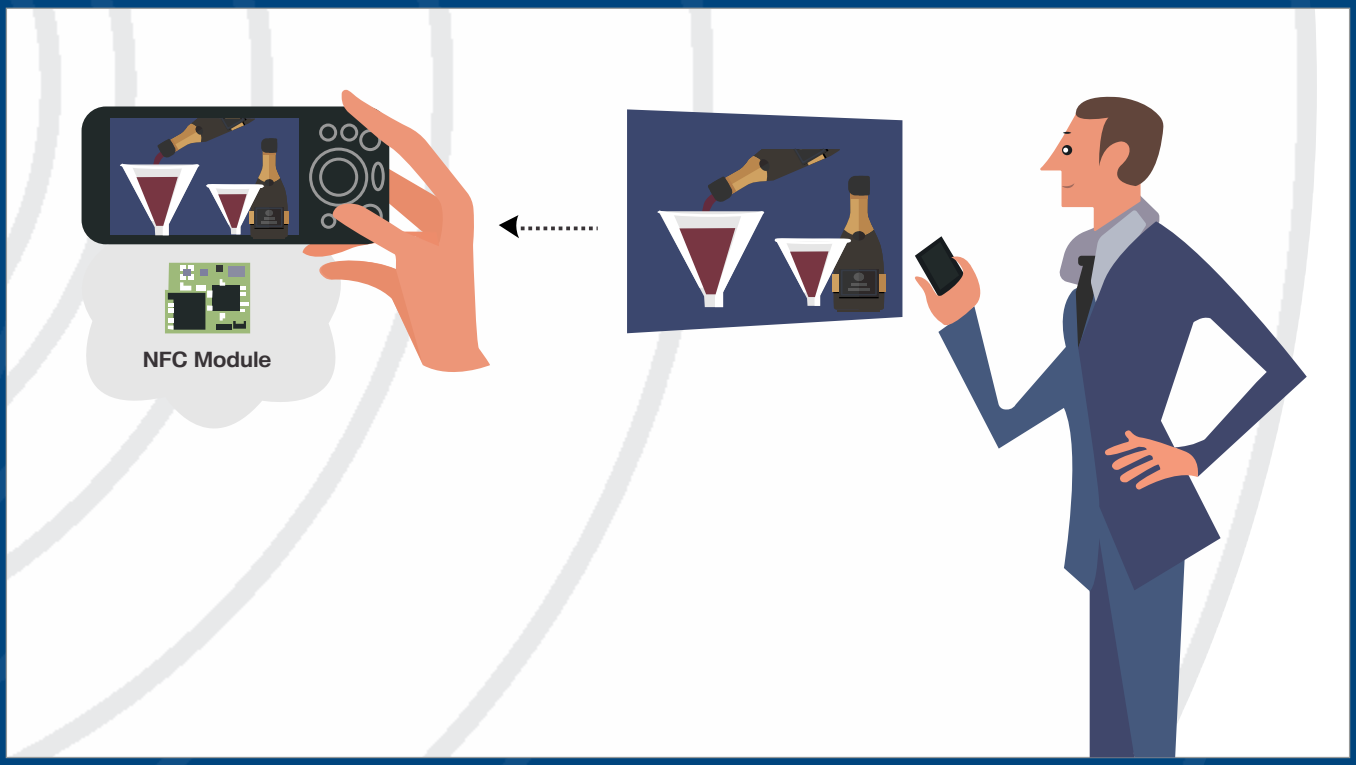


NFC Reader/Writer Mode

This mode is basically used for service initiation to read NFC tags. An NFC enabled phone reads data when tapped against an NFC –enabled smart objects and act upon that information.

Here are the real time use cases of this mode.

- When a NFC enabled mobile phone terminal is held near or made to touch a smart poster.All the information (URL, etc.) contained in the Smart poster is transferred to the phone.



- NFC enabled device can send SMS texts without typing.
- NFC labels enable connection setup to the mobile internet to be made significantly easier.
- NFC is the critical link for Internet of Thing which is designed and engineered to provide zero power operation and maximize privacy both at lower cost.
- Authentication, access control
  - Store Electronic key
  - Secure PC log-in
  - Unlock car doors
  - Setup your home office with a touch by your phone
- Wi-Fi and Bluetooth sharing by simply tapping on the NFC Tag.
- NFC rate tags for all the commodities available for purchase.
- NFC tags can be used as credit card.

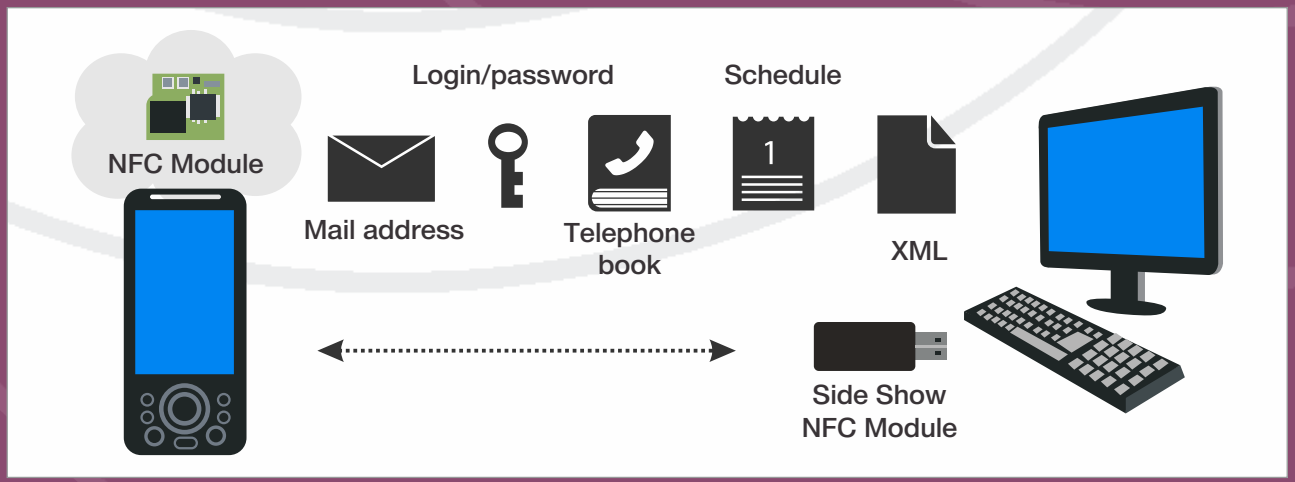
NFC Peer-to-Peer mode

In this mode, Two NFC-enabled devices is used to communicate with each other for exchanging the information in adhoc fashion. Peer-to-Peer mode is standardized on the ISO/IEC 18092 standard.

- Provides a communication channel between NFC-enabled devices (initiator & target) to exchange data in a point-to-point communication manner. Initiator generates its own RF field and target acts as a transponder.
- Any data transfer is in Request-Response (Normal Response Mode).
- **Initiator:** Initiates the communication by sending messages to target P2P device.
- **Target:** Replies to the request from Initiator.

Below are the real time use cases of this mode.

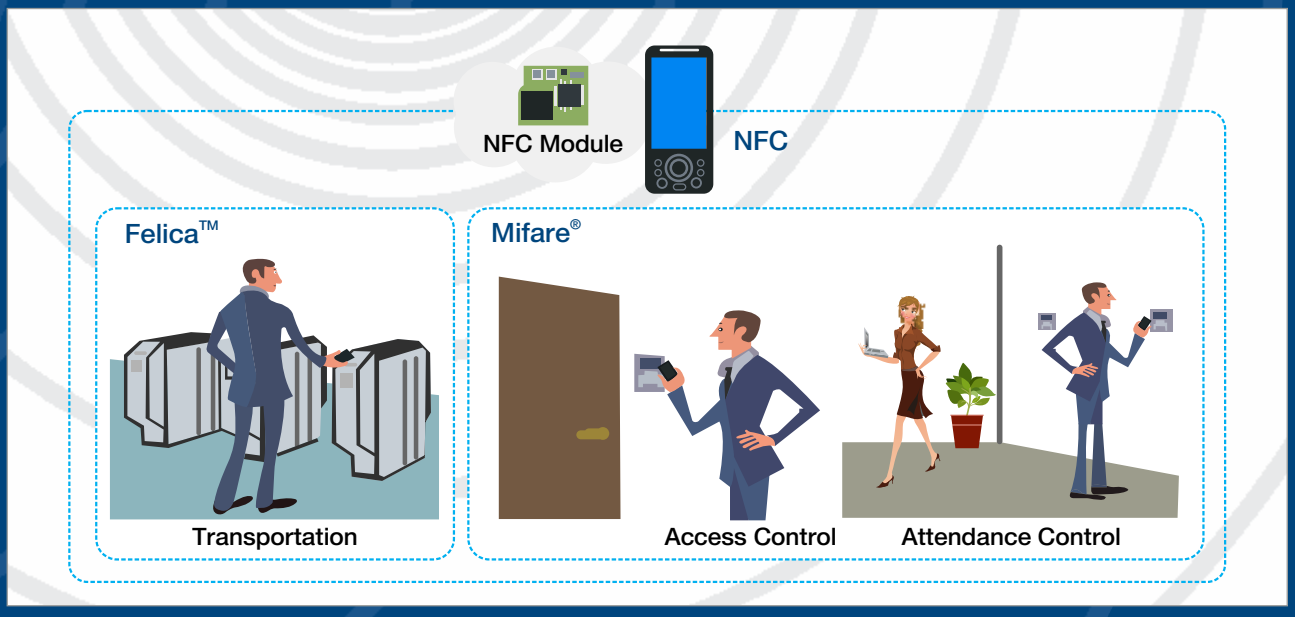
- Simply touching (holding near) the mobile phone to the PC, smooth authentication of data such as mail data, schedule, image data, phone directory, XML data, etc, and file information exchange are enabled.



- To exchange small amount of data e.g Set up and share Bluetooth or Wi-Fi link parameters, exchanging business card or NFC P2P Payment, NFC channel itself can be used for exchanging information.
- To exchange music or photos between two NFC enabled devices, NFC channel facilitate connection (using handover connection mechanism) to Wi-Fi or Bluetooth for faster exchange of data.
- NFC enabled Bluetooth speakers or earphones can use NFC to establish initial Bluetooth connection.
- Printing images can be done through a NFC enabled printer.

NFC Card Emulation Mode

It allows an NFC Mobile Phone to behave like a smart card or tag in front of a conventional Reader/Writer. This includes the emulation of memory cards/tags and the emulation of smart cards. Using this mode, existing infrastructures (e.g., for contactless payment and ticketing) can communicate with NFC Mobile Phones supporting NFC Card Emulation mode.



In this mode NFC device will act like an "electronic Wallet" which replaces, credit, debit, pre-paid and any other magnetic cards which people use for transactions these days.

NFC chips have been around for years, installed in smartphones and other consumer devices. Then Apple embraced NFC to develop Apple Pay and now NFC is a common phone feature. The payment industry tokenization standards used by ICICI Pocket, IDFC Ziggit and Samsung Pay have helped these services scale, and the standards have made it easier for payment services to work with credit cards, debit cards, loyalty programs and gift certificates.

Below are the real time use cases of this mode.

- Users can pay money stored on their digital wallet at parking lots, shop check-outs etc.
- NFC devices can act like contactless virtual payment cards.
- NFC enables contactless tickets and cards to be held in everyday devices like mobile phones. Instead of carrying several physical cards, you can choose to carry some or all of your cards within a personal device like an NFC-enabled mobile phone.
- NFC technology can enhance contactless payment at shop check-outs or unattended payment machines like parking meters. You can pay using virtual payment cards or e-money.
- With NFC enabled devices like mobile phones, you can buy tickets, receive them on your device and then go through “fast track” turnstiles while others wait.
- NFC technology is helping to increase the acceptance and usability of contactless services because it is based on an international standard, designed to work for any service, in any place, around the world.

An estimated 1.9 billion phones worldwide will be NFC-enabled by 2018 and this is just an introduction about NFC technology and its wide range of possibilities.

That's all for now, “**Learn to Tap ....And Tap to Learn**"

About the author: Parveen Rai is a Lead Engineer for Mobile Financial Solutions at Mahindra Comviva.I have 6 years of experience in NFC domain.He has completed his Engineering from UIT, West Bengal. Prior to his current stint, he worked with Aricent Technology. He is a technology enthusiast with a keen interest in NFC and payment space.

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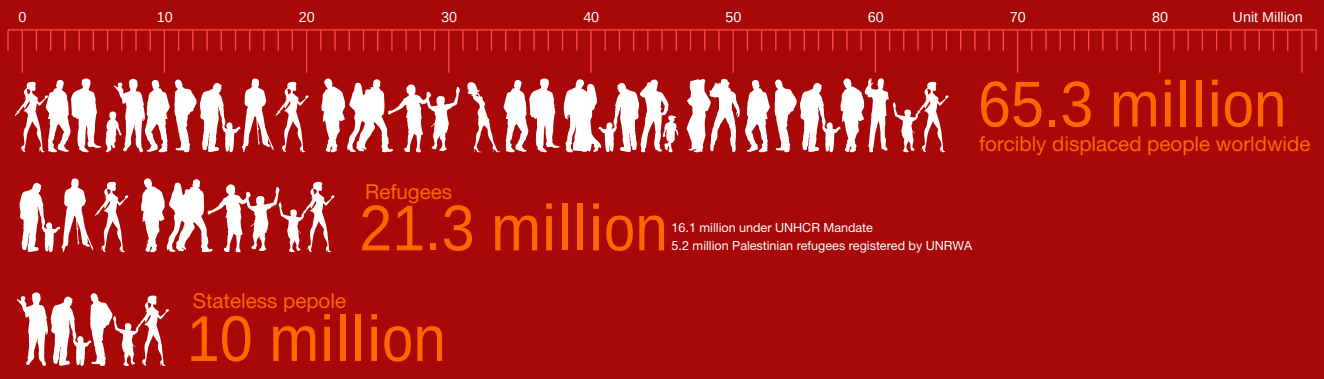
RIGHT TO A FUTURE:

EMPOWERING AND REHABILITATING REFUGEES THROUGH MOBILE MONEY

— By Mohit Bhargava

The world is experiencing one of the biggest refugee and displacement crises in its history. According to United Nations High Commissioner for Refugees (UNHCR), the number of displaced people is at its highest ever, exceeding even post-world war II numbers. An unprecedented 65.3 million people around the world have been forcibly displaced from their home. Among them are nearly 21.3 million refugees, over half of whom are under the age of 18[1]. In fact, if all globally displaced people form a country, it would be bigger than the United Kingdom and France.



Source: UNHCR

Millions are fleeing from countries impacted by war, conflict, discrimination and poverty in search of a better life. However, even after relocating to more secure and stable regions, the refugees still have to face poverty and multiple hardships. Moreover, the influx of refugees into the host country is impacting economy and political stability of the host country, which only serves to alienate the refugees even further.

Concerned about the seriousness of the issue, the world leaders convened on September 19, 2016 to address challenges related to large movements of refugees and migrants, immediately prior to the general debate of the 71st session of UN General Assembly (UNGA). The meeting resulted in the adoption of New York Declaration for Refugees and Migrants, which expressed the political will of world leaders to protect the rights of refugees and migrants[2]. On the ground-level this translates into providing aid and support to the refugees and migrants, enabling them to fight poverty, hunger and insecurity. It also extends to economically empowering refugees and migrants so that they can send children to school, secure a job or do business and live a dignified life.

Till now the focus has been in meeting basic needs like food and the aid is mostly in-kind such as sacks of flour and rice. Almost three-fourth of the assistance given by World Food Program (WFP) is in-kind[3]. However, in recent years there has been a shift from food aid to cash aid. With limited banking infrastructure and complexities involved in opening and operating a bank account, mobile money has emerged as an apt channel to disburse cash aid directly to refugees and migrants. With 271 mobile money services in 93 countries and agent network much greater than the banking and ATM network, mobile money is the most viable financial inclusion and cash transfer medium for refugees and migrant.

The concept of transferring cash directly to refugee's mobile money account rather than providing food supply has multiple advantages. Firstly, cash aid offers freedom of choice allowing a family to decide on which food item to buy. In case of food aid, the aid recipients mostly complain about the quantity and quality of food. With cash aid, they have control over food choice and expenditure, which allows them to balance food quality and quantity and get proper nutrition. Cash aid also provides choice to refugees to spend all of the aid money at once, or save it in the form of mobile money on their phone for future needs. Secondly, as cash aid is in digital format, it is secure and cannot be stolen. On the other hand, aid in-kind is prone to theft as many refugee camps or colonies are not safe. Moreover, cash aid is distributed equally to all refugees. There are no queues and the entire process is instant and convenient. In case of food aid, refugees often quarrel to get more food bags. Digital money also supports nomadic life style of many refugees, who can make payments even when they are on the move. Thirdly, refugees can make payments directly to the shopkeeper using mobile money via a peer to peer transfer. They do not need to covert money from digital format to cash, making the entire process cashless and convenient. Even in case the refugees want to have physical cash, they can cash-out at mobile money agents, which are present in large number in many countries. Lastly, mobile money based cash aid is more transparent and prevents corruption. When aid is

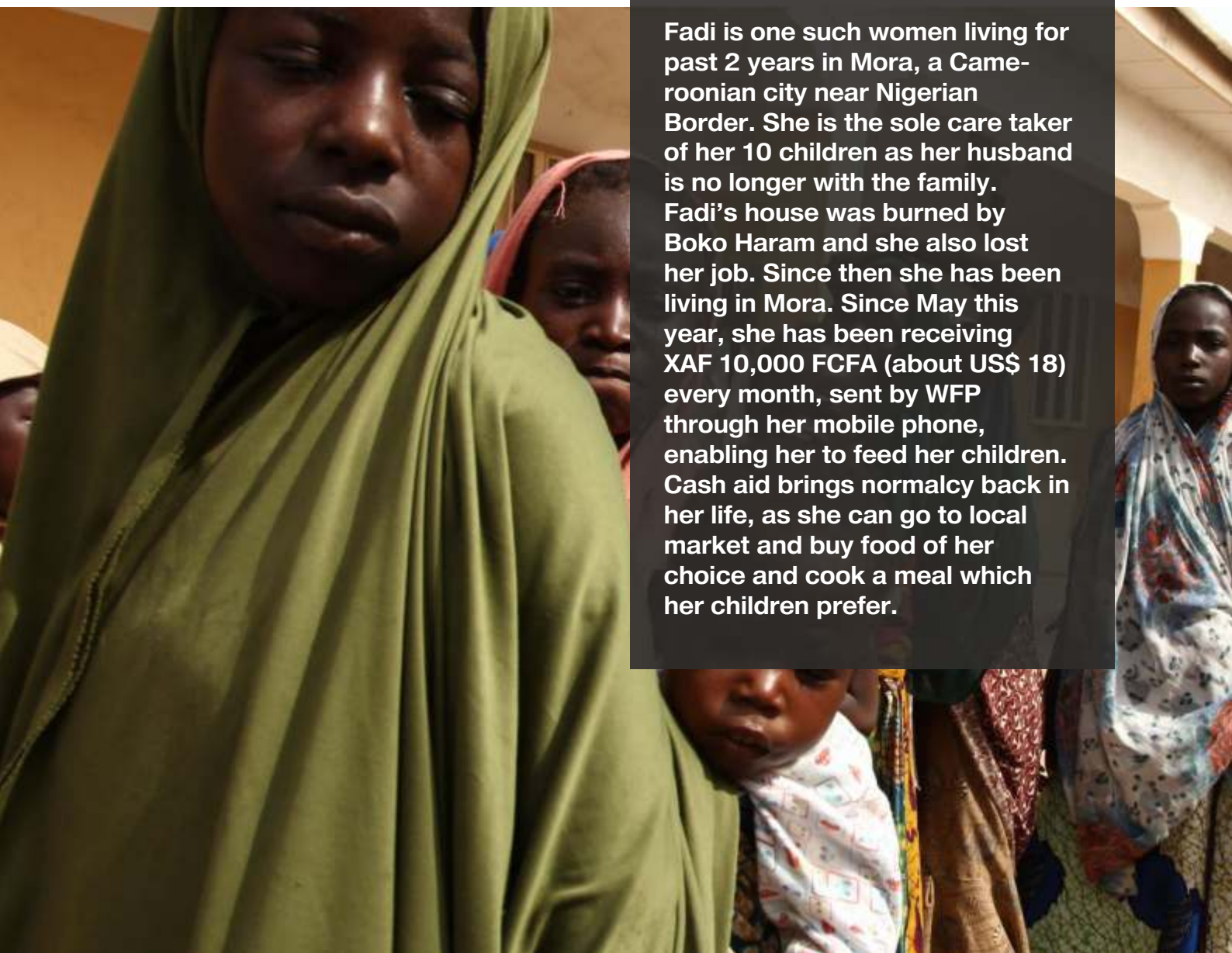
distributed in form of food, middlemen are involved, who take their cut or pocket a part of supplies and sell them in open market. From 2003 to 2012, more than half of the $17.9 billion the United States of America spent on food aid went to contractors[4]. Another drawback of food aid is wastage. Food aid is mostly sourced from donor countries and transported to refugee areas. This process can take days during which food can rot or deteriorate in quality.

Beyond food, cash aid can also be provided for other purposes such as paying school fee for children, providing start-up capital for business and providing financial assistance to build house. This echoes with UN'S aim of generating the feeling of respect, safety and dignity in refugees. From technical stand point, the same mobile wallet can be used for providing cash-aid for different purposes. It is also possible to designate funds for a

particular cause, for example, an agency can provide funds which can only be used to buy food at particular shops. This helps to ensure that the aid is used for its intended purpose that is buying food, while ensuring that the customer also has the freedom to decide on which food item he wants to buy.

The benefits of mobile money based cash aid programs are not just on papers. Many mobile money cash aid programs are live and have been running successfully. For example, the World Food Program (WFP) in Cameroon is providing mobile money based cash aid to vulnerable refugees and displaced people, impacted by the Boko Haram insurgency in the region. Cameroon hosts over 190,000 internally displaced persons and 340,000 refugees, from Nigeria and the Central African Republic, who have fled conflict and violence spilling across borders. In 2016, WFP aims to provide assistance to 500,000 internally displaced people and refugees in Cameroon[5]. WFP cash aid program specially targets single women households and try to bring stability in their lives.

Cameroon is not a one off case. In Kenya, WFP is providing financial aid through mobile phones to refugees in Kakuma refugee camp. With the digital cash, refugees can buy food of their choice in local market. Shopkeepers in the camp carry two phones; if a customer doesn't have their own, they can use it to access their electronic funds[6].



Fadi is one such women living for past 2 years in Mora, a Cameroonian city near Nigerian Border. She is the sole care taker of her 10 children as her husband is no longer with the family. Fadi's house was burned by Boko Haram and she also lost her job. Since then she has been living in Mora. Since May this year, she has been receiving XAF 10,000 FCFA (about US$ 18) every month, sent by WFP through her mobile phone, enabling her to feed her children. Cash aid brings normalcy back in her life, as she can go to local market and buy food of her choice and cook a meal which her children prefer.

In-kind aid is irreplaceable in some situation such as natural calamities when networks are not available. However for other situations, mobile money based cash aid, with its benefits of efficiency, security and freedom of choice, will rapidly grow as the channel to support and empower displaced people and refugees.

The cash aid program also provides business opportunities to refugees. Fatosaleh, a female refugee from Central African Republic, is working with WFP to sell cassava flour in Gado refugee camp in Cameroon. More than 150 people come to her shop daily. In a month, she sells over 14 tons of cassava flour costing 11 million FCFA5. By running her own business, Fatosaleh is able

About the author: Mohit Bhargava has over eight years of work experience in product marketing and research in the telecom domain. At Mahindra Comviva, he is serving as Manager in product marketing for the mobile financial solutions portfolio. His areas of function primarily include evangelizing Mahindra Comviva's mobile financial products and their impact on transforming the financial landscape globally.

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KICK-STARTING THE MOBILE WALLET REVOLUTION IN THE GCC REGION

— By Srinivas Nidugondi

Over the past few years, the mobile payments industry has certainly made its presence felt on the global stage. As per data released by Statista, in 2011, the number of global mobile payment customers stood at 160.4 million. A mere four years later (in 2015), this number jumped to 384 million. However, while this growth is impressive, it varies across regions. In 2015, a majority of these customers hailed from the Asia-Pacific region (141.4 million), as per the firm. Meanwhile, a stark contrast was the Middle East, which had 4.7 million to its credit.

Moving on, let's zoom closer into the Middle East and North Africa (MENA) region. Sample this-according to a report released by the Arab Financial Services Company, the financial landscape in the region is characterized by variations in financial inclusion. On one hand, over 65 per cent of adults in the GCC region (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates) have an account at a financial institution. On the other, however, this figure stands at less than 20 per cent in countries like Egypt, Sudan, Iraq and Yemen. Naturally, as a result, the development and uptake of mobile payment solutions in the region has been patchy at best. In fact, there is a wide gap between the kinds of solutions the customers are demanding as well. In this context, the report states that in the less developed countries, particularly North Africa, mobile money solutions have been the main growth vehicle for financial inclusion. Needless to say, the GCC region has a different story to tell. Here, developing mobile payment solutions such as mobile banking, mobile wallet, etc, is the norm.

Now let's put the GCC region under the microscope. First off, there is little doubt that the business case for mobile payments in this region is strong, to say the least. How? Well, for starters, the average mobile penetration is very high-190 per cent. No mean number, this!

Needless to say, operators and third party providers didn't let the grass grow under their feet before jumping onto the mobile payments bandwagon. As a result, the space saw a flurry of activity. Several examples can be cited in this regards but, for the sake of remaining crisp and concise, let's cite a few.

It all started in 2013. Boloro, in collaboration with Zain, launched the GCC region's first ever mobile payments service on buses in Kuwait. Customers could securely and conveniently pay their fares by simply tapping their mobile phone when boarding the vehicle. In fact, all the bigwig operators in Kuwait and Qatar, Zain, Ooredoo and Viva currently offer this service.

On the other hand, there are entities which have been a bit slow on the uptake. I allude to banks, which have preferred to adopt a "wait-and-watch" stance with regard to mobile payments. In my opinion, banks ought to flex their muscles on this stage. And why not? These players can easily leverage their already-established relationships with merchants, not to mention the treasure trove of customer data they're sitting on.

So, what's stopping them? Well, the biggest barrier is the fact that these entities still consider the mobile handset and all applications concerned as a value added service. As a result, non-banking players have ventured far ahead of them in the mobile payments game. Allow me to add my two cents-it is time that these players straighten up and chalk out a strategy to at least finish neck-to-neck with the competition. The first step? Start considering the mobile channel as an integral part of the business!

Of course, these entities must have a war chest in place before meeting the competition head-on. Enter the prepaid wallet. Now, the advantages of the prepaid wallet have been discussed ad nauseam, which is why I won't wax eloquent on the same. I would like to point out, though, that the most important reason (arguably) why banks ought to take prepaid wallets seriously is two-fold. First, their merchants are empowered and second, this service reduces the high "card not present" rate during a transaction. A prepaid wallet is typically built around a stored value account. Customers can transfer the money from their bank account or card to the prepaid wallet. Since payments are not made directly through cards, the high "card not present" charges do not apply. As a brief side-note, permit me to point out that the very enthusiastic uptake of smartphones in the region can play a crucial role in the uptake of this service. After all, 68 per cent of all handsets in the region belong to this category! So, why shouldn't such applications flourish?

Now let's turn our focus to another interesting trend that is rearing its head up in the region. Enabling seamless payments through contactless cards is the new kid on the block. In fact, a few banks have already launched their offerings in this regard. The revolution was sparked off in 2015 by Boubyan Bank, the first entity to launch Tap & Pay credit cards in Kuwait. Later that year, Riyad Bank and NCB (supported by AFS) followed to introduce Saudi Arabia's first contactless credit card. Also, with mobile payments foraying into the game, expect the contactless card to be replaced by the mobile handset.

Let's take a quick look at the secret sauce behind mobile-based contactless payments - namely, the technology. Several can be used for this service, for instance, Near Field Communications (NFC), QR Codes

and sound-based technologies. Of these, NFC is emerging as the forerunner in this race. The reason is simple-Host Card Emulation (an NFC variant) lets banks launch contactless payments rapidly without changing the existing SIM card and involving a trusted service manager (TSM). Little wonder, then, that NFC is the technology of choice for banks and financial institutions alike.

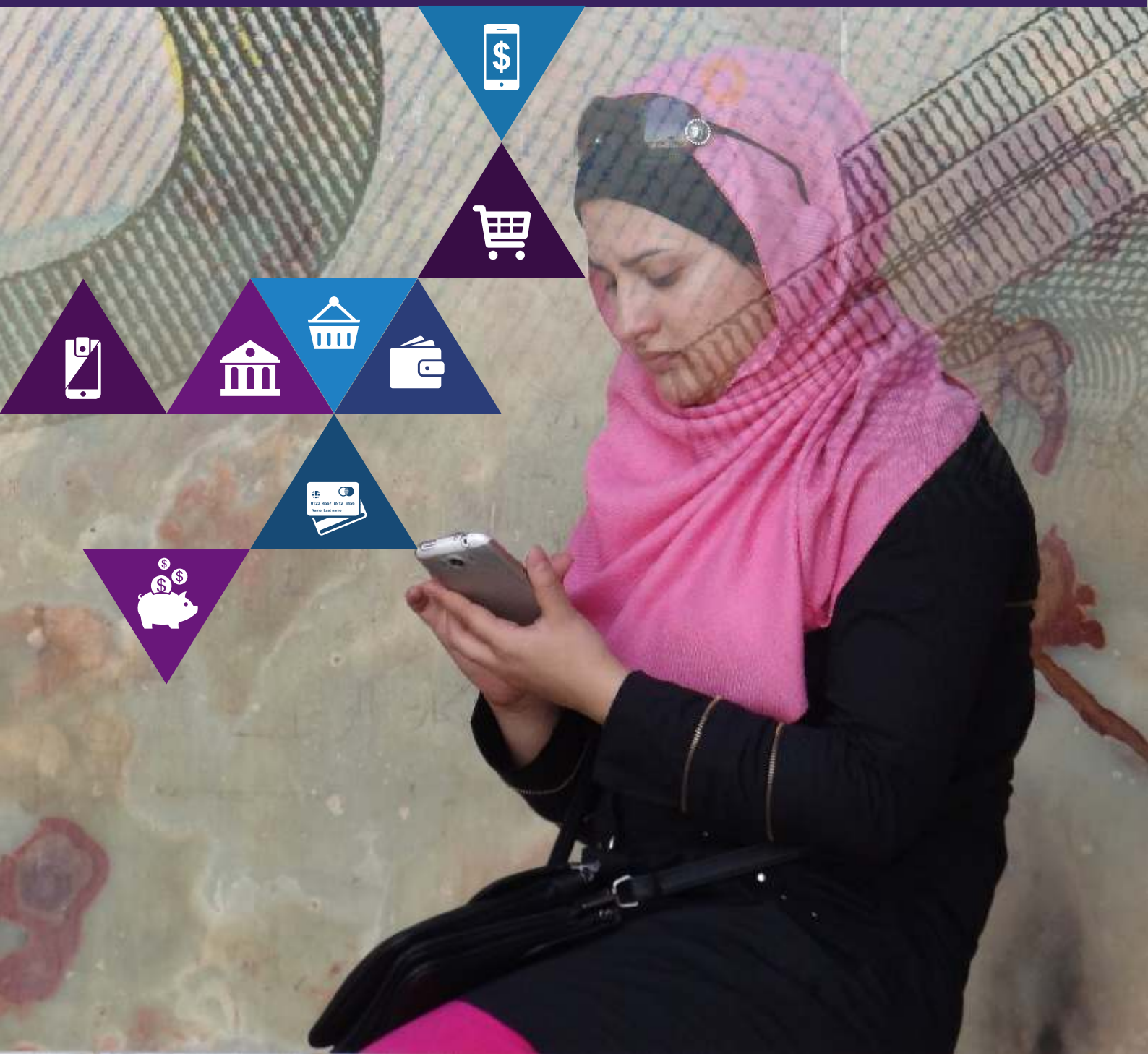
Adding another dimension to this, banks may consider investing in developing their own HCE platform, as opposed to opting for OEM pays like Apple Pay and Samsung Pay. Here's why – a bank-owned HCE platform works on any NFC-enabled device, unlike the Apple Pay and Samsung Pay, which function only on the Apple iPhone 6 and the Samsung S6 devices respectively. Moreover, with their own HCE platform, banks will have complete control over the tokenization platform as well as the token lifecycle. Banks will have the ability to monetize the token platform to enhance tokens for other use cases, like token based ATM cash out, P2P using tokens, etc.

Net, net, it is only a question of time before prepaid wallets and contactless payments are in the spotlight in the GCC region. The revolution is well and truly underway. What remains to be seen is the direction it takes, in terms of uptake, technologies and services. After all, the Middle East market is an inherently contradictory one. A customised stance is thus needed to succeed. Remember, there is no “one size fits all” approach to mobile payments!

About the author: Srinivas Nidugondi has over 19 years of experience in various industries including financial services, payments and commerce in a variety of business and product related roles and most recently with a specific focus on enabling banking, payments and related services through digital channels. At Mahindra Comviva he heads the Mobile Financial Solutions business unit, which currently has over 130 deployments globally, providing services for more than one billion consumers.

IRAN

POISED FOR MOBILE WALLET



—-By Kamaljeet Rastogi

'Time is Money.' This is what Benjamin Franklin had said and mobile wallet seeks to bring these two quantities together i.e. save time while spending and managing money.

A mobile wallet in simple terms is a single-click e-commerce experience where the customer browses through the items of its choice and make payment with a single-click on their smartphones.

Though Iran is a developing country but still surprisingly it has a very high banking penetration with nearly 92 percent people having bank accounts. With such high level of banking penetration, mobile wallet would prove to be a great opportunity for the banks to create a platform suitable for the new generation and its new open economy.

Limitation of the current Card Payment Systems

Almost every Iranian (urban or rural) has a debit card using which they are accessing various banking services. But there are several limitations in this.

Restrictions - Each payment system has its limits regarding the maximum number of transactions per day and the amount of money that can be transferred.

Higher Costs - One of the major downsides of electronic transactions is that one has to pay fees for these services. Depending on how one process their transactions, they might be charged various processing fees. Different vendors have different rates. Some require setup fees, a minimum number of transactions each month or a minimum payment.

Security Threat - In case of e-banking or online financial transactions, though most transactions involve the use of one-time passwords thus ensuring safety to a considerable extent, but some parts of a transaction, or personal details and bank account information is accessible through the credentials for the online portal. This gives rise to security threats while handling financial transactions online.

Loss of Smart Cards Electronic payments involve the use of smart cards (credit and debit cards, ATM cards, etc.) and this involves the risk of their theft or loss. In case, a lost smart card falls in the wrong hands or if it is stolen, the money in the account that the card is linked to, may be spent by fraudulent users.

Advantages of Mobile Wallet

Convenience - When referring to the convenience of payment methods, consumers may have different aspects of the attribute in mind. These aspects include portability, flexibility, speed, ease of use, and ease of setting up and learning to use each payment method.

Portability - Mobile payments will likely be more convenient than traditional payment methods in terms of portability. A mobile device will eliminate the inconvenience of carrying multiple plastic cards in a physical wallet by enabling consumers to link mobile payments to those card accounts. Because of this enhanced portability, consumers may have access to more card accounts than is feasible with plastic cards.

Flexibility - In addition to various card accounts, a mobile device can carry other payment methods, such as PayPal, that allow the consumer to pay directly from a bank account. From the many payment instruments loaded on the mobile device, consumers can choose a payment instrument that best fits a type of payment.

Speed - With contactless payment methods, including contactless cards and NFC-based mobile payments, the consumer need only tap or wave the contactless device in front of a reader to make a purchase. According to some estimates, this method of payment can be 15 seconds to 30 seconds faster than swiping a traditional card and signing the receipt or entering a PIN.

Cost - The cost of using a payment method includes two components. First are the fees paid to payments providers, banks, or merchants for using the method. Second are the costs of equipment and materials needed to use the method.

The ongoing costs to consumers of using mobile payments are likely to be lower than for traditional payment methods. One cost of using mobile payments is a data plan subscription fee to a mobile carrier. The amount of data communication used for mobile payments, however, is likely very small.

Another ongoing cost consists of transaction costs consumers are charged by banks, payment providers, or merchants for using the various payment instruments loaded on their mobile phones. For most payment instruments, the transaction costs are lower while using a mobile wallet rather than that using debit cards, credit cards etc.

Security - Consumers consider two aspects of security in choosing among payment methods. Firstly, people do not want to share their personal data and bank accounts details with third party merchants .Second is the likelihood of fraudulent transactions.

Mobile wallet has greatly reduced the concern of the people to share their personal information about their financial accounts to third party merchants as they no longer has to share their account details or debit/credit card details while transacting as the money is previously available in the mobile wallet and one has to just transfer the money to the given merchant.

Mobile payments have significantly reduced the likelihood of fraudulent POS transactions, by using unique data to authenticate the payment device in every transaction.

Importance of Mobile Money for People of Iran

Iran is absolutely ready for mobile wallet technology to be implemented in the country and with such a high level of people with bank accounts (92%), it would prove to be a great success for the nation as it would have a positive impact on the country's GDP, the money circulation, higher government revenues and provide better financial stability to its people.

Need of Mobile Wallet in Iran

There has been always an apprehension among the common masses about sharing their bank account details and personal info with every third party merchants and websites in order to carry out online transactions. But using mobile wallet they don't have to face such problems as in mobile wallet no personal info is shared also it is a single click system so no hassles of entering card details and pin number for each and every transaction.

Mobile wallet has a positive impact on the money circulation of the country as digital currency as a replacement of cash reduces the informal money or the “grey market” in the financial system.

Mobile Wallet has a significant impact on the GDP of a country. A study has shown that a 10 percent rise in mobile subscribers in emerging markets will lead to a 0.6 percent to 1.2 percent increase in GDP in those markets due to the productivity gains associated with communication as well as new jobs.

Mobile Wallet also gives a boost to the e-commerce market and also instrumental in development of new businesses based on e-commerce.

Mobile wallets can be used for making mobile money payments from governments (G2P), business (B2P) and donors as it is a secure and less costly way of delivering wages and social transfers.

Though people with financial accounts in Iran is quite high (around 92 percent) but still about 50 percent of the rural population doesn't have access to plastic money (debit/credit cards) or electronic payment systems thus they have to go to banks to withdraw cash. Therefore, for such people who don't have access to plastic money mobile wallet is a great medium of doing transactions.

Mobile wallet is not just for making online transactions but with the advent of latest technologies they can now be used to predict or forecast the likely balance for up to two weeks into the future. Also it compares the long-term and short-term consumption, indicating immediately at opening the app, whether you're doing good or bad.

People are always interested in spending less money. In order to assist them in getting the best deals mobile wallet provides them with the coupons and cashback offers regarding the product and the website they are purchasing from.

Also a large no of merchants have partnered with the mobile wallet providers and provided the facility of mobile wallet transactions at their POS terminals. Here the customer just had to scan the QR code or provide a PIN to complete the transactions on the POS terminals.

Push notifications are enabled to automatically show the latest balance after each and every transaction.

Mobile wallet can hold the details of different cards (debit/credit) of a consumer. It enables the consumer to use different cards for different transactions depending upon their requirements.

Why Should Iranian Banks Implement Mobile Wallets?

With the increased integration of social, shopping and payments experiences on mobile wallets, banks need to launch their own mobile wallet services to tap the potential market.

Young and relatively affluent customers are, unsurprisingly, more interested in mobile wallets. Further, technology-savvy users amongst these are attracted to the social and shopping features of mobile wallets, and expect their mobile wallet to provide not just a great shopping experience but optimized payment decisions as well. As a result, mobile wallets present banks with a great opportunity to reach tech-savvy and young customer segments.

Mobile wallets can help banks capture a wealth of data pertaining to a customer's financial behavior. This data repository, along with location-based information, can be mined to provide superior services to customers.

Using mobile coupons and loyalty programs, banks can collaborate with retailers and mobile marketers to enable targeted and relevant offerings and discounts at the point of sale. Such an approach will help banks build their brand, including in places where they are not typically visible.

Further, customers usually rate a bank's security infrastructure higher than those of other organizations. Banks are considered to be more trustworthy at handling the financial and personal information of their customers.

With the high banking penetration, mobile wallets offer the best opportunity for banks to increase transaction volumes and values and support the overall economic development of Iran.

About the author: Kamaljeet Rastogi is the Global Head, Business Development, Mobile Financial Solutions at Mahindra Comviva. He has over 20 years of experience in the digital payments space. Prior to his current stint, he worked with Reliance Jio Infocomm, FINO Paytech, aurionPro Solutions, ABN Amro Bank and Citibank.

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For more information, please visit http://www.mahindracomviva.com.

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