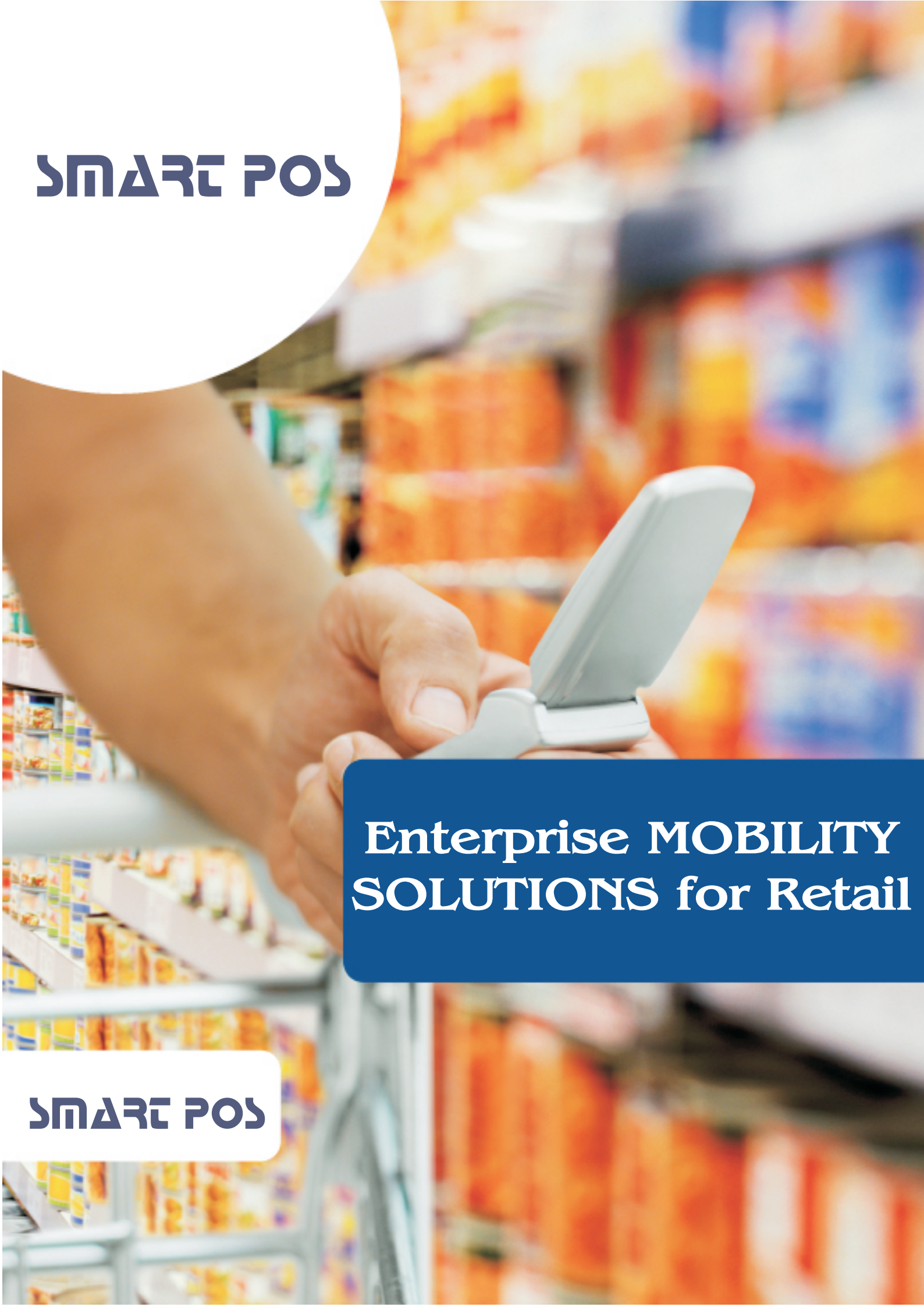
SMART POS



Enterprise MOBILITY SOLUTIONS for Retail

SMART POS

1. Executive Summary

We live in a mobile world

More than 4 billion people – over half the planet – are equipped with mobile phones. Today, many people are moving from ordinary mobile phones to internet-enabled smart phones as powerful as computers. Consumers now are using these smart phones to:

Create and store shopping list items
Scan product bar codes
Create 2D bar code with multiple items

And that's just the tip of the iceburg; only the imagination limits the services that could be available. Physical retailers and product manufactures now take have a unique opportunity to shape how consumers experience these new technology possibilities.

Good for shoppers

For Shoppers, this product has the potential to:

Mobile life easier: Mobile services integrated into the shopping experience - such as self scanning and print bills. Even simple services such as mobile shopping lists can help shoppers to manage their lives better.

Make life more meaningful. Giving consumers the right information and tools at the right time helps them to make good choices. Mobile services like extended packaging allows shoppers to choose products that are aligned with values such as health and well-being, respect for the environment and ethical choices.

Good for business

By using mobile technology to meet consumer needs for information and services, retailers and product manufacturers can:

Increase sales: There is a clear link between relevant information provided at the point-of-sale and purchase decisions. Put simply, better information means more sales.

Increase customer satisfaction and loyalty. Consumers will reward those businesses that best meet their needs for information and services. Mobile allows increased personalization – meeting consumer needs even better.

Add value to physical products and experiences through digital services.

What Next ?

To take full advantage of these opportunities, retailers need to ensure that they understand the strategic role that mobile will play in their organizations and then assemble the right mix of people to ensure that strategy is well executed.

Identify the people in your organization that need to be involved and share this document with them. It will help you define:

- The ways in which mobile can **improve consumer experience** inside the stores
- The range of **technology choices that are available** today and in the future
- The **investment decisions that need to be made** to benefit most from mobile technology

The Recommendations in section will give you more specific paths to follow to ensure you benefit the most from using standards.

Extended Packaging

Mobile eCommerce

Loyalty

In-Store Navigation

Scanning & Checkout

Shopping Lists

Introduction

Terms like SMART POS Solution has created a huge buzz if business could use mobile phones to reach retail outlets anytime, any where, it would fundamentally change how they do business.

However, today mobiles still represents a tiny channel for most companies. Juniper Research estimates most retails outlets / chain companies spent less than 1% of their total product budget on mobile.

This will change; and the change will likely be even faster and more dramatic than the initial wave of mobile phone adoption that today means over 4 billion people use a mobile phone. The success of smart phones shows how quickly technology can be adopted by retail stores.

This document explores how retailers equipped with modern mobile phones connected to the product will impact retail stores.

Some of the questions we seek to answer are:

- What retailer needs can be identified and met using mobile phones in retail environments?
- How can mobile phones support richer, more enjoyable, more efficient and more relevant shopping experiences?
- What changes need to happen in retail stores to support this?

Experts say that retailers change their point-of-sale terminal installations every 5 – 7 years on average. This means that mobile technology must integrate with existing infrastructure to be accepted by retailers and that investment choices made by retailers today must have a long-lasting impact.

However, research conducted by RIS in 2009 showed that only 2% of retailers had a mobile product strategy in place. This document aims to give the right level of business and technical information for brands and retailers to make the right strategic decisions around mobile and for the mobile industry to understand where the retail sector wants to take mobile.

How this document structured

This document contains three main sections:

- **The retail store – a vision for the future**
  Explores multiple ways in which the shopping experience can be improved with a mobile component.

- **What's possible today?**
  Major possibilities are to reduce the long 'Q' at POS (Point of Sale) by using SMART POS technology, without disturb their existing setup.

The retail store: a vision for future

Most retail stores are complex environments that have developed gradually over the past fifty years. There are two levels to that complexity.

Firstly, the move to the self-service format from the service format that preceded it was a massive cultural change. For consumers, self-service meant choice, convenience and value. However, it also involved learning how to find their way around a new environment. Over the years, retailers have learned how to design that environment to better meet shopper needs and to drive sales. A large amount of literature is available to describe industry best practices in this area.

Secondly, the technical infrastructure that supports most retail stores has grown enormously. In the 30 years since the first bar code was scanned, complex IT systems have developed as retailers have automated processes to drive efficiency and to gather data to better inform business decisions. The point-of-sale terminal, with its integrated bar code reader and its ability to handle multiple payment methods, is the most visible aspect of this infrastructure; and the one most likely to touch consumers. As a result of these technology choices, consumers benefit by getting, what they need more easily or leaving the store more quickly.

SMART POS services for retail stores

In the future, all of these touch points could have a mobile element. From our work in the mobile space, we can identify the following emerging applications that will enable shoppers to have richer interactions:

Scanning & Checkout

Store keeper / devices attached trolly's in supermarkets, hyper markets and retails stores use their SMART POS devices to scan products in shopper stroll and generate single barcode for convenient billing.

Loyalty

Mobile phones replace standard hardware to work fast and better.

Shopping Lists

List of shopping products can be shown on mobile, if required.

In-Store Navigation

Service can be enabled if retail stores wants this feature.

Mobile eCommerce

Service can be enabled in globe to reach shoppers very ease.

At the shelf / At the shopping cart

Store Keepers can / SMART POS device attached with trolley can:

- Self-scan items as they are added to the basket for both linear and 2D bar codes
- Get more detailed or personalized information about products using extended Packaging
- Add additional items to shopping list
- Add items to shopping list by key in the bar code number manually
- Generate 2D bar code with captured items
- Print generated 2d Bar code using attached thermal printers through blue tooth technology

Checkout

Customer can:

- Submit the 2d bar code at POS for billing
- Redeem coupons / promotions
- Generate detailed bill
- Print bills
- Pay & checkout

Retailers and product manufacturers must start working on mobile now to shape the technology and not be overtaken by rapid changes. The following section explores, what is possible today and how we expect these technology options to develop in the coming years.

Current services and their development

In most markets today, all the services described in the previous section are possible in a real-world environment. However, there are a number of limitations to bear in mind:

- **not all stores** are equipped with SMART POS devices and infrastructure that enable them to take advantage of all the services described
- differences between mobile devices and networks can mean **high costs** to develop services for a large number of stores
- use of **technologies will** make easy integration without disturb the existing environment

As a result many implementations today are limited in scope. They:

- are offered at a local level (sometimes involving just a handful of stores)
- target only a limited group of tech stores
- are at pilot stage rather than being fully operational
- are disconnected from other similar initiatives within a company
- for stores who need to learn multiple ways to use technology to achieve similar goals

Forecasts

This section shows the situation today and in the future for the applications considered in this document.

Application	Today	Future	Next Steps
Scanning & Checkout 	Local Implements like scanning all items in the and shopping cart and create in to single bar code.	Advanced development like if barcode not available can key in manually.	Improvement of performance and interoperability with handsets and store systems
Shopping Lists 	List of product names in the shopping cart.	Bills can be generated on phone itself.	Bills checkout on mobile.
In-Store Navigation 	Store navigation available, it can be enabled if required.	Integration with in store apps (Mobile Shopping, Self-Checkout, Shopping Lists) More "intelligent" applications based on planograms and shelf adjacency data Consumer access to stock information	Explore basic ways of helping consumers to find what they need in-store
Mobile E-Commerce 	Limited in-store capabilities	Buy products using their mobile devices	Retailers and product manufacturers to explore evolving business models

Conclusion

There is huge potential to be gained by integrating mobile technologies into retail and specifically into in-store environments. To build on the information in this document, we recommend the following next steps:

Research

Find out what your competitors and other industries are doing. Use the Mobile Application document as a starting point. Good sources of information to understand the current market activities are http://www.innoappsindia.com

Coordinate

Identify and empower the people your in organization needs to ensure that the work you are doing is aligned with business objectives and has senior management support

Experiment

Identify which mobile applications will best support your business strategy and get experience with them in the next 12 months by organizing pilot activities in appropriate markets.

Collaborate

Find the right partners. SMART POS encourages joint initiatives involving brands and retailers. Identifying the right technology partners is also important.

Lead

Joining the SMART POS group is an excellent way to lead industry developments in this area and ensure that the needs of the retail environment are fully understood and supported by the mobile industry.

Technology Enables

All of the mobile applications identified in this document rely on a number of technology enables. These are listed and described below:

Identification Keys

Identification keys are unique numeric codes used to identify anything from products to services and locations.

Bar codes

Bar codes can be used to store identification keys and other data. Using the camera integrated into most mobile phones, software on the mobile phone can decode the bar code and look up relevant information. Bar codes can be displayed on products, shelves, displays, loyalty cards, or even a mobile phone screen. EAN/UPC bar code standards are used today for the placement of linear (1D) bar codes on product packaging. Given the level of interest in two-dimensional (2D) bar codes for certain applications, is assessing the business needs and corresponding standards recommendations for 2D bar codes via its Multiple Bar Codes Work Group.

Collaborate

Find the right partners. MBS encourages joint initiatives involving brands and retailers. Identifying the right technology partners is also important.

Lead

Joining the MBS group is an excellent way to lead industry developments in this area and ensure that the needs of the retail environment are fully understood and supported by the mobile industry.

Bluetooth

Bluetooth is an established technology enabling devices to communicate together at short range. It can be used by stores to deliver substantial amounts of data (like a music track or a video) to a mobile phone without connecting to a network. Proximity marketing specializes in applications using Bluetooth to reach consumers.

Mobile Phone Applications

Mobile Phone Applications (or Apps) refers to software that runs on the mobile handset to deliver services to consumers.

Case Studies

We can look to countries like Japan and Korea for inspiration about what can happen when technology is available. In those countries we find applications such as MBS, Extended Packaging and Mobile Couponing being used by a wide range of consumers on a daily basis. A value chain has been established that benefits all involved. But other regions are catching up. The following section describes some of these initiatives.

METRO Cash & Carry

The Future Store is a flagship retail store based in Bangalore, India. A fully integrated mobile application was developed recently enabling storekeepers to use a range of mobile services with their Android portable devices.

For example, store keepers can use portable devices during their shift to scan barcodes each time a product is added to the customers shopping cart. The application keeps a running total of purchases and creates a unique barcode that is scanned at the point-of-sale terminal to enable checkout.

Implications of mobile for retailers and retail store infrastructure

The applications explored above all have an impact on retail store infrastructure. Given that any change in infrastructure is costly, this section aims to give guidance so that retailers make the right development choices to support mobile applications in-store to the full.

Impact at checkout

Given the complexity of current checkout systems, there is no impact for the existing system. There it need to be integrate with 2D barcode scanners.

Scanning bar codes from mobile phone screens at retail checkout

This section aims to give a deeper understanding of scanning bar codes displayed on mobile phone screens at retail checkout.

Technology capabilities

- Both linear and 2D barcodes can be scanned on mobile phone scanners
- Laser scanners can only read linear bar codes. However, they cannot reliably read linear bar codes displayed on mobile phone screens.
- CCD scanners and imaging scanners (also called camera-based scanners) can read both linear and 2D barcodes. Market implementation shows that some CCD scanners and many imaging scanners can read bar codes from mobile phone screens in the field.

Retailer implementation

- Based on today's standards and implementation, the use of scanners at checkout in general retail will continue to support the scanning of linear bar codes such as EAN/UPC or DataBar that appear on products.
- Although a few retailers are already equipped to support mobile phone scanning, mass implementation of mobile phone scanning at point of sale would require either upgrade of existing scanner systems or purchase of complimentary scanners for most retailers.

Conclusion

- Scanning bar codes from mobile phone screens is technically feasible today. Further research is necessary to determine:
    - The exact specifications of CCD and imaging scanners that can scan bar codes displayed on products reliably.
    - Current market penetration in terms of the number of units in the field deployed in general retail per region or nation.

- As high-value applications for scanning bar codes from mobile phones are identified, an impact analysis should be conducted to determine:
    - the technology (bar code, NFC) or process (manual entry) choice
    - the amount of time and money needed to upgrade or replace the existing technology infrastructure.
    - the positive and negative impacts on consumer satisfaction and employee productivity at checkout

- This can then be weighed against the benefits in order to determine the business case and timeline for adoption.

- Retailers who wish to support interaction between mobile phones and point of sale today should:
    - experiment to better understand consumer needs and the business case for adoption:
        - consider piloting by equipping a small number of checkout lanes with complimentary scanners
        - consider alternative methods of interaction (such as manual data entry)

- continue to monitor the market for adoption of new interaction technologies such as NFC

Suggestible Hardware

Android Portable Devices:

Mobile Phones with high quality camera:

1. Samsung Android Mobile
2. HTC Android mobile devices
3. Sony Erricson Android devices.
4. LG android mobiles.

Android Portable tabs

1. Tablets with camera
2. Samsung tabs
3. ViewSonic View pad 7
4. Zenithink TR-10Z1
5. ARM11 TR-70T2

Thermal Printers:

1. SATO CG408/412 Bar code Printer
2. Bluetooth Enabled Thermal Printer
3. ZEBRA bar code printer
4. Aura Thermal Printer

Bar code Scanners:

1. TVS 2D bar code scanner.
2. Samsung 2D bar code scanners.