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1. Introduction

Extended Packaging is about giving consumers access to trusted product information and related services via their mobile phone.

GS1 began working on Extended Packaging as a result of its “Mobile Commerce: challenges and opportunities” published in February 2008. Extended Packaging was seen as a foundational use case on top of which more complex services could be built.

The GS1 MobileCom group, a collaborative, neutral, global forum for all stakeholders interested in mobile commerce and mobile communications, developed the Extended Packaging Pilot Handbook over 2008. The Pilot Handbook defines existing GS1 standards that can already be used to build Extended Packaging applications, identifies gaps in standards and suggests candidate recommendations to fill these gaps.

Following the publication of the Pilot Handbook in February 2009, many local GS1 offices ran pilots with local stakeholders. This report gives:

- a summary of pilot learnings
- an overview of pilot activities in over 20 countries across the world
- detailed descriptions of two of the most developed pilots

2. Summary of Pilot Learnings

Pilots are a reality check. They allow companies to test if concepts that look good on paper work in reality, to check their assumptions and to point to real world examples when making strategic choices.

Working with local GS1 offices, companies have been able to do this with expert support. In doing so, they have been able to gain knowledge about an existing new channel of interaction with consumers and so have an advantage over competitors.

Extended Packaging pilots organised by GS1 sought to answer two main questions:

1. Are consumers interested in Extended Packaging?
2. Were the technical assumptions made in the Extended Packaging Pilot Handbook correct?

This section summarises the findings of the pilots in response to these questions.

Consumers are interested in Extended Packaging, provided the information provided is useful to them in the context

1. Consumers are willing to scan bar codes on multiple products in a store visit as long as the information is useful to them (for example, if it helps them choose the “right” product for them).
2. Consumers are able to scan the existing 1D (EAN/UPC) barcodes and find the process easy with the right phones.

3. Consumers will overlook content design difficulties as long as the information is considered valuable. However, mobile services that are well designed and executed improve customer satisfaction.
4. Consumers want relevant information to be displayed on their phones. Since many are used to broadband internet connections, they expect information to be displayed “instantly”.
5. Consumers are willing to provide some personal information in order to obtain personalized results, provided there is transparency about what information is collected and how it will be used and that their privacy is respected.
6. Consumers want advice and information coming from manufacturers and retailers.

Most of the technical assumptions made in the Extended Packaging Pilot Handbook were correct, making it a sound basis for implementation

1. A service mark on packing showing that a bar code can be scanned to get additional information is not necessary in all cases to explain extended packaging to consumer. In many case, having a barcode reading application on their mobile phone creates an expectation amongst consumers that any barcode can be scanned to get additional information.
2. It should be clear which phones can offer 1D product barcode scanning functionality (may be a factor for consumers to purchase phones with such capabilities).
3. Barcode quality is important for consumer scanning experience, but having a human readable number is also important (since the consumer can type in this number if bar code scanning does not work).
4. In the pilot use cases, there was no need to use 2D codes to accomplish extended packaging, as basic identifiers for the products were all that was needed.
5. Global Entity Party Information Registry (GEPiR) is capable of supporting Extended Packaging information networks and mobile applications.
6. Global Data Synchronisation Network (GDSN) Datapools do not currently have robust nutritional information as needed by consumers. Though the attributes and process to send them exists, they would need to be populated with more nutritional information by the brands to support the applications consumers demand.
7. GDSN datapools would need to be enhanced to support the additional demands providing information for consumer applications would necessitate such as bandwidth, 24/7 support, etc..)

3. What is Extended Packaging?

Extended Packaging is about giving consumers access to trusted product information and related services via their mobile phone.

By using the camera of a mobile device to read a bar code, a consumer can obtain more information about a product than its manufacturers are able to print on the outside of the packaging, and can also access additional services.



Extended Packaging opens up seemingly limitless possibilities for

brand owners, and is also very easy for consumers to use – while in the supermarket, a shopper simply points, clicks, and immediately obtains allergen information, language translations, recipes, detailed use instructions and more.

Extended Packaging services provide an answer to consumer demands for additional information. They solve the problem of limited space on packaging and put an end to the static nature of the information printed there. But most significantly, extended packaging supports the fact that there is a clear link between information provided at the point of sale and purchase decisions. Put simply, Extended Packaging provides consumers with the information they need – and better information means more sales.

The GS1 MobileCom group believes that Extended Packaging offers the most immediate potential, and as a result, acts as a key enabler to mobile services in general.

4. Standards for Extended Packaging

Extended Packaging Pilots clearly show that the GS1 standards and infrastructure that are already known and trusted by over 1 million manufacturers and retailers in almost every country in the world can be used today to launch Extended Packaging services. Indeed, there are already Extended Packaging services live in many countries around the world.

It's important to consider what standards to use for mobile commerce, because there is a wide range of possible solutions. Brand owners and retailers need a system that reaches the most consumers, covers the widest range of geographies and works with the largest variety mobile devices. This is why GS1 recommends using a bar code and product information based on open GS1 standards.

However, all pilots identified the need for an easy way to access trusted product data. As a result, in 2010 the GS1 MobileCom group is focusing on understanding this need better in order to provide a solution.

In parallel, the Multiple Bar Codes Work Group is exploring the need for standard 2D barcodes to access mobile services.

The results of these two projects, as well as continued piloting and work with the GS1 MobileCom community will be the Extended Packaging Implementation Guideline – a single document explaining the standards and infrastructure that can be used for Extended Packaging. Current publication date is expected to be Q4 2011.

5. Extended Packaging around the world

Many local GS1 offices are organising Extended Packaging pilots. For a detailed view of countries where local GS1 offices are organising Extended Packaging Pilots see the [GS1 MobileCom Extended Packaging Pilot Coordination and National Pilot Contacts](#). If your country is not listed, you can find a full list of GS1 offices at www.gs1.org/contact.

In parallel with Extended Packaging pilots, a large number of live services that use existing bar codes on product packaging to access product information became available on the market in 2009. Examples include GoodGuide, Red Laser and ShopSavvy. The success of the services reinforces the fact that consumers need and value access to product information on their mobile phones.

With many activities to choose from happening around the globe, GS1 sought to highlight two distinct pilots for learnings and to show the possibilities available when enabling this technology. These two pilots were selected because they:

1. represent different regions
2. are based on the GS1 MobileCom Extended Packaging Pilot Handbook
3. provide consumer feedback specific to future behavioral trends.

5.1. Australia - Mobile Phones a Key to Decoding Healthier Food Choices

5.1.1. Pilot Goal

Develop strategies to influence and inform healthy food purchasing and consumption by:

- Nutritional therapy and consultation to include behaviour modification through knowledge
- Linking a nutritional advisory database to the consumer's mobile phone to provide information in-store
- Investigating the effectiveness of different forms of nutritional information in influencing consumer food purchasing

5.1.2. Pilot Overview

Current nutritional information tend to be restricted to packaging and limited as manufacturers often provide information to comply with legislative requirements

A 2008 Australian National Heart Foundation study showed that visible markings e.g. traffic light coding, healthy tick rating are effective in influencing consumer purchasing

Study also showed that the effectiveness of food labelling techniques was not high. E.g. consumers had little understanding of % daily intake or energy intake.

There is need for a medium that can inform and modify consumer behaviour to increase the purchasing of healthier foods and improve health

A 6 month research project by two Masters students to establish whether mobile devices could provide the medium for this information

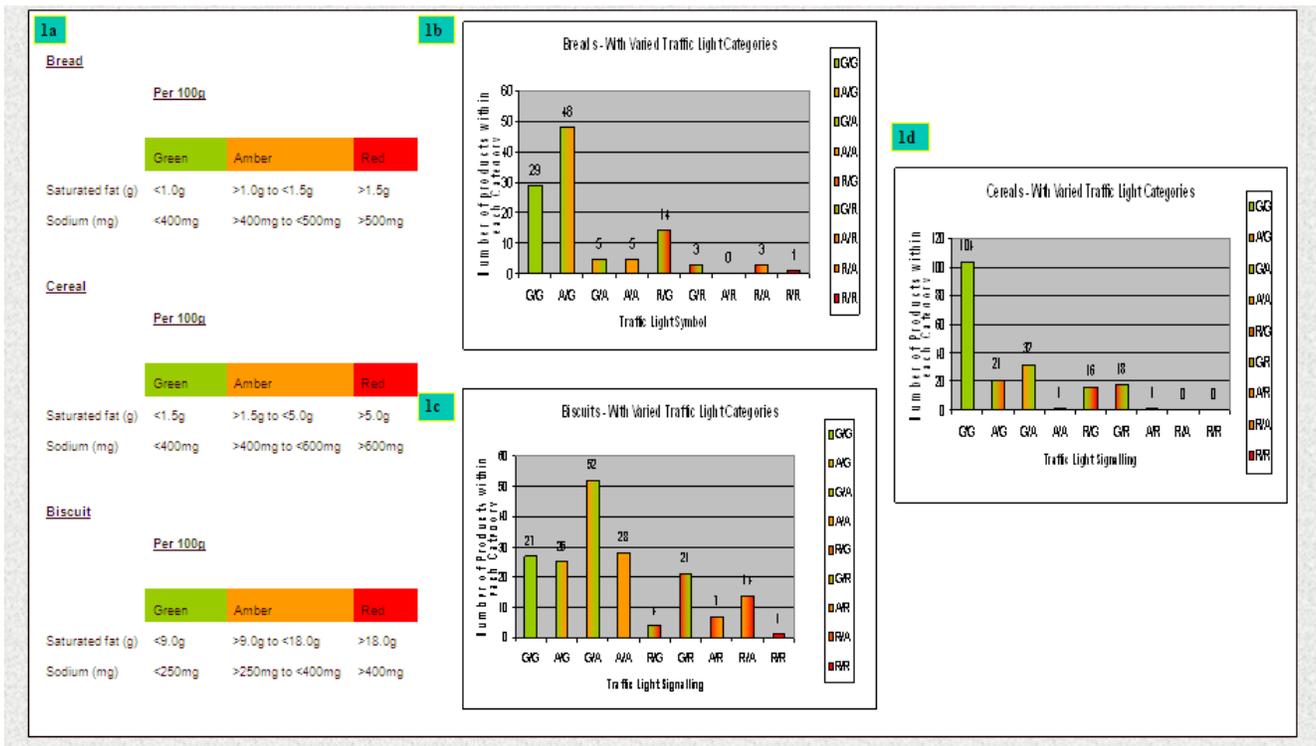
5.1.3. Pilot Participants and Role:

- **Acratus (Insqribe) Pty Ltd** – Provided web based routing of mobile phone inquiries to the nutritional database.
- **TechnoArt, Switzerland** - Modified the mobile phone application software, originally developed for the CodeOnLine application, to not use GEPIR but to route the call to the Acratus web routing application.
- **GS1 Australia** – Supported pilot by providing product information from their Global Data Synchronisation Network (GDSN) Certified Datapool “GS1Net” (where brands communicate product details in a standard way) and arranged to source mobile phones specific for the research project.
- **School of Biomedical and Health Sciences, Victoria University** – Nutritional test design and execution with test participants
- **School of Engineering and Science, Victoria University** – Development of test environment/functionality and build database on the University server. Developed calculation algorithm for display of scan results based on participants profile.
- **University of Victoria Student Test Participants** - Test participants had previous health concerns (hyper tension or type 1 diabetes) and scanned products as they shopped to find healthier foods.

5.1.4. Test Environment and Technology:

1. Mobile phones equipped with software using Scenario 1 from the Extended Packaging Handbook (read 1D product barcode, product number/GTIN is resolved at a directory (in this case a custom directory/ not GEPIR was used)
2. A webpage for the product was returned to the phone
3. Specific phones were selected or provided to the test participants as autofocus camera abilities are preferable for 1D barcode scanning.
4. GS1 provided data extract from GS1net data pool of products in Breakfast Cereals, Bread and Biscuits categories, and stored in Victoria University computer database.
5. Nutritional attributes not in original extract were manually established and populated by research students.
6. Test participants provided personal details, including health information and mobile phone numbers

7. Based on participants profile, calculation algorithm and traffic light feature add to advise green, yellow (amber), or red for products depending on their personal settings



5.1.5. Key findings:

- The majority of the participants were quite satisfied with the scanning process and scanned every product within the selected category when they went to the store.
- Current barcode scanning with mobile phones is slow, but still desirable
- It is favorable to use content designed for mobile phone screens (easier to use)
- Savvy mobile web users will overlook poor content design as scrolling and size issues are typical with today's small phone screens
- The majority of participants thought the traffic light feature created quick communication and had trust in the feature since the lights were accurate to the product contents/specs
- Test participants would like to have a system that would be quickly updated as new nutritional information/formulae becomes available
- Participants would be prepared to adjust their product preferences if information were available in a clear and easy to use manner
- Participants indicated that the system would be more useful if the nutritional database contained a wider range of products
- The majority of participants had no trouble connecting to the mobile internet while shopping in the stores
- 73% of participants would like to continue using the system in the future.

- Research identified non-technical issues which need to be addressed in a production environment e.g. privacy, disclaimer relating to medical related recommendation, data accuracy, currency of data, calculation algorithm, and establishment of buying patterns.

5.1.6. GS1 Australia Recommendations:

- GS1net (GS1 Australia's GDSN Certified Datapool) did not contain nutritional information, so for future applications this would need to be populated by the brands and maintained for currency
- Scanning capabilities should be improved so that consumers can scan in a sequential "shopping list" type scenario
- It should be clear which phones can offer 1D product barcode scanning functionality (may be a factor for consumers wanting such capabilities)
- The GS1net database or a copy with consumer related extended packaging information e.g. nutrition and/or allergens will need to be available 24/7, secure and robust.

5.2. France - Consumer Advice While Shopping for Wine

5.2.1. Pilot Goals

- To prove demand by consumers for a tool that will help them choose wines in store.
- To show how mobile phones can create a means for wine retailers and brands to have a closer relationship with consumers.

5.2.2. Pilot Overview

Pilot was organized during the "Foire aux Vins 2009" Annual Wine Shopping Event.

Consumers were provided phones where when they scanned the barcode of the wine bottle, they were returned information such as: wine/food combinations, word from the producer and retailer, optimal date of consumption

A consumer survey was conducted in one of the Franprix stores, located at 203 av. de Versailles in Paris 16, throughout the wine sales event (i.e. from Sept. 10-20).

71 questionnaires were administered on a one-to-one basis in the store. Each interview was conducted after previously demonstrating the scanning application and showing a wine data sheet.

The aim of the survey was to determine the profile of people who would be likely to use mobile applications to get in-store buying advice; to grasp specific expectations for the wine counter; and lastly to identify other counters for which mobile services are expected.

5.2.3. Pilot Participants and Role:

- **Franprix** - French Retailer would set up and in store testing environment at the front of one of their 750 downtown stores in France, mainly in Paris.
- **GS1 France** - Neutral Organisation Managing Extended Packaging process and pilot coordination. Also provided standard based service CodeOnline for product information lookup (BarCode Reader and GEPIR Based lookup service)

- **Netific** – Provided Internet platform that enables producers to generate mobile web page (on the same framework)
- **Test Participants** – 100 real consumers interviewed while shopping
- **Wine Brands** – 67 wine manufacturers provided product advice information on 101 wines.

5.2.4. Test Environment and Technology:

Key Findings:

General:

- Huge interest by wine manufacturers (60% of content was provided within a week of request-90+% response)

Key/Data Carrier:

- 1D/linear barcode scanning is important enabler for consumers to engage with brands (already on most packaging and familiar to consumers)
- Barcode quality is key to provide a good consumer experience (70% of the bottles' barcodes were verified by GS1 France before the pilot)
- Global Trade Item Number (GTIN or the barcode number) is sufficient to enable most Extended Packaging Services imagined by users

Barcode Reader:

- Video scanning (as opposed to manual entry or photo scan) is optimal for a quick and easy user experience.
- Applications stores are a good way to distribute the reader software and educate consumers (95% of CodeOnline barcode reader software is downloaded from Apple Store)

Routage Service “Trusted Data”:

- Consumers like to have a direct link with the producer, especially in the wine sector
- The information (webpage or other) needs to load quickly and be clear
- Consumers like to know where the information is coming from to be able to trust and also access additional sources: brand, other consumers, retailers, etc..

Content Management Platform

- Their needs to be multiple ways to publish content and these should be efficient (easy to use) for manufacturers. Consumers will want information about all products from big and small companies alike.

5.2.5. GS1 France Recommendations:

- Barcode quality is important for POS but also for mobile scanning. Ask your local GS1 MO for “verification” if you are not sure about the quality of your barcodes.

6. More information and get involved

For information on Extended Packaging go to <http://www.gs1.org/mobile/ep>. On the site are:

- A list of the GS1 Local Contacts to get involved
- The Extended Packaging Pilot Handbook
- Information on barcode reading software/hardware

GS1 MobileCom is a cross-industry initiative involving manufacturers, retailers, mobile industry companies and solution providers. Its goal is to ensure:

- all consumers to have access to trusted product information and related services via their mobile phones
- all stakeholders to use open standards to make this possible and so ensure interoperable, scalable and cost-effective applications
- collaborative mobile commerce applications to be enabled by an open infrastructure.

To join, call +32 2 788 78 00, e-mail <mailto:mobilecom@gs1.org> or visit www.gs1.org/mobile.