



Digital
Commerce

About the GSMA

The GSMA represents the interests of mobile operators worldwide. Spanning more than 220 countries, the GSMA unites nearly 800 of the world's mobile operators with 250 companies in the broader mobile ecosystem, including handset and device makers, software companies, equipment providers and Internet companies, as well as organisations in industry sectors such as financial services, healthcare, media, transport and utilities. The GSMA also produces industry-leading events such as Mobile World Congress and Mobile Asia Expo.

About GS1 and GS1 UK

GS1 UK is a community of over 28,000 members working in retail, foodservice, healthcare and more. GS1 UK are one of 111 independent, not-for-profit GS1 organisations operating across 150 countries worldwide. GS1 UK help everyone involved in making, moving and trading goods, automate and standardise their supply chain processes using the common language of GS1 global standards.

GS1 UK, is operating a transformational programme in support of omnichannel retailing. The initiative introduces a range of standards and solutions that are fundamental to enabling the seamless experiences required by omnichannel retailing, ensuring and enabling globally unique identification of any item, person or location across all channels, systems and devices.

As a neutral, member governed, global organisation we facilitate and support the development and implementation of standards across the value chain. Our role and involvement in the mobile market has increased in the last 2 years due to our members need to find a solution for digital coupons. We are actively and continually working with members and partnering with service providers to develop and implement the standards to increase the use of mobile value add transactions both in the UK and globally.

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Digital Commerce in Retail: Mass Distribution and Acceptance of Mobile Couponing

JANUARY 2015



Digital
Commerce

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1.

Executive Summary

The situation

Across the world, merchants and brands use offers and coupons to engage new and existing customers. They increasingly want to be able to distribute digital offers that can be accepted efficiently and securely using smartphones and tablets. Consumers are less likely to forget mobile coupons and are more likely to redeem them. Moreover, mobile coupons, supported by loyalty programmes, could make it much easier for merchants and brands to capture the data they need to build a closer relationship with consumers, offer a tailored experience and fully measure the effectiveness of campaigns.

However, the digital coupon market and, by extension, the mobile coupon market, is highly fragmented with a myriad of proprietary solutions in use today. There is limited interoperability between merchants, coupon clearing houses, point of sale suppliers, brands, app developers, distributors and mobile operators. In such a fragmented marketplace, it is difficult for merchants and brands to cost effectively distribute and accept digital coupons on a large scale. The lack of consistency and interoperability in the digital coupon sector is ultimately preventing the mobile engagement market from fulfilling its potential.

A potential solution

Drawing on the output of workshops run jointly by the GSMA and GS1 UK, who are actively supporting the development and implementation, this paper proposes a consistent interoperable framework, and related processes, for the mass distribution and acceptance of digital coupons via multiple mobile operators and other distributors. To minimise the complexity and cost of implementation, the proposed solution aims to leverage, where possible, the technologies and business processes that have already been adopted by brands and merchants.

This paper identifies four standardised elements and related application programming interfaces (APIs) that could be used to enable a consistent and interoperable framework for the distribution and acceptance of digital coupons by multiple merchants and brands across multiple mobile operators and distributors.

These four elements are:

A coupon data pool registers a unique identifier for a specific coupon and records the associated parameters, such as the participating distributors, merchants and the selected validators, as well as the validation rules, volumes and the target spend.

A coupon event repository holds a record of all the events for a single digital coupon instance and the total number of coupon offers accepted by consumers and redeemed at merchants. This is commonly called the single truth.

A campaign management interface enables a coupon issuer to interact with coupon data pools and event repositories to set up a campaign, track its performance and refine it.

An online marketplace enables the efficient matching of coupon issuers with distributors and acceptors, encouraging the rapid adoption of digital coupons. Using real-time auctions, this marketplace would establish the price for the delivery of the offer.

The framework and accompanying processes outlined above have already been partially implemented in several markets, such as Belgium, Luxembourg, and Spain. In Italy, mobile operators are working with brands, merchants and existing hubs to develop a similar framework.

Across the world, merchants and brands use offers and coupons to engage new and existing customers.

2.

Introduction

Offers and coupons are valuable marketing and retention tools that enable merchants and brands to both attract new customers and re-engage existing customers. In this paper, digital coupons are defined as coupons that are distributed and presented electronically, without manifesting as ‘paper’, in exchange for a financial discount or loyalty points when making a purchase.

A coupon offer can be used either as a one-off incentive from a brand or merchant to influence a consumer’s behaviour or can be used to initiate and sustain an on-going relationship within the framework of a loyalty programme. For example, an apparel retailer might offer a consumer a “10% off” discount if they register or sign up to an account to receive targeted offers. As a result, the brand or merchant can better influence and understand the consumer’s subsequent behaviour.

As commerce becomes increasingly digital, merchants and brands are looking to use digital channels, especially consumers’ mobile devices, to distribute and accept coupons and award loyalty points. To meet this demand, service providers, distributors and mobile operators have created a multitude of solutions linking digital coupons to loyalty platforms and distribution methods. The result is a highly fragmented market in which it can be very difficult to create a mobile coupon offer that can be easily accepted or redeemed in multiple merchants or geographies.

As commerce becomes increasingly digital, merchants and brands are looking to use digital channels, especially consumers’ mobile devices, to distribute and accept coupons and award loyalty points.



Coupon issuers (the party bearing the commercial and financial responsibility for the coupon) want to use digital channels to reach both their existing customer base and new customers, regardless of which service providers, merchants, distributors, mobile operators or mobile technologies they use. To address this need, the GSMA and GSI UK have been approached by the market to address the need and facilitate identifying a solution through consulting the ecosystem via a series of workshops. Drawing on the output from these workshops and other input from payment solutions providers, point of sale solutions providers, clearing houses, merchants and brands, this white paper sets out an open framework for the mass distribution and acceptance of mobile coupons, both in bricks and mortar retail and online. Encapsulating best practice, this framework utilises GSI’s global coupon number (GCN) standard and the digital coupon management standard specification, which encompasses:

- The creation of the offer and allocation of a unique digital coupon identifier
- Selection of distribution channels, value added services and acceptance points
- The delivery of the digital coupon to a mobile handset
- Transactions between handset and point of sale
- The validation and acceptance of a transaction
- The deactivation and removal of a redeemed or expired mobile coupon from the handset
- The settlement and clearance of a transaction

This framework is designed to support a consistent and interoperable approach to the mass acceptance and distribution of digital coupons that will make it easier for brands to distribute mobile coupons via multiple distributors and mobile operators for acceptance by multiple merchants. Individual merchants could also use the framework to distribute their own coupon offers through multiple channels. The framework is intended to act as a guide, rather than provide an end solution.

Note, this paper builds on the:

- **Mobile Commerce in Retail: Loyalty and Couponing white paper**, published in January 2014 by the GSMA, which explores how mobile commerce can transform consumers’ experience of loyalty programmes and associated couponing. It also considers how mobile-enabled loyalty programmes can help a merchant to build a deep and rewarding end-to-end relationship with its customers.
- **The GSI Digital Coupon Management Standard**, which provides an open data model for the secure and reliable management of digital coupons.

The structure of this paper

The paper is divided into six main sections:

- Couponing today
- Enabling mass distribution and acceptance of digital coupons
- The consumer experience
- Actual implementations and example use cases
- How the mobile industry can support the retail ecosystem
- Conclusions and next steps

Primary audience

The primary audiences for this paper are:

- Coupon issuers and loyalty programme providers.
- Distributors and mobile operators.
- Coupon awarders such as restaurateurs, hoteliers, entertainment providers, parking providers, high streets, malls and other merchants and their membership associations.
- Payment and value add service providers.
- Equipment vendors, systems integrators, infrastructure suppliers.

About the GSMA

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About GSI and GSI UK

GSI UK is a community of over 28,000 members working in retail, foodservice, healthcare and more. GSI UK are one of 111 independent, not-for-profit GSI organisations operating across 150 countries worldwide. GSI UK help everyone involved in making, moving and trading goods, automate and standardise their supply chain processes using the common language of GSI global standards.

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3.

Couponing today

The coupon market

Coupons and loyalty programmes are big business, attracting major investment. Most merchants and brands make extensive use of these marketing tools both to attract new customers and reward customer loyalty. In the US alone, 315 billion coupons were distributed in 2013, according to NCH Marketing Services, a coupon clearing house, which is part of the Valassis group. In Hong Kong, 65 per cent of shoppers use coupons as a cost saving strategy, according to research by Nielsen, second only to the US, where 68 per cent of shoppers use coupons. In the UK, 365 million coupons were redeemed in the first half of 2014, up from 275 million coupons in the same period of 2013, driven by a dramatic increase in merchant-funded coupons, according to Valassis Ltd.

In 2013 in the US, average coupon redemption rates ranged from 0.22 per cent for magazine pop-up coupons to 23.85 per cent for instant redeemable coupons, according to commerce technology company Inmar. The redemption rate for free standing inserts – the most widely used coupon format – was 0.47 per cent.

Growing usage of digital coupons

Digital coupons, including print-at-home, mobile, social and loyalty card downloads, accounted for less than 1 per cent of all coupons distributed in 2013 in the US, NCH says. However, as commerce becomes increasingly digital both online and in-store, the number of digital coupons in circulation is growing steadily. In 2013, more than 66 million digital coupons were redeemed industry-wide in the US according to Inmar estimates – a 141 per cent increase over 2012.

In some countries, notably China, digitisation appears to be making coupons more popular. For example, Dianping, a mobile app that offers consumers digital coupons for local merchants, has been downloaded more than 40 million times since it was launched in 2009.

Digital coupons have a number of significant advantages over their paper counterparts. They are less likely to be lost or forgotten and more likely to be redeemed. The average redemption rate of digital coupons in the US was 6.32 per cent in 2013 – far higher than for paper-based coupons distributed in print media, according to Inmar's Coupon Trends 2013 Year End Report.

It is also much easier to target specific consumers using digital coupons, rather than paper coupons, enabling brands and merchants to better control their distribution and potentially reduce wastage. Distributors of digital coupons can use a combination of declared data (e.g. a social network profile) and behavioural data (e.g. websites visited) to identify specific demographics with a high degree of accuracy. For example, a digital commerce distributor or mobile operator could enable a fashion retailer to send a digital coupon to a target audience of women, between the ages of 20 and 40, living in a certain postcode.

Digital coupons can also enable merchants and brands to collect more complete, timely and accurate information on specific customers, leading to a better understanding of those customers and the potential to build a direct relationship. For example, a brand could offer a customer a choice of digital coupons. The digital coupon they select would yield valuable information about that customer's preferences. At the same time, the ability to monitor the use of digital coupons in real-time means the brand can control the redemption cost of a campaign reducing the possibility of multiple redemptions of the same coupon or fraud.

For merchants, digital coupons eliminate the costs associated with the distribution and processing of paper coupons. The validation and redemption of digital coupons is typically quicker and more accurate than the validation and redemption of their paper counterparts, assuming merchants and brands don't need to invest in multiple proprietary systems. Furthermore, the settlement process is likely to be faster and more accurate than is the case with traditional paper coupons, enabling merchants to receive payment from brands within agreed terms and on time.

Moreover, the distribution and content of digital offers can be refined during a campaign. For example, digitisation makes it straightforward for a brand to test whether a 10% discount or a \$2 discount attracts more customers.

Coupons and loyalty programmes are big business, attracting major investment.



Mobile coupons gaining traction

As smartphones and tablets proliferate, consumers are increasingly using these mobile devices to manage and redeem digital coupons. NCH believes the growing use of smartphones, apps and social media together could generate an “explosion” in the use of digital coupons. Mobile coupons are redeemed 10 times as often as traditional paper coupons, according to the Graphic Mail Blog: Friday Corner: 10 Mobile Marketing Stats, 2013. The relatively high redemption rates reflect the fact that the mobile channel enables coupons to be delivered in a targeted and timely manner.

Other research firms are reaching similar conclusions. Although digital coupons are still primarily delivered through email, consumers are increasingly using tablets and phones to both find and redeem them, according to a study by Forrester Consulting for coupon distributor RetailMeNot. A survey of consumers in the U.S. by Forrester found that 31 percent of tablet owners are looking for deals using a coupon app they’ve downloaded from an app store, while in Figure 1 below one-third of smartphone owners use a coupon application to look for offers and digital coupons.

FORRESTER CONSULTING RESEARCH ON FINDING DIGITAL COUPONS, OFFERS OR ONLINE

“How do you typically find digital coupons, offers, or online promotion codes on your smartphone?”

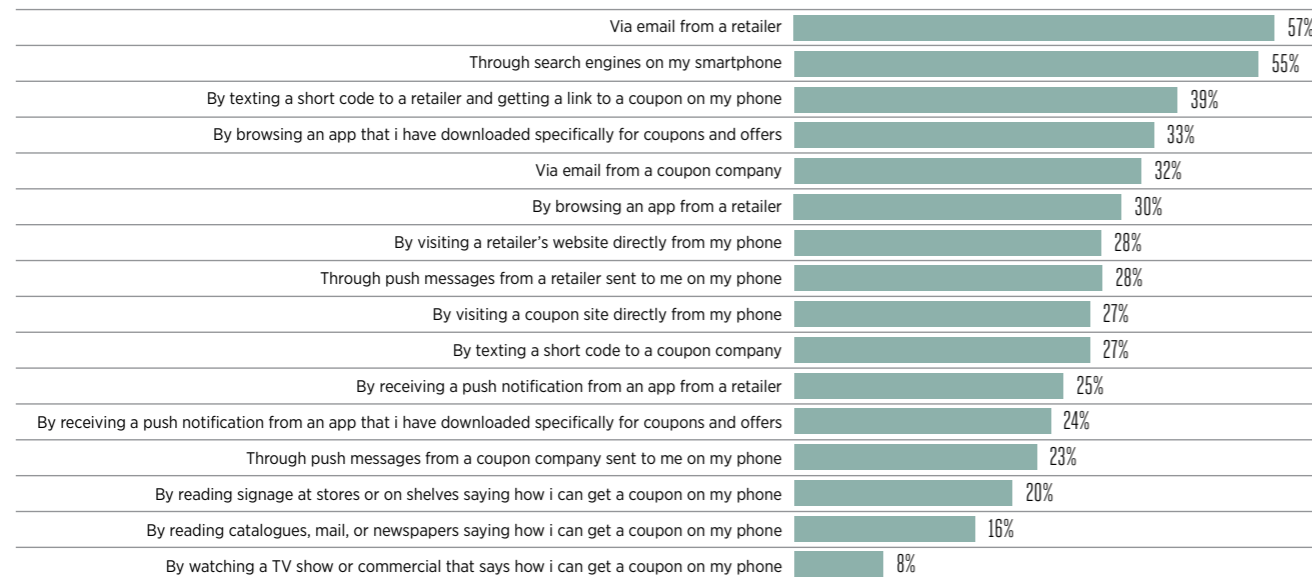


Figure 1

As consumers increasingly use tablets for making online purchases and receiving digital coupons, they are employing a variety of ways to redeem them, Forrester found. Some consumers are actually sending a coupon from their tablet to their smartphone for in-store redemption. Others are activating the coupon on their tablet, and the coupon is then sent to their loyalty card. “It is clear that retailers have not quite figured out how to optimise the process for redemption given these workarounds by consumers,” says Forrester.

¹ Base: 177 US consumers who used a smartphone to find a digital coupon, offer, or online promotion code in the past three months. Source: A commissioned study conducted by Forrester Consulting on behalf of RetailMeNot, May 2014.

4.

Enabling mass distribution and acceptance of mobile coupons

This section outlines a framework and related processes that could bring much greater consistency and interoperability to the digital couponing market.

The challenges for digital coupons

To fulfil their potential, digital coupons clearly need to be straightforward to be used by consumers, and cost-effective for merchants and brands. Today, all three groups may have to deal with complicated and fragmented solutions.

There is relatively little collaboration within the digital coupon ecosystem. Although there are standards and best practice specifications to assist in achieving interoperability between brands, merchants, app developers, point of sale suppliers, coupon clearing houses, distributors and mobile operators, these standards are not well known and have not yet been widely applied. The fragmentation in the market has made it more difficult for merchants and brands to cost-effectively distribute and accept digital coupons across the mobile channel at scale.

Today, a brand running a campaign is able to send offers through a preferred distributor to selected consumers (with whom the distributor has an existing relationship) who are then able to redeem the associated coupon at a particular merchant (see Figure 2 below).

BRAND COUPON REDEMPTION

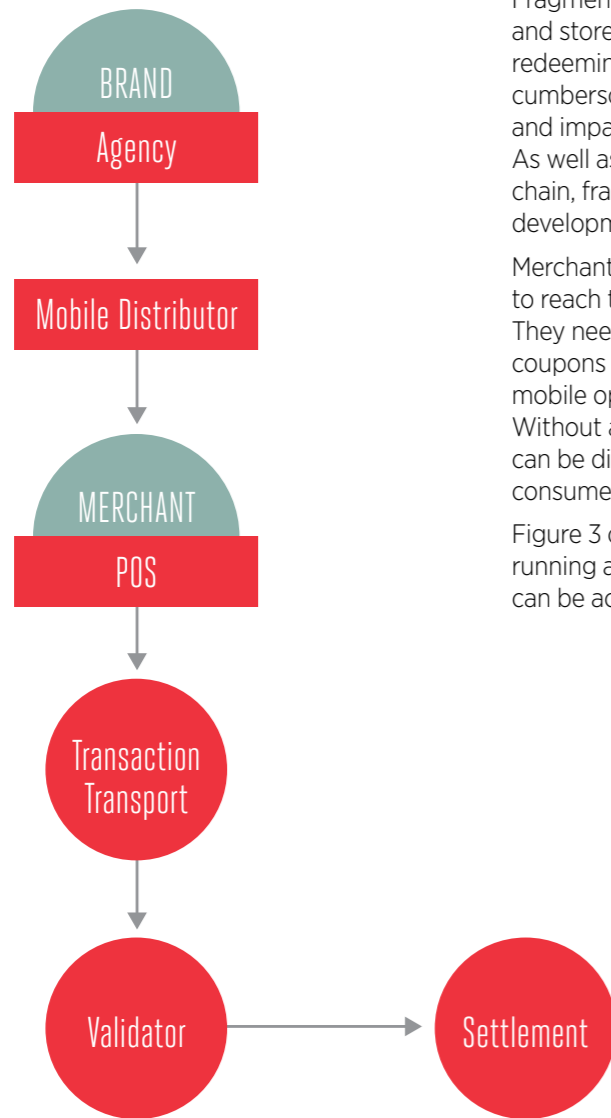


Figure 2

The brand might need to run a number of separate, albeit similar, campaigns across various distributors and service providers to enable consumers to redeem their digital coupons at different merchants. This reflects the fact that different merchants have adopted different processes for accepting coupons, increasing costs for brands and validation services. With merchants handling coupons in many different ways, it can also be difficult for brands to track the performance of their campaigns and tie redemption data with basket information and other campaign-specific data.

Fragmentation also creates challenges for consumers and store staff who have to deal with multiple ways of redeeming coupons, making for an inconsistent and cumbersome customer journey, increasing checkout times and impacting the customer service offered by the cashier. As well as increasing cost across the couponing value chain, fragmentation is ultimately holding back the broader development of the mobile commerce market.

Merchants and brands typically want to use a single process to reach their target consumers within a specific market. They need to be able to mass distribute and accept digital coupons in a consistent way regardless of which distributor, mobile operator or technologies the consumer uses. Without a consistent and interoperable set of capabilities, it can be difficult for a merchant or brand to target the right consumer at the right place at the right time.

Figure 3 on the following page shows the complexity of running a campaign and distributing digital coupons that can be accepted across many different merchants.

EXAMPLE OF COMPLEX DISTRIBUTION OF DIGITAL COUPON CAMPAIGN

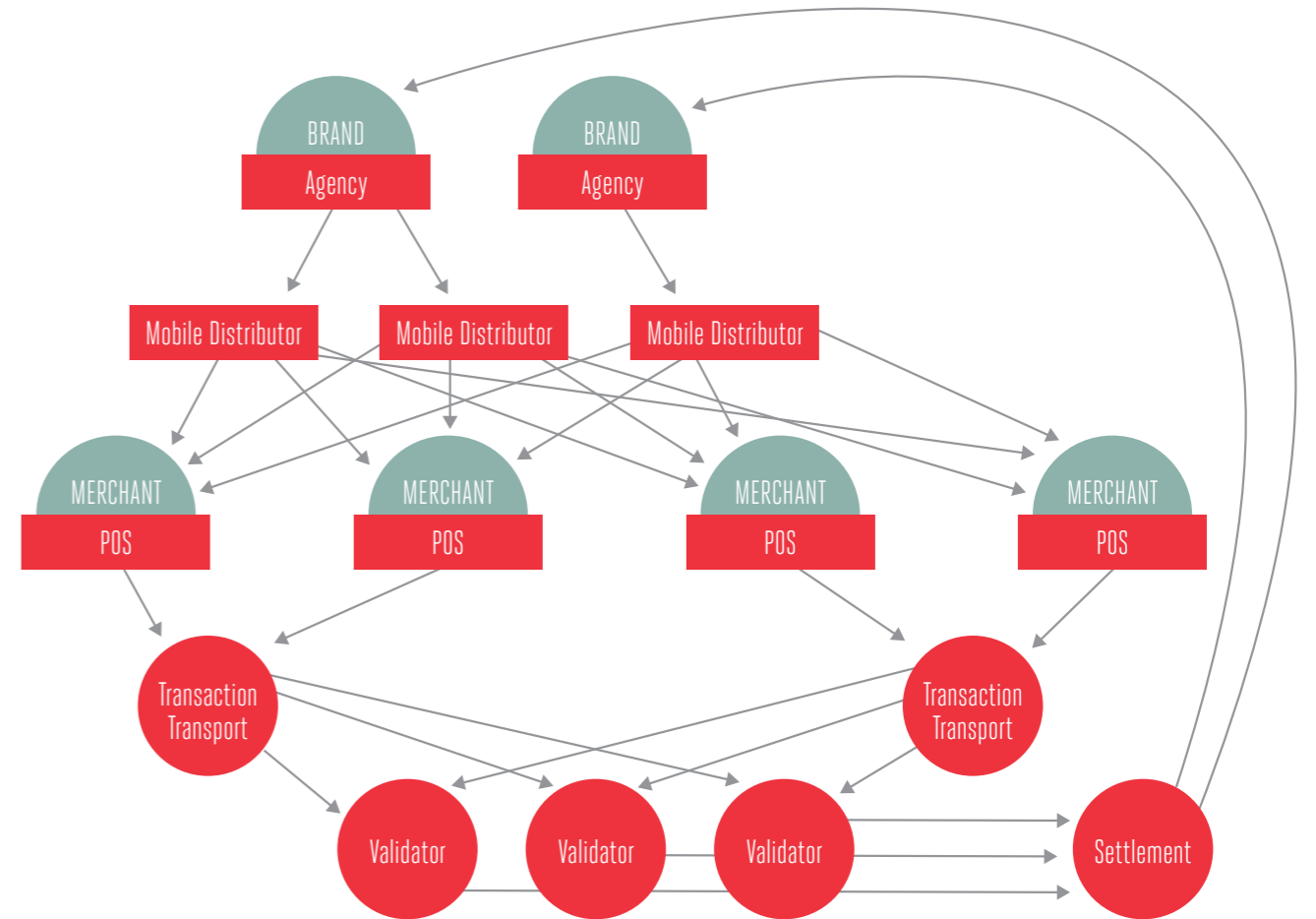


Figure 3

Ideally distributors and mobile operators in a national market would adopt a consistent approach to loyalty and digital couponing, whilst still allowing loyalty brands and offer providers to remain individual. Consistency across distribution platforms and mobile operators could generate economies of scale right along the value chain and will enable merchants' store staff to quickly become familiar with how customers can use their mobile handsets to collect and redeem loyalty points and digital coupons. The GSMA's **Mobile Commerce in Retail: Loyalty and Couponing** white paper further explains the benefits of a consistent approach by mobile operators.

Similarly, the use of open standards for the distribution, tracking and acceptance of digital coupons can engender interoperability and simplicity, helping extend merchants' and brands' reach, generating scale for the entire value chain.

Developing a consistent and interoperable framework

The GSMA and GSI are working together globally to develop a consistent and interoperable framework designed to give the digital couponing ecosystem guidance on how to reduce fragmentation. The aim of the framework is to enable the cost-effective distribution and acceptance of mobile coupons across multiple merchants, through multiple distributors in multiple geographies. Individual merchants could also use the framework to distribute their own digital coupons through multiple channels.

To inform the project, which focused on the retail, transport and hospitality sectors, the GSMA and GSI UK hosted a series of five workshops in London in the summer of 2014.

Representatives from key service and solution providers within the retail ecosystem participated in the workshops.

Serving as an introduction, the first workshop focused on understanding the problem, the scope and objectives of the project, and where the couponing market is going and why. The second workshop defined specific use cases for three sectors (retail, hospitality and transport), while also defining digital coupons. The third workshop identified the high level architecture outlined in this paper, explored potential roles in the ecosystem and any major concerns about the framework.

The fourth workshop considered actual implementations in Germany and Belgium, the coupon process and architecture, and a minimum viable product that could be used to test the concept in the marketplace. This workshop also identified the data flows in these new processes. The proposed framework was reviewed by both brands and merchants and refined further, before being reviewed in the fifth and final workshop.

The next section of the paper outlines the end result - a consistent process and framework designed to make it straightforward for brands and merchants to mass distribute and accept coupons via multiple mobile operators, distributors and service providers. To minimise the complexity and the cost of implementation, the proposed solution aims to leverage technologies and business processes that have already been adopted by brands and merchants.

Aim of the framework is to enable the cost-effective distribution and acceptance of mobile coupons.



The GSI System: GSI Identification Keys

The proposed framework and process outlined in this paper employs GSI's existing standardised data architecture (see Figure 4 below), which specifies the use of several identifiers to track digital coupons through this process.

- **Global Location Number (GLN):** A standard number that uniquely identifies a specific organisation, brand, merchant, store, POS, scanner, platform or function.
- **Global Trade Item Number (GTIN):** A standard number that uniquely identifies a trade item class: a product or service that is priced, ordered or invoiced. Different numbers are used to differentiate variations in sizes and packaging levels (including some types of promotional pack).
- **Global Service Relation Number (GSRN):** A standard number that uniquely identifies the recipient or provider of a service. This can be used to identify a consumer in a customer loyalty scheme. The GSRN is allocated by the service provider.

- **Global Coupon Number (GCN):** A standard number that uniquely identifies a coupon offer. The GCN is allocated by the coupon issuer. The GCN enables generic information about that coupon or series of coupons to be looked up; for example the coupon's value, validation rules and artwork.
- **Serialised Global Coupon Number (SGCN):** A standard number that uniquely identifies an individual instance of a coupon offer. It is created from the amalgamation of the coupon's GCN and a serial number.

In each case, these identifiers are numbers that can be used to query a database that then provides the information related to each identifier. An existing **GSI Digital Coupon Standard** published in June 2012 provides information around the three main elements:

- The Global Coupon Number (GCN), a GSI ID key comprising an identifier of a coupon offer and an optional serial number to identify a coupon instance
- A process standard for digital coupon management (figure 4), which promotes the use of GTINs to identify products linked to coupons
- A standard data model to support B2B and B2C communication in the digital coupon management process.

GSI DIGITAL COUPON MANAGEMENT

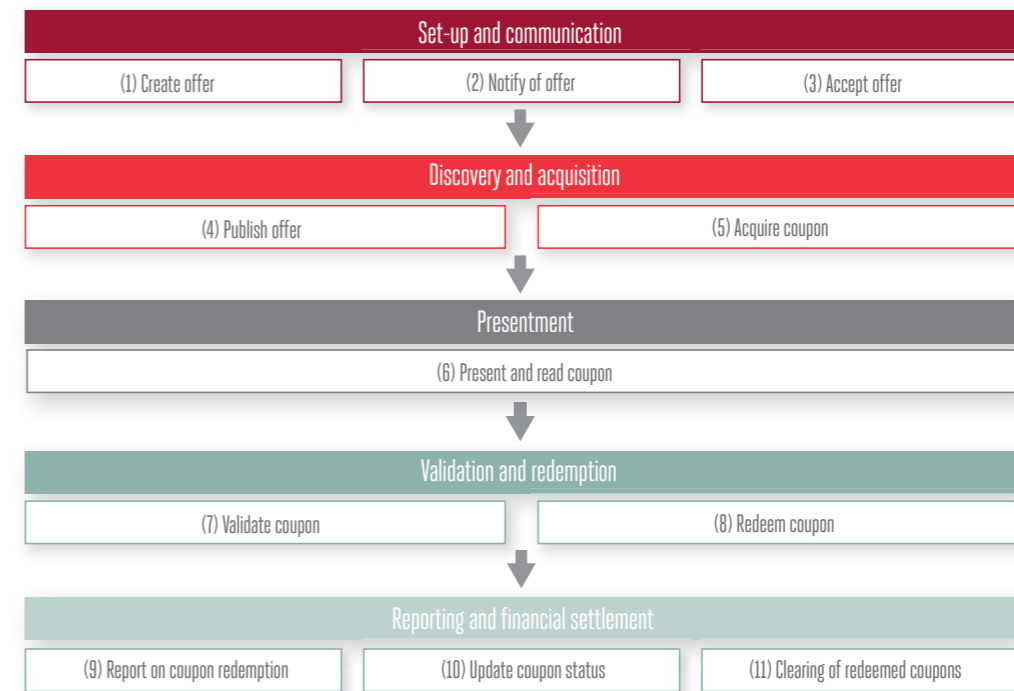


Figure 4

The new 'digital' process

Figure 5 below shows the proposed digital couponing process and how it incorporates the traditional roles associated with the paper coupons process, leveraging technologies and business processes that have already been adopted by brands and merchants.

OPEN COUPON PROCESS

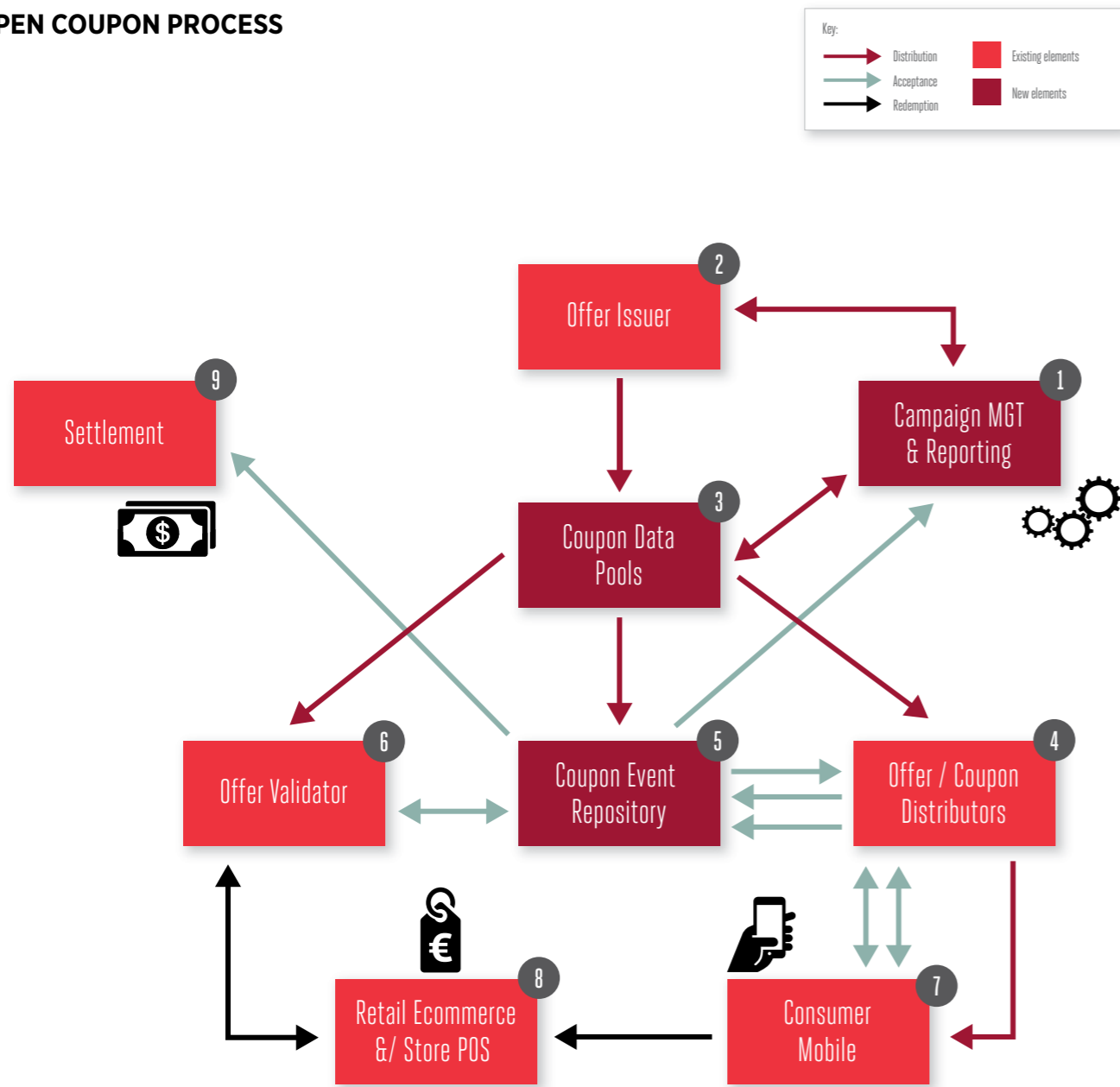
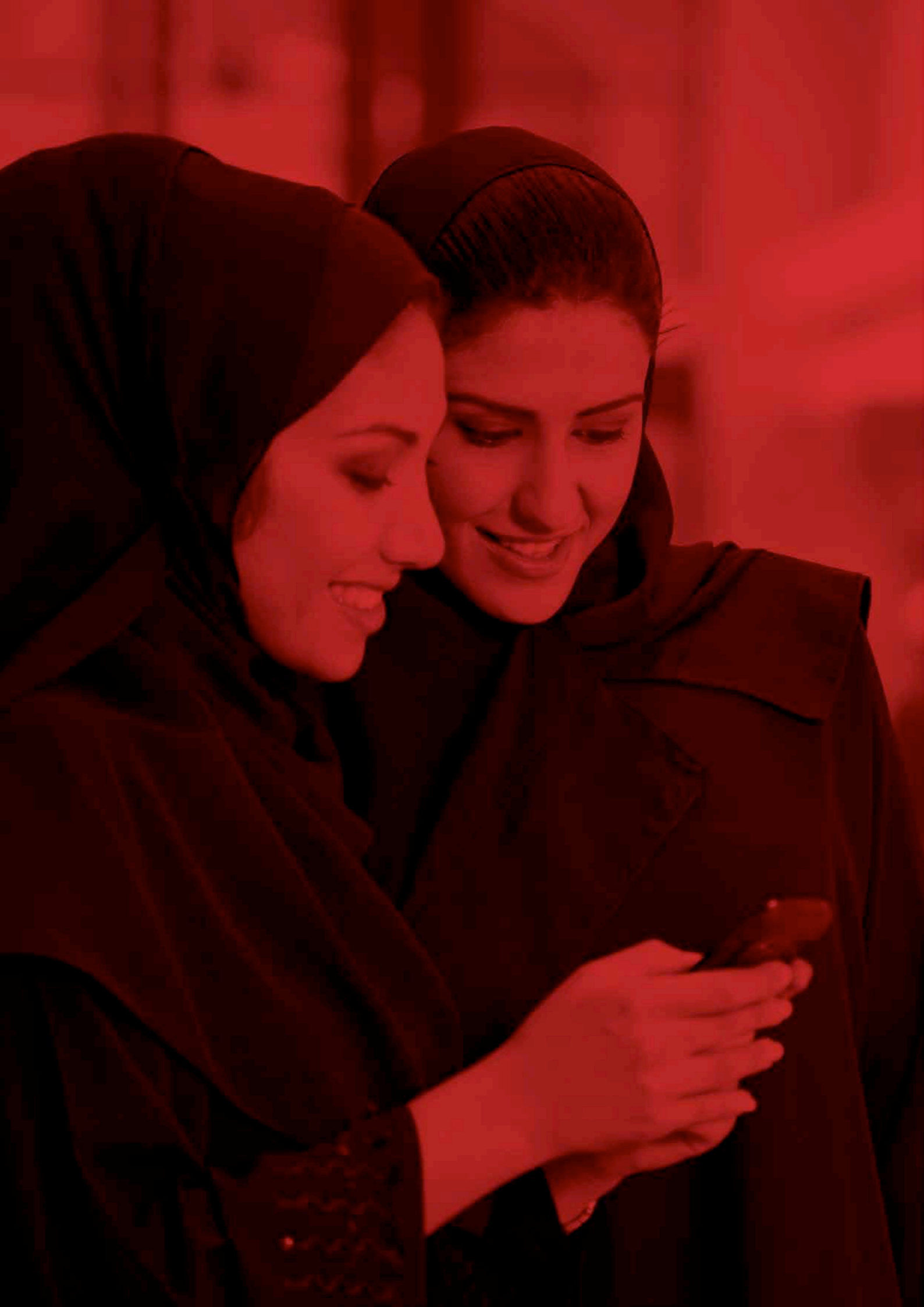


Figure 5

How does it work?

- The brand, the coupon issuer, creates a campaign (see 1 in the diagram) and sets up the coupon offer parameters, including the business rules for distributing and redeeming a coupon, as well as selected validators, merchants, distributors, products, and information (artwork etc.) for issuing and distributing the coupon. The GCN is issued by the brand (2), which uniquely identifies the coupon offer. The campaign could involve a number of distinct coupon offers.
- The campaign management interface (1) then passes the coupon information with the GCN to the selected coupon data pool (3).
- The coupon data pool (3) then passes the relevant information to the selected distributor(s) (4), events repository (5) and validator(s) (6).
- The distributor (4) then sends the coupon offer to the consumer via the specified channels.
- The consumer (7) accepts the coupon and the distributor pushes a unique instance of the coupon (SGCN) to the consumer.
- The distributor (4) then updates the events repository (5) with a record of the coupon instance (SGCN), the date/time that it was accepted, the ID of the distributor (GLN) and the distributor's reference for the consumer (GSRN).
- The consumer (7) presents the coupon to the point of sale at a valid store (8) for redemption.
- The merchant can send the GCN to its validator (6), which could be the merchant itself or a third party.
- If the validator (6) approves the coupon as valid, it informs the point of sale, the coupon is redeemed and the validator updates the event repository (5) including where and when it was redeemed, and, optionally, the customer ID of the merchant (GSRN), marking the coupon's status as redeemed.
- The event repository (5) informs the distributor (4) that the coupon has been redeemed. The distributor (4) then 'burns' or decommissions (removes) the coupon on the consumer's (7) device or app and updates the event repository (5) that the coupon has been successfully removed.
- If the validator (6) rejects the coupon, it informs the point of sale (8) and updates the event repository (5) to show that the redemption was rejected together with a status code explaining why. Depending on the reason for rejection, the distributor might be requested to 'burn' the coupon.
- The events repository (5) contains complete information about each coupon instance and can provide relevant information to the campaign management interface (1) and the settlement party (9).





What's new in this process?

Building on this existing GS1 architecture, the GSMA and GS1 workshops identified four elements that can enable a consistent and interoperable framework for the distribution and acceptance of mobile coupons by multiple merchants and brands. Each of these elements is designed to reduce the need for proprietary bilateral interactions among the many different entities required to ensure an offer and the related coupon reaches its target audience, while also giving offer issuers a higher level of visibility over their campaign.

These elements are:

1. Coupon data pool

A coupon data pool contains both the digital coupon's static master data and its GCN (Global Coupon Number). The master data includes the authorised distributors, applicable merchants, the agreed validation services, commercial agreements and acceptance criteria, the target volumes, GTINs (Global Trade Item Numbers) and the related creative artwork for the coupon and, the GCN. Each coupon offer is assigned a single unique GCN by the coupon issuer.

The coupon issuer will choose the appropriate coupon data pool for a specific campaign. There may be one coupon data pool in a geography or vertical, or there may be many offered by various service and solution providers, but each coupon offer would be assigned a GCN, which should then only be assigned to one data pool. Note, a single coupon data pool for each industry, such as hospitality, retail or entertainment, would reduce complexity.

2. Coupon event repository

A coupon event repository is a database that holds a record of all the events for each digital coupon instance distributed to the specified target market for a particular offer. The event repository, which tracks the status of the coupon, contains all the information required to monitor the campaign's performance in near real time.

There may be one coupon event repository in a geography or vertical, or there may be many: The **GS1's EPCIS standard** could be used to enable multiple event repositories to create and share event data. However, a single event repository for each industry could provide the ecosystem with several benefits. For example, a single event repository could generate standardised (potentially anonymised) reports and answer ad hoc queries, while generating alerts for specific events. It would also provide a single interface for issuers, merchants, agencies and distributors, with user permissions and data access regulations in place to safeguard commercially sensitive information.

3. Campaign Management

A campaign management interface enables a coupon issuer (the entity that licenses the GS1 prefix to generate unique numbers) to interact with coupon data pools and event repositories to set up a campaign, track its performance and refine it. A campaign could consist of a number of separate coupon offers.

A coupon issuer could use a campaign management tool to create a campaign, allocate the coupon offer GCN, and create the relevant master data, such as validation rules and which distributors and event repository to use. It would communicate this information to the chosen coupon data pool through a standard API. It would then monitor the coupon event repository, through the standard API, to provide reports and analysis of the campaign's progress. Service providers could differentiate their campaign management tools through sophisticated campaign setup wizards, live performance dashboards, redemption reconciliation reports and marketplace functionality.

4. Marketplace

This new framework would pave the way for the emergence of digital marketplaces that enable the efficient matching of coupon issuers with distributors and acceptors, encouraging the rapid adoption of digital coupons. Such a marketplace could enable brands to bid to have a distributor deliver their coupon to consumers that match a specific profile at a specific time and location. Using real-time auctions, the marketplace would establish the price for the delivery of the offer.

Similarly, the marketplace could enable a brand to incentivise relevant merchants to participate in a specific campaign by accepting the brand's coupons. For example, a supplier of branded snacks may want to reach commuters using train stations. The supplier could use a digital marketplace to offer food stores in the vicinity of train stations an incentive to accept a digital coupon for its snacks. They could also use the marketplace to find suitable distributors, such as train operators or travel apps, for the coupon.

Note, this framework, which can be applied to both digital and conventional coupons, assumes both traditional and new distributors will continue to deliver coupons to consumers. For these organisations, the key change will be the need to support serialised coupons and be able to interface with the coupon data pools and the coupon event repositories.

The architecture and data flows

Figure 6 below illustrates at a high level the data that would flow through the value chain. It shows the central roles of the coupon data pool and event repository in coordinating a campaign.

ARCHITECTURAL DIAGRAM OF THE VALUE CHAIN'S HIGH-LEVEL DATA FLOW

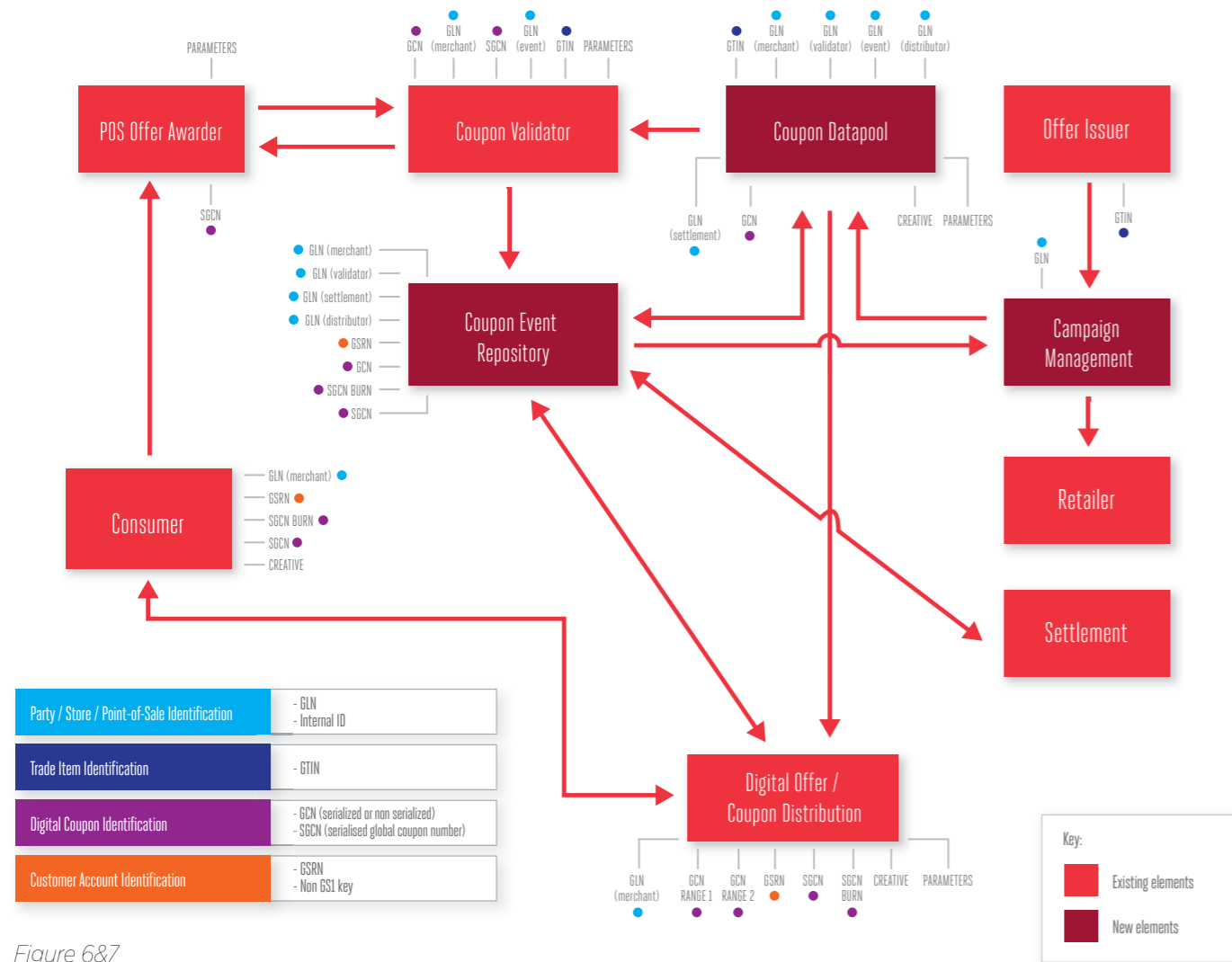
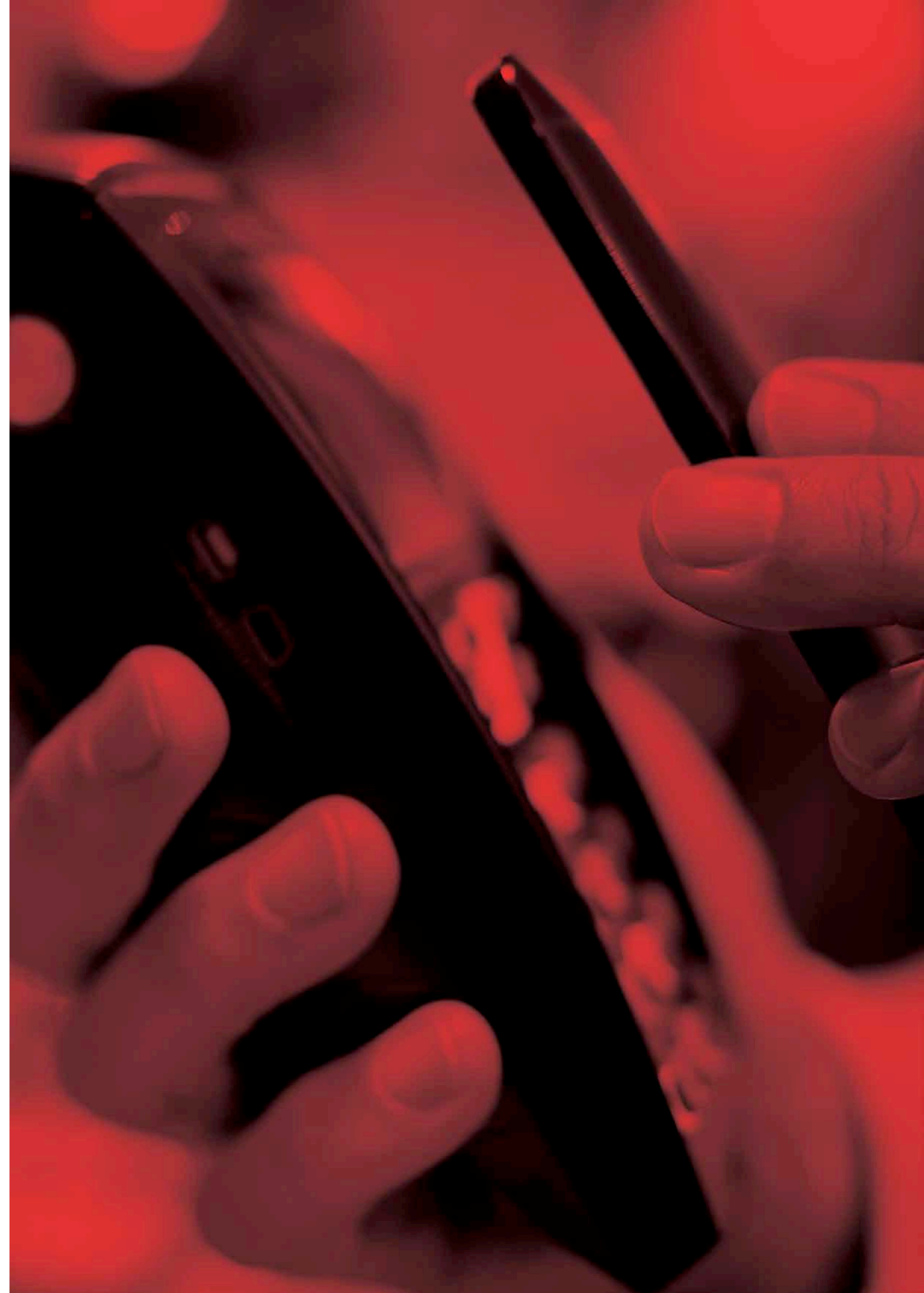


Figure 6&7

The proposed framework envisages that the GS1 key identifiers (see table above) will be transferred from entity to entity. The graphic above shows, for example, that the offer issuer will use the event repository to provide both distributors and validators with the live Serialised Global Coupon Numbers (SGCNs) for a specific campaign. A distributor, responding to a consumer opting into the offer, would draw down a SGCN from the event repository and publish the coupon instance in the consumer's mobile

device. When the consumer redeems that coupon, the SGCN is recorded by the merchant's store, which then passes the SGCN onto the validator (see section on the validation process). After ensuring that the SGCN is valid, it accepts the coupons and updates the event repository. Distributors will query the events repository to identify redeemed coupons that must be 'burned', in line with the campaign parameters, and removed from the appropriate app on the consumer's handset or in the cloud.



Support for cloud-based distribution

As well as supporting coupons stored on the handset, the framework described in this paper could be used to facilitate the delivery and acceptance of loyalty rewards/coupons via servers in the cloud. For example, a loyalty programme could use the framework to enable the distribution and acceptance of rewards (stored on a secure server rather than a handset) to a consumer who makes a purchase over a specific threshold or completes a certain number of transactions.

The required application programming interfaces

Within this new value chain, application programming interfaces (APIs) will be needed to enable the smooth flow of information between the players involved. For example, APIs will be required to enable coupon validators and distributors to access information held in coupon data pools.

Ideally, a campaign management interface will also use APIs to exchange data between the coupon event repositories and coupon data pools, so that a brand or merchant can easily track the performance of coupons. Note, the GSMA's technical proposal - **NFC.15: Mobile Commerce, NFC Coupons and Loyalty Acceptance** - identified standard APIs for transferring a digital coupon to a consumer and for redeeming that coupon in store and then having it validated by a coupon validator.

GS1 has already created the standards required for the coupon event repository (see the **EPCIS specification**) and a number of solution providers are already offering software products that support the standards APIs for transferring data to and from the event repository. Additionally the standard is also being used in track and trace solutions in the pharmaceutical, meat, fish, rail industries, to name a few.

APIs that are specified and APIs that require further consideration, development and implementation are detailed below in Figure 8. Coupon Datapools are currently being provided as a service by GS1 in Belgium, Spain and Germany. However as the EPCIS standard provides message specifications between the event repository and capture clients, implementations could use these messages to provide guidance for developing the specifications for the new APIs. GS1 is working to create a pilot of the infrastructure which includes these APIs.

The validation process

Within this proposed framework, a coupon could be validated in several different ways:

Merchant internal validation: The merchant receives coupon redemption criteria from the coupon data pool and uses this to run their own validation of the coupon. If the coupon is valid, the merchant records the redemption in the event repository. The distributor 'burns' and decommissions the coupon instance.

Merchant external validation: The merchant uses an external service to manage their coupon validation. This external validation service could be appointed by the merchant, the coupon issuer and/or the distributor (depending on how the validation service is appointed, the merchant may need to use the GLN to identify the relevant validation service). If the coupon is valid, the validation service records the redemption in the event repository. The distributor 'burns' and decommissions the coupon instance.

Ideally, the proposed framework will employ real time interrogation from the validator to the coupon event repository in order to ascertain whether the SGCN has been previously used via another validator, and therefore whether it is valid for use.

API'S THAT NEED TO BE CONSIDERED

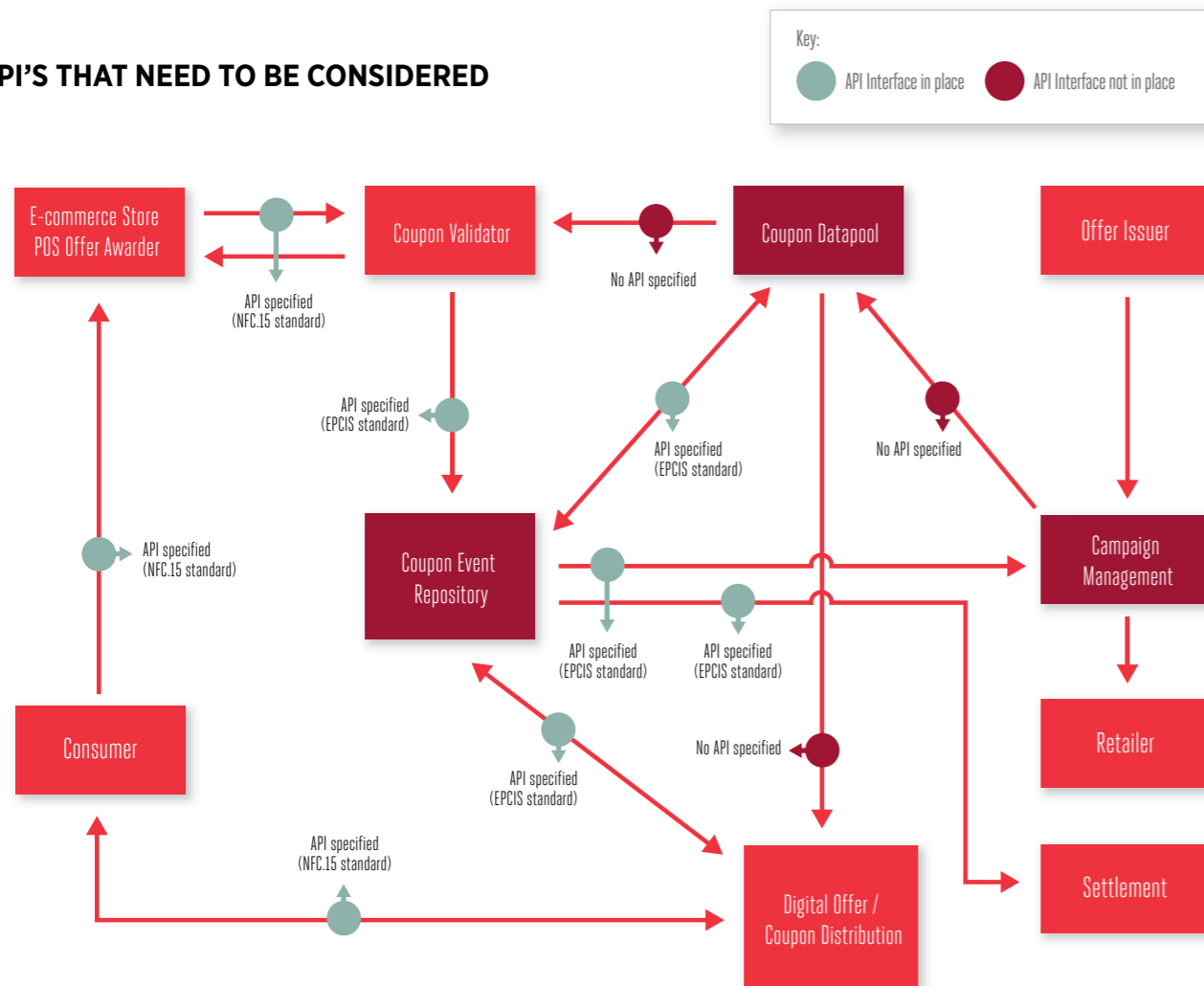


Figure 8

A loyalty programme could use the framework to enable the distribution and acceptance of rewards.

5.

The consumer experience

Consumers could receive digital offers, coupons and loyalty rewards in many different ways. They could be delivered to their mobile phone via an incoming SMS or MMS, through a link in an app, an email, on a web page, tapping a NFC tag on a poster, via a Bluetooth beacon, or by scanning a barcode or QR code on a product, in a magazine or a poster. The distributor would typically explain how to accept the offer and download the coupon. Consumers may simply have to click on a link or register for a loyalty programme to qualify for the coupon.

Once the consumer has received the coupon, it could then be stored in a secure area on their handset or in a cloud-based service.

Consumers may simply have to click on a link or register for a loyalty programme to qualify for the coupon.

The consumer can then use a mobile wallet or the appropriate merchant or brand app to activate the coupon so that it can be redeemed at the next opportunity. The actual activation process will depend on how the coupon can be redeemed. For example, a mobile wallet or app might move an activated coupon on to the consumer's SIM card or another secure element, where it can be recognised by an NFC-enabled PIN entry device (a PED). In other cases, the coupon may remain in the cloud, but be tagged as activated.

The home screen of the wallet or app would typically flag that the coupon has been accepted and then notify the consumer when they have an opportunity to use the coupon. For example, a consumer walking into a participating store might be alerted by a vibrating handset reminding them of their opportunity to redeem their coupon. The consumer can, of course, decide not to use the coupon on this occasion.

There are several different ways in which a merchant could enable a consumer to redeem a mobile coupon, such as via a NFC interaction or by scanning a barcode. In each case the SGCN is transferred to the point of sale.

In the case of NFC, most merchants are likely to employ a multi-tap process, which is closer to the experience consumers are accustomed to, rather than a single tap process in which the coupon is redeemed and the transaction completed in one step. However, the actual process will vary from implementation to implementation: a coupon could, for example, be redeemed by a single value added service tap.

A multi-tap process could be implemented in the following way: The merchant's NFC-enabled point of sale system or pin entry device (PED) could be configured to recognise a coupon. When the consumer taps their phone against the appropriate terminal to redeem the coupon, the till will show the new balance. On the consumer's handset, the mobile wallet or relevant app will then indicate that the coupon has been presented and display the consumer's default payment card. The terminal would now be configured to recognise a payment card. The consumer taps their handset again to make the payment and, if required, keys in a PIN to complete the transaction. The wallet or app then confirms the transaction on the consumer's handset. This is similar to the traditional user experience where a consumer presents their paper coupons and then presents their plastic payment card.

Alternatively, if a coupon (or loyalty reward) is stored in the cloud (rather than on the handset), the point of sale would need to be able to identify the consumer (with their permission) via the merchant's app, loyalty identifier or a mobile wallet. The point of sale would notify the cloud service of the consumer's identity and the cloud service would then send the appropriate coupon/loyalty reward (which could be governed by the time of day, the specific outlet and other criteria) to the merchant, together with the identifier of the point of sale. The merchant would then send the SGCN to the specific point of sale so that it registers the coupon and adjusts the balance to be paid.

Once the coupon has been redeemed, it may be 'burned' or decommissioned, so it is no longer available to the consumer. Following the decommissioning, the wallet or the app may send the consumer a further message, such as an invitation to join a loyalty programme or a related offer.

Applicability to small merchants

Some smaller merchants may need to upgrade their in-store infrastructure to accept digital coupons. As a (SGCN) Serialised Global Coupon Number consists of many characters, it is impractical for a cashier to enter a coupon code manually. Therefore, a point of sale will need a barcode/QR code scanner (capable of reading a code on the screen of a mobile device) or support for contactless interaction via NFC.

Some smaller merchants may not have an online point of sale system that can validate coupons in real time. However, if the merchant has the ability to connect to the point of sale system during the day, presented coupons can be validated in batches by the appropriate validation service. While this process could open up opportunities for fraud, the cost of upgrading the point of sale system may be prohibitive for small merchants. If a merchant has no retail systems at all, other than a payments terminal, a validation service could enable the merchant's terminal to connect to its database and validate the coupon. Alternatively, a coupon could be configured to be automatically burnt off the handset after a certain time period has elapsed following activation.

6.

Actual Implementations & example use cases

Actual implementations

Some of the concepts within the proposed framework have already been implemented in several markets, such as Germany, Belgium, Luxembourg and Spain. According to Mobile Commerce Daily, German hypermarket Real implemented a mobile couponing program in 2012 which was using the EPICS standards. The program allows a consumer to scan products in-store and instantly receive relevant offers to their handsets. Once a consumer has made a choice, a unique digital coupon is transferred to the store's coupon system in real time which shoppers can redeem by showing their loyalty membership card at checkout, and the transaction is processed automatically.

In Belgium and Luxembourg, major merchants Delhaize and Carrefour use a central coupon data pool to manage the distribution and redemption of coupons (see Figure 9). In Italy, the mobile operators are working with brands, merchants and existing hubs to set up a similar architecture.

BELGIUM & LUXEMBOURG DEPLOYMENT

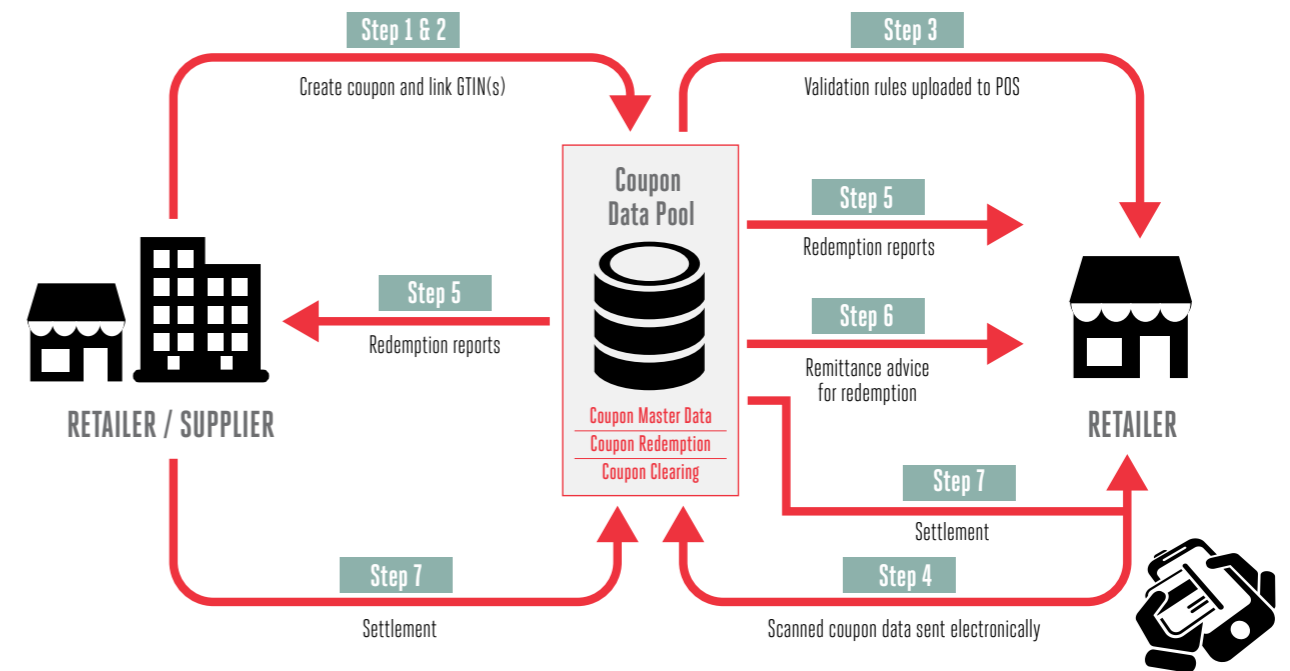


Figure 9

Use cases

The two use cases outlined in this section illustrates the flexibility and efficiency of the proposed framework, which gives offer issuers precise control over how their campaigns are executed with third parties in the market.

Attracting new customers

A food company designs a marketing campaign to increase sales of a new brand of soup, which comes in five flavours (each flavour a different GTIN), targeted at children. Aiming to persuade young families to try any of the soups, the company creates an offer that entitles a consumer to a 50 cents discount on a packet of the soup.

Using a campaign management service, the food producer specifies that the offer should be distributed via mobile operators to mothers of young children and redeemed in participating supermarkets selling the soup. It also caps its spend on the campaign at 50,000 euros (equivalent to 100,000 coupons). This information (the master coupon data) is recorded in the coupon data pool, where the GCN is allocated. The coupon data pool sends the data to the event repository, validator and distributors.

Building loyalty

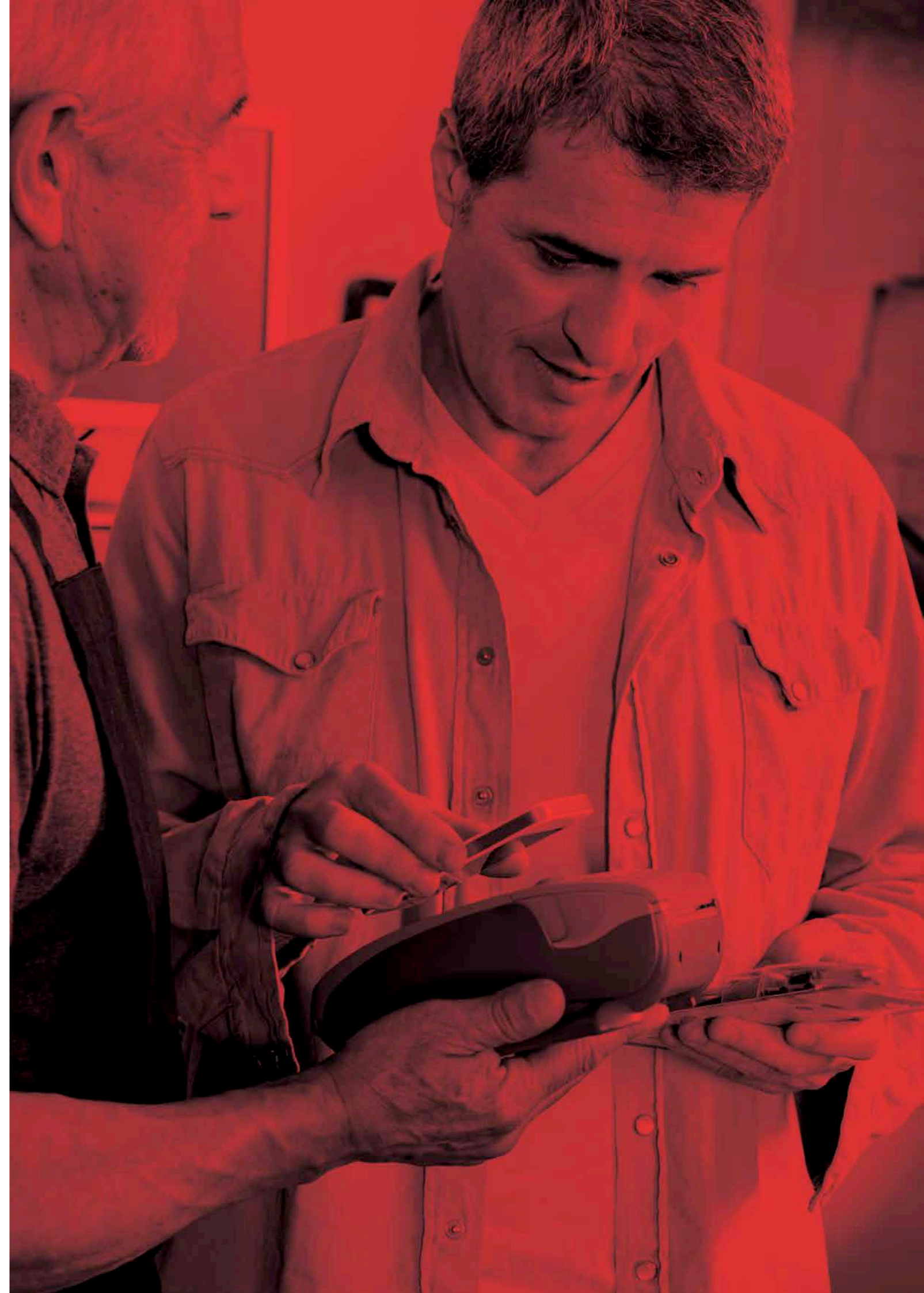
A chain of department stores sets a target of recruiting 200,000 new members for its loyalty programme. It decides to offer consumers a €5 credit if they download its mobile app and then sign up for its loyalty programme. Using a campaign management tool, the merchant informs a coupon data pool that it would like to issue up to 200,000 coupons (each worth €5) to people that join its loyalty programme and live within 20km of one of its stores. It also specifies that the offer is to be distributed via the mobile operators in its market and two leading social networks. The coupon data pool issues a GCN for the campaign.

The participating mobile operators and social networks then send messages to customers who have signed up to receive this kind of marketing and live in the targeted geographic area. The message invites the consumer to click on a link and download the department store's app and register for the loyalty programme in return for the €5 credit. When the consumer registers, the retailer notifies the consumer that they are now eligible for the credit, issues a SGCN for the offer to that consumer and notifies the coupon event repository and updates its loyalty programme. When the consumer next makes a purchase in the department store, the discount will be applied automatically.

Each time a consumer becomes eligible for a credit, the merchant notifies the event repository, which then changes the status of the corresponding SGCN. The event repository also records how many consumers have accepted the coupon offer and updates the campaign management system, which shows the department store that only a small fraction of recipients have opened the link in the message. The merchant decides to create a new offer for €10 credit and issues a new coupon (GCN) with new criteria - consumers must live within 10km of the selected stores - via the campaign management tool and sends the information to the coupon data pool.

The campaign management interface shows the department store that the new offer is attracting a much higher download rate. When 200,000 new customers have accepted the offer and are registered, the campaign is decommissioned and no further offers can be accepted or redeemed.

Each time a consumer becomes eligible for a credit, the merchant notifies the event repository.



7.

How the mobile industry can support the ecosystem

Collectively, the mobile industry has an ongoing relationship with the vast majority of consumers in most markets. The framework proposed in this paper could enable merchants and brands to efficiently use the mobile industry to distribute digital coupons, offers and loyalty programmes beyond their existing customer base, irrespective of which mobile operator the consumer subscribes to. As consumers increasingly carry smartphones with them, mobile services could act as a bridge between PC-based digital commerce and bricks and mortar commerce. A smartphone can enable a consumer to access information and offers available in the digital world while they are shopping on a high street, in a mall or in applications provided by merchants or third parties.

Mobile services and technologies can help the merchant or brand refine its marketing strategy and increase the proportion of shoppers who build an affinity with the merchant or the brand. As merchants and brands receive real-time data on how consumers are responding to coupons and offers, they will better understand their needs and behaviours, both in the digital and the physical world, and then be able to further improve their proposition. The mobile industry could enable a merchant or brand to deliver an offer at any point in the customer journey from the planning phase through outward travel, in-store

interactions and transactions and the return journey. With the consumer's permission, the contextual information generated by their smartphone can be used to ensure that these offers are highly targeted and directly relevant to the recipient's current location, the time of day and other factors, such as the weather, previous purchasing habits and preferences. In this way, the merchant may be able to turn disengaged, or non-consumers into loyal customers (see Figure 10).

LOYALTY GROWTH AS PART OF MERCHANT ENGAGEMENT

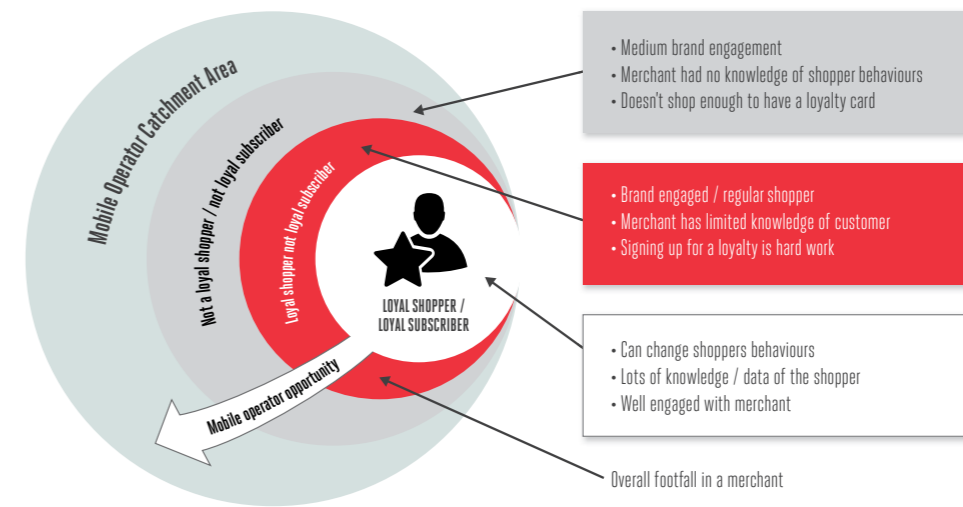


Figure 10

The mobile industry can also help consumers organise the offers and coupons they receive by providing a mobile wallet – a software application – in which they can view and activate commerce-related collateral. Alternatively, a coupon or offer could be stored in a merchant or brand app or it could be stored in both a mobile wallet and the issuer's app. The GSMA's Mobile Commerce in Retail: Loyalty and Couponing white paper explains how a mobile wallet can act as a bridge between the consumer and merchants and brands' own apps, optimising the user experience. The mobile industry can also build on their own technical capabilities to support the ecosystem in building the new environment described in this paper.

In summary, the mobile industry can help merchants and brands to use coupons and offers to "widen the funnel" at each stage of the customer journey, increasing the number of people who visit a specific high-street or shopping mall, and then the proportion of these people who enter a specific store, and finally the proportion of store visitors who actually make a transaction (see Figure 11). While merchants, town centres and shopping malls have extensive experience in how to attract consumers, mobile is a relatively new, fast evolving and highly personal communications channel that can enable an increase in both customer engagement and transactions

BEYOND A TRANSACTION

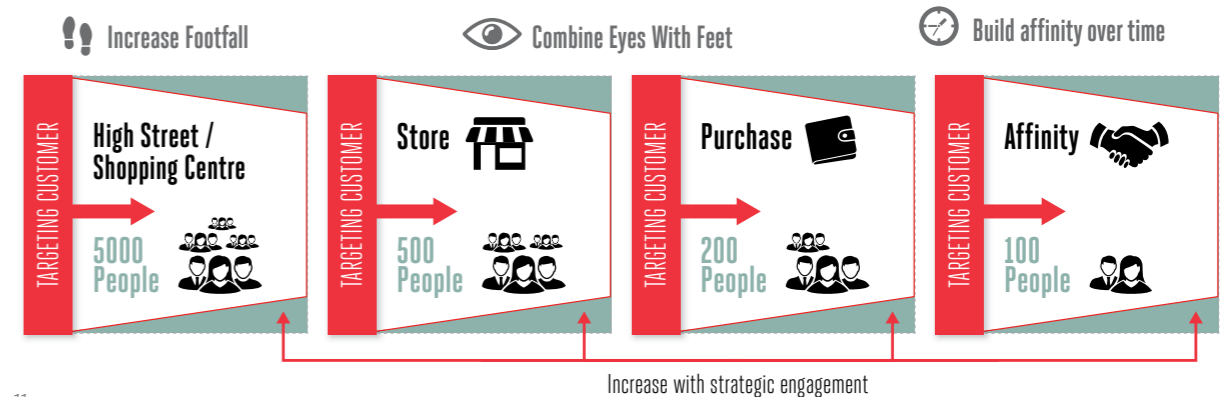
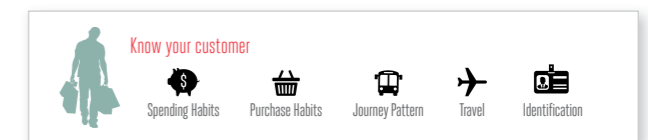


Figure 11

8.

Conclusions and next steps

By utilising existing standards, the framework described in this paper provides a practical way for brands and merchants to use the mobile channel to distribute and accept digital coupons across an entire market, reaching both their existing customer base and potentially expanding to a much wider audience than is possible using existing methods. Not only that, but the framework provides consumers and store staff with a consistent experience whilst redeeming coupons at the checkout across multiple merchants and brands. The proposed framework and related processes are also designed to minimise the disruption to the existing coupon ecosystem.

Although the services detailed in this paper already exist in the market to some degree, brands and merchants need to commit to this open approach in order to gain the benefits that the mass adoption of mobile coupons could provide. Figure 12 summarises the key benefits of this framework for each group of stakeholders:

As highlighted in section 4, implementing this framework will require organisations to provide coupon data pools, event repositories and marketplaces on a commercial basis. Commercial service offerings for the data pool and the coupon event repository, which support the standards and framework described in this paper, are already available.

Individual players within the couponing ecosystem need to consider their potential roles and evaluate potential business models within this proposed framework. They need to consider the costs associated with the provision of coupon data pools, event repositories and campaign management tools, together with the potential opportunities to monetise these platforms.

SUMMARY OF KEY BENEFITS

Stakeholder	Benefits
Consumers	Consistent, straightforward experience
	Access to personalised/relevant offers
Merchants	Consistent, straightforward experience for staff
	Economies of scale
	Improved control over campaigns
	Greater insight into consumer behaviour
Offer issuers (brands and/or merchants)	Greater reach
	Economies of scale
	Greater flexibility
	Improved control over campaigns
	Greater insight into consumer behaviour
Validators	Economies of scale
Distributors	Economies of scale

Figure 12

At a technical level, application programming interfaces (APIs) will be critical to enabling the smooth and interoperable flow of information across the digital couponing ecosystem. The organisations taking on the roles envisaged in this framework will need to employ the core APIs identified in section 4. Individual players within the existing couponing ecosystems will also need to identify and, where necessary, refine their existing APIs to ensure they are compatible with this new potential framework

GSMA, GS1 and their members have plans to engage the couponing ecosystem in further discussions regarding this proposed framework and its potential implementation in markets around the world.

The GSMA are working with their mobile operator members in different regions to help develop their retail strategies through engagement with the ecosystem and GS1, and by applying their findings to date to move towards commercial implementations.

GS1 have developed the global coupon number and the digital coupon standard. GS1 UK is working to create a pilot of the infrastructure described in the white paper and to follow up with the development of commercial services in the UK. Similar

activity is also taking place in other European countries such as Germany, Belgium, Italy and Spain. Companies wanting to know more about the pilot or want to get involved should contact GS1.

Primary next steps over the next 6 months, which will need to be worked on by associations and industry:

- Assessment of API's in the data flows, to assess industry compatibility
- Identification of new interfaces which would need creation
- Development of commercial business modeling by industry
- Engagement with ecosystems, merchants and brands who are like minded in reaching scale, and new markets on the growth of their loyalty and couponing markets to test out these principles
- Association support for industry activities around pilots or tests of this ecosystem
- Documentation and reporting by associations of any best practices

If you would like more information, please contact GSMA via digitalcommerce@gsma.com or GS1 UK via mobile@gs1uk.org.

9.

Glossary

For the purposes of this document, the following terms and definitions apply.

Loyalty programme: A structured marketing effort aiming to reward, and therefore encourage, loyal buying behaviour with a specific company or group of companies.

Paper coupon: A paper coupon is a physical ticket or document that can be exchanged for a financial discount or for loyalty points when making a purchase.

Digital coupon: A digital coupon is an electronic presentation, that is distributed and presented without manifesting as “paper” or in other hard-copy form, and that can be exchanged for a financial discount or for loyalty points when making a purchase.

Mobile coupon: Mobile coupons are a type of digital coupon received and/or presented via consumer mobile devices

Digital coupon instance: A Digital Coupon Instance is an individual digital coupon issued to a particular offer user.

Coupon offer: A coupon offer represents the conditions agreed upon between the business process partners (offer issuer, offer issuer clearing agent, offer distributor and offer awarder, offer validator and offer awarder clearing agent) for a specific series of coupons regarding the distribution, validation, redemption and settlement.

Acceptance period: The period within which the offer awarder indicates willingness to participate in the coupon offer.

Redemption period: The time period(s) within the validity period, for example a daily 1 hour period, that the offer user can use a digital coupon in a purchase transaction. This could be more than one period during the validity period.

Offer Issuer: Party issuing the coupons, bearing the commercial and financial responsibility for the coupons.

Offer distributor: Party responsible for the distribution of the coupons to the consumers on behalf of the Offer Issuer.

Offer validator: Party assisting the offer awarder in the validation of the coupons by offering a centralised service.

Offer awarder clearing agent: Party responsible for the financial clearance of redeemed coupons on behalf of the offer awarder.

Offer issuer clearing agent: Party responsible for the financial clearance of redeemed coupons on behalf of the Offer Issuer.

A coupon data pool: a coupon data pool registers a unique identifier for a specific coupon and records the associated parameters, such as the participating distributors, merchants and the selected validators, as well as the validation rules, volumes and the target spend.

A coupon event repository: a coupon event repository holds a record of all the events for a single digital coupon instance and the total number of coupon offers accepted by consumers and redeemed at merchants. This is commonly called the single truth.

A campaign management interface: an interface enables a coupon issuer to interact with coupon data pools and event repositories to set up a campaign, track its performance and refine it.

A digital marketplace: a marketplace enables the efficient matching of coupon issuers with distributors and acceptors, encouraging the rapid adoption of digital coupons. Using real-time auctions, this marketplace would establish the price for the delivery of the offer.

Contributions by GS1 to this “White Paper” are subject to the GS1 IP Policy (<http://www.gs1.org/gsmip>). The GS1 digital coupon standard has no direct ISO equivalent. However, a number of ISO standards make explicit normative reference to GS1 specifications. Among those, ISO/IEC 15418 standardises GS1 Application Identifiers (including AI for coupons) and ASC MH10 Data Identifiers with a direct reference to the GS1 General Specifications. Licenses provided under the GS1 IP Policy (royalty-free or RAND) are only granted to GS1 Working Group participants on a reciprocal basis and GS1 members. The GS1 IP Policy does not provide for any licensing undertaking to third parties who are neither GS1 Working Group participants on a reciprocal basis nor GS1 members.