



**Your London Card  
Libraries / Leisure Costs  
& High Level Business Case**

**11<sup>th</sup> January 2008  
Version 0.7**

**Prepared by  
Smartran Ltd**

# Smartcard Business Case Report

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## 1 MANAGEMENT SUMMARY

This investigation of costs and business benefits has identified a significantly improved position for London Boroughs wishing to introduce multi-application resident cards. Over the last 5 years, key costs have fallen steadily while the prospects of card sponsorship revenue and an open e-purse could make a resident card economically viable for many London Boroughs. Waltham Forest was able to justify the first phase of a smartcard scheme in 2006 with 2 initial applications. This document considers the costs and benefits for Boroughs in libraries and leisure and finds that a business case can be made which will become stronger as more boroughs join. Further benefits may be generated by adding other applications (eg parking, schools, staff access and loyalty).

Boroughs can draw on the experience of other successful schemes to identify suitable applications and the most effective approach to meet their objectives. This report uniquely brings together a comprehensive set of benefits based on earlier work in the National Smartcard Project and London. When combined with the reduced implementation costs, Smartran believes that many more boroughs will be in a position to prepare positive business cases for local smartcard schemes for use in Libraries and Leisure facilities.

The overall approach was reviewed and supported at a workshop on 2nd November 2007 attended by representatives from 10 boroughs and other stakeholders. The cost and benefit models have been reviewed with Hillingdon and Waltham Forest who have used these as input to business case planning. Additional positive feedback has been obtained from Greenwich Leisure Ltd, LLDA, Kingston Borough Council and Barking & Dagenham Council.

Using a representative set of data, the models developed to support this report show a payback within 18 months to 3 years for a 100 000 card scheme. The return on investment increases significantly as more Boroughs introduce cards making existing cards more useful and costs are reduced by re-using proven components and interfaces between systems.

### Recommendations

In the course of this investigation, a number of issues have been identified which need to be resolved. The proposed actions to resolve these issues are described in a series of recommendations which are summarized here:

**RECOMMENDATION 1:** standardised card interface, card numbering and card data encoding are adopted for participation in a Pan-London scheme (e.g. based on LASSeO standards).

**RECOMMENDATION 2:** standard set of web-services is defined as basis for consistent repeatable interfaces between CMS and Management Systems, based on existing examples. This will minimise the development work required when each interface is implemented.

**RECOMMENDATION 3:** multiple applications on the card are managed via the CMS.

**RECOMMENDATION 4:** standardised e-purse implemented for use across services as cash replacement.

**RECOMMENDATION 5:** consider shared Card Management System or hub to switch messages between boroughs.

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**RECOMMENDATION 6:** Boroughs should consider process impacts, particularly where there are different rules and procedures between service providers who are planning to accept cards issued by other bodies as evidence of entitlement.

**RECOMMENDATION 7:** Some service providers will require photos on cards. Suitable evidence on application is required at a consistent level as photographic cards are more likely to be used as identification when obtaining other services.

**RECOMMENDATION 8:** London Boroughs should enter their own data into the benefit and cost models. This will provide input to support a local business case for the deployment of resident cards.

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## 2 INTRODUCTION & BACKGROUND

The background to the investigation and assessment of current management systems and schemes is covered in Section 2. The requirements for a smartcard scheme were outlined in the terms of reference and have been further developed and described in Section 3. These requirements form the basis of a high level design, with some options, which is described in Section 4. The solution has been defined in sufficient detail to allow the cost model to be developed and costs for a typical scheme to be estimated. Two boroughs have already used this cost model in their current plans. A proposed approach and implementation is described and included in Appendix D which outlines how each step towards a standard multi-borough scheme could be achieved. If this approach is followed, it will be possible to pilot each element once before rolling out in London (eg e-purse) and validate the estimate of benefits.

The business drivers, business benefits and transformation initiatives are covered in Section 5, which is supported by a Benefits Model. The business benefits are divided into cashable benefits, non-cashable benefits and other business improvements.

This report reflects a snapshot of the continuously changing environment for smartcards in Local Government. Section 6 summarises how this report was produced, who wrote it and how to ensure it is used effectively to develop local plans. It is important that boroughs check and validate estimates and assumptions used in any business case or decisions taken. As further experience is gained, it will be valuable to update the cost and benefit models. Any feedback should be passed to London Connects who will pass it onto other London Boroughs. The Smartcard Networking Forum ([www.scnf.org.uk](http://www.scnf.org.uk)) runs a bulletin board and regular events where experiences and best practice can be shared with other boroughs.

### 2.1 London Connects

**London Connects (LC)** is jointly owned by the Greater London Authority and London Councils. Its purpose is to improve public services in London and reduce their cost through collaborative use of technology. Partners include London Health agencies, London Development Agency, Transport for London, London Fire and Emergency Planning Authority, Metropolitan Police Service, London Grid for Learning, London Libraries Development Agency (LLDA), London Metropolitan Network, Learning and Skills Council and the London Voluntary Services Council. Achievements include the development of the London Portal [www.yourlondon.gov.uk](http://www.yourlondon.gov.uk) and the London Public Services Network, which provides secure broadband links between London authorities. More information is available on [www.londonconnects.gov.uk](http://www.londonconnects.gov.uk)

The **Your London Card Exec Group (YLCEG)** consists of representatives from each of the six London sub-regional partnerships – North East London Partnership (NELP), London Central Partnership (LCP), South-East London e-Government Services (SEaLeGS), South-West (SW), North London Strategic Alliance (NLSA) and the West London Alliance (WLA). The group aims to “establish a sustainable operating framework for a London borough smartcard scheme” and “avoid duplication of work across partners and sub-regions”.

To date, LC and YLCEG have drafted governance rules for a pan-London scheme, set up an international APACS number for London, run a joint procurement for 4k Mifare cards on a standard spec, issued a Your London Card Vision and collated a survey of London borough smartcard plans.

The vision of the YLCEG is defined as “to have in place a London-wide multi-application smartcard by 2012 that is technically interoperable and to which all London Boroughs are signed up”.

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Smart Citizen on behalf of London Connects has produced a technical overview for a Pan-London library card, which identified a number of options and issues to be resolved in respect of interoperability across borough boundaries.

### 2.2 Smartcard Applications

Applications around libraries and leisure have most potential for offer pan-London borough smartcard applications.

Reports commissioned by LLDA and MLA, on libraries, have explained the context behind joint library membership and there is a groundswell of support from a majority of borough librarians. The card spec already exists with defined sectors on a 4k Mifare and Scotland has already made significant progress on a similar project. A document outlining the technical issues is due to be released soon by LC and YLCEG.

In leisure, the dominance of certain systems suppliers in the London borough market opens the way to wide adoption of standards and applications that enable interoperability. A draft interoperability spec already exists for leisure on a 4k Mifare. At least half of London Boroughs have expressed an interest in a leisure smartcard and it has the possibility for more applications beyond membership details – including building access and personal lockers.

London Connects is keen to enable boroughs to develop realistic local business cases for card schemes that include libraries and leisure. In particular, the business case should underpin a small multi-borough card scheme. In order to achieve this, London Connects needs to estimate the scalable costs of key applications and give some pointers towards likely business drivers. The requirements of a multi-application smartcard scheme in Section 3 illustrate the scope of this work.

Other potential applications for multi-application cards include staff access, general resident identification, bill payment at Post Office and other High Street locations, generic e-purse, various school applications including registration and meals, parking, access to borough amenity facilities, e-voting and youth services.

### 2.3 Existing Management Systems

The existing environment in London is characterised by the independent procurement and service delivery in each borough. There are at least 4 different library management systems and 4 different leisure management systems, excluding variants from each supplier. When combined with different service management arrangements and a handful of card management system, you find a very colourful picture.

It is not surprising that cross-borough access to services has been limited (eg largely restricted to where there is a shared service provider) and progress towards single access has been slow.

### System & Service Matrix

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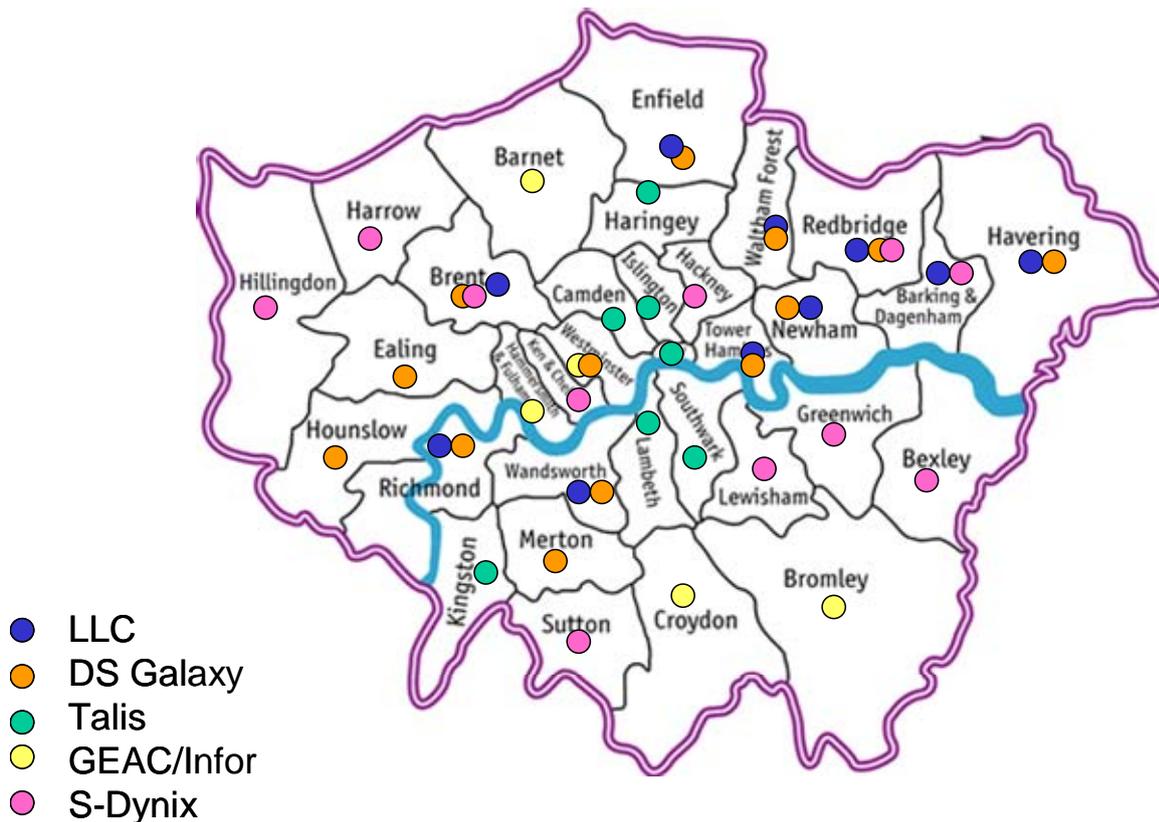
Card Mgmt		Libraries		Leisure	
Borough	System	Group	Software	Service Provider	Software
Barking & Dagenham	No	LLC	DS	Council	Gladstone
Barnet Council	No	None	Geac	Greenwich Leisure	Gladstone
Bexley Council	No	None	S-Dynix	Parkwood	Gladstone
Brent Council	No	LLC	DS/S-Dynix	Leisure Connections	Gladstone
Bromley Council	No	None	Geac	Bromley Mytime	Torex
Camden Council	No	None	Talis	Greenwich Leisure	Gladstone

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City	No	None	Talis	Leisureflex	Flex
Croydon Council	SEaLEGS	None	Geac	Fusion	Gladstone
Ealing Council	No	None	DS	Greenwich Leisure	Gladstone
<b>Enfield Council</b>	<b>No</b>	<b>LLC</b>	<b>DS</b>	<b>Enfield Leisure Trust (in liquidation)</b>	<b>Gladstone</b>
Greenwich Council	SEaLEGS	None	S-Dynix	Greenwich Leisure	Gladstone
Hackney Council	No	None	S-Dynix	Greenwich Leisure	Gladstone
<b>Hammersmith &amp; Fulham Council</b>	<b>No</b>	<b>None</b>	<b>Geac</b>	<b>Greenwich Leisure and Virgin Active</b>	<b>Gladstone</b>
<b>Haringey Council</b>	<b>No</b>	<b>None</b>	<b>Talis</b>	<b>Council</b>	<b>Flex</b>
Harrow Council	No	None	S-Dynix (Old)	Leisure Connections	Gladstone
Havering Council	No	LLC	DS	SLM	Gladstone
Hillingdon Council	No	None	S-Dynix	Fusion/Council run	Gladstone/Delta
Hounslow Council	No	None	DS	Council	Torex
Islington Council	No	None	Talis	Aquaterra Leisure	Flex
Kensington and Chelsea	No	None	S-Dynix	Canons	Gladstone
Kingston Upon Thames Council	Pilot	None	Talis	DC Leisure	Torex
Lambeth Council	No	None	Talis	Greenwich Leisure	Gladstone
Lewisham Council	SEaLEGS	None	S-Dynix	Parkwood/Fusion/LC	
Merton Council	No	None	DS	Greenwich Leisure	Gladstone
Newham Council	NSCP trial	LLC	DS	Greenwich Leisure	Flex
<b>Redbridge Council</b>	<b>No</b>	<b>LLC</b>	<b>DS/S-Dynix</b>	<b>Redbridge Vision Leisure Trust</b>	<b>Gladstone</b>
Richmond Upon Thames Council	No	LLC	DS	Council	Gladstone
Southwark Council	No	None	Talis	Fusion	Gladstone
Sutton Council	No	None	S-Dynix	Greenwich Leisure	Flex
Tower Hamlets Council	No	LLC (new)	DS	Greenwich Leisure	Gladstone
Waltham Forest Council	OneCard	LLC	DS	Greenwich Leisure	Gladstone
Wandsworth Council	No	LLC	DS	DC Leisure	Torex
<b>Westminster City Council</b>	<b>No</b>	<b>None</b>	<b>Geac/S-Dynix</b>	<b>Cannons</b>	<b>Torex</b>

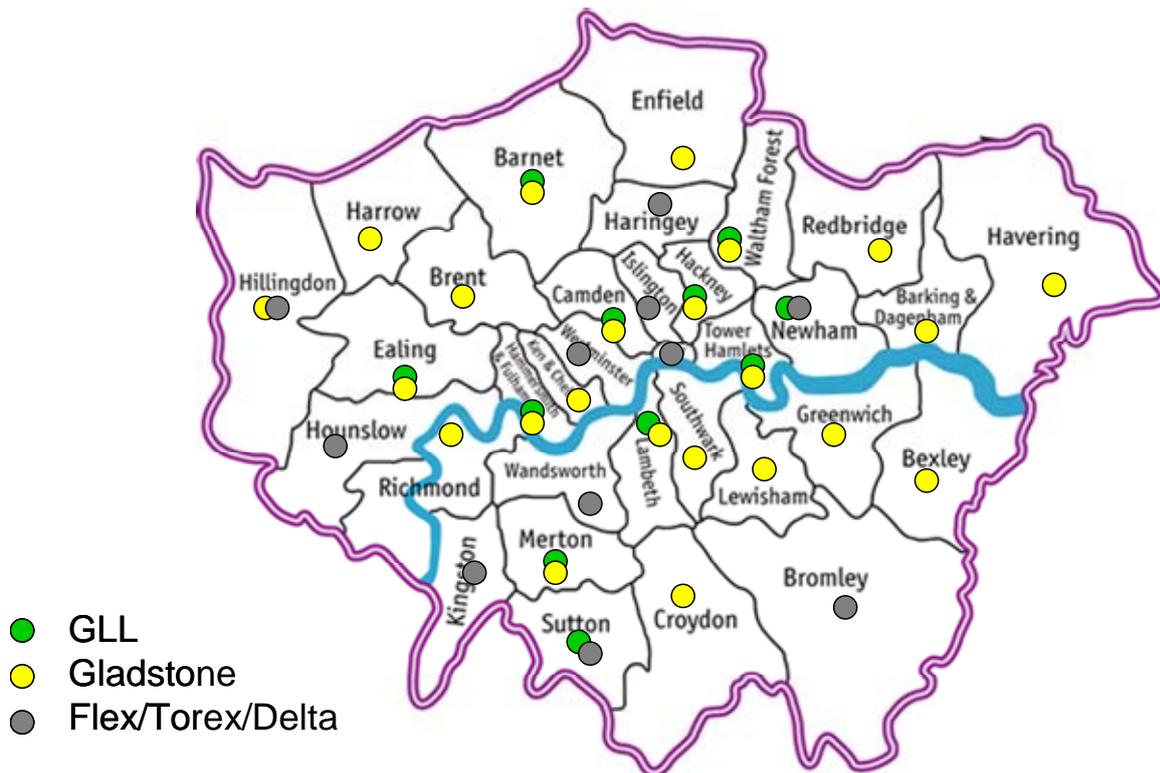
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The following map shows which system providers the boroughs are using and which boroughs are members of the London Library Consortium (LLC). They are approximately 378 libraries across the 33 boroughs. The majority of LLC members use the DS/Galaxy system while others use Sirsi-Dynix, Talis or Infor. Currently libraries in London use bar-codes on membership cards as a means of identification. Some boroughs are introducing Radio Frequency Identification (RFID) tags on books to speed up checking in/out, to protect media from theft and to manage stocks. The suppliers DS, Talis and Infor have experience with smartcards as an alternative to bar-codes. Sirsi-Dynix has indicated plans to support smartcards in a forthcoming release.



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The following map shows those boroughs which use the Gladstone MRM+2 system and which use other suppliers (ie Torex, Flex and Delta). The situation in Leisure is more complex as many boroughs outsource these services to a third party. Only 9 boroughs run some or all of their leisure facilities. The major third party in London is Greenwich Leisure who run facilities for 11 boroughs while 8 other companies are responsible for the remaining 13 boroughs' facilities. All of the Leisure Management System providers have indicated an ability to use smartcards in place of magnetic stripe or bar-coded cards, however the method of support varies. Some providers also offer a closed e-purse, however this does not appear to be used in London.



An initial assessment of the smartcard support capabilities of Library and Leisure systems providers has been done, however as their capabilities are likely to change and the information is commercial sensitive, the details have not been issued with this report. The information has been used to inform the proposed way forward and typical scope of implementation work required. Boroughs will need to discuss their specific situation with their suppliers and consult with London Connects to compare advice from suppliers with the standardised approach in this report.

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### 3 SMARTCARD SCHEME REQUIREMENTS

The following requirements for a Borough smartcard scheme have been identified by the Your London Card Steering Group as input to this report and are in Appendix C. Potential additional requirements have been identified during the course of the study that are summarised in the following table.

<b>Smartcards in Libraries</b>	<b>Smartcards in Leisure Facilities</b>
<ul style="list-style-type: none"> <li>• Initial registration</li> <li>• Registration of existing smart cardholder</li> <li>• Replace lost/stolen card</li> <li>• Temporary membership</li> <li>• Hotlist/suspend missing card</li> <li>• Upgrade or replace card</li> <li>• Renewal date</li> <li>• Borrow book/equipment</li> <li>• Access to workstation</li> <li>• Change membership level/rights</li> <li>• Online booking of resource</li> <li>• Online renewals (book etc)</li> <li>• Cancel reservation/booking</li> <li>• Cross centre usage</li> <li>• Pay for rental (DVD, Listening Books, CD, Games etc)</li> <li>• Pay fine for overdue book</li> <li>• Pay for printing from workstation</li> <li>• Pay for photocopier (metered)</li> <li>• Pay for vending</li> <li>• Purchase books for sale</li> <li>• Fax send/receive</li> <li>• PC Internet access</li> <li>• Copies of articles and microfiche items</li> <li>• Loyalty &amp; reward – issue and redeem</li> <li>• Accessibility profiles (SNAPI)</li> </ul>	<ul style="list-style-type: none"> <li>• Initial registration</li> <li>• Registration of existing smart cardholder</li> <li>• Replace lost/stolen card</li> <li>• Temporary membership</li> <li>• Hotlist/suspend missing card</li> <li>• Upgrade or replace card</li> <li>• Renewal date</li> <li>• Change membership level/rights</li> <li>• Online booking</li> <li>• Pay for facilities (eg swim)</li> <li>• Cancel reservation/booking</li> <li>• Cross centre usage (possible)</li> <li>• Pay for Vending</li> <li>• Loyalty &amp; reward – issue and redeem</li> </ul>

In the multi-borough scenario the following requirements have also been identified:

- Ability to use smartcard issued by borough A in borough B facility
- Economies of scale in procurement and service delivery
- An e-purse which can be used in participating borough facilities
- Standardised card encoding and numbering for consistent use
- Card hotlists exchanged between boroughs

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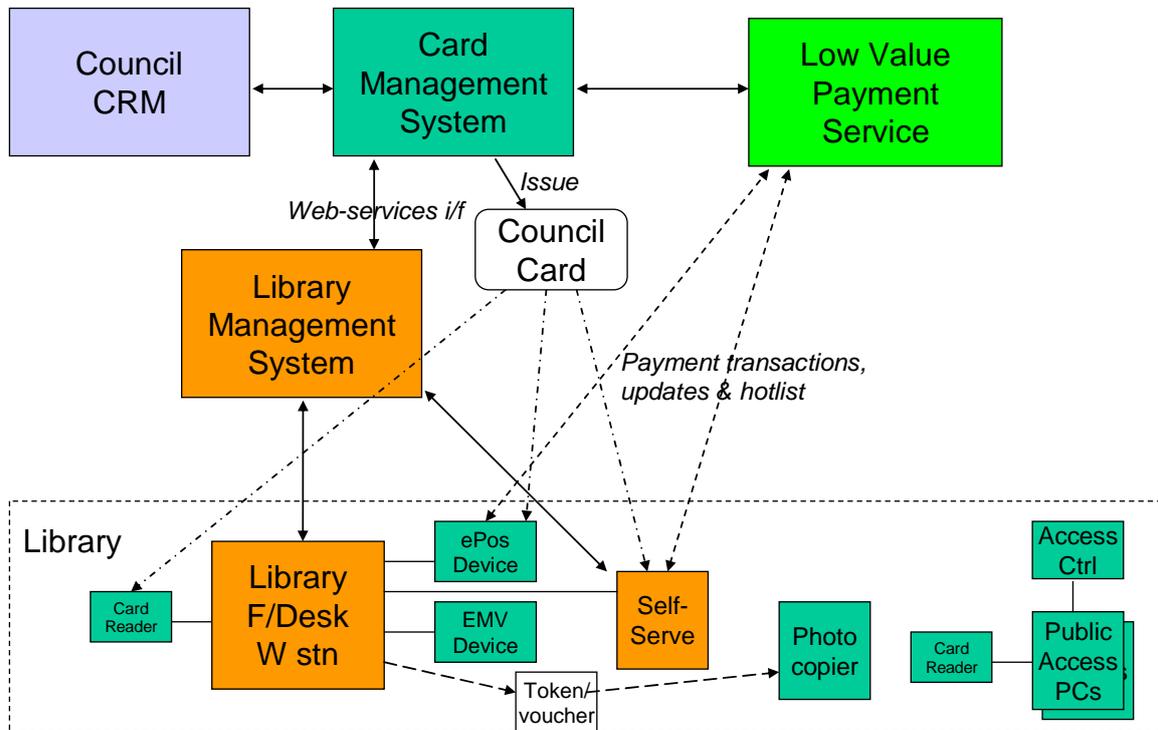
## 4 PROPOSED HIGH LEVEL SOLUTION, APPROACH & ESTIMATED COSTS

This section provides an overview of the generic solution which is the basis for costing and business benefit analysis. The approach sub-section covers impact of change, implementation & management, customer service & support and Communications & Marketing. The final sub-section explains the basis of cost estimates and trends in price of key elements.

### 4.1 High Level Solution

The solution at a Borough Level has been defined in sufficient detail to determine typical project scope, costs and approach. The solution described in this section is based on recent successful schemes, but does not represent the only available or feasible approach. Existing systems, the status of CRM and borough priorities will determine the preferred way forward at a local level.

The following chart shows the key components for introducing smartcards in Libraries:

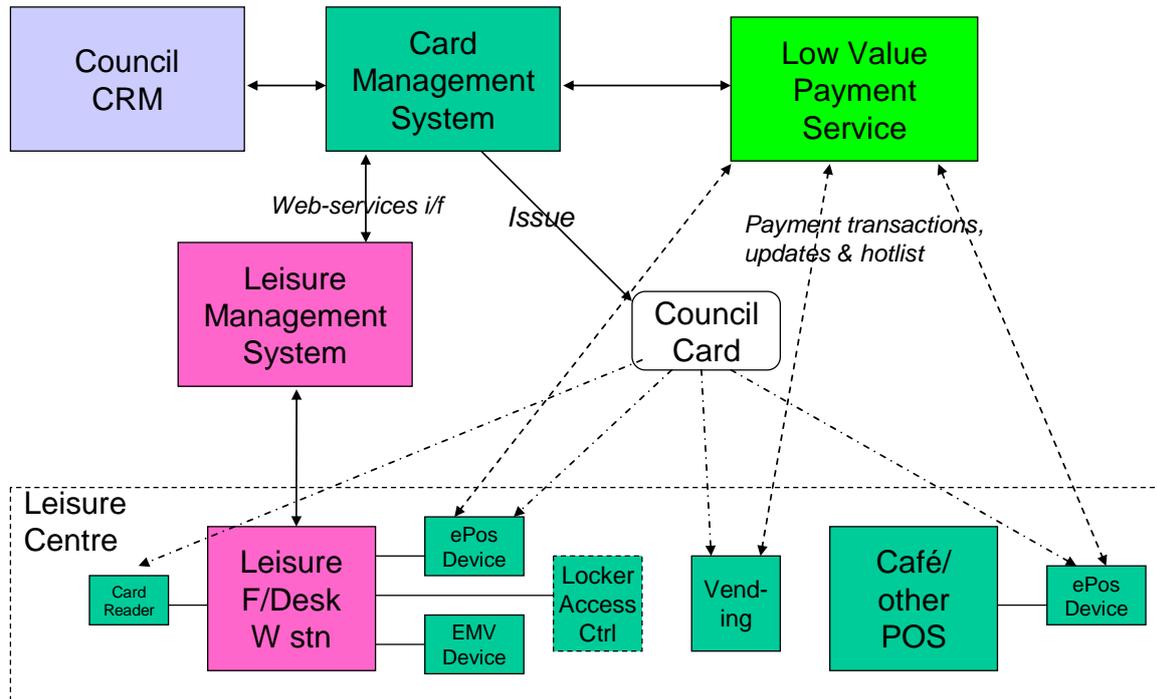


In the general case, the library service may be using bar-codes or RFID tags for identifying books for stock management and checking in/out. Some libraries have Chip & Pin (EMV) payment terminals and can currently accept debit and credit card payments. Self-service facilities may use bar-code or RFID technology. Consideration needs to be given to access control for public PCs and payment for copying and usage of public PCs.

The following chart shows the key components for introducing smartcards in Leisure. In the general case, the leisure service is likely to be using bar-coded cards for regular users and payments will be largely direct debit and cash. Occasional users of the facilities will typically not have cards (eg pay and swim). Some locations will have self-service terminals and accept debit and credit card payments at the front desk. Consideration needs to be given to

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vending, café/restaurant facilities and locker access where there is an opportunity to use cards.



Alternative integration options have been considered based on experiences with other schemes (eg Scotland, Chester, Black Country, Caerphilly and Bracknell). Given the close geographical proximity of the boroughs, potential cross-border card usage and successful integration in other schemes, the use of web-services is recommended for maximum flexibility and benefit. The business case is based on boroughs implementing web-services between Library/Leisure Management Systems and their Card Management System to ensure card, cardholder data and local data are kept synchronised. As an interim method and cross-boundary service use, the smartcard can be used as a token and simply registered for use against a given system (ie simple process to implement, but limited benefits).

**RECOMMENDATION 1:** standardised card interface, card numbering and card data encoding are adopted for participation in a Pan-London scheme (e.g. based on LASSeO standards).

**RECOMMENDATION 2:** standard set of web-services is defined as basis for consistent repeatable interfaces between CMS and Management Systems, based on existing examples. This will minimise the development work required when each interface is implemented.

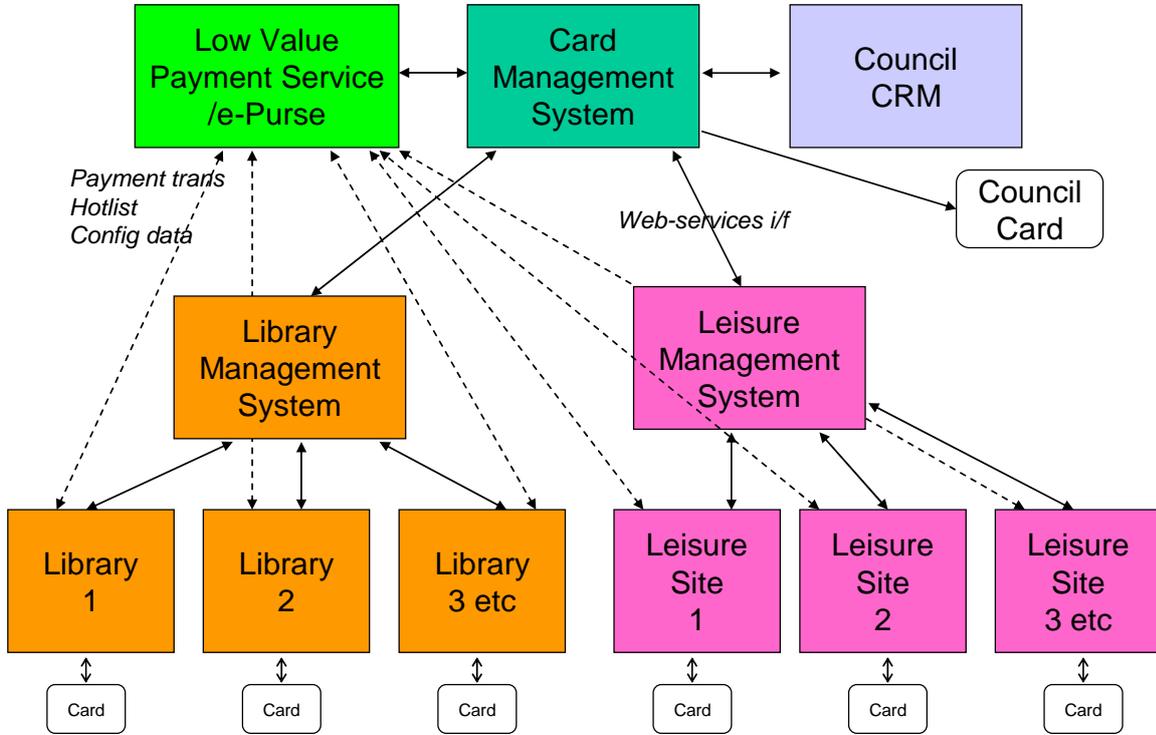
On a single Borough basis, the services can co-reside on the card and configuration of services can be managed by the CMS. Across the services, a single low-value payment method to complete other non-cash methods is recommended. Ideally a national e-purse conforming to FSA rules is preferred, however if the sQuidcard based scheme due to enter pilot in Bolton does not prove successful, then a local e-purse or contactless EMV should be considered. Where an effective CRM exists within the borough, this should be integrated with the CMS to maintain the single view of the citizen.

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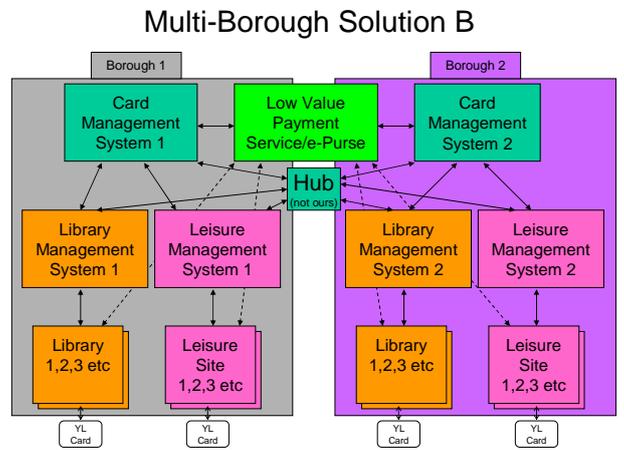
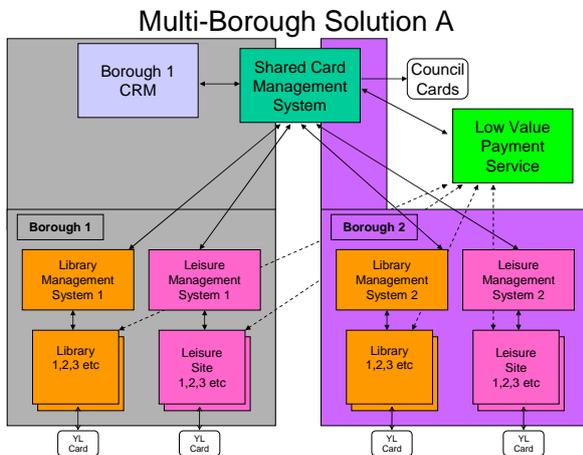
**RECOMMENDATION 3:** multiple applications on the card are managed via the CMS

**RECOMMENDATION 4:** standardised e-purse implemented for use across services as cash replacement.

The following chart shows how the systems could be integrated on a Borough basis:



The significant challenge in London is the large dense population and close proximity of the 33 boroughs. From the outset, joining the Pan-London scheme must include provision for service users with smartcards from neighbouring boroughs. Two alternative approaches have been identified for enabling cross-boundary use, shown in the charts below. Boroughs could share a Card Management System which would provide economies of scale and minimise the number of interfaces. Alternatively a simple messaging hub could be introduced which routes messages or service request for a card issued by another Borough to the correct CMS.



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**RECOMMENDATION 5:** consider shared CMS or hub to switch messages between boroughs.

It is likely that the library service will see the greatest need and benefit for cross-borough use of services as part of a single card strategy. A minimum set of functions would need to be supported (e.g. registration, card validation, hot-listing and application updates).

The key components, interfaces and application services identified in this solution have been costed for the purpose of the business case at a Borough level. A separate exercise would be required to determine the scope, costs and business case for the message hub (aka a message switch or repository of card details) option which is beyond the scope of this report.

Appendix D shows how the solution could be implemented.

### 4.2 Approach

#### 4.2.1 Anticipated Impact of Change

The following potential impacts have been identified in the early stages of analysis and are not a comprehensive list. Highlighting them at this stage gives the opportunity to plan mitigating action.

##### **(a) Design and Branding**

This is the first big decision for the Card Issuer during the project. It is also one of the most time-consuming activities in the project, and can often have the longest lead times. Addressing card design and branding at an early stage of the project will protect against missed deadlines. Rushed, poorly thought out card layout may require redesign, post go-live, at additional cost to the card issuer.

##### **(b) Changes to Registration Process**

These could result in changes to the proof of ID required by the card issuer. As the card will be produced off site there may be a delay in allowing access to services before card receipt. This will require the service provider to offer a temporary membership facility.

##### **(c) Cross-Borough Lending / Activity**

This will become an issue if the Service Providers in question use two different technologies, such as smartcard and barcode. Where the card number and the barcode number are the same, the card number will need to be manually keyed (the barcode will not be printed on the card). This will increase transaction processing time.

##### **(d) Communication & Training**

In order to minimise the level of queries and to promote a positive perception of the scheme, a robust communications plan must be an integral part of the implementation process. This plan should ensure timely internal and external communications.

From the outset, it is imperative that there is buy-in from internal and external stakeholders. In order to achieve this, staff will require comprehensive training in all aspects of the new scheme.

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### **(e) Signage for Car Parks, Changing Rooms and Lockers**

This is a vital tool for informing citizens how to use the card, including the rules and terms for its use. Signage requirements will need to be identified at an early stage of the project.

### **(f) Subject Matter Experts (SME)**

These experts will need to be available from stakeholders during Requirements Gathering, Process Mapping, Process Re-engineering, Training, UAT and Implementation. A significant level of good quality subject matter expertise during these activities will help to mitigate potential risks to cost, quality and schedule.

### **(g) Contracts**

In a multi-tier structure, with a number of individual service providers and boroughs should consider the most effective use of resources. This may result in pooling requirements for products and services and procuring at bulk levels. While this is good use of funds, it may bring other impacts such as minimum order volumes. This can cause delay in ordering and delivery. If all service providers do not use the framework supplier, buying power could be reduced. It takes additional time and effort to setup framework contracts.

### **(h) Process Impacts**

For a true Pan-London Card, that entitles its holder to all library and leisure services, it is necessary for the card issuers and service providers to conduct detailed process re-engineering across their services.

All processes relating directly to card issue, card management and membership closure will require full analysis and re-engineering. Listed below are some of the less obvious areas of impact:

#### **(i) Enrolment Requirements/Authentication**

This is a sub set of Membership Rules, however as there are several enrolment processes, the requirements differ.

The authentication requirements for becoming a library member may differ from one library to another, so the implications need to be understood. This situation potentially becomes more complex when a citizen applies for a card and requires both library and leisure applications. The Card Issuer needs to consider if the leisure centre/library can issue cards with both applications. There needs to be consistency in, for example, proof of id documentation and electronic storage within a card management system.

#### **(ii) Reporting**

A review of current methods of measuring and reporting against targets by service providers is required. It may be that some processes or data sets are only held in the CMS, therefore the reporting process will require to be changed. The CMS could also be a more efficient source when searching for membership data.

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**RECOMMENDATION 6:** Boroughs should consider process impacts, particularly where there are different rules and procedures between service providers who are planning to accept cards issued by other bodies as evidence of entitlement.

**RECOMMENDATION 7:** Some service providers will require photos on cards. Suitable evidence on application is required at a consistent level as photographic cards are more likely to be used as identification when obtaining other services.

### 4.2.2 Implementation & Management

There are a number of successful scheme implementations, which can be used as a reference for the approach, scope of work and resources required. By using third party systems, bureaux and outsourced services, it is possible to focus on the business requirements, deployment and operation of the scheme. It is worth inspecting plans and project definition documents for previous successful schemes to understand the scope of work, timescales and potential issues. Boroughs should follow best practice and in-house guidelines for setting up and managing projects. It is important to have a project methodology in place, which covers planning, reporting, control, risk management and transition to operational service.

The following key activities and resource requirements have been identified. These are in addition to senior management, local IT, existing application support, telecommunications, communications and lead users for each service involved in the scheme.

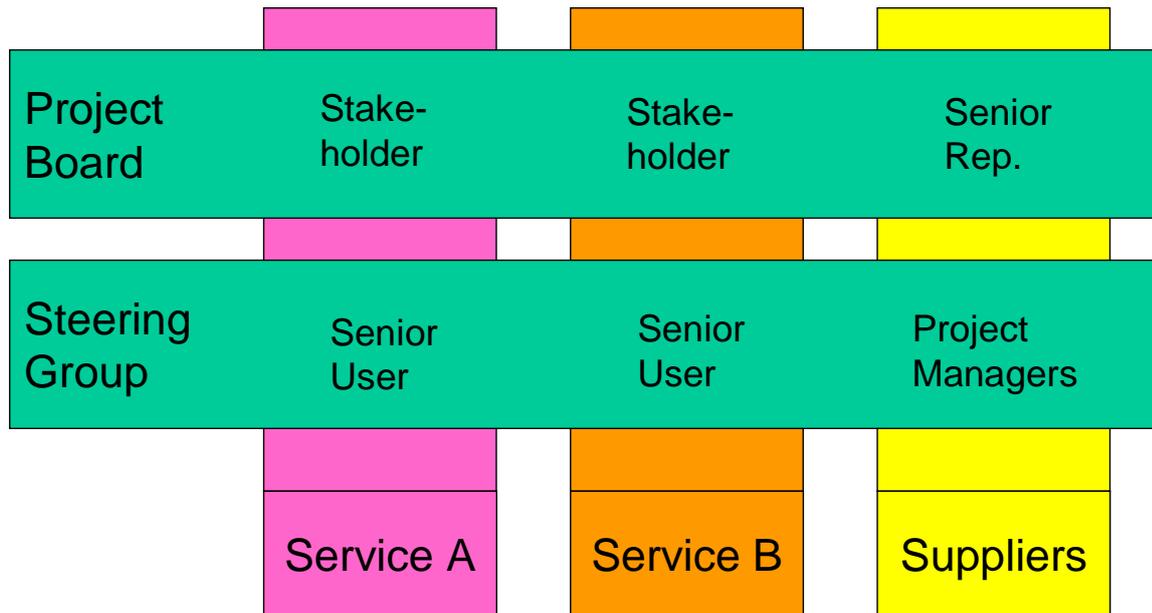
Key Project Activities	Resource
Implementation Planning	Project Manager
Scheme Design	Business Analyst
Application Specification	Analyst/Designer
System Build & Configuration	Developer
Data extract & preparation	Data Analyst/DBA
Process re-engineering	Business Analyst
Website build & integration	Developer
Data cleaning and formatting	Data Analyst/DBA
System integration support	Technical Analyst
Acceptance testing	Users and Testers
Training (plan, write, pilot)	Project Leader & Senior Users
Implementation Support	Technical Analyst
Project Management	Project Manager

A potential Borough lead implementation approach across London, is described in Appendix D.

A typical smartcard scheme cuts across many parts of the organisation, therefore it requires a wide range of skills and sufficient service representatives for successful delivery. It is important to have access to these resources on a flexible basis to ensure timescales are met while costs are kept under control.

It is critical to have the right project organisation in place from the outset. The following chart shows a typical structure of Project Board to take major decisions and provide corporate oversight, while a project Steering Group has representatives from service areas and suppliers to maintain control over scope and delivery. Sub-groups may need to be formed to focus on particular areas of preparation and implementation during the course of a phases scheme deployment.

## Smartcard Business Case Report



### 4.2.3 Implications on Customer Service and Support

If a Borough decides to issue cards to residents, which then form part of a Pan-London scheme, there are a number of implications to be considered. Some of these implications also relate to standardisation of policy and procedures where these may currently vary locally. These are several examples of where processes regarding Charging Policies, Fees and Settlement may vary:

#### (a) Fines

Card Issuers should consider:

- When do fines and penalties take effect?
- Who can collect them - any Service Provider or only the Card Issuer?
- If the Service Provider issues a fine but they are not the Card Issuer, how can they enforce collection?
- Can one Service Provider collect a fine issued by another - if so, how does this get settled?

#### (b) Terms and Conditions

Boroughs should consider the following questions:

- Should there be any at all?
- Should they be application specific or Service Provider specific or both?
- When does the customer receive them - all on initial application or when the application is enabled?
- Should they be signed - if so, electronically or on hard copy?

## Smartcard Business Case Report

### **(c) Charging policies**

The recommendation would be for a single set of charging policies, however, this could conflict with the commercial interests of the Service Providers. It is feasible to have several sets of charging policies. These would need to be carefully managed and communicated, and ideally be included in the Scheme Rules and Policies Document

### **(d) Fees**

As with Charging Policies, one single rate card would be preferred. It is possible for each Service Provider to operate a rate card unique to them, but consideration should be given to its dissemination to other Service Providers and to citizens.

### **(e) Settlement (“not for us” transactions)**

Processes may need to be developed for the collection of Fees where one Service Provider collects monies on behalf of another Service Provider. A decision will be required on how to process “not for us” transactions where one of the parties to the transaction is not a member of the scheme. For example one Service Provider pre-books a service for a citizen that another Service Provider will fulfil. This could be allowed under the scheme rules, or alternatively be subject to future development.

### **(f) Membership Rules**

There will be rules or Terms and Conditions for each service. It is important to ensure that these rules do not cause conflicts within the scheme. For example, a Leisure Service Provider must not be allowed to cancel a card for misuse within its service only, as this would prevent library services being delivered which would breach Government legislation. Instead, the Leisure Service Provider should hotlist, or suspend, the leisure application until the issue was resolved. There are many other rules that need to be identified, agreed and documented in the overall scheme context.

### **(g) Procurement**

One of the opportunities that the Pan-London Card presents for Card issuers and Service Providers is purchasing power. By planning procurement efficiently it would be possible, for any group of Card Issuers or Service Providers to negotiate better deals on some procurement contracts. Contract management could also be passed to a central body such as the Scheme Operator or London Connects.

### **(h) Multi Technology Compatibility**

It is possible that some card issuing boroughs will aspire to issuing cards to operate across other borough’s library systems that are not yet part of the Pan London Card but are part of a library group such as LLC (eg Waltham Forest). This may require cross compatibility with a number of technologies including smartcard, RFID, and barcode. A similar situation could potentially exist with Leisure Service Providers currently using barcode or magnetic stripe.

### **(i) Relationship Management (Use of Management Information)**

The nature of the Pan London Card is such that Service Providers will have access to additional data for the same service group and potentially cross service groups. How Service Providers choose to take advantage of this additional information needs to be defined and checked to ensure that it is compliant with the Data Protection Act. For

## Smartcard Business Case Report

example, would it be appropriate for a Leisure Service Provider to proactively cross sell squash equipment to a citizen that was issued the card by a different Leisure Service Provider that also sells squash equipment and has a stronger relationship with the citizen).

How will the dynamic of the relationship that a library has with a citizen be affected by the additional information available? Will previously commercially dormant libraries use the new data to begin proactively selling services to its members? What are rules and policies need to be in place to regulate this if any? Have the provisions of the Data Protection Act been considered and complied with?

### **(j) Communications**

There are several channels of communication from Card Issuer to the Citizen that include printed, electronic, and verbal via a Service Provider. Card Issuers and Service Providers will find some channels will be more appropriate than others for different types of message. Likewise it is possible to use the components of the Pan London Card to disseminate information to and from Service Providers to enable efficient management of the scheme or a specific citizen's card account.

Commercial Revenue is taken by the scheme then it would be possible to use scheme related literature to carry advertising. Using e-marketing message via user profiling on Library PC's or on a user web interface is also achievable for additional revenue.

Card Issuers must consider:

- Who should be allowed to communicate to the citizen?
- Who regulates the selection of the commercial partners and their messages?
- Who decides which channel should be used for each communication type?

### **(k) Special Needs Application Programme Interface (SNAPI)**

This enables user profiles to be stored on the card so that when it is used via a card reader to login to a device such as a PC the configuration of that device will automatically adopt the user profiles recorded on the card. The original settings are restored once the session is over and the card removed from the reader.

It is also possible to change the SNAPI user profile settings and write them to the card, for this a Read/Write device is required.

Potential areas for this application also include education, financial terminals, leisure facilities (e.g. sports centres), public transport, telecommunications and biometric terminals.

Benefits include:-

- Improved uptake of technology by those with certain special needs such sight impairment.
- Saves time as the librarian dose not have to set and reset profiles.
- Improved customer experience as the citizen is not dependant on the librarian.

The Disability Discrimination Act (DDA) requires organisations providing goods and services to make reasonable adjustments for people with disabilities.

The software to operate this special needs service is being made available, on a non-profit basis, by LASSeO (Local Authority Smart Cards and eServices Organisation).

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Further work may be required to implement with different PC environments and applications.

### 4.2.4 Communications and Marketing of Scheme

Effective communication with stakeholders, staff, residents and customers of services is key to smooth launch of a smartcard scheme and services. It is important to start preparing a communications and marketing plan early in the project as there will be critical decisions to be taken, activities to be funded and information required.

A number of schemes have been successfully launched and in each case a detailed and robust communications and marketing plan has been developed. The Chester Charisma card was re-launched as a smartcard in Jan 2004 and was accompanied by launch offers, press coverage, marketing materials and editorial. Stakeholders had been consulted and involved at an early stage, graphics were designed and announcements sent out at key stages. Letters were sent to cardholders at the right time advising them of the change and important information such as data protection undertakings. The Waltham Forest OneCard was successfully launched for residents in rented accommodation in April 2007. Newsletter coverage, press releases, flyers and letters to cardholders preceded the launch. In the first few weeks, 80% of residents involved switched to the new card and take up has subsequently reached over 90%.

There is close link with solution design and process changes. It is important that the implications of system, organisation and process changes are understood in the context of staff and customers. Consultation with stakeholders will provide valuable feedback to the project team and identify the important points to communicate to staff and customers.

Every scheme launch is different in the detail. Examples of communications and marketing plans are available to show the level of detail and format required for success. The key learning from past projects is to start planning early and involve all stakeholders in the process. Early planning and communication helps ensure expectations are set, makes best use of available funds and reduces the risk of unplanned expenditure (eg additional letters, problem investigation, additional customer support calls/enquiries).

A robust communication and marketing plan should include the following:

- Aims and objectives – an outline of what will be achieved through implementation of the plan.
- Stakeholders – explanation of the target audience.
- Key Messages – what messages will be communicated.
- Action Plan – how the plan will be executed, giving details of timescales and mediums to be used.

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### 4.3 Estimated Costs

As successive schemes have been implemented the costs of build, integration and deployment have been falling. Key components such as smartcards, readers and printers have been falling in price while capacity, performance and quality has been rising. The following table shows how some key costs have changed over time.

<b>Element</b>	<b>Chester in 04</b>	<b>WLA Bus Case Report 11/2005</b>	<b>2007/08 YLC</b>
<b>SmartCard</b>	£2-5 each	£2 Mifare 4K	60p – Mifare 4K
<b>Print &amp; perso In bureau</b>	£1.55 high res,	Included above	£1.20-1.50 dep on quality
<b>Card Printers</b>			
<b>Card Reader</b>	£200-350 each	£150 each	£60 each
<b>CMS Setup</b>	£40k for on-site installation	Not clear - £25-50k	£15-20k for hosted service
<b>E-Purse top-up</b>	Not in scope	£6k each & service costs	Not required – use internet & retail POS
<b>System Integration</b>	£10k/interface (overnight update)	£30-50k/interface	£20-30k/interface
<b>Sponsorship</b>	Yes – CoC & local businesses sponsor	Not included!, but was in NSCP o/put	Yes, proposed

In Smartran's experience, the project overheads have also been reducing as experienced resources are available, the project learning curve is shorter and there is less time spent considering options as proven solutions and approaches can be selected and implemented.

A cost model has been developed for London Boroughs to determine likely setup costs based on existing systems, scope of scheme and card volumes anticipated. The following tables summaries expectations for key cost elements. In the single Borough scenario there are a number of one-off costs for an integrated solution. These can be reduced significantly for subsequent boroughs implementing a similar solution (eg using a standardised set of web-services). The output from the cost model is shown in Appendix E.

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<b>Cost Element</b>	<b>Single Borough Expectation</b>	<b>Multi-Borough Expectation</b>
<b>Mifare 4K Cards</b>	61p, falling to 50p in 2008 depending on volume	Potential increased volume discount
<b>Contactless Card Readers</b>	£60, potentially falling with increased volume to £50	Potential increased volume discount
<b>Back-office Integration with Library &amp; Leisure Mgmt</b>	£10-20k per interface when first implemented	£5k per interface for subsequent implementations
<b>CMS-e-Purse integration</b>	£10-15k for first implementation	£2-5k for subsequent instances
<b>Hosted CMS setup</b>	£15-20k depending on source	Reduced by 20-30% if shared hosted service
<b>Project Management &amp; Implementation Support</b>	Depends on scope of scheme	20-30% reduction if shared implementation programme
<b>Scheme set-up and admin</b>	Management effort to setup scheme and arrangements	Follow best practice

The recent procurement of cards for the English National Concessionary Travel Scheme has shown that there is further scope of reduction in card prices with increased volume. Card readers will be available at a discount when purchased in volume.

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### 5 HIGH LEVEL BUSINESS CASE

The benefits have been split into quantified cashable, non-cashable benefits, and other improvements. The cashable benefits are likely to come from boosts to revenue streams from increased opportunities, fraud prevention and reduction of bad debts and reduced card production costs. The non-cashable benefits are generated from streamlined registration process, and cash processing savings from the introduction of an e-purse. These benefits increase in scale and efficiency from the optimised pan-London implementation. Other verified benefits may be achieved from process improvements, better management information and improved service management. The following table summaries the key benefits.

<b>Cashable Benefits</b>	<b>Non-cashable Benefits</b>	<b>Other Benefits</b>
Economies of scale Reduction of fraud Cost of receiving cash Re-use of standard interfaces Improved debt collection Less existing cards issued Sponsorship/advertising	Staff time savings Reduced transaction costs More efficient management	Social inclusion Borough brand/image Better management information Meeting IEG objectives Cross-boundary services Milestone towards Olympic card Strengthen relationship with residents

The Smartcard can be perceived as being closely associated with government drive to increase the health, well being and learning of Londoners and as such the business thrust behind this scheme will be concerned with the positive impact on the use of borough services.

#### 5.1 Business Drivers

A Borough smartcard would be a major step in strengthening the identity of London boroughs as a service provider to citizens. A single view of use of library and leisure could be achieved for Londoners. An overall improvement in the range and quality of service, increasing social and financial benefits and generating an uptake in membership and frequency of use of services could be achieved.

The launch of Borough citizen cards could be linked to target initiatives to improve learning, knowledge and education in the community, target improvements in health and launch lifestyle initiatives as well as promote links to arts, culture and community initiatives. Links between schools and other borough services, such as library and leisure, could be strengthened. Initiatives could be taken to foster enterprise and for partners working jointly in the local community towards better health and education. There will be opportunities to achieve social inclusion across a whole range of services where assisted funding is available e.g. school meals and looked after children. Safety of vulnerable citizens could also be improved from the opportunity to be "cashless".

The citizen experience will be enhanced through improved borough services and their image through smartcard branding, fewer membership cards in circulation through combined applications and therefore a single, better quality card in the wallet of the citizen. Furthermore combined functions could provide the opportunity for Boroughs to gain better information on customer usage across boroughs and services that, in turn, could allow them to refocus effort and resources in line with demand where appropriate.

# Smartcard Business Case Report

## 5.2 Business Benefits

### 5.2.1 Financial Savings

- (a) Cashable benefits exist from card improvements through the reduction of card issuing and maintenance cost, if the citizen currently has 3-4 cards. The overall card costs have been reduced through the LC framework. Card management costs will be also reduced if there are combined applications on the smartcard.
- (b) There are opportunities to achieve more efficient processes for the management of membership cards that may allow for some non-staff cost savings.
- (c) System advantages exist in hardware and service cost reductions through hosted services via an appropriate LC framework agreement.
- (d) Non-payment savings from reduction in bad debt and debt recovery action through use of pre-pay and e-purse exist, and in unpaid services through improved tracking and payment functions on the smartcard and CMS. With less cash in the system there will be a reduction in loss of cash and theft through reduced cash transactions, handling and storage.
- (e) Cash processing, carrying and banking costs could be reduced for low value cash payments due to e-purse.

### 5.2.2 Increased Revenue Opportunities

- (a) There are sponsorship revenue opportunities from private companies backing the scheme, which are perceived to increase for the multi-borough case. The former is expected to attract borough related companies and the latter could potentially attract a "London backer".
- (b) Launching an e-purse on the Smartcard could attract a commission return (eg sQuidcard), as the issuer of the e-purse smartcard, the borough is entitled to a percentage of all funds transacted on the e-purse. There is a good case for an e-purse to cover low value payments for borough services as well as extending this to commercial outlets, further enhancing borough identity and commission earned.
- (c) E-purse provides an opportunity to increase sales of low value items from front desk or kiosk (eg work books, goggles). This could also enhance special promotions or one-off borough schemes without increasing administration and cash handling.
- (d) Implementation of the e-purse mechanism could improve cash flow, i.e fines are settled and money received faster in some cases.
- (e) Management information streams can be used to target sales or hire items, such as talking books, DVDs etc. Furthermore, increased sales can be expected due to better uptake of membership.
- (f) There will be an opportunity to take e-purse payments up front that will earn interest on funds banked.

## Smartcard Business Case Report

- (g) Other off-card advertising/sponsorship by local or London businesses (ie on newsletters, website, literature and scheme communication).

### 5.2.3 Non-financial benefits

- (a) Potential for improved use of staff time through:
- use of self-service facilities;
  - improved transaction times;
  - reductions in cash handling time at the till and from faster cashing up;
  - minimal effort required to process change of address and other common amendments;
  - streamlined management and support arrangements for library/leisure membership – this is reflected in the 0.5 day we put in the model to suggest some duplicated work at borough offices will be removed.
- (b) Improved information on citizen habits, where, when and what services they use. New management information streams could recognise users residence and allow borough to determine to what extent they provide services for non-residence and how this translates to their budgets and targets.
- (c) Increased security opportunities within the borough and across London with the introduction of e-purse and buildings access, car parks access, bike shed and lockers management.
- (d) Opportunities for process improvements that could be detected and implemented as part of the overall change process from the current system to the smartcard solution.

### 5.3 Business Transformation Initiatives

- (a) Current Library refurbishment programme and local re-launch as a community facility provides opportunity to re-new systems and processes with smartcards.
- (b) Move towards standardised membership criteria across London.
- (c) New and standardised enrolment process for library and leisure.
- (d) Healthy life/activity initiatives – lifestyles.
- (e) Initiatives linked to London Olympics 2012 (e.g. lifestyle, sport, communities, world).
- (f) Process change – library cards issued at the leisure centre or even to all residents.

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- (g) Library and leisure applications not included in the list above – e.g. leisure discounts linked to other applications (e.g. school meals).
- (h) Introduction of a pan-London card - potential foundation for Citizens Card Scheme (not a Pseudo ID card).
- (i) Add transport ITSO/Oyster in 2010 with technology re-fresh – need to start now

### 5.4 Typical Borough Business Case

Experience has shown that each borough differs in size, demographics, services, facilities and improvement objectives. Smartcards have a role to play in a number of services, however they are only a small part of the service access and delivery method. Any business case will be based on a wide range of quantitative inputs, financial controls and priority objectives. The costs and analysis of benefits for a multi-application smartcard scheme will differ significantly between boroughs. In this report, we are able to provide an example of costs and benefits based on a representative set of data. Boroughs are strongly encouraged to obtain the models through London Connects and use their own data for a first pass estimate of costs and value of benefits. Several boroughs have already found the models and this process useful to refine their plans for use of smartcards and provide evidence to support a business case.

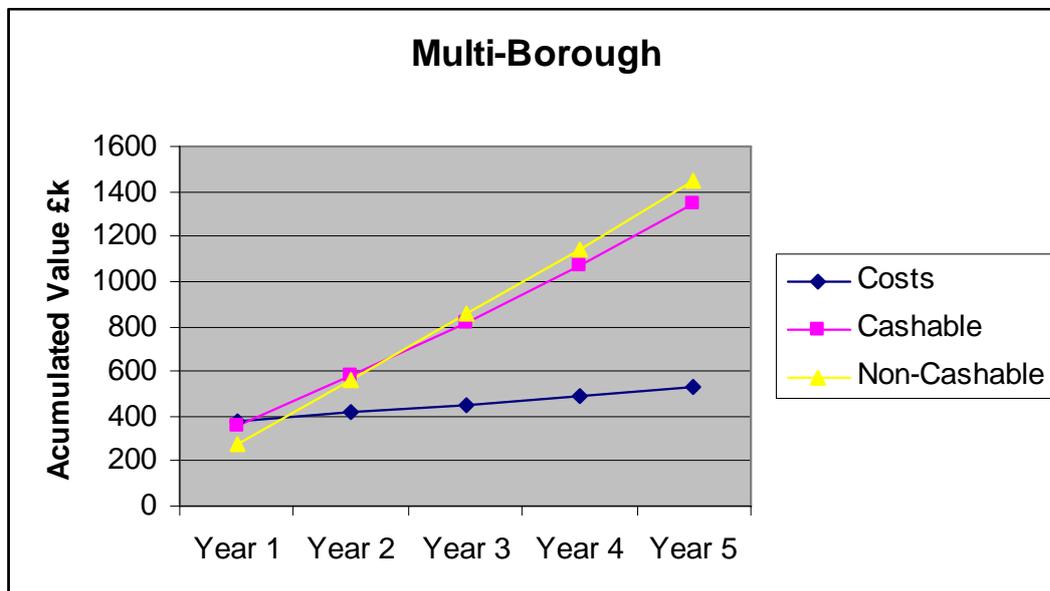
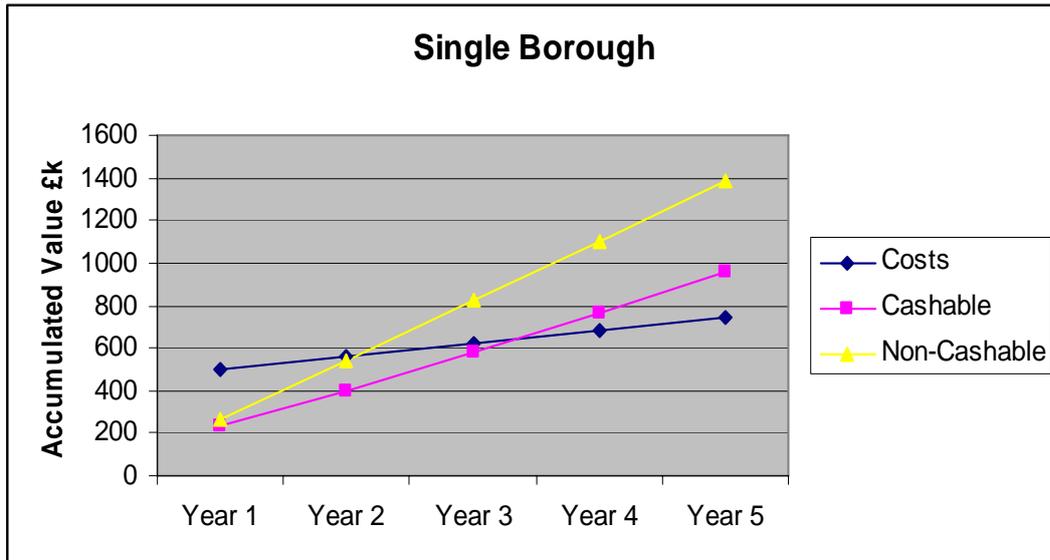
**RECOMMENDATION 8:** London Boroughs should enter their own data into the benefit and cost models. This will provide input to support a local business case for the deployment of resident cards.

Based on the representative set of data and a card scheme rolled out to 100 000 residents, the indicative costs and benefits are:

	<b>Single Borough</b>	<b>Multi-Borough</b>
Setup Cost	£250k	£180k
Year 1 Operation	£252k	£196k
Year 2 Operation	£60k	£39k
Cashable Benefits Yr 1	£232k	£352k
Non-cashable Benefits Yr 1	£270k	£278k
Cashable Benefits Yr 2+	£168k	£224k
Non-cashable Benefits Yr 2+	£274k	£284k

The following graph presents the 5 year figures accumulated for the single and multi-borough scenarios. This indicates a 3 year payback from cashable benefits in the single borough scenario and earlier payback in the multi-borough scenario (ie where benefits are higher and implementation costs lower).

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In the course of this assignment, Smartran has taken the opportunity to review the draft findings and models with several boroughs. The overall approach was reviewed and supported at a workshop on 2<sup>nd</sup> November attended by representatives from 10 boroughs and other stakeholders. The notes from that meeting are available from London Connects on request. The cost and benefit models have been reviewed with Hillingdon and Waltham Forest who have used these as input to business case planning. Additional positive feedback has been obtained from Greenwich Leisure Ltd, LLDA, Kingston Borough Council and Barking & Dagenham Council. Overall the feedback has confirmed that the scope and treatment of costs and benefits is reasonable and comprehensive.

There are a number of general findings to report. The costs for setting up and rolling out Local Authority smartcard schemes have fallen over the last 5 years which means a positive business case is more likely to be achieved. Smartran has assumed that proven cost effective solutions will be implemented to minimise project costs. Boroughs can draw on the experience of other successful schemes to identify suitable applications and the most effective approach to meet their objectives. This report brings together uniquely a comprehensive set of benefits based on earlier work in the National Smartcard Project and London Councils. Boroughs can decide which benefits are relevant and the parameters for

## **Smartcard Business Case Report**

any cashable benefits to produce their benefit forecast. When combined with the reduced implementation costs, Smartran believes that many more boroughs will be able to prepare positive business cases as Waltham Forest was able to do in 2006.

# Smartcard Business Case Report

## 6 USING THE REPORT

This report and associated benefit and cost model have been produced for London Connects by Smartran Limited based on preceding work and consultation with boroughs, service providers, system suppliers and other stakeholders. The report is to be issued to representatives from the 33 London Boroughs and a version will be published on the London Connects website. The benefit and cost models are available populated with generic information for use by the London Boroughs. London Connects has commissioned this work on behalf of the London Boroughs and owns the rights to the cost and benefit models. These models are useful tools to support a specific business case report. Assistance is available from Smartran Ltd for boroughs wishing to customise the models with their own data and requirements.

This report and associated models have been prepared based on previous reports and information provided by boroughs and stakeholders consulted. Any borough using this report and the models should consider carefully the relevance to their organisation and services. It is important that sufficient research and consultation is undertaken locally to validate assumptions and estimates before producing recommendations or signing off any business case. London Connects and Smartran are not responsible for decisions and outcomes resulting from use of this report and the associated models. Boroughs are advised to check with London Connects for updates on the use of this report and experiences of other boroughs introducing smartcard schemes. London Connects and Smartran welcome feedback on the use of the models and results obtained.

### London Connects

London Connects is jointly owned by London Councils and the Greater London Authority. Its purpose is to improve public services in London and reduce their cost through collaborative use of technology. Partners include health agencies, London Development Agency, Transport for London, London Fire and Emergency Planning Authority, Metropolitan Police Service, London Grid for Learning, London Libraries Development Agency, London Metropolitan Network, Learning and Skills Council and the London Voluntary Services Council. Achievements include the development of the London portal [www.yourlondon.gov.uk](http://www.yourlondon.gov.uk) and the London Public Services Network which provides secure broadband links between London authorities.

The work programme is kept under review and revised as appropriate by the London Connects Board and multi-sector Steering Group. Board members are appointed either by the Mayor of London or by the Leaders Committee of London Councils.

### Smartran Ltd

Smartran provides innovative independent consultancy services and practical solutions to local government organisations and transport service providers.

Based on their unique experience and business relationships, they offer exciting and effective solutions for multi-application smart card schemes, and related retailing, cash collection payment, e-commerce and settlement requirements:-

- E-commerce strategy and implementation
- Innovative application of leading edge technology

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- Software/system audits and testing
- Multi-function smart card applications
- Full life-cycle project/programme management
- Smart and future ticketing solutions

Smartran is currently assisting clients in the areas of future transport ticketing, cash collection services, contactless payment applications and improved delivery of existing services. Smartran typically undertake assignments, which make it easier for residents and customers to access our clients' services.

Smartran's recent clients include Hillingdon Borough Council, Lewisham Borough Council, First Group, Waltham Forest Borough Council, Amadeus, National Smart Card Project, Chester City Council (first implementation of the NSCP starter kit) and Association of Train Operating Companies.

Smartran offers clients a broad range of professional expertise which can be applied to all stages of a project's life-cycle. Smartran can respond to a wide range of project types from our pool of subject experts and build an integrated project team with the right skills mix for a longer-term assignment.

The Smartran project team assigned for London Connects was:

Kevin Farquharson (lead)  
Steve Beecroft  
Maddy Coates  
Rhona Byrne

## Smartcard Business Case Report

### Glossary

Application	A piece of software that performs business functions. It can reside on a smart card (q.v.)
Authentication	A security process that verifies that a person seeking to use an application (q.v.) on a smart card (q.v.) is the person who is entitled to use it for the purpose intended
Card Issuer	A institution that establishes an account for a cardholder and issues a card
Cardholder	The citizen to which a card has been issued
CMS	Card Management System
Contact interface	A means for allowing the exchange of data between a smart card and a reader that requires the card to be in physical contact with the reader
Contactless interface	A means for allowing the exchange of data between a smart card and a reader without any physical contact between the card and the reader
CRM	Customer Relationship Management
e-cash	Electronic cash: Cash stored electronically and readily exchanged into monetary value
e-mail	Electronic mail
EMV	Europay, MasterCard and Visa: A collaboration between these three organisations
e-purse	Electronic purse: A function on a chip card that allows e-cash (q.v.) value to be stored (e.g. sQuidcard)
IIN	Issuer Identification Number: The numbering system that uniquely identifies a card issuing institution in an international interchange environment, specified in ISO/IEC 7812
Internet	A global collection of interconnected networks, used for the purpose of electronic communication
Interoperability	The ability for different systems to work together
Intranet	A private network
IP	Internet (q.v.) protocol: Specifies the format of packets, also called datagrams, and the addressing scheme
ISL - ITSO Services Ltd	An organisation set up to manage the non smart transactions that take place in smart enabled concessions.
IT	Information Technology
ITSO	Formerly "Integrated Transport Smartcard Organisation": Public sector membership organisation founded in 1998 to build and maintain specifications for secure end-to-end interoperable ticketing operations in the UK
Leisure Management System	The software used by the Leisure Centre to manage the services it delivers to citizens.
Library Management System	The software used by the Library to manage the services it delivers to citizens.

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Magnetic Stripe Card	A card with a magnetic strip of recording material on which data can be stored
MIFARE	A proprietary standard for contactless (q.v.) and dual interface (q.v.) smart cards (q.v.) produced by Philips Semiconductors and extensively deployed worldwide
.NET	Aka .NET Framework is a software component that can be added to or is included with the Microsoft Windows operating system. It provides a large body of pre-coded solutions to common software development requirements, and manages the execution of programs written specifically for the framework.
Not for us	Transactions that are carried out in a smart card scheme where one of the parties to the transaction is not a member of the scheme
Online	Jargon for the process of obtaining information through access via a computer or terminal to the source
PDA	Person Digital Assistant: A handheld device that combines computing, telephone/fax, Internet (q.v.) and networking features
PIN	Personal Identification Number
PIN Pad	A small keypad on which a cardholder keys in his/her PIN (q.v.)
PIN Verification	The security process that confirms the cardholder's PIN (q.v.)
POS	Point of Sale
Scheme Operator	The individual or organisation responsible for the day to day management of the Smartcard Scheme
SCNF	Smart Card Networking Forum: Not-for-profit organisation consisting of public sector representatives with an interest in the use of smart cards to provide improved services to their customers
Service Provider	An organisation that is responsible for delivering a service to the Cardholder
SIM	Subscriber Identification Module: A card-based chip that personalises a mobile phone
Smartcard	A portable programmable device conforming to ISO 7816 dimensions and containing an integrated circuit that stores and processes information
Smartcard Scheme	The operational mechanism for delivering services to the cardholder via a smartcard.
SMS	Short Message Service: A service for sending short text messages to mobile phones
SNAPI	Special Needs Application Program Interface – is an assistive technology that places user preferences onto a smart card.
Stakeholder	An individual or organisation with a commercial or financial interest in the project
TfL	Transport for London
Transys	is the consortium responsible for the design, implementation and management of Transport for London's entire ticketing and revenue collection system The consortium responsible for the design, implementation and management of Transport for London's entire ticketing and revenue collection system
Web-services	A software system designed to support interoperable Machine to Machine interaction over a network, such as Web APIs that can be accessed over the Internet,

## **Appendices**

## Smartcard Business Case Report

### A Reference Documents

Document	Commissioned By	Author(s)	Date
"WLA Smartcard Business Case – Final Report"	West London Alliance e-Government Group	RSeConsulting	28 <sup>th</sup> November 2005
"Briefing Note on SNAPI Project – NSPC Supplier Group"	LASSeO	Geoff Doggett	12 <sup>th</sup> January 2006
"Single Membership Card for London's Public Libraries: Feasibility Study"	Museums, Libraries and Archives Council and London Libraries Development Agency	PriceWaterhouseCoopers	7 <sup>th</sup> April 2006
"A Vision for the Your London Card Scheme (Version 5.1)"	London Connects	London Connects and Account Limited	23 <sup>rd</sup> January 2007
"Your London Smartcard Survey – Summary Results"	London Connects		April 2007
"A Pan-London Library Card – Technical Overview (Version 1.1)"	London Connects	SmartCitizen Ltd	18 <sup>th</sup> September 2007
"Your London Card – Membership Scheme Rules (Version 0.1)"	London Connects	London Connects	Mid 2007
"London Smartcard Interoperability Framework"	London Connects	SmartCitizen Ltd	Mid 2007
Analysis of Suppliers – Smart Readiness	London Connects	Smartran	November 2007
Meeting Notes from workshop	London Connects	Smartran	2 <sup>nd</sup> November 2007
"SNAPI – Adapting User Interfaces to Suit Individual Needs"	Royal National Institute of Blind People	John Gill	27 <sup>th</sup> November 2007 (Draft document)

## Smartcard Business Case Report

### B Principal Contacts

The following contacts were consulted or attended the workshop on 2<sup>nd</sup> November 2007:

<b>Organisation</b>	<b>Name</b>	<b>Organisation</b>	<b>Name</b>
sQuid Card	Barry Williams	Torex	Jason Watts
Unicard Ltd	Peter Verrept	Novacraft	Janet Taylor
Smart Citizen	Owen McLaughlan	DeltaComputer Services	Fred Simpson
London Connects	Nick Tjaardstra	Gladstone	Andrew Marshall
Infor (Geac)	Ian Manson	LLDA	Mike Clarke
SirsiDynix	Lesley Jones	Barking & Dagenham	Elaine Bevis
DS Galaxy	Robert Bull	Barking & Dagenham	Jack McKeown
TALIS	Justin Leavesley	Barking & Dagenham	Trevor Brown
Flex	Kevin Anson	Kingston	Robin Noble
Greenwich	Henri Reinbolt	Tower Hamlets	Chidambaram Arun
Lewisham	John Hughes	Tower Hamlets	Pavinee Barlow
Lewisham	Simon Berlin	Waltham Forest	Max Carter
Lewisham	Mike Ireland	Waltham Forest	Hannah Rawlings-Smith
Brent	Shakeel Saleem	Kensington & Chelsea	Steve Buckerfield
Camden	David Hayes	Hillingdon	Darryl Wallace
GLA	Lisa Henry	Hounslow	Robert Della-Sala

# Smartcard Business Case Report

## C System Requirements from London Connects

### 1. Applications

#### Single borough (multi-application)

##### Libraries

- Membership ID or related data
- Self-serve / online access

##### Leisure

- Membership ID or related data
- Locker info
- Building & car park access

Card management system / CRM link - or changes to existing issuing database

Card hotlisting system (or included in card management system)

Stored value load, payment and receipt in library and leisure

#### Multi borough (multi-app)

- Add and maintain Library/Leisure membership data (stored on card)
- Central card issuing system + web service integration (may only hold and issue card ID)
- Infrastructure links to LPSN (assuming boroughs already have connection)
- Issuing new “nn” digit Your London IDs on cards
- Card hotlisting on daily basis (as opposed to live update)

### 2. Hardware

Scaled savings for multi-borough purchase.

- Card Readers (contactless and payment)
- Balance readers (end user or public use)
- Card printers and consumables
- Card supply and pre-printing costs
- Card Print & Encoding (see applications)

## **Smartcard Business Case Report**

- Possible bureau service costs (inc postage etc)

### **3. Project Services**

- Start up and project management
- Development of process and policies
- Scheme design & planning
- Process change
- Hardware installation costs
- Scheme build & implementation
- Branding and design
- Staff training
- Testing and pilot
- Communications / marketing
- Rollout and support
- Evaluation

### **4. Ongoing Services**

- hardware maintenance
- new cards and replacement consumables
- helpdesk or customer service support
- scheme and application support

# Smartcard Business Case Report

## D Scheme Implementation Approach

### Phase 1 - Single borough (multi-application, single suppliers)

#### 1. Libraries

- Membership ID or related data
- self-serve / online access

#### 2. Leisure

- Membership ID or related data
- Locker info
- Building & car park access

#### 3. Card management system / CRM link - or changes to existing issuing database

- Card hotlisting system (or included in card management system)
- Stored value load, payment and receipt in library and leisure

#### 4. Research and Analysis - ID Existing Services and processes

- Conduct research of existing service provision for both Libraries and Leisure and identify participants for Phase 1 – 3 totalling 4 boroughs.
- Research and analyse online access
- Conduct site visits to Leisure Centre re Lockers and Building & car park access.
- Borough selection for Phase 1 – 3
- Supplier selection
- Build detailed Project Plan including, External Communications, Resource, Training

#### 5. Build the Solution

- Hi – Level Requirements capture for all 4 boroughs
- Gap Analysis
- Risk assessment and mitigation
- Agree Card design and Numbering
- Build & test interfaces

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- Process Re-engineering including build brand new processes for Payment and Access Management, (UML).
- UAT
- TTT Training
- Detailed LDP / Implementation Plan

### 6. Implementation

- Procure, Print & Perso, distribute beta test cards
- Beta testing
- Procure, Print & Perso, distribute bulk issue cards
- Go Live
- Floor walk / hand holding.

#### **Phase 2 – Dual borough (multi-application, single suppliers)**

Add another borough with the same library and leisure systems as that in Phase 1 preferably one that already have cross borough Library or Leisure services with Borough 1. This is the safe way of proving that the CMS and Card services can support a multi-authority.

#### **Phase 3 - Multi borough (multi-application, multi suppliers)**

Introduce one borough with a different Library system, and another with a different Leisure system. Proving the now multi borough, multi application card is also interoperable with other library and leisure systems.

In this Phase work up the interface functionality and identify specific issues for bringing the remaining library and leisure systems into a Pan-London scheme.

This is subject to the above combination of borough actually existing and being willing to participate.

# Smartcard Business Case Report

## E Analysis of Scheme Costs

The following cost model has been generated for a borough implementing a scheme with the following parameters:

- 10 libraries
- 6 leisure facilities
- 100,000 cards issued rising 15% per annum through churn
- Typical card management and issuing costs
- 50% of implementation work undertaken by external resource

Using these parameters, the setup costs for 2 applications are estimated as £180 to 250k. The operational costs are estimated as £200-152k in year 1 (includes bulk card issue) then falling to £39-60k in subsequent years. The costs are given as a budgetary range and also reflect the difference in implementing an interface for the first time (ie costs are reduced if a standard web-interface is re-used).

Every borough will differ in terms of priorities and scope of implementation that will determine setup and operational costs. Minimum and maximum values are determined by pricing assumptions. Implementation costs may be reduced if resources are shared with neighbouring boroughs and joint procurement is undertaken. The cost model is available on request to London Boroughs through London Connects.

This model is based on the NSCP Financial Model (2004)

	5 year total excluding setup costs			5 year total including setup costs		
	Min	Max		Min	Max	
Setup costs Including Application Development				£178,950	£248,455	
Other operational costs	£351,365	£491,526		£351,365	£491,526	
Total External Income Streams	£0	£0		£0	£0	
Total Internal Income Streams	£0	£0		£0	£0	
Balance	-£351,365	-£491,526		-£530,315	-£739,981	

	Year 1		Year 2		Year 3		Year 4		Year 5	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Setup costs Including Application Development	£178,950	£248,455								
Other operational costs	£196,148	£252,213	£39,015	£60,081	£38,870	£59,907	£38,732	£59,741	£38,600	£59,584

# Smartcard Business Case Report

## F Analysis of Benefits

London Connects Business Model						
<b>Costed Benefits</b>						
v.57						

	Libraries		Leisure		Borough Benefits	
	Single Borough	Multi-Borough	Single Borough	Multi-Borough	Single Borough	Multi-Borough
<b>1.0 Revenue Boosts</b>						
1.1 Revenue taken in a year	£250,000	£250,000	£3,500,000	£3,500,000	£6,750,000	£6,750,000
1.2 Multi function Increased membership in year 1 launch	3%	5%	3%	5%		
1.3 Sponsorship Revenue	£0.25	£0.50	£0.25	£0.50		
1.4 E-purse Reward	0.09%	0.09%	0.09%	0.09%		
Cashable Benefits Yr 1	£43,345	£73,345	£134,693	£225,318	£178,038	£298,663
Cashable Benefits Yr 2	£40,646	£69,680	£69,868	£94,702	£110,514	£164,382
Cashable Benefits Yr 3	£42,245	£73,860	£73,680	£101,332	£115,925	£175,192
Cashable Benefits Yr 4	£43,934	£78,292	£78,082	£108,425	£122,016	£186,717
Cashable Benefits Yr 5	£45,194	£82,989	£82,743	£112,809	£127,938	£195,798
<b>Cumulative Benefits</b>	<b>£215,363</b>	<b>£378,166</b>	<b>£439,066</b>	<b>£642,585</b>	<b>£654,429</b>	<b>£1,020,751</b>

	Libraries		Leisure		Borough Benefits	
	Single Borough	Multi-Borough	Single Borough	Multi-Borough	Single Borough	Multi-Borough
<b>2.0 Fraud Prevention &amp; reduction of bad debts</b>						
2.1 % cash lost through fraud & theft	1.00%	1.00%	1.00%	1.00%		
2.2 % revenue lost through bad debt	1.00%	1.00%	1.0%	1.0%		
Cashable Benefits Yr 1	£4,500	£4,500	£42,000	£42,000	£46,500	£46,500
Cashable Benefits Yr 2	£4,770	£4,950	£45,360	£46,620	£50,130	£51,570
Cashable Benefits Yr 3	£4,913	£5,247	£47,628	£49,883	£52,541	£55,130
Cashable Benefits Yr 4	£5,108	£5,562	£50,463	£53,375	£55,571	£58,937
Cashable Benefits Yr 5	£5,311	£5,896	£53,462	£57,112	£58,773	£63,007
<b>Cumulative Benefits</b>	<b>£24,602</b>	<b>£26,154</b>	<b>£238,913</b>	<b>£248,990</b>	<b>£263,515</b>	<b>£275,144</b>

	Libraries		Leisure		Borough Benefits	
	Single Borough	Multi-Borough	Single Borough	Multi-Borough	Single Borough	Multi-Borough
<b>3.0 Cash Processing Benefits</b>						
3.1 Bank charges	0.25%	0.25%	0.25%	0.25%		
3.2 Staff Cash Processing(hours/day/till)	1	1	2	2		
3.3 Cash Carrying Costs(no. of sites)	10	10	6	6		
3.4 Cash Transacted Revenue	25%	25%	25%	25%		
Non-Cashable Benefits Yr 1	£43,875	£51,911	£107,580	£107,580	£151,455	£159,491
Non-Cashable Benefits Yr 2	£43,883	£51,923	£107,615	£107,628	£151,498	£159,552
Non-Cashable Benefits Yr 3	£43,886	£51,931	£107,639	£107,662	£151,525	£159,594
Non-Cashable Benefits Yr 4	£43,892	£51,940	£107,669	£107,699	£151,560	£159,639
Non-Cashable Benefits Yr 5	£43,898	£51,949	£107,700	£107,738	£151,597	£159,687
<b>Cumulative Benefits</b>	<b>£219,433</b>	<b>£259,655</b>	<b>£538,203</b>	<b>£538,308</b>	<b>£757,636</b>	<b>£797,963</b>

	Libraries		Leisure		Borough Benefits	
	Single Borough	Multi-Borough	Single Borough	Multi-Borough	Single Borough	Multi-Borough
<b>4.0 Reduced transaction costs</b>						
4.1 E-purse & contactless transaction times reduced in minutes	0.5	0.5	0.5	0.5		
4.2 New member transaction form filling reduced in minutes	3.00	3.00	3.00	3.00		
4.3 Change of circumstance admin reduced in minutes	5.00	5.00	5.00	5.00		
4.4 Streamlined back office staff saving per person per year	0.5	0.5	0.5	0.5		
Number of E-purse & contactless transactions	45,000	45,000	45,000	45,000		
Number of form-filling transactions affected by smartcards	12,000	12,000	12,000	12,000		
Non-Cashable Benefits Yr 1	£62,148	£62,148	£56,230	£56,230	£118,378	£118,378
Non-Cashable Benefits Yr 2	£64,177	£65,530	£58,462	£59,299	£122,639	£124,829
Non-Cashable Benefits Yr 3	£65,611	£67,762	£60,270	£61,467	£125,881	£129,229
Non-Cashable Benefits Yr 4	£67,103	£70,129	£62,186	£63,787	£129,289	£133,915
Non-Cashable Benefits Yr 5	£68,654	£72,637	£64,218	£66,269	£132,872	£138,905
<b>Cumulative Benefits</b>	<b>£327,694</b>	<b>£338,206</b>	<b>£301,366</b>	<b>£307,051</b>	<b>£629,060</b>	<b>£645,257</b>

	Libraries		Leisure		Borough Benefits	
	Single Borough	Multi-Borough	Single Borough	Multi-Borough	Single Borough	Multi-Borough
<b>5.0 Reduced card production costs</b>						
5.1 Cost of single card issue replaced by smartcard	£0.25	£0.25	£0.25	£0.25		
5.2 Net number of new members per Annum	1%	1%	1%	1%		
5.3 Benefit from reduced churn of old cards	15%	15%	15%	15%		
Cashable Benefits Yr 1	£4,000	£4,000	£3,300	£3,300	£7,300	£7,300
Cashable Benefits Yr 2	£4,240	£4,400	£3,564	£3,663	£7,804	£8,063
Cashable Benefits Yr 3	£4,410	£4,664	£3,778	£3,919	£8,187	£8,583
Cashable Benefits Yr 4	£4,586	£4,944	£4,005	£4,194	£8,590	£9,138
Cashable Benefits Yr 5	£4,769	£5,240	£4,245	£4,487	£9,014	£9,728
<b>Cumulative Benefits</b>	<b>£22,005</b>	<b>£23,248</b>	<b>£18,891</b>	<b>£19,564</b>	<b>£40,896</b>	<b>£42,812</b>

	Libraries		Leisure		Borough Benefits	
	Single Borough	Multi-Borough	Single Borough	Multi-Borough	Single Borough	Multi-Borough
<b>Cashable Benefits</b>						
TOTAL BENEFITS (Year 1)	£51,845	£81,845	£179,993	£270,618	£231,838	£352,463
TOTAL BENEFITS (Year 2)	£49,656	£79,030	£118,792	£144,985	£168,448	£224,015
TOTAL BENEFITS (Year 3)	£51,567	£83,771	£125,086	£155,134	£176,653	£238,906
TOTAL BENEFITS (Year 4)	£53,628	£88,798	£132,550	£165,994	£186,177	£254,791
TOTAL BENEFITS (Year 5)	£55,274	£94,125	£140,451	£174,408	£195,725	£268,533
<b>Cumulative Benefits</b>	<b>£261,970</b>	<b>£427,569</b>	<b>£696,871</b>	<b>£911,139</b>	<b>£958,841</b>	<b>£1,338,707</b>

	Libraries		Leisure		Borough Benefits	
	Single Borough	Multi-Borough	Single Borough	Multi-Borough	Single Borough	Multi-Borough
<b>Non-Cashable Benefits</b>						
TOTAL BENEFITS (Year 1)	£106,023	£114,059	£163,810	£163,810	£269,833	£277,869
TOTAL BENEFITS (Year 2)	£108,060	£117,454	£166,077	£166,927	£274,137	£284,381
TOTAL BENEFITS (Year 3)	£109,498	£119,694	£167,909	£169,129	£277,407	£288,823
TOTAL BENEFITS (Year 4)	£110,995	£122,069	£169,855	£171,485	£280,850	£293,554
TOTAL BENEFITS (Year 5)	£112,551	£124,586	£171,918	£174,006	£284,469	£298,593
<b>Cumulative Benefits</b>	<b>£547,127</b>	<b>£597,861</b>	<b>£839,569</b>	<b>£845,359</b>	<b>£1,386,696</b>	<b>£1,443,220</b>

## Smartcard Business Case Report

### G Payment Method Comparison

The attached slides provide background on the choice of payment methods and relative costs of payment methods. The details for sQuidcard are based on information provided for the “to be launched” service.