

# FEASIBILITY STUDIES JANUARY 2011 COMPETITION

LASSeO Ltd

**SNAPI: Using contactless smart media to personalise the user interface to ease access to public access devices and services**

**Project No: 130640**

**Feasibility study competition: Digital**

## Final Report

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## Feasibility Studies - FINAL REPORT

<b>SUMMARY FOR PUBLIC DISSEMINATION</b> (Please limit to <u>maximum</u> 2 pages)
<b>Lead company name: LASSeO Ltd</b>
<b>Project Title: SNAPI:</b> Using contactless smart media to personalise the user interface to ease access to public access devices and services
<b>Project Number: 130640</b>
<b>Description of company business</b> LASSeO Ltd ( <a href="http://www.Lasseo.org.uk">www.Lasseo.org.uk</a> ) is a not-for-profit company operating for the development and maintenance of appropriate public sector smart media specifications that allow citizen functions to co-exist on cards with other applications such as transport. LASSeO already has a significant national reputation for its very widely adopted specifications for citizen and transport cards and these have been developed with minimal public sector financial support.
<b>Overall problem statement and why it is significant</b> LASSeO has developed a prototype of its SNAPI (Special Needs Application Program Interface) specification that enables citizens with a wide variety of sensory and motor disabilities to more easily access and use information devices. The specification needs to be developed for contactless technology and its practical use demonstrated to create a product suitable for OEM licensing on a worldwide basis. Whilst receiving widespread acclaim as a concept, the market remains unconvinced of the business case for the product although it has become apparent that the concept has a huge potential allowing any citizen to store and activate personal preferences when accessing private and public information access devices. The specification, based on a European standard EN 1332-4, allows for contactless smart cards to carry personalised tags to automatically configure the service users' accessibility preferences. For example, font sizes, foreground and background colours and audio options may be automatically invoked, with the device reverting to its resting state when the tag is removed. There are obvious potential extensions to this concept including message display, giving more time at a gate or turnstile, presenting information in alternative languages, carrying the application on mobile phones, touchscreens, etc.
<b>Brief description of feasibility study</b> The study set out to demonstrate that there is a demand for a standards-based software interface to ease access to information terminals and similar devices. It involved the development of demonstrators deployed in the public space along with specification development, configurator development, demonstrator development, deployment, feedback capture and analysis. Initially it was intended to use Southampton Libraries as a demonstration site but a number of local industrial difficulties required a switch to the use of focus groups to meet short term project objectives. The specification development has been in conjunction with our partners Unicard Ltd, a small British SME that is highly active in the citizen and transport card arena and who have also undertaken all of the necessary software development.
<b>Outcome of study</b> It has been possible to demonstrate all of the functions required including touchscreens, the configurator and the impact on Microsoft accessibility options, and to obtain feedback to start to demonstrate a real demand for the product. The technical solution allows personal preferences to be loaded onto a contactless card using the Configurator and that card may then be used to change the accessibility options available on a PC or other device. Plans for live deployment are underway at Southampton but industrial action meant that results would not be available within the project timescales. It is anticipated that the system will become a normal part of the environment there (to run on into the future supplying information to LASSeO/SNAPI in support of the business case). We were forced to change emphasis within the project and to switch to focus groups

comprising elderly persons, organisations representing people with disabilities and individuals.

The development of a portable demonstration facility has been of great value as it has provided a way of getting potential users and developers to understand how the system works and the benefits it can bring. Essentially, when people see a demonstration they “just get it”. They immediately see the value and can then start to consider its adoption.

### **Impact of the study**

SNAPI supports significant Government objectives in respect of easing and improving access to information technology for those with the greatest need and this project provides a good opportunity for fresh niche players to enter this market. Given our ageing population, the demand for customer control over the user interface can only grow. This product fits neatly in this space and could provide a real differentiator in a crowded marketplace such as ATMs.

We would like the product to be incorporated on all newly released English National Concessionary Travel Scheme cards and for its deployment into a wide range of public service points including healthcare organisations.

### **The way forward**

The SNAPI concept has huge potential to provide significant end user benefits. We consider early movement essential before other companies develop competitive proprietary specifications. We need to create a slick and effective demonstration environment that works consistently across a range of service areas such as different PC operating systems, along with a wider range of touch screen and other application demonstrators, so as to facilitate industry engagement. We need to continue pursuing further software development with our present partner and other interested players. We must establish appropriate industry sectors for further engagement (eg Bus/Train/Cinema/Theatre Ticketing, Surgery, Hospital, Dentist, Airline booking-in, ATM's, etc and find service-providing industry specific partners to develop our thinking and plan/invest in deployment. We need to exploit the possibilities of interest amongst various disability groups and their service providers to ensure maximum visibility and potential adoption in Health Centres, Dental Care providers, Hospital Clinics and the like to try to build critical mass. The study has brought out the expected user interest from these quarters, and this needs to form the focus of our short term activity.

### **Lesson learned**

There are lessons to be learned from this study particularly because of its very short duration and the fact that it spanned the start of the holiday season. Our project suffered from two significant disruptions; one was industrial action at the proposed test site that was intended to provide user feedback; and the other was caused by sickness of key personnel. In a longer project, or one where the players had greater capacity, these would have had lesser impact but our challenge was to respond effectively within a 12 week timeframe.

Short projects require a degree of contingency planning that would be less necessary in a longer project. In our case we were able to rapidly shift the emphasis from public space usage feedback to focus group feedback in order to satisfy our short term needs. We were also able to deploy the system as originally planned for longer term usage feedback. We found considerable advantages from working with an equally committed British SME partner who was nimble enough to be able to respond rapidly to our changing needs.

**The Technology Strategy Board will use the above information for public dissemination including preparation for the Collaboration Nation event. Please do not disclose the intellectual property of the project or anything that is company confidential.**

# FEASIBILITY STUDY REPORT

## **Overall problem**

The SNAPI specification (enabling citizens with a wide variety of sensory and motor disabilities to personalise and more easily access and use information devices) needed to be developed for contactless technology and its practical use demonstrated to create a product suitable for OEM licensing on a worldwide basis.

The specification, based on a European standard EN 1332-4, allows for smart cards to carry personalised tags to automatically configure the service users' accessibility preferences. For example, font sizes, foreground and background colours, language and audio options may be automatically invoked, with the device reverting to its resting state when the tag is removed. There are obvious potential extensions to this concept including message display, giving more time at a gate or turnstile, presenting information in alternative languages, carrying the application on mobile phones, creating greater space between touch screen buttons, etc.

Whilst receiving widespread acclaim, the market remained unconvinced of the demand/business case for the product although it has become apparent that the concept has a huge potential allowing any citizen to store and activate personal preferences when accessing private and public information access devices. For example to indicate a preferred language. This project is intended to start to bridge the gap between the standard and its market adoption by developing and deploying demonstrators to make the case for its use.

## **Significance**

LASSeO had previously developed a contact card prototype of its SNAPI (Special Needs Application Program Interface) specification. It was not practical to use this to demonstrate customer demand or the impact that such software can have on individual users. Contact smart cards are reserved for specific applications requiring high security and are losing ground to the more cost-effective and faster contactless card. Contactless cards are universally used as travel cards and widely distributed with over 15 million in daily use as concessionary bus passes and Oyster cards alone. Providing a contactless solution and the use of touch screens makes it possible to show how this technology can help. Although it was originally designed for people with disabilities, it clearly has a much wider potential user base. Indeed, good design for those with disabilities is usually good design for all.

## **Eventual impact**

SNAPI supports significant Government objectives in respect of easing and improving access to information technology for those with the greatest need and this project could provide a good opportunity for fresh niche players to enter this market. Given our ageing population, the demand for customer control over the user interface can only grow. This product fits neatly in this space and could provide a real market differentiator in a crowded marketplace such as ATMs or ticketing machines.

Early indications are that the DfT could be encouraged to recommend that the product should be incorporated into all newly released English National Concessionary Travel Scheme (ENCTS) cards. The integration specifications have already been agreed and the cost would be minimal.

## **Outline of the study and the approach adopted**

As outlined above, the study set out to demonstrate that there is a demand for a standards-based software interface to improve access to information terminals and similar devices and that this is not technically difficult. It involved the development of demonstrators to be deployed in the public space and required specification development, software development, demonstrator development, deployment, feedback capture and analysis.

Specification & software development have been in conjunction with our partners Unicard Ltd, a small British SME that is highly active in the citizen and transport card arena and who have also undertaken the necessary software development to provide the demonstrators.

It was planned to deploy two demonstrators in Southampton Libraries to evidence customer need and operational robustness using public library internet access and touchscreen survey terminals. In the event, industrial action at Southampton made this impractical and the approach was varied – see below.

The project included development of the post-issuance encoding and configurator software, along with demonstrators and productisation.

### **Scope changes from the original proposal, with reasons;**

The scope and overall objectives of the project remained constant throughout but disruption at Southampton necessitated a change of emphasis in order to protect these objectives. In the event it was necessary to develop a short term solution to obtaining potential user feedback so that this could be obtained within the project timeframes. This was achieved through two focus groups, one in Norfolk and the other in Suffolk. It is intended to continue with the Southampton deployment and the results from that site will be collected over the next few months to support business case development outside of this project.

### **Outcomes of the study (solution, design, approach, findings)**

The main output of the project has been the development of a portable demonstration facility to enable potential users and developers to understand how the system works and the benefits it can bring. We have found that demonstrating a relatively simple application is worth a mountain of descriptive writing and illustrations. Essentially, when people see a demonstration they “just get it”.

The technical solution allows personal preferences to be loaded onto a contactless card using the Configurator and that card may then be used to change the accessibility options available on a PC or touch screen terminal.

The project has allowed us to:

- Demonstrate all of the functions required including touchscreens, the configurator and the impact on Microsoft accessibility options, to focus groups and to seek their feedback.
- Prove that the SNAPI encoding can be added (post-issued) to existing cards, with some limitations.
- Demonstrate that the SNAPI application, with all tags from the demonstrator encoded, takes up only 16 Bytes on a DESFire 4k card
- Demonstrate a “Medical” application that mirrors the “Arrival for appointment” touchscreens so common in doctors’ surgeries, Health Centres and hospital outpatient departments across the country
- Demonstrate sufficiently robust information to validate the appeal of the system. As

outlined above, the feedback mechanisms have been delivered through focus groups at two sites in Norfolk & Suffolk. The first group mainly representing disability support organisations covering visual and cognitive disabilities, with the second, much larger, group of elderly people representing a wider mix of diverse access needs. These sessions allowed us to demonstrate and get feedback from a cohort of smart card holders for the touchscreen demonstrator (medical appointment and similar applications) whilst exploring methods of updating user preferences.

These project findings are significant, and support the basic premise that SNAPi can be facilitated on existing cards and should be recommended as part of the LASSeO specification.

**Description of deliverable(s), initial design, technical work etc, to showcase the outcome(s) achieved;**

We have completed and can demonstrate tested software for:

- post-issuance encoding,
- a smartcard configurator
- a stand-alone touch-screen terminal demonstrator for generic reception point purposes to test with user groups.

We can also provide product support (i.e. what might be needed by someone who wishes to integrate SNAPi):

- support for the DLL integration and SNAPi encoding
- a local tool that allows configuration – which would need to be made available on the “SNAPi” web site for download

**Expected impact of what has been achieved so far**

As indicated above, the ability of users, operators and potential customers to see the types of benefit that will be gained from a SNAPi implementation is the key to:

- Generating demand for the product from potential users and their representative groups
- Driving interest from suppliers to embed the software/standard into their product to re-enforce their credentials in the market place, secure a unique selling point, and to meet customer expectations.
- Creating an environment for new ideas to come forward, both in terms of widening/refining the specification and finding practical uses for the SNAPi interface

We now have a workable configurator, two demonstrators and a growing body of evidence of the demand for such systems. This will enable us to mount events promoting the use of the standard and the software. We have already established some potential interest in East Anglia in the health and care sector and will be following this up to develop interest and demand. There is no impediment to implementing the solution in a local Health Centre to act as a live example of a simple solution in this sector and using this to generate further demand.

**Gap analysis**

The success and longevity of any ‘specification’ will be determined by how widely it is used and invested in by the commercial sector.

The key deployments of this kind of technology are through outlets such as ATMs, ticketing machines, mobile phones, as well as public sector terminals and touchscreens in doctor, dentist and other health clinic outlets. Further dissemination is required to identify and inform relevant stakeholders about methods for making public terminals

easier to use and LASSeO will need to engage with suppliers in the area of touchscreen technology within these sectors. Smart system providers, such as Unicard Ltd will also be needed to use the base product IPR and to develop it into new technological and new application areas.

We need to persevere with the Southampton library deployment and need a testing script for their user beta test team. This will enable us to pick up more detailed issues about developing and deploying a solution.

We also need clearly defined customer requirements, ideally for a product that will go into practical use.

It would also be appropriate to engage with at least one hardware manufacturer to test their views on how SNAPi could be incorporated into public facing accessible service points.

### **The next steps to take the idea(s) forward to testing/adoption/exploitation**

The SNAPi concept has huge potential to provide significant end user benefits. There is no competing product throughout Europe and interest in the standards has been expressed in North America. The value of the underlying standards is being investigated within the German finance sector as part of an EU project. We consider early movement essential before other, possibly global, companies develop competitive specifications, possibly proprietary.

We need to create a slick and effective demonstration environment that works consistently across a range of service areas such as different PC operating systems, along with a wider range of touch screen and other application demonstrators, so as to facilitate industry engagement. We need to:

- continue work on booking systems to provide a more complex demonstrator
- test post-issuance on a wider range of deployed ENCTS cards
- continue to build case study material from the Southampton operation along with further focus group work.
- produce a development and deployment plan
- develop our own events and partners for further focus groups and testing
- pursue further software development with our present partner and other interested players
- establish appropriate industry sectors for further engagement (eg Bus/Train/Cinema/Theatre Ticketing, Surgery/Hospital/Dentist/Airline booking-in, ATMs, etc).
- find service-providing industry specific partners to develop our thinking and plan/invest in deployment

On a more prosaic level we must:

- establish development, dissemination/promotion and deployment plans, along with developing and publishing a business case.
- consider if any EN 1332-4 features should be enhanced or added as a consequence of this study and input these to the standards working group (CEN TC224 WG6).

We need to exploit the possibilities of interest amongst various disability groups and their service providers to ensure maximum visibility and potential adoption in Health Centres, Dental Care providers, Hospital Clinics and the like to try to build critical mass. The study has brought out the expected user interest from these quarters, and this needs to form the focus of our short term activity.

A number of possibilities arose from our focus group work including, for example, the addition of a contactless reader to check-in terminals in medical centres so that the user could register their ENCTS card with the doctor's receptionist, and after that would only have to touch their card on the reader to check-in. In a similar way, it is possible to use smart card/phone technologies to automatically fill in forms with name, address, telephone number, etc. These alternatives are not trivial and data security issues of storing such information on a card or phone need to be taken into account. Our working assumption is that we should concentrate on the use of SNAPI rather than address the slightly wider issues of using card/phone technologies in ways that would improve the customer interface.

**Lessons learned during the feasibility study, including on the competition format and process, study scope and implementation**

There are lessons to be learned from this study particularly because of its very short duration and the fact that it spanned the start of the holiday season. Our project suffered from two significant disruptions; one was industrial action at the proposed test site that was intended to provide user feedback; and the other was caused by sickness of key personnel. In a longer project, or one where the players had greater capacity, these would have had lesser impact but our challenge was to respond effectively within a 12 week timeframe.

We found some advantages from working with an equally committed SME partner who was nimble enough to be able to respond rapidly to our changing needs. These may have been more difficult to satisfy if we had been partnered with a larger organisation.

The importance of using a risk register, rather than just producing one, was borne out by our ability to refocus our activity to bring the project to a satisfactory conclusion. Short projects require a degree of contingency planning that would be less necessary in a longer project. In our case we were able to rapidly shift the emphasis from public space usage feedback to focus group feedback in order to satisfy our short term needs. We were also able to deploy the system as originally planned for longer term usage feedback.

**The Technology Strategy Board frequently publicises results/details of competitions and this includes engagement with the media. By default, the Feasibility Study Report will be kept confidential but if you wish that this report is made public then please tick this box X**

X

Please note we will be in contact with you soon to give you details of your Collaboration Nation event. Completion of this report will help you in your submission to a directory of feasibility studies we will be producing as part of the event.