



Are you delivering the goods?

Using mobile computing to boost customer satisfaction

As the home shopping phenomenon continues to grow, there has been a corresponding increase in the demand for a perfect delivery service. However, even the most efficient delivery operations encounter problems and, realistically speaking, are unlikely to be able to achieve a 100% success rate.

This report will therefore take a closer look at some of the issues involved. In particular, it will focus on the need for carriers to focus primarily on customer satisfaction. One of the keys to achieving high satisfaction levels is the use of an effective mobile computing solution. We will therefore explore the factors that should be considered when choosing a suitable solution. These will then be summarised as a series of recommendations.

Delivery issues

Any parcel carrier will obviously know that they must aim for the highest standards of delivery. However, they will also be well aware that there are many different factors that will militate against this. These include:

External factors – These cover issues such as the weather, road congestion, vehicle breakdowns, incorrect delivery addresses and the lack of anyone available to accept the parcel when it reaches its destination.

Internal factors – These include issues such as mishandling and mis-routing; a lack of capacity to cope with ever-increasing volumes; low productivity (and a failure to own a problem); and insufficient resources due to illness or vehicles that are under repair.

Retailers are aware that the performance of their chosen carrier will have a positive or negative impact on the consumers' perception of their brand – which in turn will affect sales. They are therefore pushing carriers to boost their performance levels.

Although some of the delivery issues mentioned above can be addressed with a little forethought (and sufficient funds), problems are always likely to exist. However, carriers are beginning to realise that even if they can't achieve a 100% delivery success rate, they should still be aiming for 100% customer satisfaction.

Ultimately, everyone understands that problems and delays can occur in even the most efficient operations. However, when they do occur, the one thing that will help to assuage the customer is the maintenance of effective communications. How many times do you hear reports on the news when there are problems at airports (for example), and passengers say that no-one is telling them anything? If they know what is happening and can understand the issues, they are far less likely to get upset.

Similarly, if there is an issue with a delivery, people love to be told – and to know that a recovery operation is under way. The successful carriers of the future will be the ones who communicate well with the consumer and effect an elegant recovery. Service will be the differentiator.

Mobile computing issues

The challenge of achieving the highest possible levels of customer satisfaction will only be met if carriers have control and visibility of the doorstep delivery process. The key to success lies in the development of a reliable, efficient and effective mobile computing solution.

The main problem comes in selecting the best solution for your needs. Looking at the



possibilities is a bit like looking at an iceberg – initially you only see the obvious features, and may be unaware of many key areas of functionality that are 'below the waterline'.

Above the waterline are the obvious items such as the device itself; its look and feel; its user interfaces; its management reports; and its infrastructure. Lurking below the surface are equally important issues such as ease of use and adaptability; future-proofing; the integrity of the data; the resilience of the architecture; performance management; device management; security; and supportability.

So let's take a closer look at the factors you need to consider both above and below the line when selecting a mobile computing solution:

Above the waterline

The immediately obvious features you should consider include:

The supplier – Although there are more mobile computing device suppliers than ever before, the market is still dominated by two or three key players. Prices for rugged devices remain high, but with volume, one-off purchases, coupled to three year support contracts, there are some good deals available. Trialling, beauty parades and competitive tendering are still popular ways of buying devices and it is sometimes simply a question of 'horses for courses'.

A good solution provider will be platform-independent. However, as an added complication, there are increasing opportunities to buy commercial, off-the-shelf devices from phone network suppliers. These have nearly all of the features of more rugged devices but at a fraction of the price.

It's vital to choose a supplier who will work with you to design and evaluate the best solution for your operation. Buy the application first, get it ready for testing, do a beauty parade and if necessary buy several platforms that provide the right horse for the right course. For example, the in-depot receipt application should be rugged so that it can cater for bulk parcel handling. The experienced courier might have a commercial device, whilst the new recruit or agency drivers might have a rugged one.

The device – There are two high-level elements that you should consider when choosing a device: barcode scanning and the total cost of ownership (TCO).

- **Barcode scanning:** Commercial devices can't compete with rugged devices with 1D and 2D scanner engines – so if rapid, bulk scanning is required, commercial devices might not be suitable. However, it's possible to add scanning to an XDA-type device. A technology that is rapidly emerging provides users with the opportunity to take a photo and turn it into a barcode code. It's too early to say if barcode scanners are dead but there are a lot of hi-technology companies racing to provide 'camera image to alpha-numeric data conversion' as a standard process.



- **Total cost of ownership:** This is really the crunch issue. There are probably three versions of the likely TCO - from the rugged device manufacturers, the commercial resellers and the truth! We've seen good examples of TCO but unfortunately we've seen lies as well. There are two key factors that affect the TCO: how well the operators treat the devices and the costs of downtime.

If the operators treat them well (e.g. they are paid as a result of the data collected by the device; or they have to pay for the device; or the paper alternative is onerous), then the TCO for commercial devices can be low. (e.g. How often do mobile phones get broken these days?) However, if there is no associated ownership and no fear, the TCO is likely to be high.

The cost of downtime is also critical and if this is expensive, rugged devices quickly come into their own (having solved the barcode issue). The challenge is to measure the cost of downtime, lost signatures or 'back to paper' signatures, the inability to spot choke points or trends etc.

We have four TCO models within our customer base. The first involves rugged devices with no ownership, in which the TCO is high (the operators still break rugged devices!) The second involves rugged units which the user depends upon for their salary, where the repair bill is tiny. The third is a commercial device where the operator gets paid by

reporting deliveries via the device. This gives the best result (i.e. the lowest TCO). However, we also have a commercial system where the cost of downtime has affected service level agreements and we are therefore moving to rugged devices.

Functionality – Proof of delivery (the ability to capture the customer's signature electronically) has become a standard feature for most mobile computing solutions. If electronic signature capture is the only function you require, there are plenty of simple, windows form providers that can deliver this functionality. However, you shouldn't just be looking for the functionality to handle successful deliveries – you should be exploring how the application handles failures and the resolution of failures. Increasingly, retailers don't require proof of delivery for successful deliveries: once the consumer has the parcel, it's usually the end of the process. However, if a delivery doesn't arrive, it's a 100% failure in the eyes of the consumer. Service is all important – and so is your brand (i.e. meeting your promises and recovering elegantly if problems occur). How the solution is able to help you to recover from a failure is therefore vital. A good solution should include:

- Automatic notification in real time if the promised delivery deadline has been missed
- Suitable track and trace functionality to record why the failure occurred
- On-terminal processes to aid recovery (e.g. delivery to a neighbour or leaving the parcel in a safe place, with appropriate alarms if these options aren't available)
- A messaging solution to notify the recipient and everyone involved in the recovery process – transport, customer care, warehouse, retailer etc.
- Suitable analysis of the data to help recovery and continuous improvement
- The agility to react to changing requirements and other external events (e.g. vehicle breakdown, customer refusal etc.)

The user interface – Form-based solutions requiring the continuous use of a stylus usually indicate that a device is a first generation solution. Modern applications use simple touch screens and icons and are intuitive to use; they may only need a

stylus for customer name and signature capture (although these should be touch screen if necessary). Modern applications cater for both the trained and the untrained user; a fast track or a methodical approach that takes account of the user's experience. The doorstep experience is critical:

- How much time is taken in getting ready for the recipient's signature?
- Is the customer happy to sign and can they see what they are signing for?
- What happens if the customer refuses part shipment - can the application cope?

The user interface needs to reflect your brand.

Management reports – Large parcel carrier networks aren't simply concerned with proof of delivery. They are involved in managing the courier team and the assets they use, managing failed deliveries and delivering value for money at the best possible price. The courier solution should therefore be able to interface with:

- Existing HR services
- Finance systems, to assist courier payments
- ERP systems, to help asset tracking
- Legacy parcel / customer systems, to effect deliveries and collections

The management of data is therefore critical. You must be able to extract useful management reports but it's also vital that it's there on demand, when required. It mustn't be lost because the device, the server or the phone network fails. When selecting a mobile computing solution, versatile and effective management reporting should be a top requirement.

Infrastructure – High availability is critical if failures are to be dealt with elegantly. This includes high availability of the handheld device, the airtime, the Internet or private network, the database environment, the interfaces to it, and the associated management reporting functions. Most solution providers will use third party providers for airtime, managed services and Internet providers - and you should ensure the suppliers they use have a good track record. The solution provider should also be able to demonstrate skills in large enterprise network provision and support. A purely sales-based UK office is unlikely to have the necessary expertise.



Below the waterline

An examination of 'below the waterline' features is also important when selecting your mobile computing solution. Items to consider include:

Ease of use and adaptability – We have already indicated that fingers (touch screens) are more important than styluses. Another important issue is the process of adapting the user screens to meet changes in the business process (e.g. richer functionality or changes to error codes to cater for new doorstep services). The ability to handle change requests should be examined, including the numbers of programmers who can be engaged in this process and user access to them. In a modern agile development environment, solution providers should be able to grasp new requirements, design them and submit them for testing with maximum ease and speed.

Future-proofing – You need to consider if your solution is capable of adding navigational tools and other applications (e.g. time sheets, expenses) that will become the 'business as usual' aspects of running a courier network. Is it future-proof for the next version of the operating system so that additional benefits can be used as and when they become available from Microsoft? Is it future-proof for the next platform, and are you tied to the single supplier? A good example is the potential for the courier to use a mobile phone rather than an XDA or a rugged device. The iPhone provides a glimpse of the future. It enables you to use touch screen technology, handle multiple applications (not just lifestyle ones), where software is provided as a service and the phone is a simple web browser that connects seamlessly with your business environment.

Integrity of the data – Your data is vital to your operation and it's vital that none of it is lost when you're at peak capacity. Testing

this is difficult, but it should be easier to check data transfers to and from the mobile device in testing conditions – for issues such as GPRS failure, power failure or physical failure. Similarly, this can be done in the server environment and again with network failure. Data mustn't get lost across interfaces or confused.

Resilience of the architecture – One key element of a modern mobile computing solution is the interaction with the mobile network provider. This is especially true if your business wants to benefit from EDGE and 3G technologies or to have a virtual private network (VPN) that's independent of the Internet. Resilience, recovery and supportability of the data servers are all vital, and your provider should be able to provide this expertise. On the device, the sensible use of non-volatile memory is essential, as is the ability for it to look at alternative data sites and to recover gracefully without any loss of data.



Performance Management – ‘Real time’ is an interesting term when dealing with individual consignment tracking across a large courier network. A thousand couriers might generate 300,000 pieces of information a day (30 parcels each, each with 10 tracked events), which need to be handled by the solution in real time. This figure could be further increased by end of day debriefs, payment details, special instructions and much more. Scalability and good design from the start are key aspects that will help to ensure ‘best of breed’ performance management. You need to review potential choke points that could occur across interfaces, when producing reports, when downloading manifests, at the end of the day or immediately after everyone does their first drop during the Christmas surge.

Device Management – In large enterprise solutions, remote device management is vital. This ranges from asset tracking in relation to the individual devices and recording who last used them, through to updating the software and providing remote trouble shooting, using error logs and remote controls. Even in small networks, tracking up to 200 devices is extremely time-consuming without electronic tools. Device management is an essential task for any operation and if it is done well, it will help you to control your costs.

Security and supportability – Data protection laws will continue to get tougher and in the future, it’s likely that address data will need to be encrypted. When selecting a supplier, ensure that they understand the overheads that security brings and that they can cope as the law changes. In terms of supportability, if the cost of any downtime is high, it’s imperative that the whole solution is designed with supportability in mind. A single, handheld terminal error shouldn’t bring the service down. Similarly, a failure of the network or a server shouldn’t prevent the terminals from working. Most errors in modern solutions don’t stem from the hardware, the infrastructure or the application, but from data.

These are usually inputting mistakes, and you should check the ability to recover from these when selecting a supplier.

Recommendations

Here is a summary of our recommendations when looking for a mobile computing solution:

- Make sure that it will help your operation to recover elegantly in the event of a delivery failure.
- Choose a solution that helps you to manage your courier network (rather than simply capturing signatures).
- Be hardware-independent and buy a platform that suites your operation. Don’t be afraid to use multiple products within the same operation: if necessary run a pilot trial across multiple platforms.
- Ensure that your application is intuitive, finger-driven and that the doorstep experience enhances your brand.
- Make sure that your solution provider understands how to support your operations - in the design and implementation of the infrastructure; the management and support of the devices across your enterprise; and the protection and integrity of your data.
- Use a solution provider that understands your challenges as a parcel carrier and your desire to increase customer satisfaction profitably (given that problems will occur).

So, finally, please remember: although looking at mobile computing solutions may be like looking at an iceberg, choosing a suitable solution needn’t be like piloting the Titanic - a disaster waiting to happen.

You simply need to recognise that there are two elements to a solution: those that you can see and those ‘below the waterline’ that you need to investigate more closely. A little careful research can pay dividends in terms of the time and cost savings provided by the right solution – to say nothing of the levels of customer satisfaction that it can help you to achieve.

