

**Arup**

<b>Process</b>	Email, Calendar, Contacts
<b>Users</b>	Mobile executives
<b>Hardware</b>	BlackBerry 7230
<b>Software</b>	BlackBerry Enterprise Server
<b>Location</b>	Nationwide, UK
<b>Cost</b>	£520 per user per year
<b>ROI</b>	Less than 4 months


**Background**

Email and PIM (Personal Information Management) are now recognised as one of the “killer applications” that the Internet has made possible. It is estimated that about 30% of today’s workforce is mobile, spending at least one day a week out of the office on average (Source: Nokia). Despite these mobile workers being increasingly away from their desks, they are still expected to remain productive and hence need to continue to be able to access their email and PIM whilst on the move.

**Process**

Email is increasingly becoming the preferred means of communication. Studies have shown that the majority of people prefer communicating via email than other methods and couldn’t live without their email. Arup needed to ensure that its employees were able to retrieve their emails when they were out of the office.

**Solution**

Arup adopted the BlackBerry developed by Research in Motion (RIM) as a solution to this increasing problem. The BlackBerry is a type of PDA (Personal Digital Assistant) that integrates

**Business Problem**

Email is increasingly becoming the preferred means of communication. However, Arup professionals were finding that when they returned from being away from their desk they were overwhelmed with the number of emails that had accumulated. Additionally, some of their emails are time sensitive and require immediate attention. Not being able to address these messages in a timely manner could have severe consequences.

**Business Solution**

The BlackBerry allows Arup staff to send and receive emails ‘live’ when away from their PC. This enables users to convert what was previously downtime away from the office into productive time, to respond to key emails immediately, and to manage their email more effectively.

seamlessly with Microsoft Exchange providing “always on” functionality resulting in a simple and secure way to communicate. When an email is received it is automatically pushed out to the BlackBerry device and the reply is automatically stored in the users corporate email account.

**Costs**

The total implementation cost for this mobile computing solution was £11,180. The key areas of expenditure were:

- Purchase of Enterprise software
- Purchase of a dedicated server
- Purchase of 20 BlackBerry devices

**Benefits**

The BlackBerry service has enabled Arup employees to make productive use of what was traditionally “downtime” e.g. travelling to and from meetings. It has also enabled staff to stay in contact more easily when they are visiting other offices or out on site.

Staff feel more in control of their work and no longer return to the office to an overflowing mailbox.

## Business Benefits

### Costs

Staff have reported that the BlackBerry has allowed them to convert downtime into productive time by giving them access to their email at all times. Time spent traveling and in hotels can be made better use of. This saving ranged from none to 2 hours with an average of 47 minutes each day. That equates to 27 working days per user each year. As an example, if a BlackBerry user has an annual salary of £30,000, BlackBerry saves their company £3115 annually in recovered productivity.

The use of network dial in and outlook web access has declined as well as some of the users replacing their mobile phone and/or PDA with the BlackBerry. Many users were considering purchasing a more expensive PDA but have now decided the BlackBerry adequately serves their purposes. These direct savings equate to approximately £400 per user.

### Time

Users have found that the BlackBerry saves time in the office by allowing them to respond/clear out all the unnecessary emails whilst out and about at meetings. It has revolutionised their approach to dealing with email communication and allows much greater control over the working day.

Time is saved as the user no longer has to find a modem enabled phone and dial up to retrieve their emails, which can be very slow across a standard 56Kbps analogue phone modem.

Although it is difficult to quantify a monetary value for the ability to react to time-sensitive emails immediately, it can be argued that a monetary value does exist. Savings can be gained through improved client retention, provision of instant support/advice and the ability to change your course of action when required.

### Quality

Arup is a global company with projects often being worked on in several different countries. The BlackBerry has enabled users to work more effectively with overseas offices which are in different time zones. They are now able to reply to e-mails from Australia, HK and USA while on their way to and from work.

Relationships with overseas clients are also improved as employees can easily remain in contact with them without having to stay in the office late. Additionally users believe that they have gained more respect from clients by having a state of the art business tool.

The BlackBerry eliminates the need to carry a mobile phone and sometimes the laptop can be left behind too. Employees no longer have to disrupt the office they are visiting to get their laptop plugged in just to view their emails.

It allows users to stay in touch with the office even when they are away from all other main forms of communication. They can be made aware of issues before arriving at the office and can hit the ground running.

The value of having one central diary cannot be overemphasised. The diary will always be up to date and is accessible to both the BlackBerry user and their secretary. Their secretary can always see when they are available and there is less scope for double booking. Equally contact details are always up to date and accessible.

### Return on Investment

Initially there was some concern with regards to the cost of the service and whether it offered value for money. The three areas that the BlackBerry provides added value are;

1. Immediacy and improved responsiveness;
2. Increased Productivity;
3. Direct Savings in the form of alternate communications and mobile device expenses.

The total cost of ownership of a device was calculated as £520 (based on 114 users). The return on this investment depends on the value of the employee's time and how much time they spend out of the office. The payback period for a typical Arup user will be between 30 and 60 days.

## Champion

John Miles, Chairman of Corporate Services, wished to provide Arup staff with a new tool that had a “wow” factor. This would not only help to increase the efficiency of Arup staff but would also enhance the recognition of the division and provide Arup staff with a sense that Corporate Services were able to provide new services that support the core groups.

## Implementation Team

A “skunk” group (6 people drawn from each of the Corporate Services groups) was set up to look for and develop new ideas for services. They decided to trial the BlackBerry solution. Twelve members of staff were asked to trial the device for 2/3 weeks and provide feedback. All of the users found the device easy to use and thought the BlackBerry was a valuable business tool which improved their responsiveness and customer service.

Following the successful trial, Sarah Bowden, Senior Project Manager, developed the business case for the use of the BlackBerry which illustrated that for 100 users return on investment could be achieved within one year.

John Miles approved the purchase of the central software and the initial 20 devices. The System Managers for each UK Arup group were advised that the BlackBerry device was available for their staff and it was then left as a group decision to purchase an individual's BlackBerry device. It was up to each group to assess if the individual would make enough valuable use of the device to justify the initial purchase cost and monthly fee.

The purchasing procedure follows the route already set up for the purchase of mobile phones. Ongoing support is provided by the IT help desk which can transfer calls to the service provider, if appropriate.

## Training

The BlackBerry device is very intuitive and easy to use. Each new user only requires support to set up their preferences for the device and a brief introduction to show them how to use it.

A briefing note has been produced by IT Services to provide Arup specific guidance in the set up and use of the BlackBerry.

Ongoing support to the users is provided by the Arup messaging team who are available through the Arup IT helpdesk.

The BlackBerry service provider chosen by Arup, Vodafone, provide Technical Support Services. This is an annual subscription program providing software maintenance and technical support services.

## Technology Usage

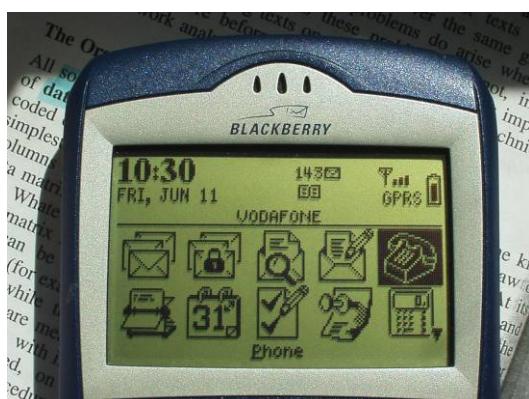


### Team tasks

Arup staff are often away from their desks either in meetings, visiting clients or other Arup offices, working on site or travelling.

A majority of communication is now conducted by email and staff need to stay in touch.

In addition, at meetings, staff regularly have to schedule further meetings and the ability to access their up-to-date calendar would facilitate this.



### Technology usage

The BlackBerry enables mobile Arup staff to access and respond to their emails immediately. They are notified whenever an email or new appointment arrives.

Time that was spent just travelling to/from meetings can now be utilised effectively to manage and respond to email and/or browse the Internet.



### Why employ this technology?

In order to access their personal information, whilst away from their desk, mobile Arup staff used to have to carry their laptop or a PDA and dial-up to the Arup Network or Outlook web access using their mobile phone and a SecurID token. This was a time consuming and costly process and could result in finding that there are no new emails that require their immediate attention.

### Implementation Costs

How much did it cost to implement this solution?

Description	Notes	Cost
<b>Up front investigation costs</b>	An initial pilot with 10 users was undertaken and feedback collected. 2 days management time 1 hour x 10 users feedback	£400
<b>The mobile computing devices</b>	The RIM 7230 costs £199	£199 per person
<b>The software application</b>	BlackBerry Enterprise Server (included 20 licences): £2500 Each additional 10 licences: £350	£2500 plus £35 per person after the initial 20
<b>The communications infrastructure</b>	Data sent using GPRS. A monthly charge of £30 per device is made for 6Mb of data. Then charged at £1 per additional Mb	Average £30 per month per user
<b>The data storage system</b>	A server was purchased to host the BlackBerry software	£4,000
<b>Consultancy service costs</b>	None required	£0
<b>Site installation costs</b>	1 day spent setting up the server software	£150
<b>Personnel training costs</b>	It takes only 10 minutes to set up a new user	£negligible
<b>Staff costs</b>	1 day was spent setting up the contract and the support documentation required	£150
<b>Support costs</b>	Ongoing support provided by a team of 2 – average 10 hours a month	£150 per month
<b>Other costs</b>	If the user uses the BlackBerry device as their phone then the costs per call are operated on the same tariff	£0
<b>Total</b>	For 150 BlackBerry users	£41,600 set-up costs £4,650 ongoing monthly costs

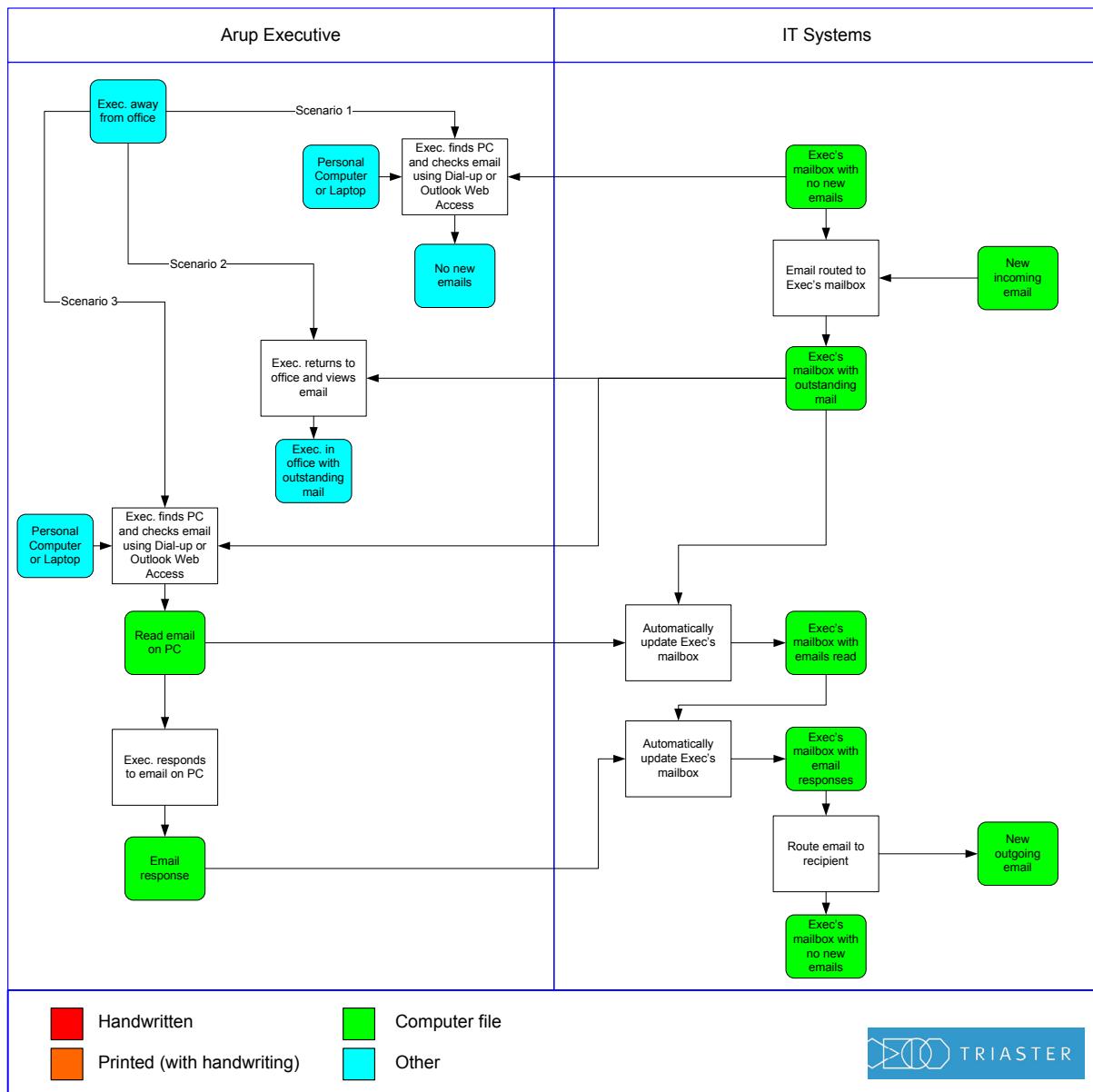
### Costs

The initial set-up cost for 20 users was £11,180. Each additional user has set-up costs of £234 and the ongoing costs per user will be approximately £31 per month (includes subscription and support).

The server software can support up to 3000 users.

### Implementation Timescale

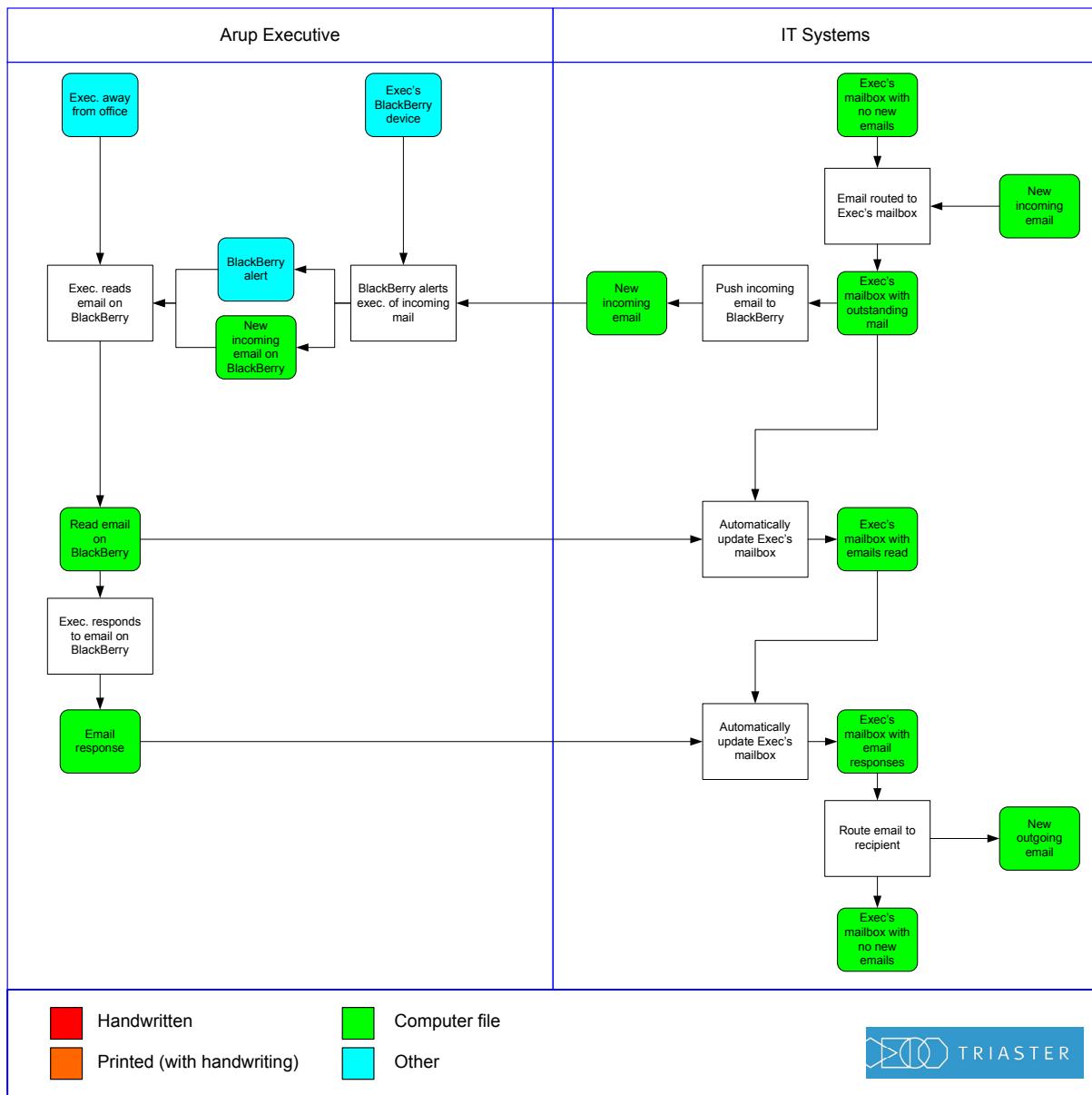
The initial evaluation was conducted in June 2003. The decision to support the BlackBerry service was made in November 2003 and the service went live in December 2003; taking under a month to deploy.

**Case Study 7**

**Original Business Process**

When an Arup executive is away from the office if he/she decides to check their emails they have to find a PC or a laptop and a connection to the Internet. This may either be by using someone else's PC and logging into Outlook Web Access or they may have a laptop with them and a SecurID token that enables them to connect directly to the Arup network using VPN.

Once they are able to view their mailbox they may find that they have not received any new emails and hence time was wasted by simply logging in to check. If they do have new emails then they are able to view and respond to them and their corporate mailbox will be updated with the changes they make.

Alternatively it may be that they decide to, or are unable to, check their email whilst they are away from the office. They will then return to the office to catch up on the emails that have arrived whilst they were away.



### New Business Process

The Arup Executive carries the BlackBerry device with him/her when they leave the office. When a new email arrives they can choose to be automatically alerted by the BlackBerry ringing, vibrating or flashing. Alternatively, simply by looking at the BlackBerry mailbox they can immediately see if they have new messages.

The QWERTY keyboard provided on the BlackBerry allows them to respond to their emails and all of the actions they undertake on the BlackBerry are automatically synchronised with their Corporate mailbox. They don't have to return to the office to catch up on emails and when they get to the office there is no longer a backlog of new emails waiting to be read and responded to.

## Lessons Learnt

### People

As the BlackBerry service offers phone functionality it was felt that most people would choose to have either a phone or a BlackBerry, however this is not the case with many users having both. People find the form factor of the BlackBerry off-putting and difficult to use as a phone and hence they still wish to have both; this has obvious cost implications.

The new smart phones with BlackBerry built-in available in November 2004 should resolve this issue.

The majority of users found the BlackBerry very easy to use and support provision required is minimal.

When groups compare the cost of a BlackBerry with the cost of a standard PDA they are initially wary of the fact that there is an ongoing cost whereas the cost for a PDA is one-off. It is important to publicise the value that the always-on functionality provides through increased productivity and immediacy of response in order to justify the use of the BlackBerry.

It is important to rectify any reliability issues the user has with the BlackBerry as soon as possible. If not the user will no longer have faith that the data held on the BlackBerry is up to date and will revert to their old ways of working.

The types of people that are using the BlackBerry within Arup often do not have time to fully explore the functionality available with the BlackBerry and do not know fully what it is capable of. Note should be taken of the questions users have and the answers circulated when applicable to all of the BlackBerry users.

### Process

Many users no longer use or want a PDA, this shows that the main use for the PDA was for email and PIM information rather than the Pocket Office applications and that the extra cost of the device is not justified as the added functionality provided goes unused.

## Technology

It is important to stress to Arup users that they do not require access to all of their emails when away from their desk. Adequate filtering rules should be set up by the user to block, for example, emails labelled SPAM from being delivered to their device. This will reduce the amount of data being transferred and hence avoid incurring any unnecessary costs.

Viewing attachment capability of the device is quite limited. The BlackBerry converts the document to Universal Content Stream format which is optimised for wireless delivery. Although Acrobat and Microsoft Word, Excel, PowerPoint files can be viewed, these are often difficult to read due to the reformatting carried out. It is also not possible to edit the attachments in any way. The new smart phones which come with operating systems that support Microsoft applications may resolve this issue.

The speed of download has also been an issue making the web browser application difficult to use. This is a function of the GPRS carrier service and will improve as the carriers develop solutions with higher data transfer speeds. An interim solution is to change the BlackBerry Browser settings to not request images.

### What Next?

The BlackBerry solution is now used primarily by Arup UK staff. The best way to roll out this solution globally is currently being explored.

Arup are examining their mobile executives' requirements and assessing whether bespoke BlackBerry applications should be developed to enable remote access to corporate systems.

### Details for further investigation

#### User:

Sarah Bowden, Arup  
[sarah.bowden@arup.com]

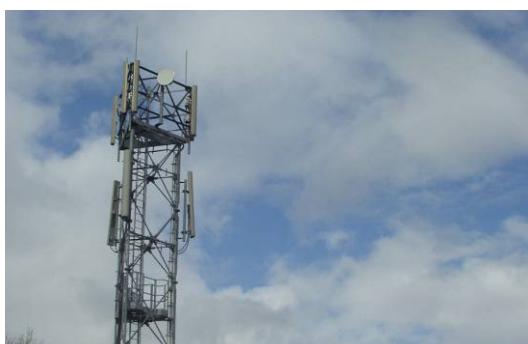
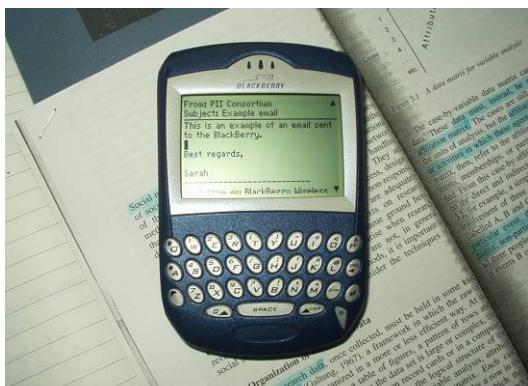
#### Service provider:

Vodafone  
[www.vodafone.co.uk]

#### Software provider:

BlackBerry  
[www.blackberry.com/uk]

## Technology Overview



### Mobile computing device

The standard device adopted is the world-band 6210 with a monochrome screen. This provides email, calendar, contacts, web browsing and mobile phone capabilities. The device is operated using the QWERTY keyboard and a thumbwheel acting as the mouse.

The 7230, used by limited personnel, also has a colour screen and operates on the tri-band network.

### Software application

For enterprise usage three software components are required:

*BlackBerry Enterprise Server* monitors users' mailboxes and manages data transfer to/from the user's BlackBerry.

*BlackBerry Desktop Manager* is installed on the user's PC and used to set up the user's preferences and mailbox rules.

*BlackBerry Handheld Software* is an intuitive menu-driven interface on the device itself which enables access to emails, calendar etc.

### Communications infrastructure

The BlackBerry system uses push-based technology which enables data to be automatically routed to the device. The device is always connected using a GPRS service on a mobile phone network. A monthly charge covers 6Mb of data transfer which most users will find sufficient.

### Data storage system

The device itself has a 16Mb flash memory and 2 Mb SRAM. Once the memory is full, the device will automatically remove old emails as new ones arrive. However, all emails will still be held on the organisation's mailbox server. Apart from the server to host the enterprise software no additional storage is required.



Construction Opportunities for Mobile IT

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## The COMIT Project

COMIT, Construction Opportunities for Mobile IT, is a two-year research and development project part-funded by the Department of Trade and Industry. Led by Arup, in partnership with BSRIA and Loughborough University, the project brings together representatives from construction, technology, research and dissemination organisations to facilitate the realisation of business benefits from the adoption of mobile information and communication technologies.

## Key Objectives

- Creation and running of the COMIT community.
- Mapping of information and communication needs of point-of-activity workers.
- Production of case study material, including detailed factual business benefits and implementation guidance.
- Implementation of mobile IT on two demonstration projects, in order to evaluate the benefits and barriers successes and failures.
- Continuation of the development of community activities in conjunction with the ITCF.

## COMIT Case Studies

This report provides an overview of the use of mobile communication technologies on a construction project. It is one of a series of case studies that have been conducted as part of the COMIT project to show real examples of implemented applications.

The case studies illustrate several mobile technologies and how the companies have improved work processes. An overview is given of vital information such as who championed the changes, how much they cost and what business improvements were gained. To gain a full insight, both the staff using the technologies and their managers were interviewed.

## How do I find out more?

In addition to the contact details provided in this case study you can use the **Information hub** available on the COMIT website ([www.comitproject.org.uk](http://www.comitproject.org.uk)). The relevant details can be found by selecting:

<b>Process</b>	Communications
<b>User</b>	Project team
<b>Software</b>	Communications
<b>Hardware</b>	BlackBerry
<b>Infrastructure</b>	GSM/GPRS

## Disclaimer

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This report was prepared by Arup on behalf of the DTI in connection with COMIT. It takes into account our client's particular instructions and requirements and addresses their priorities at the time. This report was not intended for, and should not be relied on by, any third party and no responsibility is undertaken to any third party in relation to it.



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