

## Appendix 2

### Communications Equipment and Activities Review (July 2008)

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#### Introduction

The team were spread over a large geographical area and managed from a central base; making the latest mobile communication technology vital. Essential services such as email, data management, telephony and Internet access needed to be available from any location to ensure the seamless running of the project.

In addition the Project team possessed a mixture of skills and were required to quickly share skills and knowledge across the team to develop each other and the service.

Throughout the project duration the team evaluated and implemented the most suitable system for each of the following requirements set out in the Communications Project Outline:

1. regular contact to assist with rapid transfer of information between the Circuit Riders and the Central co-ordination to use resources to the full
2. delivery of demonstrations / workshops across the project area
3. maintenance of a consistency of approach and creating a strong team morale
4. access to on-line resources and solutions via the 'circuit rider' and other technical communities
5. maximising the 'bumblebee'<sup>1</sup> effect of workers linking similar groups across the region
6. demonstrating new technologies that voluntary and community groups may not have access to.

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<sup>1</sup> 'a "bumblebee" effect; cross-pollination of ideas and projects

## **General Comments and Observations**

The purpose of the Communications Project was to identify the most suitable solutions to a variety of different 'communication' needs by using, testing, demonstrating and evaluating a range of technical equipment and services.

In each case, usability, cost and functionality were of primary importance.

Additionally, taking into consideration the environmental impact of the project could also influence the decision to use or not use a particular method of communication.

Where possible, we sourced free or low cost services in line with the requirements of the sector.

## **Field Communications**

The Circuit Rider team is made up of both office based and remote working members, all needing to be able to communicate effectively with each other, a central administrative base, as well as the community groups throughout the project coverage area.

Essential services such as email, data management, telephony and Internet access need to be available from any location to ensure the seamless running of the project.

Range of solutions trialled by the Circuit Rider Team;

- SmartPhone PDA
- Using a Web Office
- eMail
- Video Contact & Recording

## ***SmartPhone PDA***

Mobile telephones are the most universal tool for communications in any team environment.

The SmartPhone PDA is an extremely versatile piece of ICT equipment; offering a raft of additional features to a standard mobile telephone including Wireless Networking capabilities, eMail and Internet functionality, video calling, a Windows Mobile operating system (or similar) and a large touch-screen display.

Extras such as GPS and Satellite Navigation Systems are also available.

## Review of available phones

There is a range of SmartPhone PDAs available from a variety of providers, all offering similar functionality and cost-saving service features. Most providers will offer 'group call plans' for multiple users so it is always best to review a number of options before committing to a contract. Independent online review sites can also offer good insight into the best deals available.

When the project began in January 2007, the two market leading SmartPhone PDAs were the Sony Ericsson P990i and the Nokia N80.

The following table shows a direct comparison between the Sony Ericsson P990i and the Nokia N80 and the results from our initial research into these two products, based on our requirements for this type of device.

	<b><i>Sony Ericsson P990i</i></b>	<b><i>Nokia N80</i></b>
Telephone/Text	Good call quality, easy to use	Good call quality, easy to use
MMS & Email	Yes – POP and PUSH (Exchange)	Yes – POP
High Speed Modem	Yes	No
WiFi Connection	Yes	Yes
Touch Screen	Yes	No
Stability	Very stable, few problems	Unstable, regular crashes
Camera & quality	2 megapixel (excellent quality)	3 megapixel (poor quality)
Internal Memory	80Mb	40Mb
Qwerty Keyboard	Yes	No
Battery Life	Good (normal use)	Poor (normal use)
Free on Contract	Yes	No
Extras (from supplier)	Bluetooth Handsfree Kit	None



The Sony Ericsson P990i offers extensive features and allows the user to access email and the Internet using a number of methods including WiFi, 3G, and WAP (Wireless Access Protocol).

Additionally, the phone can be synchronised (via its own docking station) with a computer to update calendar and contact information.

The phone provides an excellent quality 2 mega pixel auto-focus digital camera and video recorder built in, allowing for good quality images and up to 59mins of Video playback.

Each Circuit Rider was able to use these features whilst out working with groups to record activities and build up a media library of group working.

## Using the SmartPhone

Primarily, the team used the mobile phone for voice communications and messaging, however features such as the Wireless LAN interface and multiple internet connectivity options were also applied to certain field-based activities such as accessing shared calendars, email and connectivity testing for networks.

The CD which comes with the phone contains software for setting the phone up as a modem attached to a laptop computer or PC – this is an extremely useful feature as it allows the user to connect to the internet using their computer as they would in an office environment, in any remote location. This also provided excellent opportunities for group work in Community locations where normal internet connectivity was not present.

Overall, the Sony Ericsson P990i is fairly complicated to use unless you are familiar with SmartPhone applications and the Symbian operating system.

Some team members felt that the phone was too large to carry comfortably and the small QWERTY keyboard hidden under the flip pad was too small to type on.

The menus can be overly complicated for everyday use, but once you are familiar with the system, you can find everything you need within a few taps of the screen.

**It is important to note that, in normal everyday use, not one team member was able to fully utilise every aspect of the phone or its software.**

## Cost of SmartPhone

The Business 700 package for 5 phones was free to set up and included the 5 handsets as well as a free Bluetooth Hands-free device for the car.

The monthly tariff was based on the 5 phones sharing 700 free minutes to any network at any time; as well as free calls between the 5 phones on the plan. Although we began the tariff with 5 handsets, the package was very flexible and we were able to add an additional 2 handsets to the call plan at a later date.

The only cost implication of this was £16.50 + VAT for each extra handset:

Business 500 Basic Package £60 + VAT	£70.50 inc VAT
Plus 6 additional handsets @ £16.50 + VAT	£116.33 inc VAT
Total package fee (basic rate)	£186.83 inc VAT

Text messaging, Data Usage and Video Calling carry an additional charge:

Text Messaging	£0.10 per message
Data (Mb)	£2.55 per Mb

## Comparison of travel costs and equipment costs

### Using a Web Office

The team were spread over three counties in the West of Wales as well as Merhyr Tydfil. All the organisations concerned had their own ICT systems (servers, email, phones) which in such as short term project would have been impossible to integrate. It was decided therefore to trial a mobile web office form communication and information management.

In order to synchronise the services provided by the Circuit Rider team and to provide daily calendar information to the team co-ordinator, a 'web office application' was identified as being the most suitable solution as it would be available online from any location.

This application would also need to be able to hold a database of information such as group details and activities; as well as provide a helpdesk solution for the central base and outreach workers.

A number of potential products were reviewed at the beginning of the project, ranging from Open Source software to commercial solutions. Following a review period of several weeks, Webex Web Office was chosen due to its extensive functionality and simplicity.

The following table shows a direct comparison between the various solutions available based on our requirements for this type of software:

	Webex Web Office	GoogleDocs	Bespoke CRM solution	Open Source Solution
Shared calendars	Yes	Yes	No	Yes
Ability to synchronise with Outlook	Yes	No	No	Variable
Document management	Yes	Yes	Yes	Variable
Multiple Database facilities (Contact, Activities, Helpdesk)	Yes	No	Yes	Variable
Task Manager	Yes	Yes	No	Variable
Accessible from any location, using any browser	Yes	Yes	Not easily, requires complex hosting to make this work	Variable
Variable user privileges	Yes	No	Yes	Variable
Reports	Yes	No	Yes	Variable
Forum / Discussion	Yes	No	No	Variable
Free / Low cost	Low cost	Free	Free (excluding hosting)	Free
Ease of Use	Good	Good	Reasonable	Reasonable
Hosting	Included	Included	Required complex hosting setup in order to provide web interface	Variable

## Using Webex



([www.webex.com](http://www.webex.com)) is not a free solution; however the company offer heavily discounted rates for the Voluntary/Educational sector. The full functionality of the software can be evaluated during the 30 day trial period and your web-office is simply transferred into full membership upon your first payment.

Administrators can add/remove members, set up databases, contact lists and much more. Each member is assigned a level of control (guest, member and administrator) and can be given access to certain functions as desired.

Other functions include individual and shared calendars, email, task lists and document sharing.

## Review of Webex

Throughout the project, the Circuit Rider team made use of the majority of features available.

Each member of the team made use of the calendars to create a shared diary, detailing appointments and activities on a daily basis.

Documents such as group action plans and visit summaries were uploaded onto the system, along with project application form information. This created an invaluable filing system for all group documents which can be accessed from anywhere by any device with an internet connection.

Comprehensive databases for both group activity and project resources were constructed using the tools provided within the software.

- Initial Project Enquires
- Circuit Rider Tracking Database
- CVC Circuit Rider Helpdesk
- Circuit Rider Helpdesk FAQs
- Task and Meeting Actions (TMA)

Although extensive ICT knowledge is certainly not necessary to do this, some prior knowledge of database development is an advantage, especially when planning what information needs to be recorded.

Each database had Views for easy look-up of information as well as a reporting facility where custom reports could be set up.

## Wales CVC Circuit Rider Pilot Project Evaluation

The **Circuit Rider Tracking Database** was the main database and, once a group was accepted onto the project, it was entered into the system. From that point on, all activity undertaken with the group linked to their records on the database. This allowed the Circuit Riders to log meetings, conversations, practical work and any other vital information in a central location – making reporting a straightforward task.

The **ICT Telephone Helpdesk** also had its own tracking database linked to a task manager, allowing team members to make a record of conversations, allocate a Circuit Rider to resolve the issue and create a task list to prioritise any activities.

As a Regional project, many meetings were held at Partnership, team, mini-team and individual level and the **Task and Meeting Actions database** allowed this to be recorded and tracked by the different types of meeting or by tasks assigned.

Webex is an extremely versatile tool for any team environment. The system is very easy to use and due to the level of customisation, it can be adapted to any type of project activity.

The only adverse comments made by the team relate to the speed at which the pages load – it can be very slow to move between functions on a low bandwidth internet connection.

### Cost

Webex Web Office is an American-owned company so the prices are in US dollars. Payment is made by credit or debit card online on a monthly basis and the total figure is based upon the number of members to the site.

Charitable Organisations benefit from a 50% reduction of the standard business tariff.

Minimum Charge (10 members) @ Non-profit Organisation Rates per month	\$49.95 + VAT
Total Monthly Fee	\$58.69 USD
Total Monthly Fee Approximate in £	£29.80 £3 per month for each team member

### **eMail**

The Circuit Rider team needed to be able to access emails from any location, to keep in touch with the central team and to communicate with their groups and colleagues.

Whilst any type of webmail account (such as Hotmail, Yahoo, etc) would have fulfilled this requirement; in order to portray a professional image the team's email addresses needed to be domain based.

Some members of the team worked predominantly from their office base allowing the use of MS Exchange to distribute their emails; however those team members who spent the majority of their time out of the office would either need to use Outlook Web Access or POP3 email accounts.

As Outlook Web Access allows direct remote access to the organisation's MS Exchange server, this posed a potential security risk for the CVC. Instead, POP3 email accounts were set up for each Circuit Rider; this would allow emails to be collected using any type of internet connectivity both in and out of the office with no security implications.

### **Using the mobile phone as a modem**

The Sony Ericsson P990i is supplied with additional software which allows the user to set up a separate dial up internet connection on their laptop/tablet PC. By following the step-by-step instructions on the CD, the user can install the mobile phone as an external modem attached to their computer, giving a standard dial up connection speed (25-38kbps) wherever there is a mobile signal present.

In 3G enabled areas, the user can experience speeds of up to 400kbps, provided that this feature has been added to their mobile service contract.

Data Usage is measured in Mbps and usually carries a standard charge per Mb set by the contract supplier (Orange, Vodafone, TMobile, etc). Bundled packages can also be purchased from the supplier and usually offer some discount over a pay-as-you-use option. For this project, we used this service on a pay-as-you-use basis which was closely monitored.

### **Review**

Using the mobile phone as a modem enabled the Circuit Rider team to access email using their laptop computers as the interface, similar to normal office use. The advantage of this method is that all the functionality of the laptop computer is available to you whilst using the connection, such as the ability to attach images and files, use email folders and your normal web browser – not to mention being able to view the internet at full screen size.

Normal web browsing speeds are slow in comparison to broadband, however it is perfectly usable for collecting and sending emails (provided there are no large attachments) whilst in the car or working with groups at a community venue.

**Using the Mobile Phone to collect email**

The Sony Ericsson P990i can also be used as a stand-alone device for connecting to the internet. Email account details (identical to the account information used by a computer) can be entered into the phone using the messages menu and collected at the press of a button. You can choose to download the complete message or just the message header (From, To and Subject lines), then browse through the list and decide which ones to view.

**Review**

The screen size of the mobile phone makes reading long emails difficult and the process of replying is similar to that of composing a SMS Text message – it is also awkward on the small phone keypad.

However it is quick and fairly straightforward and allows the user to access email without a computer. The costs are identical to that of using the phone as a modem.

**Cost**

Data transfer using the mobile phone is charged per Mb. This equates to approximately 160 WAP pages, 100 short emails or 4 video clips.

Data (Mb)	£2.55 per Mb
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## **Video Contact & Recording Overview**

In order to record activities undertaken during the project, both for our own monitoring purposes and to enhance the ICT skills of the groups, we needed to establish effective methods of recording video, voice and images and ways to transfer these to a number of different locations (back to base, to the web, etc).

Additionally, we intended to fully explore the use of video contact and find the most cost effective way of communicating with each other and our groups.

Professional video conferencing equipment is expensive and not widely available in the voluntary sector, so we needed to evaluate simple, affordable solutions.

The project initially bid for a trial system for desktop video conferencing between two of the participating CVCs to demonstrate the ease of use and the quality of current equipment. Unfortunately this was turned down by the Funding Review panel.

There is a wide range of Video Conferencing software available on the Internet, a search on Google for 'free video conferencing software' will return pages of potential solutions, however most of these only offer a free trial and require a subscription to continue using the service.

Solutions such as [ooVoo](#) offer an extensive range of features for free – the only issue is popularity. As it is not as well known, not as many people will be using it and they will therefore be less likely to become an available contact. As we intended to use the service as a way of keeping in contact with each other and our groups, the greater the coverage the better. With this in mind, Skype was chosen as the most suitable option for review.

## **Video Recording**

Video and audio content needed to be captured for both our own recording and evaluation purposes; and as part of our work with the groups.

Due to the nature of the project, the equipment needed to be extremely portable and fairly robust; it also needed to be relatively simple to operate as the Circuit Rider team would also be working with groups to record their own content for websites.

The Sony Ericsson P990i offered reasonable video recording facilities, but due to the nature of mobile phones the media was somewhat lacking in quality, although it was used by some team members to record audio snippets for larger video projects. However, the phone was capable of taking excellent quality still images and was able to store a great number of these using both its internal memory and removable memory card. The camera phones were used a great deal throughout the project by the Circuit Rider team and the groups to capture images of group working and for generating website content. These images were transferred to the laptop computers using the Sony Memory sticks supplied with the phones.

## Wales CVC Circuit Rider Pilot Project Evaluation



For more professional video recording, a Sony Handycam with a 60GB Hard Disk Drive was purchased due to its size and capabilities. The Sony Handycam DCR-SR72E comes equipped with a USB docking station and Sony multimedia managing software, making it very straightforward to use. Recording the media onto HDD means that it is already in electronic format; this makes it easy to transfer to other devices such as the computer for editing purposes and easier to manipulate in the editing process. Using the supplied software, the operator can dock the camera and transfer the contents onto a computer in a matter of a few minutes depending on the file sizes. Using tapes or discs means that the contents have to be transferred in 'real time,' meaning that a 60 minute film would take 60 minutes to transfer.

The following table shows the results of our initial research into the model available at the beginning of the project, based on our requirements for this type of equipment:

	Sony Handycam DCR-SR72E
Portability (lightweight, small size)	Very light – 355 grams
Recording quality	Excellent
Picture quality	Excellent
Sound quality	Good
Ease of use	Excellent
Value for money	Good
Storage capacity	60 GB internal HDD + card
Editing software	Included

Windows Movie Maker, which is already pre-installed with the Windows XP operating system, was used to edit the video content to produce good quality films for both the Circuit Riders project and for group websites.

Windows Movie Maker is free and very simple to use making it an ideal program for this type of work. Finished movies can be saved in a variety of different formats depending on their intended use.

## Costs

The Sony Handcam was the marketing leading HDD camcorder and was at the higher end of the price range as a result. However, it provides excellent value for money and was an ideal choice for the Circuit Rider project.

Sony Handycam DCR-SR72E	£499.99 + VAT
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## Recommendations

At the start of the project the team defined what type of equipment and facilities they needed. The selected items that were trialled by the team delivered the benefits expected and made regional and team working across West Wales easier and more effective. The team would use all of the facilities again, especially the web office.

The main recommendation is that any future regional projects should review their intended activity and decide on what facilities they require. As the market is constantly changing, with new web-based facilities and new equipment being launched continuously, a full search should then be done on what is available.

Cost, number of project staff, geography, length of project and type of activity will all be factors for consideration in deciding what is suitable. Most facilities offer free trials or demos and many come on a monthly charge so you can try things out before you make further commitment. Many are free.

## Review

([www.skype.com](http://www.skype.com)) is a free VoIP (Voice over Internet Protocol) solution that can be downloaded onto your computer and used to make free calls to other Skype users.



Using your existing internet connection, Skype allows you to make voice calls, use chat windows (Instant Messenger), video calling and file transfer through a simple software interface. Users can even buy 'talk time' for their accounts, allowing you to make calls to mobile phones and landlines at a heavily discounted rate; however we did not make use of this function during the project.

In order to make video calls, each party needs to have a webcam installed on their computer to transmit their image. The Sony Vaio laptops purchased at the beginning of the project for the Circuit Riders feature built-in webcams allowing for seamless integration with the Skype software.

The quality of the video feed is very much dependant on the speed of your broadband connection; although some members of the team found that even on a low bandwidth connection (such as the mobile phone connection), you could still manage a reasonable conversation.

Overall, the quality of the video feed is very good for such simple, free software; it is far superior to the quality experienced with phone to phone video calling and does not add any additional charge to your existing internet service.

Skype is easy to set up in the first instance and is extremely user-friendly to operate, colleagues can search for each other using the 'add contacts' feature and once added, these appear in the interface window displaying their online availability. To start a call or chat window, the user has to click on the contact and choose the method of contact they wish to use (video is only available using the call feature); this then opens up the dialogue window.

During the project, all members of the Circuit Rider team used Skype to communicate with each other; both in and out of the office.

### **Cost Vs. Value**

Skype costs nothing to install or use, providing that you only want to contact people via the internet. If you want to be able to call people on mobile phones or landlines, you will need to purchase calling credit.

## Scenario A: Collaborative Working

Catherine and Clive needed to work together on an important document - a task which required them to be able to have a one-to-one discussion about the content and share electronic information to be included in the final piece of work. The deadline for submission of this document was tight, leaving them just a day to complete their work.

Catherine was based at head office in Haverfordwest and Clive was based in the CAVO offices in Lampeter, some 54 miles apart. If Clive or Catherine were to travel to meet each other, it would have cost **£60.24** for one return journey, based on the organisation's standard travel allowance of 55.8 pence per mile.

The total time taken to make the return journey would have been **3 hours**, leaving Catherine and Clive just 4 hours to complete the work.

### Solution

By using a combination of low cost or free communications tools, Clive and Catherine were able to work efficiently together to achieve their objectives.

By logging on to the team's Web Office portal, Catherine and Clive were able to locate each other and select a suitable time to have their discussion using the group calendar.

Rather than travelling to meet each other, Catherine and Clive used Skype to contact each other and have the discussion they needed using Skype's Chat and Video Conferencing facilities. They were able to send files backwards and forwards using Skype's file transfer feature and when finished, upload the completed document to the Web Office document store.

### Costs breakdown

	Traditional Meeting	Using Communications Tools
Travel Costs	£60.24	£0.00
Software Costs - Skype	£0.00	£0.00
Software Costs - Webexone	£0.00	£0.09 per person, per day
Total costs	<b>£60.24</b>	<b>£0.18</b> (2 people, 1 day)
Total time	<b>3 hours travel</b>	<b>0 hours travel</b>

## Scenario B: Remote Working

As a Circuit Rider, Rae spends the majority of her working hours out of the office working with groups. Rae works within 2 counties of Wales, Carmarthenshire and Ceredigion, reaching from Aberystwyth in the North to Llanelli in the South. Often, when out working with groups a Circuit Rider may have other important issues to address either by email or by phone, or may even need to update some information in the team database that relates to a particular support issue. There is often time spare in between appointments when a Circuit Rider could address these issues, provided that they have access to the Internet.

When working in Aberystwyth, Rae is **70 miles** away from her base in Haverfordwest. The cost of the return journey would be **£78.12** at the organisation's standard travel allowance of 55.8 pence per mile.

It would take approximately **3.5 hours** to make the return journey from Aberystwyth to Haverfordwest, resulting in the remainder of that working day being spent on the road.

### Solution

By using communication tools, Rae was able to keep in touch with head office and utilise her time effectively in between appointments, rather than travelling to the nearest office base. The Sony Ericsson P990i Smartphones can be used in any location to connect a laptop computer to the internet, allowing the Circuit Rider to check and respond to emails, update information on the team database, make appointments and diarise meetings.

### Costs breakdown

	<b>Getting back to base</b>	<b>Using Communications Tools</b>
Travel costs	£78.12	£0.00
Smartphone Contract	£0.00	£0.88 pence per day, per phone
Data Usage (Internet)	£0.00	£2.55 per MB (average 2MB per day)
Total costs	<b>£78.12</b>	<b>£5.98 (including 2MB data usage)</b>
Total time	<b>3.5 hours travel</b>	<b>0 hours travel</b>

### Scenario C: Group Support

Matt is a Circuit Rider based at CAVS in Carmarthen, working in the Communities First wards of Llanelli and the Upper Amman Valley. Due to the nature of ICT Support, call outs are often for fairly simple, easy to fix problems that are just a little too in-depth to be resolved over the telephone.

Brynaman Community Centre were having difficulty in using their email accounts and had called the helpdesk for assistance. As the designated Circuit Rider for that area, Matt was assigned to the call. In order to fix the problem, settings needed to be changed in their email program and Matt needed to be able to see what was happening, even though he knew it would only take a few minutes to solve.

Brynaman Community Centre is **27 miles** away from the Carmarthen office, making a return trip of **54 miles**. At the organisation's standard travel allowance, this journey would have cost **£30.13**.

It would have taken **2 hours** for Matt make the return journey to fix a 5 minute problem.

### Solution

During a previous visit to the Community Centre, Matt had installed Zolved Remote Access software onto the main office computers and had explained to the staff how it worked and what it could be used for.

Using this remote access software, Matt was able to log on to the computer in Brynaman whilst sat at his desk in Carmarthen; edit the account information for the email settings and reset the system.

In Brynaman, the support was almost instantaneous and was resolved in just a few minutes.

### Costs breakdown

	<b>Travel to site</b>	<b>Remote Access</b>
Travel costs	£30.13	£0.00
Software costs (Zolved)	£0.00	£0.00
<b>Total Costs</b>	<b>£30.13</b>	<b>£0.00</b>
Time spent	<b>2 hours travel</b>	<b>0 hours travel</b>