

Virtual teamworking is already commonplace and is rapidly becoming essential as organisations work in an increasingly collaborative way.

WHAT IS VIRTUAL TEAMWORKING?

With high-speed internet access now widely affordable, virtual teamworking can be appealing both to the individual and effective for business.

Many of the technologies that support virtual teamworking are well established. They are powerful tools for rich, dynamic interaction – but they are only tools. The real issue is how to use them to address business needs, to allow virtual collaboration to thrive and to deliver practical commercial benefits.

THE BENEFITS

Businesses nowadays need to collaborate with stakeholders in many areas – supply chain management, marketing and product development, sales, quality improvement and change management – and virtual methods are essential to do so.

Working virtually can make your business more flexible, more responsive and reduce time to market.

Incorporating virtual teamworking into your business could help you:

Save money:

- on premises
- on travel expenses and courier costs.

Save time:

- for individuals it means less downtime – your office can be anywhere, documents can be instantly exchanged
- for teams it means smoother, more productive workflow – they can synchronise their activities and advance projects more quickly.

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Make distance no object:

- co-ordinate projects with participants in multiple geographic regions
- collaborate with experts – wherever they are based
- extend your market reach.

Work smarter

Consider letting staff choose where they work and you could:

- tap into a nationwide (even worldwide) labour force
- reduce downtime for mobile workers
- attract and retain skilled employees.

Extend supply chain participation by:

- building just-in-time relationships with suppliers
- including customers and other stakeholders in product development
- pooling knowledge to support customers and raise quality standards.

VIRTUAL TEAMWORKING SCENARIOS

There are five ways in which virtual teams typically collaborate. Interaction can take place between members who are:

- **different time, different place**
- **same time, different place**
- **different time, same place**
- **same time, same place**
- **any time, any place**

Different time – different place

For most virtual teams most of the time, each team member does his/her own part of the overall task and keeps other team members updated on progress. **E-mail** and **groupware** are key technologies.



Same time – different place

Real-time communication – conversations via text, audio or video – is what many people think of when they consider virtual teamworking. A wide variety of applications supports this functionality – such as **instant messaging, audio, data** and **video conferencing**.

Different time – same place

In electronic terms the virtual team HQ will normally be your **intranet** or **extranet**, which is the natural location for document versions, project histories, guidelines, discussion forums etc.

Same time – same place

Virtual teamworking should be used when the drawbacks of getting together, such as distance, outweigh the benefits, which can be most of the time. But team members may need to meet face-to-face at some point – for strategic planning, say, or for meet and greet sessions early in the life of a new team. **Online collaboration** tools can be a useful aid in these meetings – electronically capturing people's input and making it ready for instant distribution. And, with a **wireless network**, you can hold meetings anywhere without being limited by the availability of network sockets.

Any time – any place

Wireless and **mobile connectivity** allow virtual workers to be more productive, and more accessible, wherever they are – for more information take a look at the Wireless guide, factsheets and case studies on our website. A **Virtual Private Network** can also help link up your team, wherever they may be.

VIRTUAL TEAMWORKING SOLUTIONS

At its most basic, a virtual team can just be two people who talk on the telephone, whilst sophisticated virtual teams may have document sharing, video walls and wireless VPN (Virtual Private Network) access.

For any virtual teamworking solution you will need to:

- analyse technologies in terms of business needs
- look for solutions that integrate seamlessly with existing systems
- develop a website (or intranet/extranet) as a shared team resource.



TECHNOLOGIES

E-mail

Most people check their mail every day and it provides a searchable audit trail. You can set up distribution lists to make sure relevant parties are automatically informed as projects develop.

To minimise misunderstanding:

- use meaningful subject lines
- keep the content clear and take the time to eliminate ambiguities
- try to stick to a single issue especially if you are requesting input from others.

Most e-mail applications can be readily extended and scaled. If you can, it makes sense for the whole team to adopt the same application. However, this may not always be practical, particularly if your team works across organisational boundaries.

Products like Novell NetMail XE and Novell NetMail (for more than 100 users) are purpose-built to plug e-mail and calendaring into users' favourite e-mail packages like Eudora and Microsoft Outlook. The cost per user depends on the number of licences with the server version priced at around £400.

Groupware and shared services

Groupware like Lotus Notes and Microsoft Exchange can incorporate group scheduling, calendar functions and shared contact lists into your workflow. Novell GroupWise is also worth considering, particularly if your team members require wireless access to groupware services on a variety of platforms.

Microsoft and IBM/Lotus are the leading vendors in the groupware market. For a server version of Exchange plus five client licences, Microsoft's product would cost around £1,000. Buying a Domino server system to use with Lotus Notes as groupware costs around £4,000. However, it has much more extensive functionality, including live web page updating, and is more flexible. With both products there are significant hidden costs such as system administration, training and application development. You need to look at the total cost of ownership given your specific needs.



Use web-enabled groupware to:

- negotiate and develop meeting agendas in advance
- set up an online electronic whiteboard
- get participants (with laptops) to contribute ideas and suggestions electronically
- broaden participation by encouraging anonymous contributions
- use online voting and ranking to prioritise
- develop an action plan collaboratively
- provide a complete meeting record to all participants.

Instant Messaging

Think of Instant Messaging (IM) as a virtual post-it note. It's informal and interactive. Because it's real-time, IM can be more effective than e-mail for resolving issues quickly.

Use IM:

- to keep tabs on each other's availability. Knowing how a colleague is accessible (on an office-based PC, via mobile phone or in the field) can help get the fastest response time for your business need
- person-to-person, in conference mode
- for quick and non-essential items
- to help with team bonding
- to clarify issues during meetings.

IM is already popular with consumers and is expected to become dramatically more widespread within businesses. Several free products are available, including AOL Instant Messenger, Microsoft's MSN Messenger, ICQ and Yahoo! Messenger. Register for a free download and launch the application. You search for users via their e-mail address or sign-in name. Add them to your buddy list and whenever they are online you will be notified.



Most systems also let you send and receive messages to and from mobile phones as well as swap documents and video. However, different IM applications are not normally able to connect with each other, so your team members need to agree which IM system they plan to use. Look for messaging systems that support SIP (Session Initiation Protocol). That way, irrespective of the communications medium, their device or current location, every team member can be reached using the same e-mail address.

Security, reliability and spam are issues with IM products targeted at the consumer market but business level IM addresses these kinds of issues with products such as Lotus instant messaging (formerly Sametime). You can buy this for internal use on a licence basis for about £32 per user. If you want to use it externally, eg on a website or with customers or suppliers, you need to buy a server version (unlimited users), which costs over £16,000.

There's an IM component in Microsoft's Exchange software and Yahoo, AOL, MSN all plan to offer business versions of IM, which are likely to cost around £18-24 per user. Ipswitch Instant Messaging retails at £417 for unlimited users.

Audio conferencing

Make more use of the phone to exploit one of the most powerful tools in any virtual network.

- Introduce automatic call forwarding and other services.
- Set up audio conferencing for regular team meetings and panel discussions.
- Build audio into your extranet or Virtual Private Network (see page 9) with VoIP technology.

For more on audio, see the information about VoIP on our website at www.dti.gov.uk/bestpractice. VoIP lets you make phone calls using a computer network rather than the traditional phone system.

Data conferencing

Being able to update and annotate documents can make virtual meetings far more productive. What kind of interaction are you likely to need?

- Could you use an electronic whiteboard to make virtual meetings more productive?



- Do you need decision support tools or the ability to co-browse documents?
- How will you record and distribute contributions and actionable items electronically?
- Do participants need specialist software, eg to view or manipulate CAD drawings?

There are three basic technological approaches:

- Use your existing applications in combination. For participants this has the advantage of familiarity, but you'll need to check interoperability and supply adequate bandwidth.
- Rent a hosted conference service from an Application Service Provider (ASP). You only pay for usage and they tend to be straightforward.
- Acquire a purpose-built application. The most expensive option: most appropriate if you need specialist functionality.

NetMeeting comes free with Windows and supports IM, electronic whiteboard services and includes audio and video over IP, which means you can hold voice or video conferences without satellite or broadcast facilities. All you need is a webcam, available for between £60 and £120, which plugs into the USB port of any PC. However, there can be quality of service issues. One common tactic is to use Microsoft NetMeeting for data sharing in conjunction with professional video conferencing equipment. A range of video IP phones and desktop video systems is available. Prices start at around £400 and you also need broadband or a fast network connection for these to work effectively.

Videoconferencing

Webcams are relatively cheap and some laptops now include them. But if you need to see facial expression you may have to invest a bit more. Intel does a standard card and camera set up that uses a single ISDN for around £500.

Tips for using video:

- Remember the value of video is seeing each other's faces. Make sure the set-up achieves that.
- Minimise movement – many videoconferencing applications work by only updating movements. The less movement the better the picture.



- Maintain eye contact. Look at the camera while speaking; look at the screen while listening.
- Where several participants are sharing a speakerphone make sure virtual participants can hear everyone.
- In teleconferences, the virtual participants often miss out on the non-verbal signals in the main room, especially cues that indicate that it's okay to speak. Use verbal cues like 'comments anyone?' to reinforce this.

Intranets and extranets

Your intranet or extranet may be the one location where all team members regularly check in.

- Look at ways to encourage active participation.
- Provide the ability to update content directly with a File Transfer Protocol (FTP) application, a content management system or via groupware.
- Organise votes on procedural issues.
- Maintain forums and discussion threads.

Use discussion forums to advance projects and to raise shared concerns. Groupware applications often include a bulletin board feature. Alternatively, several open-source bulletin boards are freely available.

For more information on extranets and intranets, have a look at our website.

Microsoft's SharePoint Team Services provides an online environment designed to support virtual teamworking. This lets you launch an extranet quickly and easily. Team members can upload documents and participate in discussion forums direct from their browsers. SharePoint is offered as a standalone product, part of FrontPage, at an approximate cost of £135 or together with the latest version of Office XP (which costs around £670). It can also be rented as part of a web hosted solution. For more information take a look at www.inetc.net.

Another option is IBM Lotus Team Workplace (formerly known as IBM Lotus QuickPlace) a licence per user costs £33 or a server licence for unlimited users costs around £8,700 per annum.



Virtual Private Network

A Virtual Private Network (VPN) is an allocated amount of bandwidth on the public internet where public access is prevented through encryption. Renting a VPN can give virtual team members from different organisations a shared area for collaboration.

Both a VPN and an extranet can be used for virtual teamworking – a VPN is likely to be more secure and more flexible as team members can access the whole network, whereas on an extranet content would need to be uploaded before it could be accessed. An extranet however can give your business more control over what information is accessed and can be a cheaper solution. (For more information and advice speak to your local UK online for business adviser or equivalent in Scotland, Wales and Northern Ireland). Members can access your VPN:

- **Via text messaging.** Consider installing an SMS gateway on your website – this will convert SMS messages onto your web server and extend IM to mobile phone users.
- **Via telephone.** Consider Internet Telephony (VoIP) systems that let team members log on to their phone line wherever they are. For more information take a look at our factsheet on *VoIP*.
- **Via PDAs.** Microsoft Portrait™ delivers videoconferencing to PDAs and is available as a free download from research.microsoft.com/~jiangli/portrait/
- **Via 3G capable networks.**

Mobile communications / 3G

3G will create new collaboration possibilities for virtual teams:

- high speed data transmission
- multi-tasking (eg talking while downloading files)
- video services
- fast connectivity to corporate networks
- personal information management connected in real time.

Take-up of 3G has, so far, been modest. But for businesses which prize mobile connectivity the usefulness of this is clearer.

Take a look at our brochure on *Mobile working* for more information.



DECIDING TO USE VIRTUAL TEAMWORKING

Firstly, when analysing your business needs, ask yourself:

- Do you want to develop project-based, virtual teams that can form and re-form quickly?
- Do you have a specific, major project that calls for virtual working?

Project-based virtual teams

Look at what's already available. The typical multimedia PC already includes a whole range of applications designed for collaborative working, such as Microsoft NetMeeting for online conferencing, Outlook for e-mail and scheduling, and Instant Messaging. Taken together these kinds of applications are a quick, cheap alternative for smaller, ad-hoc styles of collaboration, but only if they are up to the task and all team participants have access to similar hardware.

Specific major projects

For larger projects, or where the team extends beyond one organisation, standardising on specialist decision support groupware can be an attractive alternative.

Products like Microsoft Exchange or IBM's eServer strategy, each of which handles messaging and collaboration using external servers, are popular options for geographically dispersed teams.

Solutions can either be bought or rented via an Application Service Provider (ASP). ASP-hosted, collaborative solutions are robust and highly scalable. Smaller businesses can use ASPs to host virtual teams remotely and reduce demands on their own servers.

Managing virtual teams

Creating and leading a successful virtual team is all about sustaining and motivating a community whose members may never meet. With fewer opportunities for informal or ad-hoc interaction, managing a team, which interacts primarily electronically, requires careful attention to detail.

- Identify and manage cultural differences and geographical disparities from the outset.
- Allow for the fact that team members have to juggle virtual and local priorities.



- If possible, invest in face-to-face meetings early on.
- Hold regular progress meetings using audio or videoconferencing.
- Develop performance measurements that take account of virtual work rather than desk time.
- Designate someone to encourage social interaction online.

The team needs the tools to do the job and everyone should understand how to use them. Procedures – for scheduling and sharing knowledge – should be published and agreed.



IMPLEMENTATION CHECKLIST

Could your business benefit from virtual teamworking?
Take a look through this checklist to see how to implement it in your organisation.

Research & analyse

Set targets

- Set goals for virtual teamworking. Do you want to improve customer service, reduce costs, or improve efficiency?
 - Agree specific, measurable objectives for what you want to achieve, such as a percentage reduction in running costs; or faster turnaround on projects.
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Cost/benefit analysis

Quantifiable savings include:

- travel budget, but remember to factor in the cost of 'meet and greet' sessions
- the reduction in downtime for mobile workers
- rates and rental of premises
- courier and delivery charges
- days saved by electronic consultation.

Some additional costs may include:

- renting a VPN or developing an extranet
- ISDN access for team members using videoconferencing
- intranet development
- virtual management software
- wiring up virtual team members
- training.





Establish your needs

Choose technology to suit the way your people work. Assess the available technologies in terms of your team's need for:

- communication
- decision support
- information access.

Assess the technology

Does the technology meet your requirements:

- Can all team members collaborate using it?
- How well integrated is it with other popular applications?
Can virtual team members use the same technology for their other activities?
- Down time and slow transfer rates will undermine the project.
For instance, if you plan to rely heavily on video, standard ADSL lines may not deliver enough bandwidth.
- Look at the processes you will need to advance projects virtually. An extranet website may not be capable of supporting the level of interaction required to diagnose a real-time problem.
- Virtual team members need technical support and training.
This cost has to be factored in.

Consult

Internally

Your virtual team will operate most efficiently when it is aligned with the working styles of its members.

- Take soundings on preferred technologies.
- Involve as many people as possible in formulating your project plan.
- Publish proposed rules and procedures.



Professional advice

If you lack the skills in-house, contact a Business Link adviser (or equivalent if you are in Scotland, Wales or Northern Ireland), in the first instance, for help on how best to:

- outline your requirements
- establish how much you can afford to pay
- advise on implementation
- provide training and software support.

Develop clear procedures

Speak to team members to establish the following:

- Have people's roles, responsibilities and interdependencies been clearly articulated?
- How will you ensure that key stakeholders are kept informed?
- How are meetings scheduled, prepared and minuted?
- Get everyone to sign up to some team operating procedures.
- Project plans for all projects with virtual team members to include objectives, critical timescales, milestones etc.



Plan & test

Sort out infrastructure

- Define some minimum technical standards for virtual participation. For instance, multimedia PC with the same version of Microsoft Office or equivalent and access to broadband.
- Ensure that remote business sites are set up as 'working offices' (ie closed doors, quiet, full equipment).
- What shared resources are needed, eg an extranet, extra ISDN lines at remote offices)?

Agree technical standards

- Define documentation formats for common documents.
- Prepare reporting templates and make these available.
- Include standards and protocols for file sharing and exchange.
- If relevant, define CAD tools and manufacturing interfaces for both internal and external participants.

Plan virtual meetings

Virtual meetings – by videoconferencing, conference call or IM – can be extremely productive but they need to be clearly structured.

- Publish the agenda and associated visuals at least 24 hours in advance.
- Before update meetings get all team members to post and read status reports on the intranet/extranet.
- Only require attendance when participation is vital.
- Keep meetings short and limit the number of participants.
- Appoint a note-taker and rotate this position around attendees.
- Allow space for social interaction as well as business issues.
- Post minutes & action items within 4 hours of meeting.
- Ask non-attenders to read minutes & action list within 24 hours.

Plan the rollout phase

- Look at training implications – what will the cost be?
- Decide which staff will require training and allow time for them to adjust to the new system.



 **Act**

Implement virtual teamworking

- Roll out any necessary training.
- Encourage staff involvement and feedback, this will help smooth implementation, staff buy-in can make or break a technology project.

Evaluate

- Monitor and review the impact on your business and against your objectives.
- Get feedback from staff, customers and suppliers on the changes.
- Evaluate the impact after 6 months and 1 year. Have you achieved your objectives? Establish how you could improve things further.



FURTHER HELP AND ADVICE

Advice and information on project management of virtual teams:

- www.projectconnections.com/knowhow/kb_contents/organizational.html#virtualteams

Portal for sites that host collaborative environments for virtual teams:

- www.thinkofit.com/webconf/workspaces.htm

Examples of collaborative decision support software for virtual groups:

- www.eproject.com
- www.virtualteams.com
- www.onlineprojectoffice.co.uk/

Examples of communication technologies:

- www.microsoft.com/exchange/default.asp – Microsoft Exchange
- www.lotus.com – IBM Lotus Notes
- www.icq.com – ICQ instant messaging
- www.aol.co.uk/aim – AOL instant messenger
- messenger.msn.com – MSN messenger

Web conferencing

- www.fvc.com – Web conferencing application
- www.webex.com – Web conferencing and online meeting portal

For more information on *Achieving best practice in your business*:

- Visit our website at www.dti.gov.uk/bestpractice
- Call us on **0870 150 2500** to order from our range of free best practice publications or visit www.dti.gov.uk/publications
- Contact your local Business Link adviser by visiting the website at www.businesslink.gov.uk or calling **0845 600 9 006**



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