Waste watchers

Our throwaway society has much to answer for, creating mountains of noxious waste that it just isn't possible to dispose of properly. Finally, consumers and manufacturers are being forced to take some responsibility.

Dominic Bucknall talks rubbish

Sometimes problems crop up that you just know are going to be a major headache. Public transport, motorways, the NHS, inner-city crime; issues that time will only magnify, not heal. Not to be left out, the IT industry has come up with a problem all of its own and, unfortunately, it's world class.

We are, of course, talking rubbish. Lots of it. Estimates vary depending on who you ask, but all the numbers are huge. What is clear though is that of the million tonnes or so of waste electrical and electronic equipment produced annually in the UK alone, a sizable percentage is scrapped IT hardware.

Rapidly rising mountains of dead fridges have made the news recently but, while white goods are thought to make up slightly over 40 percent of the yearly chuck-out in the UK, IT kit is close behind. That's 400,000 tonnes of computer trash, give or take, and the figure is going up all the time.

Fridges and freezers are a problem because of the CFCs they contain, but white goods by no means have the monopoly on being nasty after they have ceased to be useful. In fact, computers are at least as unpleasant and dangerous if they are simply crushed and buried as landfill or partially incinerated first.

This is because they are constructed from a remarkable array of noxious substances that you wouldn't want to get into your drinking water or the air you breathe. The following list is far from comprehensive, but it's sobering enough for starters.

Computer circuit boards contain lead, cadmium and brominated flame retardants. Cable insulation and plastic mouldings can contain all of the above substances as well as PVC (polyvinyl chloride) which releases extremely toxic dioxins and furans when incinerated. The CRTs (cathode ray tubes) in conventional monitors contain lead oxide and barium, mercury can be found in switches and in flat-panel displays, while the batteries that power the internal clock in notebooks and PCs yield a cocktail of toxins including cadmium and lithium.

Health hazards

If your drinking water has been contaminated by run-off from a landfill site entering the water table or an incinerator is belching fumes somewhere nearby, you could be exposed to a mixture of these substances. This has the potential for predictably unpleasant results including cancers, birth defects and miscarriages.

As if this weren't bad enough, there's another down side to dumping. It's easy to forget, but this 'rubbish' is mostly constructed from non-renewable materials, almost all of which were produced at some environmental cost to start with. Metals and minerals must be mined and refined, while plastics are made from petroleum products. Endlessly throwing things away is not an option in the long run.

Unfortunately, the problem is growing. We own and use more technology and consumer products than ever and our demands are still on the increase. The pace of development has created notoriously short product lifetimes before obsolescence sets in and your PC is consigned to the skip in favour of the latest model..

The volume of waste electrical and electronic equipment (collectively known as WEEE) is expanding at about three times the rate of other municipal waste and there is already a shortage of landfill sites in the UK, especially in the south east. The fact that every year, in the City of London alone, over 2,100 tonnes of IT equipment reaches the end of its useful life throws this problem into sharp relief.

ILLUSTRATION: MATT HERRING

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The strong arm of the law

Legislation tends to lag behind events in the real world and junk technology is no exception. Despite the alarming variety of poisons and carcinogens built into every PC, laptop and indeed mobile phone, current UK laws do not cover how we should dispose of our IT refuse.

So long as you dump the stuff on a legitimate site, that's it. Toxins, pollution and wastage of non-renewable resources are blissfully ignored in favour of a quick, cheap (at least in the short term) method of getting rid of an awkward problem.

The prospect of things carrying on like this unchecked is a chilling one but, mercifully, change is in the air. Claire Snow, director of the UK advisory body Icer (Industry Council for Electronic Equipment Recycling), says we can look forward to a change in the law later this year that will see CRT monitors reclassified as hazardous waste.

This is far from the whole hog, but it's still a welcome move, since dumped monitors are particularly rich in undesirable chemicals. Once they have been formally designated as dangerous they will have to be disposed of in ways that do not create an environmental hazard – rather than just being buried in a field somewhere.

However, the disassembly and treatment of the various components necessary for a reasonable level of clean monitor recycling will pose considerable problems. It's a complex and expensive business and, as is so often the case with recycling issues, it's easier said than done.

Dump the junk – or else

Fortunately, the matter will not be left to sort itself out. By the end of this year, the most comprehensive and wide-ranging legislation yet dealing with the management of junk technology will be finalised in Brussels.

The result will be the European Parliament and Council Directive on WEEE. When it comes into effect, EU member states will have to implement the directive within 18 months, so the changes to the way we cope with WEEE will be both profound and relatively rapid.

The WEEE directive is a large and complex piece of legislation, but its core aims sound simple enough. First, it seeks to reduce the amount of harmful waste produced. The use of dangerous substances like lead and mercury is to be phased out, while others will be minimised. The use of common components will be increased to streamline manufacture and simplify recycling and disposal and a greater proportion of recycled plastics will be incorporated into new products.

The collection and treatment of WEEE will also be vastly improved. Free, local and accessible collection points will be established where products can be deposited. We may also see free collection schemes from private households. Collected waste will be selectively treated to remove the most harmful elements.

Systems will be set up to process WEEE and recycle, reuse or, where necessary, safely and completely dispose of hazardous elements. Specific targets will be set for the various categories of WEEE, with recovery rates ranging from 70 to 90 percent.

The directive is very clear that there will be no charge for the 'last holders' of WEEE. Instead, the cost of implementation is to be borne by the manufacturers themselves, but no doubt there will be attempts to pass it right back to the consumer. Current estimates suggest a one to three percent increase in the price of IT equipment is likely as a result.

Icer's role in all this is to work with the industry to help businesses in the UK and Europe get to grips with the new legislation. Manufacturers are encouraged to design products that are safer and easier to recycle, and Icer is helping to co-ordinate the efforts of companies involved in the recycling, recovery and safe disposal of WEEE.

It's difficult to know how much of this will actually go according to plan, but the recent problems with scrap fridges and freezers do not make for an encouraging prelude. The idea that these appliances should be processed to remove their ozone-depleting CFCs before further recycling is eminently sensible.

Unfortunately, what is happening is that the laws have changed, but the facilities to carry out the CFC extraction are not in place. Predictably enough, this has caused a large and rapidly growing backlog of hastily stored white goods awaiting CFC extraction at some point, by somebody else, somewhere else.

Icer's Claire Snow confirmed our suspicions that recycling facilities for private individuals are limited. "There actually isn't very much at all really, but you will see these [free, local] schemes appearing in the next 18 months or so." Clearly, there is plenty of work still to do before anybody can afford to relax.

Want not, waste not

The present shortage of facilities for ordinary people to recycle unwanted hardware might prompt you to consider the other alternative, which is essentially giving the stuff away to someone who needs it. The choices here divide neatly

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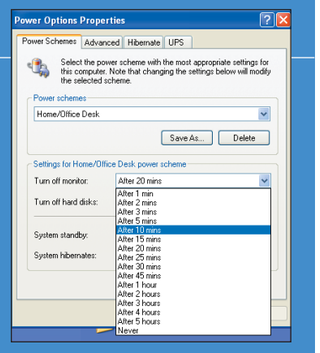
Power saving



↑ Save energy by simply choosing a set amount of minutes for your PC to automatically power down when it's not in use

To avoid wasting energy, set your PC to power down when it's not in use. Use the Start menu to access the Control Panel. Click on the Power Options icon to see the options for setting inactivity timers that will shut down parts of your system when you're not currently using them.

It's also a good idea to check your monitor's manual to find about about its internal power saving mode. You might need to tell it to go to sleep once it stops receiving a signal from the graphics card. This is important since monitors, particularly CRT (cathode ray tube) monitors, use quite a bit of power.

Laser printers can be greedy for power, too, so make sure yours is also set to go into standby mode when it's inactive for any length of time. Finally, although standby mode is fine for power-saving during the day, be sure to turn equipment off fully when you are done with it. Even in standby PCs use power and it all adds up in the long run.

Give it away now

Paradoxically, it can prove quite difficult to find someone who will take your old PC off your hands, even if it is in good shape and modern enough to be genuinely useful. This is mainly because of the logistics and cost of dealing with individual donations. Many charities and PC refurbishers simply don't have the resources, so they prefer to deal with businesses which can donate large numbers of machines at a time.

That said, the odds are that with a bit of perseverance you will find a charity which will welcome your donated kit. To help you narrow down the field, we've put together a list of websites below, most of which provide lists of charities that donate refurbished PCs and companies that refurbish machines on a commercial basis.

↑ CRN's site offers plenty of useful information on computer recycling projects

↑ LaserXchange is a printer cartridge remanufacturer that also raises money for charities, such as Imperial Cancer Research Fund

Desktop PCs

• PEP Computer Recycling **This page lists organisations that facilitate the donation of used computer hardware. www.microweb.com/pepsite/recycle/uk.html**

• IT for Charities **Including a comprehensive list both of charities dealing with refurbished PCs and PC refurbishment companies. www.itforcharities.co.uk/pcs.htm**

• The Community Recycling Network **CRN is the largest not-for-profit computer recycling project in the UK, collecting in excess of 300 units every week. www.crn.org.uk**

• UK Fundraising **Another good listing of charities that donate recycled PCs to various causes. www.fundraising.co.uk/other_fr/donated_pcs.html**

Printers and phones

A look through the classified ads in *PC Advisor* will turn up numerous companies that refurbish and refill ink cartridges from inkjet printers and toner cartridges from laser printers. Some of these companies are actively involved in sponsoring charities.

LaserXchange is a not-for-profit organisation that 'remanufactures' inkjet and laser toner cartridges and raises money for Oxfam and the Imperial Cancer Research Fund while doing so. You can consult its site at www.laserxchange.co.uk for details of how to participate or try www.esel.co.uk, the home of Eurosource, another cartridge remanufacturer with strong links to charity, which also wants your old mobile phones. You can also hand in redundant handsets at Comet an at Cancer Research charity shops.

If you are donating your PC to a school, charity or a volunteer group, you need to make sure it's powerful enough to be of some real use to them

into people you know and people you don't. If you feel your mother or a penniless undergraduate sibling would be the logical beneficiary, then that's your solution. However, if you have to go further afield, you may need to think about the whole process more carefully.

It's quite possible that a local school will be only too happy to take your PC off your hands, or you could approach any charity you favour to see whether it might be interested. Hospitals may also be on the lookout for donated kit as a resource for patients. Churches and community centres are also likely to appreciate the odd free PC.

Your family and friends might be happy to take on an old computer of only moderate utility, but if you are considering donating it to a school, charity or a volunteer group, you need to make sure it's powerful enough to be of some real use to them. In practical terms, the minimum specification should be a Pentium 166 or above, with schools exhibiting a strong preference for Pentium II machines with an optical drive, sound card and speakers for multimedia applications.

Of course, some charities might consider a more basic system, but it's important to recognise that there is a cut-off point when it comes to practical utility. Unfortunately, this can also extend to the actual mechanics of giving. Some charities and businesses that refurbish computers for subsequent sale or donation cannot readily deal with individual donations. Issues such as the cost of collection sometimes mean that taking on a single machine just isn't a viable proposition.

PC home hunting

It's essential to remember that if you wish to donate a machine it must be in full working order and it shouldn't be so ancient that it is of no real use to the recipient. Dumping museum-quality kit on a school just lands the school with the problem of how to get rid of it, which is not the desired outcome at all.

If you are keen to ensure responsible disposal above all else, particularly if you have old equipment which is unlikely to attract the interest of a charity, then in the first instance call your local authority. You might get lucky and discover that there is a facility in your area that can take your machine for recycling.

It's also worth contacting the original supplier, particularly if it is a major name in the IT industry. The WEEE directive quite clearly places responsibility for electrical goods at the end of their lives on the manufacturer. In anticipation of this, many larger companies are already gearing up for product take-back. You may find that your old PC or printer can go back to meet its maker rather than on a trip to the tip.

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Something else to consider if you are faced with a machine which is difficult to dispose of is that not all of it need necessarily be shown the door. The mouse, keyboard and, in particular, the monitor are all likely to be worth keeping for use with your next system. This will reduce the risk of the whole PC ending up in a landfill site and will lower the cost of a new PC, too.

Likewise, consider carefully before dumping your printer: this peripheral can last for donkey's years and, although the latest model might be a bit smaller, quieter and quicker, it's often not really worth replacing the one you already have. If the printer really must go, then tout it round along with the PC – it's possible it might even get more takers, especially if the computer is long in the tooth.

Overhaul your kit

There's a general feeling within the PC industry that buying habits will change and more people will try to extend the life of their existing machines by upgrading, rather than opting for a complete replacement. If this is true, it's a good thing from the green perspective since it's exactly what you should do in order to avoid contributing unnecessarily to the WEEE mountain.

There are four areas where an upgrade can make a real difference to your PC's performance: the processor, memory, graphics card and hard disk. Typically, adding more memory is the most cost-efficient way of boosting speed, but a new-generation graphics card will breathe life into your 3D games and a bigger hard disk will be faster, more responsive and more capacious than the original. If your motherboard will support a faster processor this is an upgrade option you can explore, but a new CPU is likely to be a relatively expensive upgrade.

Another area it's also worth considering is the optical drive. Replacing or adding a new drive is relatively easy to do and, if it doubles the speed of your CD-RW player or adds a valuable new capability like DVD to your system, it can also be money well spent.

If you do need to buy a new machine, find out what the PC's manufacturer proposes to do regarding taking it back at the end of its useful life. With the WEEE legislation likely to be implemented in the UK within two years, expect a coherent answer or consider going elsewhere.

Try to anticipate your future needs and ensure the hardware you buy is going to be up to the job. That way, you'll need to upgrade less often and replacements can be avoided for longer. This will save you money and reduce your contribution to the waste stream.

No more throwaway society?

Despite ratification of the WEEE directive, its non-harmonised status (meaning individual states can implement the details differently to the rest of Europe if their governments see fit to do so) leaves it unclear how radically our attitudes and actions will have to change.

The computer manufacturing industry is predictably lukewarm about legislation that makes it bear responsibility for, and the cost of, recycling its products. Issues such as who collects and recycles electronic scrap, what form local recycling schemes will take and exactly who will pay for what, when and how are all still being debated, so it's difficult to get the implementation of the directive under way.

In the meantime, there is a moral onus on us all, from private individuals to companies of all sizes. We have to make the effort to ensure that, wherever possible, our old PCs are either reused or responsibly recycled, rather than just dumped in landfill sites. This may well be time-consuming, and it might even cost money, but there is absolutely no doubt that it is worth doing. The alternative doesn't bear contemplating. ■

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Preparation before donation

Your old PC is the home of your data, some or all of which you probably want to remain private. Before you part with your machine, you need to ensure that you have tidied it up and removed any personal information, including bank and credit card details.

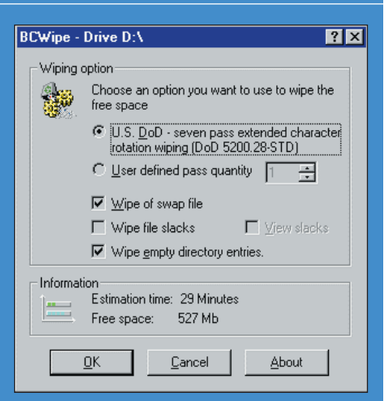
PC refurbishers will wipe the hard disk as part of the makeover process, but before the machine leaves your hands there are several things you can do yourself: wipe the cache of your web browser to remove the record it contains of your online activities and back up all your files on to removable media – a CD-R or CD-RW drive is invaluable for this.

You can now delete any potentially sensitive information, but merely zapping files and folders with Windows Explorer and then emptying the Recycle Bin is not really enough. Many disaster recovery software tools will resurrect apparently deleted files, so a more thorough cleansing is needed.

The Downloads area of the *PC Advisor* website (www.pcadvisor.co.uk) has some useful tools for compressing files prior to burning them to CD-R/RWs, while owners of older PCs might want to tidy up using Disk Cleanup for Windows 95/NT, which gets rid of unused and duplicated files.

In the File Management section you'll find programs like BCWipe (shown above), which lets you completely delete files, as does AnalogX SuperShredder in the Security section. There are also handy tools like Evidence Eliminator, which carries out an irreversible delete on your web browser's cache, history file and cookie folder, so nobody can reconstruct your online activities. Alternatively, load up all of these programs from this month's cover disc.

→ Use BCWipe, which is on this month's cover disc, to securely delete files before you donate an old PC



Software licence issues

There's sometimes a degree of confusion about what to do with the software on a computer destined for donation, so we asked Microsoft's legal department for advice on how to manage the transfer of software to a new owner. Most refurbishers and charities will wipe the disk and start afresh, but there will be occasions when this doesn't happen – say when donating to a school or local volunteer group.

The first thing to consider is the operating system, which is usually licenced by the manufacturer of the PC itself and transferred to you with the machine. Essentially, you can do the same when you donate the machine to someone else, as long as the original licence and Certificate of Authenticity and any media go with it.

The same usually applies to software applications – you can transfer them to a new owner so long as the original discs, manuals and end-user licence agreements also change hands at the same time.

Not all licensing schemes and not all software vendors necessarily use the same small print, so it's important to read your licence agreement first if you are planning on donating software installed on your machine. If in doubt, contact the software developer directly for more advice.