



# **How to Choose a Computer Disposal Method**

## **White Paper**

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### **Executive Summary**

There are many issues surrounding the disposal of redundant computer equipment and whilst most organisations focus on minimising their financial exposure, some are very keen to ensure data security, legal, environmental and ethical compliance.

There are a number of solutions to ensure compliance when disposing of redundant computer equipment, including the use of internal and external providers.

There are pros and cons for each disposal method and most organisations will use a combination of methods to meet their internal procedures.

To ensure compliance in all areas, whilst minimising costs and maximising returns, organisations can carry out internal compliance audits and then implement an internal system or they can contract the process out to a specialist.

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## **The Issues Surrounding Computer Disposal and IT Recycling**

Many years ago there were few problems when disposing of old computer equipment. Typically it was sold to computer brokers, other employees or donated to the local school.

Today, there is little demand for second hand I.T. equipment from schools, or employees and most computer brokers are not setup to deal with the legislation that now covers the disposal of redundant computer equipment.

Since the mid 90s the complexity and volume of legislation governing computer disposal's has increased dramatically. Also, the way the Environment Agency is interpreting existing legislation has changed, to try and keep up with modern technology.

### **Legislation**

The two main areas of legislation cover data protection and the environment. However the disposal of computer equipment is covered by over 8 separate regulations. These are: -

- Data Protection Act
- Environment Act
- WEEE Directive
- Hazardous Waste Regulations
- Landfill Regulations
- Electrical Equipment (Safety Regulations)
- Basal Convention, Trans Frontier Shipment of Waste
- Sarbanes-Oxley Act
- Sale of Goods Act
- Distance Selling Regulations

A brief outline of each of these regulations is given in Appendix A

### **Data Protection and Destruction**

The legislation covering data protection is often overlooked, or worse, assumed that someone else will deal with it. This is rarely the case. For examples follow this link:-

<http://www.ban.org/BANreports/10-24-05/documents/DataLeftonHardDrives.htm>

During the life of a computer, a great deal of time, effort and money is spent ensuring that data is stored and processed securely, but little attention is given to data when the computer becomes redundant.

When a computer becomes redundant it is almost certainly the time of greatest risk. It will be moved from pillar to post, handled by all and sundry and all the time it will still contain data.

Typing "data loss" into Google brings up hundreds of news stories, which demonstrates that, not only can it happen, it does. The cost to any organisation of losing data under these circumstances is incalculable

The main reason why data is not erased is time and money. The resources required (time and space) can be considerable and the cost to erase a disk can be as high as £10 per disk to guarantee data destruction to UK standards.

What standard should data be destroyed to? There are three main standards that are used, US DoD, German Din and the UK/MoD Approved standards.

The US and German standards are now over ten years old and have not been updated to take account of newer technologies, modern hard drives and tapes.

The Communications-Electronics Security Group (CESG), who carry out product approvals. Hold a number of approved products and a full list is available from [www.cesg.gov.uk](http://www.cesg.gov.uk). As a minimum data should be erased to CESG Baseline standard, this can be done using Kroll Ontrack DataErase, Ibas or Blancco.

If the data can not be erased using software then the disk needs to be degaussed and then shredded. Also using MoD Approved/CESG approved products and procedures.

There is one other standard for data destruction and this is your own. The risk of data loss can only be fully determined by the company that produces and owns the data. Sometimes this can mean not allowing any data to leave the site or using different data destruction methods for different types of data. Two tier standards such as these are normally only used by the MoD.

There are two methods that should never be relied upon. Reformatting the disk and assuming the data is not important and doesn't matter. Reformatting the disks does not remove the data and there are easily available tools that would allow an amateur to recover the disk and the data. It should never be assumed that data is not important. Every time a file is opened on a PC a temporary file is created, this includes Word documents, emails, web pages, etc. Over the life span of a PC 1000's of documents will be opened.

But just because your equipment is redundant to you, it doesn't mean that it has no value. On the contrary, most equipment does have some value and if there is a market for it, then it can be sold and, the revenue returned to you.

One of the key goals for many organisations is to see a return for their equipment. This is nearly always achievable if the equipment is disposed of in a timely manner. Unfortunately, many organisations keep the equipment for too long, worse still; it is kept in storage rather than the problem being tackled. It is estimated that redundant computer equipment kept in storage depreciates in value by 10% per month.

## **Solutions for Computer Disposal**

So how can you legally and safely disposal of your redundant computer equipment?

There are four main routes. These all have some advantages and some disadvantages. They are: -

- Trickle Down Policy
- In House – Staff Sales
- Charity Donations
- Specialist Disposal Partner

## **Trickle Down Policy**

As the name implies, equipment that is redundant in one department, but still works, can be reused elsewhere within the organisation.

This is fairly standard practice and in many organisations goes on unnoticed.

### The Advantages

- Gains the maximum possible life from working equipment
- Is environmentally friendly
- Can get away with reformatting the hard drive since it's for internal use.

### The Disadvantages

- All data must be removed prior to redeployment
- The equipment must be tested for electrical safety once its redeployed
- Still have to dispose of non-working and end-of-life equipment
- End of life equipment will have little or no residual value

## **In House - Staff Sales**

Typically a staff sales scheme will involve the organisations IT department effectively running a small, informal retail outlet.

For most employees this appears to be a simple and straightforward way for them to buy 'their' PC or laptop. It allows an employee an easy route to purchase redundant computer equipment and generates 'brownie points' for the IT department.

However, there are numerous problems surrounding this solution.

Most notably, the resources it will consume from an over-stretched IT department. This is not just the time it will take to erase the disks, reload an operating and deal with the inevitable after sales technical support issues, but also the space required to store and process the equipment.

There will also be problems with several employees wanting the same highly desirable item. Who do you sell it to without appearing to show favouritism or gronism?

And how do you handle a small amount of cash coming into an IT department.

### The Advantages

- Keeps employees happy
- Perceived to take little time and resources
- Brings income back into the organisation

### The Disadvantages

- All data must be removed prior to sale. This takes time and money
- The Sale of Goods Act covers the sale. Waivers are not legal.
- Like it or not, you will have to provide free technical support
- Software licences are not transferable
- The equipment must be tested for electrical safety prior to sale
- Still have to dispose of non-working and end-of-life equipment
- End of life equipment will have little or no residual value

## **Charity Donation**

Donating the equipment to a charity or local school is a very worthy thing to do and can bring great benefit to under privileged people, as well as good PR for the donating organisation.

However, these days most schools have received significant funding from central government which was ring fenced for purchasing IT systems, and, as such they have little appetite for second hand equipment. They also have the additional problem that most educational software is highly processor and video dependent.

Charities are much less fussy, but typically still require equipment that is no more than 3 years old and preferably working. Most charities export donated equipment to Africa or Eastern Europe where it is still cost effective to use older equipment.

It should be noted that there are charities offering a low cost or no cost service and are then charging schools and charities in Africa for computers. Not particularly charitable.

There are a number of areas that need to be considered when donating to charity: -

- What is it going to cost the charity to process the equipment and from where does the money come?
- How are they erasing the data
- What happens with faulty/scrap equipment
- Is the equipment 'dumped' in Africa, or does the charity provide everything that a school needs. For example software training, technical support and electricity!

### **The Advantages**

- It's a good thing to do
- Great PR
- Charities are exempt from waste management licencing
- Little or no cost
- They may include data destruction, but check what standard they are working to.

### **The Disadvantages**

- No revenue return for remarketable equipment
- Is data destruction guaranteed and who pays for it
- What happens to donated equipment that is scrapped or faulty
- Unless done properly overseas donations are considered dumping
- Export to most of the world of non-working equipment is illegal
- Still have to dispose of non-working and end-of-life equipment
- End of life equipment will have little or no residual value

## **Specialist Disposal Partner**

Over the years literally hundreds of people have established themselves as computer disposal companies. Some are computer brokers, others are the proverbial man-and-a-van and a few are truly dedicated specialists.

Even the large computer companies such as Dell, HP, IBM and Fujitsu have established computer recycling centres or partnerships with third party specialists.

Typing 'computer disposals' into Google will bring up approximately 245,000 entries, which gives a great many companies to choose from.

How do you distinguish between the dedicated specialist, the man-and-a-van and everyone in between? It's very difficult. Some companies have well presented web sites, glossy brochures, but they do not process the equipment themselves, preferring to pass it on to a fourth party, and they are normally not properly licenced by the Environment Agency.

Others have been recycling IT equipment for it's metal content for years, but take little care about data security.

Others like the man and a van have no knowledge of the legislation governing the computer disposal, and if he does, choose to ignore it. They normally offer a no-cost service, making their money by selling the working equipment locally and the non-working equipment is then sold for export, illegal export.

In short there is no easy way, but as a minimum they should have the following:

-

- Waste Carrier Licence issued by the Environment Agency
- Waste Management Site Licence, issued by the Environment Agency, or using a recycling partner that has
- An auditable process for asset tracking and data destruction
- Professional indemnity insurance

Its preferable if they also have: -

- ISO 9001 – Quality Management System
- ISO 14001 – Environmental Management System
- ISO 27001 – Information Security Management System
- Using MoD/Government approved data erasure techniques
- Accredited by industry association, i.e. Industry Council of Electronic Recyclers (ICER)
- Service Level Agreements
- Open book accounting/billing system
- Dedicated retail department
- Online asset tracking system
- Own transport with uniformed drivers and satellite tracking
- Open door policy to external audit
- Operate a dedicated staff system
- Willing to facilitate charity donations on your behalf
- Documented system for staying head of new legislation
- Vehicle Operators Licence – issued by the Ministry of Transport

There are two ways to confirm that an organisation is who and what they say they are. The first is to carry out a site visit and audit; the second is to rely on a credible external auditor such as BSI or ICER.

The Advantages

- Easy to manage
- Minimal use of internal resources
- Specialist supplier have lower cost because of economies of scale
- Can bring substantial income back into the organisation
- Will deal with staff sales, warranty and technical support
- Will facilitate charitable donations
- Supplier will take full liability for retail sales
- Supplier will be looking to maximise value of your equipment

- Supplier will ensure that all data is removed and assume all liability
- Supplier will erase data to CESG standards and be able to prove it
- Supplier will ensure that all labels and asset tags are removed
- They will take anything, working or not. Does even have to be computer equipment.
- Supplier will test for electrical safety
- Supplier will not export waste illegally
- Will be able to provide a full audit trail that is BSi, ICER and even OFSTED approved.

#### The Disadvantages

- Having to ensure supplier are fully compliant with all relevant legislation.
- They may charge for transport, data wiping and resale or recycling. But these costs should be offset against any income.

## Conclusion

Generally there is no one perfect solution to computer disposal. And almost certainly a combination of one or two methods will be deployed.

These days financial, stakeholder obligations, CSR and legal compliance are the main driving factors behind how computer disposal policies are defined and by using a Specialist Disposal Partner all of these concerns can easily be addressed. If a Trickle down Policy is also employed then a balance can be achieved in maximising the life of the equipment and ensuring legal compliance at minimal costs.

The advantages for using a specialist recycling partner is that they will assume liability from when they collect the equipment. And as long as a reputable, fully licenced partner is chosen then they will be erasing data to CESG standards and will ensure that any equipment that requires recycling is processed in accordance with all UK, EU and international laws.

A specialist recycling partner will also be expert at maximising the return for remarketable equipment and will be able to provide a return for your equipment, or at the very least keep costs to a minimum.

## **About the Author**

Andrew Speedie has been involved in the computer recycling industry for over 20 years and is highly qualified in the area with both a BSc Hon's in Computer Science & Software Engineering and a HND in Electronic & Electrical Engineering.

In 1990 he established Speedie Computer Systems and brought computer scrap from ICL, (now Fujitsu) refurbished and resold it. From the first collection it was apparent that the data would have to be removed from all drives and so the US DoD data erasure standard was adopted. The US DoD standard was used until 2003 when the CESG standards were published

In 2003 following a de-merger, Secure I.T. Disposals Ltd was formed and still incorporates Speedie Computer Systems as the retail sales division.

Shortly afterwards Secure I.T. Disposals achieved BSi accreditation for ISO 9001, ISO 14001 and ISO 27001. The following year they were awarded Investors In People status.

As part of his role as Managing Director, Andrew has been actively involved with consultation with the Environment Agency, Defra and ICER regarding the implementation of the WEEE Directive. CESG have also consulted with him regarding changes to the data erasure standards.

Andrew is always willing to advise on matters regarding data destruction and the recycling of computer equipment.

Further details can be found at [www.sitd.co.uk](http://www.sitd.co.uk)

## **Appendix A**

### **Data Protection Act**

Under the Data Protection Act anyone who processes personal data has to be registered with the Information Commissioner and has a Duty of Care to ensure that all data is not kept for any longer than necessary and is properly destroyed when it is no longer required

### **Environment Act**

Under the Environment Act waste is defined as anything that is redundant to an organisation or that an organisation needs to dispose of. All waste must be disposed of using a fully licenced waste management site and transported using a licenced waste carrier. The Act also defines your Duty of Care and this extends to when the equipment is finally disposed, reused or recycled.

### **WEEE Directive**

These regulations cover the recycling of waste electronic and electrical equipment. The aim of the directive is to place the burden to the cost of recycling with the manufacture or importer and they have to pay for the recycling of all consumer WEEE. They also have to provide a recycling service for business customers, but can charge for this service. They also have no obligations regarding data destruction. The cost is subject to negotiation.

The WEEE Directive is due to come into force in July 2007.

### **Hazardous Waste Regulations**

From July 2005 these regulations were incorporated into UK law with the propose of bringing the UK in line with current European waste classification. Under these regulations CRT monitors and UPS are now classed as hazardous waste and as such any organisation disposing of over 200kgs (approx. 15 monitors) have to register with the Environment Agency as a Producer of Hazardous Waste. Only an Environment Agency licenced waste site can dispose of the equipment.

### **Landfill Regulations**

These regulations severely reduced the type of waste landfill sites can accept, reducing the number of sites that can take I.T. equipment from nearly 300 to around 12. This followed the reclassification of waste under the Hazardous Waste Regulations

### **Electrical Equipment (Safety Regulations)**

As implied these regulations cover electrical safety and state that the owner/supplier of any electrical equipment must ensure that it is electrically safe. It particularly mentions testing following the movement of equipment, since this is when there is most likely to be a failure. Testing is carried out using Portable Appliance Testers (PAT) and should be carried out every 12/24 months, and, after the equipment has been moved.

### **Basal Convention, Trans Frontier Shipment of Waste**

This convention is signed by members of the OECD, the EU and a few other countries and as such is incorporated into UK law. The convention specifically prohibits the export of non-working and untested electrical and electronic equipment to any country that is not a member of the OECD or the EU. The Convention classifies waste into three categories, Green, Amber and Red

- Green List covers PC, laptops and printers etc
- Amber List covers CRT monitors, UPS, bulk batteries, etc
- Red List covers reactive chemicals, explosives, etc

Any export of non-working or untested equipment from the UK to EU is governed by the Trans Frontier Shipment of Waste Regulations and requires a TFS route be established for Amber and Red list equipment. This involves paying the Environment Agency vast sums of money in TFS fees and Bonds.

The main driving factor behind this Convention is to stop the dumping of waste into countries that do not have the facilities or legislation enforcement to deal with the waste in an environmental friendly way.

The trade in non-working and untested monitors to Africa, India, Pakistan, China, etc is huge and the affects on the local environment is catastrophic. Type "export of electronic waste" into google or visit the Basal Action Network at [www.ban.org](http://www.ban.org).

### **Sarbanes-Oxley Act**

In the United States, the Sarbanes-Oxley Act makes corporate executives explicitly responsible for establishing, evaluating and monitoring the effectiveness of internal control over financial reporting. For most organisations, the role of I.T. will be crucial to achieving these objectives. The main concerns regarding I.T. is auditing to systems and data lifecycle management, including ensuring data destruction.

Whilst this is an United States Act, many UK companies that are have a presents in the US are covered by it and should be taking steps to ensure compliance.

### **Sale of Goods Act**

The Sale of Goods Act states that equipment must be fit for purpose and must remain fit for purpose for a reasonable period of time. For refurbished computer equipment this means providing a warranty of between 3 and 12 months.

### **Distance Selling Regulations**

These regulations allow customers to return any item for any reason with in a reasonable period of time. The customer is entitled to a refund of the purchase price, less a restocking fee is applicable.