COMP 383- Lab 4 Secure Hardware Disposal

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You are an IT professional working for a large GTA hospital. A number of PCs, laptops, tablets and smart phones have become obsolete and are out of warranty. You are tasked to research the most effective way to dispose of this hardware.

The laptops and desktops were used in the hospital for a variety of hospital related operations and may contain one or more of the following: patient health data, patient insurance and financial information, patient home address, staff data, and several types of licensed software.

Any plan to dispose of this hardware must take in consideration the following factors:

1. Security of data:
    a. There are professional data wiping tools such as Blancco (https://www.blancco.com/) or a free version called Active Kill Disk (http://www.killdisk.com/)

    Similar to given tool there is **BitRaser** which is Certified Data Eraser. This is plug-and-play software ideal for Data Deletion approach that ensures permanent erasure beyond recovery option. You can easily cater to the internal as well as external corporate audit compliances and requirements. This software is certificate under various certifications such as ISO27001, PCI-DSS, HIPAA, SOX, EU-GDPR, and GLB

    Pros:

    - Easy to erase data on laptop, desktop, external drives.
    - Compatible with 24 international erasure standards

    Cons:

    - It is not available for free. [it costs around $300]

    b. There are hardware servicing companies (as 3rd party providers) who could be paid to take care securely of the hardware you want to dispose of such as Agilitas (http://www.agilitas.co.uk/)

    reBOOT Canada (https://www.rebootcanada.ca/) is registered charity that refurbishes donated computer equipment to provide non-profits, charities, and individuals, with access to subsidized technology. It might be good option as it is a non-expensive and convenient for the organizations since they take care of hardware requirements. This will also help to the organization get good hardware out of donation.

2. Legislative:
    a. Is it legal in Ontario/Canada to dispose of hardware components, are there any limitations?

    (https://www.toronto.ca/services-payments/recycling-organics-garbage/electronic-waste/)
    There is a recycling service offered by Toronto under which collects unwanted electronics for free to ensure they are disposed of safely, recycled and kept out of landfill. Electronic items can be put out on garbage day for pickup, brought to a Drop-off Depot or Community Environment Day or donated for reuse.

    There is almost all type of electronics accepted Cell phones, home phones
    - cables
    - Laptop computers & accessories
    - VCR/DVD players
    - Video recorders
    - TVs etc.

    Limitations or we can say some rule that are strictly followed:
    - Set electronic items 0.5 meters (2 feet) away from your Garbage Bin.
    - Put large on the ground and small devices in a cardboard box.
    - Rigid containers with the items must not weigh more than 20 kilograms
    - There are some items which are not allowed in this program that are: Batteries, remote controls, smoke detectors, smoke alarms, cartridges, etc.

    There is some individual [private] companies that also helps to dispose and recycle the electronic waste such as(https://computerrecycling.ca/toronto/)

3. Environment:
    a. Some components are made of harmful materials and are toxic to the environment.

Some **brominated flame retardants**, used in circuit boards and plastic casings, do not break down easily and build up in the environment. Cadmium, used in rechargeable computer batteries, contacts and switches gets bioaccumulate in the environment and is highly toxic, affecting the kidneys and bones of human. **Mercury, Lead, Cadmium, Polybrominated Flame Retardants, Barium and Lithium, Polyvinyl chloride (PVC)** are such harmful products that are used into various devices. The health effects of these toxins on humans include birth defects, brain, heart, liver, kidney and skeletal system damage. They will also significantly affect the nervous and reproductive systems of the human body. If electronics are burned, they create cancer-producing dioxins which are released into the air we breathe or thrown in landfills, these toxins may leach into groundwater and affect local resources.

b. Some components include precious metals which are valuable.
According some survey there are over 320 tons of gold and greater than 7,500 tons of silver used each year to make new electronic products around the world. While a modern recycling facility can recover as much as 95 percent of gold. Other than this **Platinum**, **Copper**, **Aluminum**, **Tantalum**, **Neodymium** are also extracted from e waste. As all this are useful resources and not found naturally, we must try best to retain and reuse so this way it will not harm environment as well as we can smarty reuse them.

Develop a comprehensive plan to dispose of the hardware to be presented to your manager. Your plan must include a review of each option, pros/cons for each option, a cost estimate for each option. Your plan must be detailed and focused and must have a minimum of 2 different options for hardware disposal.

- **Plan - 1**

If the hardware is in good condition and can be used by other. The best way is to **donate** it. This plan will be less costly compare to other because it will only require cost for erasing data.

Pros:

this will help the charity or non-profit organization to build new system. Which will reflect in development of people. This device can be also used by school or colleges where there are no enough funds to setup labs.

Cons:

some organization may use for their personal use and does not benefit for welfare of society

- **Plan – 2**

Recycle the hardware or return to the company [some of the company do accept as a recycle]. There is recycle rule and regulation in Toronto. There are some spots where we can dump/recycle the hardware items. IN this plan there is two cost factors: 1. Data erase and 2. Cost to company for recycling and reusing it.

Pros:

there will be some refurbished of the device and can be used again. This case best fits with 3 R: 'reduce, reuse and recycle'.

Cons:

recycling takes a long process with results into cost and energy usage.

Your plan will be evaluated out of 10 points. Evaluation will be based on consideration of the factors described above, detailed review of each option, pros/cons for each option and a realistic cost estimate.

You must have a minimum of 2 hardware disposal plans (a cheaper version and a more expensive version).			
Evaluation Criteria:	***Adequately researched and all statements are reasonable justified***	***Research and tool selected but justification is not adequate***	***Poor research or no justification of evaluation criteria***
Security of the data: - Selection of the software wiping tool (it is okay to use Blancco but you must justify its use (price, client interested in recycling the hardware, etc) – version 1 of plan - Selection of the hardware disposal company and justification (You may use Agilitas but it is better to find a local company– version 2 of plan	7 points	5 points	3 points
Legislative: - Is it legal in Ontario/Canada to dispose of hardware components? - Are there any limitations to hardware disposal? This part must be completed only once (it will be valid for both versions)	1.5 points	1 point	0.5 points
Environment: - A short explanation of pros and cons of hardware disposal and if the company can recover some costs by reusing and reselling components. Make it relevant for each options as discussed above.	1.5 points	1 point	0.5 points
Total	10 points	7 points	4 points