**Revision(11/20/2012):**

**MEMO**

**TO:** Dr. James Allen

**FROM:** Hong Zhang

**DATE:** October 11th, 2012

**SUBJECT:** Proposal for Research Project

**Description of the Problem/Issue/Situation**

Today, many business enterprises employ capital assets in the form of electronic equipment (e.g., personal computers, workstations and peripherals) in large quantities. As a result of rapid technological progress, these products have a very short life cycle, typically in the sub-three year range (Ravi, 2012). After buying new ones, how to deal with these end-of-life computer products becomes a big problem for many companies. Recycling often is cited as the answer, but refurbishment and resale now are being recognized as the ultimate solution. But how do companies get used technology out of their offices and into the hands of those who need it? Without knowledge of trusted options, many companies simply store devices, which is not only a waste of space but also a potential security and environmental risk, what's more, time spent in storage greatly devalues equipment that could have generated income on the secondary market. Another result of inadequate end-of-life IT asset management is continuation of software licenses and service agreements that, believe it or not, can end up costing companies millions per year.

Recently, our company faces the same problem, because we propose to replace 68 very old desktop workstations which are five and six years old and 68 small monitors which are nine years old. These computers are heavily used by the staff in our design department, so it is critical to have up-to-date equipment that can support modern software, more intensive computing tasks, and also run virtual machines.

There are four options to handle these end-of-life computers, landfilled, stored, recycled and reused. Since landfilled harms the environment, stored, recycled and reused are common options for most companies. And as most of our old computers or some parts are still in good working order, storing them will be a waste opportunity. Comparing recycled and reused, for PCs, the environmental “payback” of recycling is relatively small and reused will be a better option if old computers have good market value.

Since reused is our best option, next step is how to resell these equipment. However, disposing can be risky. The "risks" associated with these end-of-life computers disposal include data security concerns, escalating disposal costs and administrative issues.

The best solution is using IT Popular IT asset life-cycle management (ITALM) to dispose our old computers. We can focus on its four management processes, from deployment, transfer of data and proprietary images, hard-drive cleansing, to disposal of the replaced PC step by step. Actually, we can choose a professional IT asset management vendor to help us to use ITALM and deal with these end-of-life computers. Comparing different type of providers of end-of-life management services, Vernon Computer Source become our better choice. This company is a professional computer rental company and offer complete audit and end-of-life solutions which can removal business used computer equipment at the greatest market value. Its Chicago branch gives us an original offer for our computers $800 per PC including 4 discarded computers.

**Statement of Purpose**

I intend for my boss, a director of the IT department I work for, to be my primary reader. The type of report I plan to draft is a proposal. Through this proposal, I would like to show how IT asset life-cycle management calculate the unused computers, transfer the data from unused ones, find the disposal company and convince my boss that implementing IT asset life-cycle management at our company is a necessary action and will be beneficial to the company.

**Tentative Outline**

1. Introduction(Problems in the workplace): unusable computers

There are 108 employees in our design department. Every day, they use computer software to design, analysis every machine part or a machine as a whole and plan required material. Some of them even use two computers. Nowadays, there continues to be a strong need for powerful desktop workstations for many programming and development tasks. Many obsolete computers can’t support new software published in recently two years. Beside, too small monitors reduce the staff’s efficiency at work. Therefore, we decided to replace all of the five- and six-year-old PCs in our design department (total of 68) with Dell Optiplex. And we will also replace all of the small, low-resolution monitors (nine years old), with larger, high-resolution monitors (48). After buying new equipment, how to deal with these end-of-life computers becomes urgent problem before us.

1. Analysis: Green IT: reused is best option

1. Landfilled: harm environment

2. Stored: waste opportunity

3. Reuse be prioritized over recycled

1. Company Administration: disposing can be risky
2. Compliance: erasing data need skilled technical people, special equipment and software
3. Costs: managing IT asset retirement need cost
4. Administration: without management, company will pay for many unnecessary fee
5. Propose solution: IT asset life-cycle management (ITALM)
6. Defining IT asset life-cycle management (ITALM):

Four core management processes— procurement, financial management, operations, and end-of-life

1. Procurement:

Figure out the numbers of old computers which we will dispose

1. Financial management:

Find the lease, license and warranty situation of these old computers

1. Operation:

Disconnect these old computers from the network and printers, transfer data to corresponding person’s computer, erase the data, remove all software, and sometimes destroy the hard disk

1. End-of-life:

Dispose

1. Our Choice: Vernon Computer Source
2. Conclusion: without ITALM and disposing by ourselves, the cost is almost $14,000. If we cooperate with Vernon Computer Source, we will receive over $50,000.

**Initial Bibliography**

“AT DEADLINE.” *Waste News*. November 6, 2006;12(14):1-35. *Business Source Complete*, October 10,

2012.

The source states that Illinois Governor Rod Blagojevich has signed an executive order directing the state government to recycle all end-of-life electronics generated by it, including computers, fax and copy machines and cell phones in an environmentally responsible manner. A report, identifying concerns related to the disposal of scrap electronics, was issued to the governor and Illinois General Assembly by the Computer Equipment Disposal and Recycling Commission in May 2006.

Baum Paul. “Disposing Of Computer Equipment Can Be Risky.” *National Underwriter / Life & Health*

*Financial Services.* February 7, 2005;109(5):24-31. *Business Source Complete*, Web. October 10,

2012.

The article focuses on issues related to the disposal of computer equipment. Due to Health Insurance Portability and Accountability Act in the U.S., proper disposal of computer assets presents a variety of new challenges and risks to businesses. The risks associated with the end of life computer disposal include new government compliance regulations, data security concerns, environmental dangers, escalating disposal costs and administrative issues. Another challenge is the broad range of legislation that will increasingly have an impact on the industry. Not only are the regulations diverse and changing, but inconsistent interpretation of regulations adds to the confusion for an already complex topic.

“Information Technology Asset Lifecycle Management- Final Audit Report.” , Canadian International

Development Agency. May,2010

This audit report analyses Canadian International Development Agency’s IT asset life cycle management. CIDA found they did not have a comprehensive framework in place for asset life cycle management and, as a result, purchases of IT assets were not always executed in a manner that provided the opportunity to optimize return on investment.

Masahiro Oguchi, Shinsuke Murakami, Hirofumi Sakanakura, Akiko Kida, Takashi Kameya, “A

preliminary categorization of end-of-life electrical and electronic equipment as secondary metal

resources. ” *Waste Management*, Volume 31, Issues 9–10, September–October 2011, Pages 2150-

2160, ISSN 0956-053X, 10.1016/j.wasman.2011.05.009.

This study examined characteristics of end-of-life EEE as secondary metal resources to consider efficient collection and metal recovery systems according to the specific metals and types of EEE. We constructed an analogy between natural resource development and metal recovery from end-of-life EEE and found that metal content and total annual amount of metal contained in each type of end-of-life EEE should be considered in secondary resource development, as well as the collectability of the end-of-life products.

Rahman, Shams, and Nachiappan Subramanian. "Factors for implementing end-of-life computer

recycling operations in reverse supply chains." *International Journal of Production Economics* Nov.

2012: 239+. *Business Source Complete*. Web. 10 Oct. 2012.

This study proposes a framework for end-of-life (EOL) computer recycling operations. It identifies critical factors for implementing EOL computer recycling operations and investigates the causal relationship among the factors influencing computer recycling operations in reverse supply chains using the cognition mapping process DEMATEL. Results indicate availability of resource, coordination and integration of recycling tasks and the volume and quality of recyclable materials, are critical for computer recycling operations. Factors such as government legislation, incentive and customer demand are found to be the major drivers.

Ravi, V. "Evaluating overall quality of recycling of e-waste from end-of-life computers." *Journal of*

*Cleaner Production* 20.1 (2012): 145+. *Business Source Complete*. Web. 10 Oct. 2012.

This study state the central idea is to combine different types of recycling process parameters into an aggregate value representing the overall quality of recycling of each of the systems. In this research, we have used Multi-Attribute Global Inference of Quality (MAGIQ) technique for accomplishing this objective. Results of research conducted in a case company show that application of this technique can provide decision makers with a clear picture on the quality of various recycling systems under evaluation.

Truini J. “Dell: Companies taking big risks with e-waste. (cover story).” *Waste News*. July 23,

2007;13(6):1-37. *Business Source Complete*, Web. October 10, 2012.

This article reports on the findings of an international survey commissioned by Dell Inc. concerning e-waste. The survey found that companies are taking alarming risks in disposing old computers. The survey also found that the smallest companies are the least likely to hire an electronics recycler. One third of companies surveyed used a third-party vendor to handle IT equipment disposition. However, a majority of organizations remain without a proper disposal and hardware end-of-life strategy.

Truini J. “Feds enter e-waste arena.” *Waste News.* March 14, 2005;10(25):3. *Business Source Complete*.

October 10, 2012.

This article reports that a national bill with bipartisan support seeks to ban electronics from landfills and establish tax incentives for consumers and businesses to recycle computers and other electronics in the U.S. Senators Ron Wyden and Jim Talent have introduced the Electronic Waste Recycling and Promotion and Consumer Protection Act of 2005. The legislation would create a national infrastructure to recycle end-of-life electronics, including computers, laptops, monitors and televisions. The bill would modify the U.S. Environmental Protection Agency's Universal Waste Rule to classify display screens and computers as universal waste, allowing for easier collection, transportation and processing of the units.

White C, Masanet E, Rosen C, Beckman S. “Product recovery with some byte: an overview of

management challenges and environmental consequences in reverse manufacturing for the computer

industry.” *Journal Of Cleaner Production*. June 2003;11(4):445. *Business Source Complete*. October

10, 2012.

This article estimates vary about the rate at which end-of-life computer products have been piling up, but the total population of spent computers is likely to reach into the hundreds of millions. To tackle this mounting solid and hazardous waste problem, policy and business entrepreneurs are promoting product recovery as an environmentally preferable alternative to disposal, and product recovery infrastructure and strategy has begun to develop in recent decades. However, despite some real and theoretical developments in the field, current literature lacks an overall description of the recovery process capable of capturing the essence of end-of-life management challenges for complex, rapidly obsolete, high-tech products like computers and electronics. The absence of this broad frame of reference presents a problem for managers trying to integrate environmentally sound choices into planning and management. Using case research from the computer and electronics industry, in this paper we present a generalized overview of product recovery.

Zeigler, Jeff. “Properly handling end-of-life IT assets.” *Network World*. 12/17/2007, Vol. 24 Issue 49,

p16-16. 1p.

This article discusses the ways on how to properly handle end-of-life information technology (IT) assets in the U.S. According to the author, IT department of companies are aware on the need to advance IT infrastructure, however, they are in dilemma on how to dispose obsolete equipment that would not provide any harm and endangers the environment. Companies must follow the 10 questions for a safe and effective asset recovery program, including, automation capabilities needed, capabilities in using all types and ages of IT infrastructure, development of data sanitization procedure, existing destruction potentials, operations performance, documentation skills, integration of value-added documentation, sales channel, reporting system and risk protection.

**Final Statement of Request**

The current economic situation has been very discouraging — to say the least. Many companies try their best to save money. I think IT asset lifecycle management is the best way of them because it’s important for planning, utilization, cost details, and risk and compliance purposes. I do have a personal interest in this topic.