Testimony

of

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Before the

United States Congress
Committee on Science and Technology

Hearings on

*Electronic Waste: Investing in Research and Innovation to Reduce,
Reuse, and Recycle*

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Page 1 of 4

Mr. Chairman, Members of Congress thank you for the opportunity to be before you today and testify on the issue of Electronic Waste: Investing in Research and Innovation to Reuse, Reduce, and Recycle. I would especially like to thank Congresswoman Biggert for her support of my work. I have submitted my full written testimony to the committee and I will only summarize my statement at this time.

Fifteen years ago I began working with discarded computer equipment to help bridge the digital divide for at risk students in high school. I was attending a board meeting of LINK Unlimited a not-for-profit organization that supplies mentors and financial aid for capable students to attend the best schools in the City of Chicago. During the meeting I was arguing that each student needed a personal computer in their home so they could prepare adequately for college. The then Chief Financial Officer of Waste Management offered four conference rooms full of equipment that they were storing because they didn't know how to throw it away. So began my adventure of computer refurbishment and electronics recycling. When I walked into the conference rooms on that cold February morning I saw opportunity not a pile of waste. For me this is e-opportunity not e-waste. With the Chairman's indulgence I will continue to use my term e-opportunity not e-waste.

We quickly discovered that the single most complicated part of computer refurbishment was installing a fresh, reliable, and legal operating system across a broad spectrum of hardware. We worked with Microsoft for seven years and in 2000 the Microsoft Authorized Refurbisher (MAR) Program was launched. My company was one of the first five organizations that Microsoft authorized to reinstall their Windows operating system on refurbished computers in the US. Since then we have refurbished over 40,000 computers for schools, not-for-profits, and in homes of children at risk. We provide a complete system (CPU, monitor, keyboard, mouse and speakers) with an instruction booklet, free US bases telephone support and a three year hardware warranty for a starting price of $150.00. Our fist year failure rates are less than new equipments first year failure rates.

We reluctantly became involved with equipment that we could not use for our refurbishing because of the demands of our donors. If we wanted the good stuff we had to take the whole lot. While this has significantly complicated our business model it has also provided us with enormous opportunities. Early in 2000 the extra equipment was relatively easy to deal with but as more and more equipment was brought out of closets and store rooms the task became more challenging. Today a significant majority of equipment is not refurbishable for general personal computer usage. Recently a stakeholder group supported by the US Environmental Protection Agency has published "Responsible Recycling (R2) Best Management Practices for the Electronics Industry." This document is attached at the end of this testimony. These practices specify the philosophy and practice that high quality organizations should employ. I whole heartily support the implementation of these practices in certification programs like. There is some controversy that these practices do not hold organizations like mine to a high enough standard. As a practitioner of the art of e-opportunity I believe that significant research and development must be carried out before we can practically implement higher standards. This legislation is well suited to accomplish those goals.
Comments on the draft legislation:

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Section 3: Definitions.

1)   I would suggest that the legislation include a specific definition of "recycling" that includes reuse, refurbishment, repair, remanufacturing, material recovery, and proper disposal. I have attached to my testimony a brief concept document on "Strategies for Improving the Sustainability of E-Waste Management Systems" that may be useful in defining the above terms.

2)   I would suggest that the legislation include a definition of "hazardous" and "potentially hazardous" materials. I believe that it is important to assure consumers they are not overly exposed to environmental hazards while using a computer. It is however important to educate people that improper handling may be harmful to themselves and the environment.

Section 4: Electronic Waste Engineering Research, Development, and Demonstration Projects.

Part 1)   I believe that Radio Frequency Identification (RFID) should be the major way that efficiency of recycling (in all of its' forms) be studied. For over a year my organization has cataloged over 7,000 items at the Computer Collections facility that we operate for the City of Chicago on Goose Island. We keep detailed data on each item over one pound that is delivered to this permanent collection facility. There are roughly 3,000 different model numbers from over 425 different Brands. The average age of the equipment is 10.2 years old. People travel on average 6 miles to drop off their equipment. TVs average 15.5 years old while Apple Computers are two to three years older than other brands of computers. CPUs average 25 pounds and monitors average 35 pounds while TVs average 45 pounds. Automated triage with the support of RFID must be developed that fully utilize both the carbon investment of the products and increase the recovered value. (Note: over 80% of the energy used in the life cycle of a computer is used in the making of the product)

Part 2)   Casual reading of the Discussion Draft in this section might lead one to believe that research should only be done on "e-opportunity" only after it has been destroyed and separated into different commodities. While I concur that much work still needs to be done on that issue there is a broader area of research that should be identified. A significant majority of the equipment being turned in by consumers and organizations is still functioning. Newer models may have come on to the markets that perform the desired tasks faster and better: *triggering the false impression that the older equipment is waste*. For instance most of the working CPUs that we receive could be cost effectively remanufactured into home energy monitoring and control devices, thus allowing consumers simple and efficient ways to take advantage of Smart Grid technology in their homes. I believe that the refurbishing and remanufacturing of e-opportunity will bring the electronics manufacturing industry back home.

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Part 3)   The university setting is well suited for this kind of basic materials research. I applaud the committee for it's inclusion in this legislation.

Part 4)   I believe that it will be at least 15 years before all of the potentially hazardous materials will be removed from our electronic devices. In the mean time we need to develop safe methods of removing those materials both in developed and underdeveloped countries. Many well intentioned environmentalists have suggested that unwanted electronic devices that come from the US and go to developing countries should be shipped back to us for end of life processing. I would rather see safe portable processes that are applicable in many different environments.

Part 5)   Product design is one of the most important issues in transforming e-opportunity into value. To that end I currently teach a graduate/undergraduate "e-opportunity" course at the University of Illinois at Urbana/Champaign. The course is housed in its' industrial design department, the oldest such program in the country. This semester we are conducting a contest, open to all students on campus, for the most creative and the most "geeky" use of e-opportunity. I would like to invite each and every Member of this committee to be a judge for this contest on April 21st of this year.

Part 6)   We need scientifically sound tools that aid us in assessing the environmental impact of e-opportunity and manufacturing in order to make informed decisions about the quality of our processing and balance it against the needs to be cost effective. I am not suggesting that we diminish our goal of 100% environmental safety but rather that we use these new tools to expedite reaching those goals.   Again I applaud the committee on the inclusion of this section of the legislation.

Part 7)   We have not come close to exhausting our electronic devices. All too often our perception of obsolescence prematurely retires our electronics. Product design that can incorporate repairs, upgrades, etc. need to be encouraged and real business cases need to be found to support them.

Part 8)   I believe that the single biggest issue confronting consumers and business in recycling their equipment is the concern about data security. People are not educated nor can they readily identify a device that has its data erased. Given that the systems turned in at our facility in Chicago are on average 10.2 years old and preliminary research has shown that people use their computers for about 6 years they must be storing them for 4 plus years. RFID can allow a complete and reliable chain of custody that can generate better consumer acceptance and therefore quicker equipment turn around. This would be a better utilization of the carbon investment made in our devices.

I also applaud the inclusion of sections 5, 6, and 7.

Please let me reiterate the following point . . . this legislation will significantly contribute to brining home the electronics manufacturing industry.

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