by Jill Barson Gilbert
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Recently, I started to reduce my inventory of obsolete and unused electronic equipment. I gave away a printer, retired an old monitor, and sold a couple of dozen other computer parts and accessories on eBay (www.ebay.com). Although eBay is one way to dispose of old and unused equipment, it is more of a hobby than a practical business solution. Finding a buyer only delays the eventual disposal of these devices, and their potential environmental impacts.

Armed with the extra spending money I earned through my Internet sales, I likely will replace some of the computer parts and accessories. However, with restrictions on the types of hazardous substances that can be present in new electronic equipment, and the ultimate end-of-life disposal of these devices, should I change the way I purchase business or consumer electronics? More specifically, should I look for companies that produce environmentally sound products?

According to U.S. market research firm Harris Interactive Inc., 53% of Americans say they will spend more for a vehicle that relies less on petroleum. But does this "buying green" thinking extend to business and consumer electronics? With market pressures and environmental legislation already in place in the European Union (EU)—which accounts for 32 countries—China, and in many states within the United States, the decision whether or not to buy green may have already been made for us.

> **'Environment' is being redefined, becoming part of a new model for doing business.**

BUYING GREEN

It's not easy buying green. Purchasing organizations and consumers alike typically lack the resources to determine which electronic equipment is most easily recycled or uses fewer toxic materials. Existing U.S. federal and state programs, as well as Canadian provincial programs, control the disposal of electronic equipment, but not its manufacture or purchase.

In 2005, the U.S. Environmental Protection Agency (EPA) reclassified mercury-containing electronics wastes as "universal" wastes under the Resource Conservation and Recovery Act (RCRA), encouraging recycling. In 2006, EPA published the CRT Final Rule, which excludes cathode ray tubes (CRTs) and glass removed from CRTs from the RCRA definition of hazardous waste—effectively treating these materials as commodities to encourage recycling. California enacted its Electronic Waste Recycling Act, effective January 2005, and Alberta implemented the first provincial electronic recycling program in Canada, effective February 2005. These initiatives tack an environmental fee onto the purchase price of computers, televisions, and the like.

In 2006, the Institute of Electrical and Electronics Engineers Inc. (IEEE) established industry guidelines for the purchase of electronic equipment. IEEE 1680, the Standard for Environmental Assessment of Personal Computer Products (folded into the Electronic Product Environmental Assessment Tool, EPEAT; www.epeat.net), is the first U.S. industry standard that provides guidelines for identifying environmentally friendly desktop and laptop computers and monitors. As of this writing, Apple Computer Inc., Dell Inc., CTL Corp., and Hewlett-Packard Co. participate in the EPEAT program.

SUSTAINABILITY AND THE ELECTRONICS SUPPLY CHAIN

Sustainability encompasses the entire supply chain, that is, not only the manufacturer whose name is on your laptop computer, but also suppliers and retailers. Sustainability also considers environmental impacts throughout the entire product life cycle—from concept and design to manufacturing, use, and disposal. Sustainability knows no borders; it has global impacts.

Environmental Impacts

Energy. The United States and other developed countries have been concerned about reducing their dependence on fossil fuels for decades. In 1992, EPA introduced Energy Star (www.energystar.gov), a voluntary labeling program designed to identify and promote energy-efficient products. Computers and monitors were the first labeled products under the Energy Star program. In 1995, EPA expanded the labeling program to additional office equipment, as well

as residential heating and cooling equipment. In 1996, EPA, along with the U.S. Department of Energy (DOE), extended the program to additional product categories, including major household appliances. Today, the program also covers new buildings.

Electronics manufacturers are increasingly feeling market pressures to reduce energy consumption. Consider your computer monitor: just about any monitor purchased within the past few years is Energy Star-compliant. And in July, Intel Corp. released its first Core Duo computer processors. Not only are these computer chips faster than their predecessors and able to multitask, but they also perform on significantly less energy and generate less heat.

Hazardous Waste. For decades, electronics manufacturers have used lead extensively to solder components onto circuit boards. Taking into account the ever-increasing disposal of outdated electronic equipment and the known harmful health effects caused by exposure to lead, many countries have banned the disposal of lead-containing items. The EU's Restriction of Hazardous Substances (RoHS) directive goes further still and bans the import of consumer electronics with six hazardous substances—lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE). Manufacturers must identify the substances present in their products. In addition, a sister EU directive, Waste Electronics and Electrical Equipment (WEEE), makes manufacturers of consumer electronics responsible for the disposal or recycling of consumer electronics.

Other Issues. The Federal Facilities Environmental Stewardship & Compliance Assistance Center (FedCenter; www.fedcenter.gov), a cooperative effort of EPA, the U.S. Corps of Engineers, and others helps federal agencies purchase sustainable technology. FedCenter defines "buying green" as "purchasing products or services that will reduce environmental impact. This can include criteria such as energy efficiency, pollution generated by making the product, product packaging, waste disposal, resource use, transportation, and durability.

Global Impacts

After surveying electronics manufacturers, component suppliers, software vendors, service providers, and EU officials, Boston-based AMR Research found that RoHS and other environmental compliance mandates have global impacts across the entire electronics supply chain. Companies that understand the regulations and make the correct investments can create long-term competitive advantages.

EU directives have begun to impact U.S. manufacturers over the past several years. Yet, many companies have not moved ahead quickly, and have failed to realize how these environmental regulations impact revenue and expose the company to risk. AMR's research identifies three areas of exposure to risk:

- revenue implications from EU bans on the sale of products;
- legal and branding concerns; and
- reliance on compliance efforts of suppliers and partners.

This type of exposure to risk knows no economic boundaries. Small and large companies alike can be caught off guard if they do not fully understand and prepare for environmental regulations in the United States and abroad. For example, two well-known companies—Palm Inc. and Apple Computer—had to withdraw products from the European market because their products did not meet RoHS requirements, while another company had problems meeting demands for its products because of RoHS-related supply chain issues (see E. Karofsky, Is the Investor Community Aware of RoHS Exposure?, AMR Research, July 26, 2006; www.amrresearch.com/Content/View.asp?pmillid=19621).

Redefining Environment

Eric Karofsky, senior analyst at AMR Research and author of the RoHS study, believes that RoHS and WEEE are worldwide phenomena, and are gaining momentum, just as sustainability and global warming concerns have intensified in recent years. During a recent interview with me, Karofsky said that interest in sustainability is getting stronger at the "c" level—that is, chief executive officer, chief operations officer, chief financial officer, and chief information officer.

Karofsky believes the term "environment" is being redefined, becoming part of a new model for doing business. In the past, the three pillars of competition were operational effectiveness, customer intimacy, and product superiority. Sustainability could be the fourth pillar.

PURCHASING DECISIONS

If you work for a government agency, your organization most likely has purchasing guidelines that include sustainability issues. If you work in another sector, your purchasing group should start to evaluate future electronics and electrical equipment purchases with sustainability in mind. As sustainability initiatives begin to take shape in the electronics industry, you can screen potential vendors based upon their compliance with environment, occupational health, and safety regulations.

Will we start "buying green" on a regular basis? Will "buying sustainable" become part of our identities? Next time you consider buying a new computer, Smart Phone, X-Box, or other electronic gadget, you'll have some new criteria to consider. **em**

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