



## **Best practices in IT recycling: Two obstacles with one solution**

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*Abstract*

Traditionally, there have been three main obstacles to effective, large-scale recycling in just about any industry. The first is simple resistance to change, a perception problem that goes away with enough education, environmental legislation and regulation and a critical mass of participation. The second is having a viable recovery and disposal network available for the material being handled. And the third is economics. This obstacle is more subtle, as the economics of recycling can become complex when downstream costs of disposal are weighed against the residual value of the asset or material being disposed.

Fortunately, IBM has implemented the means of addressing all three obstacles, using Best Practices to create an asset recovery infrastructure for environmentally friendly, cost-effective — and often profitable — IT recycling.

### *Setting the stage*

IBM recognized the need for IT recycling more than thirty years ago. In 1967, IBM established an Office of Environmental Affairs and soon published a formal commitment to environmental stewardship. In Policy Letter 139, IBM committed itself to:

- providing a safe and healthful workplace
- protecting the environment
- conserving energy and natural resources

### *Setting the standard*

Today, IBM is one of the world's corporate leaders in environmental stewardship. By using Best Practices in asset management, waste management, process management and product design, IBM continues to meet the challenges laid down in Policy Letter 139. As a result, today IBM globally de-manufactures over 30,300 metric tons of used equipment every year, sending less than 2% to landfill and as an example, in 2003, on average, either resold, reused, or recycled over 33,000 personal computers per week globally.

### *Setting an example*

IBM's environmental leadership and success is motivated by its commitment to corporate citizenship in attempting to enhance the environmental, economic and social quality globally. Through active environmental programs that are pervasive throughout the corporation, concern for the environment is a part of each IBM employee's job. As a result, IBM has become a world leader in IT recycling and asset recovery by developing its own Best Practices and embracing those of others when worthwhile. With extensive operational expertise, the application of sound engineering principles to product end-of-life management and focused on sound financial performance, IBM makes environmental responsibility economically responsible as well.

It all comes down to one thing: a comprehensive infrastructure for accepting, dismantling and disposing unwanted equipment, using the best available tools and techniques. The following is an overview of a few of the Best Practices in IT Recycling as implemented by IBM.

*Best practices: Asset management*

*Client leasing*—With rapid advances in technology, and decreasing product life cycles driving a quicker technology refresh cycle, leasing makes more and more sense for many clients. Clients enjoy the benefits of technology without having to dispose of equipment at the end of its useful life. To make leasing more competitive and comfortable for more clients, IBM has developed a suite of online asset/lease management tools for client use. Combined with the simplicity of returning equipment to IBM at end of lease, IBM essentially uses Best Practices in Asset Management to keep equipment out of the waste stream.

*User-friendly disposal*—IBM will manage the safe and environmentally friendly disposal of unwanted IT equipment from leasing clients, IBM equipment owners and third parties with IBM and certain kinds of non-IBM equipment. Because of IBM efficiencies and access to specialized markets, the costs are generally offset by value recovered as the assets are resold or harvested for commodities.

*Economy of scale*—What makes all of this work so well is IBM's massive investment in the infrastructure and disposal network for IT recycling. For example, the IBM de-manufacturing plant/Asset Recovery Center in Endicott, New York, alone has over 330,000 square feet of Asset Recovery processing space and a dedicated full-time staff of about 250 people. The economies of scale are complemented by IBM's worldwide online private trading exchange (PTX) for used and refurbished equipment. Available only to qualified buyers, PTX assures you that systems and components with residual value will find buyers.

*Method of de-manufacturing a product*—This process, originally implemented in 1997, allows IBM to look at a returned machine, analyze the cost of de-manufacturing, compare it with current market value and determine the optimal dismantle point in the process to maximize recovery and minimize expense. As a result, the IBM Endicott Asset Recovery Center has generated over \$1.6M in labor savings and recoveries per year.

*Method, system and program product for generating a de-manufacturing price quote*— In the past, quote responses to client requests for disposing of unwanted IT assets were manually generated, took about six hours and tended to be subjective in assessment. With the implementation of an automated system and price quote tool in 2002, IBM now generates quotes in as little as 20 minutes. The new quotes, based on current fixed costs, market trends, qualitative data and a standardized input routine, help clients and IBM sales people by providing more timely, accurate, objective and consistent quotes. Additionally, the productivity increase reduces support costs. As a result, client satisfaction has improved due to rapid turnaround times, allowing sales people to become more competitive.

*e-Business bid process*— Prior to 1998, IBM had a manual, paper-driven process for selling machines and industry standard parts externally. That process could have taken half a day of analytical effort and still be flawed through human subjectivity and data entry errors. Additionally, this did not take advantage of previous sales history to determine and optimize sales lists. The new automated, paperless system implements Best Practices by including:

- An automated trend analysis to dynamically evaluate sale history for each item to determine the economics of its value vs. harvest/sale expense
- A bid creation and management system for brokers
- An automated bid response system to determine winners

The results include:

- Improved client satisfaction by allowing brokers to take advantage of the versatility and accuracy provided by a spread-sheet type bid list
- Improved environmental performance by allowing more materials to be reused through an external sales channel, thereby resulting less material being sent to the landfill

*Best practices: Waste management*

*ISO 14001*— IBM is ISO 14001 certified and has a well-established environmental management system that utilizes Best Practices in its asset recovery and disposal processes. In addition, IBM complies with all international guidelines and applicable local environmental regulations.

*Best practices: Process management*

*Workload planning model for IT equipment: Dismantle and salvage*— Prior to 1999, there was no formal process to support workload planning relating to the dismantle and salvage of IT assets. In 1999, IBM developed and implemented a workload planning model allowing IBM to vary inputs and to generate more accurate capacity and staffing needs while monitoring productivity against goals at the same time. Because the model is spreadsheet based, variables can easily be changed, providing the user with dynamic planning capability. Utilization of this tool enabled IBM to significantly reduce labor costs through more efficient scheduling and workload planning.

*Disk overwrite services*— With data security and privacy concerns becoming a major factor in the processing of end-of-life IT equipment, IBM offers several levels of security for hard drives returned for recycling, ranging from allocation table overwrite to a 7x overwrite process that exceeds Department of Defense (3X) security specifications. This service provides clients with “ease of mind” by removing a potential obstacle for companies wishing to retire systems that may have had proprietary or client confidential data on them.

*Best practices: Process improvement*

Over time, IBM has introduced many physical operational improvements in its asset recovery centers as well. Here are two examples:

*Slotted thumb screw assembly/Disassembly socket*— This is a specialized socket that allows dismantle operators the capability to easily remove “thumb screws” from machines.

*Interconnect assembly for Flexstar hard drive testers*— This is a unique connection system that allows certain IBM Proprietary configuration hard drives to be tested on an industry standard Flexstar tester.

*Conclusion*

By implementing Best Practices in IT recycling, including infrastructure, innovative techniques and sound management, IBM can help clients reduce or eliminate the three main obstacles to effective recycling, improve environmental performance, and optimize the expense and recoveries associated with product end-of-life management.

For more information on IT recycling for corporations, manufacturers and recyclers, please visit IBM Global Asset Recovery Services at **[ibm.com/financing/gars](https://ibm.com/financing/gars)** and select *Asset Recovery Solutions* from the left navigation menu.



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