

MBA Comp Exam Questions AY 2024-2025 – SCM 6070

Question # 1:

Case Study: Green Reverse Logistics in the Electronics Industry

The path to a greener supply chain is often paved with forward-looking ideas focused on environmentally friendly manufacturing, transportation, and distribution processes. For some companies, however, the key to jump-starting supply chain sustainability can be found in reverse. By embracing reverse logistics strategies—including returns management, product repair and refurbishment, recycling of goods and materials, and proper disposal of materials from unwanted goods—companies can move the sustainability while also cutting costs and reaping products with a longer shelf life.

One business sector that is championing these activities—and seeing the bottom-line benefits—is the electronics industry, largely because of skyrocketing growth in high-tech gadgets. Thanks to ever-changing technology, top sellers such as digital cameras, cell phones, video game systems, computers, televisions, and other electronic devices become obsolete in a few short years—leaving electronics manufacturers to deal with mountains of unwanted product.

Recycling

For electronics manufacturers, recycling unwanted components is one key aspect of green reverse logistics. In 2007, Samsung, a global leader in the electronics industry, began its Recycling Direct program—partnering with take-back and recycling companies that do not incinerate, send materials to solid waste landfills, or export toxic waste to developing countries—and has since recycled 14 million pounds of waste from its consumer goods and IT products. The company has established drop-off locations across all 50 states in more than 200 fixed locations, where consumers can take unwanted electronics (both Samsung and non-Samsung brands). “Our goal is to make it convenient for Samsung customers to recycle old TVs, phones, camcorders, printers, notebook computers, and other electronics at no charge,” explains David Steel, senior vice president of marketing for Samsung North America.

The company has also teamed up with the U.S. Postal Service and third-party logistics company Newgistics to operate the Samsung Take Back & Recycling program, which enables consumers to recycle used printer cartridges. Using a prepaid Smart Label, customers can return old printer cartridges to Samsung by simply dropping them in any mailbox. Through this program, Samsung ensures that empty cartridges are safely reprocessed into their major usable component materials (including plastics, metals, and packaging materials), and then it makes those reprocessed materials available for reuse in new manufacturing for a range of products.

Refurbishing

When consumers return an electronics product because it is outdated or not functioning properly, they don't likely give much thought to what happens next. But what happens next is at the heart of business for companies such as ATC Logistics and Electronics (ATCLE), which performs asset recovery, repair, and refurbishing services. Brian Morris, director of engineering for this Texas-based 3PL, gave a detailed explanation of the process involved in giving a returned product a new life:

When we receive returns from customers, we do a test inspection to find out how many faults the product has. If there is nothing wrong with it, we can repackage it for sale. If it's a faulty product, we identify the failure and determine what it takes to repair or refurbish that product.

The next step is to weigh the economics of the repair: Given the cost of fixing a product, does it make sense to repair it? This goes back to the cost/benefit of conducting the testing and refurbishment processes. There must be an acceptable ratio to be profitable. The range is typically 70 to 80 percent of the product's original cost.

If a product is deemed worth fixing, we put it through our repair and refurbishment operation, and it emerges like new. If the product cannot be repaired, we look at its individual components. If the plastic housing is still in good shape, for instance, the plastic can be reclaimed and used to refurbish another product. Batteries are another key component. Most batteries are not exposed, so if they still hold a charge properly and are in good shape cosmetically, they are often put through reconditioning. After reconditioning, we use them as replacement batteries or sell them to other refurbishing operations. We also find uses for components such as keyboards and USB cables.

Products with components that don't make the grade are sorted into containers and sent to a recycling house. Recyclers crush and grind plastic components and send them to an injection mold facility, where that plastic is put back into production for new plastics manufacture. Circuit boards can be crushed and smelted, and the precious metals—such as titanium, copper, and small traces of gold—are removed and sold to another circuit board manufacturer or even a jewelry house.

We are working to help manufacturers utilize refurbished and reclaimed parts so they can cut down on purchasing new parts. This helps them reduce costs, and it allows us to keep waste from piling up in landfills.

Questions

1. Consider the examples of recycling and refurbishing described in the case. Who are the various stakeholders who benefit from these efforts? How do efforts to build sustainable supply chains differ from simple good business practice?
2. Would Samsung have put in place the Take Back & Recycling program in a business environment that did not emphasize sustainability? Why or why not? What about ATCLE's refurbishing services?
3. In your opinion, will sustainability become another core measure of operations and supply chain performance, in addition to cost, quality, delivery, and quality? Why or why not?

Question # 2:

Forecasting:

1. How do static and adaptive forecasting methods differ?
2. What information do the MSE, MAD, and MAPE provide to a manager? How can the manager use this information?

Question # 3:

Inventory management problem.

A North Face retail store in Chicago sells 500 jackets each month. Each jacket costs the store \$100, and the company has an annual holding cost of 25 percent. The fixed cost of a replenishment order (including transportation) is \$100. The store currently places a replenishment order every month for 500 jackets.

Questions:

1. What is the annual holding and ordering cost?
2. On average, how long does a jacket spend in inventory?
3. If the retail store wants to minimize ordering and holding cost, what order size do you recommend?
4. How much would the optimal order reduce holding and ordering cost relative to the current policy?