

## **Disposable Cartridges and Disposable Jobs**

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In the early 1990's there were two basic printing technologies: dot matrix and laser. The development of inkjet cartridges revolutionized printing technology by offering laser-like quality at dot matrix prices. Inkjet printers are affordable, in part, by the use of the disposable ink cartridge. The inkjet printers represent a very lucrative sector of the computer industry. Disposable cartridges have generated more than 30,000 jobs throughout the world. In your own hometown there is a large manufacturing plant of disposable cartridges for one of the most popular inkjet printers in the market. It is estimated that 45% of the families in your hometown depend directly or indirectly on the economic activity generated by this manufacturing plant.

Although the components of the disposable cartridges can last from five to seven years, it is more lucrative for the company to make them disposable rather than refillable. The razor-thin profit margin on the printer itself complicates matters further; in fact, most of the profit is generated by the sale of the disposable cartridges.

The continuous disposal of used cartridges is becoming a serious solid waste management problem for society. Some countries are considering regulating them, or even penalizing their use through special taxes. These factors need to be taken into account when designing the next generation of printers.

The company that has a manufacturing plant in your own hometown has just hired you to work in their research and development facilities in New York. You will be on a team charged with designing the next generation of printers. The aim is to restore market share since new competitors in the inkjet printer sector have been eating away at your company's profits for some time now. The next generation of printers may not use disposable cartridges. But this might require shutting down or downsizing the plant in your hometown.

### *Questions:*

1. What is the design problem in this case. Set up the parameters of a new computer design. What are the client's specifications? What are the social and environmental

specifications? What ethical issues are embedded in this design project.

2. Imagine that the research and development team is not concerned about the environmental problem created by the disposal of the spent ink cartridges. Should they be? If so, how would you set about changing their minds? (Prepare a mock presentation to the team making the case for an environmentally benign design.)
3. Now suppose that the research and development team proposes a prototype new generation printer that no longer uses disposable cartridges. This could conceivably have a major impact on the employment situation in your hometown. Is this an ethically relevant fact? Should hometown employment be a factor in the design of the new generation of printers? Why or why not?