

## COSTS

Imaging has few cost studies. Almost all those published focus on production imaging of office documents, the type of source documents that can be put in an automatic feeder and scanned at 20 or more pages per minute.

The Council on Library and Information Resources announced in 1999 that it would fund a cost study of imaging for libraries and archives, but as of late 2000 it had not found anyone to undertake the work.

The Cornell/Xerox Joint Study in Preservation concluded in 1992 that the production and long-term storage costs for digital technologies were competitive with those of microfilm: about \$0.15 per page. A similar conclusion had been reached by Michael Lesk two years earlier in 1990. This cost figure, however, is misleading. Digitally scanned images usually are enhanced to improve legibility at additional cost; microfilmed images cannot be enhanced in that way. Further, some types of materials such as photographs and maps are commonly digitally captured, but only infrequently microfilmed.

A reliable cost study looks at all the following elements: hardware and software investment; training investment; labor cost for identifying, preparing, and otherwise handling the source documents; image capture; image editing; inspection; and additional editing as required. The cost study should also consider the resolution at which image capture is to be undertaken because that affects the time required.

The only published cost study that claims to consider all these cost elements is one by Simon Tanner and Joanne Lomax Smith. Their paper, entitled "Digitisation: How Much Does It Really Cost?" was presented at the Digital Resources for the Humanities Conference in London Sept. 13, 1999. They created a matrix that costed black-and-white images of loose pages at \$0.16 to \$0.32 each; of black-and-white images of bound volumes at \$0.32 to \$2.40 each; of color images of 5-by-4-inch color photographs at more than \$2.40 each provided that the source documents are in excellent physical condition and have no specific problems in terms of handling or scanning. The costs, however, are for 300-dpi resolution. The authors estimated the cost of 600 dpi would be nearly twice as much.

Tanner and Smith assumed only minimal enhancement, primarily cropping, deskewing, and color matching. It is not uncommon for an organization to undertake considerably more if the intent is to make the image more legible than the source document. If you assume up to six minutes of enhancement per image and an average cost of \$25 per hour for labor, including overhead, the cost for enhancement alone can go as high as \$4.16.

Experience suggests the Tanner and Smith figures are too low; libraries should hold greater confidence in cost figures provided by service bureaus that specialize in image capture. Calls to several showed the price for grayscale scanning of printed materials is as high \$5 per page for sizes of 8 by 10 inches; and up to \$10 for images up to 11 by 17 inches. The price is about doubled to \$10 and \$18 when the digital capture is in color. Cropping, sizing, and formatting add another \$0.34 to \$0.70 per image. Enhancing the image can increase the price as little as \$1 for grayscale and as much as \$10 for color when the source document is in poor condition and the object is to create a highly legible image.

Creating thumbnail images in JPEG format adds another \$0.20 per image to the price. These images can be viewed more quickly than the screen images, so they allow a user to view many images in an attempt to identify the most suitable image for a particular purpose.

A service bureau's costs are no higher than 75% of its prices. Although a library or archive that manages its program well may be able undertake imaging at a lower cost than the prices charged by service bureaus, a minimum budget of \$6 per image would be wise.

The foregoing costs include the image capture and editing hardware and software but not the cost of organizing the images. The cost of cataloging images usually is greater than cataloging print materials because a substantial amount of information about the images has to be included and original cataloging is more common. For those reasons, it is common to calendar collections of closely related images. For example, a collection of letters might only list the correspondents and dates; a collection of photographs might only identify the buildings or people and dates.

The cost of the image server must also be taken into consideration. The simplest rule-of-thumb is to calculate \$1,500 to \$2,500 per concurrent user the system is to support, with the unit cost lower for larger systems. A five-user system would cost about \$12,500, including storage for up to 10,000 images; a 15-user system would cost about \$22,500, including storage for up to 50,000 images.

When an image server is not linked to an automated library system with the database of associated bibliographic records and searching software, the cost of searching software comparable to that available on the automated library system can be as high as \$30,000 for a small system supporting five concurrent users and 10,000 images and \$60,000 for a system supporting 15 concurrent users and 50,000 images.

A LAN (local area network) upgrade may also be required. If Cat 5 UTP is already in place, the capital cost may be limited to telecommunications hardware and software. Typically, this costs a minimum of \$400 per workstation connected. A WAN (wide area network) upgrade costs only slightly less and operating costs would increase. A minimum cost of \$400 per month per location is common.

Workstations for accessing images are more expensive than patron access catalog workstations, and even Internet workstations. The major increase in cost is in the monitor, typically at least \$800 more expensive than the monitor most often used with patron access catalogs.

Imaging is costly, which makes planning particularly important. The impact of a well-conceived imaging project on service to patrons, however, can be substantial. All the case studies described in Chapter 10 were successful and enthusiastically received by patrons. Expansion, rather than contraction, of the programs has been the pattern.