

White Paper

How to select the right scanner

Assessing models
and matching needs



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Efficient document capture starts with the ideal scanner

When you convert paper documents into digital images (files), you're able to manage them with point-and-click ease on computers. Most customers who enter into document imaging achieve cost savings and productivity increases. This greater efficiency can also give you a competitive advantage in customer service. But the front end of document imaging is scanner capture with the goal of moving documents through your workflow quickly and without incident from scan to final destination(s).

This white paper will help you start on the path to productive document imaging and aid in selecting a scanner or scanners ideal for your paper volume, type of organization, and processes.



\$25,000

The cost to fill a four-drawer file cabinet holding 15-20,000 files. It will cost \$2,000 a year to maintain it.

Source: *Entrepreneur Magazine*

Every link in your imaging chain is important

There's more to the capture step of document imaging than just putting paper through a scanner. Image capture is about making documents as sharp and legible as possible for online viewing, printing, and reading by data extraction software. There are multiple factors involved, starting with these basics -

- **Document preparation** - removing staples, paperclips, sorting by type or condition if necessary
- **Document transport** - feeding originals, moving them past the camera, and stacking originals after scanning
- **Imaging** - performed by a camera consisting of a light source, optics, a sensor, and electronics
- **Image processing** - adjusting exposure, straightening, removing borders, and compressing images
- **Quality assurance** - assuring that scanning and processing are correct and images are satisfactory
- **Indexing** - adding identification and creating a database of the imaged documents so they can be retrieved later

Image quality variables are usually centered on scanning and image processing, but anything you can do to improve performance in any step can make your overall business process more efficient. As you evaluate scanner models, it's important to look at how various combinations of features, speed, and cost impact the process and output, including reliability and total cost of operations.

There are over 4 trillion paper documents in the US alone and they are growing at a rate of 22% per year.

Source: *PricewaterhouseCoopers*



Taking a close look at image quality

The goal of document imaging is to capture and share information visually, so clarity in all resulting formats is critical. What you capture is what you will wind up seeing, sending, and printing. Imaging standards established by government and educational agencies, for example, confirm the importance of efficient data capture. The Inland Revenue Authority of Singapore notes, "All information contained in the document (be it graphical, textual, handwritten, or otherwise) must be capable of being captured in its entirety and with a level of accuracy that ensures that no information that can reasonably be expected to form part of any subsequent business process is lost or altered in any way." In other words, capturing reality (and possibly enhancing it without modifying it) is crucial.

Putting scanners to the test

Some imaging qualities can be measured. Engineers can evaluate a scanner's ability to image areas of a standard test target without distortion or loss of detail. Horizontal and vertical lines should remain straight. Areas of fine detail should not fill in. Optical character recognition (OCR) performance is another measure. If error rates are high, it's a sign that the imaging process is deficient and results aren't sharp enough for accuracy.

How scanners are categorized

Portable scanners are available today, ranging from hand-held models good for a few scans when traveling, to very compact home-office units. Costs range from under \$100 to around \$400. Some of these models can scan business cards and hard cards, as well as documents, and include software that organizes receipts, contacts, and other documents to create a "digital filing cabinet."

Desktop/small office units also fit neatly on a desk, capture 10 - 30 pages per minute, and are more targeted to home offices and small businesses. Many of these are now used for distributed scanning where there may be scanners in various areas within an organization, or at a variety of geographically diverse places. Prices range from \$300 to approximately \$1,500.

Mid-volume scanners are best suited to larger office settings and departments within businesses/organizations, with capabilities to handle up to several thousand pages per day at 30 - 60 pages per minute. Their larger footprint usually demands a dedicated scan area or workstation setup. \$1,500 to \$6,000 range.

High-volume scanners are found in dedicated scanning environments and production areas. Even larger in size, some stand on their own as floor-based models. Combined with high-performance software for capture and document management, speeds start at 90 pages per minute and go up from there. Prices start around \$9,000 and can be significantly higher for top-of-the-line models.

How to select the right scanner

Finding your scanning sweet spot

Each scanner design incorporates decisions made by engineers about optical performance and how the raw digital stream of ones and zeros is converted into an image. Because only you can decide if these choices are right for your needs, the best way to evaluate a specific scanner is to test it with your documents. Set the capture parameters according to the manufacturer's recommendations for your application. These might be different depending on whether your mix includes photographs, multipart forms, bar codes, handwritten notations, diagrams, color content, or printed forms.

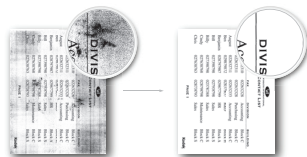
Virtually every scanner is able to scan at multiple resolutions, which are measured in dots per inch (dpi). The higher the number, the more data transferred from the page. But higher resolution can mean a slower scan rate and larger image files. You want to achieve the highest speed for the lowest resolution that sufficiently captures the information that's important to you.

Planning for productivity

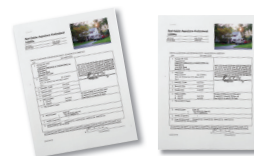
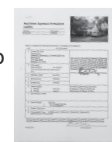
When it comes to operational goals for an image capture system, the system should do as much of the work as possible. So you want to avoid the need to rescan documents and reinsert them into your workflow. If we look at the different aspects of the imaging chain, it's clear that minimizing paper handling is critical.

The right scanner will allow you to spend your time on tasks that are more valuable than sorting paper. Here are some scanning and technology capabilities to look for –

- Handling of **mixed document weights and sizes** to save time spent presorting
- **Duplex capture** of front and backs of documents simultaneously
- **High-quality optics and lamps** for sharpness and detail and longer life
- **Auto image rotation** so documents are “right reading” to cut sorting and post-scan editing times
- **Built-in image enhancement**, in hardware or software, can make images look even better than originals automatically
- **Detection of overlapping documents and potential misfeeds** and jams to reduce manual intervention time and need for rescanning



- **Detection of photographic content** within the batch and on individual documents, and ability to handle a mix of text and images in a single scan
- **Neat, face-down stacking** of scanned document batches delivered in original order to speed archiving of originals
- **Automatic exposure adjustment** (also known as thresholding)
- **Automatic handling of “exception” documents** (such as those that are crumpled or have staples) to reduce rescans
- **Automatic white balance setting** to minimize variations between images
- **Color management and color balancing technology** to help assure consistent images from scanner to scanner and batch to batch
- **Autocropping and straightening of images** (deskewing) and deletion of blank pages to virtually eliminate the need for manual editing
- **Background color smoothing** for cleaner looking, sharper images with smaller file sizes



Professionals spend 5%-15% of their time reading information, but up to 50% looking for it.

Source: AIIM

A quick look at scanner terminology

Contrast – the difference between light and dark areas in an image

Detail – the ability to discern small features in an image

Curve optimization – how smoothly rounded characters are displayed

Edge definition – the difference between data and the background

Illumination – evenness of lighting from side to side without bleed through

Resolution – how many dots per inch the image sensor detects

Bitonal – black and white imaging

Grayscale – 16 – 256 steps between black and white

Color – multiple values of red, green, and blue (RGB)

Artifacts – “noise” or stray dots appearing in a scanned image that weren’t in the original



Minimizing operator involvement

By limiting paper handling and automating image processes, your scanning system can minimize the time and labor required to get digital documents into your system. Here are some more important considerations to keep in mind that will let your people be more productive –

- An intuitive capture system reduces the need for specialized training and dedicated operators
- Automatic color detection, within a document batch, and image mode switching takes another task off an operator’s list
- Capabilities to time- and date-stamp documents, index by bar code or OCR fields, and perform automatic data entry via OCR
- “Trainable” features, such as self-learning electronic color dropout capabilities to handle more colors and color variations
- Simplified routine scanner cleaning and maintenance will enable an operator to safeguard system performance in less time

Balancing features with total cost of ownership

Beyond quality lies cost. But there’s more to cost than the purchase price of a scanner and imaging software. Be sure to take into account the ongoing expenses of labor, consumables such as lamps and feeder modules, service, and software upgrades. Look at any scanner’s design in terms of durability and ergonomics. A good guarantee and a strong service contract can also be valuable assets. Today there is a wealth of information in terms of specifications, user reviews, ratings and more to be found online.

The true cost of paper – the average company spends

\$20

to file a document

\$220

to reproduce a lost document

\$120

to find a misfiled document

7.5%

of all documents get lost, 3% get misfiled, and the average professional spends 50% of their time looking for information.

Research statistics from the Gartner Group, 2009

About the Information Management Division of Kodak Alaris

Kodak Alaris is a new company driven by the simple belief that “we can always find a better way.” Our Information Management division helps organizations capture content from digital and paper sources, extract insights, and deliver the right information to the right place at the right time for better outcomes. Our portfolio includes award-winning document scanners, a global service and support team, and software and solutions that capture and intelligently manage information. For small offices and large-scale organizations, we provide new ways to automate processes, improve customer interactions and make smarter business decisions.

Want to learn more?

Call: 1-800-944-6171
www.kodakalaris.com/go/IM

Kodak Alaris Inc.

2400 Mt. Read Blvd., Rochester, NY 14615 USA
1-800-944-6171

Kodak Alaris Operations Canada Inc.

Mississauga, Ontario, Canada L5W 0A5
1-800-944-6171

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