**Image Capture and Quality Issues**

# Get the Big Picture on Quality.

## How to select the right scanner for a smooth-running document imaging system.

**Get your document imaging applications off to a great start.**

Once you start converting paper documents into digital images, you'll be able to do all sorts of things with them. Store them, route them to almost anyone, almost anywhere. Turn your paperwork into an electronic workflow. Make your records management a drag-drop-click operation.

Because you're doing more work electronically, you'll probably experience cost savings and productivity increases. Increased efficiency can also give you competitive advantages when it comes to profitability and customer service.

But how do you get there? What about the image capture process itself? It's your on-ramp to document imaging. You want traffic to flow through it quickly and without incident.

Image quality is much more than pretty pictures. It's about making images as legible as possible for humans to read and software to extract data from. And doing so reliably, quickly, and with a total cost of operation that's affordable. As you weigh your scanner options, it's important to look at how the many combinations of features, speed, and cost available to you impact all aspects of quality. There's what shows up on the screen of your desktop computer. Then there's the process by which it gets there.

**Your imaging chain is as strong as the quality of its links.**

Let's begin with the basics. There's more to document imaging than running paper through a scanner. Image capture steps typically include:

- document preparation — removing staples, sorting by type or condition if necessary
- scanning — feeding and removing originals
- image processing — adjusting exposure, removing skew, removing borders, image compression
- quality assurance — checking to make sure scanning and processing are correct
- indexing — creating a database of the imaged documents so they can be retrieved later

Image quality variables are generally centered on scanning and image processing. However, anything you can do to improve performance at any one of the steps noted here can help make your overall business process as efficient as possible. So it's wise to ensure that your choice of scanner takes all the steps into account.

### A few handy words about imaging and image quality.

Contrast — the difference between light and dark 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 background

Illumination — evenness lighting from side to side without bleed through

Resolution — how many dots per inch the image sensor detects

Bitonal — black and white imaging

Gray scale — 16 to 256 steps between black and white

Color — multiple values of red, green, and blue

Artifacts — "noise" or stray dots appearing in a scanned image that weren't in the original

*A Document Imaging Backgrounder provided by Eastman Kodak Company*

**Quality — its beauty is in the eye of the beholder.**

Evaluating image quality takes equal parts subjective and objective judgment. Remember, the goal of document imaging is to capture and share information visually.

A quick search on imaging standards posted on the Web by U.S. and foreign government agencies and educational institutions tells the tale. Consider this from the Inland Revenue Authority of Singapore: "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."

To put it another way, what you get is what you see. The image on the computer screen contains all of the relevant information that appears on the original document. No more, no less.

**Putting the scanner to the test.**

Some imaging qualities can be measured. Engineers can evaluate a scanning system's ability to image areas of a standard test target without distortion or loss of detail. Straight lines should remain straight left to right and up and down. Areas of fine detail should not fill in. Optical character recognition (OCR) performance is another measure. If errors rates are high, it's a sign that the imaging process is deficient.

**You be the judge.**

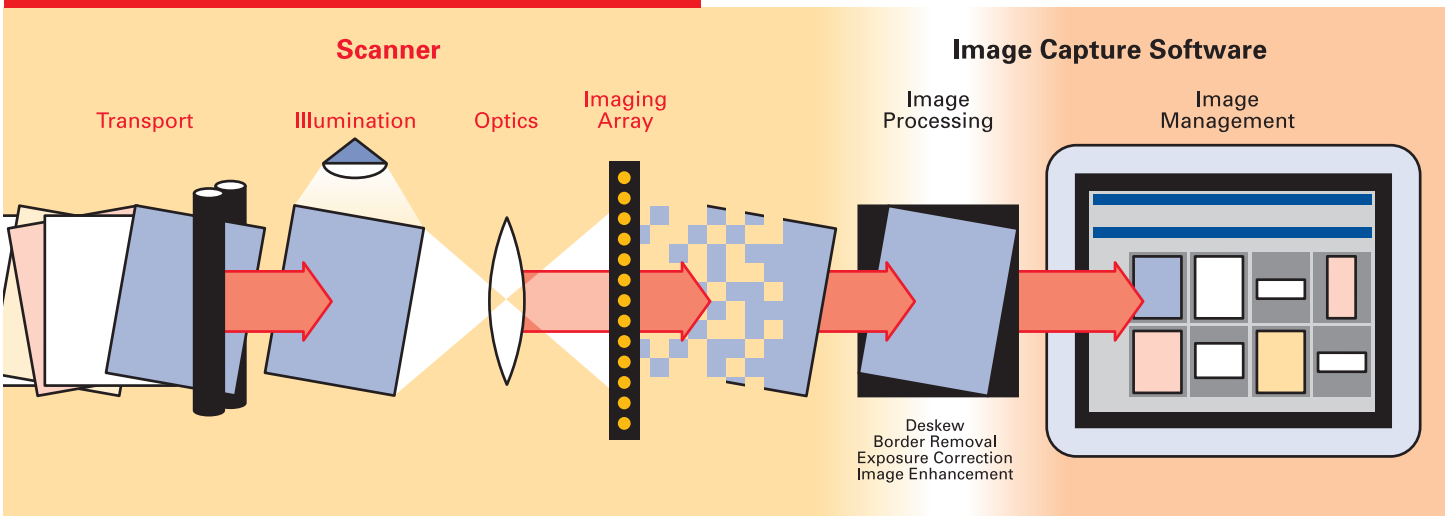
Because only you can decide if what you see is good enough, the best way to evaluate a specific scanner is to test it with your documents. Set the capture parameters according to the vendor's recommendations for your application. These might be different, depending on whether your mix includes photographs, multipart flimsies, bar codes, handwritten notations, diagrams, color content, or consists mainly of 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 generally means a slower scan rate and larger image files for a given page. You want to achieve the highest speed for the lowest resolution that sufficiently captures the information that's important to you.

**Plan for a productive process.**

When it comes to operational goals for an image capture system, you want the system to do as much of the work as possible. Most particularly, you want to avoid the need to rescan documents and reinsert them into an image workflow. If we look at different aspects of the imaging chain, it's easy to see what matters.

**The inside story on image capture.**




**KODAK Care Kits — an easy, cost effective way to support image capture reliability.**

Options include on-site service, next-business-day replacement, preventative maintenance, and consumables.

Support services include site readiness, installation, operator training, and application development.

All delivered by a dedicated team of professionals.

**Minimize paper handling.**

The right choice will allow you to spend your time on tasks that are more worthwhile than sorting paper. Here are some capabilities to watch for:

- A scanner that feeds mixed document types and sizes means you'll spend less time presorting.
- A duplex scanner will capture the fronts and backs of documents in a single pass.
- A scanner that prevents and/or detects overlapping documents saves you the nuisance of removing and rescanning individual documents.
- If the scanner delivers documents face down in original order in the output tray, it's easier to prepare them for archiving.

**Maximize image quality automatically.**

An image capture system that adjusts exposure (also known as thresholding) and performs image processing helps your process in several ways.

- By handling "exception" images automatically, the capture system can further limit the need for time-consuming manual rescans.
- Consistent imaging performance reduces the need to check every image in your quality assurance step.
- By straightening images (deskew), autocropping images, and deleting blank pages, the system can virtually eliminate the need for manual image editing.

**Optimize operator involvement.**

By limiting paper handling and automating image processes, your scanning system can minimize the time and labor required to get images into your system. Here are some other points to consider:

- An easy-to-operate image capture system will reduce the need for specialized training or dedicated operators.
- Depending on your application, you may want the capture system to time and date stamp documents, perform indexing by bar codes or OCR fields, or perform automatic data entry via OCR.
- Simplified routine scanner cleaning and maintenance will enable an operator to safeguard system performance.

**Find the right balance of features and capabilities to minimize your total cost of ownership.**

No discussion of quality would be complete without a word or two about cost. As you can tell, there's more to it than the purchase price of a scanner and imaging software. Be certain you take into account the ongoing expense 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 be a worthwhile investment.

Your value-added reseller or systems integrator can help you select the scanner and software combination that delivers the quality and performance that are right for you. For more information, call your Authorized Reseller of KODAK Imaging Products or log onto www.Kodak.com/go/docimaging.

**Every office could use a little help from Kodak.**

With the introduction of Kodak's new i100 Series Scanners, small- and medium-sized offices can experience hassle-free scanning with great image quality.

**Featuring:**

- PerfectPage with iThresholding to make anybody a scanning expert
- Surepath Paper Handling provides throughput that's virtually non-stop
- KODAK Service & Support keeps you up and running

As an ENERGY STAR® Partner, Eastman Kodak Company has determined that these products meet ENERGY STAR® guidelines for energy efficiency.

For more information, call your Authorized Reseller of KODAK Imaging Products or log onto www.Kodak.com/go/docimaging.

We're here for you.
**Kodak Service & Support**

**Innovation you can count on™**



A-6314 CAT No. 855 4040 Printed in U.S.A. 02/05

Eastman Kodak Company, Document Imaging, Rochester, NY 14650 1-800-944-6171
Kodak Canada, Inc., Toronto, Ontario M6M 1V3 1-800-465-6325
Kodak Gmbh Hedelfingerstr 60, 70327 Stuttgart, Germany EAMER-DI-Capture@kodak.com
Kodak (Australasia) Pty. Ltd. North Ryde NSW 2113 Australia 61-2-9870-4224
Kodak (Hong Kong) Limited North Point, Hong Kong 07021 852-2654-9330
Kodak Japan Limited, Tokyo, Japan 81-3-5540-2270 jp-di-mktg@kodak.com
Kodak de Mexico Mariano Otero 408 Guadalajara, Mexico (52) (33) 3818-6598
For other areas outside the U.S.A., call +1-585-722-9287