- **ADF (Automatic Document Feeder)**
  ADF refers to the most simple type of feeder that's able to process only single-sided originals. ADFs on analogue copiers require sorter bins in order to produce multiple sets of multi-page documents. ADFs on digital copiers don't need sorter bins if the machine operates with scan-once/print-many technology.

- **Analogue**
  Analogue is the traditional copier technology, using the "light lens" method to reproduce originals.

- **Bypass (Tray)**
  The bypass tray allows you to feed non-standard paper without having to put it in one of the main paper trays.

- **Catch tray**
  The catch tray is simply the output tray that receives copied pages.

- **Corona wire**
  A corona wire is a charged wire that draws the toner off the drum onto the paper.

- **CPM (Copies per Minute)**
  CPM, otherwise known as PPM – pages per minute, is the measure of a machine's engine speed when making copies.

- **Digital**
  Digital is the state-of-the-art copier technology widely used today. Digital copiers scan and digitize originals before reproducing them, essentially converting images to computerized data. And here's an interesting fact: All multifunctional copiers are digital, but not all digital copiers are multifunctional.

- **Duplex**
  Duplex refers to the process of double-sided copying.

- **Electron**
  An electron is a negatively-charged particle that consists of ordinary matter. Atoms consist of a positively charged nucleus surrounded by a cloud of negatively charged electrons.

- **Fluorescent**
  Fluorescent means having the ability to emit light when struck by electrons or another form of radiation.

- **Fuser**
  The fuser is the part that melts the toner onto the paper. After the toner is transferred on the paper, the fuser applies heat and pressure to ensure that the toner stays on the paper permanently.

- **Image shift**
  Image shift is a common feature that allows you to shift the image of your original a little way across the page to leave a margin for binding.

- **Incandescent**
  Incandescent light is white, glowing, or luminous with intense heat.

- **LCT (Large-Capacity Tray)**
  LCT, also known as LCB – large capacity bin, generally refers to a paper tray holding 1,000 sheets or more.

- **Multifunctional**
  Multifunctional digital copiers can also serve as computer printers and, in

some cases, fax machines and scanners.

- **OCT (Offset catch tray)**
  An OCT is a device that receives and mechanically offsets each copied page.
- **Paper drawers/trays**
  Paper drawers, or trays (either term can be used), simply hold the paper waiting to be copied. They're almost always frontloading, but large-capacity trays holding 1,000 sheets of more may be attached to the side of the copier.
- **Photoconductive (material)**
  Photoconductivity produces changes in the electrical conductivity of a substance as a result of absorbing electromagnetic radiation. Selenium is a photoconductive material.
- **Photon**
  A photon is a distinct "chunk" or particle of electromagnetic radiation.
- **Photosensitive**
  Something that's photosensitive has an increased reaction to the stimulus of light.
- **Platen**
  The platen is the glass surface on which originals are placed for copying.
- **PPM (Pages per Minute)**
  PPM is a measure of a machine's engine speed when making copies.
- **Preselection**
  Preselection refers to the number of copies you can tell your copier to make in one run.
- **RADF (Reversing Automatic Document Feeder)**
  An RADF can handle double as well as single sided originals. RADFs on analogue copiers need bins in order to produce multiple sets of multi-page documents. RADFs on digital copiers don't need sorter bins, providing the machine operates with scan-once/print-many technology.
- **Reduction/Enlargement**
  The reduction/enlargement feature allows you to either reduce or enlarge an image when producing copies.
- **Resolution**
  Resolution is a measure of how a digital copier scans and prints copies, generally 400 dpi (dots per inch) or 600 dpi. 600 dpi means that the scanned image consists of 600 x 600, or 36,000 dots per square inch.
- **Scan-once/print-many**
  Scan-once/print-many is the reproduction method of digital machines that scan in a copy of the original image once, digitize the image and store it, and use this to reproduce many copies.
- **Simplex**
  Simplex refers to single-sided copying.
- **Sorter**
  The sorter is a multi-bin device for collating pages as you make multiple copies of multi-page originals.
- **Toner**
  Toner is a dry ink powder which has been electrically charged. Toner

cartridges are used in copiers, laser printers, and fax machines.

- **Zoom**
  Zoom is part of the reduction/enlargement feature that allows you to select the amount of magnification you want, typically in 1% increments. Most analogue copiers have a zoom range of somewhere between 60-140% and 50-200%. Digital models have ranges of 25-400% and wider.

Photocopier

A *Photocopier* is a device for making photographic copies of graphic images. A common form of the photocopier involves the use of the *xerographic* process, where light reflected from the original document is focused onto an electrically charged insulated photoconductor, and the latent image is developed using a resinous powder. For the purposes of this Glossary, the term *photocopier* is restricted to devices that use *analog* technologies, such as the use of light lens technology. *Digital* technologies are incorporated separately With photocopiers so defined, the image is normally scanned and printed essentially in a single operation, and an intermediate scanned latent image is not normally stored for re-use at a later stage--although the two stage processes of photography, which indeed may be used for photocopying, do permit the use of the photographic negative as an intermediate storage device (a particular case of which is the use of microform recording technology--see

3.2.3. Digital Image Scanner

A *Digital Image Scanner* is a device for scanning the images contained on pages of a document and transforming the scanned image into digital electronic signals corresponding to the physical state at each part of the search area, that is, into image documents These signals are most often stored for subsequent interpretation and access distribution or presentation. A single small element of the document (known as a "pixel") is thus encoded quantitatively by a digital number, where the number contains sufficient information to represent the *image* content of the pixel A digital image scanner on its own does not interpret the image information. The number of pixels per square inch is considered to be the *resolution* of the scanner. Typical resolutions with current technology range from 100 pixels per linear inch to over 1,000 pixels per linear inch, but there are trade-offs between resolution, speed, cost, and quality.

Digital Image Scanners may scan in one or more different modes, depending upon their capability and depending upon whether they are scanning monotone or color or whether they are scanning line art, greyscale, halftone, or continuous tone objects Performance, in terms of speed, accuracy, and resolution depend upon the degree to which these attributes can be accommodated. The speed of digital image scanners range from one or two pages per minute to around fifty per minute.

A FAX machine is a special form of digital image scanner. Other special forms of digital image scanners exist for scanning from media other than paper, such as digital image scanners that scan directly from microfilm Such images scanned from microfilm, however, can be no better than the original microfilm image itself

Digital image scanners may come equipped with different physical devices for accommodating the original documents. These may include flatbed platens equipped with manual feeds, semi-automatic feeds (one page at a time is fed into an automatic hopper), or fully-automatic feeds. Manual feeds offer the greatest safety from potential jamming, a point of importance in the scanning of unique documents. Flatbed scanners

generally require either books to be disbound and one page at a time placed on the platen, or require books to be laid open face-down on the platen, which may cause some distortion. They may also come equipped with edge-scanners, which scan right up to the binding of the book, avoiding this distortion; or with cradle scanners, where the book is opened in a cradle (such devices are also used in some microform recording devices) and two angled scanning heads are lowered into the open, cradled book. In all cases, quality control of scanning is an issue with respect to fidelity of the scanned image and registration of the scanned image with respect to a defined standard.

3.2.4. Optical Character Recognition Scanner

An *Optical Character Recognition (OCR) Scanner* is a digital image scanner that in addition interprets the textual portion of the images and converts it to digital codes representing formatted or unformatted text The less sophisticated such devices can only "recognize" one or a few fonts of a fixed size, and can only interpret such information as unformatted text. The more sophisticated devices can represent multiple fonts of different sizes, and can interpret limited information as formatted text. At either extreme, no device achieves 100% recognition accuracy: accuracy of the better devices typically ranges between 95% and 98%, depending upon manufacturer imposed trade-offs between the sophistication of the device, its speed, and its intended range of applicability.

OCR devices are most often used where scanning errors and unformatted text are acceptable limitations, such as, for example, where the input material can be subsequently proofread and corrected, or where redundant information is scanned and the redundant information used to correct any inconsistencies arising from scanning errors (typically in certain commercial applications). In the context of document preservation, most uses of OCR devices are limited to where text information only suffices, and the form of the original document is not an important aspect of preservation. An important application is for use in the construction of indices for access and distribution or for full contextual searching of information. Promising research has been done, for example, on the searching and retrieval of documents for retrieval purposes using the "corrupted" (erroneous) text derived from the OCR scanning of documents. The techniques utilized in this approach exploit the redundant information contained in the corrupted text.

Handwriting recognition devices, an extreme form of OCR devices, are not included in this Glossary. At this time, such devices are limited in capability.

3.2.5. Internal Character Recognition

Internal Character Recognition is the term sometimes used when the same interpretation technology that is used in OCR devices is applied to an already stored digital image at a later date. This separates the functions of scanning the images digitally, and of interpreting the images. Interpreting the scanned and stored images at a later date also allows for using different recognition technologies in the tradeoffs between accuracy, speed, and function. In the context of preservation and media conversion, it also allows for the immediate focus to be placed on scanning and storage (and possibly media conversion), deferring the option of character recognition and its applications to a later date--at such time, massive-volume character recognition and information interpretation is likely to be more economically feasible at higher levels of accuracy than with present technology.

3.2.6. Intelligent Character Recognition

Intelligent Character Recognition is the term sometimes given to Optical or Internal Character Recognition where the scanned and recognized information is further interpreted to take advantage of contextual information, that is, words, phrases, and so forth, rather than simply treating the text as a string of independent characters. Intelligent Character Recognition, for example, may be used by sophisticated computer programs to construct concordances automatically, or to create highly- sophisticated indexes. At this stage, intelligent character recognition is a field of research, rather than production, interest .

3.2.7. Page Recognition

Page Recognition is the term given to the automatic interpretation of features contained within the printed page such as titles, subheads, columns, paragraphs, figures, figure captions, footnotes, and so forth. Additional capabilities of sophisticated page recognition algorithms include the ability to determine fonts and font sizes. In essence, Page Recognition "reverse engineers" the image into marked-up copy.

3.2.8. Rekeying of Text

As an alternative or complement to OCR textual information can be encoded by directly keying alpha-numeric text into computer files manually. This has some advantage in accuracy over OCR, but is slower. It may also be used in situations where the brittleness of acidic documents makes them so fragile that scanning technologies cannot safely be used.

3.2.9. Enhancement

Enhancement refers to the use of mathematical algorithms to improve the quality of digitally scanned images such as by computationally adjusting the contrast or brightness of the scanned image. The term also includes techniques that may be used to modify the scanned image for structural reasons, such as *bordering* to remove any unwanted scanned areas surrounding the actual document pages, *de-skewing* to rectify the scanned image to correct for any skew in the placement of the document on the scanner, or *margin adjustment* to ensure that pages are properly aligned with each other.

Q1. What is Document Management?

Document Management involves managing documents at all stages from creation to storage and either archiving or destruction.

Q2. Is document management the same as document scanning or document imaging?

No. Document imaging or document scanning is a method of converting a document such as a paper document, microfilm or microfiche, into an electronic format. Our document scanning faq's page gives more information on document scanning. Document management involves the storage and retrieval of documents and helps with information management within an organisation.

Q3. What is an Electronic Document Management System?

An Electronic Document Management System (EDMS) stores a scanned copy of a document. Most Electronic Document Management Systems use a database to store the scanned documents. Electronic Document Management Systems allow for fast retrieval through indexing systems or searches.

Q4. What is a Web based document management System?

A web based document management system is also referred to as an online document management system. It is an electronic document system that is

accessed via the Internet. A web based or online document management system has the advantage of being able to be accessed from anywhere worldwide, and allows for the rapid transfer of documents.

Q5. What are the advantages of Electronic Document Management Systems?

The advantages of using an electronic document management system go beyond the simple cost benefit of faster retrieval times and smaller physical storage spaces. Electronic Document management Systems also offer extra benefits such as efficiency of workflow and information management. This is discussed in more detail in our document management white paper.

Q6. How does this help document and information management?

A document management system can help an organisation with its document and information management by providing a well indexed document storage system from which information can easily be found and retrieved.

Q7. Is there a Document Management Return on Investment Analysis?

We have prepared a Document Management Return on Analysis (ROI) tool to help demonstrate the cost benefits of document management systems to your organisation. The cost benefits are discussed in more details in our free document management return on investment white paper.

Q8. Is there a document management systems comparison available?

We offer a selection of different document management systems. Any document management systems comparison will depend upon the solution required. Contact us for help in comparing document management systems, and assessing which document management system is best for your organisation. Our document management software website gives further information on the document management systems available.

Q9. What document management software is available?

We offer a selection of different document management software, enabling the best document management product to matched for any solution. Our document management software website gives further information on the document management software products.

Q10. How can I perform a Document Management Cost Analysis?

We can help perform a document management cost analysis. We have created a set of simple worksheets for you to fill out to compare the cost of developing an in-house document management system with the cost of purchasing a commercial document management product. You can download the document management cost analysis white paper here.

Q11. What types of documents are included within a document management system?

An electronic document management system can include both documents that have been produced electronically and also documents that have been scanned in.

Q11. What types of organisation can benefit from electronic document management systems?

Electronic document management systems are beneficial in many different market sectors. Examples include engineering where autocad document

management enables more efficient and cost effective storage of drawings.

High Volume or Bulk Document Scanning

Using our sophisticated Sharp and Konica Minolta high speed duplex scanners we can scan hundreds of thousands of pages per day into most EDM system formats. We can scan anything from the smallest microfilm up to the largest colour large format drawings.

Scan all types of documents

Whether you have invoices, project files, correspondence, books/magazines or purchase orders to scan we can recommend the best way to do it and finish the job quickly, to a high quality and at a low cost !

Quality Control is a Priority!

We operate a number of different scanners from many manufacturers giving us a throughput of many hundreds of thousands of pages a day.

A Range of Collection Services

We can collect your documents direct from your office anywhere in the UK and once scanned we can even securely shred them if required supplying an appropriate security certificate as proof.

Free Document Management Software

Once scanned we can return the documents on CD-ROM in our FREE Alchemy or Quickimage document search/viewing database. Documents can then be searched for on a number of user definable fields which means a single document can be located and viewed in under a second.

We also have extensive experience in scanning documents into other EDM systems such as Documentum, Filenet, Microsoft Sharepoint and other systems thereby enabling you to outsource your high volume scanning requirements where in-house resources perhaps cannot cope.

Post rooms in large companies cover the receipt, opening, logging and distribution of all incoming and outgoing mail. This can become a large administrative burden.

We can implement a 'virtual' post room function either on or off site by utilising a PO Box number.

We can fully manage all of your incoming mail and scan, log and distribute the scanned mail via email or internet document access systems to individual desktops all within pre-agreed service levels.

Our service reduces both staff costs as well as capital and management costs in implementing a document management solution.

Our document management and scanning products which address your requirements include:

TokOpen

TokOpen and its associated modules enables any mailroom to scan and automatically route large volumes of incoming mail directly to their recipient.

Inbuilt workflow functions can be totally customised to fit specific processes such as order processing, general correspondence, invoices, application forms or customer service documents.

All information can be accessed via internal staff or externally via secure web based browsers for public access.

b-Wize Mail

b-Wize scans-in all documents that your company receives, even unstructured or handwritten notes, and automatically extracts address, subject, content and date information before automatically routing digital documents using the TokOpen system.

Alchemy

IMR Alchemy is an easy to use document and information archive solution. Archive of existing MS Office, scanned documents, drawings, CAD files and HTML data can all be integrated into a single easy to use information access resource either from CD, network or via a webserver.

We provide a wide range of on or off-site scanning services including paper documents, drawings, maps, survey forms, application forms, microfilms and photographs.

We currently operate on-site or PO box based outsourced mail processing facilities for many of the UK's largest companies.

We offer instant FTP or internet based document transmittal and a secure handling, storage and disposal service for the paper originals

We can provide specialist conversion services from CanoFile, Tape and old document or information management archives into any other format you require.

We operate forms capture, design and fulfillment services for many Local Authorities which typically are less than 50% of in-house costs.

Typical projects include marketing information capture, survey form processing and even extraction of data from telephone messages !

Outsourced Web Access service to your documents

We operate a fully managed webservice enabling to to get remote web access to your scanned documents and other documents for just a small monthly fee per user. We can customise your own home page giving you your own unique 'look and feel' to the website. It can be scaled from 1 to thousands of users.

Glossary

After-market	The supply of **consumables** (including **toner), spare parts** or maintenance services necessary to run an **IEP.**
Alternative toner OEM.	**Toner** produced by a manufacturer other than the
Annual copy volume during a year.	The actual number of copies made by an **IEP**
Badging	The practice whereby a company sells, under its own

brand name or `badge', **IEP**s manufactured by another company.

The practice of treating two or more different products or services as a single package, eg in supplying end-users or in calculating volumerelated discounts for dealers.

A machine (whether using the indirect electrostatic process or another technology) capable of producing full-colour copies from coloured originals. (Some ordinary **IEP**s can reproduce one or more areas of the same original in a different colour, or even two or three colours, by change of **toner** cartridge. These are not colour copiers, but are termed `highlight' or `spot colour' copiers.)

Products which are essential for the running of an **IEP** and which need replacing on a regular basis, ie **toner, developer, photoconductor, fuser rollers** and **CRU**s. Sometimes the term is used to include paper.

See **IEP.**

A machine, requiring minimal maintenance, and capable of producing a large number of copies from a stencil. The stencil is produced digitally. Duplicators may be used instead of **IEP**s where a large number of copies are required from a limited number of originals.

A kit which includes all **consumables** needed for a prespecified number of copies. The price includes any servicing required until all the copies have been made.

The number of single-sided, A4 copies which an **IEP** is capable of producing per minute. Usually expressed as copies per minute **(cpm).**

Cost per copy agreement A form of agreement under which the capital cost of the **IEP** is amalgamated with the running and maintenance costs; the end-user pays a cost per copy (or an amount part of which may be fixed and part of which may be based on the number of copies made), which includes a rental element as well as the cost of maintenance. (Some suppliers use the term `copyplan' to mean such an agreement.)

Copies per minute. The number of single-sided A4 copies which an **IEP** can produce per minute.

Customer replaceable unit. A sealed, self-contained unit, containing **toner, drum** and **developer,** which the end-user himself can install in the **copier.**

Silica, aluminium or steel beads acting as a `carrier medium', which carry **toner** on to the **photoconductor** during the copying process. **Toner** consisting of both pigment and developer is termed dualcomponent toner (as opposed to monocomponent toner which lacks a separate carrier medium).

A copier which uses a process whereby the original paper image is captured by being reflected on to a sensor and converted into digital signals. The digital signals are used to switch on and off a laser beam aimed at the photoreceptor, thereby laying down a charge image. This process contrasts with the use of mirrors and lenses to reflect light from the image on to the photoreceptor in analogue copiers. Digital copiers use the same indirect electrostatic technique as analogue photocopiers to transfer the captured image on to the paper.

Drum A drum-shaped **photoconductor.**

Duplex copying Copying from or on to both sides of a piece of paper.

Extra high-speed IEP See **IEP.**

Features Various functions which an **IEP** can perform in addition to, and by way of improving and refining, basic copying, eg enlarging and reducing; editing; automatic document feeding and sorting.

Full-colour copier See **colour**

copier. See **IEP.**

An **IEP** capable of producing over 250,000 copies per month.

Indirect electrostatic photocopier or indirect electrostatic digital copier. More often called `plain paper copier', copier or **`PPC'.** Includes, in the Commission's categorisation:

Personal copier-capable of producing 1-12 **cpm;** Low-speed-capable of producing 13-30 **cpm;** Medium-speed-capable of producing 31-70 **cpm;** High-speed-capable of producing 71-90 **cpm;**
Extra high-speed-capable of producing more than 90 **cpm.**

Independent maintenance Maintenance services provided by a company other than the **IEP** supplier itself or its authorised dealer. Sometimes referred to by suppliers as third-party maintenance.

Installed base The number of **IEP**s installed with end-users at any particular time. Sometimes referred to as **machines in the field** or **MIF.**

An electronic printer which combines computer, laser and xerographic technologies. It is connected directly to a mainframe computer or work-station to reproduce documents stored in electronic form in response to instructions from a single operator.

An agreement whereby ownership of an **IEP** is transferred to a lessor (other than the supplier or dealer) and the lessee (the end-user) pays either a fixed amount per annum, quarter or month or an amount part of which is fixed and part of which may be based on the number of copies made. It has been taken by the Commission to include hire purchase agreements under which the **IEP** is eventually owned by the end-user.

Low-speed IEP See **IEP.**

Machines in the field/MIF See **installed base.**

Medium-speed IEP See **IEP.**

Original equipment manufacturer; the manufacturer of an **IEP,** whether or not marketed under its own brand name. See also **badging.**

See **IEP.** Some suppliers, eg Canon, regard personal copiers as forming a category distinct from office copiers, since they are typically: *(a)* distributed through ordinary office equipment retail outlets; *(b)* fitted with **CRU**s and are thus virtually maintenance-free; *(c)* purchased outright; and *(d)* bought for home as well as office use.

That part of an **IEP,** often drum-shaped but also including photoreceptive belts, image loops and other devices, which is capable of holding an electric charge and the function of which is to transfer the captured image on to a piece of paper. It is usually made of selenium or cadmium sulphide. Also known as a photoreceptor. See **drum.**

The number of **IEP**s supplied to end-users by manufacturers and importers, whether direct or via dealers, during a given period, irrespective of the terms on which they are supplied.

Plain paper copier, an alternative name for an **IEP** and more commonly used in the trade than the term **IEP.**

A second-hand machine which has been subject to a refurbishment process. The process may range from simple cleaning to a complete strip and rebuild.

An agreement whereby an end-user rents an **IEP** for a certain period of time and pays either a fixed amount per annum, quarter or month or an amount per annum part of which is fixed and part of which may be based on the number of copies made. The ownership of the **IEP** remains with the supplier.

Recommended monthly copy volume. A recommendation by the supplier as to the number of copies, usually expressed as a range, which a given model of **IEP** is capable of making in normal use.

Spare parts All the replaceable parts of an **IEP** except **consumables.**

One method of obtaining service and maintenance of an **IEP.** Service and maintenance are provided on an *ad hoc* basis and charged at the going rate by reference to the **consumables** and **spare parts** actually used and the time spent on the service or maintenance work.

Electrically charged particles of pigmented polymer used to develop an image when attracted to a charge image on the surface of a **photoconductor.** See **developer.**

Tying The practice of requiring any person or class of people to whom goods or services are supplied to acquire other goods or services as a condition of their supply.

Upgrading The replacement of an existing **IEP** by a new **IEP**

with a higher specification.

Additive color: A color model associated with the RGB (red, green, blue) method of representing color. Equal amounts of the primaries will combine to produce the perception of white light. This is normally used in video systems/monitors.

Adobe Illustrator™: A software package for designing and illustrating. Some features include: a complete set of drawing tools, on-screen drawing and EPS-file formatting.

Airbrush printer: A large, digital-print machine (for printing billboards, etc.) that uses compressed air to drive inks through the printhead.

Aliasing: The stair-stepped (jagged) appearance in printed diagonal lines.

Anti-aliasing: A technique that smoothes the printed appearance of stair-stepped (jagged) lines. One method is to fill the edges of the line with varying shades of color (or gray). This method averages the brightness values of the edges.

Application: A computer software program that performs specific functions such as page layout, word processing, accounting, drawing and spreadsheet formation.

ASCII (American standard code for information interchange) (pronounced as-kee): ASCII is a computer code used to transfer numbers and text data between computers that run different software applications.

Banding: In digital printing, this term refers to patterns on a print caused by insufficient color or gray-scale ranges within the output device's image processor, or insufficient information contained within the original scan. Banding is most noticeable in printed areas that fade from light to dark.

Baud: A measure of speed in data transmission. Baud has the same meaning as bits per second.

Binary: A system based on the numbers 0 and 1 as on-off switches. There is no middle ground; electrical signals are represented by electrical current being positive or negative, on or off. All computer data is based on the binary system.

Bit/byte: Measurements of computer data. The bit, or binary digit (0 or 1), is the smallest unit of information a computer can work with. Because computers represent all data in numbers or digits, they are digital devices. Thus, these digits are measured in bits; each electronic signal becomes one bit. However, to represent more complex data, computers must combine these bit signals into larger groups called bytes.

Bitmap: Generally, a bitmap is associated with graphics objects. The bits are a direct representation of the picture image. In a monochrome system, one bit in the bitmap represents one pixel on screen. With color (or gray-scale) systems, several bitmaps in the bitmap represent one pixel or group of pixels.

CAD (computer-aided design): Software used to produce designs and drawings for architectural, engineering and scientific applications.

Calibration: Setting up a scanner, monitor, printer, etc., so that the system produces accurate and consistent results. Because equipment and systems vary, to calibrate is to normalize a system's internal and received information so that it presents predictable colors. If devices or consumables change, recalibration is necessary.

Card: A circuit board that performs a specific computer function (video display,

sound or communication) between computers, via modem or on a network.

CAS (computer-aided sign-making): Refers to sign-related software and computer-driven, sign-making equipment.

CCD (charged coupled device): An electronic memory made of a metal-oxide semiconductor (MOS) transistor than can store patterns of charges sequentially. CCDs are used in TVs and scanning devices because they're charged by both light and electricity.

CIE (Commission Internationale de l' Eclairage): An international color standards group sometimes known as the Intl. Committee on Illumination. In 1931, using a spectrophotometer to precisely measure color, this group defined a color model where numbers describe colors along three axes. Because this system can be used to store color information, it has become a crucial part of device-independent, digital-print systems. There are newer color models in addition to the CIE.

CLUT (color look-up table): Another term for a correction table, a CLUT is a color-management software reference file that maintains the proper calibration of devices, such as monitors, printers and scanners. (See also, LUT.)

CMS (color-management system): The process of using device calibration and profiling, software-based color correction, and other utility applications to obtain predictable, quality-printed output. The output must remain within the limitations of the different devices that make up a digital-production system.

CMYK (cyan, magenta, yellow and black): The four colors in the four-color process. The primary additive colors, red, blue and green, when added together, produce white light. When overlapped, red and blue form magenta, green and red form yellow, and green and blue form cyan. These resulting colors are subtractive and when added together, they produce a dark brown. In order to create an accurate photographic reproduction, the color black must be added.

Color correction: The process of simulating the colors or original shade by using color-management software. Often, an inkjet printer serves as the CMYK output device. This process is important because spot colors cannot be acceptably reproduced with the CMYK color model without making adjustments.

Color gamut: The tonal range of colors that can be reproduced by a digital device.

Color measurement: The scientific determination of color. It uses specialized measuring machines to compare colors numerically. There is a CIE worldwide standard that helps the industry compare and match colors.

Color model: Also referred to as color space. A color model is a geometric or mathematical representation of visible colors. Well-known color models include, CMYK, RGB and HLS (hue, lightness, saturation).

Color profile: Also called device profile. This term refers to the relationship between the color models of the system devices.

Compression: The process of removing irrelevant information and reducing unneeded space from a file in order to make the file smaller.

Continuous tone: Like original photographs, drawings or paintings, continuous-tone images contain real gradients of grays or colors.

Cutting plotter: A vector-driven device (similar to CAS plotters) for cutting sign-

making substrates. Recent designs include digital-print (inkjet) systems combined with cutting-plotter systems. (See also, Plotter and Printer/cutter.)

Default: An automatic decision that is made by computer software and hardware programs. The decision will automatically be carried out unless the user changes the default settings.

Densitometer: An instrument that measures transmitted or reflected light by indicating the percentage of a given area that is covered by halftone dots. This instrument is used to ensure consistency between films, proofs and printed pieces.

Desktop: In Mac and Windows, desktop simulates the top of the user's desk; the simulated environment appears on the computer monitor being used. The user's virtual desktop is organized through the tiling, cascading or overlaying of Windows.

DIC (device-independent color): The goal of DIC is to provide an independent, universal standard against which color spaces of all devices in a system can be referenced.

Digital camera: A lensed camera that uses a digital sensor for the film. Images are recorded on a disk and can be immediately output on a computer.

Digital color printing: To use multiple printheads that place specified colors of inks in predetermined places. The results are similar to photographs, but are often larger. In fact, some are billboard size.

Digital color-printing software: The computer programs that create digital color printing. The process uses mathematical algorithms to enlarge and print an image. Also, this software often includes add-on features such as color-calibration software, various pattern selections or a print-instruction screen. (See also, RIP.)

Digital imaging/digital printing: Digital imaging refers to the routines that take place before the output methods occur. These routines include: scanning, photo manipulation, color correction and RIPing. Digital printing, on the other hand, refers to a variety of computer-controlled output methods: inkjet, computer-airbrush, thermal-transfer and electrostatic printers and copiers.

Dithering: A graphics display or printing process that uses a combination of dots or textures to simulate an original image or an output device. The purpose is to create the impression of a continuous-tone gray-scale or color image.

Dot gain: A term that refers to the "weight gain" of halftone dots. During the printing process, the half-tone dots increase in size. Because this is an inherent part of the printing process, the effect of increased dot size should be anticipated ahead of time.

DPI (dots per inch): A measurement of linear resolution for a printer or scanner. For example, a resolution of 300 dpi means that there are 300 dots across and 300 dots down. A higher number of dots creates a finer resolution.

Drive: An internal or external assembly that can read and/or write electronic data using disk-storage media. For example, a disk operates much like a cassette recorder/player, with the cassette tape acting as the disk-storage media.

Driver: A small software program that links together the computer and its components and peripherals: printers, scanners and the monitor. The driver functions as a medium.

Dye sublimation: A printing method in which the color (toner or ink) is thermally converted to a gas that hardens on the special substrate used by the printer. When printers use this process, the output appears in the form of soft-edged dye spots that produce smooth, continuous tones.

Electrostatic printing: Printing large-format prints in a process similar to, but not the same as, color photocopiers. If properly done, (and laminated) the images are used for billboards, truck graphics, banners, signs or murals.

EPS (encapsulated postscript): A file type that allows the carrying of different information between software programs.

Error diffusion: In actuality, error diffusion is a random dot-placement strategy (or dithering method), spreading out the inherent failing until it is indistinguishable to the naked eye.

E-stat: A short way of saying "electrostatic."

Ethernet: A commonly used computer network for the movement of PostScript files from one computer to another.

File format: A file format is indicated by a period followed by a three- or four-letter suffix, for example, .COM. The suffix indicates what type of file it is: a document, spreadsheet, drawing, Internet web page, etc. By knowing the properties of the various types of file formats, users can determine which files to open and read, which to import into other files and which offer the best options for scanning.

FM (frequency-modulated) screening: A dithering method that uses uniform dot sizes and varies the distance between them. This method is different from conventional halftone screening, which aligns dots of varying sizes on a regular grid.

Front end: Front end refers to all the hardware and software &emdash; the scanner and computer workstation up to, but not including, the output device.

Gradation: The transition between colors or shades. Gradation occurs by mixing percentages of dominant and secondary color and then altering those colors to bring about a change.

Grand format: Super-large digital-print machines. Their printing process is usually driven by air, but recent machines may piezo print directly on a substrate.

Hard drive: The unremovable part of a computer that houses programs and data.

Hexachrome: A color-matching system that allows for the combination of six colors in order to create a larger gamut of reproducible color.

Hue: A specific shade or tint of a given color. Hue is the measurement of the wavelength of light.

Inkjet, bubblejet: Specifically, Bubblejet is a tradename for a Canon desktop inkjet printer. Bubblejet is also a name used to describe "thermal"-type inkjets.

Inkjet, phase change: This type of inkjet technology uses solid wax inserts instead of traditional inks. The wax is melted and deposited onto the substrate through the printhead.

Inkjet printer: A type of printer that sprays tiny streams of quick-drying ink

onto the paper. An inkjet printer produces high-quality printing like that of a laser printer.

Interface: The communication that takes place between a system's hardware and software components.

Internet: A worldwide telephone hook-up between participating computers.

Interpolation: Interpolation is the process of injecting additional dots to digitally enlarge the original.

Large format: Large format generally refers to a manufacturer's definition of its product.

LPI (lines per inch): A traditional halftone screen measurement that refers to the number of lines of dots per inch.

LUT (look-up table): The storage space for pre-set measurements and adjustments for different media, file types, printers, etc.

Media: Another term for substrate. Common inkjet printers generally require media that have special topcoats to achieve proper adhesion and proper drying characteristics.

Modem: A device that transfers computer information across telephone lines. A modem will work with various types of communications software.

Network: A group of computers interconnected by hardware and software.

Overlaminate: A protective clear film that extends an image's outdoor life and enhances its visual quality.

Panel: Also called a tile. A division of a job based on a device's production area.

Peripheral equipment: This term refers to external input or export devices that are physically not part of a computer's housing. Examples include printers, scanners, external drives, modems, monitors, etc.

Piezo-electric: An inkjet printing technology that uses a mechanical-electric charge instead of heat to drive microdroplets through the nozzle.

Pixel: The smallest unit of data in a digital image. Together, the small discrete elements constitute an image that can be seen on a monitor or printed on a substrate. A pixel's code contains information relating to color, tone and placement within the larger image.

Plotter: A term that refers to the CAD origins of wide-format printers. A printer, so to speak, that graphs computer output.

Plug-and-play: A given computer system or peripheral device that is ready to use upon its removal from the box.

Port: An outlet or connection location on a computer which allows a peripheral device to operate. A communications port (COM port) allows the modem to operate, and a local port (LPT) enables the printer to operate.

PostScript®: An Adobe programming language that enables text and graphic images to be output from different devices with consistent and predictable results.

PPI (pixels per inch): A measurement of resolution. A pixel is a unit of data

that should not be confused with dpi (dots per inch) or lpi (lines per inch). If there are more pixels per inch, the image will be sharper.

Prepress: Prepress is the process of preparing artwork, film and screens for conventional printing methods.

Printer/cutter: Three new style inkjet print-and-cut machines made by (1) Roland Digital Group, (2) Western Graphtec and ENCAD, (3) Summagraphics and CalComp Technologies.

Proprietary: Materials or software designed for use with one specific machine.

Reboot: The process of turning a computer system or printer off and then back on again, to reload the software.

RGB (red, green, blue): RGB is an additive color model used in color monitors, conventional photo film and paper to create full color.

RIP (raster image processing): A process using mathematical algorithms to enlarge and print an image. Also, this software often includes "add-on" features, such as color-calibration software, various pattern selections, tools or a print-instruction screen.

Satellite communication: Radio communications between satellites or satellites and ground stations. Commonly used for long-distance telephone calls, including Internet or cell-phone type calls.

Scan-and-print: To produce "instant" posters, banners or other wide-format output, this type of inkjet system scales, interpolates and diffuses bitmapped images captured by a scanner. The purpose is to reduce the turnaround time and complexity in producing short-term display graphics.

Scanner: A hardware peripheral that illuminates, reads and then converts original text, artwork or film into digital data. Types of scanners include: flatbed or drum, and color or black-and-white.

SCSI (small computer system interface) (pronounced sku-zee): SCSI is a standard method of connecting devices to computers. For example, SCSI is used for connecting a peripheral device, such as an external hard drive or a tape backup system to a computer's port (outlet).

Service bureau: A company that typically offers film-output services. Also, a service bureau may offer design and output of digital color graphics.

Small format: Similar to a large-format in processing, just smaller prints.

Software: Computer programs that are necessary for all computer operations.

Spectrophotometer: Overall, an instrument that measures the spectral wavelength of color. Also, this instrument calibrates output devices or monitors, and measures dot gain and color density.

Spot colors: These colors are printed as solid areas and used when fewer than four colors are needed or when the four-color process (CMYK) is unable to accurately reproduce a PMS color.

Stochastic: An alternative to traditional halftone dots, this random-placement dot strategy is used to render enlarged images on large-format printing devices. Stochastic dots are uniformly sized "microdots," and their placement and frequency vary with the tone of the image.

Substrate: Ultimately, the material that receives the printed image. Sometimes, this term is called "media."

Subtractive color: Reflective color. The term refers to the CMYK color space used by conventional and digital printing devices to produce full-color printing. (See also, CMYK.)

Support: Various forms of technical assistance offered by hardware and software companies.

Systems-integrator: A company that integrates various products made by several manufacturers into a single operating system.

Thermal film: Heat-sensitive film that carries an image from a thermal imagesetter. When this clear film encounters heat, it turns black and is transformed to an imaged positive.

Thermal-transfer printer: A machine that digitally prints by transferring inks (resin or wax based) from a foil ribbon onto media such as paper or vinyl.

Tiling: The process of dividing a very large-format image into smaller sections that can be output on the digital device.

Topcoat: The coating applied to the surface of inkjet or other substrates during the manufacturing process. The topcoat enhances ink adhesion and other performance characteristics; it also helps to control dot gain, drying time and moisture resistance.

Turnkey: A bundled-product package that is operable right out of the box without any additional purchases.

Upgrade: To improve some aspect of a computer system. Upgrades include the newest versions of software applications, computer models or peripheral devices. Usually, upgrades are denoted by a version number.

UV inks: Inks that contain pigments or other methods to resist UV fade from direct sunlight and other UV light sources.

UV resistance: The resistance to fading under direct sunlight and other UV light sources.

Vector: An image plotted by lines on an X-Y axis. This image is different from a bitmap, which is composed of dots.

Virtual: Having the "appearance" of existence as opposed to actual reality, i.e. 3-D form.

Windows 95™: Microsoft Corp.'s recently released operating system.

WYSIWYG (what you see is what you get) (pronounced wizee-wig): An acronym meaning that a computer file's output is actually what is seen on the monitor.

- Printer Technology
- Cartridge Type
- Interface Type
- Operating System Compatibility

- Compatibility Requirements
- Maximum Horizontal Resolution (B & W)
- Maximum Vertical Resolution (B & W)
- Maximum Horizontal Resolution (Color)
- Maximum Vertical Resolution (Color)
- Memory
- Memory Card Slot
- Maximum Media Capacity
- Printer Media Type
- Max Printer Monthly Duty Cycle
- Pages per min - B & W printing
- Pages per min - Color printing
- Borderless printing
- Color LCD preview screen
- LCD Screen Size
- Networking Connection Type
- Noise Level
- Printer Duplex Printout
- Pages per min - B & W copying
- Pages per min - Color copying
- Fax Speed
- Fax Memory
- Transfer Speed
- Scanner Type

Printer Technology

Printer technology refers to the technology that the printhead uses and the ink media required to print.

Bubble Jet Printers

Bubble jet printers are similar to inkjet printers but the use a special heat element to prepare the ink for printing.

Dot Matrix Printers

A dot matrix printer has a print head that runs back and forth on the page, creating pressure and pushing an ink ribbon against the page to form characters.

Inkjet Printers

An inkjet printer uses and ink cartridge and shoots fast drying ink through small nozzles onto a page. Inkjets produce high quality graphics and color and are good for text and photo printing.

Laser Printers

A laser printer uses static electricity and heat to bond particles of ink toner to a page and is the same technology used in copiers. Laser printers produce high quality black text.

Dye Sublimation Printers

For dye sublimation, dyes vaporize and permeate the surface of the paper before they reform as a solid and become part of the paper. There is a subtle gradation of each pixel, and color infuses the paper so there is less fading over time. Dye sublimation is popular in photo printers.

Thermal Printers

Thermal printers are similar to dye sublimation printers but they use a wax-based ink and heat to transfer an impression onto a page. Thermal printers produce less of a photo quality than dye sublimation printers.

Cartridge Type

Cartridge type is the type of ink dispursing unit that is compatible with the printer.

Interface Type

Interface type refers to how the printer is connected to a computer.

Operating System Compatibility

The types of operating systems (Sun, MAC, Linux, Novell, Unix) that your printer is compatible with.

Compatibility Requirements

This is the system installed (Windows, Mac, IBM, HP) in your computer that the printer is compatible with in order to run.

Maximum Horizontal Resolution (B & W)

The maximum number of black and white dots per inch the printer can output horizontally.

Maximum Vertical Resolution (B & W)

Thh maximum number of black and white dots per inch the printer can output vertically.

Maximum Horizontal Resolution (Color)

The maximum number of color dots per inch the printer can output horizontally.

Maximum Vertical Resolution (Color)

The maximum number of color dots per inch the printer can output vertically.

Memory

Memory refers to the amount of built-in memory of the printer.

Memory Card Slot

The memory card slot allows you to plug in additonal cards and memory from

portable devices like digital cameras for printing.

Maximum Media Capacity

Maximum media capacity is the amount of paper or sheets that the printers feeder tray can hold.

Printer Media Type

Printer media type is the media (such as paper, cards, or discs) that is compatible with the printer for printing.

Max Printer Monthly Duty Cycle

Max printer duty cycle is the recommended monthly output for the printer.

Pages per min - B & W printing

Is the speed at which a printer produces black text and is measured in PPM (pages per minute.

Pages per min - Color printing

Is the speed at which a printer produces color text and is measured in PPM (pages per minute).

Borderless printing

Borderless printing allows you to print the image to the edge of the sheet of paper so there are no white spaces around the edges.

Color LCD preview screen

The color LCD preview screen is a small screen that allows a preview of the document before it is actually printed.

LCD Screen Size

LCD screen size is the size of the viewable screen measured from the bottom corner diagonally to the opposite top corner.

Networking Connection Type

Ethernet: 10BaseT connection that transfers at 10 Mbps.
Fast Ethernet: 100BaseT connection that transfers at 100 Mbps.
Gigabit Ethernet: 1000BaseT connection that transfers at a 1Gbps rate.
IEEE 1394: Allows tranfers from 800 Mbps to 3,200 Mpbs and is compatible with glass, fiber and cat5 cable.
Bluetooth: Wireless network connection with 720 kbps transfer rate at a range of 10 -100 meters.
802.11b: Wireless connection with a transfer rate of 11 Mbps in a 2.4 Ghz band.
802.11a: Wireless connection with a transfer rate of 54 Mbps in a 5 Ghz band.

Noise Level

Noise level is the amount of noise the unit produces measured in decibles (db).

Printer Duplex Printout

Printer duplex printout is a feature that allows the printer to print on both sides of the page.

Pages per min - B & W copying

This is the speed at which the printer produces black text and is measured in CPM (copies per minute).

Pages per min - Color copying

This is the speed at which the printer produces color text and is measured in CPM (copies per minute).

Fax Speed

Fax speed is measured in **kbps** (kilobits per second) one kilobit is 1,000 bits per second.

Fax Memory

Fax memory is the number of pages that can be stored in memory to be faxed.

Transfer Speed

Transfer speed is the number of pages that can be transfered per second.

Scanner Type

Flatbed Scanners
A flatbed scanner is also called a desktop scanner. With a flatbed scanner you place the images on a flat bed of glass, and the scan head scans in either a single pass or a three pass that passes for each of the three colors (red, green, blue). Flatbed scanners will scan originals that vary in thickness, and some can scan 3D objects.
Sheet Fed Scanners
A sheet fed scanner is similar to a flatbed except that the scan head is immobile and the document is the piece that moves for scanning.
Pass-Through Scanners
A pass-through scanner requires you to physically scan over the page you wish to scan yourself.