

Service before, during and after the sale is important to determine.

Quoting Dr Matt Wright DVM, DACVR,
Veterinary Imaging Center of San Diego:

“Vendor support may be one of the great differentiators between digital radiography systems. I would even go so far as to state that I would prefer a slightly poorer digital radiography system with excellent vendor support. Some companies just have bad service. It stinks. Do some research before you buy a system. You get what you pay for. Service is not free. As with all things digital, you get what you pay for. Support may cost a few thousand dollars a year. Remember, you are asking the vendor to be there for you 24/7 and this costs them money... Unfortunately, things break and installs never go as planned so you will need to be reasonable with your expectations. Digital radiography is very user dependant so there is also a lot of user errors that causes digital radiography image problems so be patient with your vendor. Many times (most times??), problems are caused by technical staff or poor training. The good news is that there are some excellent vendors out there who are committed to the veterinary market. These vendors know and understand veterinarians and veterinary technicians. They understand the workflow in a veterinary hospital and how we take radiographs. Advances in computer networking will enable vendors to give you better service than ever before. Some vendors can now even remotely dial in to your digital radiography machine and fix and troubleshoot problems remotely. For example, **Sedecal** now offers their customers online support by just clicking a button on their digital radiography machine. Service engineers are then able to dial in and evaluate your images for problems AND even adjust settings on the x-ray machine (yes, the x-ray machine) to troubleshoot problems. During training of new staff, remote engineers can even take control of the x-ray machine and PC workstation to guide users on how to use the system.

Conclusion:

Service should be one of your top considerations when purchasing a digital radiography system. Buy from a reputable company that knows the veterinary market. Do your research and talk to a lot of practices. It won't take long to know who the reputable vendors are. Good service, however, will be costly so always consider the cost of your service contract during your negotiations.”

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Digital VS. DIGITAL

Digital has many meanings...
when it comes to digital capture;
the question is two fold.

**What technology
and at what price?**



Although DR and CR use different technologies to acquire and digitize an x-ray image, they offer the same benefits: enhanced detail, fewer retakes, faster access to images, advanced image processing and computer archiving.



Digital Radiography

DR (sometimes referred to as Direct Radiography) systems perform image capture and image processing without the need to handle cassettes. They rapidly display images within 4-10 seconds and are divided into two groups:

Flat Panel

FP systems use a relatively thin plate (usually 2" or less) to convert x-rays by the use of an imaging sensor (amorphous silicon array) and a conversion screen into a digital image. The current cost range is \$93,000.00 to \$120,000.00.

Charge Coupled Device

CCD systems use a high mega pixel "camera" (6, 9 or 16 MP) to capture the image directly from an illuminating plate (syntillation material: either Cesium Iodide or Gadax). The current cost range is \$27,500.00 to \$57,000.00

CCD technology is widely used in astronomy (the Hubble), and bio-medical (ridged and flexible scopes, electron microscopes). Consumer products such as Digital Camcorders, Digital Cameras and in "Human" X-ray systems costing \$180,000.00 plus.

Computed Radiography

CR systems are considered indirect systems that convert x-rays to stored light as an intermediate step. CR systems use a cassette with a phosphor plate to store the image and a reader/scanner to convert the stored illuminated image into a digital image. CR systems function like a conventional wet system with cassette handling and processing steps. The current cost range is \$38,000.00 to \$65,000.00.

Digital Converter

A fourth option or "technology" is using a "Digital Converter" for your current x-ray films. This is similar to using a digital camera, tripod and a view box for converting your existing film images into digital images. This process is used to electronically send your film images out for consultation or being able to archive your film images once you have purchased a Digital X-ray system. Digital Converters sell for \$2,500.00 - \$3,000.00.

You should be aware of the file format used by the lower end CCD and Digital Converter systems (including your digital camera) many use ONLY a JPEG format. All of the "high end" systems use a DICOM file format. Images stored or used as JPEG, TIF & BMT file format can be electronically transmitted (email) quickly, as they are much smaller file sizes than DICOM files. However, images saved as JPEG, TIF, BMT can also be easily altered using Photoshop or any commercially available graphics program.

In addition to talking about file formats... there are some important terminology "buzz words" you should be aware of and able to use when talking the "Digital Talk".

DICOM: Digital Imaging and Communications in Medicine (DICOM) provides standardized formats for images, a common information model, application service definitions, and protocols for communication. It is the "Human" standard for medical image format regardless of the origin (radiology, dermatology, pathology, endoscopy etc.). A DICOM file format is very difficult to alter and the file contains a set of standard "tags" which is a list of information that other DIOCM compatible systems can use to identify the file (what product created it, facility demographic information, patient information, etc.)

PACS: Picture Archiving and Communication System (PACS) is a software program that allows displaying of digital images from multiple sources (X-ray, Ultrasound, MRI, CT, etc.) on a single computer screen.

RIS: Radiology Information System (RIS) Information program/system developed for use within the Radiology Department.

HIS: Hospital Information System (HIS) Information program/system developed for use Hospital wide. Allowing information from all departments to be shared and integrated. i.e. Veterinary Practice Management Software

LP/mm: Line pairs per mm, how many line pairs/mm can be seen clearly before they appear as a blur or one image. LP/mm is used to measure the resolution of the system.

It is important to be an informed consumer. Each Digital capture technology has its own inherent strengths and weaknesses. One system is not the best system for every Veterinary facility. Purchases should not also be made solely on cost. Elimination of smelly chemistry, disposal of used chemicals, elimination of cassettes and film costs, processor maintenance, storage of x-ray film, Dark Room space and associated costs are all good reasons to go "Digital" but the right technology for your facility is the most important decision to make.