

Introduction to Digital Imaging

Digital Imaging

- ❖ The basic definition of **digital imaging** is any imaging acquisition process that produces an electronic image that can be viewed and manipulated on a computer.

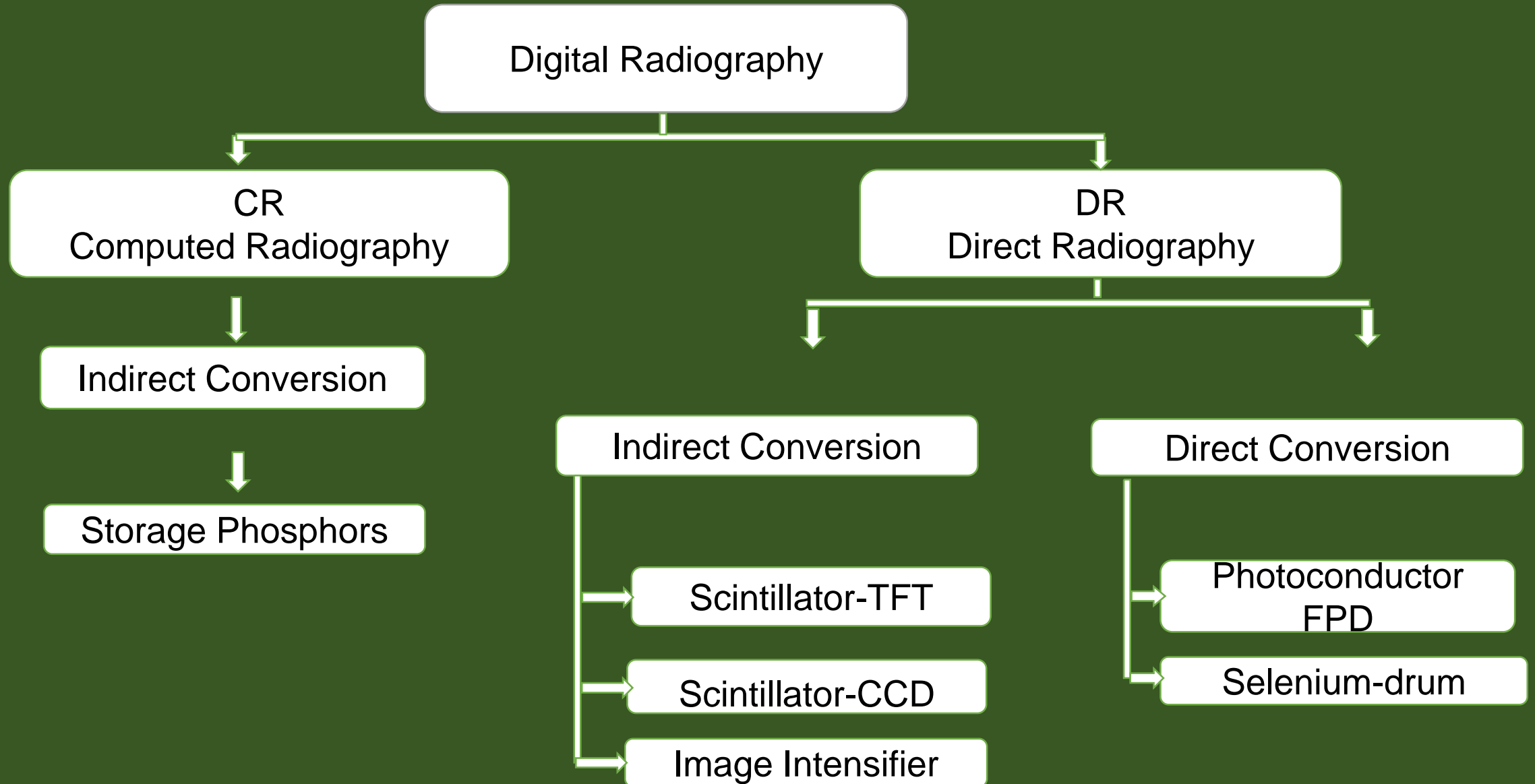
- ❖ Most modern medical imaging modalities produce digital images that can be sent through a computer network to various locations.

Table. Timetable of developments in digital technologies

Year	Digital technology availability
1980	Computed radiography (CR), storage phosphors
1987	Amorphous selenium-based image plates
1990	Charge-coupled device (CCD) slot-scan direct radiography (DR)
1994	Selenium drum DR
1995	Amorphous silicon–cesium iodide (scintillator) flat-panel detector Selenium-based flat-panel detector

1997	Gadolinium-based (scintillator) flat-panel detector
2001	Gadolinium-based (scintillator) portable flat-panel detector
2001	Dynamic flat-panel detector fluoroscopy–digital subtraction angiography
2006	Digital tomosynthesis
2009	Wireless DR (flat-panel detector)

A systematic overview of various types of digital detectors



CR system



separate image readout process

DR



Direct readout process

References

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3. Kořner et al, RSNA, RadioGraphics, Volume 27, Number 3, May-June 2007