

Table 1: Advantages of IP CCTV systems compared to analogue systems

	IP CCTV	Analogue CCTV
Access	<ul style="list-style-type: none"> As open or closed access as needed. Remote access to live images and remote administration of a network camera are possible from anywhere using a standard Web browser on any PC. 	<ul style="list-style-type: none"> Closed circuit. No possibility for remote access.
Ease of use	<ul style="list-style-type: none"> You can administer and view the images remotely using a standard Web browser on any PC. Images can be recorded on a hard disk, enabling easy search possibilities, easy storage and no image degradation or wear. The hard disk can be located at a remote location for security purposes. 	<ul style="list-style-type: none"> Remote administration or monitoring is not possible. Images must be stored on video tape cassettes, which require constant changing and lots of storage space. The quality of recorded images deteriorate over time The video cassette recorder must be located near the camera. This could potentially enable unauthorized persons to have access to the video tape.
Quality	<ul style="list-style-type: none"> A digital picture is created using Motion-JPEG. Once created, the image is free from degradation. Each frame within a video stream is sharp. Digital images do not lose quality in transmission or storage. MegaPixel cameras offer as much as 10 times the resolution whilst recording bigger areas. 	<ul style="list-style-type: none"> Images are digitized when used with DVR technology thus reducing noise and image picture degradation. Image quality is lost when using long cables and the resolution of a magnetic tape is normally quite low. In addition, the quality of the recorded video deteriorates over time. Analogue cameras correspond to just 4.0 mega pixels at DI or 4CIF. Connection to a coaxial cable, to a multiplexer, to a video or time lapse recorder, and to a locally placed CRT (cathode ray tube) monitor.
System requirements	<ul style="list-style-type: none"> Everything needed to stream live video over networks is included in the network camera. Simply connect the network camera to a network. View, record and administer from any networked PC (located anywhere). 	<ul style="list-style-type: none"> Attach a coaxial cable to each camera and connect to the multiplexer.
Installation	<ul style="list-style-type: none"> Simply connect a network camera to the nearest network connection and assign an IP address. 	<ul style="list-style-type: none"> Attach a coaxial cable to each camera and connect to the multiplexer.
Scalability	<ul style="list-style-type: none"> Adding more network cameras to the system is easy. 	<ul style="list-style-type: none"> Very difficult. Each analogue camera requires its own cable. Image quality is lost when using long cables.
Cabling	<ul style="list-style-type: none"> One standard UTP (unshielded twisted pair) network cable can forward images from hundreds of network cameras simultaneously. Integrated pan/tilt/zoom (PTZ control) and alarm transmission reduces telemetry, video and alarm cabling 	<ul style="list-style-type: none"> One cable can transport video signals from only one camera at a time. If you have two cameras, you have to have two cables. This often means large cable trunks filled with thick and sensitive cables that are connected to a locally placed control room.
Cost	<ul style="list-style-type: none"> A high quality network cable typically costs 30-40% less than a standard coaxial cable. A network cable can also support hundreds of network cameras and other devices. An IP-based network infrastructure is often already in place, which means the cost is reduced to that of the network camera(s). Power over Ethernet reduces installation costs and gives power back up. IP surveillance systems can function with existing analogue systems, so there is no need to dispose of existing equipment until the IP CCTV system is ready to be expanded, saving on initial costs IP surveillance represents a long-term investment as it uses a recognised technology with open standard protocols and networks 	<ul style="list-style-type: none"> Expensive coaxial cables. A classic RG59 75 Ohms coaxial cable typically costs 30-40% more than a high quality network cable. In addition, more cable is required. Each analogue camera requires its own cabling. High labour and maintenance demands, plus cost of the analogue camera(s), video tape recorder and video tape cassettes.
Security Integration	<ul style="list-style-type: none"> Secure encrypted video IP surveillance technology can easily be integrated with other services/functions as the system is developed, eg access control, company intranets, alarm systems etc. 	
Extras	<ul style="list-style-type: none"> Integrated audio with lip sync Intelligence at the camera empowers a much more productive method of surveillance than analogue systems 	<ul style="list-style-type: none"> Not all analogue systems support audio