ICT Systems in Everyday Life: Your Local Community

You are now going to investigate how ICT systems affect everyday life in your local community. You will need to:

* Create a report that describes four or more ICT technologies open to all members of the community.
* Evaluate the extent to which these ICT technologies meet the needs of the community.

You will gain most marks for investigating and evaluating as wide a range of technologies as possible.

THE AREA:

The history of Kingsbury goes back to the Bronze Age and Roman times. However, only scattered remains of these ancient periods have been found – ancient cremation burials near the Welsh Harp Reservoir and some Roman material at the site of St.Andrew's Church and at the junction of Buck Lane and Kingsbury Road.
Kingsbury is the area located in North West London, A school that is in Kingsbury called Kingsbury High – School, the population have been seen in 2005 in Kingsbury were become 5,532 people. Kingsbury include one hospital called Kingsbury hospital and three pharmacies, and there is just one library called Kingsbury library.
Kingsbury contain: **ASDA, TESCO, ICE LAND, SAINSBURY,** for shopping.
Burnt Oak, Colindale, Hendon, Kenton, Neasden, Queensbury, Wembley and Harrow are the nearest places to Kingsbury. Kingsbury tube station is also in Kingsbury.
During the day time the roads are packed with cars and traffics and there are too many noises.

THE NEEDS OF THE LOCAL COMMUNITY:

As the number of people in a community gets more and more, the number of crimes also increases and more tight security and police force is needed to handle it out and more safety precaution is needed for people to live in peace and comfortable.
Currently the rate of crime isn't too much in my local community but still some casualties happens and there are some cases of fighting, rubbing, burglary, and injuries of some teenager due to some drunks.
One of the good ways to reduce these crimes and to have a control on them is to use some security alarms in homes, using CCTVs in shops and other public service areas.
Using more CCTVs and alarms in homes and shops and other places help to control crime and reduces the crime rate without having need to much more police officers in the roads and there hence paying them all.

It's beneficial for the local community's economy to have more visitors and attract more people to the area, and one way to do this is to have more entertainment areas and places like cinemas, clubs, game clubs, snooker clubs, leisure centres and some other areas.
Entertainment centres are also important for the local people, because everyone need to refresh themselves after a long office day.
Digital cinema is also a big need to attract more visitors to the areas for example in cinema lots of people are coming for enjoying so the digital cinema is a technology and necessary for cinemas, because without digital cinema, cinemas can do anything.
Most people are using digital cinemas in their houses, for watching movies and songs or so on.
And also digital cinemas uses in offices for some presentations and in universities they use digital cinema for teaching the students.

Nowadays the hospitals and doctors waiting list are taking very long and people often have to wait for such a long time. In order to reduce the waiting time there must be some improvement in the field of hospitals and NHS to help people wait less. This improvement could be done in the way of using more and modern ways of technologies, increasing working hours and recruiting more stuff members.
According to the recent statistics shown by the NHS, although the waiting time for most patients have been reduced since 2003 but still the number of people on the waiting lists reaches 137 000 in London. The waiting time varies between 2-12 weeks.

TECHNOLOGY 1:

Introduction:

The introduction of CCTV has been one of the best weapons against crime in the borough. It has been proved effective in both cutting and detecting crime and because of this people now feel safer when they are out and about.
As the name implies, it is a system in which the circuit is closed and all the elements are directly connected. This is unlike broadcast television where any receiver that is correctly tuned can pick up the signal from the airwaves. Directly connected in this context includes systems linked by microwave, infrared beams, etc. This article introduces the main components that can go to make up CCTV systems of varying complexity.
The CCTV or Closed Circuit Television advisory is a Web based information company dedicated to disseminating general information concerning CCTV and linking customers to quality organisations who can meet their specific requirements.
Realising that the average person, When they begin to look into CCTV, has little way of knowing where to find expert advice at reasonable cost.
CCTV has proved to be an effective and versatile tool in helping to combat criminal activity and other anti-social behaviour. It achieves this by a combination of:

- Deterrence.
- Detection/response.
- Provision of evidence.

The first CCTV systems were fairly expensive to install and maintain and as a result, they were only to be found in town centres, shopping malls and very large industrial or military sites. However, technological development, reducing costs and greater reliability have led to such systems becoming commonplace today; with the business community now able, as part of their overall security arrangements, to realistically consider some form of CCTV system.

Business premises as well as business processes need to be monitored on a regular basis to ensure safety. The need and extent of safety required helps decide the investment required for the CCTV system; for example, deciding whether procuring a single camera and monitor will suffice or a complex video surveillance system with multiple cameras, multiple operators and digital recorders is required.

The investment in a simple or hi-tech system is justified on the basis of the following benefits of a CCTV system that:

- Helps surveillance of areas that require security round the clock
- Helps observe and control traffic
- Prevents theft/ shoplifting, robbery and other crimes
- Helps identify and initiate legal procedures against offenders with visual evidence from the CCTV footage
- Raise alarms on approaching dangers or avoidable circumstances

Besides the many advantages listed above, one of the key reasons that contributes to the popularity of CCTV surveillance system is the advancements in technology. CCTV systems have come a long way from being cumbersome, expensive and complex systems requiring expert help to simple, easy-to-use systems that are easy to configure, easy to maintain and reasonably priced. Moreover, the new range of surveillance systems offer more options, clarity and versatility than before. Equally importantly, the benefits of installing a CCTV are not limited to business enterprises but also private property owners and households that can feel safe and secure with an efficient surveillance system.

EXPLANATION OF ITS USE:

CCTV stands for Closed Circuit Television. CCTV refers to the use of television cameras for surveillance purposes. Unlike broadcast television, all devices are linked directly, usually by cables. CCTV systems allow management to view and record high risk areas to deter theft, control inventory, increase productivity and deter fraudulent insurance claims. CCTV allows remote monitoring of parking lots and building exteriors to improve employee safety. In the public areas of the Rose view Hotel and some staff areas CCTV may be in operation and video recordings may be made. This activity is carried out for security and service reasons for the better management of the Rose view Hotel and security for all its Clients and staff.
CCTV is used by many organisations, businesses and private households throughout the Bailiwick of Guernsey. Although is usage is generally considered to be advantageous in the reduction and prevention of crime, concerns have been expressed that it is an intrusion into the privation of individuals.
The Data Protection (Bailiwick of Guernsey) Law, 2001 (the law) provides a means of regulatory control of the use of CCTV systems so that individuals may enjoy security of their safety and possessions whilst being assured that rights to personal privacy will not be unduly compromised. Complying with the Law and adopting good standards of practice will help towards realizing these objectives.
The aim of this booklet is to provide guidance on how to achieve compliance. It is intended for those who are responsible for the operation of CCTV and similar surveillance schemes in areas where members of the public have largely free and unrestricted access such as shopping centres, car parks, night clubs, schools, banks, airports, etc.

- ***How is it used? How does it work? What does it do?***

In the past decade, the use of CCTV has grown to unprecedented levels. In Britain between 150 and 300 million pounds (225 – 450 million dollars) per years in now spent on a surveillance industries involving an estimated 300,000 cameras Most British towns and cities are moving to

CCTV surveillance of public areas, housing estates, car parks and public facilities. Growth in the market is estimated at fifteen to twenty per cent annually.
Many Central Business Districts in Britain are now covered by surveillance camera systems (CCTV) involving a linked system of cameras with full pan, tilt, zoon and infrared capacity. Their us on private property is also becoming popular, increasingly, police and local councils are placing camera systems into housing estates and red light districts. Residents Associations are independently organizing their own surveillance initiatives. Tens of thousands of cameras operate in public places, in phone booths, vending machines, buses, trains, taxis, alongside motorways and inside Automatic Taller (Cash) Machines.

Public and private CCTV schemes can be deployed for a number of reasons:

- **Monitoring public areas** to detect incidents and to co-ordinate police responses. CCTV is also used as an aid for enforcing exclusion orders (where an offender is barred from an area).
- **Recording events** for use as evidence and to inform investigations. Fro instance, on the boundaries of the Parliamentary estate, police on patrol alert CCTV operators of incidents via radio links. CCTV operators then record incidents as they unfold.
- **Directed surveillance** of suspected offenders.
- **Deterrence** of criminal activity – although the evidence for this is inconclusive.

- ***What technology is used? (state technical aspects)***

The modern CCTV system involves a linked system of cameras with full pan, tilt, and zooms able to be operated remotely from a control room.
These systems may involve sophisticated technology. Features can include night vision, computer assisted operation, and motion detection facilities which allows the operator to instruct the system to go on red alert when anything moves in view of the cameras. Camera systems increasingly employ bullet-proof casing, and automated self defence mechanisms which – as with the Liverpool system – cameras under attack are covered by neighbouring cameras these can be legitimately described as military style systems.
The clarity of the pictures is often excellent, with many systems being able to recognize a cigarette packet at a hundred metres. The systems can often work in pitch blackness, bringing images up to daylight level.
In simple terms it is an electronic system for the capture of photographic images and the transmission of these to another location for viewing &/or recording.
The most basic CCTV system will consist of cameras and a television monitor; but most will also include a recording device, typically a video recorder but increasingly a more versatile digital disk recorder.
A basic CCTV system may act as a general deterrent to crime; but unless it is being watched continuously, is only able to provide recorded evidence of events discovered or suspected some time after they occurred.
If a CCTV system is to play an effective role in security outside business hours, it is usually necessary for the system to be activated by some form of alarm detector, which will initiate the transmission of live images to a manned monitoring post, e.g. a security lodge/gatehouse or a Remote Video Response Centre (RVRC).
A good Indicator of competence is to use an installer or RVRC accredited by the National Security Inspectorate (NSI) or Security Systems & Alarms Inspection Board (SSAIB); as they are audited against British Standards fro system design, installation, maintenance, and monitoring plus those relating to staff security vetting, training and record keeping.

CCTV all starts with the camera. This creates the picture that is transmitted to the control area. Most CCTV cameras are not fitted with lenses. They must be obtained separately and screwed on. There is a standard screw thread although there are different mounts. Not all lenses have focus adjustment. Most have iris adjustment. Some wide angle lenses do not have a focus ring. There is a BNC jack for connecting the video cable also provides power. The monitor is what receives the signal that the camera creates. A CCTV monitor is similar to a television set but it does not have tuning circuits. Simple CCTV systems consist of a camera connected to a monitor with coaxial cable. This cable also carries the power needed for the camera. This is called a line powered camera. The pye Observation System was such a system and was popular during the early days of CCTV. It was affordable and could be set up with a minimum of difficulty. The next bi step in the technology was allowing for four cameras to be connected to the monitor simultaneously. The view could be programmed to cycle through the available cameras of go to a particular camera chosen by the user.
Another big advance was when footage could be recorded and stored. The footage would be played back according to the viewing cycle the user chose. Once the footage is recorded, it cannot be changed to go to a different camera. The next step would be cameras that were able move and swivel. Simple platforms that move on a horizontal plane are called scanners. If a platform moves on both vertical and horizontal units it is called a pan, tilt unit.
The concept of CCTV is simple enough to understand. It is the application of such technology that still holds many undiscovered gems. Such a simple concept can be tapped for its limitless potential. And for the end user, it can serve as a great tool to accomplish many different things. In the end, that is the most important thing.

- ***Where is it used?***

The video surveillance boom is likely to extend even inside the home. Andrew May, Assistant Chief constable of South Wales, have urged victims of domestic violence to conceal video cameras in their homes to collect evidence. The technology is already being used in hospitals to support covert surveillance of parents suspected of abusing their children.
CCTV is very quickly becoming an integral part of crime control policy, social control theory and 'Community consciousness'. It is promoted by police and politicians as primary solution for urban dysfunction. It is no exaggeration to conclude that the technology has had more of and impact on the evolution of law enforcement policy that just about any technology initiative in the past two decades.
CCTV is a seductive technology. In a public policy domain which is notoriously rubbery, CCTV has a solid, "Sexy" and powerful image. It has become an icon for security and – for politicians its promotion is guaranteed to create a feel-good response. When people are frightened of crime and criminals, critics of CCTV are often portrayed as enemies of the public interest.
CCTV used in different places such as: public areas, housing estates, car parks, public facilities, in phone booths, vending machines, buses, trains, taxis, alongside motorways, inside Automatic Teller (Cash) Machines, Schools, Super markets, etc.

- ***What's the purpose? Why is it used?***

Normally CCTV is used for Crime Prevention and the prosecution of Offenders and appears under this purpose on the notification. The further description of this purpose includes the use of CCTV for the monitoring and collection of sound/video images for the purpose of maintaining the security of premises, for preventing crime and investigating crime.

However, many Data Controllers within the NHS, especially those caring for patients with dementia, may also use CCTV in order to locate patients reported missing. It is important to note that the purpose 'Crime Prevention and the Prosecution of Offenders' does not cover this type of processing.
Guidance from the Information Commissioner is that an entry should be made under 'Health Administration and Services' are stating that the CCTV is being used for monitoring patient safety.
The government believes this is because CCTV deters 'opportunistic' crime, where people take advantage of a situation on the spur of the moment. Philip Edwards from the Home Office Crime Prevention Unit says the government is using CCTV as part of a long term plan to reduce overall crime. "Today's opportunist is tomorrow's professional criminal. If we decrease the number of opportunities for easy crime,

We can reduce the number of people becoming professional criminals".
The crime reduction claims being made by CCTV proponents are not convincing. Some Police also concede that CCTV displaces crime. Richard Thomas, Acting Deputy Chief Constable for Gwent, recently told the BBC's Andrew Neil that he believed CCTV pushed some crime beyond the range of the cameras.

- ***What does it provide for the community? (YOU MUST HAVE SOME REFERENCE TO THE NEEDS OF THE COMMUNITY WHEN ANSWERING THIS QUESTION)***

CCTV stands for closed circuit television. It is a system where the circuit is closed and all the elements are linked. This is different from broadcast T.V. where tuners pick up the signals from the airwaves. Fro purpose of this article, linked means connected by wiring, microwave, infrared, etc.
The most obvious and common use for CCTV is for security. This type of installation is used in a variety of locations such as stores, banks, and government buildings. However, there are so many other uses. It can be used for monitoring traffic. It is used in sports stadiums to focus on the audience. It can be hidden in train and buses to detect vandalism. It can be used to monitor animals in a zoo. It can even be used to reproduce infrared vision. The applications are almost limitless.
The technology is becoming more sophisticated. Cameras are combined with databases using 'facial recognition technology' to scan and automatically identify people faces in crowds. 'Smart CCTV' is used in tube stations to identify patterns of behaviour that suggest a crime or suicide attempt is about to occur.

- ***The advantages of the technology are:***

In many retail establishments, police stations, prisons, and high security scientific and manufacturing facilities, the uses of CCTV security cameras are common. But is there any real advantage to using these types of cameras over other forms of visual security. Many supporters believe there is ample reason for going with Closed Circuit solutions; here are a few of the advantages of utilizing this form of security. One of the immediately obvious advantages is that the unit is no subject to the failure of any type of wiring. The cameras make use of wireless technology to accomplish the task at hand. This absence of wiring that could fail or be cut means there is much less chance of something going wrong with the unit, or that a clever thief can circumvent the system by severing the connection. Short of ripping the entire camera out of place, there is not much that will slow the unit down.

Another advantage has to do with the clarity of the images that are captured. Most of these CCTV units have a high – re solution image that makes it very easy to identify faces and other physical characteristics. This makes the cameras ideal for use as part of the security for research facilities and other establishments. Security personnel can easily monitor all activities within range of the cameras, and clearly note any suspicious or unauthorized behaviour, while getting a clear image of the person engaged in the activities.
Recording is another advantage of these cameras. In times past, storing recordings could be quite a task. From magnetic tape to VHS tapes, storage could become quite a problem. Many of the units on the market today make use of CDR technology, making it possible to store more hours of surveillance on a single disk. This can be crucial for law enforcement officials, as well as persons who are responsible for conducting security in office buildings and manufacturing facilities.
Another advantage of these newer models of surveillance units is that they are usually less expensive than most people would think. In fact, it is possible to purchase these types of cameras at a significantly less amount per unit than many of the wired counterparts on the market today. Coupled with the fact that wireless units make for much easier installation, it should come as no wonder that more and more people are choosing to go wireless for their security camera needs.

- ***The disadvantages of the technology are:***

The biggest problems of security camera are the felling of invasion of privacy. No doubt however innocent the system may be, most of us don't like something or someone keeping an eye on us. The idea just doesn't fit in our mindset. This feeling is present among most of the Americans and hence acts as deterrent to acceptance of security cameras. Surveillance cameras are very sensitive. Even a strong punch can cause them damage. Once the camera is damaged, the concerned area of the campus is out of surveillance. This situation remains unless the camera is repaired or replaced. In fact, if someone sticks a chewing gum on the lens then to the camera goes 'blind'.
If some student brings a weapon hidden in his/her school bag or even pocket, then the camera will not be ale to see it. Only a metal detector can detect such hidden weapons. Installations in open areas like play grounds can be a tricky issue. Plus, security cameras can't withstand extreme environmental conditions like rain, powerful winds and dust. Hence, there use is limited to indoor facilities only.
One of the biggest disadvantages of analogue CCTV is that the quality of the data is highly dependent on the quality and limitations of the equipment being used, its maintenance, and the operator's experience. Currently most CCTV system for pipe inspection use analogue cameras and recorders rather than digital video equipment.

- ***How does it meet the need you've identified?***

Closed Circuit Television (CCTV) has been a successful component in the 'tool kit' to fight crime and disorder. It has been proved effective in both cutting and detecting crime and because of this people now feel safer when they are out and about. CCTV is not just used for crime, problems and the 'bad' side of society. Kings Lynn CCTV is used for many 'good' things, such as reunite children and parents or grandparents that have become separated in the town centre; helping visitors find their cars in car parks; updating local radio with news about traffic flow and car parks; assisting with emergencies or other special events, and helping with the strange occurrences that happen for time to time, like when there was a live deer loose in the town centre.
Public CCTV surveillance is an increasing feature of our daily lives. Its deployment is commonplace in a variety of areas to which members of the public have free access. We are all likely to be caught on camera whilst going about our everyday lives and the images relayed back to a control room somewhere. The average person on the street is happy knowing that their safety

and well being are covered by the cameras on the street corner, shopping centre, housing, estate, industrial estate, hospital, sports centre or car park. CCTV can only be part of an integrated approach to crime and disorder problems, where it can be a very effective mean of crime prevention and detection, as well as crime reduction.

- ***How well does it meet the need? Why?***

As the very presence of a CCTV camera is known to make people feel safer and act as a deterrent to would-be vandals and criminals, it is not surprising that the use of CCTV is becoming ever more widespread. In the United Kingdom alone, there are approximately 2.5 million CCTV installations watching everything – cash machines, public transport, town centres, retailers, schools and the workplace to name but few and not to mention private installations to protect an individual's property and possessions. CCTV footage can also act as evidence in the event of an incident and help convict troublemakers and thieves. But in al least 75% of all cases where police use CCTV as evidence in court, it is found to be inadmissible as the images recorded are of such a poor quality or the target person is far too small to be recognised.
As with most things, CCTV can be as simple or as complex as the occasion demands. Many factors have to be taken into account when producing a technical specification – among them, the aspirations for the system and the physical constraints of the site, as well as the use of the right equipment. Usually they are using CCTV to prevent the crimes in different places.

- ***How does it not meet the need? Why not?***

CCTV cameras at Led Bury's Recreation Ground are being hailed as a success, despite suffering from vandalism and some technical problems.
Police says there has been a 50 per cent reduction in reported incidents since the system was switched on in September. Sergeant Bob Wilson said: "During July and August there were 17 reported cases, including disorder, theft, drunkenness and criminal damage".
This number was reduced to eight during September and October and further reduced to three during November and to date in December.
Four cameras were installed by the town council in the autumn, after shards of glass were found scattered in the children's play area.

- ***How could this technology be improved or changed in order to meet the needs better?***

A big increase in the number of security cameras in an area is being planned following a study of their success in tackling crime. A special task force set up by the Vale of Glamorgan council has produced its final report and made a series of re commendations on how the existing CCTV system can be improved and expanded.
One of the task force's main recommendations is to include a condition in planning permissions that would require house-builders to install and run CCTV systems at their new developments.
The group also recommends that an officer be appointed to direct schools on the best ways of buying and installing CCTV equipment.
The report says CCTV "is a popular and growing tool for promoting community safety and relieving the fear of crime".
It continues: "A major factor which impinges upon the effective use of CCTV cameras and the scope of expanding the CCTV service in the Vale is the cost of the service including the staff necessary to monitor the cameras."

A new and improved CCTV system will be rolling out in Calne next month. Currently the town has several black spots not covered by cameras and is short of volunteers to man the desk. Deputy town clerk Daryl Saville-Brown, who rolled out Devizes' CCTV system, spearheaded the new initiative.
The new CCTV system will be based at council offices in Bank House and police will train volunteers on how to use the equipment.
The CCTV revamp will upgrade the monitoring system to flat screens, will be viewed by police and will link traders through a council launched radio scheme.
Traders will be able to rent radios from the town council for £1 a day linking them to the CCTV system, police and other traders.
Mrs Saville-Brown, who resigned as Devizes town center manager in November, set the momentum for the Devizes CCTV project and rose just under £60,000 form 39 organisations and businesses.
She said: "The Calne CCTV project, together with a better communication strategy, will enhance the service and benefit the whole community.
"In addition to this a feasibility study will be carried out to ascertain other areas of the town that would benefit CCTV coverage, so that expansion of the scheme could be considered in the future."
Traders in the town welcomed the CCTV revamp. Manager of The Kings Arms Phil Snell said: "This is good news for Calne. It is a positive step towards a safer town. It is a fantastic idea to link traders with other traders and police.

TECHNOLOGY 2:

Introduction:

There are few topics in the technical realm that have touched as many disciplines with emotion and politics as digital cinema. The very definition of the words has stirred passionate action.
What I will outline in this and subsequent articles in the story behind digital cinema: the beliefs, the motivation, the missing links, and course, the technology.
As a starting point, I'll suggest a simple definition for cinema: the art of presenting motion pictures. Since this simple definition is not technology-dependent, I can also define digital cinema as the art of presenting motion pictures. The source technology is not important. The "digital" in digital cinema is about the distribution format and how the image is displayed.
My simple definition is elegant, but unfortunately, it has a problem. There's nothing in this definition that connects cinema to a particular image quality level. Why do we need this? The question deserves a quick review.
Historically, cinema has been about the display of film-based contact. While other distribution media have been introduced since the advent of film, such as broadcasting, consumer video tape, laserdisc, DVD, and MPEG files over the Internet, none produce pictures superior to that of film
This natural division in quality has allowed motion picture exhibition to escape the electronic revolution of the past fifty years. More importantly, it is this division in quality that has made viable the staggered release windows that are unique to the distribution of motion picture. By release windows, I refer to the timing of when movies are released on the various media available. DVD sales, for instance, generally do not take place until four to six months following the release of the movie in the theatre.
My simple definition of cinema, therefore, may describe the cinema business of sixty years ago, but it doesn't take into account the staggered release window in use today. If I define cinema as the art of presenting film-based motion pictures, I capture the quality difference between that

found in the cinema, and that found elsewhere. I can think of no one in Hollywood who would question that definition. But it doesn't translate well when we replace the word "film" with "digital" Aren't we watching digital motion pictures on our DVDs and the Internet? This has been the cause of much discussion in Hollywood, and indeed, most of the world, with the result that the accepted definition of digital cinema is the art of presenting first-run motion pictures. That's a lot of explanation, but I hope to make a point: quality is an important aspect of cinema, not simply for the sake of delivering quality images to an audience. It is also important to the business model. The definition of digital cinema does not include the word "quality." Nonetheless, it is because of the concern for quality that the definition has taken the form that it has.

With our well-founded definition as a starting point, let's explore other issues behind digital cinema.

Our definition of digital cinema allows us to split the universe of theatrical presentation into digital cinema and everything else. The common language applied to "everything else" is "alternative entertainment" or "other digital stuff" (ODS). The point is that theatrical presentation can be divided into two classes, one having the highest quality possible, and the other less restrictive in quality. This is perhaps one of the pillars of current thinking in electronic exhibition. There are some one hundred and fifty trial digital cinema systems in the world today. These include installations in China, Singapore, and Thailand. Definitions being important, the term "trial digital cinema system" is carefully chosen. Contrary to the promotion and press one may read, these are not systems ready for a world-wide rollout of digital cinema. These systems are in place for studios and exhibitors to gain hands-on experience with digital presentation. The honest fact is that, in the eyes of both Hollywood and exhibitors, there isn't a system today that is suitable for a wide-spread rollout of digital cinema. But that's a very different problem which this article will only begin to address.

Altogether, it's important to note that digital cinema has many forces pushing it forward, and many forces that inhibit it from moving forward. Both sets of forces need to be understood to fully grasp the complexity of introducing this technology to the cinema. These forces are comprised of many issues, which include benefits to distribution, benefits to the audience, system cost, financial contribution by the studios in purchasing systems, image quality, security, interoperability, differentiation form the home, electronic management of business, and of course, the details of the technology itself. I will address many of these issues in later articles. To gain perspective, it's useful to understand how we arrived where we are today. The concept of electronic cinema is actually quite old now – dating back before the mid twentieth century. Electronic cinema was discussed before the introduction of television. It began to take a tangible shape in the early nineties, when the Hughes/JVC ILA (Image Light Amplifier) projector became available. This was the first electronic projector that could light up a large cinema screen and produce a picture that was worthy of consideration. The ILA projector, however, suffered from maintenance and alignment issues, making it nearly impossible to use in the 14x7 environment of the cinema, which only magnifies its quality problems.

EXPLANATION OF ITS USE:

Digital cinema encompasses every aspect of the movie making process, from production and post – production to distribution and projection.

While digital cameras are nothing new, and post – production houses have been using digital equipment to edit and master movies and animation for some time, the all-digital distribution and projection of movies has only recently arrived to complete the chain. A digitally produced or digitally converted movie can be distributed to theatres via satellite, optical discs, or fibre optic

networks. The digitized movie is stored by a computer/server which "serves" it to a digital projector for each screening of the movie. Projectors based on DLP Cinema technology are currently installed in select theatres worldwide-and remain the first and only commercially available digital movie projection systems.
A visible sign of this shift is the new role which computer generated special effects have come to play in Hollywood industry in the last few years. Many recent blockbusters have been driven by special effects; feeding on their popularity. Hollywood has even created a new-mini genre of "The Making of…" video and books which reveal how special effects are created.
We will use special effects from few recent Hollywood films for illustrations of some of the possibilities of digital filmmaking. Until recently, Hollywood studios were the only ones who had the money to pay for digital tools and for the labour involved in producing digital effects.
However, the sbift to digital media affects not just Hollywood, but filmmaking as a whole. As traditional film technology is universally being replaced by digital technology, the filmmaking process is being redefined.

- ***How is it used? How does it work? What does it do?***

Digital cinema refers to the use of digital technology to distribute and project motion picture motion pictures. The final movie can be distributed via hard drives, DVDs or satellite and projected using a digital projector instead of a conventional film projector. Digital cinema is distinct form high-definition television and in particular, is not dependent on using television or HDTV standards, aspect ratios, or frame rates. Digital projectors capable of 2K resolution began deploying in 2005, and since 2006, the pace has accelerated. HDTV and pre-recorded HD disks could put pressure on movie theatres to offer something to compete with home HD experience.
The world's first digital cinema network will be established in the UK over the next 18 months. The UK film Council has awarded a contract worth £11.5m to Arts Alliance Digital Cinema (AADC), who will set up the network of up to 250 screens.
AADC will oversee the selection of cinemas across the UK which will use the digital equipment. High definition projectors and computer servers will be installed to show mainly British and specialist films.
Clearly, digital technology has already taken over much of the home entertainment market. It seems strange, then, that the vast majority of theatrical motion pictures are shot and distributed on celluloid film, just like they were more than a century ago. Of course, the technology has improved over the years, but it's still based on the same basic principles. The reason is simple: Up until recently, nothing could come close to the image quality of projected film.
But things are starting to change. George Lucas kicked off the digital cinema charge in May of 2002 with "Star Wars: episode ll, the Attack of the Clones." The first big budget live action movie shot entirely on digital video. Most theatres played 35-mm film transfers of the movie, but some played it on digital movie projectors. Film never entered the picture. With more and more filmmakers embracing the new technology, including big names like Steven Soderbergh and Robert Rodriguez, digital cinema is well on its way.

- ***What technology is used? (state technical aspects)***

Digital cinema is simply a new approach to making and showing movies. The basic idea is to use bits and bytes (strings of 1s and 0s) to record, transmit and replay images, rather than using chemicals on film.
The main advantage of digital technology (such as CD) is that it can store, transmit and retrieve a huge amount of information exactly as it was originally recorded. Analog technology (such as and audio tape) loses information in transmission, and generally degrades with each viewing.

Digital information is also a lot more flexible than analog information. A computer can manipulate bytes of data very easily, but it can't do much with a streaming analog signal. It's a completely different language.
Digital cinema affects three major areas of movie-making:

1. **Production –** how the movie is actually made
2. **Distribution –** how the movie gets from the production company to movie theatres
3. **Projection –** how the theatre presents the movie

1. **Production –** With an £400 consumer digital camcorder, a stack of tapes, a computer and some video-editing software, we could make a digital movie. But there are a couple of problems with this approach. First, our image resolution won't be that great on a big movie screen. Second, our movie will look like news footage, not a normal theatrical film. Conventional video has a completely different look from film, and just about anybody can tell the difference in a second. Film and video differ a lot in image clarity, depth of focus and colour range, but the biggest contrast is frame rate. Film cameras normally shoot at 24 frames per second, while most U.S. television video footage is also interlaced – each frame is split into two sets of horizontal lines that fit together. Video is designed this way to work with the standard television format. A television's electron beam paints every other line as it moves down the screen (for example, every odd-numbered line). Then, the next time it moves down the screen, it paints the even-numbered lines, alternating back and forth between even-numbered and odd-numbered lines on each pass. All of these factors give conventional video a completely different flavour than film – the image seems to move differently. In order to mimic the characteristic look of film, movie-makers use digital camcorders that shoot like film cameras. For example, George Lucas shot "Attack of the Clones" with Sony HDW—F900 HDCAM camcorders outfitted with high-end pan vision lenses. The camera also has a similar light range and depth of field to film cameras.

2. **Distribution -** For the business side of the movie industry, the most compelling aspect of digital cinema is distribution. In today's system, production companies spend a lot of money producing film prints of their movies. Then, working with distribution companies, they spend even more money shipping the heavy reels of film to theatres all over the world, only to collect them again when the movie finishes its run. Because the distribution costs are so high, production companies have to be extremely cautious about where they play their movies. Unless they have a sure-fire hit, they take a pretty big risk sending a film to a lot of theatres. If you take the physical film out of the equation, things get a lot cheaper. Digital movies are basically big computer files, and just like computer files, you can write them to a DVD-ROM, send them through broadband cable or transmit them via satellite. There are virtually no shipping costs, and it doesn't cost the production company much more to show the movie in 100 theatres than in one theatre. With this distribution system, production companies could easily open movies in theatres all over the world on the same day. The digital distribution system also helps out the individual theatres. If a movie sells out, a theatre could decide to show it on additional screens on the spur of the moment. They simply connect to the digital signal. Theatres could also show live sporting events and other digital programming.

3. **Projection -** To the audience, the most important aspect of digital cinema is the projection system. This is the final piece of technology that controls how the movie actually looks at the end of the line. Pretty much everybody agrees that a good film

projector loaded with a pristine film print produces a fantastic, vibrant picture. The problem is, every time we play the movie, the film quality drops a little. When we go to a movie that's been playing for a few weeks, you'll probably see hundreds of scratches and bits of dirt. Many critics hold that a projected digital movie is inferior to a pristine film print, but they recognize that while a film print gradually degrades, a digital movie looks the same every time you show it. Think of a CD as compared to an audio tape. Every time you play an audio tape, the sound gets a little warped. A CD's digital information sounds exactly the same every time you listen to it (unless it gets scratched). Today, there are two major digital cinema projector technologies: Micro mirror projectors and LCD projectors. Micro mirror projectors, like Texas Instruments' Digital Light Processing (DLP) line, form images with an array of microscopic mirrors. In this system, a high-power lamp shines light through a prism. The prism splits the light into the component colours red, green and blue. Each colour beam hits a different Digital Micro mirror Device (DMD) -- a semiconductor chip that is covered in more than a million hinged mirrors.

- ***Where is it used?***

A visible sign of this shift is the new role which computer generated special effects have come to play in Hollywood industry in the last few years. Many recent blockbusters have been driven by special effects; feeding on their popularity. Hollywood has even created a new-mini genre of "The Making of…" videos and books which reveal how special effects are created.
People will use special effects from few recent Hollywood films for illustrations of some of the possibilities of digital filmmaking. Until recently, Hollywood studios were the only ones who had the money to pay for digital tools and for the labour involved in producing digital effect.
However, the sbift to digital media affects not just Hollywood, but filmmaking as a whole. As traditional film technology is universally being replaced by digital technology, the logic of the filmmaking process is being redefined. What I describe below are the new principles of digital filmmaking which are equally valid for individual or collective film productions, regardless of whether they are using the most expensive professional hardware and software or its amateur equivalents.

- ***How long has it been in place?***

In June 1999, digital cinema technology was used commercially for the first time when a digital cinema version of the movie "Star Wars: Episode I – The Phantom Menace" was presented in six theatres. This presentation was a landmark event in many ways, but it primarily demonstrated that digital cinema can be a viable option for movie production and playback. The commercial digital cinema experience creates new opportunities for everyone involved in the movie making process, including filmmakers, producers, theatre owners, and even moviegoers.
For nearly a century, photographic film has been used to record, edit, and present movies in theatres. With digital cinema, movies are played from files stored digitally on a hard disk or DVDs. A digital projector renders the digital stream with microchips and microscopic mirrors, and then projects the movie on a theatre screen. Sound from the digital stream is converted to an analogy signal and played through the theatre speakers. The experience of the moviegoer is the same or better than that of viewing a film. A movie can be shot and edited on film and then digitized for distribution and playback in digital cinema theatres, or it can be produced entirely in the digital domain by using high-definition camcorders, editors, and processors. By working with digital cinema throughout the production process, filmmakers can work more efficiently with fewer creative limitations.

- ***What's the purpose? Why is it used?***

A number of significant technology developments have occurred in the past few years that have enabled the digital playback and display of feature films at a level of quality commensurate with that of 35mm film release prints. These technology developments include the introduction of : High-resolution film scanners, digital image compression, high-speed data networking and storage, and advanced digital projection. The combination of these digital technologies has allowed many impressive demonstrations of what is now called "Digital Cinema".
Our main purpose is to provide a secure and reliable digital movie distribution network based on DCI (Digital Cinema Initiatives) standard.
The details of DCI standard:

- **Digital Cinema Distribution Master (DCDM):** This section provides specifications for the image, audio, subtitle (Timed Text and sub pictures) Digital Cinema Distribution Masters. The DCDM-Image defines a common set of image structures for Digital Cinema by specifying an image containers and colorimetric for a Digital Cinema Distribution Master (DCDM). The DCDM-Audio specifies the following characteristics: bit depth, sample rate, minimum channel count, channel mapping and reference levels. The DCDM-subtitles specifies the format of a Digital Cinema subtitle track file. A subtitle track file contains a set of instructions for placing rendered text or graphical overlays at precise locations on distinct groups of motion picture frames. A subtitle track file is an integral component of a Digital Cinema composition and may be present in both mastering and distribution file sets.

- **Compression (Image):** Specifies the DCI compliant JPEG 2000 code stream and JPEG 2000 decoder.

- **Packaging:** This section defines the requirements for packaging the DCDM (image, audio and subtitle) files using (where possible) existing Material exchange Format (MXF) specifications and extensible Mark up Language (XML). The output of this process is the digital Cinema Package (DCP). This section also defines the requirements for encrypting the essence (sound, picture and subtitles) of the DCP.

- **Transport:** Defines the movement from distribution centres to theatre locations using physical media, virtual private networks or satellite communications.

- **Theatre Systems:** Provides requirements for all equipment necessary for theatrical presentation in a typical theatre environment. This encompasses digital projectors, media blocks, storage systems, sound systems, the DCP files ingest, theatre automation, Screen management System (SMS) and Theatre Management Systems (TMS).

- **Projection:** This section defines the projector and its controlled environment, along with the acceptable tolerances around critical image parameters for Mastering and general Exhibition applications. The purpose is to provide a means for achieving consistent and repeatable colour image quality. Two levels of tolerances are specified: a tighter tolerance for mastering rooms where critical colour judgments are made, and a wider tolerance for satisfactory reproduction in general public exhibition.

- **Security:** The security chapter provides requirements and fundamental specifications for persistent content protection and controlled access in open security architecture. These objectives are achieved with high security in a multi-user environment via the application of well respected security and encryption standards in primarily three:

1. Content encryption.
2. Security (key) management.
3. Integrity event logging and reporting.

EVALUATION INTO THE EXTENT THAT THE TECHNOLOGY MEETS THE COMMUNITIE'S NEEDS:

- ***The advantages of the technology are:***

  - Eliminate print film. We estimate that the annual cost of print film in the Unites States is roughly £350 million. This includes the cost of the film in addition to processing. This figure is widely used as what studios and distributors will save under digital cinema. As we will later show, there is not likely to be any savings after the cost of capital is taken into account based on the current cost of projection systems.

  - No print degradation. Print film has the benefit of being a universal standard, much in the way that 35mm consumer film is. A disadvantage of the technology is that the quality degrades with use, resulting in scratches and burnout. With digital projection, this problem is eliminated. Furthermore, the digital systems feature more precise controls.

  - New revenue streams. Digital projection will give theatres the ability to show live content such as concerts, sporting events, etc. Advertising is emerging as a necessary evil to industry economics. Digital projection would facilitate targeted and local advertising.

  - Makes distribution costs variable. Under the current system, distributors are required to order prints prior to having a good estimate of demand. Effectively the cost is fixed. With digital, the cost is variable. DVDs can be made as needed. With satellite distribution, the delivery mechanism is point to multipoint. According to Boeing, the break-even number of theatres for one film is 10-15.

- ***The disadvantages of the technology are:***

  - Image quality. Although film prints do degrade, they do provide better quality images in optimal conditions. The resolution of film is 5K versus 2K for digital cinema. Colour gamut is significantly higher for film as well.

  - Economically unviable. We will provide a more detailed analysis later in the report, but essentially digital cinema provides no net savings to the industry until the cost of a projection system including related hardware is less than £25,000.

  - Piracy. The ability to reduce piracy was touted as a benefit to the industry. The experience of the music industry suggests that piracy is more likely to be a negative.

History has shown that encryption systems ultimately are broken. This could severely curtail the international box office and other ancillary markets.

- Harmonizing the experience. One big industry concern is that the look and feel of digital projection will not differ significantly from HDTV shown on a big screen TV. HDTV does appear to be gaining momentum, as do large screen television. Roger Ebert has made the case that the flickering of film induces a dream-like state and that digital is a different experience.

- Permanent increase in capital requirements. The faster replacement cycle would result in the annual capital spending in the U.S. exhibition industry increasing by 5 times to over £450 million annually.

- ***How does it meet the need you've identified?***

Digital Cinema describes the use of movies with a digital data representation in best quality. Traditionally movies are shot on film and projected with film. In the future this will be done with digital cameras and digital projectors. Because of the huge amount of data within this application area data compression will be necessary. In contrast to Electronic Cinema, which uses the digitization of the film for new commercialization pathes, Digital Cinema replaces only the film chain from the acquisition to the film theatres. Therefore Digital Cinema must achieve and surpass today's best film quality. The parameters for the digital representation of the movie have to be much more extensive than in standard videos.
Previous compression standards have different limits for the use in Digital Cinema. This can be the maximum resolution, the compression possibilities (only lossy), the sampling type, the colorspace or the bit depth. Motion JPEG2000 is an excellent compression standard for the use in Digital Cinema, because it delivers enough headroom in the description of digital movie data and has outstanding features, which can be used. Some features of Motion JPEG2000 are intraframe coding for a simple editing access, lossless compression capabilities, metadata insertion, scalability in resolution and quality and so on. All features of the still Image JPEG2000 Standard 15444 - Part1 can also be used.
Requirements in data compression for Digital Cinema include high dynamic range, different colour spaces, highest image resolutions, best compression quality including lossless compression, and so on.

- ***How well does it meet the need? Why?***

Filmmakers have relied on film to make their movies for almost as longs as the industry's been around. Shooting on film may be expensive, but it has a special quality unrivalled by any other media, and though we are not necessary aware of what is going on behind the scenes when we turn up at the box office, we are stepping into the world of 35mm film.
The release prints of movies arrive in projection rooms as 10,000 feet of film printed as a copy of the original. So far the only sop towards digital in the analogue cinema world has been in the realm of sound. But now, finally, film itself may be facing the final curtain as cinemas find the pull of digital forces irresistible.

Digital projection systems are the latest thing. The release copy of the movie is delivered on a hard drive, sporting 100 gigabytes of the latest Hollywood fare, a digitally scanned copy of the master film print. The big advantage of digital projection is the picture quality.
With film, every imperfection gets shown as the 35mm print passes through the projector, including scratches, fluff, blotches and so forth; not exactly what the director intended for their creative vision.
The industry has reached a watershed, and digital cinema is about to take off in a big way.
The rest of the entertainment world embraced digital years ago, so why are the cinemas so late to the party? "It's taken so long because it's been a question of agreeing in advance," said David Hancock of Screen Digest. "It has been a consensus building process, which started in 1999 with the first commercial release of Star Wars Episode One.
"Since then we've had five years of testing the technology, building a consensus and agreeing the business models and technology to be used, and this took longer than most people expected."

- ***How does it not meet the need? Why not?***

There are some Cons include in digital cinema that doesn't meet the need and the disadvantages and Cons of digital cinema are in the following:

- In single-chip designs, some viewers are bothered by the "rainbow effect."
- Some viewers experience eye strain, headaches, and migraines when viewing DLP screens.
- Not as thin as LCD or plasma flat-panel displays (although approximately comparable in weight), though newer sets are thin enough to be wall mounted.
- Some devices may have fan noise.
- "Screen door effect" (SDE) may be visible at close distance and/or with lower resolution models (720p resolution and lower). SDE can also be perceived as artificially sharp looking (due to dark gaps between mirrors/pixels which are high frequency content, not part of the image displayed) and not film-like.
- Dithering noise may be noticeable, especially in dark image areas. Newer (post – 2004) chip generations have less noise than older ones.
- Error-diffusion artefacts caused by averaging a shade over different pixels, since one pixel cannot render the shade exactly.
- Mediocre on-off contrast compared to CRT reference.
- Response time in video games may be affected by up scaling lag. While all HDTVs have some lag when up scaling lower resolution input to their native resolution, DLPs are commonly reported to have noticeably longer delays.

These are some problem which digital camera caused because of these cons made lots of problems for filmmaker and moviemakers.

- ***How could this technology be improved or changed in order to meet the needs better?***

There are currently two types of projectors for digital cinema. Early DLP projectors used primarily in the U.S. used limited 1280 x 1024 resolutions which are still widely used for pre-show advertising but not usually for feature presentations. The DCI specification for digital projectors calls for three levels of playback to be supported: 2K (2048x1080) at 24 frames per second, 4K (4096x2160) at 24 frames per second, and 2K at 48 frames per second.

Technicolor, Deluxe, XDE and Access Integrated Technologies are the leading companies in digital distribution. Other companies currently distributing digital cinema include Kodak, DTS, Ascent Media, Dolby, and Arts Alliance Media.

- ***What other technology (if any) would meet the needs better?***

James Mathers Said: for the last few of months, I've been trying to follow along on other forums regarding the RED One camera, and wanted to comment, but I've been too busy shooting with mine, (#30 delivered September 7th). I haven't seen too much posted from people who have actually been shooting with the gear, so I thought I should chime in. Although I would say the camera is still in a Beta version, it is improving almost daily via firmware updates sent by e-mail, and I would have to say that I am very pleased with the results I have been getting. We held Digital Cinema Society events in L.A., Chicago, and New York and when possible showed a 35mm output of some of our test footage that was provided by Foto Kem, with editorial assistance from Digital Film Tree. The three minute sample reel was made up of test footage shot on location with the voluntary help of DCS members in L.A., San Francisco, Chicago, and Jackson Hole, WY; (where I bagged a moose in 4K). These tests were produced completely independent of RED, with the volunteer services of dozens of DCS members who were interested to find out about the technology. Lenses, including Zeiss Master Primes, Angenieux and Cooke Zooms and additional support gear sometimes supplemented my package, and were donated by companies like Fletcher Chicago, Otto Nemenz, Hollywood Camera, Zacuto, Tamberelli, Keslow Camera, and Angenieux. It certainly doesn't have all the production value of "Crossing the Line", but I hope it demonstrates how the camera performs in a wide variety of real world shooting situations, with various combinations of traditional motion picture lenses and support gear. Like my Grandmother used say, "the proof is in the pudding", so check with the hundreds in attendance at these events for their evaluation, but I would say the results were pretty darn good. We also had variously HD and 2K projections of the demo, but it's a shame we couldn't have had the 4K for comparison; (Sony offered an SXRD projector, but we found the necessary 4K server harder to come by). It was still very informative to see RED footage out to film, which is still the way it will be seen for any kind of theatrical release.
Having shot mostly film over the years, it was a pretty easy transition for me with the same angle of view and depth of field as 35mm. I was comfortable in thinking of the RED camera displays as being analogous with the video taps, I was used to. Like a tap on a film camera, it is useful for framing reference, but the image available on the negative is not done justice. It provides some good information, but we wouldn't make lighting or exposure choices solely based on viewing the tap. In fact, the RED camera has ASA Alert and white balance settings on the camera, that really control nothing more than the display output, and are totally non-destructive to the RAW image.

Conclusions:

- Cinema is one of the most important elements of the Communication system, and knowledge represents one of the primary wealth sources.
- Like other industries, the movie industry has had to adapt to changing technology.
- New technology creates new contexts and working methods.

In the initial stages of technology implementation, the focus is on doing what we already do, but doing it faster, cheaper and somehow better, In the subsequent implementation stages, the focus shifts to doing new things, things that have never been done before.
The new digital tools offer filmmakers, studios, distributors, exhibitors and spectators as well an array of opportunities. High quality, significant flexibility, and maybe cost reduction are just a few of the benefits.

There are yet a number of problems and obstacles to overcome and solve.
"Skill shortage", the lack of skilled professionals in the sector, represents, in my opinion, one of the obstacles for the development of digital cinema.
Today professional figures are continuously evolving and their evolution is strictly related to the advancement of technology. Consequently, the scenario of the professional resources is changing as well:

- New professions that fulfil new needs and competences develop;
- Other professions change their profile, they are enriched by additional know-how, they transform. We need a new education and training model.

Knowledge, however, is not a commodity that can be controlled, moved about or distributed at will.
Moreover, the Cinema industry does not improve simply by using pixels on hard disk, instead of traditional silver crystals imbedded in celluloid.
Cinema industry is made of numerous variables and "Value for Money" becomes paramount. As professionals of this exiting and dynamic Moving Images world, the digital cinema and digital cinematography are our opportunity and our future.

TECHNOLOGY 3:

Introduction:

Automated Teller Machines (ATM) can offer significant benefits to both banks and their depositors. The machines can enable depositors to withdraw cash at more convenient times and places than during banking hours at branches. At the same time, by automating services that were previously completed manually, ATMs can reduce the costs of servicing some depositor demands. These potential benefits are multiplied when banks share their ATMs, allowing depositors of other banks to access their banks to access their accounts through a bank's ATM. The decision by banks to share their ATMs is partially determined by the terms under which the sharing would occur. In particular, there are several prices that can be charged to or collected by the three main parties involved in an ATM transaction, the cardholder, the cardholder's bank, and the ATM owner. How, and by whom, these prices are set affects a number of economic decisions, including the number of machines that banks and non-banks choose to deploy, deposit market interest rates, distances travelled by depositors and non-depositors that wish to withdraw cash, profits of banks, and welfare of bank customers.
In this paper, I will review the literature on ATM pricing. I will first describe ATM fees and some rough empirical magnitudes in the UK. context. In addition, I will examine the institutional framework under which most sharing agreements are formed.

EXPLANATION OF ITS USE:

Most ATM networks began as joint ventures owned by a central group of bank members. A network provides an array of services that link together the ATMs of its members. The activities of the network are governed by a set of rules that are agreed to and implemented by the network's board of directors. In the UK, ATM networks are not directly regulated by any government agency. ATM network organizations engage in a host of activities that support the trademark,

brand name, reliability, and operation of the ATM system controlled by the network. The basic operational activity of the network is to support ATM cash withdrawals by the deposit account holders of any member bank. This function requires the network to transfer electronically, or "switch" the transaction information from the ATM to the account holder's bank and back again. This communication and sorting activity is accomplished through the aid of leased or dial-up telephone lines and centralized computers. Many networks also provide ancillary services such as ATM servicing and clearing and settlement of payments to its members or other banks.

Use of ATM services usually triggers the levy of two types of fees: wholesale fees, which are paid by the banks to other banks or to the network, and retail fees, which are paid by the person conducting the transaction to his or her bank or to the ATM owner.

Wholesale fees are set by ATM networks and comprise the switch fee and the interchange fee (most networks also charge a wholesale membership fee, which is not transaction-based). Switch fees, which cover the costs of routing transactions through the network's computer switching system, typically range from £0.01 to £0.07 per transaction. The interchange fee is paid by the cardholder's bank to the ATM owner to compensate the owner for the costs of deploying and servicing the ATM; interchange fees typically range from £0.17 to £0.32 per transaction.

The retail fees of an ATM transaction are set by the cardholder's bank and by the ATM owner. These fees are of two types, usage (or variable) fees and periodic assessments by banks per card (or fixed fees). For usage based fees, when a cardholder uses and ATM the cardholder could be charged a fee. If the ATM is owned by the cardholder's bank, the cardholder could be charged an "on-other's" or foreign fee that banks charge when their cardholder uses a machine owned by another party. These fees range from £0.12 to £0.25 and average more than 50p per transaction.

Surcharges also fall under the category of retail fees. Surcharges are typically applied in a discriminatory fashion, that is, banks that own ATMs typically surcharge only other banks' depositors, and not their own account holders, Nonbank owners of ATMs typically apply surcharges to all users. Surcharges vary widely, ranging from as little as £0.25 to as much as £2.50, but they now average approximately £75p per transaction.

- ***How is it used? How does it work? What does it do?***

An automated teller machine (ATM) is a computerized telecommunications device that provides the customers of a financial institution with access to financial transactions in public space without the need for a human clerk or bank teller. On most modern ATMs, the customer is identified by inserting a plastic ATM card with a magnetic stripe or a plastic smartcard with a chip, which contains a unique card number and some security information, such as an expiration date or CVC (CVV). Security is provided by the customer entering a personal identification number (PIN).

Using an ATM. Customers can access their bank accounts in order to make cash withdrawals (or credit card cash advances) and check their account balances. ATMs are known by various casual terms including automated banking machine, money machine, bank machine, cash machine, hole-in-the-wall, cash point or Ban comate (in Europe and Russia).

An ATM is simply a data terminal with two input and four output devices. Like any other data terminal, the ATM has to connect to, and communicate through, a host processor. The host processor is analogous to an Internet Service Provider (ISP) in that it is the gateway through which all the various ATM networks become available to the cardholder (the person wanting the cash). Most host processors can support either leased-line or dial-up machines. Leased-line machines connect directly to the host processor through a four-wire, point-to-point, and dedicated telephone line. Dial-up ATMs connect to the host processor through a normal phone line using a modem and a toll-free number, or through an Internet service provider using a local access number dialled by modem.

Leased-line ATMs are preferred for very high-volume locations because of their thru-put capability and dial-up ATMs are preferred for retail merchant locations where cost is a greater factor than thru-put. The initial cost for a dial-up machine is less than half that for a leased-line machine. The monthly operating costs for dial-up are only a fraction of the costs for leased-line. The host processor may be owned by a bank or financial institution, or it may be owned by an independent service provider. Bank-owned processors normally support only bank-owned machines, whereas the independent processors support merchant-owned machines.

- ***What technology is used? (state technical aspects)***

An automated teller machine (ATM) includes at least on processor which operated to cause transaction function device (16, 18, 20, 22, 24, 26, 28, 30, 32, and 34) to operate to carry out banking transactions for users of the machine. A software environment (54) operates in the processor and includes a hardware independent software application (60) which application may be operated successfully in a plurality of brands of automated teller machine hardware. The automated teller machine verifies that the software application has been authorized by an appropriate authorizing entity before the application is enabled to cause operation of transaction function devices. IN some distribution methods the software application is provided in source code form at generally no charge to ATM owners and software developers, who are required to contribute modifications to the entity offering the software, which modifications are further made available to facilitate the development and used of platform independent software applications in automated teller machines.

- ***Where is it used?***

ATMs are found everywhere, usually outside of banks, and also in airports, grocery and convenience store, and shopping malls. Each ATM will be associated with a bank, but we can use any machine that is part of our bank's "network." Looking for network symbols on the bank of our card, such as "CIRRUS." Our card can be used in any machine displaying these same symbols. Beware that if we use an ATM that is not owned by our bank, we may be charge a fee. Some banks even charge their own customers for use of their ATMs. This fee can be a few cents or more than a dollar, but most people think the convenience is worth it.

- ***How long has it been in place?***

The ATM was invented by Scot John Shepherd Barron. The world's first ATM was installed in a branch of Barclays in the northern London borough of Enfield, Middlesx, in 1967. Inspiration had struck Mr Shepherd Barron, now 82, while he was in the bath.
A mechanical cash dispenser was developed and built by Luther George Simjian and installed in 1939 in New York City by the City Bank of New York, but remove after 6 months due to the lack of customer acceptance.
The ATM got smaller, faster and easier over the years. Thereafter, the history of ATMs paused for over 25 years, until De La Rue developed the first electronic ATM, which was installed first in Enfield Town in North London on 27 June 1967 by Barclays Bank. This instance of the invention is credited to John Shepherd-Barron, although various other engineers were awarded patents for related technologies at the time. Shepherd-Barron was awarded on OBE in the 2005 New Year's Honours List. The first person to use the machine was Reg Varney of "On the Buses" fame, a British Television programme form the 1960s. The first ATMs accepted only single-use token or voucher, which was retained by the machine. These worked on various principles

including radiation and low-coercivety magnetism that was wiped by the card reader to make fraud more difficult. The idea of a PIN stored on the card was development by the British engineer John Rose in 1965.
ATMs first came into wide UK use in 1973; the IBM 2984 was designed at the request of Lloyds Bank. The 2984 CIT (Cash Issuing Terminal) was the first true Cash point, similar in function to today's machines; Cash point is still a registered trademark of Lloyds TSB in the U.K. All were online and issued a variable amount which was immediately deducted from the account. A small number of 2984s were supplied to a USA bank.

- ***What's the purpose? Why is it used?***

Automated Teller Machine (ATM) is one of the most important discoveries in the twentieth century. The first model was presented in 1939. Nowadays, roughly about 1, 5 million are installed worldwide. The second of it has been to take into consideration the purpose which could be a part and a parcel of any communicative act. In this context, it should be noted that there are different participants involved in ATMs communication. To cite but a few of them, in an ATM communication, there are remote partners and interfaces to the outside world and these interfaces are in their turn subject to more than one classification. The first interface represents the relationship between the End user and Automated Teller Machine. The second interface occurs between the ATM and the central bank computer.
Now 70% of Americans use an ATM debit card, a credit card, or a VISA check card, and they often rely on them. Customers appreciate the convenience of an ATM to access their bank account whenever they want to, especially after normal banking hours!
An Automated Teller Machine (ATM) is a data terminal with two input and four output devices. Similar to many other data terminals, the ATM must connect and communicate through a host network. The host network may be compared to an Internet Service Provider in that it is the gateway through which all the various ATM networks become available to the cardholder.
The two input devices in an ATM are:

1. A card reader that captures information stored on the magnetic strip on the back of the ATM debit or credit card.

2. A keypad that allows the card holder to inform the bank of the required transaction (cash withdrawal, transfer of funds, balance inquiry, etc.) and the required amount.

EVALUATION INTO THE EXTENT THAT THE TECHNOLOGY MEETS THE COMMUNITIE'S NEEDS:

- ***The advantages of the technology are:***

The advantages of owning a Triton ATM begin at the design phase of every product. The purpose is simple to ensure that we reach the biggest return possible on our investment. This "maximum – return" philosophy has made Triton one the largest off-premise ATM manufacturers in the world, with ATMs ideally suited for financial institutions and retail environments.
Of course, the low-cost, quality ATMs are developed with ease of servicing in mind. And we can see the dedication to reliability in every Triton dispensing mechanism.
The Triton Advantage doesn't stop there. With over 145,000 ATMs shipped to 23 countries worldwide, Triton is known for reliable and serviceable units. Thanks to superior engineering, Triton ATMs average less than one service call per year per ATM. Additionally; more than 90% of all technical difficulties reported are resolved by telephone. Triton ATMs are famous for their reliability and longevity. Furthermore, we stand behind our ATMs with a large parts inventory.

We also offer and extremely thorough education for both the novice and professional, arming we with knowledge to service our own ATM. If we manage a large estate Triton offers cutting edge ATM monitoring software that puts us in complete control of our ATMs from a personal computer. The purpose is for our ATMs to be trouble free and this monitoring makes it possible.

- ***The disadvantages of the technology are:***

Automatic teller machines (ATMs) are, overall, probably the most convenient way of obtaining cash worldwide. All we need do is memorize our Personal Identification Number (PIN) code and carry around our ATM debit card. The biggest disadvantage of using ATM's is the fees involved. In addition to the fees that our bank charges us for the withdrawal, they will probably charge us and additional "Network Fee" for using the Cirrus, or Plus networks, and the bank that owns the ATM often charges "convenience fees" for using their ATM. The "White Label" ATMs (ATM's no associated with a bank, usually located in convenience stores and hotels) often charge even higher convenience fees. These fees are almost always fixed amounts, so it is usually better to do fewer withdrawals that are large amounts rather than a number of small withdrawals. The banks also usually charge a higher currency exchange than we could get elsewhere. If we withdraw small amounts it is not uncommon to pay as much as 5-10% in fees.

- ***How does it meet the need you've identified?***

These days the consumer wants to be able to get cash when they need it and preferably where they intend to spend it. Since spring 1999 over 30,000 Internal ATMs have been installed across a wide spectrum of businesses to meet that need. The majority have been installed in retail outlets like convenience stores, newsagents and petrol stations and the remainder in leisure outlets such as pubs, clubs and hotels.

Like them, we could benefit from:

- Direct Commission from every Cash Withdrawal.
- Higher sales from increased footfall.
- Bank Charge savings by filling ATM with our cash.
- Less visits to the Bank and less cash taken each time.
- Using the ATM's unique Promotional Coupon facility.

If people business has a high weekly turnover and footfall, they could so easily enjoy the substantial benefits from this new and "simple-to-operate" Profit Centre. An ATM on their premises could transform their business.
Automated teller machines are now a way of life. They are often the only way to conduct some banking activities for many, due to branch closures and the increases in face-to-face transaction fees. Over 70 percent of Australians surveyed by the ABS in 1999 now use ATMs, an increase of five percent over the previous year. ATMs are now a normal part of daily life.

- ***How well does it meet the need? Why?***

Automated Teller Machine (ATM) is a data terminal used for money transactions. ATMs are similar to a KIOSK computer having a keypad and a screen to provide the user with an easy

interface for money transaction. These sorts of computers are purpose specific and programmed accordingly. It gives limited access and interaction with the user.
Online Banks provides their customer with an ATM Card for this purpose. The card has all relevant account holder information and saved in an electromagnetic tap. When customers want to make transaction, he enters his card in the ATM Machine and prompted for the pin code. After providing the correct pin code the machine verifies, it from its central database connected to with a telephone line.
After successful authentication, the customer can withdraw the desire amount (within the prescribed limit) from the ATM machine or can transfer amount to other account. He can also change the pin code. The customer is charged against the transaction being made. The charges may vary from one type of ATM to another but it is usually in vary fewer amounts. The ATM has solved many problems and now customer can have it money transaction 24/7.

- ***How does it not meet the need? Why not?***

Design the software to support a computerized banking network including both human cashiers and automatic teller machines (ATMs) to be shared by a consortium of banks. Each bank provides its own computer to maintain its own accounts and process transactions against them.
Cashier stations are owned by individual banks and communicate directly with their own banks computers. Human cashiers enter account and transaction data. Automatic teller machines communicate with a central computer which clears transactions with the appropriate banks. An automated teller machine accepts a cash card, interacts with the user, communicates with the central system to carry out the transaction, dispenses cash, and prints receipts. The system requires appropriate record keeping and security provisions. The system must handle concurrent accesses to the same account correctly. The banks will provide their own software for their own computers; you are to design the software for the ATMs and the network. The cost of the shared system will be apportioned to the banks according to the number of customers with cash cards.

How this technology could be improved

In the 1960s, the primary purpose of the ATM was to provide cash. However, today we can go to our bank's ATM to make a deposit or loan payment, to transfer funds between accounts, or to check our account balance. ATMs are used to obtain money from anywhere in the world. To carry a debit card means we can carry less cash on our person, which guards against money being lost or stolen. Some ATMs will even allow us to by postage stamps or add money to a prepaid cellular phone service. Although ATMs are common and helpful, people are reluctant to use them because of the misinformation associated with using ATMs. ATMs in the United States handle more than 10 billion transactions a year and the vast majority of the time transactions occur without glitches. Nevertheless, there are times when ATM users encounter problems.
The use of ATMs makes it convenient for shoppers in the marketplace, yet it can be costly. For example, withdrawing cash from another ATM outside our bank's network may require us to pay a fee ranging form $1.00 to $4.00 per transaction. Such fees may seem small but they add up over time. To avoid paying ATM fees. Virtually all banks offer accounts with free ATM transactions to their own customer. However, some financial initiations do have accounts that charge their own customers an ATM fee. Therefore, it would be wise to look carefully at the accounts that are available and choose the one that meets people needs. For example, choose an account that allows free withdrawals from an institution with numerous locations. However, in the event our bank charges an ATM fee, it will probably be less than ATM fees at other banks. Bank may be able to provide us a listing of banks that will not charge us a fee, or we can find this information on the Internet.