

- Digital cash

A system that allows a person to pay for goods or services by transmitting a number from one computer to another. Like the serial numbers on real dollar bills, the digital cash numbers are unique. Each one is issued by a bank and represents a specified sum of real money. One of the key features of digital cash is that, like real cash, it is anonymous and reusable. That is, when a digital cash amount is sent from a buyer to a vendor, there is no way to obtain information about the buyer. This is one of the key differences between digital cash and credit card systems. Another key difference is that a digital cash certificate can be reused.

Digital cash transactions are expected to become commonplace by the year 2000. However, there are a number of competing protocols, and it is unclear which ones will become dominant. Most digital cash systems start with a participating bank that issues cash numbers or other unique identifiers that carry a given value, such as five dollars. To obtain such a certificate, you must have an account at the bank; when you purchase digital cash certificates, the money is withdrawn from your account. You transfer the certificate to the vendor to pay for a product or service, and the vendor deposits the cash number in any participating bank or retransmits it to another vendor. For large purchases, the vendor can check the validity of a cash number by contacting the issuing bank.

Definition

Refers to several systems which enable a buyer to pay electronically by transmitting a unique number (called digital certificate) similar to a banknote number. Unlike credit card payments where the identity of the buyer can be established, digital cash (just like real cash) is anonymous. Also called electronic cash.

Electronic money (also known as e-currency, e-money, electronic cash, electronic currency, digital money, digital cash, digital currency, cyber currency) refers to money or scrip which is only exchanged electronically. Typically, this involves the use of computer networks, the internet and digital stored value systems. Electronic Funds Transfer (EFT) and direct deposit are all examples of electronic money. Also, it is a collective term for financial cryptography and technologies enabling it.

While electronic money has been an interesting problem for cryptography, to date, the use of e-money has been relatively low-scale. One rare success has been Hong Kong's Octopus card system, which started as a transit payment system and has grown into a widely used electronic money system. London Transport's Oyster card system remains essentially a contactless pre-paid travelcard. Two other cities have implemented functioning electronic money systems. Very similar to Hong Kong's Octopus card, Singapore has an electronic money program for its public transportation system (commuter trains, bus, etc.), based on the same type of (FeliCa) system. The Netherlands has also implemented an electronic money system known as Chipknip,

which is based upon the same system in Hong Kong. In Belgium, a payment service company, Proton, owned by 60 Belgian banks issuing stored value cards was developed in 1995.

A number of electronic money systems use [Contactless payment](#) transfer in order to facilitate easy payment and give the payee more confidence in not letting go of their electronic wallet during the transaction.

- **Smart Card-**

DEFINITION - A smart card is a plastic card about the size of a credit card, with an embedded [microchip](#) that can be loaded with data, used for telephone calling, electronic cash payments, and other applications, and then periodically refreshed for additional use. Currently or soon, you may be able to use a smart card to:

- Dial a connection on a mobile telephone and be charged on a per-call basis
- Establish your identity when logging on to an Internet access provider or to an online bank
- Pay for parking at parking meters or to get on subways, trains, or buses
- Give hospitals or doctors personal data without filling out a form
- Make small purchases at electronic stores on the Web (a kind of cybergash)
- Buy gasoline at a gasoline station

Over a billion smart cards are already in use. Currently, Europe is the region where they are most used. Ovum, a research firm, predicts that 2.7 billion smart cards will be shipped annually by 2003. Another study forecasts a \$26.5 billion market for recharging smart cards by 2005. Compaq and Hewlett-Packard are reportedly working on keyboards that include smart card slots that can be read like bank credit cards. The hardware for making the cards and the devices that can read them is currently made principally by Bull, Gemplus, and Schlumberger.

How Smart Cards Work

A smart card contains more information than a magnetic stripe card and it can be programmed for different applications. Some cards can contain programming and data to support multiple applications and some can be updated to add new applications after they are issued. Smart cards can be designed to be inserted into a slot and read by a special reader or to be read at a distance, such as at a toll booth. Cards can be disposable (as at a trade-show) or reloadable (for most applications).

- **Trusted third party :**

In cryptography, a trusted third party (TTP) is an entity which facilitates interactions between two parties who both trust the third party; The Third Party reviews all critical transaction communications between the parties, based on the ease of creating fraudulent digital content. In TTP models, the relying parties use this trust to secure their own interactions. TTPs are common in any number of commercial transactions and in cryptographic digital transactions as well as [cryptographic protocols](#), for example, a [certificate authority](#) (CA) would issue a

digital identity ceritificate to one of the two parties in the next example. The CA then becomes the Trusted-Third-Party to that certificates issuance. Likewise transactions that need a third party recordation would also need a third-party repository service of some kind or another.

An example

Suppose Alice and Bob wish to communicate securely — they may choose to use [cryptography](#). Without ever having met Bob, Alice may need to obtain a key to use to encrypt messages to him. In this case, a TTP is a third party who may have previously seen Bob (in person), or is otherwise willing to vouch that *this key* (typically in an [identity certificate](#)) belongs to the person indicated in that certificate, in this case, Bob. In discussions, this third person is often called *Trent*. Trent gives it to Alice, who then uses it to send secure messages to Bob. Alice can trust this key to be Bob's if she trusts Trent. In such discussions, it is simply assumed that she has valid reasons to do so (of course there is the issue of Alice and Bob being able to properly identify Trent as Trent and not someone impersonating Trent).

Electronic payment system

Need For Electronic Tokens (eCash and Electronic Cheques)

Most Ecommerce applications are based on the Credit Card. Internet users will log on to different sites giving their credit card nos. along with some additional information such as Birth Date, a Pre defined Password / Email ID. But these features do not provide the facility of Cash. Accepted, that even villages today are going for credit cards, but it cannot replace the flexibility of Cash. The liquidity aspects of cash cannot be replaced by plastic money. Consider the foll. Statistics.

In USA, there is 300 billion Dollars worth of notes and currency in circulation. Deposits by cheque are growing at the rate of 6 % and that by cash is growing at the rate of 8 %. This alarming statistic clearly indicates that cash transactions are not out. Infact a credible alternative to cash has to be found out for the Electronic media. Two potential options are available eCash and Electronic Signatures.

eCash IN ACTION

eCash is based on cryptographic systems called Digital Signatures. This method involves a pair of numeric keys (very large integers or numbers) that work in tandem: one for locking (or encoding) and the other for unlocking (decoding). Messages encoded with one numeric key can only be decoded with the other numeric key and none other. The encoding key is kept private and the decoding key is made public.

By supplying all customers (buyers and sellers) with its public key, a bank enables customers to decode any message (or currency) encoded with the bank's private key. If decoding by a customer yields a recognizable message, the customer can be fairly confident that only the bank could have encoded it. These digital signatures are as secure as the mathematics involved and have proved Over the past two decades to be more resistant to forgery than handwritten signatures.

Before eCash can be used to buy products or services, it must be procured from a Currency server.

PURCHASING eCash FROM CURRENCY SERVER

eCash can be purchased from an On – Line currency server in 2 steps namely, Establishing an account and maintaining enough money in the account to back the purchase.

How Actually eCash will work

1. The user of eCash has to have an Account with a bank ready to offer eCash.
2. The user will apply for eCash in the denomination and amount he desires. In exchange of money debited from the customer's account, the bank uses its private key to digitally sign the note for the amount requested and transmits the note back to the customer. The network currency server in effect is issuing a "bank note" with a serial number and a dollar amount.
3. Since the bank is digitally signing it, the bank is committing itself.

4. The user has the eCash available. He can sign the eCash and give it to anybody.
5. When the eCash software generates a note, it masks the original number or "blinds" the note. The blinding carried out makes it impossible for anyone to link Payment to Payer.
6. A central bank also maintains a database of Spent notes.

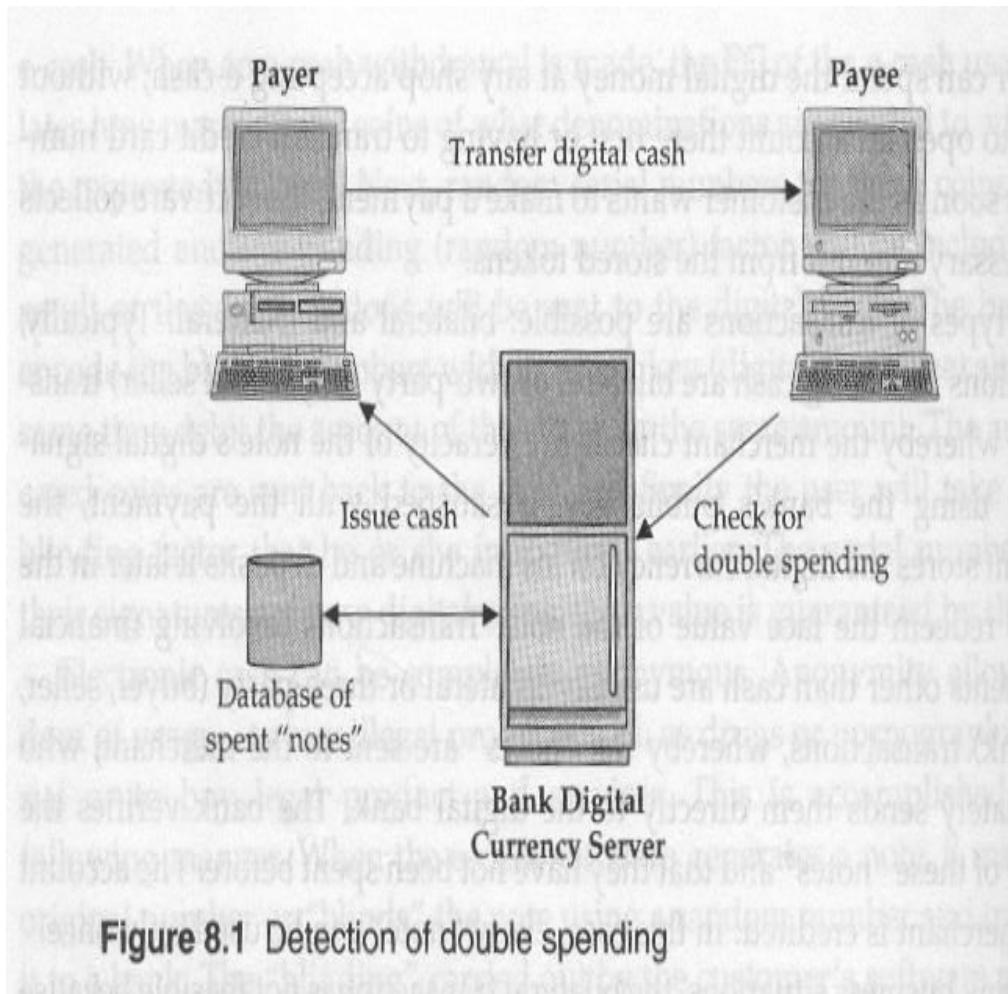


Figure 8.1 Detection of double spending

DISADVANTAGES AND LEGAL ISSUES OF eCash

1. eCash cannot be broken into smaller denominations.
2. The concept of maintaining a database of spent notes is very expensive.
3. Accessing Database of spent notes is also very time consuming.
4. Transaction based taxes account for a significant portion of state and local government revenue. If eCash becomes successful, then people will use it to buy things like cars and houses, which would not have been possible with actual cash. (One can't physically carry so much of real cash)
5. Currency fluctuation is another issue related to eCash.

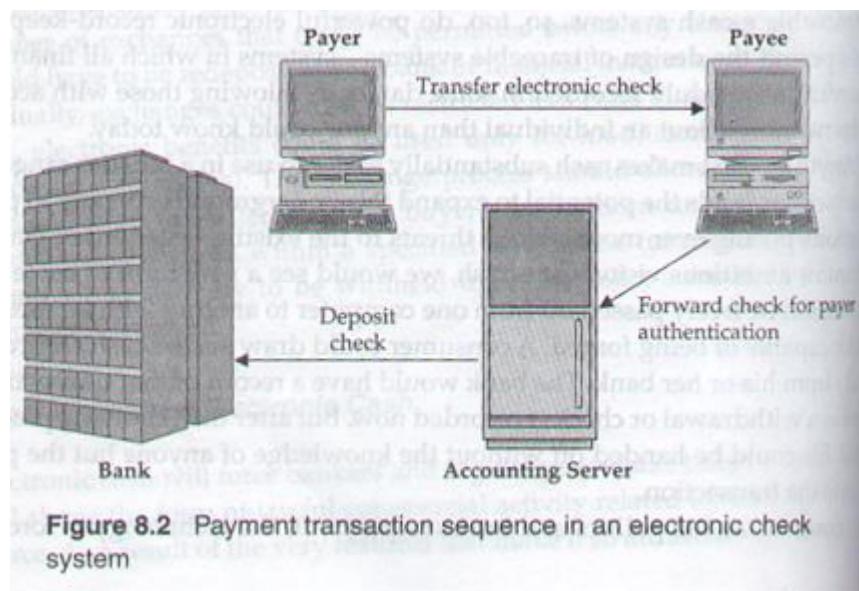
Ex- Union Bank of India, Indian Overseas Bank

Electronic Cheques

Electronic cheques are another form of Electronic tokens. They are designed to accommodate the many individuals and entities that might prefer to pay on credit or through some mechanism other than cash.

Once registered, a buyer can then contact sellers of goods and services. To complete a transaction, the buyer sends a check to the seller for a certain amount of money. These checks may be sent using Email or other Transport methods. When deposited, the cheque authorises the transfer of account balances from the account against which the cheque was drawn to the account to which the cheque was deposited.

This method has been deliberately designed to work in the manner conventional cheques work



Advantages of Electronic cheques

1. Similar to traditional cheques. This eliminates the need for customer education
2. Since Electronic cheques use conventional encryption than Public and private keys as in eCash, Electronic cheques are much faster.
3. The risk is taken care of by the accounting server, which will guarantee that the cheque would be honoured.

GIRO

What is GIRO?

GIRO was set up in 1987 as an electronic direct debit mechanism used by billing organisations (BOs) as a low cost means to collect payments. GIRO is a tripartite mechanism between billing organisations, customers and the bank. The authorization for direct debit is a contractual relationship between a consumer and a BO; banks are

the intermediaries in this tripartite relationship, and help to effect authorised GIRO deductions. Today, GIRO is widely used for consumers to pay bills to government agencies and private sector BOs. GIRO is especially useful for payments which are regular in nature and of a fixed quantum.

GIRO is the short form of General Interbank Recurring Order. You can set up a GIRO arrangement by requesting for your bank to make on time payment to the billing organization by the due date.

GIRO is a convenient mode of payment for all regular bill payments like telephone bills, income tax, utility bills, season parking fees, credit card bills and many more. No more worries about missing a payment, paying penalty fees or waiting in line to make payment. Simply maintain sufficient funds in the designated DBS/POSB bank account(s) for deduction on the payment dates.

GIRO Application via iBanking

1. Select "Payments", "GIRO: Manage GIRO Arrangements" and "Add GIRO Arrangement".
2. Under "From Account", choose your preferred account for this payment.
3. Under "To Billing Organisation", select the name of the Billing Organisation.
4. Under "Bill Reference No.", please key in your bill reference number for the Billing Organisation. For the explanatory guide on "Bill Reference No", please click "View More Info".
5. Under "Payment Limit", please key in "0" unless you would like to set a limit.
6. Click "Submit".
7. Check your information again before you click "Confirm" and your application is complete!

Development of Intranet

Managing the design, development, implementation, and operation of a corporate intranet can be a long, difficult, and time consuming task. In this article, we present the primary steps to ensure a successful intranet development effort.

Problem Definition

The definition and recording of the problem to be solved is one of the most often overlooked step of any development effort. A problem needs to be solved, so the tendency is to jump right in and solve it. For small, negligible cost efforts this is fine. For Intranet design, ignoring this step can lead to disaster. Write down and widely publish the answers to the following questions, and all other questions that are appropriate for your specific effort. Remember to keep the questions targeted to DEFINING the problem NOT solving it.

Do I Need an Intranet?

This is an obvious question, but should be taken seriously. For some businesses the answer is an easy yes, but for others, there may be better solutions. It is wise to seek professional advice when answering this question. Having an outside professional examine the question may cost some money up-front, but they are far less costly early on the development.

What specific Problems will it solve?

Write down the four, five, ten, whatever, number of problems that having an Intranet will solve. The problems should be clearly stated, be very specific, and have testable criteria for success. Make sure you publicize these problems and get user and management feedback.

What are my available resources (time, money, and personnel)?

Knowing what your actual resources are at the beginning is critical for defining the development path. If your budget is low, consider down-scaling the effort. If time is short, consider using off-the-shelf products extensively. If your personnel resources are thin, consider outsourcing. Being realistic about your actual resources will help you prevent overruns and project disappointments. Promising a gold watch when you only have resources for a plastic toy will always doom a project. Also, don't be afraid to tell upper management that the resources are too small for solving the problem. Believe me, they would rather know up front than get a surprise during deployment.

What criteria will I use to measure success?

This is an often overlooked step in the problem definition. For every problem stated, you must define a means for determining the success of the solution. If you can't think of a success criteria, then the problem is not defined specifically enough. Stay away from problem statements such as "The network must be faster." Restate the problem in quantifiable terms, like: "The network must provide a response time of no longer than 1.5 seconds for the XYZ accounting program for up to 50 simultaneous users."

Should I outsource all, some, or none of the development and operation?

If you have in-house personnel that are under-utilized or have time to be assigned to the development process, then keeping most of the development in-house makes sense. If not, then you can either hire additional staff or outsource some or most of the development. I recommend that you do not outsource all of the development. You must have some in-house expertise available or at least strong upper

management support. Otherwise you may end up with a very nice system that does not solve your problems. Strategic outsourcing makes sense in most medium to large development projects. The outsourcing contractor can supply the needed expertise and personnel at the various development phases. And when a particular phase is finished, you are not left with a staff member looking for something to do. You will probably find the up-front costs of an outsourcing firm to be higher than hiring in-house personnel. But the long-term savings will be far greater with a professional outsourcing firm than by retaining in-house personnel. Remember to make sure you feel comfortable with the outsourcer's style and abilities. You will be working with them very closely. Don't just choose the largest or best-known source. How you and your outsourcer "mesh" is far more important than their list of clients.

Am I upgrading an existing system, converting from a legacy system, or developing from scratch?

Developing a system from scratch, as strange as it sounds, is by far the easiest. If you are in this situation, count your blessings. If not, upgrading an existing system or converting from one or more legacy systems will be your lot. Fortunately, you will have a long list of "things that don't work right" to begin with. Make sure that you fully understand what systems will still be in place after the migration and how they will be integrated into your intranet. If your budget is low, then consider using middleware and "web-like" products to layer on top of the existing system. With a more moderate budget, you can replace inefficient systems with newer and more powerful ones. Remember that computer hardware is cheap. It's the software and operations that are expensive. Powerful hardware can make even today's bloated software work faster. With a higher budget, consider replacing inefficient or outdated portions of the intranet with newer streamlined hardware and software. If you are not sure what the "latest and greatest" intranet products are, hire a professional intranet consultant. Their fee will be well worth it.

Requirements Analysis

Performing a requirements analysis is critical to the success of any project. Without a clear goal in mind, success is dubious. There are a number of different philosophies about requirements analysis: top down, bottom up, inside out, etc. The method I have found to work the best is as follows:

1. Clearly state the problem(s) you wish to solve.
2. Identify the users of the completed system.
3. Formulate a specific budget -- time, money, personnel.
4. Ask identified users to specifically state what they expect the system to do.
5. Ask management to specifically state their success criteria.
6. Separate their requirements from their "desirements." Only design to requirements. The enhancement phase is where you address the "desirements."
7. Group and "bubble-up" requirements.
8. Generate a prioritized requirements table listing the requirement, where it came from, the success criteria, and priority. Keep this table high-level. A table with a dozen requirements will be much easier to manage than one with hundreds.
9. Produce a detailed development schedule including hardware, software, personnel, documentation, and reviews. Include outsourcing requirements and long lead-time items.

10. Get a sign-off of the requirements, resource allocation, and schedule from top management before you go any further.

Note that items 4 & 5 will be asked throughout the development cycle since their responses will change when they see prototypes and when they are being trained. Be sure to update items 6 through 9 each time.

Beware of getting caught in the cycle of

You: What are your requirements?

Them: I don't know, what can you do?

It's always best to ask very specific questions. Don't worry if their responses change each time you ask the question. It will happen, so plan for it.

Design & Prototyping

There are many design methodologies. The ones I've used most successfully are 1. Rapid Prototyping (for small to medium projects) and 2. Structured Development (for large or very complex projects).

Rapid Prototyping

There are five keys to a successful rapid prototyping methodology:

1. Assemble a small very bright team of programmers, hardware technicians, designers, quality assurance technicians, documentation and graphic artist specialists, and a single manager.
2. Define and involve a small "focus group" consisting of users (both novice and experienced) and managers (both line and upper). These are the people who will provide the feedback necessary to drive the prototyping cycle. Listen to them.
3. Generate a user's manual and user interface first. You will be amazed at what you will find out by producing a user's manual first!
4. Use tools specifically designed for rapid prototyping. Stay away from C, C++, COBOL, etc. Instead use tools such as Visual Basic, HTML authoring, and similar development environments.
5. Remember a prototype is NOT the final application. Prototypes are meant to be copied into production models. Once the prototypes are successful, then begin the development processing using development tools, such as C, C++, Java, etc.

Structured Development

When a project has more than 10 people involved or when multiple companies are performing the development, a more structured development management approach is required. Note that rapid prototyping can be a subset of the structured development approach. This approach applies a more disciplined approach to the intranet development. Documentation requirements are larger, quality control is critical, and the number of reviews increases. While some parts may seem like overkill at the time, they can save a project from overruns, especially late in the development cycle.

Development & Documentation

Once the requirements analysis is well underway, the prototypes are working, and the focus groups are becoming happy, it's time to begin the development. Coordinating hardware and software purchases and upgrades, network and hardware installation, software development, documentation guides and manuals, reviews, and testing can become a full-time job. The key to keeping a handle on all of this is to maintain a good written schedule that everyone can view and to have periodic "all-hands" reviews. Remember that working with vendors can be a frustrating experience. Hardware incompatibilities, software bugs, late deliveries, mistaken cabling requirements, etc. are more the norm than the exception. Outsourcing can help, but you must be continually involved to ensure success.

Test & Review

Testing and Reviews take place throughout the development cycle, including prototyping, development, deployment, operations, and enhancements. It never ends. It's wise to place a single individual in charge of testing and reviews. This is not a popular job, but it is critical for developing a system that works and meets each of the requirements. Be sure to empower this person (usually a quality assurance engineer) with the appropriate authority. Also, provide them with an appropriately sized staff. Testing is time consuming, tedious work and preparing for reviews and analyzing results can take much longer than you might think. Fortunately this person can save you from being surprised at budget review time and usually catches most problems before they become too big. If you outsource this task, make sure that you make it clear to the others on the team what the outsourcer's role is and what level of authority they have.

Deployment & Training

OK, the development is complete, quality assurance is satisfied, the documentation is ready, and all the "off-the-shelf" products have arrived. Now it's time to put everything together. This can be a highly disruptive time. Make sure that you have full management support and that they understand the nature and effect of the installation and deployment disruption. Scheduling training sessions concurrently with the installation can be an effective use of time. Don't skimp on the training. Make sure you have training in the budget from the beginning and don't dip into it. The best way to ensure success is to effectively train the users so that they will actually use the system and possibly sing its praises. Also remember that training is ongoing. New employees or employees being moved or promoted will need to be trained. Each time enhancements are added, new training sessions must be scheduled.

Operation

Intranets usually contain one or more servers. Tasks such as backups, bug fixes, software updates, hardware maintenance and upgrades, print and media services, electronic mail account maintenance, security patches, and other similar tasks must be performed regularly. Operation and maintenance of such services require an operations staff. It is not enough to "let the users take care of it." If you are providing these services in-house then you will need on-site support from either an outsourcing agency or in-house staff. The current trend is to outsource most of these services including the actual servers to an intranet outsourcing firm. Outsourcing can result in

a substantial savings. Just make sure that your provider can supply the services you require and is available when you need them. Also, be sure to discuss security requirements with them before you hire them.

Enhancement

There is always one thing you can count on: "Requirements Creep." The more successful the system, the faster requirements creep will occur. As your users become more sophisticated they will want more and more capabilities. If you can respond quickly and efficiently, your users will again sing your praises (and upper management will definitely take notice :-). Make sure that you have designed in the ability to add features from the very beginning. Remember to design-in scalability and flexibility at all phases of development.

Intranet/Extranet Benefits

Intranets and Extranets offer corporations, small businesses and organizations many benefits:

- **Increased productivity** – Intranets and Extranets are opening new opportunities for corporations and businesses to communicate and operate more efficiently. Employees can be more efficient with up-to-the-minute information at their fingertips. Customers can be allowed to perform actions, such as referencing information and performing transactional business-to-business activities, thereby boosting customer loyalty, improving customer service and responsiveness, and saving the business time and money.
- **Reduced margin of error** – An Intranet and Extranet can reduce the margin of error when specific groups directly access internal applications. This could be as simple as giving employees access to human resource forms or providing customers with access to their order histories, or something as complex as processing orders.
- **Flexibility** - When information and applications are directly available to employees, partners and customers, everyone can work when and where it's most convenient. This self-serve approach improves efficiency, and eliminates the costs associated with in-person information exchanges. For example, a company can provide customer service information after regular business hours through an Extranet.
- **Timely and accurate information** – An Intranet and Extranet can be used to provide accurate and timely information. They can be utilized to instantly change, edit and update information such as human resource forms, price lists or inventory information.
- **Faster time to market** – An Intranet and Extranet can help a company to get products faster to market by using it as an internal project management system. By making proposals and specifications available to suppliers, and by giving customers and partners up-to-date information on current projects, development time can be reduced significantly.
- **Reduced inventory** – One of the hallmarks of a business-to-business Extranet is its impact on supply-chain management. By connecting an inventory application directly to a supplier system, companies can process orders as soon as their system knows when they are needed, thus reducing inventory and making the procurement process more efficient.
- **Greater customer loyalty** – Extranets enable companies to establish and maintain powerful, long lasting relationships with their customers and business partners by

making it easier to perform business-to-business transactions and to get timely and accurate information to them, whenever they need it.

Web syndication and e-commerce

Similar to syndication of proprietary content, web syndication has been used to distribute product content (feature descriptions, images, specifications etc.). Given that manufacturers are regarded as authorities and that most sales do not happen on manufacturer Web sites, best-in-class manufacturers take their best content and enable other retailers or dealers to publish the information on their sites. By syndicating content, a manufacturer is more likely to pass consistent and often comprehensive information to channel partners. Such web syndication has been shown to generate an increase in sales.

Web syndication has been increasingly used as a way to syndicate online news content to websites, too as part of Search Engine Optimisation techniques. Adding news content lets websites target specific keywords that could cost a fortune in PPC campaigns absolutely free. Also, by the very nature of writing about a topic - for example the UK housing market - you naturally cover other keyword variations in the same page, eg. house prices, mortgages, first-time buyers - all in one page: all keywords that someone interested in the UK housing market could type into a search engine also. Done on a daily basis, over time, news content will improve your search engine ranking considerably.

EDI

Definition of 'Value-Added Network - VAN'

A private network used by a company primarily for routing, storing and delivering electronic data interchange (EDI) messages. A value-added network (VAN) also provides other services such as message encryption, retransmission and support. VANs may be operated by large companies for efficient supply chain management with their suppliers, or by industry consortiums and telecom providers.

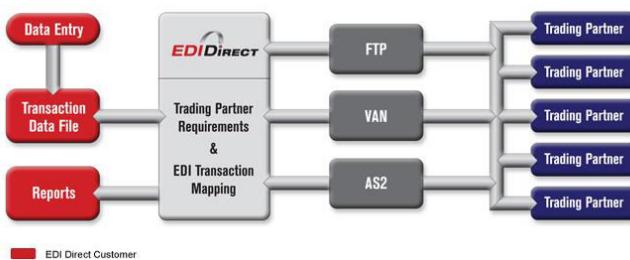
A **Value-added Network (VAN)** is a hosted service offering that acts as an intermediary between business partners sharing standards based or proprietary data via shared Business Processes. The offered service is referred to as "Value-added Network Service".

Technical Definition

VANS traditionally transmitted data formatted as Electronic Data Interchange but increasingly they also transmit data formatted as XML or in more specific "binary" formats. VANs usually service a given vertical or industry and provide "Value Added Network Services" ("VAN Services" or VANSs) such as data transformation between formats (EDI-to-XML, EDI-to-EDI, etc.).

At one extreme, a VAN hosts only horizontal Business-to-business application integration services, hosting general-purpose integration services for any process or industry. At the other extreme a VAN also hosts process-specific or industry-specific integration, for example supply chain ordering or data synchronization services.

A VAN not only transports (receives, stores and forwards) messages but also adds audit information to them and modifies the data in the process of automatic error detection and correction or conversion between communications protocols.



What is EDI?

What is Electronic Data Interchange (EDI)? The purpose of this article is to provide a layperson's understanding of the electronic data interchange process. An overview of EDI benefits and drawbacks is included.

The electronic data interchange process is the computer-to-computer exchange of business documents between companies. EDI replaces the faxing and mailing of paper documents.

EDI documents use specific computer record formats that are based on widely accepted standards. However, each company will use the flexibility allowed by the standards in a unique way that fits their business needs.

EDI is used in a variety of industries. Over 160,000 companies have made the switch to EDI to improve their efficiencies. Many of these companies require all of their partners to also use EDI.

Overview of EDI benefits and drawbacks

The EDI process provides many benefits. Computer-to-computer exchange of information is much less expensive than handling paper documents. Studies have shown that manually processing a paper-based order can cost \$70 or more while processing an EDI order costs less than one dollar.

- Much less labor time is required
- Fewer errors occur because computer systems process the documents rather than processing by hand
- Business transactions flow faster.

Faster transactions support reduction in inventory levels, better use of warehouse space, fewer out-of-stock occurrences and lower freight costs through fewer emergency expedites.

Paper purchase orders can take up to 10 days from the time the buyer prepares the order to when the supplier ships it. EDI orders can take as little as one day.

One drawback to EDI is that companies must ensure that they have the resources in place to make an EDI program work; however, the need for buying and hiring these resources or outsourcing them may be offset by the increased efficiency that EDI provides.

EDI example

Here is an example of how the electronic data interchange process works. A buyer prepares an order in his or her purchasing system and has it approved.

Next, the EDI order is translated into an EDI document format called an 850 purchase order.

The EDI 850 purchase order is then securely transmitted to the supplier either via the internet or through a VAN (Value Added Network).

If the purchase order is sent using a VAN, then the buyer's VAN interconnects with the supplier's VAN. The VANs make sure that EDI transactions are sent securely and reliably. The supplier's VAN ensures that the supplier receives the order.

The supplier's computer system then processes the order.

Data security and control are maintained throughout the transmission process using passwords, user identification and encryption. Both the buyer's and the supplier's EDI applications edit and check the documents for accuracy.

EDI requirements

Each trading partner has unique EDI requirements. These will include the specific kinds of EDI documents to be processed, such as the 850 purchase order used in the example above, 856 advance ship notices and 810 invoices.

Almost any business document that one company wants to exchange with another company can be sent via EDI. However each EDI document must be exchanged with the partner in exactly the format they specify.

Many partners will have an EDI implementation guide or kit that explains their specific requirements. Maps are required to translate the EDI documents from the trading partner's format into the format that is useable by the receiving party.

Meeting all of an EDI trading partner's EDI requirements is called being EDI compliant.

What you need to be EDI compliant

EDI compliance involves either buying or outsourcing the following components:

1. Software for communications
2. VAN service for EDI transmission
3. Mailboxing of EDI transactions
4. Mapping and translation software
5. Installing upgrades to software as needed
6. Mapping labor
7. Testing with EDI trading partners
8. Upgrades for new versions required by trading partners

EDI VAN, FTP, or AS/2 Internet communications will be required by various partners. A server or PC, communication devices and peripherals will be needed as well as secured office space, monitored security, backups and redundant power.

Additional software will be needed if integration of the EDI transactions with back office systems is desired. Personnel must be trained in how to use the software and communication devices. Maps will then need to be developed, tested and maintained.

1) <http://study.com/academy/lesson/what-is-an-electronic-funds-transfer-definition-process-benefits.html>

Learn about what electronic funds transfer is and all the ways you may use it in your daily life. Find out how the process differs from the older paper style and some of the many benefits that you can experience by adopting electronic funds transfer.

Electronic Funds Transfer Defined

Can you imagine trying to shop on the Internet and the only way to pay is by sending a check in the mail? How about not being able to use a credit or debit card when you went out to eat or put gas in your car? The way in which we transfer money has advanced tremendously over the last several years. PayPal, online bill pay, and mobile payments are all examples of recent advancements. These changes are referred to as **electronic funds transfer**, or the electronic transfer of money from one account to another. Electronic funds transfer uses computer systems to move funds without the need for paper documents. Yes, people sometimes still use paper checks, but electronic funds transfer methods are now the preferred way to do business.

Common Uses for Electronic Funds Transfer

Let's look at several ways that you may currently use electronic funds transfer:

Using a credit or debit card - Using this method, money is transferred electronically from your account to the seller's account. This is one of the most widely used forms of payment. In 2010, Visa and MasterCard processed over \$5 trillion in transaction volume!

Online bill payment - Often referred to many as online banking, this has become very popular as a quick and easy way to pay monthly bills. More than two out of every three bills are now paid in an electronic form. This has recently further evolved into the ability to pay bills directly from your mobile device or phone.

Direct debit - This is often referred to as electronic checks or monthly auto draft. Individuals can set up a recurring schedule and payment instructions for companies to automatically pull money from their bank account to pay for bills or services. Many people pay their house or car payments this way. The method simply requires sending the institution a voided check with your routing and account number.

Direct deposit - This form of employee payment is now the preferred way to get paid from your employer and is often the only way for some jobs.

Your paycheck enters your bank account quicker, and the employer saves hundreds or thousands of dollars in not printing and delivering checks.

Traditional vs. Electronic

Because the electronic funds process is simplified and entirely electronic, the cycle of transferring and paying money is much faster. Let's compare both traditional and electronic processes side by side.

Writing a Paper Check

The store manually deposits the check at their bank, and the bank sends the check to a **clearing house**, or an establishment where checks and bills are exchanged. The clearing house sends the check to the customer's bank to be posted. This is an older process that contains no electronic money transfer and would usually take at least a week to complete the cycle.

Electronic Funds Transfer Process

When you use your card at a store, money is electronically transferred from your account and then it is simultaneously deposited in the store account. This may involve an automated clearing house or sometimes a central electronic processor, which could add a day to process, but it is still much quicker.

The process for a consumer to set up online bill pay, direct deposit, or direct debit is fairly simple. It usually involves providing data to the financial institutions, including your bank routing and account numbers, vendor account numbers you want to pay and dates of payments. It can usually be done online or by filling out a simple form.

Benefits of Electronic Funds Transfer

There are many benefits to electronic funds transfer. Let's explore them more in detail.

Cheaper - The cost savings are numerous. For example, by using online bill pay every month to pay bills such as water, gas, electricity, and credit card, you could save the postage rate on every bill paid. So if you paid 10 bills a month this way, you are saving almost \$5 in postage, plus the costs of checks for the month. Plus, it takes only a few minutes to pay all of your bills online. Writing out checks and delivering them to the post office could take you much more time. So add in the value of your time saved!

Faster - Electronic funds transfer has made buying and selling on the Internet much simpler. Money can be sent between accounts in real time. For example, when you sell something online, you can see when money has been deposited into your account within minutes or seconds of the other person sending it. A paper check could have taken five days.

2) <http://www.investinganswers.com/financial-dictionary/personal-finance/electronic-funds-transfer-eft-2328>

An **electronic funds transfer (EFT)** is a transaction that takes place over a computerized network, either among accounts at the same bank or to different accounts at separate financial institutions.

HOW IT WORKS (EXAMPLE):

EFTs include direct-debit transactions, wire transfers, direct deposits, ATM withdrawals and online bill pay services. Transactions are processed through the Automated Clearing House (ACH) network, the secure transfer system of the Federal Reserve that connects all U.S. banks, credit unions and other financial institutions.

For example, when you use your debit card to make a purchase at a store or online, the transaction is processed using an EFT system. The transaction is very similar to an ATM withdrawal, with near-instantaneous payment to the merchant and deduction from your checking account.

Direct deposit is another form of an electronic funds transfer. In this case, funds from your employer's bank account are transferred electronically to your bank account, with no need for paper-based payment systems.

WHY IT MATTERS:

The increased use of EFTs for online bill payments, purchases and pay processes is leading to a paper-free banking system, where a large number of invoices and payments take place over digital networks. EFT systems play a large role in this future, with fast, secure transactions guaranteeing a seamless transfer of funds within institutions or across banking networks.

EFT transactions, also known as an online transaction or PIN-debit transaction, also offer an alternative to signature debit transactions, which take place through one of the major credit card processing systems, such as Visa, MasterCard or Discover, and can cost as much as 3% of the total purchase price. EFT processing, on the other hand, only charges an average of 1% for debit card transactions.

3) https://en.wikipedia.org/wiki/Electronic_funds_transfer

Electronic funds transfer (EFT) is the electronic transfer of money from one bank account to another, either within a single financial institution or across multiple institutions, via computer-based systems, without the direct intervention of bank staff. EFT's are known by a number of names. In the United States, they may be referred to as electronic checks or e-checks.

The term covers a number of different payment systems, for example:

- cardholder-initiated transactions, using a payment card such as a credit or debit card
- direct deposit payment initiated by the payer
- direct debit payments for which a business debits the consumer's bank accounts for payment for goods or services
- wire transfer via an international banking network such as SWIFT
- electronic bill payment in online banking, which may be delivered by EFT or paper check
- transactions involving stored value of electronic money, possibly in a private currency.

E-governance in India

The Indian government is using IT to facilitate governance. The IT industry is doing its bit to help as public-private partnerships become the order of the day.



The last couple of years have seen e-governance drop roots in India. IT enables the delivery of government services as it caters to a large base of people across different segments and geographical locations. The effective use of IT services in government administration can greatly enhance existing efficiencies, drive down communication costs, and increase transparency in the functioning of various departments. It also gives citizens easy access to tangible benefits, be it through simple applications such as online form filling, bill sourcing and payments, or complex applications like distance education and tele-medicine.

According to Sudhir Narang, vice-president, government & service provider business, Cisco Systems, India & SAARC, "Almost every state has an IT policy in place with the aim of evolving itself from being an IT-aware to an IT-enabled government. State governments are fast recognising the benefits of an IT-enabled working environment."

As of now, e-governance projects are being run only in certain departments. This approach will gradually be extended to all departments eventually, leveraging the power of IT to streamline administrative functions and increase transparency. IT has a vital role to play in all transactions that the government undertakes. It helps the government avoid corruption, and reach citizens directly. Such initiatives will help citizens learn about the various policies, processes and help-lines that the government offers. The governments of Singapore, Canada and Switzerland have implemented such portals, and set the benchmarks in this regard. With the help of IT, the government can process citizen to government transactions such as the filing of tax returns, death and birth registration, land records, etc.

Adds Rajiv Kaul, managing director, Microsoft India, "A strong technology infrastructure can help central and state governments deliver a comprehensive set of services to citizens." Microsoft is working with several state governments to help evolve a long-term technology blueprint for IT infrastructure. It is working with various departments of the central government, and has undertaken several projects and initiatives with state governments as well. As far as e-governance projects are concerned, the government is gradually changing its role from an 'implementer' to a 'facilitator and regulator.' It will encourage private sector participation in e-governance projects, so more projects in e-governance based upon the public private participation (PPP) model should come about in the near future. The National e-Governance Plan of Indian Government seeks to lay the foundation and provide the impetus for long-term growth of e-Governance within the country. The plan seeks to create the right governance and institutional mechanisms, set up the core infrastructure and policies and implement a number of Mission Mode Projects at the center, state and integrated service levels to create a citizen-centric and business-centric environment for governance.

Agriculture, power and education are fields where the government makes use of IT to provide services to citizens. The revenue collection department is in the process of

using information technology for applications such as income tax. Some notable examples:

- A Kolkata-based hospital leverages e-governance for tropical medicine. The hospital employs tele-medicine to assist doctors in rural areas as they analyse and treat panchayat residents. This method does away with patients having to travel all the way to Kolkata for treatment. Patients feel better being examined in their own village. Using tele-medicine, the hospital is able to dispense its expertise to far-flung districts. The patient goes for an examination to the local doctor in the panchayat. This doctor is in contact via a voice & data connection with a doctor at the hospital for tropical medicine. Thus, the panchayat resident gets the benefit of being treated by both a local doctor and a hospital specialist.
- The Karnataka government's 'Bhoomi' project has led to the computerisation of the centuries-old system of handwritten rural land records. Through it, the revenue department has done away with the corruption-ridden system that involved bribing village accountants to procure land records; records of right, tenancy and cultivation certificates (RTCs). The project is expected to benefit seventy lakh villagers in 30,000 villages.

A farmer can walk into the nearest taluka office and ask for a computer printout of his land record certificate for Rs 15. He can also check details of land records on a touch-screen kiosk by inserting a two-rupee coin. These kiosks, installed at the taluk office, will provide the public with a convenient interface to the land records centre.

- In Gujarat there are websites where citizens log on and get access to the concerned government department on issues such as land, water and taxes.
- In Hyderabad, through e-Seva, citizens can view and pay bills for water, electricity and telephones, besides municipal taxes. They can also avail of birth / death registration certificates, passport applications, permits / licences, transport department services, reservations, Internet and B2C services, among other things.
- eChoupal, ITC's unique web-based initiative, offers farmers the information, products and services they need to enhance productivity, improve farm-gate price realisation, and cut transaction costs. Farmers can access the latest local and global information on weather, scientific farming practices, as well as market prices at the village itself through this web portal-all in Hindi. eChoupal also facilitates the supply of high quality farm inputs as well as the purchase of commodities at the farm.

Given the literacy and infrastructure constraints at the village level, this model is designed to provide physical service support through a choupal sanchalak-himself a lead farmer-who acts as the interface between the system and the farmers. The contents of this site in their entirety are made available only to the registered sanchalaks.

Government initiatives

The national e-governance plan (2003-07) reflects the strategic intent of the central government in the right perspective. Many projects are earmarked under this plan, and it is trying to address the digital divide. From a political perspective, after watching the performance of some IT-savvy states in the recent elections, the system has woken up

to the need to focus more on rural development. The political systems are keener to use IT to disseminate information faster to farmers, disburse loans, improve education and the health systems in villages, etc. There is a clear-cut incentive to do it as 60 percent of the vote-bank still lives in rural India. E-governance has to be supported by the will and resources of those who are in governance, be it at the central or state level. The central government has analysed and appreciated the concept by creating a separate e-governance department headed by a secretary to trigger e-governance in India. The World Bank, ADB and UN have been approached, and in response they are generously funding e-governance projects. In future, education, agriculture, state wide area networks (SWANs) and Community Information Centre projects will be rolled out backed by a strong public private participation model (PPP) to achieve long-term sustainability. Projects with PPP models in these segments can revolutionise the governance experience. In the next couple of years the industry is expected to grow by 22-25 percent. Most vendors foresee strong government initiatives to make the most of IT, and the future for e-governance looks bright. Besides deployment and training on e-governance applications, Cisco is working with various state governments.

Use of electronic records and digital signatures in Government and its agencies.

Where any law provides for-

- the filing of any form, application or any other document with any office, authority, body or agency owned or controlled by the appropriate Government in a particular manner.
 - the issue or grant of any licence, permit, sanction or approval by whatever name called in a particular manner.
 - the receipt or payment of money in a particular manner.
- then, notwithstanding anything contained in any other law for the time being in force, such requirement shall be deemed to have been satisfied if such filing, issue, grant, receipt or payment, as the case may be, is effected by means of such electronic form as may be prescribed by the appropriate Government.

The appropriate Government may, for the purposes of sub-section (1), by rules, prescribe-

- the manner and format in which such electronic records shall be filed, created or issued.
- the manner or method of payment of any fee or charges for filing, creation or issue any electronic record

State Wide Area Network (SWAN)

Wide Area Network is an advanced telecommunication infrastructure, which is used now-a-days extensively, for exchange of data and other types of information between two or more locations, separated by significant geographical distances. The medium of connectivity can be copper, optical fibre cable or wireless, as may be found feasible. Such wide area networks, in a way, create a highway for electronic transfer of information in the form of voice, video and data. Department of IT in Government of India is implementing an approved Scheme known as State Wide Area Network (SWAN) Scheme, envisaged to create such a connectivity in each State / UT, to bring speed, efficiency, reliability and accountability in overall system of Government-to-Government (G2G) functioning. When fully implemented, SWAN would work as a converged backbone network for voice, video and data communications across each

State / UT. SWAN is designed to cater to the governance information and communication requirements of all the State / UT Departments. When fully implemented, SWANs across the country are expected to cover at least 50000 departmental offices through 1 million (10 lacs) route kilometres of communication links.

State Wide Area Network Scheme

Department of IT obtained Government approval in March 2005, for the SWAN Scheme for an overall outlay of Rs. 3334 Crores. This outlay has a Grant In Aid component of Rs. 2005 Crores, to be expended by Department of IT in five years. The Scheme has a State / UT share of balance Rs.1329 crores, which has been provisioned by the Department of Expenditure, Govt. of India, under Additional Central Assistance (ACA). Under the SWAN Scheme, Wide Area Networks are being established in 27 States and 6 UTs across the country. The State of Goa and UT of Andaman & Nicobar Islands have implemented Wide Area Networks in the respective State / UT, outside the SWAN Scheme.

Implementation of the SWAN Scheme is in full swing in 33 States/ UTs and the Department of IT has so far approved an outlay of Rs. 1965 Crores of GIA for this purpose.

SWAN Features

A wide area network deployed in a State or UT would have two components viz.

- Vertical Component
- Horizontal Component

The vertical component of SWAN is implemented using multi-tier architecture (typically, three-tier) with the State/UT Headquarter (SHQ) connected to the each District Head Quarter (DHQ) which in turn gets connected to the each Block Head Quarter (BHQ). Each SHQ, DHQ and BHQ point of connection is called a Point of Presence (PoP), which is a point of bandwidth aggregation for several network links getting connected at this point. The bandwidth provisioning for network connectivity between all the above PoPs is a minimum of 2 Mbps. Presently, the connectivity provisioning between every SHQ and DHQ is for 4 Mbps and DHQ to every BHQ is 2 Mbps. For the horizontal component, the government departments at each tier are connected to the respective PoPs.

The SWAN aims to create a dedicated Closed User Group (CUG) network of minimum speed of 2 Mbps by connecting around 7500 pops, providing Data, Voice & Video connectivity to more than 50,000 govt. offices. The networks aim at increasing the efficiency of the government delivery mechanism and optimizes the performance. The backbone thus created would provide reliable, vertical and horizontal connectivity within the State / UT administration and would facilitate electronic transactions between all the government departments.

Common Services Centers

The CSC is a strategic cornerstone of the National e-Governance Plan (NeGP), as part of its commitment in the National Common Minimum Programme to introduce e-governance on a massive scale.

The CSCs would provide high quality and cost-effective video, voice and data content and services, in the areas of e-governance, education, health, telemedicine,

entertainment as well as other private services. A highlight of the CSCs is that it will offer web-enabled e-governance services in rural areas, including application forms, certificates, and utility payments such as electricity, telephone and water bills.

Online Services under National e-Governance Plan

- [Income Tax](#)
- [Passport/VISA](#)
- [Company Affairs](#)
- [Central Excise](#)
- [Pensions](#)
- [Land Records](#)
- [Road Transport](#)
- [Property Registration](#)
- [Agriculture](#)
- [Municipalities](#)
- [Gram Panchayats \(Rural\)](#)
- [Police](#)
- [Employment Exchange](#)
- [E-Courts](#)

Imports and exports - Even as the energy requirements of the Indian economy are rapidly increasing, capacity expansion of the refineries both at public and private level would help maintain the growth momentum of the exports of petroleum products.

SOFTWARE TECHNOLOGY PARKS (STP) SCHEME

STP scheme is a 100% Export Oriented Scheme (100% EoU) for the development and export of computer software using data communication links or in the form of physical media including export of professional services. STP can be a virtual software development unit or can be infrastructural complex set-up for providing necessary support for the STP units.

Exports and Imports

Imports and exports are the two important components of a foreign trade. Foreign trade is the exchange of goods and services between the two countries, across their international borders. 'Imports' imply the physical movement of goods into a country from another country in a legal manner. It refers to the goods that are produced abroad by foreign producers and are used in the domestic economy to cater to the needs of the domestic consumers. Similarly, 'exports' imply the physical movement of goods out of a country in a legal manner. It refers to the goods that are produced domestically in a country and are used to cater to the needs of the consumers in foreign countries. Thus, the imports and exports have made the world a local market. The country which is

purchasing the goods is known as the importing country and the country which is selling the goods is known as the exporting country. The traders involved in such transactions are importers and exporters respectively.

In India, exports and imports are regulated by the [Foreign Trade \(Development and Regulation\) Act, 1992](#), which replaced the Imports and Exports(Control) Act, 1947, and gave the Government of India enormous powers to control it. The salient features of the Act are as follows:-

- It has empowered the Central Government to make provisions for development and regulation of foreign trade by facilitating imports into, and augmenting exports from India and for all matters connected therewith or incidental thereto.
 - The Central Government can prohibit, restrict and regulate exports and imports, in all or specified cases as well as subject them to exemptions.
 - It authorizes the Central Government to formulate and announce an [Export and Import \(EXIM\) Policy](#) and also amend the same from time to time, by notification in the Official Gazette.
 - It provides for the appointment of a Director General of Foreign Trade by the Central Government for the purpose of the Act. He shall advise Central Government in formulating export and import policy and implementing the policy.
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- Under the Act, every importer and exporter must obtain a '[Importer Exporter Code Number \(IEC\)](#)' from Director General of Foreign Trade or from the officer so authorised.
 - The Director General or any other officer so authorised can suspend or cancel a licence issued for export or import of goods in accordance with the Act. But he does it after giving the licence holder a reasonable opportunity of being heard.
 - As per the provisions of the Act , the Government of India formulates and announces an Export and Import policy (EXIM policy) and amends it from time to time. EXIM policy refers to the policy measures adopted by a country with reference to its exports and imports. Such a policy become particularly important in a country like India, where the import and export of items plays a crucial role not just in balancing budgetary targets, but also in the over all economic development of the country. The principal objectives of the policy are:-
 - To facilitate sustained growth in exports of the country so as to achieve larger percentage share in the global merchandise trade.
 - To provide domestic consumers with good quality goods and services at internationally competitive prices as well as creating a level playing field for the domestic producers.
 - To stimulate sustained economic growth by providing access to essential raw materials, intermediates, components, consumables and capital goods required for augmenting production and providing services.
 - To enhance the technological strength and efficiency of Indian agriculture, industry and services, thereby improving their competitiveness to meet the requirements of the global markets.
 - To generate new employment opportunities and to encourage the attainment of internationally accepted standards of quality.

Besides this Act, there are some other laws which control the export and import of goods. These include:-

- [Tea Act, 1953](#)
- [Coffee Act, 1942](#)
- [The Rubber Act, 1947](#)
- [The Marine Products Export Development Authority Act, 1972](#)
- [The Enemy Property Act, 1968](#)
- [The Export \(Quality Control and Inspection\) Act, 1963](#)
- [The Tobacco Board Act, 1975](#)

- At the central level, the [Ministry of Commerce and Industry](#) is the most important organ concerned with the promotion and regulation of the foreign trade in India. The Ministry has an elaborate organizational set up to look after the various aspects of trade. Within the Ministry, the [Department of Commerce](#) is responsible for formulating and implementing the foreign trade policy. The Department is also entrusted with responsibilities relating to multilateral and bilateral commercial relations, state trading, export promotion measures and development and regulation of certain export oriented industries and commodities. The matters relating to foreign trade are dealt with by the following [divisions of the Department](#) :-
 - 1. Administrative and General Division
 - 2. Finance Division
 - 3. Economic Division
 - 4. Trade Policy Division
 - 5. Foreign Trade Territorial Division
 - 6. Export Products Division
 - 7. Export Industries Division
 - 8. Export Services Division
 - 9. Supply Division

E-Payment system

WHAT IS Electronic commerce, - commonly known as **e-commerce** or **eCommerce**, or e-business consists of the buying and selling of products or services over electronic systems such as the Internet and other computer networks. The amount of trade conducted electronically has grown extraordinarily with widespread Internet usage. The use of commerce is conducted in this way, spurring and drawing on innovations in electronic funds transfer, supply chain management, Internet marketing, online transaction processing, electronic data interchange (EDI), inventory management systems, and automated data collection systems. Modern electronic commerce typically uses the World Wide Web at least at some point in the transaction's lifecycle, although it can encompass a wider range of technologies such as e-mail as well.

A large percentage of electronic commerce is conducted entirely electronically for virtual items such as access to premium content on a website, but most electronic commerce involves the transportation of physical items in some way. Online retailers are sometimes known as e-tailers and online retail is sometimes known as e-tail. Almost all big retailers have electronic commerce presence on the World Wide Web.

Electronic commerce that is conducted between businesses is referred to as business-to-business or B2B. B2B can be open to all interested parties (e.g. commodity exchange) or limited to specific, pre-qualified participants (private electronic market). Electronic commerce that is conducted between businesses and consumers, on the other hand, is referred to as business-to-consumer or B2C. This is the type of electronic commerce conducted by companies such as Amazon.com. Online shopping is a form of electronic commerce where the buyer is directly online to the seller's computer usually via the internet. There is no intermediary service. The sale and purchase transaction is completed electronically and interactively in real-time such as Amazon.com for new books. If an intermediary is present, then the sale and purchase transaction is called electronic commerce such as eBay.com.

Electronic commerce is generally considered to be the sales aspect of e-business. It also consists of the exchange of data to facilitate the financing and payment aspects of the business transactions.

ADAVANTAGES AND DISADVANTAGES OF E COMMERCE

There are many different benefits of E-commerce and E-business. Some of the benefits of E-commerce include purchases can be made 24 hours a day and 7 days a week, making it available to every place in the world, at any time. Other benefits of E-commerce include a larger marketplace, more secure than using cheques, can increase your sales potential, leads to increased productivity. Benefits of E-business include

improved speed of response, cost savings, reduced in inventory, better transfer of best practices, and improved customer service. These are all benefits and advantages of E-commerce and E-Business.

Advantages

- With the use of e-commerce you can promote your product globally.
- Reduces Time and money spent
- Gives a competitive advantages
- Removes Location and availability restrictions
- Heightens customer service
- Companies have a bigger increase in their profits if they use Ecommerce
- Ecommerce increases sales for companies and decrease costs
- Advertising on the Web can promote small businesses
- Companies can ship their products to different people in the world

Disadvantages

- Security - there are still some people who don't think it is safe to buy on-line.
- You may not receive what you believe you have purchased.
- Things such as viruses could mean losing the site or affecting your customers computers while on your website.

FUNCTIONS OF E COMMERCE

Electronic commerce is coming of age. Electronic sales in a recent quarter are double those of the entire previous year. In some instances, companies create electronic-commerce capabilities out of a fear of falling behind competitors or as a result of the general momentum to expand the use of an existing Internet presence. But the primary value proposition is the prospect of increased revenue from new markets and creation of new, lower-cost, electronic-distribution channels. Internet service providers (ISPs) are beginning to launch, or are at least evaluating, electronic-commerce hosting services. These services position the service provider as the outsourcer of the customers' electronic-commerce capabilities, managing the networking and server aspects of the initiative. This allows the ISP's customers to concentrate on their core businesses and expands the relationship of the customer and the ISP. An ISP's ability to offer a rich electronic-commerce environment, on its own or in partnership with an electronic-business provider, will be important in differentiating high-value ISPs from lower-value, access-only ISPs.

Customer's Perspective

From a customer's perspective, the purpose of an electronic-commerce system is to enable that customer to locate and purchase a desired good or service over the Internet when the customer is interested in making the purchase. Its function is no more or less than providing a virtual store.

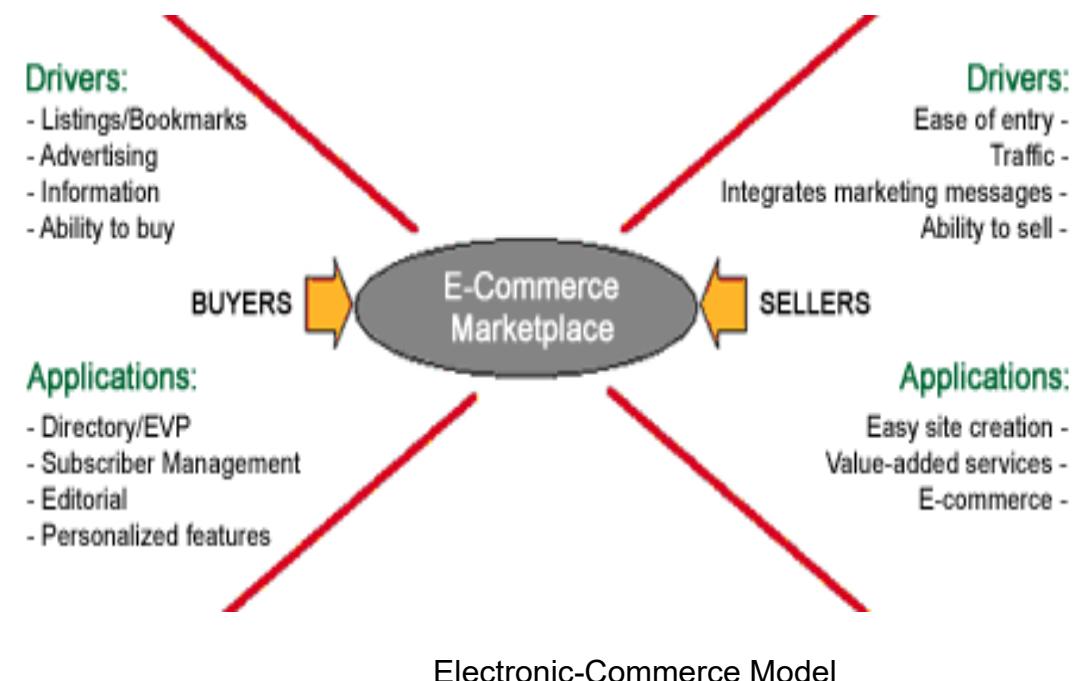
Merchant's Perspective

From a merchant's perspective, the key function of an electronic-commerce system is to generate higher revenues than the merchant would achieve without the system. In order for this to happen, the electronic-commerce system must recreate or utilize existing data and business processes. All of the same processes that the merchant must have in place to support an in-store or catalog purchase must also be in place for an electronic purchase: product information, inventory systems, customer service, and transaction capabilities (including credit authorization, tax computation, financial settlement, and shipping).

Additional functions of an electronic-commerce system, related to revenue generation, are to help redefine and enhance an enterprise's brand strength, customer-service capability, and supply-chain effectiveness. An electronic-commerce system is one of the areas of an enterprise's infrastructure that is open to customers via the Web, but it should be linked with other information technology (IT) systems that affect customer service (i.e., inventory and billing).

Basic Components

Provision of this basic system requires Internet access and an access device at the location of the home shopper, a Web-application server and electronic-commerce software (enabling catalog creation and transaction processing), security gateways to limit external access to internal data systems, and integration software to pull data from the appropriate support systems into the commerce environment



ELECTRONIC PAYMENT SYSTEM - The emergence of e-commerce has created new financial needs that in many cases cannot be effectively fulfilled by the traditional payment systems. Recognizing this, virtually all interested parties are exploring various types of electronic payment system and issues surrounding electronic payment system and digital currency. Broadly electronic payment systems can be classified into four categories: Online Credit Card Payment System, Online Electronic Cash System, Electronic Cheque System and Smart Cards based Electronic Payment System. Each payment system has its advantages and disadvantages for the customers and merchants. These payment systems have numbers of requirements: e.g. security, acceptability, convenience, cost, anonymity, control, and traceability. Therefore, instead of focusing on the technological specifications of various electronic payment systems, the researcher have distinguished electronic payment systems based on what is being transmitted over the network; and analyze the difference of each electronic payment system by evaluating their requirements, characteristics and assess the applicability of each system.

Size of Electronic Payments: Electronic payment system is conducted in different e-commerce categories such as Business-to-Business (B2B), Business-to-Consumer (B2C), Consumer-to-Business (C2B) and Consumer-to-Consumer (C2C).

Conventional vs. Electronic Payment System

To get into the depth of electronic payment process, it is better to understand the processing of conventional or traditional payment system. A conventional process of payment and settlement involves a buyer-to-seller transfer of cash or payment information (i.e., cheque and credit cards). The actual settlement of payment takes place in the financial processing network. A cash payment requires a buyer's withdrawals from his/her bank account, a transfer of cash to the seller, and the seller's deposit of payment to his/her account. Non-cash payment⁷ mechanisms are settled by adjusting i.e. crediting and debiting the appropriate accounts between banks based on payment information conveyed via cheque or credit cards.

Seller's Deposit Bank Info flows for Payments Goods & notational Services changes
Buyer's Bank

Process of Electronic Payment System

Electronic payment systems have been in operations since 1960s and have been expanding rapidly as well as growing in complexity. After the development of conventional payment system, EFT (Electronic Fund Transfer) based payment system came into existence. It was first electronic based payment system, which does not depend on a central processing intermediary⁹. An electronic fund transfer is a financial application of EDI (Electronic Data Interchange), which sends credit card numbers or electronic cheques via secured private networks between banks and major corporations. To use EFT to clear payments and settle accounts, an online payment service will need to add capabilities to process orders, accounts and receipts. But a landmark came in this direction with the development of digital currency. The nature of digital currency or electronic money mirrors that of paper money as a means of

payment. As such, digital currency payment systems have the same advantages as paper currency payment, namely anonymity and convenience. As in other electronic payment systems (i.e. EFT based and intermediary based) here too security during the transaction and storage is a concern, although from the different perspective, for digital currency systems double spending, counterfeiting, and storage become critical issues whereas eavesdropping and the issue of liability (when charges are made without authorizations) is important for the notational funds transfer.

I. TYPES OF ELECTRONIC PAYMENT SYSTEMS

With the growing complexities in the e-commerce transactions, different electronic payment systems have appeared in the last few years. At least dozens of electronic payment systems proposed or already in practice are found. The grouping can be made on the basis of what information is being transferred online. There are six types of electronic payment systems: (1) PC-Banking (2) Credit Cards (3) Electronic Cheques (i-cheques) (4) Micro payment (5) Smart Cards and (6) E-Cash.

Online Credit Card Payment System

Electronic Cheque System

Electronic Cash System and

Smart Card based Electronic Payment System

Online Credit Card Payment System: It seeks to extend the functionality of existing credit cards for use as online shopping payment tools. This payment system has been widely accepted by consumers and merchants throughout the world, and by far the most popular methods of payments especially in the retail markets. This form of payment system has several advantages, which were never available through the traditional modes of payment. Some of the most important are: privacy, integrity, compatibility, good transaction efficiency, acceptability, convenience, mobility, low financial risk and anonymity. Added to all these, to avoid the complexity associated with the digital cash or electronic-cheques, consumers and vendors are also looking at credit card payments on the internet as one of possible time-tested alternative. But, this payment system has raised several problems before the consumers and merchants. Online credit card payment seeks to address several limitations of online credit card payments for merchant including lack of authentication, repudiation of charges and credit card frauds. It also seeks to address consumer fears about using credit card such as having to reveal credit information at multiple sites and repeatedly having to communicate sensitive information over the Internet. Basic process of Online Credit Card Payment System is very simple. If consumers want to purchase a product or service, they simply send their credit card details to the service provider involved and the credit card organization will handle this payment like any other. This can be understood very easily with the format (Figure 3) of Credit Card Payment Form.

credit card payment on online networks are divided into three basic categories: (1) payment using clean credit card details (2) payment using encrypted credit card details and (3) payment using third party verification.

Electronic Cheque Payment System: Electronic cheques address the electronic needs of millions of businesses, which today exchange traditional paper cheques with the other vendors, consumers and government. The e-cheque method was deliberately created to work in much the same way as conventional paper cheque. An account holder will issue an electronic document that contains the name of the financial institution, the payer's account number, the name of payee and amount of cheque. Most of the information is in uncoded form. Like a paper cheques e-cheques also bear the digital equivalent of signature: a computed number that authenticates the cheque from the owner of the account. Digital chequing payment system seeks to extend the functionality of existing chequing accounts for use as online shopping payment tools. Electronic cheque system has many advantages: (1) they do not require consumers to reveal account information to other individuals when setting an auction (2) they do not require consumers to continually send sensitive financial information over the web (3) they are less expensive than credit cards and (4) they are much faster than paper based traditional cheque. But, this system of payment also has several disadvantages. The disadvantage of electronic cheque system includes their relatively high fixed costs, their limited use only in virtual world and the fact that they can protect the users' anonymity. Therefore, it is not very suitable for the retail transactions by consumers, although useful for the government and B2B operations because the latter transactions do not require anonymity, and the amount of transactions is generally large enough to cover fixed processing cost. The process of electronic chequing system can be described using the following steps. Step 1: a purchaser fills a purchase order form, attaches a payment advice (electronic cheque), signs it with his private key (using his signature hardware), attaches his public key certificate, encrypts it using his private key and sends it to the vendor. Step 2: the vendor decrypts the information using his private key, checks the purchaser's certificates, signature and cheque, attaches his deposit slip, and endorses the deposit attaching his public key certificates. This is encrypted and sent to his bank. Step 3: the vendor's bank checks the signatures and certificates and sends the cheque for clearance. The banks and clearing houses normally have a private secure data network. Step 4: when the cheque is cleared, the amount is credited to the vendor's account and a credit advice is sent to him. Step 5: the purchaser gets a consolidated debit advice periodically.

E-cheque provide a security rich Internet payment option for businesses and offer an easy entry into electronic commerce without a significant investment in new technologies or legal systems.

Electronic Cash Payment System: Electronic cash (e-cash) is a new concept in online payment system because it combines computerized convenience with security and privacy that improve on paper cash. Its versatility opens up a host of new markets and applications. E-cash is an electronic or digital form of value storage and value exchange that have limited convertibility into other forms of value and require intermediaries to convert.

E-Cash Structure: e-cash structure could be identified as a string of bits that represents certain values such as reference number and digital signature, which could be used for the security purpose to prevent forgery and criminal use. But, the structure proposed by

Wright needs some extension to make e-cash more secure. Therefore, the present model adds a digital watermark to e-cash structure to protect it from the illegal copy and forgery activities further, the model modified the structure of the reference number to support tractability

The following types of electronic payments are most common today. That said, it is important to realize that new payment types are continual being discovered and there are additional methods that exist or are being developed continuously.

Cards - Credit cards, debit cards and prepaid cards currently represent the most common form of electronic payments. For all 3 types of cards the consumer or the business most often uses a plastic card, commonly with a magnetic stripe. The cardholder gives his or her card or card number to a merchant who swipes the card through a terminal or enters the data to a PC. The terminal transmits data to his or her bank, the acquirer. The acquirer transmits the data through a card association to the card issuer who makes a decision on the transaction and relays it back to the merchant, who gives goods or services to the cardholder. Funds flow later for settlement with credit cards and are debited immediately for debit or pre-paid cards.

Smart Card - Along with magnetic stripe cards, smart cards are and will increasingly be used for payments. Smart cards are at present overwhelmingly plastic credit cards with an embedded computer chip. Until recently, many smart cards operated using proprietary rather than common standards. Korea and Japan are among the most advanced countries in Asia for smart card payments, with Malaysia catching up fast due to government mandates for banks to issue smart cards.

Over time, the chip for payment can be expected to move onto other devices. A "smart card" might then become the computer chip in a phone, PDA or other device that can perform the same function as chip in a plastic card, eliminating the need for the actual plastic card. Smart cards could thus evolve into "smart phones", "smart PDAs" or other "smart" devices.

DOMAIN - In general, a domain is an area of control or a sphere of knowledge.

- 1) In computing and telecommunication in general, a domain is a sphere of knowledge identified by a name. Typically, the knowledge is a collection of facts about some program entities or a number of network points or addresses.
- 2) On the Internet, a domain consists of a set of network addresses. This domain is organized in levels. The top level identifies geographic or purpose commonality (for example, the nation that the domain covers or a category such as "commercial"). The second level identifies a unique place within the top level domain and is, in fact, equivalent to a unique address on the Internet (an IP address). Lower levels of domain may also be used.

Strictly speaking, in the Internet's domain name system (DNS), a domain is a name with which name server records are associated that describe subdomains or host. For example, "whatis.com" could be a domain with records for "www.whatis.com" and "www1.whatis.com," and so forth.

- 3) In Windows NT and Windows 2000, a domain is a set of network resources (applications, printers, and so forth) for a group of users. The user need only to log in to the domain to gain access to the resources, which may be located on a number of different servers in the network.
- 4) A group of computers and devices on a network that are administered as a unit with common rules and procedures. Within the Internet, domains are defined by the IP address. All devices sharing a common part of the IP address are said to be in the same domain.
- 5) In database technology, domain refers to the description of an attribute's allowed values. The physical description is a set of values the attribute can have, and the semantic, or logical, description is the meaning of the attribute.

DNS - Short for Domain Name System (or Service or Server), an Internet service that translates domain names into IP addresses. Because domain names are alphabetic, they're easier to remember. The Internet however, is really based on IP addresses. Every time you use a domain name, therefore, a DNS service must translate the name into the corresponding IP address. For example, the domain name www.example.com might translate to 198.105.232.4.

The DNS system is, in fact, its own network. If one DNS server doesn't know how to translate a particular domain name, it asks another one, and so on, until the correct IP address is returned.

ISP - An Internet service provider (ISP), also sometimes referred to as an Internet access provider (IAP), is a company that offers its customers access to the Internet. The ISP connects to its customers using a data transmission technology appropriate for delivering Internet Protocol Paradigm, such as dial-up, DSL, cable modem, wireless or dedicated high-speed interconnects.

ISPs may provide Internet e-mail accounts to users which allow them to communicate with one another by sending and receiving electronic messages through their ISP's servers. ISPs may provide services such as remotely storing data files on behalf of their customers, as well as other services unique to each particular ISP.

What does ISP mean?

ISP literally means Internet service provider or provider. It is a service (most of the time paid for) which allows you to connect to the Internet.

Why use an ISP?

Unless you have a specialised line (other than a telephone line), you cannot connect directly to the internet using your telephone line. Indeed, the telephone line was not designed for this:

- it was originally designed to transport "voice", i.e. a frequency modulation in the range of the voice tone
- telephone servers only know how to start a conversation from a telephone number
- unless you resort to a special service, generally it is not possible to have communication between more than two points...

So, the internet service provider is an intermediary (connected to the internet by specialised lines) which gives you access to the Internet, using a number which you enter using your modem, and which enables a connection to be established.

How does the ISP connect you to the Internet?

When you are connected to the Internet through your service provider, communication between you and the ISP is established using a simple protocol: PPP (Point to Point Protocol), a protocol making it possible for two remote computers to communicate without having an IP address.

In fact your computer does not have an IP address. However an IP address is necessary to be able to go onto the Internet because the protocol used on the Internet is the TCP/IP protocol which makes it possible for a very large number of computers which are located by these addresses to communicate.

So, communication between you and the service provider is established according to the PPP protocol which is characterised by:

- a telephone call
- initialisation of communication
- verification of the user name (login or userid)
- verification of the password

Once you are "connected", the internet service provider lends you an IP address which you keep for the whole duration that you are connected to the internet. However, this address is not fixed because at the time of the next connection the service provider gives you one of its free addresses (therefore different because depending on its capacity, it may have several hundreds of thousand addresses.). Your connection is therefore a proxy connection because it is your service provider who

sends all the requests you make and the service provider who receives all the pages that you request and who returns them to you.

It is for these reasons for example that when you have Internet access via an ISP, you must pick up your email on each connection because generally it is the service provider that receives your email (it is stored on one of its servers).

Differences between ISPs

Selecting an ISP depends on many criteria including the number of services offered and the quality of these services. So what are these criteria?

- Cover: some ISPs only offer cover in large towns, other offers national coverage, i.e. a number which is charged as a local call wherever you are calling from
- Bandwidth: this is the total speed that the ISP offers. This bandwidth is shared between the number of subscribers, so the more the number of subscribers increases the smaller this becomes (the bandwidth allocated to each subscriber must be greater than his transmission capacity in order to provide him with a quality service).
- Price: this depends on the ISP and the type of package chosen. Some ISPs now offer free access
- Access: unlimited: some ISPs offer a package where your connection time is taken into account, i.e. you cannot exceed a number of hours of connection per month, in which case the call charge is subject to a price increase (additional minutes are very expensive). Some providers even offer tariffs without subscription, i.e. only the communication is paid for (but obviously is more expensive than a local call)

NEFT stands for National Electronic Funds Transfer. Started in November 2005, NEFT is an electronic funds transfer system set up and managed by the Reserve Bank of India. NEFT allows the online transfer of funds from one NEFT-enabled bank account to another.

Features

The National Electronic Funds Transfer system is one of the various methods of online money transfer. It is regulated by the RBI and hence, works as per the guidelines laid down by RBI.

- NEFT is a one-to-one payment facility
- NEFT transactions can be processed only between the banks that offer NEFT-enabled services
- Transactions made through NEFT do not take place in real-time; implying that it takes a few days for NEFT transactions to complete
- Before December 2019, RBI had fixed timings during which NEFT transactions can be processed. Any NEFT transaction will be processed only between 8:00 AM and 6:30 PM from Monday to Friday, and 8:00 AM to 12:00 PM on Saturdays. However, from 2020, NEFT transactions can be performed 24*7
- To transfer funds through NEFT, you must add beneficiaries on the internet banking portal of your required bank
- There are no limits on the amount of NEFT transactions
- There is a fee applicable on all NEFT transactions; the amount varies from Rs. 2.5 to Rs. 25, depending on the amount being transferred
- As per RBI guidelines, the payments made via NEFT are processed and settled in batches of half-hour

Advantages

Among all the other methods of online money transfer, here's why you can opt for NEFT (National Electronic Funds Transfer)-

- NEFT makes the transfer of funds easy, convenient and feasible
- All NEFT transactions take place online; hence, there is no involvement of a third party
- Owing to the involvement of RBI, NEFT transactions are completely safe and secure

- The receiver and sender of the funds gets notified instantly upon completion of the transaction
- NEFT does not require cheques or demand drafts while transferring money; hence, it is economical
- Any account holder, whether an individual, firm or corporate can carry out NEFT transactions. The only required condition is that the banks of both the parties must be NEFT-enabled
- Apart from transferring money, you can also use NEFT to pay your loan installments, credit card dues, EMIs, etc.

Charges Applicable on NEFT Transactions

NEFT transactions involve the following additional charges as money transfer fee-

Transaction Amount	Fee Amount
Less than or equal to Rs. 10,000	Rs. 2.5
Between Rs. 10,000 and Rs. 1 Lakh	Rs. 5
Between Rs. 1 Lakh and Rs. 2 Lakh	Rs. 15
Equal to or more than Rs. 2 Lakh	Rs. 25

Stored-value card

A **stored-value card** is a payment card with a monetary value stored on the card itself, not in an external account maintained by a financial institution and differs from debit cards where money is on deposit with the issuer. Another difference between stored-value cards and debit cards is that debit cards are usually issued in the name of individual account holders, while stored-value cards are usually anonymous.

The term *stored-value card* means the funds and or data are metaphorically 'physically' stored on the card, in the form of binary-coded data. With prepaid cards the data is maintained on the card issuer's computers. The value associated with the card can be accessed using a magnetic stripe embedded in the card, on which the card number is encoded; using radio-frequency identification (RFID); or by entering a code number, printed on the card, into a telephone or other numeric keypad.

Stored-value cards are most commonly used for low-value transactions, such as transit system farecards, telephone prepaid calling cards, cafeterias, or for micropayments in shops or vending machines. They also have an advantage over most other payment cards in that when making, say, a purchase telecommunication facilities are not needed, which may be important in situations where the availability or reliability of these facilities are uncertain or costly, especially for low-value transactions. A benefit to the merchant is that bank transaction fees are not incurred as the transaction is processed offline and there need not be a reference to the bank for processing. A limitation is that these cards cannot be used for online, telephone, mail order and other "card not present transactions".

**Stored-value cards have a specific value programmed into them.
Banks provide these cards as a service for customers who cannot open checking or other deposit accounts.**

Definition

A type of card, which is similar to a debit card, but includes a fix amount of money that can be withdraw from the corresponding account. Gift card or pre-loaded debits cards are common examples of stored value card. One of the downfalls of this type of card is the user may lose funds included on the card if he/she does not used before its expiration date.

Stored value cards provide a way to make financial transactions. Stored value cards use magnetic stripe technology to store information about funds that have been prepaid to the card. Payroll cards, government benefit cards, prepaid debit cards, gift cards, and telephone cards are examples of stored value cards. There are two main categories of stored value cards in the marketplace. The first prepaid cards made available to the marketplace were single-purpose or 'closed-loop' cards. Gift cards, which can only be used to purchase goods at particular retailers, and prepaid telephone cards, which can only be used to make telephone calls, are examples of single-purpose cards. The second type of card to emerge was a multipurpose or 'open-loop' card, which can be used to make debit transactions at a wide variety of retail locations, as well as for other purposes, such as receiving direct deposits and withdrawing cash from ATMs. Some multipurpose cards are branded by Visa or MasterCard and can be used wherever those brands are accepted.

Real-time gross settlement

Real-time gross settlement systems (RTGS) are specialist funds transfer systems where transfer of money or securities takes place from one bank to another on a "real time" and on "gross" basis. Settlement in "real time" means payment transaction is not subjected to any waiting period. The transactions are settled as soon as they are processed. "Gross settlement" means the transaction is settled on one to one basis without bundling or netting with any other transaction. Once processed, payments are final and irrevocable.

RTGS systems are typically used for high-value transactions that require immediate clearing. In some countries the RTGS systems may be the only way to get same day cleared funds and so may be used when payments need to be settled urgently. However, most regular payments would not use a RTGS system, but instead would use a national payment system or network that allows participants to batch and net payments.

RTGS systems are usually operated by a country's central bank as it is seen as a critical infrastructure for a country's economy. Economists believe that an efficient national payment system reduces the cost of exchanging goods and services, and is indispensable to the functioning of the interbank, money, and capital markets. A weak payment system may severely drag on the stability and developmental capacity of a national

economy; its failures can result in inefficient use of financial resources, inequitable risk-sharing among agents, actual losses for participants, and loss of confidence in the financial system and in the very use of money.

Central banks and RTGS

This electronic payment system is normally maintained or controlled by the central bank of a country. There is no physical exchange of money; the central bank makes adjustments in the electronic accounts of Bank A and Bank B, reducing the balance in Bank A's account by the amount in question and increasing the balance of Bank B's account by the same. The RTGS system is suited for low-volume, high-value transactions. It lowers settlement risk, besides giving an accurate picture of an institution's account at any point of time. Such systems are an alternative to systems of settling transactions at the end of the day, also known as the net settlement system such as the UK's BACS system. In the net settlement system, all the inter-institution transactions during the day are accumulated. At the end of the day, the accounts of the institutions are adjusted.

What is RTGS ?

The full form of RTGS is "Real Time Gross Settlement". RTGS can be defined as "as the continuous (real-time) settlement of funds transfers individually on an order by order basis (without netting")

What do you mean by Real Time? What is the Meaning of Gross Settlement"?

Here the words 'Real Time' refers to the process of instructions that are executed at the time they are received, rather than at some later time. On the other hand "Gross Settlement" means the settlement of funds transfer instructions occurs individually (on an instruction by instruction basis). The settlement of funds actually takes place in the books of RBI and thus the payments are considered as final and irrevocable.

What is NEFT ?

The full form of NEFT is "National Electronic Funds Transfer (NEFT). The NEFT is a nation wide payment system facilitating one-to-one funds

transfer. Under this system, individuals, firms and corporates can electronically transfer funds from any bank branch to any individual, firm or corporate having an account with any other bank branch in the country participating in the system.

RTGS Vs NEFT :

Thus, we can say that both RTGS and NEFT are schemes started by RBI for the benefit of the customers which allow account holders in the banks to electronically transfer the funds intra-bank. In the case of RTGS, settlement is on 'Real Time' basis whereas in case of NEFT the settlement is on batch basis and net basis.

How Real Time Gross Settlement (RTGS) is different from National Electronics Funds Transfer System (NEFT)?

NEFT is an electronic fund transfer system that operates on a Deferred Net Settlement (DNS) basis which settles transactions in batches. In DNS, the settlement takes place with all transactions received till the particular cut-off time. These transactions are netted (payable and receivables) in NEFT whereas in RTGS the transactions are settled individually. Any transaction initiated after a designated settlement time would have to wait till the next designated settlement time. Contrary to this, in the RTGS transactions are processed continuously throughout the RTGS business hours.

Ex- State Bank of India, Canara Bank, State Bank of Travancore, State Bank of Patiala

Deferred net settlement (DNS).

Funds transfer

A net settlement system where final settlements occur between participating banks at the end of a predefined settlement cycle when the net obligations between participants are calculated and presented to the settlement agent for settlement.

Also known as Designated-time net settlement.

Contrast with a real time gross settlement system (RTGS).

Direct Transfer

Definition

The movement of tax-deferred retirement assets from one plan or custodian directly to another. A direct transfer is not a withdrawal and does not incur any taxes or penalties. This allows a person to move his/her retirement assets as many times as he/she wants to plans or custodians that might be more suitable for him/her at that point in time.

Netting

Definition

The settlement of obligations between two parties that processes the combined value of transactions. It is designed to lower the number of transactions required. For example, if Bank A owed Bank B \$100,000, and Bank B owed Bank A \$25,000, the value after netting would be a \$75,000 transfer from Bank A to Bank B (\$100,000 - \$25,000).

1. What does RTGS stand for?

Ans. The acronym 'RTGS' stands for Real Time Gross Settlement, which can be explained as a system where there is continuous and real-time settlement of fund-transfers, individually on a transaction by transaction basis (without netting). 'Real Time' means the processing of instructions at the time they are received; 'Gross Settlement' means that the settlement of funds transfer instructions occurs individually.

2. Are the payments under RTGS final and irrevocable?

Considering that the funds settlement takes place in the books of the Reserve Bank of India, the payments are final and irrevocable.

3. What are the benefits of using RTGS?

Ans. RTGS offers many advantages over the other modes of funds transfer:

- It is a safe and secure system for funds transfer.
- RTGS transactions / transfers have no amount cap.
- The system is available on all days on 24x7x365 basis. There is real time transfer of funds to the beneficiary account.
- The remitter need not use a physical cheque or a demand draft.
- The beneficiary need not visit a bank branch for depositing the paper instruments.
- The beneficiary need not be apprehensive about loss / theft of physical instruments or the likelihood of fraudulent encashment thereof.
- Remitter can initiate the remittances from his / her home / place of work using internet banking, if his / her bank offers such service.
- The transaction charges have been capped by RBI.
- The transaction has legal backing.

4. How is the processing of RTGS different from that of National Electronic Funds Transfer (NEFT) System?

Ans. NEFT is an electronic fund transfer system in which the transactions received up to a particular time are processed in batches. Contrary to this, in RTGS, the transactions are processed continuously on a transaction by transaction basis throughout the day.

5. Is RTGS a 24x7 system or are there some timings applicable?

Ans. RTGS is available 24x7x365 with effect from December 14, 2020.

6. Is there any minimum / maximum amount stipulation for RTGS transactions?

Ans. The RTGS system is primarily meant for large value transactions. The minimum amount to be remitted through RTGS is ₹ 2,00,000/- with no upper or maximum ceiling.

7. What about processing charges / service charges for RTGS transactions?

Ans. With effect from July 01, 2019, the Reserve Bank has waived the processing charges levied by it for RTGS transactions. Banks may pass on the benefit to its customers.

With a view to rationalise the service charges levied by banks for offering funds transfer through RTGS system, a broad framework of charges has been mandated as under:

- a) Inward transactions – Free, no charge to be levied.
- b) Outward transactions – ₹ 2,00,000/- to 5,00,000/- : not exceeding ₹ 24.50/-; (exclusive of tax, if any)

Above ₹ 5,00,000/- : not exceeding ₹ 49.50/- (exclusive of tax, if any)

Banks may decide to charge a lower rate but cannot charge more than the rates prescribed by RBI.

Our Circular Ref. No. DPSS (CO) RPPD No.1140/04.03.01/2019-20 dated December 16, 2019 on '**Furthering Digital Payments – Waiver of Charges – NEFT System**' (**available at <https://www.rbi.org.in/scripts/NotificationUser.aspx?Id=11756&Mode=0>**) may be referred to for further details.

8. What is the essential information that the remitting customer needs to furnish to the bank for making a remittance?

Ans. The remitting customer has to furnish the following information to a bank for initiating an RTGS remittance:

- i. Amount to be remitted
- ii. The account number to be debited
- iii. Name of the beneficiary bank and branch
- iv. The IFSC number of the receiving branch
- v. Name of the beneficiary customer
- vi. Account number of the beneficiary customer
- vii. Sender to receiver information, if any

9. How would one know the IFSC number of the receiving branch?

Ans. The IFSC number can be obtained by the remitter (customer) from his / her bank branch. Alternatively, it is available on the cheque leaf of the beneficiary. This code number / bank branch information can be communicated by the beneficiary to the

remitting customer. The list of IFSCs is also available on the RBI website at the link <http://rbidocs.rbi.org.in/rdocs/RTGS/DOCs/RTGEB0815.xlsx>

10. Do all bank branches in India provide RTGS service? How can a remitting customer know whether the bank branch of the beneficiary accepts remittance through RTGS?

Ans. For a funds transfer to go through RTGS, both the sending bank branch and the receiving bank branch need to be RTGS enabled. Presently, there are more than 1,65,000 RTGS enabled bank branches, the list of which is available on the RBI website at the link <http://rbidocs.rbi.org.in/rdocs/RTGS/DOCs/RTGEB0815.xlsx>

11. What care should be taken while originating an RTGS transaction?

Ans. The following should be ensured while putting through a funds transfer transaction using RTGS –

- Originating and destination bank branches are part of the RTGS network.
- Beneficiary details such as beneficiary name, account number and account type, name and IFSC of the beneficiary bank branch should be available with the remitter.
- Extreme care should be exercised in providing the account number of the beneficiary, as, during processing RTGS transactions, the credit will be given to the customer's account solely based on the account number provided in the RTGS remittance instruction / message.

12. In RTGS, why is credit to the beneficiary given solely based on account number?

Ans. Transactions in RTGS happen in real time and it is not possible to match name and account number before affording credit to the beneficiary. Since name in the Indian context is spelt differently and would not really match with that available with the beneficiary bank, the process of affording credit solely based on the account number of the beneficiary has been enabled.

Our Circular Ref. No. DPSS (CO) EPPD No. / 863 / 04.03.01 / 2010-11 dated October 14, 2010 on '**Electronic payment products – Processing inward transactions based solely on account number information**' ([available at https://www.rbi.org.in/scripts/NotificationUser.aspx?Id=6043&Mode=0](https://www.rbi.org.in/scripts/NotificationUser.aspx?Id=6043&Mode=0)) may be referred to for further details.

13. What is the time taken for effecting funds transfer from one account to another through RTGS?

Ans. Under normal circumstances, the beneficiary branches are expected to receive the funds in real time as soon as funds are transferred by the remitting bank. The beneficiary bank must credit the beneficiary's account within 30 minutes of receiving the funds transfer message.

14. Can a remitting customer initiate a transaction for a future date?

Ans. No, the RTGS system does not accept future value dated transactions.

15. Can a transaction be originated to draw (receive) funds from another account?

Ans. No. RTGS is a credit-push system i.e., transactions can be originated by the payer / remitter / sender only to pay / transfer / remit funds to a beneficiary.

16. Can an RTGS transaction be tracked? Would the remitting customer receive an acknowledgement of money credited to the beneficiary's account?

Ans. While the customers do not have the facility to track the transaction, the RBI has implemented the feature of positive confirmation in an RTGS transaction. Under this, the remitting bank would receive a message from RBI (through the beneficiary bank) that the money has been credited to the beneficiary bank / customer account. Based on this, the remitting bank should advise the remitting customer that money has been credited to the receiving bank's beneficiary account.

17. Would the remitting customer get back the money if it is not credited to the beneficiary's account? Is there any time frame prescribed for it?

Ans. Yes, if it is not possible to credit the funds to the beneficiary customer's account for any reason, the funds received by the RTGS member bank will be returned to the originating bank within one hour of receipt of the payment at the Payment Interface (PI) or before the end of the RTGS Business day, whichever is earlier. Once the money is received back by the remitting bank, the original debit entry in the customer's account needs to be reversed.

18. Is a customer eligible to get compensation for delay in returning the payment?

Ans. In case of any delay in returning the failed payment, the originating customer is eligible to receive compensation at current repo rate plus 2%.

19. Whom can a customer contact, in case of non-credit or delay in credit to the beneficiary account?

Ans. The customer can contact his / her bank / branch if there is an issue of delay / non-credit to the beneficiary account. If the issue is not resolved satisfactorily, complaint may be lodged at [email](#) or by post at following address giving UTR number and details of the issue -

The Customer Reserve SBS	Chief Education Floor, Bank	and	General Protection Amar Road,	Manager Department Building India Fort
1st			of	
Mumbai – 400 001				

20. What is UTR number?

Ans. Unique Transaction Reference (UTR) number is a 22 character code used to uniquely identify a transaction in RTGS system.

21. What is LEI and what is its purpose?

Ans. The Legal Entity Identifier (LEI) is a 20-digit number used to uniquely identify parties to financial transactions worldwide. It has been implemented to improve the quality and accuracy of financial data reporting systems for better risk management. It is used to create a global reference data system that uniquely identifies every legal entity in any jurisdiction that is party to a financial transaction. It can be obtained from any of the Local Operating Units (LOUs) accredited by the Global Legal Entity Identifier Foundation (GLEIF), the body tasked to support the implementation and use of LEI. In India, LEI can be obtained from Legal Entity Identifier India Ltd. (LEIL) (<https://www.ccilindia-lei.co.in>), which is also recognised as an issuer of LEI by the Reserve Bank.

22. Which RTGS transactions should include LEI information?

Ans. All payment transactions of value ₹50 crore and above undertaken by entities (non-individuals) should include remitter and beneficiary LEI information from April 1,

2021. Banks should use the 'Remittance Information' field for recording Remitter and Beneficiary LEI.

23. Is LEI required for individual customer transactions?

Ans. No, LEI is not required for customer transactions where both remitter and beneficiary are individuals.

These FAQs are issued by the Reserve Bank of India for information and general guidance purposes only. The Bank will not be held responsible for actions taken and/or decisions made on the basis of the same. For clarifications or interpretations, if any, one may be guided by the relevant circulars and notifications issued from time to time by the Bank.

The steps of credit and debit card payments processing explained

Business owners and managers tend to also be savvy consumers. That's understandable since you routinely evaluate the many products and services needed to keep your business running smoothly.

Accepting credit cards enables you to get paid. That means you'll need to select a credit card processing company. Credit card processors are important partners beyond the core service of processing payments, making it a critical business decision. You don't need to become an expert, but you'll be a better consumer if you know how credit card processing works.

To understand how payments processing works, we'll look at the actors and their roles.

Who are the actors in a credit and debit card transactions?

- **A cardholder** obtains a credit or debit card from an **issuing bank**, uses the account to pay for goods or services.
- **A merchant** is any type of business that accepts card payments in exchange for goods or services.
- **A merchant bank** establishes and maintains merchant accounts. Merchant banks allow merchants to accept deposits from credit and debit card payments.
- **Payment processors** are companies that process credit and debit card transactions. Payment processors connect merchants, merchant banks, card networks and others to make card payments possible.
- Issuing banks are the banks, credit unions and other financial institutions that issue debit and credit cards to cardholders through the card associations.
- **Card associations** include Visa, Mastercard, Discover and American Express. The card associations set interchange rates and qualification guidelines, and act as the arbiter between **issuing banks** and **acquiring banks** among other vital functions.

What does credit card processing look like in motion?

Credit card processing works in three distinct processes:

1. **Authorization**
2. **Settlement**
3. **Funding**

First, let's look at credit and debit card authorization process.

1. The **cardholder** presents their card (swipe, tap, insert or other secure method i.e. contactless or by entering number for online credit card payment) to a **merchant** in exchange for goods or services. The request might originate from a credit card terminal or point of sale system in a brick-and-mortar store, an eCommerce website gateway, through mobile or in-app payment acceptance.
2. The **merchant** sends a request for payment authorization to their payment processor.
3. The **payment processor** submits transactions to the appropriate **card association**, eventually reaching the **issuing bank**.
4. Authorization requests are made to the **issuing bank**, including parameters like CVV, AVS validation and expiration date.
5. The **issuing bank** approves or declines the transaction. Transactions can be declined for insufficient funds or available credit, if the cardholder's account has been closed or expired, if a payment is past due or other factors.
6. The **issuing bank** then sends the approval (or denial) status back along the line to the **card association**, **merchant bank** and finally to the **merchant**.

That's the credit card authorization process in a nutshell. The card authorization process takes only a matter of seconds.

Now let's look at the credit card settlement and funding process. This part is essentially how the merchant gets paid from the credit cards they accept.

1. **MERCHANTS** send batches of authorized transactions to their **payment processor**.
2. The **payment processor** passes transaction details to the **card associations** that communicate the appropriate debits with the **issuing banks** in their network.
3. The **issuing bank** charges the **cardholder's** account for the amount of the transactions.
4. The **issuing bank** then transfers appropriate funds for the transactions to the **merchant bank**, minus interchange fees.
5. The **merchant bank** deposits funds into the **merchant account**.

The settlement and funding processes that used to take days are now almost always handled overnight, helping merchants get paid quickly.

That's the simplified credit card payment process.

To learn even more about how credit card processing works, connect with one of our payments experts. We're happy to answer your questions and walk you through the easy setup

What is a payment processor? 5 important terms to know

Most businesses take credit card payments from their customers on a daily basis, but few think much about it. But as a business owner, if you don't know what's involved in payment processing, you can run into trouble when an issue comes up. You may even wonder what is a payment processor? Here, we'll answer that very question and look at four other payments processing terms to know.

#1. What is a payment processor?

A payment processor manages the credit card transaction process by acting as the mediator between the merchant and the financial institutions involved. A processor can authorize credit card transactions and works to ensure merchants get paid on time by facilitating the transfer of funds. Some payment processing services provide equipment for card acceptance, security solutions, PCI compliance assistance, customer support and other value-added payment processing services.

Different from a payment processor, a payment gateway is an encrypted application that authorizes credit card or direct payments processing for online sales other card-not-present transactions.

#2. What is an acquirer?

The acquirer, also known as the acquiring or merchant bank, is the financial institution that maintains a merchant's account in order to accept credit cards. The acquirer settles card transactions for a merchant into their account. Sometimes the payment processor and the acquirer are one and the same.

#3. What is an issuer?

The issuer, or issuing bank, is the cardholder's bank, which is responsible for paying the acquirer (and subsequently the merchant) for approved credit card transactions and collecting payment from cardholders.

#4. What is PCI compliance?

PCI compliance refers to compliance with the PCI DSS, the Payment Card Industry Data Security Standard. PCI DSS is an information security standard that applies to all entities involved in processing, storing and/or transmitting payment card information. Any merchant who accepts card payments must comply with PCI mandates. Failure to achieve and maintain PCI compliance can leave a merchant vulnerable to a data breach and the ensuing negative fallout including fines, fees and lost business.

PCI compliance is complex and depends on various factors. Some payment processors offer PCI compliance tools and assistance to their merchants. The type of offerings can include security checklists, hands-on help, breach coverage and more. Because PCI mandates are updated regularly, it's a good idea to work with an experienced payment processor that offers a complete PCI compliance assistance program.

#5. What are EMV chip credit cards?

EMV chip cards have become more commonplace since the fraud chargeback liability shift that took place in October 2015. The liability shift placed new responsibilities on merchants for card-present fraud. Basically, if a business processes a chip card without using an EMV-enabled terminal, it could be held responsible for any fraud that results.

EMV is not a mandate like PCI (e.g. merchants will not be fined for not using an EMV-enabled device). But it is a necessity for merchants in reducing their fraud and chargeback rates for card-present transactions. It's important to note, however, that EMV does not protect against a data breach – that's where PCI comes in. So be sure to ask your payment processor about both EMV and PCI compliance solutions.

Now that you know a few of the important payment processing terms, it's time to be sure you're working with the right payment processor for your business. A trustworthy and experienced payments processor will provide the information, tools, and guidance you need to securely accept card payments.

What is e-governance?

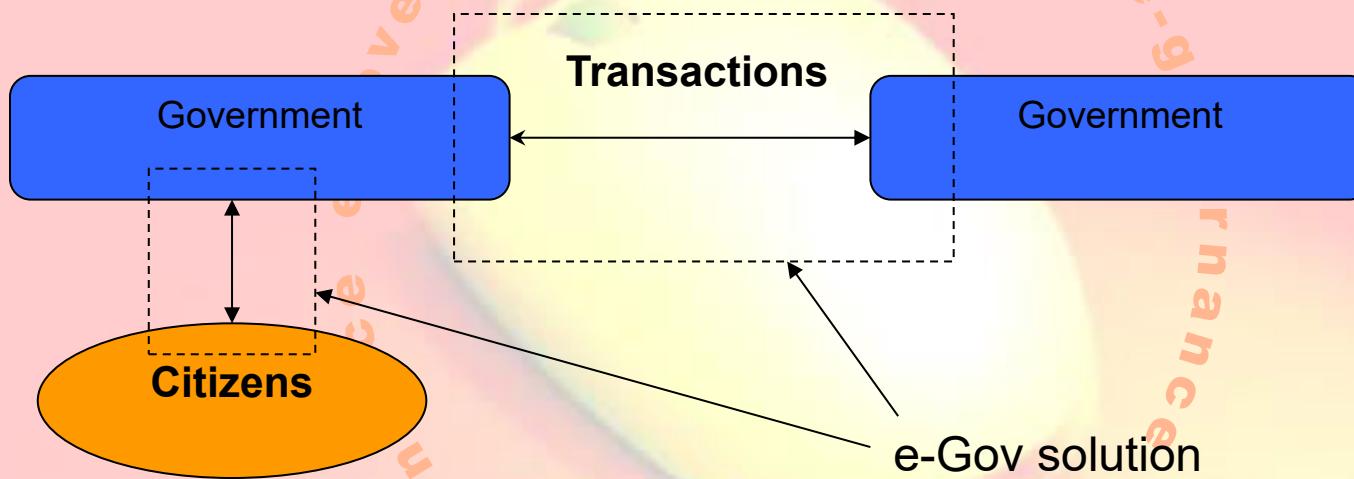
E-governance is the application of Information Technology to the processes of government functioning to bring about...

- Smart
- Moral
- Accountable
- Responsive
- Transparent Governance.



Definition of eGov

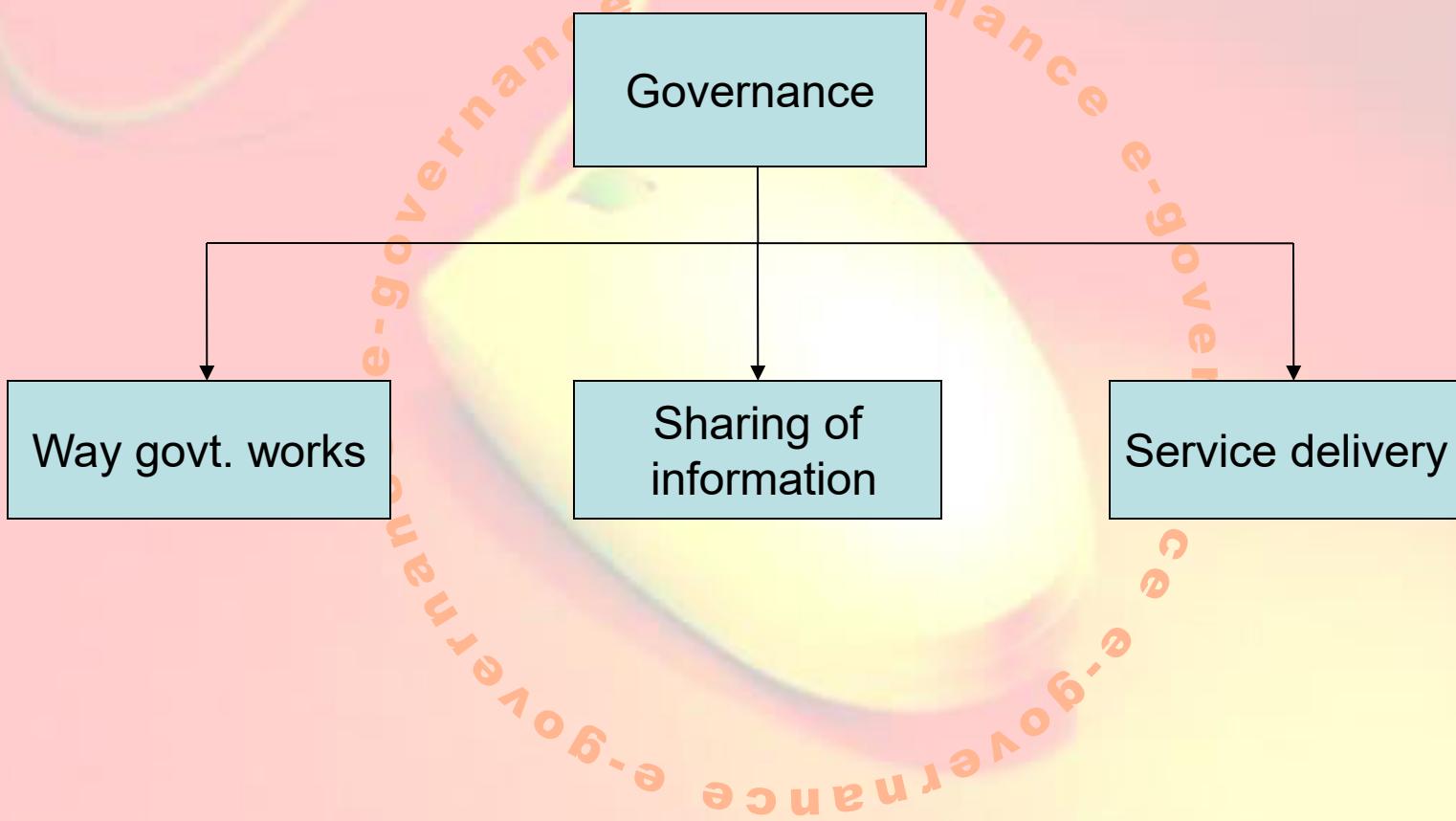
It can be defined as the civil and political conduct of government, including service provision, using information and communication technologies



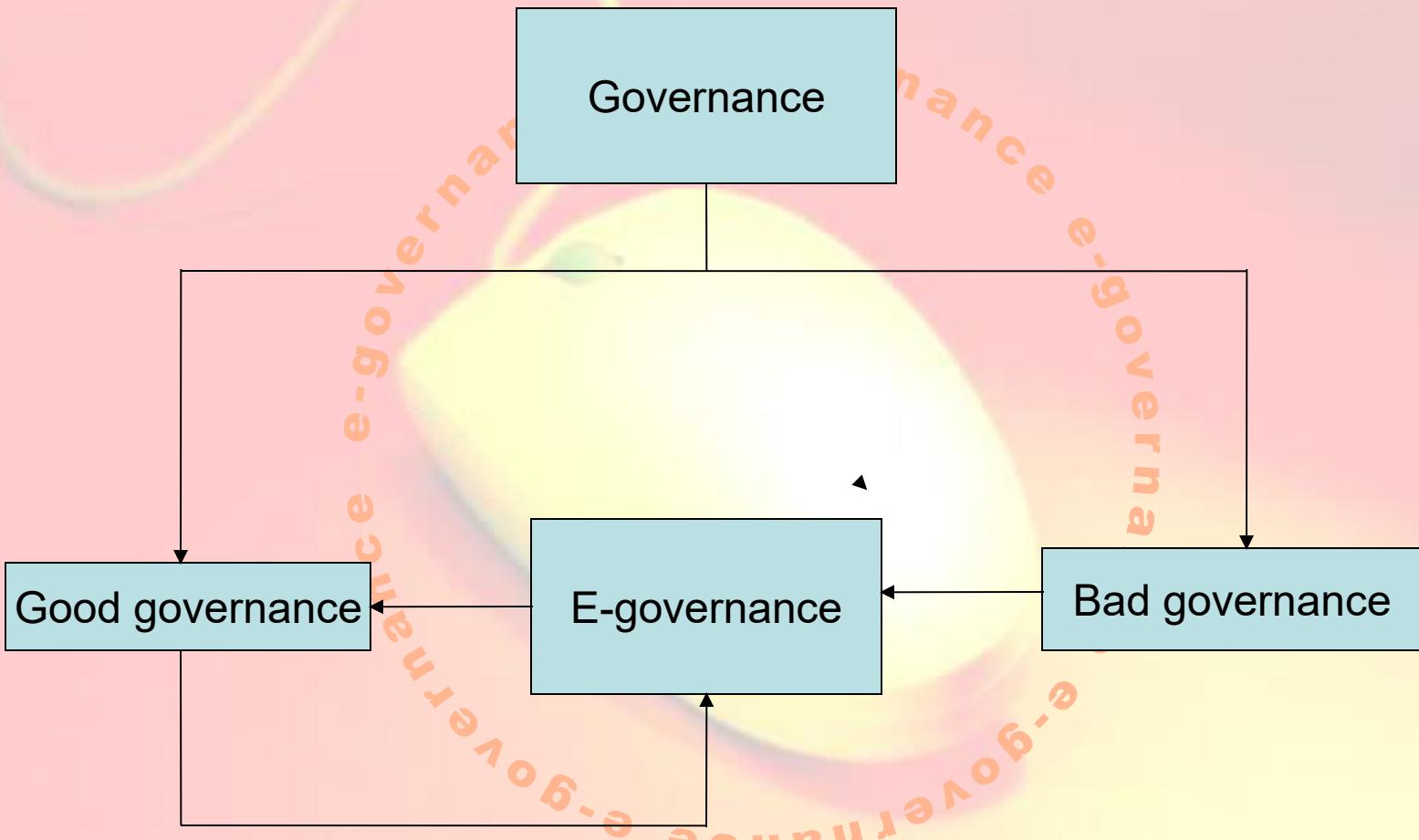
What is E-Government?

- E-government refers to the delivery of national or local government information and services via the Internet or other digital means to citizens or businesses or other Governmental agencies. E-government is a one-stop Internet gateway to major Government services.

Background: What is Governance?



Background: How e-governance helps



What is Governance System?

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Corporate governance is the system of rules, practices and processes by which a company is directed and controlled.

- Corporate governance essentially involves balancing the interests of a company's many stakeholders, such as shareholders, management, customers, suppliers, financiers, government and the community.

What is good governance?

Good governance is an indeterminate term used in the international development literature to describe how public institutions conduct public affairs and manage public resources.

- Governance is "the process of decision-making and the process by which decisions are implemented (or not implemented)".

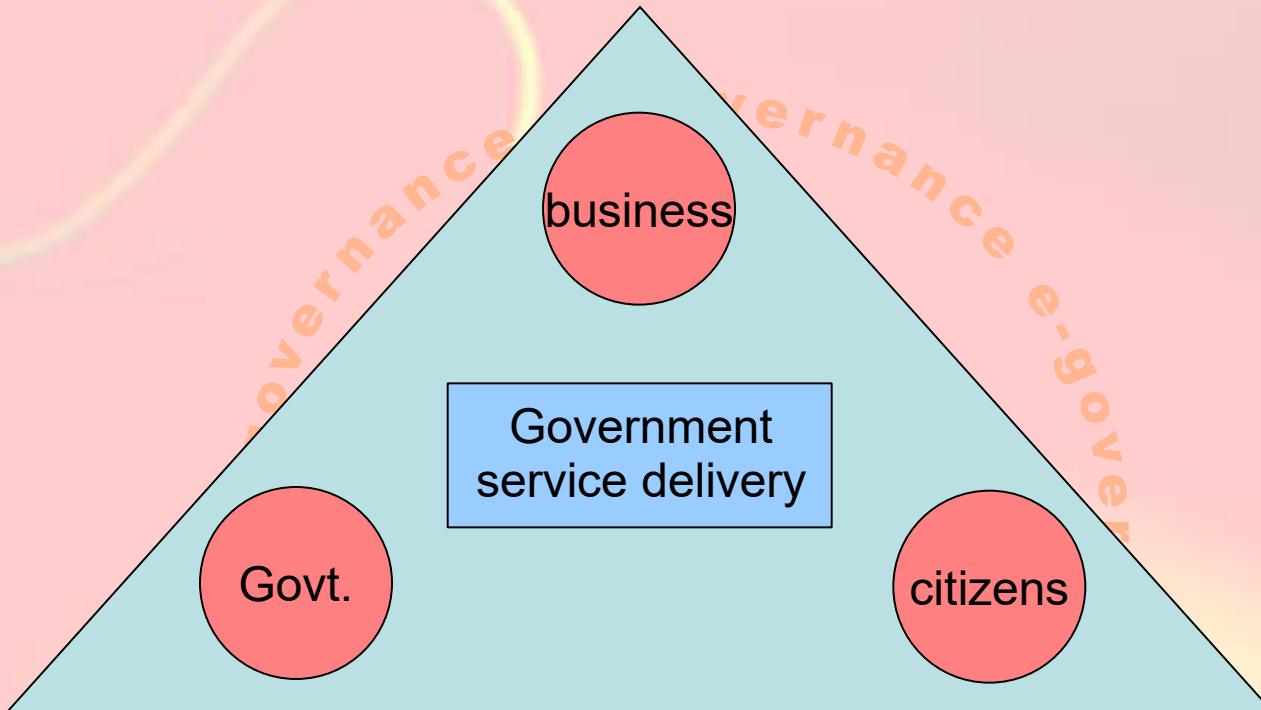
What is the concept of governance?

- Governance has been defined to refer to structures and processes that are designed to ensure accountability, transparency, responsiveness, rule of law, stability, equity and inclusiveness, empowerment, and broad – based participation

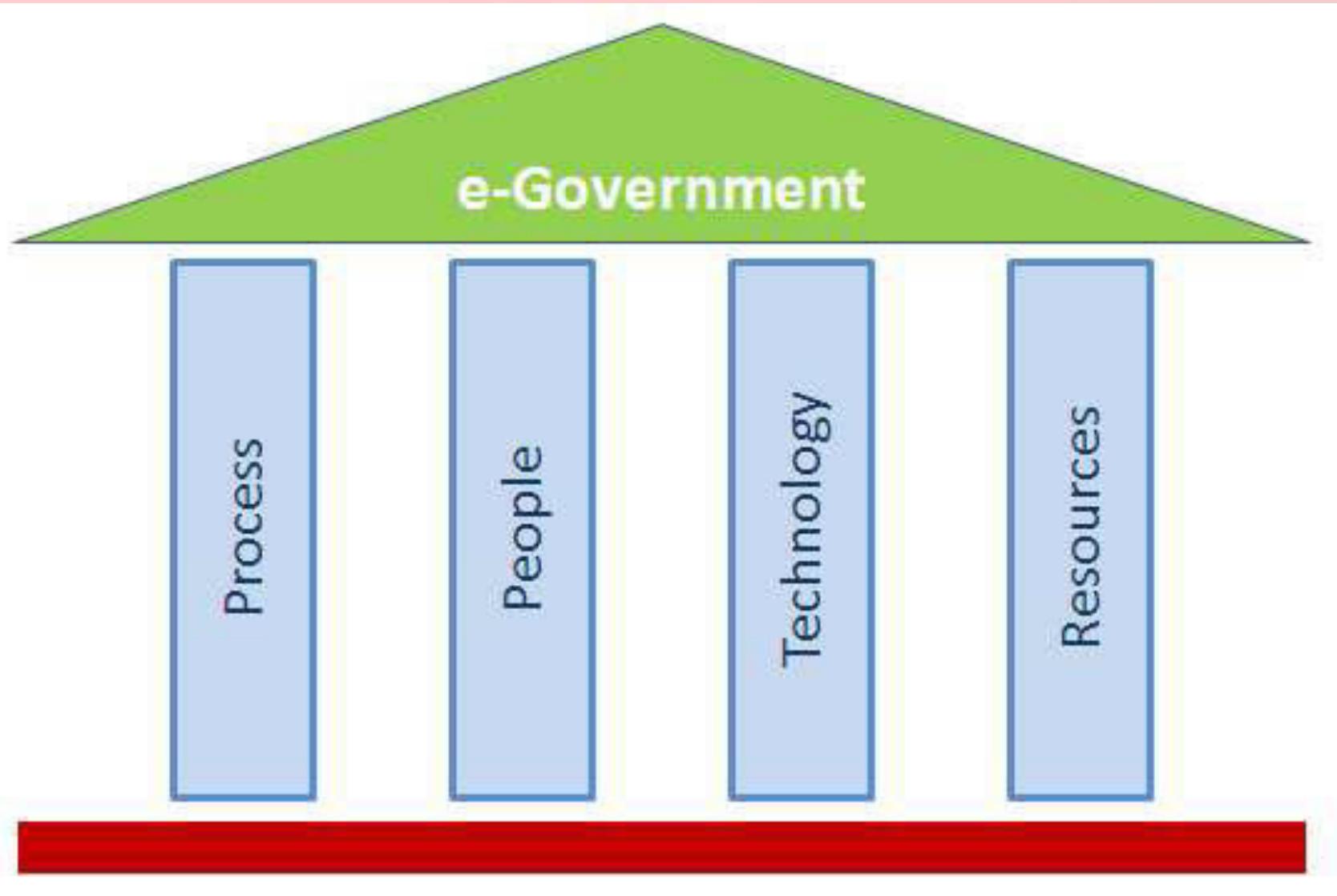
About: E-Governance Definition

- ICT - Enabling e-governance through ICT(Information and Communication Technology) contributes to Good governance, Trust and Accountability, Citizen's awareness and empowerment, Citizen's welfare
- Efficiency
- Productivity
- Reach
- Sharing of information
- Service delivery
- Welfare

About: E-Governance target agents

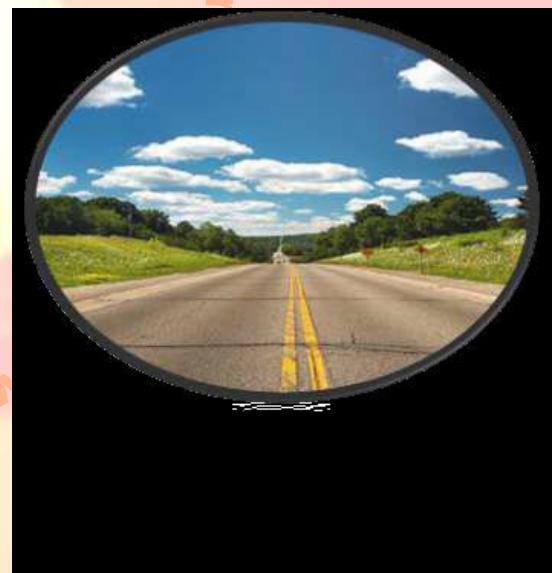


4 PILLARS of e-governance



e-governance is a journey and not a destination

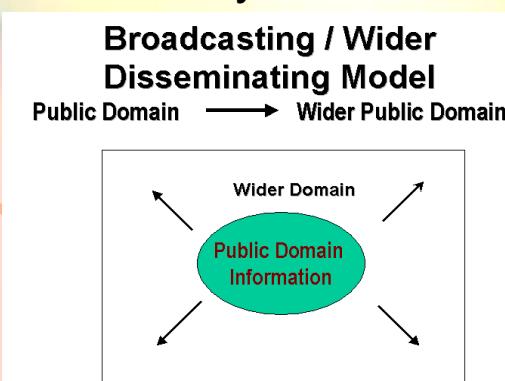
- Major task : Simplifications & speeding.
- □ Two main goals :
- 1. Process integration as electronic back office including training of civil servants.
- 2. Harmony of e-services.



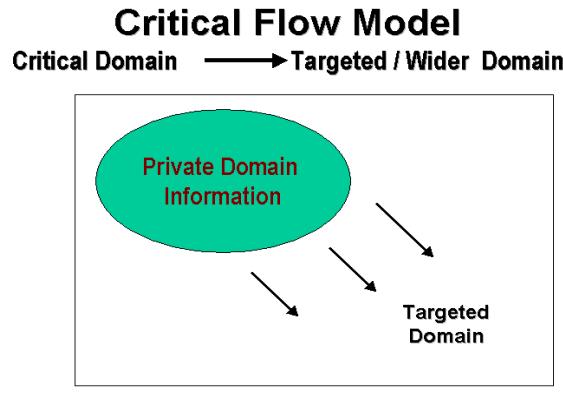
E-Governance models

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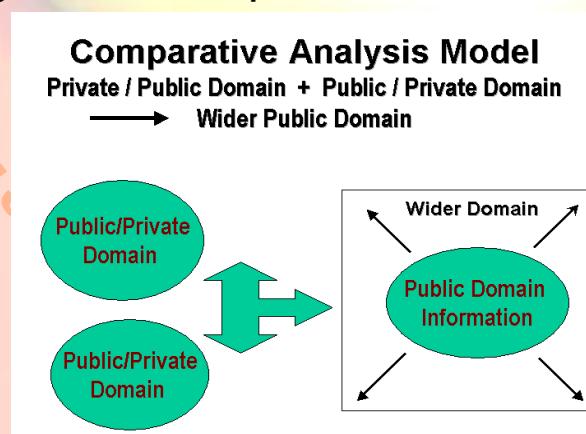
- Broadcasting Model-The model is based on dissemination / broadcasting of **useful governance information which is in the public domain** into the **wider public domain** through the use of ICT and convergent media. The strength of the model rests upon the fact that a more informed citizenry is better able to judge the functioning of existing governance mechanisms and make an informed opinion about them. As a consequence, they become more empowered to exercise their Rights. This model could be applied in the following possible ways:
 - Putting Governmental Laws and Legislations online.
 - Making available the names, contact addresses, emails, fax numbers of local/ regional/ national government officials online.
 - Make available information pertaining to Governmental Plans, Budgets, Expenditures, and Performances online.
 - Putting key Judicial decisions which are of value to general citizens and create a precedence for future actions online. viz. key Environmental Decisions, State vs. Citizen decisions etc.



- Critical Flow Model - The model is based on disseminating/ channeling information of critical value (which by its very nature would not be disclosed by those involved in bad governance) to the targeted audience (such as the media, opposition parties) or into the wider public domain through the use of ICT and convergent media. This model could be applied in the following possible ways:
- Making available Corruption related data about a particular Ministry / Division/ Officials online to its electoral constituency or to the concerned regulatory body.
- Making Human Rights Violations cases violations freely available to Judiciary, NGOs and concerned citizens.
- Making available information that is usually suppressed, for instance, Environmental Information on radioactivity spills, effluents discharge, information on green ratings of the company to concerned community.
-

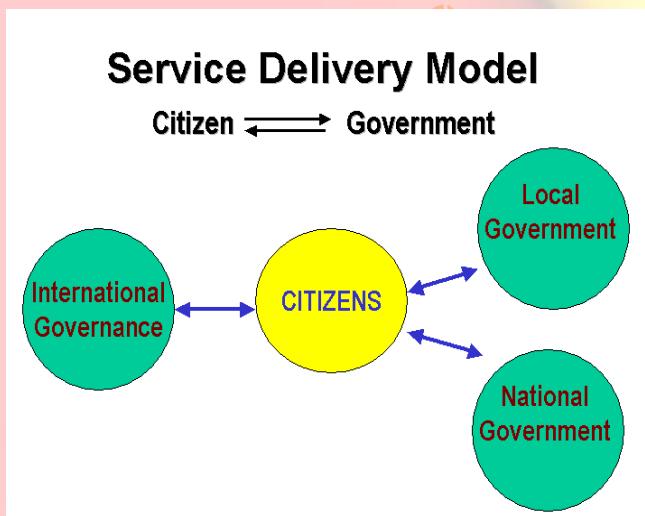


- Comparative Analysis Model - Comparative Knowledge Model is one of the least-used but a highly significant model for developing country which is now gradually gaining acceptance. The model can be used for empowering people by matching cases of bad governance with those of good governance, and then analyzing the different aspects of bad governance and its impact on the people.
- The model is based on using ICT to explore information available in the public or private domain and comparing it with the known information sets. **The outcome is strategic learnings and arguments**, for instance, if a given amount of money can build '5' schools in village 'A' then why does the same amount of money build only '2' schools in village 'B'?
- Essentially, the model continuously assimilates Best Practices in the areas of governance and then uses them as benchmark to evaluate other governance practices. It then uses the result to advocate positive changes or to influence 'public' opinion on these governance practices.



- Interactive Service Model - Interactive-Service model is a consolidation of the earlier presented digital governance models and opens up avenues for direct participation of individuals in the governance processes. Fundamentally, ICT have the potential to bring in every individual in a digital network and enable interactive (two-way) flow of information amongst them. The potential of ICT for the governance is fully leveraged in this model and can bring transparency in decision-making processes.
- Under this model, the various services offered by the Government become directly available to its citizens in an interactive manner. It does so by opening up an interactive **Government to Consumer to Government (G2C2G)** channel in various aspects of governance, such as election of government officials (e-ballots); online grievance-redressal; sharing of concerns and providing expertise; opinion polls on public issues etc.

- This model could be applied in the following possible ways:
 - To establish an interactive communication channels with key policy-makers and members of Planning Commissions.
 - To conduct electronic ballots for the election of government officials and other office bearers.
 - To conduct public debates / opinion polls on issues of wider concern before formulation of policies and legislative frameworks.
 - Filing of grievances, feedback and reports by citizens with the concerned governmental body.
 - Establishing decentralised forms of governance.
 - Performing governance functions online such as revenue collection, filing of taxes, governmental procurement, payment transfer etc.



(Central Information Centre)

- Administrative blocks wise implemented in whole North East region.
- Objectives
 - Bridge the digital divide - Digital Divide refers to the gap that exists between different people and societies because of the access or no access to information technology. This can either be the lack of technology in the physical form or the lack of skills for using the technology. Digital Divide can occur on the basis of Gender, income, race, location etc. Another term used is the global Digital Divide which is used for referring to the digital divide that exists between different countries.
 - Providing information regarding local resources, local demographic parameters, Internet connectivity and services delivery to citizen.
 - Enabling a platform for interaction.
 - Distance learning programme.
 - Generation of employment opportunities
- Falls under GTG and GTC categories

Case Study : CIC

A citizen's concerns

- Unaware of the schemes being implemented for economically backward people.
- Low level of literacy.
- Feel uncomfortable while using the facilities.
- Not aware of source of information.
- Concern related to market.
- No information on Educational opportunities.
- No information on Job.

Case Study : CIC

- Solution in the form of CIC:
 - Government to Citizen(G2C) services delivered from the CICs such as
 - Birth and Death Registration
 - Prices and other market information of Agricultural produce
 - Information on Educational opportunities
 - Job portals etc.
 - Effective and cheap medium for reaching the masses.
 - Know Your CIC helped to reduce corruption.
 - Motivation and awareness camps for different purposes.

Other CIC features

- Providing PAN Status and On-Line PAN card Application by CIC- Dimoria.
- An Exposer of online Election result.
- Video recording of Interview of local prominent person.
- Computer-Aided Paper less Examination System (CAPES) Test.
- Online access of common entrance exam result of eng and medical.

Why CIC succeeded

- Able to develop business model for future sustainability.
- Better public awareness.
- Community participation
- Forward and backward linkage - Channels through which information, material, and money flow between a company and its suppliers and create a network of economic interdependence is backward linkage.
Distribution chain connecting a producer or supplier with the customers.
- Creation of knowledge based society.
- Penetration among youth.
- Diversification of services.

Case Study: Suwidha

- State wide project implemented in Punjab
- Objectives
 - Provide friendly and efficient interface between government and citizens
 - Provide transparency in government operations
 - Provide timely and efficient service delivery
 - Improve quality of government services
- Falls in the government to citizens category

Case Study: Suwidha

- A citizen's concerns
 - Different branches for different services
 - Not familiar with the procedures
 - Unaware of the schemes being implemented
 - Not aware of source of information
 - Has to frequently visit the branch to ensure movement of the case and to enquire the status
 - Services are not delivered as scheduled
 - Has to visit many offices for a single service
 - Small payments require visiting banks for services

Case Study: Suwidha

- Solution in the form of Suwidha

- The citizen approaches SUWIDHA Queue Counter and gets the Queue Token number.
- On his turn at SUWIDHA Service Counter, he files his application.
- She/he is issued a receipt cum token number, which specifies the date of delivery of services. Each type of service has a pre-defined delivery time and system automatically calculates the service delivery date.
- All kind of payments for the fees etc can be made at the SUWIDHA counter.
- The application/case is then sent to the branch for action.
- In between the citizen can track the case with the help of SUWIDHA Token number through DialCITI (which is IVR(*interactive voice response*, based system) or website).
- The delivery of documents/processed case is made on the specified date. The delivery of the documents is also from SUWIDHA Delivery Counter.

Case Study: Suwidha

- Other Suwidha features
 - On the spot photograph capture wherever required
 - Information on schemes and procedures
 - Application forms available
 - Provision of on the spot delivery of services in cases where verification can be ensured based on the data available in the databases
 - Implemented in all 17 DC(Deputy Commissioner) offices and 54 SDM(Sub District Magistrate or Senior Deputy Minister) offices of Punjab

Case Study: Suwidha

- Why Suwidha succeeded? (Take aways)
 - Government process re-engineering
 - Increased accountability
 - Power through information
 - Ease of access
 - Localization
- <http://suwidha.nic.in>

How successful has e-governance been in India?

State	Project	Ease of Use	Simplicity of procedure	Time Savings compared to manual	Affordable cost of service	Reduction in Corruption	Total
Assam	Rajiv Gandhi Computer Literacy Program	10	10	10	10	10	8.9
WB	Land Records – Hoogli	9	7	9	10	9	7.6
WB	Tele-Medicine Midnapore	10	9	10	10	10	8.8
WB	Gram Panchayat Kanaipur	10	7	9	9	9	8.6
WB	Computer Literacy and Training Program	8	10	10	5	10	8
Sikkim	CIC – Temi	10	9	10	8	10	8.9
Sikkim	Land Records – Namchi	10	8	10	10	10	8.1
AP	Rural e-seva – West Godavari	10	8	10	10	9	8.9
Delhi	Transport – IP Estate	10	8	10	10	8	8.1
HP	Property Registration – Simla rural	9	9	9	10	8	8.2
HP	Land Records – Suni	9	8	9	5	9	7.6
Punjab	Suvidha – Kapurthala	10	8	10	9	9	8.9
Punjab	Property Registration – Sang	9	8	9	10	4	7.4
Punjab	Transport – Ropar	10	9	9	10	7	7.7
Center	IT in Judiciary – NIC	10	9	10	10	9	8.9
Center	Customs – NIC	8	8	9	10	6	7.6
	Average	9.5	8.4	9.6	9.1	8.6	8.3

E-governance Best Practices

- Increased accountability
- Increased transparency
- Higher availability of public domain information
- Reduced corruption
- Higher penetration due to automation
- Increased efficiency due to connectivity
- **PROCESS RE-ENGINEERING—**
technology only a tool not panacea

E-governance Scalability

- Most projects till now have been pilot projects
- A few things to keep in mind
 - Sustainability
 - Evaluation and impact assessment
 - Accountability
 - Training for civil servants
 - Private partnership
- Pilot, Plan, Replicate, Revise and Scale

Outline of presentation

- Relevance of e-Governance for India
- Lokvani
 - 1. Front-end (**What**)
 - 2. Back-end (**How**)
 - 3. Process of implementation (**How**)
- e-Governance in Police

India can't be a
Developed Country
if
It is not e-Governed

Why?



A photograph showing a massive, dense crowd of people, predominantly women, filling the frame. They are all looking upwards and slightly to the right, suggesting they are watching or listening to something off-camera. The lighting is bright, and the colors are somewhat muted, giving it a documentary feel.

Large Population

The background of the slide is a soft-focus photograph of a rural or semi-rural landscape. It features several trees with green and yellow leaves, a small building with a red roof, and a dirt road or path leading towards the horizon. The colors are warm and earthy.

Wide Spread Corruption

**Implementing RTI Act
(Right To Information)
2005 is impossible without
e-Governance.**

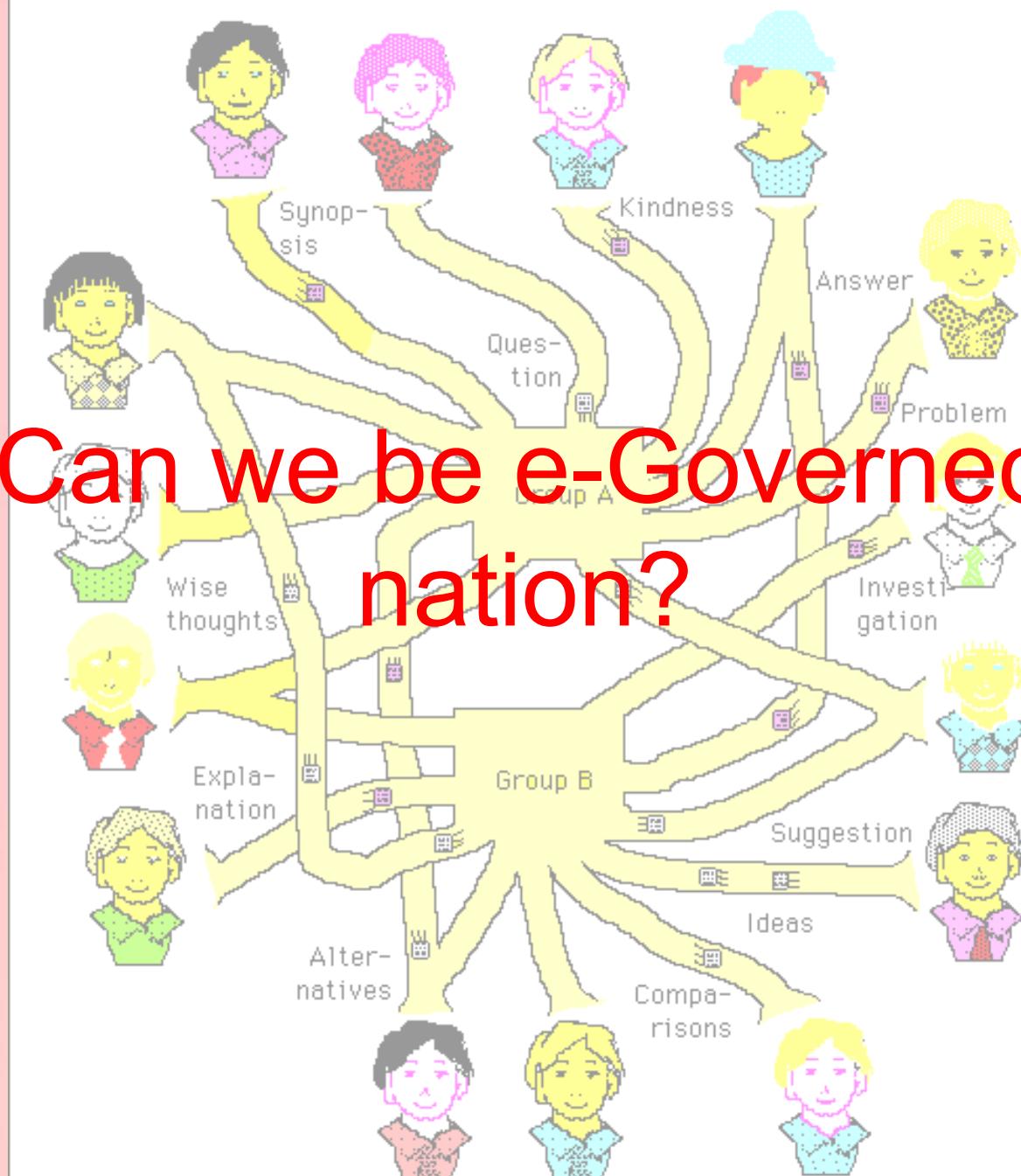
Slow & lethargic beurocracy





Long decision time

Can we be e-Governed nation?

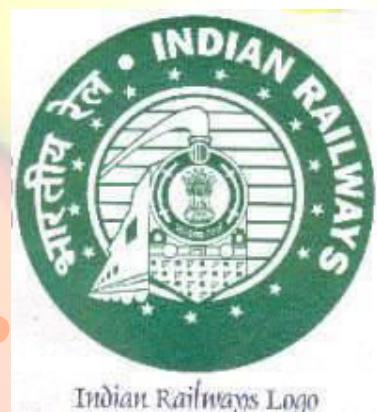


Yes

e-governance
e-governance
e-governance
e-governance
e-governance
e-governance

Our Past Successes

- Bhoomi
- Railway Reservation System
- Banks
- E-Seva



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Bhoomi



e-
mergence
ence

e-
mergence
ence



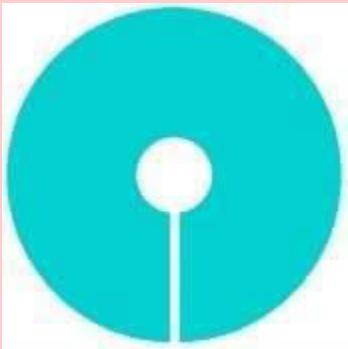
Railways



e-governance

e-governance e-governance

Banks



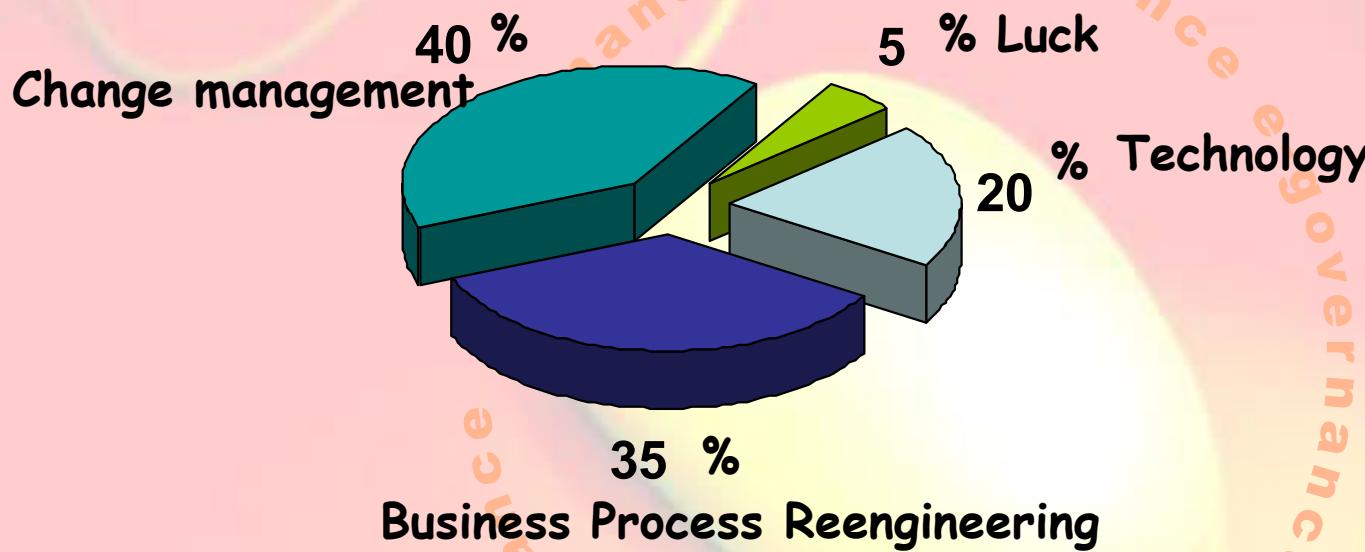
Finance e-a
nance e-a

A large, light blue curved arrow pointing from left to right, spanning the width of the two photographs. Inside the curve, the words "Finance e-a" are written twice in a red, slanted font.

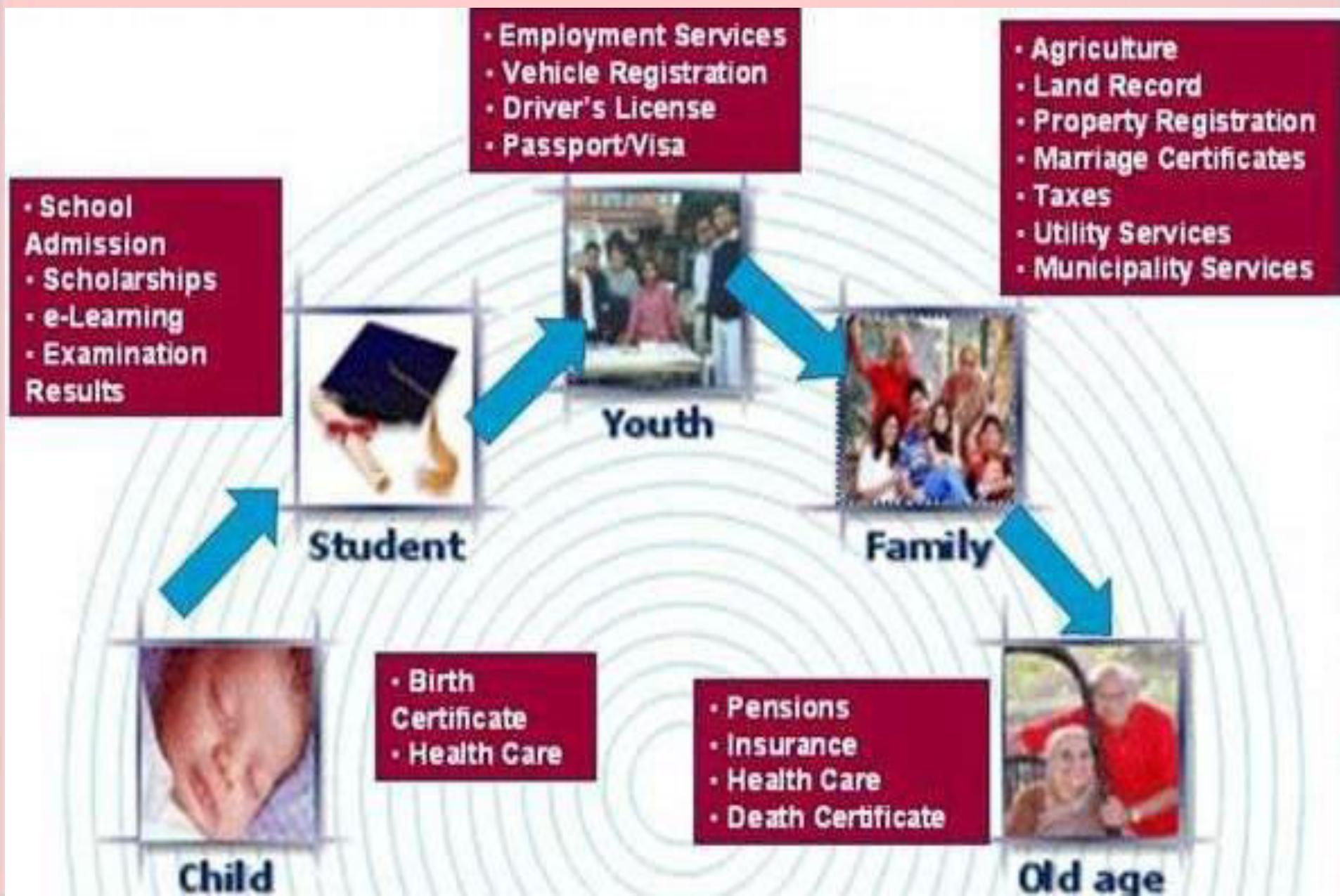
How?



e-Governance: Components of Success



SCOPE of e-governance



Major implementation areas

- Public Grievances: Ration Card ,
- Transportation facilities.
- Rural Services: Land Records.
- Police: FIR registrations , Lost and Found details.
- Social Services: Birth , School , Death Certificates.
- Public Information: Information about
- Employment , Hospitals , Railways ,etc.
- Agricultural Sector: Fertilizers , Seeds.
- Utility Payments: Electricity , Water, Telephone bills.
- Commercial: Income tax , Custom duty , Excise duty.



Challenges of e-Governance

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in North India

- Computerization seen more as a publicity tool, a fashion than for any real purpose. Hence no people's support for it.
- Mindset of Government employees (fear of losing extra income).
- More efforts for G2G than G2C, leading to no perceptible benefits to common people.
- Infrastructure, power, and communication problems
- Education, illiteracy

LOKVANI

LOKVANI

The word 'LOKVANI' is rendered in a bold, red, 3D-style font, appearing to float above a yellow circular gradient background. A circular path surrounds the text, containing the words 'e-governance', 'e-government', 'e-governance', and 'e-governance' in orange text, repeated twice.

Our Role Models

- Computerized railway reservation system
- Bhoomi Karnataka

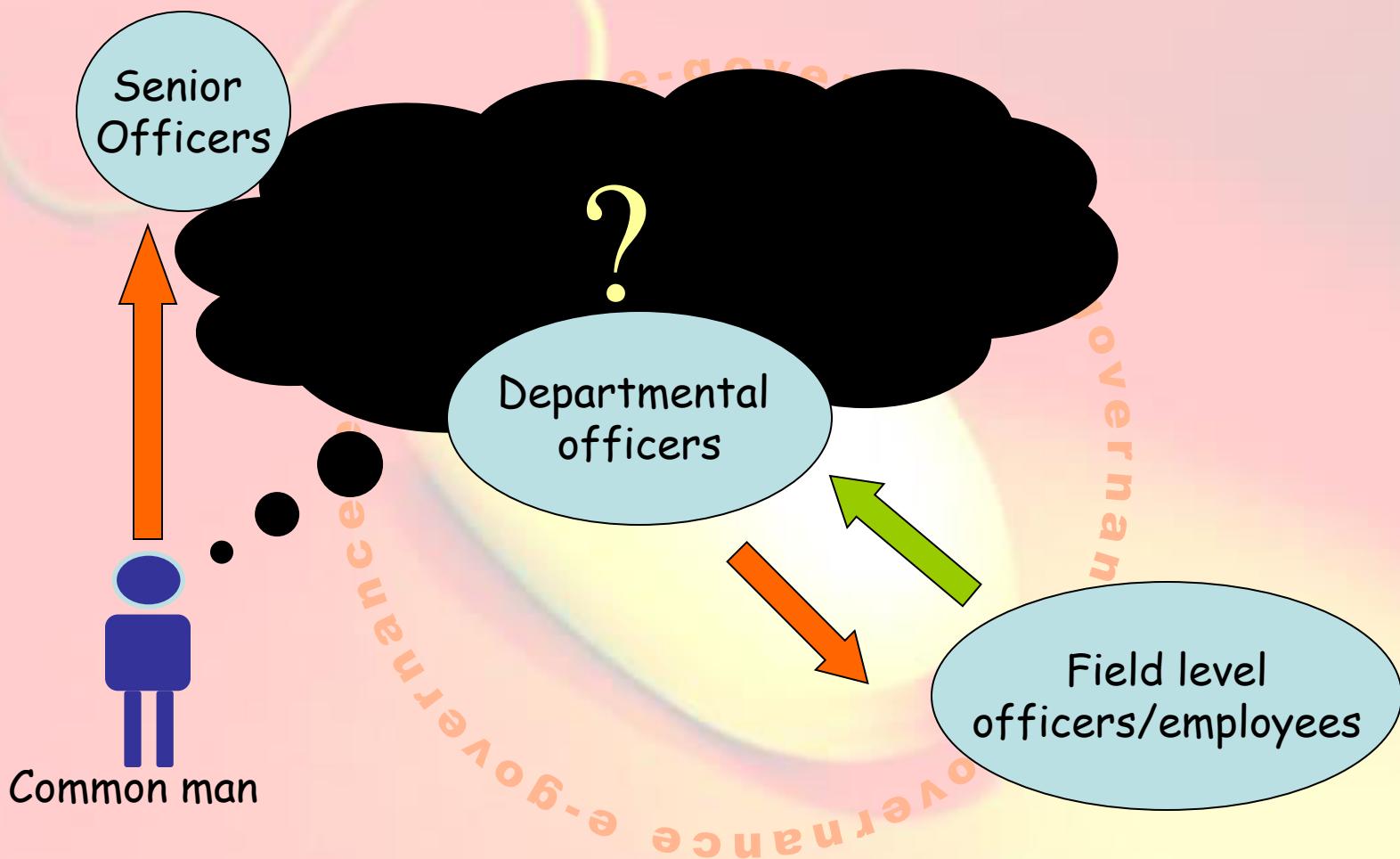
What is Lokvani?

Lokvani

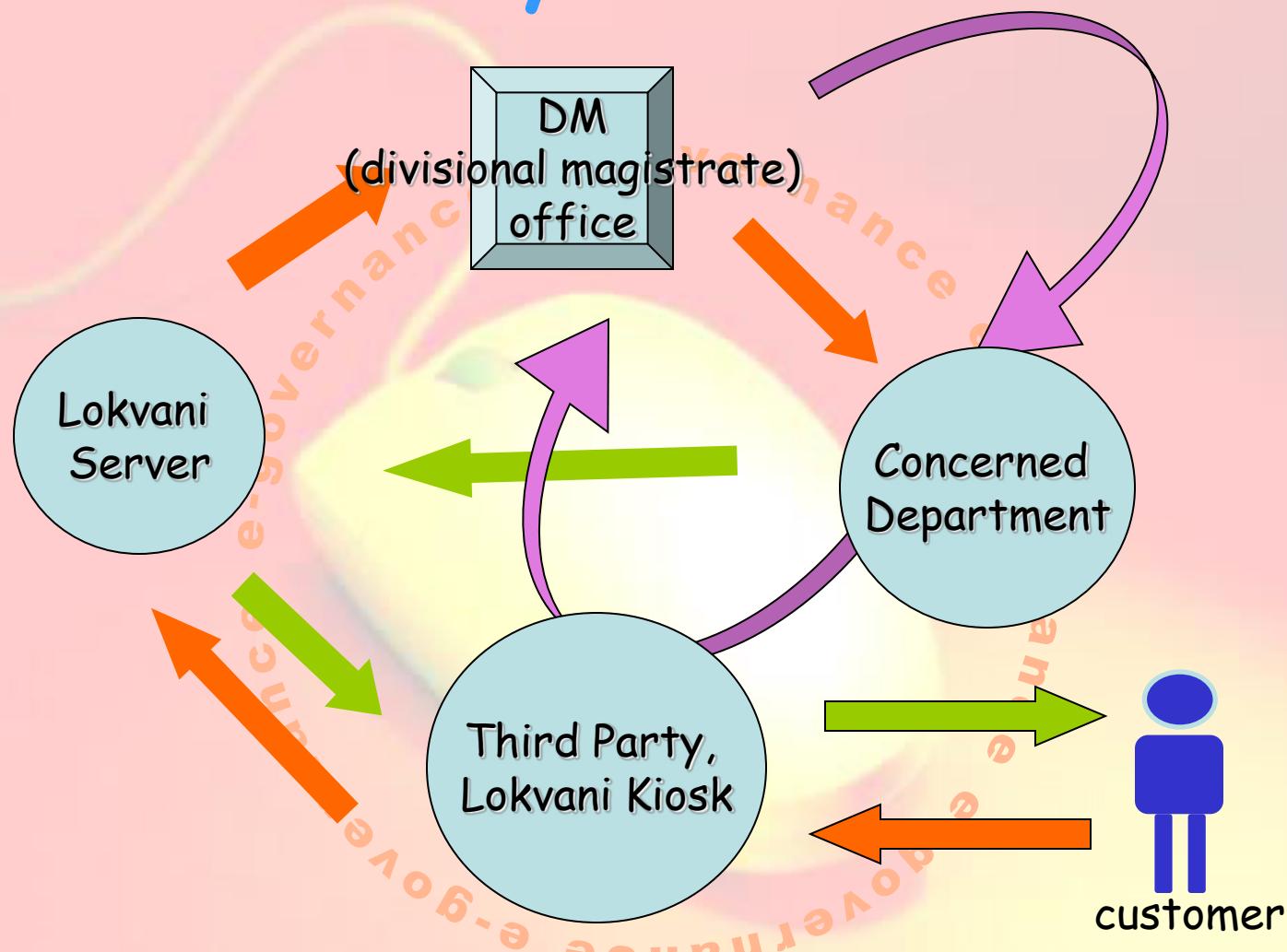
an Internet kiosk based G2C interface
for
providing various information and public
grievance redressal in a transparent,
accountable and time-bound manner
by
effective Public-Private Partnership (PPP)

Public Grievance Redressal Existing System

LOKVANI



Public grievance redressal-Lokvani System



LOKVANI

Welcome to LOKVANI...

www.sitapur.nic.in/lokvani

LOKVANI

Typical Lokvani kiosk...



-governance e-governance

Proposed Services...

- Online court cases, cause lists, judgements
- Online Electoral Rolls
- Vehicle Registration, Driving License
- Payment of electricity bills, phone bills
- Ration cards and allotment to qotedar.
- Police thana computerization / networking connectivity
- Tourist Related information
- Daily rates of Fruits/ Vegetables/ Grains
- Online pensioners info. / Installation of IVRS (Interactive Voice Response)
- Parivar register Database (Rural & Urban)
- All employees Database
- University/ College info. (Seat Availability, Admission)

Proposed Services (Contd...) LOKVANI

- Health info. (All Hospitals/ Nursing Homes/ Laboratories)
- Recovery Certificates (R.C.s)
- Industries info (Durry exporters etc.)
- Registry of properties
- Banking Services
- Drinking Water facilities Database
- Development from MP/MLA funds

- Contd....

- Khasra(Hindi-Urdu word: legal agricultural document used in India and Pakistan that specifies land and crop details. It is a reference map of the village that administers the land described by the khasra. Khasras traditionally detail "all the fields and their areas, measurement, who owns and what cultivators he employs, what crops, what sort of soil, what trees are on the land." and Jamabandi(A *jamabandi* is a term used in India meaning "rights of records" and refers to land records.)
- These records are documents which are maintained for each village within its Tehsil. It is revised after a certain period of time for e.g. in states like Punjab, Haryana, Rajasthan it is revised after 5 years.)
- SC/ST tracker

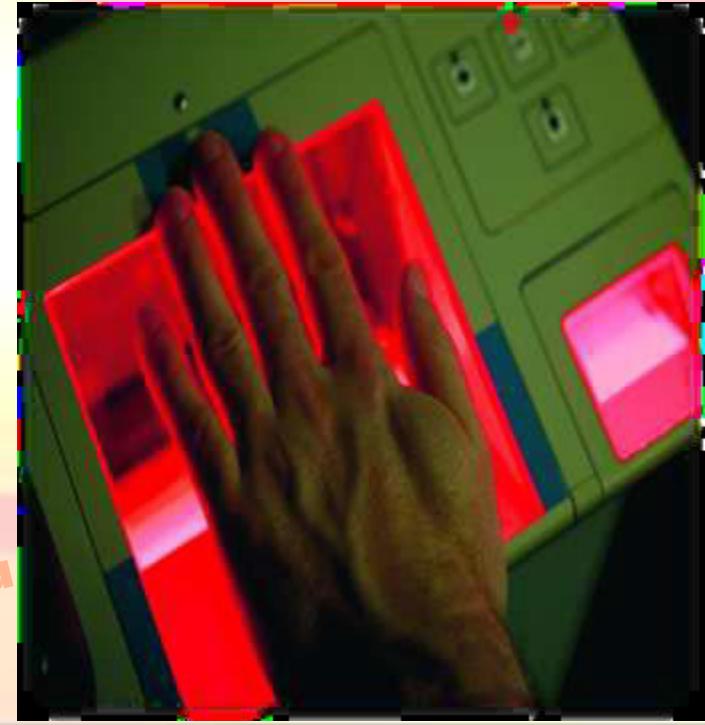
E- services

LOKVANI

Card swipe



Computerized Palm Impression



Will it Sustain?

- Kiosk operators are partners & motivators
- Cost saving
- Taste of convenience , no roll back
- Public satisfaction
- Most ignored group, feeling of regaining faith in administration

Replicability

- Easy to replicate
- Backing of Laws, Rules
- Monitoring from state level
- Who gets the credit?

Strengths of Lokvani...

- Transparency and accountability to complainant.
- Complete transparency in all works / schemes / beneficiaries / selection / expenditure etc.
- Compulsion to come to District / Tehsil Head Quarter avoided.
- Effective monitoring of all complaints/ grievances. Monitoring of performance of district level officers is possible by senior officers at state headquarter.
- 24X7 services.
- Easily replicable
- Job creation in rural areas
- Bridging the digital divide

Uniqueness of Lokvani

- First successful **zero support** based PPP model for kiosks in the country
- Profit and competition can overcome **power shortage, illiteracy, poverty, adverse socio-political conditions, lack of professional work culture**
- 100,000 rural people using it in just one **district**
- Going beyond just provision of services to make the govt. **accountable** and giving the citizen the right to answer

Achievements...

- About 100,000 complaints registered and 95000 disposed off in about 30 months.
- First successful e-Governance project in Uttar Pradesh
- First District in country to provide On line Land records on Internet in Hindi.
- Government of UP has come out with a G.O. to implement Lokvani in all Districts of U.P

Issues...

- *Quality vs. Quantity*
- Replicability
- Sustainability
- People meeting personally on Janata Diwas, Janmilan etc.
- State Level Monitoring
- Search

Lessons Learnt...

- Better copy than reinvent the wheel
- Seeing is believing
- Team spirit (giving credit/appreciation/freedom)
- Best is the enemy of good
- Failure is the pillar of success
- Socializing helps
- No subsidies
- No need to be a technocrat
- PPP is must for sustainability
- Strategy (calculated moves)
- Use of media and politicians
- No limit to achievement, if no desire for credit

Role Model



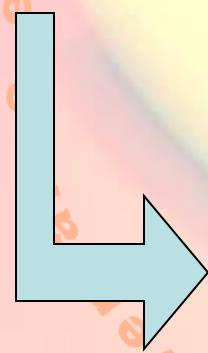
e-governance e-governance e-governance e-governance

→

Our Vision



e-governance e-



e-governance e-

E-GOV IN POLICE

The image features a large, bold, red text "E-GOV IN POLICE" centered against a pink-to-yellow gradient background. A circular path surrounds the text, containing the words "e-governance" repeated seven times in orange. The background also includes faint, overlapping text "e-governance" and "e-governance" in orange.

Whether you like it or not, you have no choice but to implement e-Governance.

The only choice you have is to choose your favorite dish from a big menu.....

Some dishes

- P.S. Automation
 - Record keeping
 - Interlinking
 - Process re-engineering
 - Online FIR(First Information Report)
- Traffic
 - Challan Process
 - Traffic lights & control room
 - Linking with RTO office
 - Vehicle thefts (RFID-Radio Frequency Identification, GPS-Global Positioning System), database of lost and recovered vehicles
- Verifications
 - Arms License
 - Passport
 - Govt. jobs
 - Army recruitment
 - Household servant's credentials
- Investigations
 - Case tracking (from FIR to conviction till SC)
 - Inventory Management (of maal mukadmati)

Some dishes....contd

- **Communications**
 - CUG(Closed User Group)
 - Triband phone
 - Video Conferencing (G2G & evidence)
 - Vehicle tracking
 - Biometric devices
- **Crime data Management**
 - Data Warehouse
 - Business Intelligence Softwares
 - Mugshot & fingerprint database
 - Handheld online devices & online matching

Online FIR

- Increase in crime figures
- Lack of manpower to investigate all the crimes
- Political & administrative will
- Weak 182 IPC
- Lack of resources

Acknowledgements

- Sri Rajeev Chawla Ex-Secy e-Gov, Karnataka
- Smt.Zohra Chatterjee (Govt. of UP)
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- Mr.Alok Singh, IPS
- Mr.Abhishek Singh, IAS
- Mr.Sanjay Bhoosreddy, IAS
- Justice S.C.Verma

Conclusion

- 35% of e-governance projects in developing regions are complete failure; 50% are partial failures; only 15% are completely successful
- It is still worth the effort if the successful projects can be scaled.

EDI: Electronic Data Interchange

- What is EDI?
 - Exchange of electronic data between companies using precisely defined transactions
 - Set of hardware, software, and standards that accommodate the EDI process

Electronic Data Interchange

Cost Savings	<ul style="list-style-type: none">◆ Reduction of employee hours involved in creation and handling of paper documents◆ Reduction in the cost of funds transfer◆ Reduction in the cost of storage space◆ No mailing cost
Speed	<ul style="list-style-type: none">◆ Forwarding of documents through a computer network is faster than mail.
Accuracy	<ul style="list-style-type: none">◆ EDI minimizes the need for rekeying information.◆ Communication is direct and easily verifiable.◆ No mail is lost.
Security	<ul style="list-style-type: none">◆ Information is less susceptible to interception and falsification.
System Integration	<ul style="list-style-type: none">◆ EDI software can be interfaced with internal systems so that incoming data trigger applications and further automation of data processing.
Just-in-time Support	<ul style="list-style-type: none">◆ Speeding up communication enhances intercompany just-in-time operations, which significantly reduces inventory costs. Only the necessary items are shipped by the vendor and arrive directly at the manufacturing or assembly line.

Figure 11.2 Benefits of EDI

Electronic Data Interchange

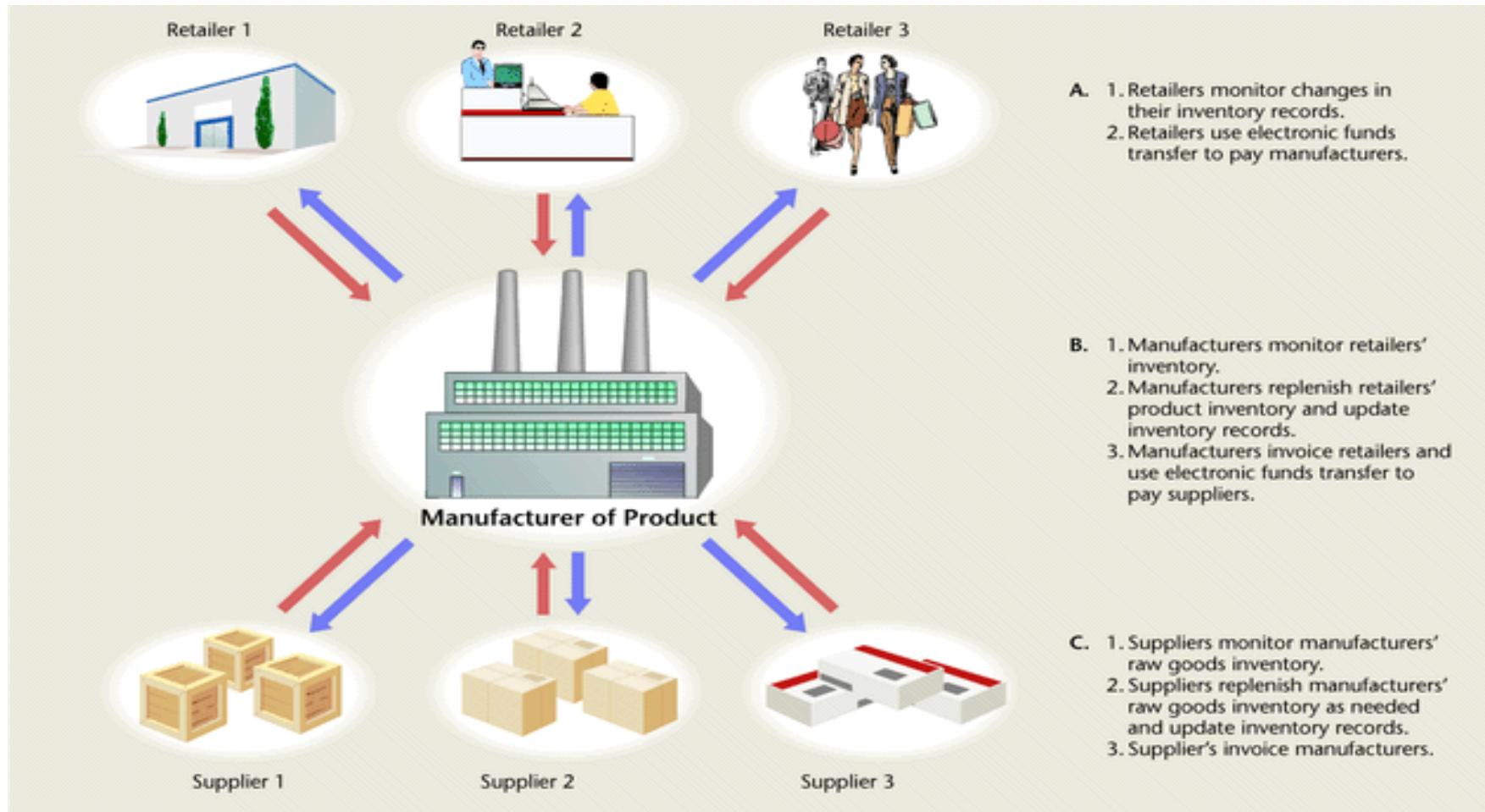


Figure 11.3 Suppliers, manufacturers, and retailers cooperate in some of the most successful applications of EDI.³

Electronic Data Exchange

- How does EDI work?
 - Supplier's proposal sent electronically to purchasing organization.
 - Electronic contract approved over network.
 - Supplier manufactures and packages goods, attaching shipping data recorded on a bar code.
 - Quantities shipped and prices entered in system and flowed to invoicing program; invoices transmitted to purchasing organization

Electronic Data Exchange

- Manufacturer ships order.
- Shipment notice EDI transaction sent (not shown)
- Purchasing organization receives packages, scans bar code, and compares data to invoices actual items received.
- Payment approval transferred electronically.
- Bank transfers funds from purchaser to supplier's account using electronic fund transfer (EFT).

Electronic Data Interchange

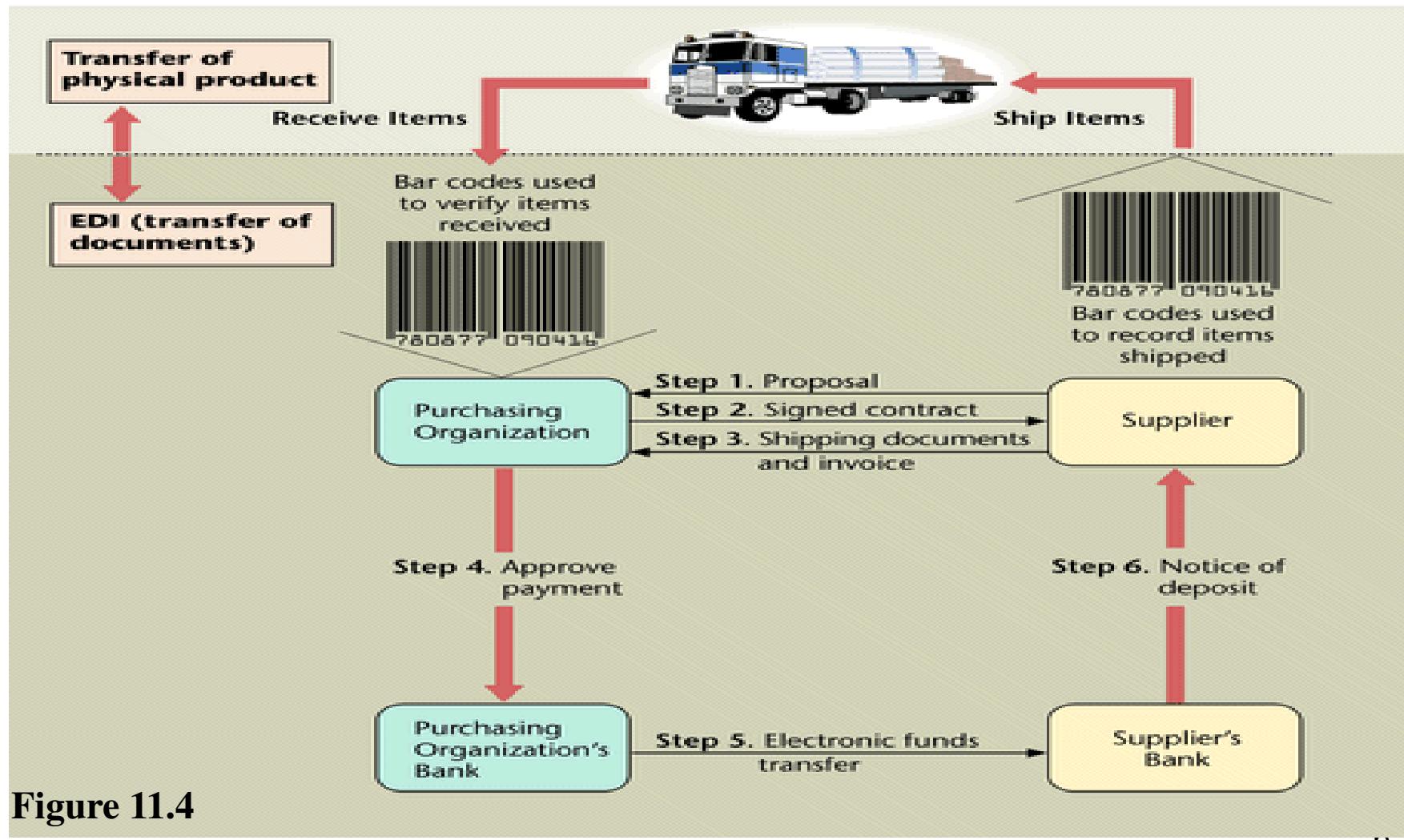


Figure 11.4

Electronic Data Interchange

- EDI Standards
 - EDI requires companies to agree on standards
 - Compatible hardware and software
 - Agreed upon electronic form format
 - Established EDI standards
 - Automotive Industry Action Group (AIAG)
 - X.12 *de facto* umbrella standard in U.S. and Canada
 - EDI for Administration, Commerce, and Trade (EDIFACT) umbrella of standards in Europe

Electronic Data Interchange

- How to Subscribe to EDI
 - Larger companies purchase hardware and software
 - Medium and small companies seek third-party service
 - Value-added networking (VAN)
 - Managed network services available for a fee

Electronic Data Interchange

- EDI on the Web
 - Advantages of Web EDI
 - Lower cost
 - More familiar software
 - Worldwide connectivity
 - Disadvantages of Web EDI
 - Low speed
 - Poor security

Electronic Data Interchange

- The Importance of EDI
 - Need for timely, reliable data exchange in response to rapidly changing markets
 - Emergence of standards and guidelines
 - Spread of information into many organizational units
 - Greater reliability of information technology
 - Globalization of organizations

What is E-Commerce ?

- Electronic commerce (EC) is an emerging concept that describes the buying and selling of products, services and information via computer networks, including the Internet.



What is *e* Commerce?



e commerce is enabling or achieving your business objectives by using information technology to enhance or transform your business processes.

ELECTRONIC COMMERCE (E-COMMERCE)

Commerce refers to all the activities related to the purchase and sales of goods or services i.e. marketing, sales, payment, fulfillment, customer services, etc.

Electronic commerce is doing commerce with the use of computers, networks and commerce enabled software(more than just online shopping).

BRIEF HISTORY

1970s: Electronic Funds Transfer (EFT)

Used by the banking industry to exchange account information over secured networks

Late 1970s and early 1980s: Electronic Data Interchange (EDI) for e-commerce within companies

Used by businesses to transmit data from one business to another

1990s: the World Wide Web on the Internet provides easy-to-use technology for information publishing and dissemination

Cheaper to do business (economies of scale)

Enable diverse business activities (economies of scope)

FEATURES OF ECOMMERCE

Online Business

Covers vast amount of B2C and B2B

Advertisement

Anytime and anywhere service

Reduction of cost

Medium of interaction

Promptness in surveys

Expand the business

PROCESS OF E-COMMERCE

1. Attract customers

Advertising, marketing

Interact with customers

Catalog, negotiation

Handle and manage orders

Order capture

Payment

Transaction

Fulfillment (physical good, service good, digital good)

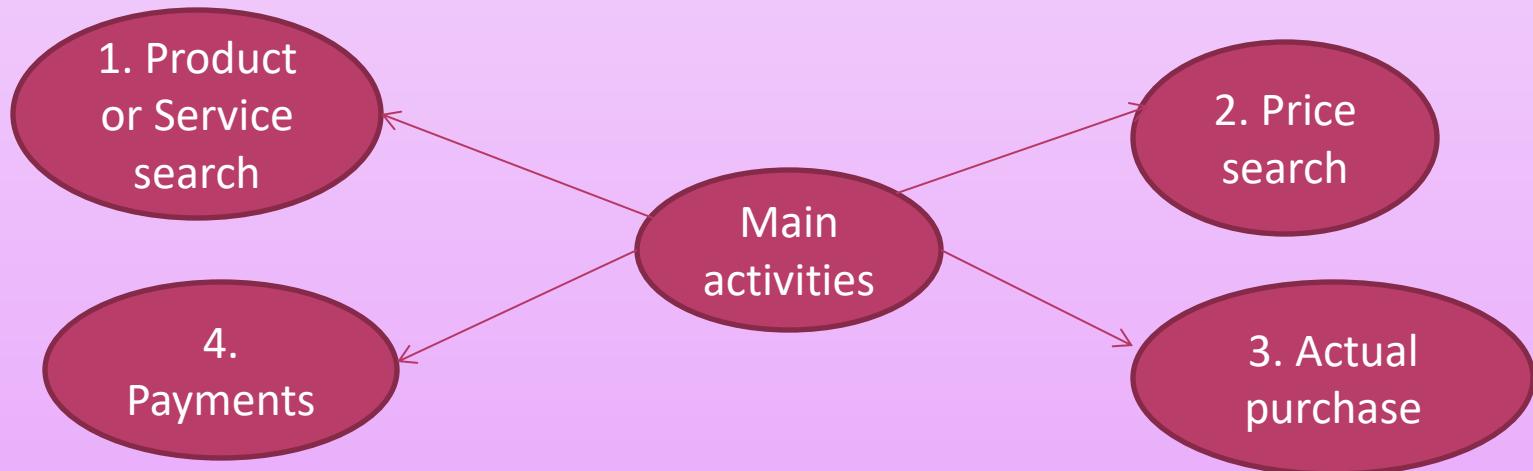
React to customer inquiries

Customer service

Order tracking

- ✓ Main Activities of Electronic Commerce –
- ❑ Buying and Selling of Products- This activity involves providing product information, price details on the Internet to enable a customer to buy a product online
- ❑ Shipping of Products- The purchased products have to be delivered to the respective customer
- ❑ Producing Financial statements – Business deals are settled electronically by EDI and EFT. The Digitally signed documents are exchanged.

Four major sequential activities related to a prospective customer are:



- E-commerce is definitely, one of the business options that one will have to explore today.
- E-commerce can be broadly defined as '*any form of business transaction in which the parties interact electronically rather than by physical exchanges of documents or direct meetings amongst officials*'.
- E-commerce can be described as *buying and selling of goods and services over Internet*.

Broad Goals of Electronic Commerce –

- Reduced costs
- Lower product cycle time
- Faster customer response
- Improved service quality
- E-commerce is a new way of conducting, managing and executing business transactions using computers and telecommunication networks. It is expected to improve the productivity and competitiveness of participating businesses, by providing access to an online global market place with millions of customers and thousands of products and services.

Technical components –

- Client or PC workstation
- Transaction Server
- Database Server
- Database Transaction
- Internet communication line / modem
- ISP
- Router

✓ **Pre-requisites of Electronic commerce** – very few requirements are needed to conduct e-commerce business such as:

- A website, may be your own or one supplied to you by a cart provider.
- A shopping cart program to list your products or services and a means to collect purchase information
- A method to get the funds into your bank account

If the process is to be automated, a compatible credit and merchant account and a transaction processor (eg. Authorise-net) to collect credit card information and to obtain authorisation are needed.

- ✓ Functions of Electronic commerce –
- ❑ **Communication** – This function is aimed at the delivery of information and /or documents to facilitate business transactions. E-mail is an excellent example of this.
- ❑ **Process Management** – This function covers the automation and improvements of business processes. The best example of this would be networking two computers together so that they can share and transfer data rather than have a person to take data from one computer to another.
- ❑ **Service Management** – this function is the application of technology to improve the quality of service. A good example of this function is the Federal Express website. It permits customers to track shipments and the schedule pickups 24 hours a day with a worldwide network without having to talk to a service representative. Customer service is greatly enhanced due to the sites capabilities.
- ❑ **Transaction capabilities** – this provides the ability to buy or sell on the internet or some other online service. The retail websites of Amazon.com offer good examples of transaction capabilities of e-commerce.

DIFFERENCE BETWEEN E-COMMERCE AND TRADITIONAL

ELECTRONIC COMMERCE

E-Commerce involves buying and selling of goods and services on internet
E-Commerce means anytime anywhere service. (IT PROVIDES 24 HRS SERVICE ONLINE)

TRADITIONAL COMMERCE

It involves physical exchange of goods and services.

Traditional commerce is restricted to working.

ELECTRONIC COMMERCE

- It doesn't require involvement of wholesaler and retailer.
- It frees staff from customer service and sales support

TRADITIONAL COMMERCE

- It requires involvement of wholesaler and retailer.
- It needs to employ a large number of staff who provide customer service and sales support.

SCOPE OF E-COMMERCE

E-PAYMENT- It does not involve physical exchange of currency. Its convenient to make payment via network.

E-BANKING- It means anywhere any time banking.

E-MARKETING- The growth of internet has created opportunities for consumer and firms to participate in online global market place.

E-SECURITY- It is system to protect data and system through use of adequate precautions.

E-GOVERNANCE- It is technology law which confers authority on government, to issue notification as well as accept fillings, payment of fees etc.

PROSPECTS OF GROWTH OF E-COM IN INDIA

- It lowers the purchasing cost.
- It reduces inventory maintenance cost.
- It decreases transaction cycle time.
- It lowers sales/marketing cost.
- It creates new sales opportunities.
- In B2B segment, it facilitate exchange of transactional information with other business more cost effectively.
- In B2C segment, it provides growing channel for efficient delivery of goods and services to consumer.

E-COMMERCE APPLICATIONS

Video on demand

Remote banking

Procurement and purchasing

Online marketing and advertisement

Home shopping

Auctions

Co-operating businesses connected using their own private telecommunication network carrying out transactions in a semi-automated way.

Railways, airlines, ticket booking online and payment through credit cards or e-cash.

Filing tax returns to the government and obtain an immediate acknowledgement on real time.

Web based educational material allowing the students to learn any time and at any place.

Online training of employees

ADVANTAGES OF ELECTRONIC COMMERCE

- E-Commerce is revolutionary**
- Cost effective**
- Customers are self created**
- Middlemen disappear**
- Better customer service**
- Online payments**
- Increased sales**
- Decreased costs**

Distances do not matter in carrying out trade; you can reach the world at any time. This helps companies to have a cheap and effective way of communication with suppliers on one side and customers on the other side.

An online store works 24/7

Compared with a retail outlet or new office, cost of setting up an e-commerce website is very low.

More flexibility in website to add and remove a product or products than in catalogues or brochures.

Being online, it potentially gives exposure to previously untapped market segment

Error reduction as orders do not have to be re-keyed in order entry system.

Wider choice of product and brand

Inventory size is reduced

Funds transfer is fast

Large number of potential business partners can be quickly found and contacted

DISADVANTAGES OF E-COMMERCE

- Loss of ability to inspect products from remote locations**
- Lack of training programmers**
- Difficult to calculate return on investment**
- Cultural and legal impediments**
- Competition among sellers**
- Change in technology**
- Costly**

Online stores do not exist for long. Many companies do not know exactly how to set up a store, resulting in a large group of annoyed and dissatisfied customers

Computer systems will never be 100% safe. Hackers intercept transactions

Rural Area cannot be reached.

As of today, e-commerce poses problems to sell products to a target group other than young, highly educated people.

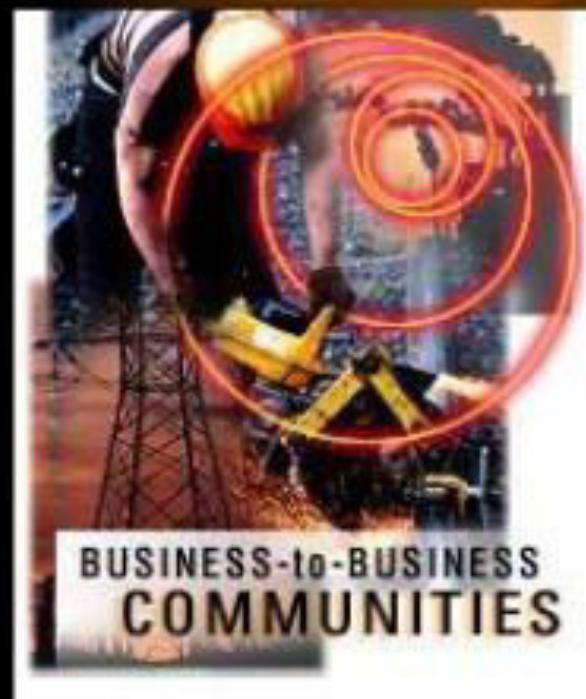
- Electronic commerce and Electronic Business

The business models included are:

B2B, B2C, C2C, C2B, B2E, B2G, G2C, G2B, G2G, B2A

What is B2B?

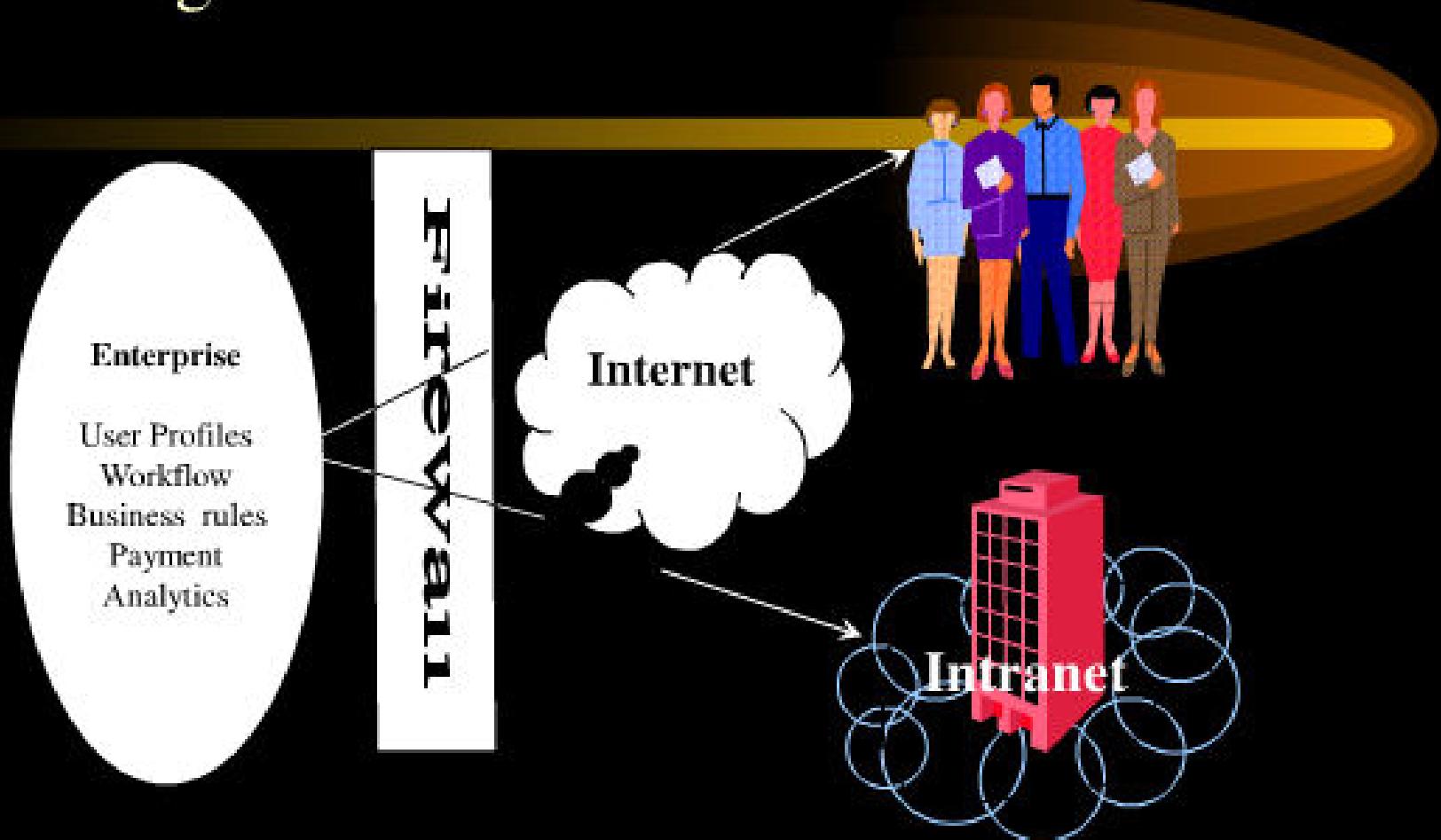
- “B2B” is business-to-business commerce conducted over the Internet (called B2B e-commerce space, or *e-marketplaces*)



What is B2C?

- B2C (or Extranets) is just web-enabled relationships between existing partners; they tend to be run by a single company seeking to lower the cost of doing business with its current suppliers or individual customers.
- Examples?
 - Amazon.com

Figure: A B2C e-business Model



B2C Applications



- Electronic storefront
- Electronic malls
- Advertising online
- Service online
 - selling books, toys, computers
 - e-banking (cyberbanking)
 - online stock trading
 - online job market, travel, real estate

Introduction to e-commerce



Electronic commerce

- To many people the term electronic commerce, often shortened to e-commerce, is equivalent to shopping on the web.
- The term electronic business is sometimes used to capture the broader notion of e-commerce.
- In this course, we will use e-commerce in its broadest sense. It encompasses both web shopping and other business conducted electronically.

E-commerce is not new

- Banks have used electronic funds transfers (EFTs), also called wire transfers, for decades.
- Businesses have been engaging in electronic data interchange for years. EDI occurs when one business transmits computer readable data in a standard format to another business.

Electronic data interchange

- In the 1960s businesses realized that many of the documents they exchanged related to the shipping of goods and contained the same set of information for each transaction.
- By sending the information electronically in a standard format, the businesses could save money on printing, mailing, and re-entry of data.
- Electronic transfer of data also introduces fewer errors than manual transfer.

Technology and commerce

- In order to understand how technology can aid commerce we need to understand traditional commerce.
- Once we have identified what activities are involved in traditional commerce, we can consider how technology can improve them.
- Note that technology does not always improve commerce. Knowing when technology will NOT help is also useful.

Origins of commerce

- The origins of traditional commerce predate recorded history.
- Commerce is based on the specialization of skills. Instead of performing all services and producing all goods independently, people rely on each other for the goods and services they need.
- Example: My mother trades vegetables to one of her neighbours in exchange for repairs to the Fences.

Traditional commerce

- Although money has replaced bartering, the basic mechanics of commerce remain the same: one member of society creates something of value that another member of society desires.
- *Commerce* is a negotiated exchange of valuable objects or services between at least two parties and includes all activities that each of the parties undertakes to complete the transaction.

Views of commerce

Commerce can be viewed from at least two different perspectives:

1. The buyer's viewpoint
2. The seller's viewpoint

Both perspectives will illustrate that commerce involves a number of distinct activities, called *business processes*.

The buyer's perspective

From the buyer's perspective, commerce involves the following activities:

1. Identify a specific need
2. Search for products or services that will satisfy the specific need
3. Select a vendor
4. Negotiate a purchase transaction including delivery logistics, inspection, testing, and acceptance
5. Make payment
6. Perform/obtain maintenance if necessary

The seller's perspective

From the sellers' perspective, commerce involves the following activities:

1. Conduct market research to identify customer needs
2. Create a product or service to meet those needs
3. Advertise and promote the product or service
4. Negotiate a sales transaction including delivery logistics, inspection, testing, and acceptance
5. Ship goods and invoice the customer
6. Receive and process customer payments
7. Provide after sales support and maintenance

Business processes

Business processes are the activities involved in conducting commerce.

Examples include:

- Transferring funds
- Placing orders
- Sending invoices
- Shipping goods to customers

E-commerce

We will define *e-commerce* as the use of electronic data transmission to implement or enhance any business activity.

Example: A buyer sends an electronic purchase order to a seller. The seller then sends an electronic invoice back to the buyer.

When used appropriately, electronic transmission can save both time and money.

Impact of e-commerce

E-commerce is changing the way traditional commerce is conducted:

- Technology can help throughout the process including promotion, searching, selecting, negotiating, delivery, and support.

Well-suited for e-commerce

Business processes that are well-suited for electronic commerce:

- Sale/purchase of new books and CDs
- Online delivery of software
- Advertising and promotion of travel services
- Online tracking of shipments

The business processes that are especially well-suited to e-commerce include commodity items, that is, a product or service that has become standardized.

Best for traditional commerce

Business processes that are well-suited to traditional commerce:

- Sale/purchase of high fashion clothing
(Any possible exceptions?)
- Sale/purchase of perishable food products
- Sale of expensive jewelry and antiques

In general, products that buyers prefer to touch, smell, or otherwise closely examine are difficult to sell using e-commerce.

Advantages of e-commerce

For the seller:

- Increases sales/decreases cost
- Makes promotion easier for smaller firms
- Can be used to reach narrow market segments

For the buyer:

- Makes it easier to obtain competitive bids
- Provides a wider range of choices
- Provides an easy way to customize the level of detail in the information obtained

Advantages of e-commerce II

In general:

- Increases the speed and accuracy with which businesses can exchange information
- Electronic payments (tax refunds, paychecks, etc.) cost less to issue and are more secure
- Can make products and services available in remote areas
- Enables people to work from home, providing scheduling flexibility

Disadvantages of e-commerce

- Some business processes are not suited to e-commerce, even with improvements in technology
- Many products and services require a critical mass of potential buyers (e.g. online grocers)
- Costs and returns on e-commerce can be difficult to quantify and estimate
- Cultural impediments: People are reluctant to change in order to integrate new technology
- The legal environment is uncertain: Courts and legislators are trying to catch up

Mobile Commerce - Outline

- Introduction
- Characteristics of M-commerce
- Enabling Technologies
- Mobile Payment
- Conclusion

The Drivers

- Widespread availability of devices
- No need for a PC
- Handset culture
- Vendors' push
- Declining prices
- Improvement of bandwidth
- Explosion of EC in general

Mobile Commerce: Overview

- Mobile commerce (m-commerce, m-business)—any e-commerce done in a wireless environment, especially via the Internet
 - Can be done via the Internet, private communication lines, smart cards, etc.
 - Creates opportunity to deliver new services to existing customers and to attract new ones

Mobile Interfaces

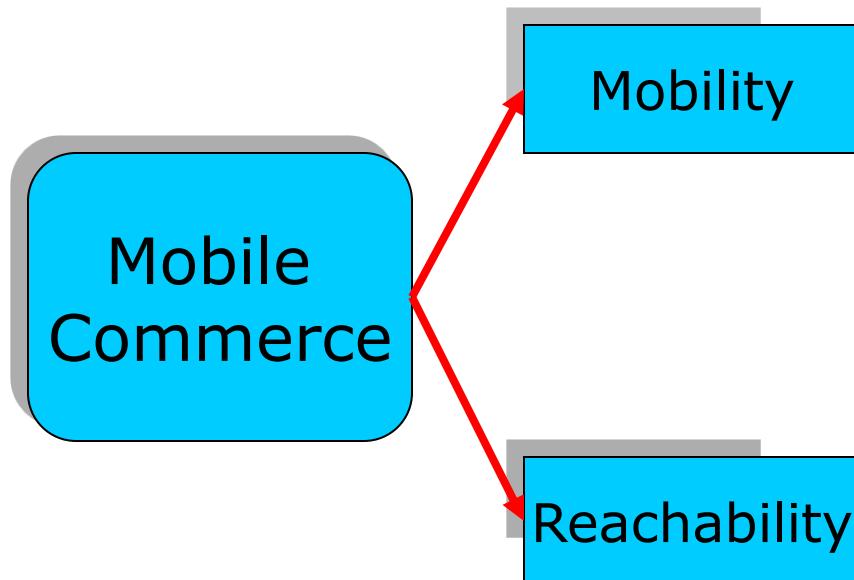


Classification of M-Commerce Services

- Financial
 - e.g. Secure banking services
- Entertainment
 - e.g. Mobile Gambling
- Shopping
 - e.g. Purchase of goods
- Information
 - e.g. Local Information
- Payment
 - e.g. Electronic Wallet
- Advertising
 - e.g. Intelligent Advertising

Characteristics of M-Commerce

Characteristics



Value-added attributes

Product and service localization

Product personalization

Ubiquity enhancement

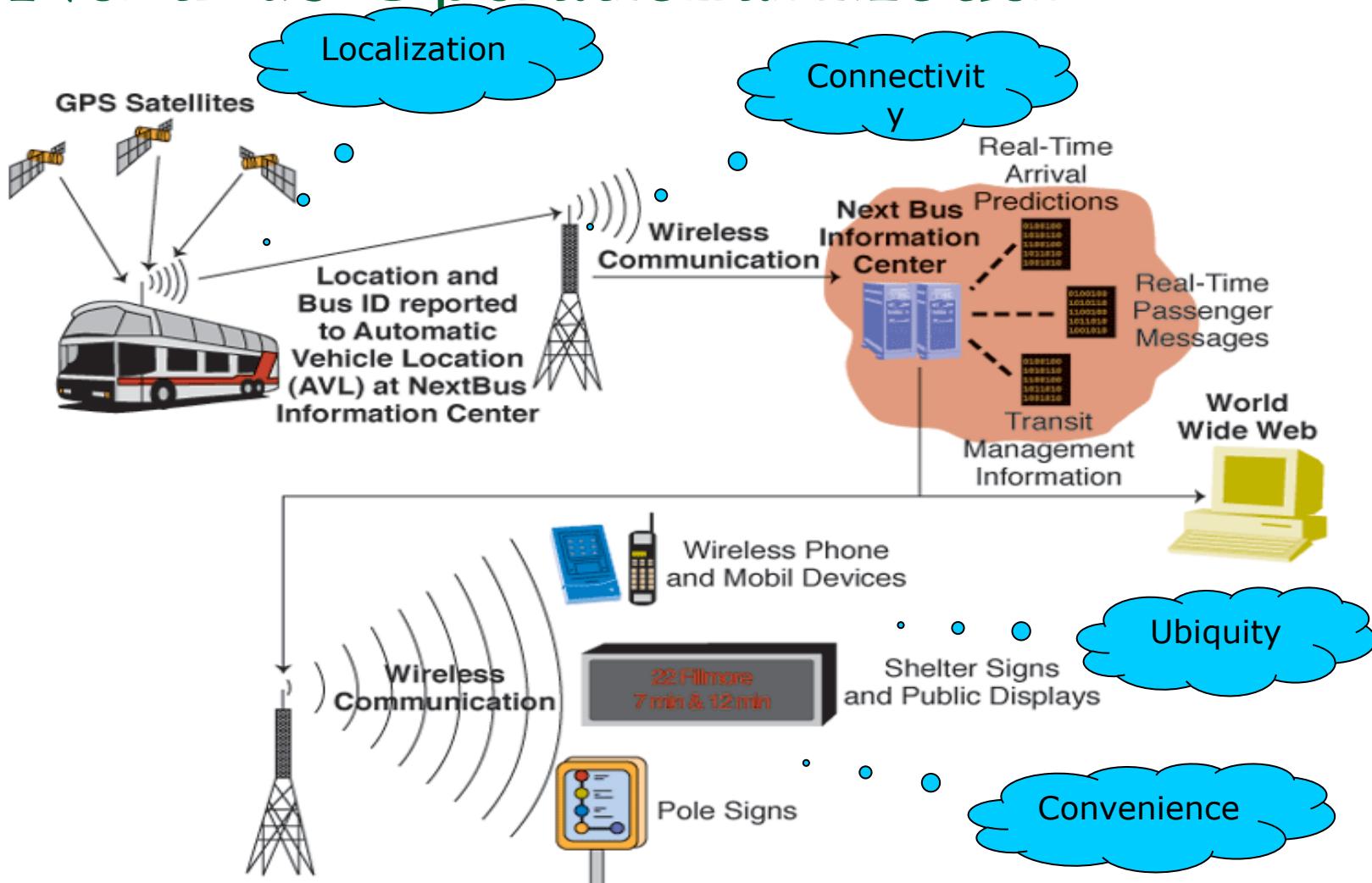
Instant connectivity

Convenience

A Example (The next bus model)

- The Problem
 - Buses in San Francisco have difficulty keeping to 20 minute schedule during rush hours
 - Posted schedule becomes meaningless
- The Solution
 - Bus riders carrying Internet-enabled cell phone or PDA helps:
 - Find estimated arrival time at each stop, digitally in real time
 - Soon location-based advertisements will pop up—you have time to get a cup of coffee before the bus arrives—Starbuck's is 200 feet to the right

NextBus Operational Model



Source: NextBus.com/corporate/works/index.htm, 2002. Used with permission of NextBus Information Systems.

NextBus (*cont.*)

■ The Results

- Passengers in San Francisco are happy with the system
 - Worries about missing the bus are diminished
 - May discover they have time for a cup of coffee before the bus arrives
- Bus company can:
 - Schedule better
 - Arrange for extra buses when needed
 - Improve operations

Enabling Technologies

Introduce two transmission mode, GPRS and W-CDMA

- GPRS (General Packet Radio Service)
 - A step between GSM and 3G cellular networks.
 - Transmission rate via a GSM network within 9.6Kbps ~ 115Kbps.
 - GPRS supports the widespread range of bandwidth, it is an effective application under the limited bandwidth.
 - Mobile phone can receive and transmit data at the same time.
(e.g. make a phone call and receives e-mail at the same time)
- W-CDMA (Wideband Code-Division Multiple Access)
 - the transmission technology for third generation (3G) UMTS mobile communication.
 - The transmission rate is up to 2Mbps, it makes mobile multimedia grows rapidly.

Enabling Technologies (*cont.*)

WAP(Protocol) and i-mode(Service)

- WAP(Wireless Application Protocol)
 - It is a open and standard wireless application software protocol.
 - The WAP system are composed of two main factors :
 - WML (Wireless Markup Language) : similar to HTML
 - WAP Gateway / Proxy : to change the webpage source code to the suitable one.
 - Need a connecting action
 - Payment according to time used.
- i-mode
 - The first packet-based, always-on, mobile Internet service
 - Various services available : Banking, game, wallpaper, music....
 - Payment according to packets received.

Enabling Technologies (*cont.*)

■ Other related technologies

- J2ME (Java 2 Micro Edition)

A kind of programming language used in small, connectable consumer and embedded devices. it makes mobile phones have a ability to execute program.

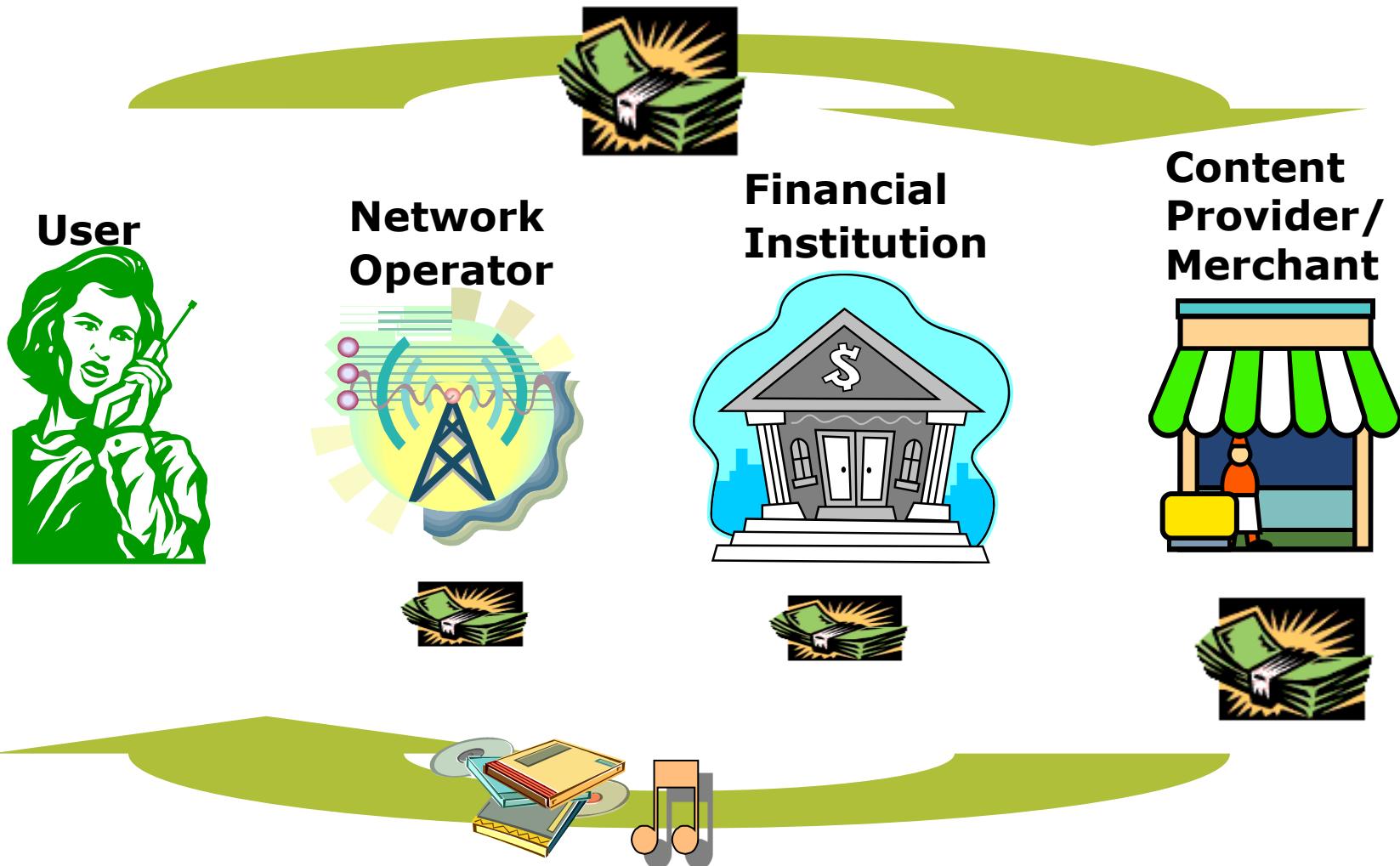
- XML (eXtensible Markup Language)

A Standard for structured document interchange on the Web. It makes the description language used by different browsers can be changed more quickly.

- IPv6

IPv4 use 32bit, this is not enough. IPv6 expand it to 128bit, so that every mobile phone can get its own IP.

Mobile Payment Players



Mobile Payment Issues

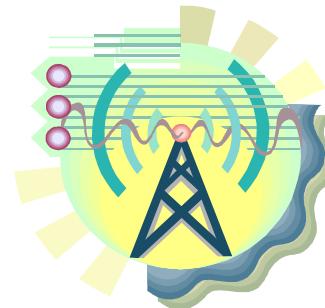
User



- Security
- Privacy
- Ease of Use
- Devices

Issues

Network Operator



- Open Standards
- Inter-operability
- Roaming

Financial Institution



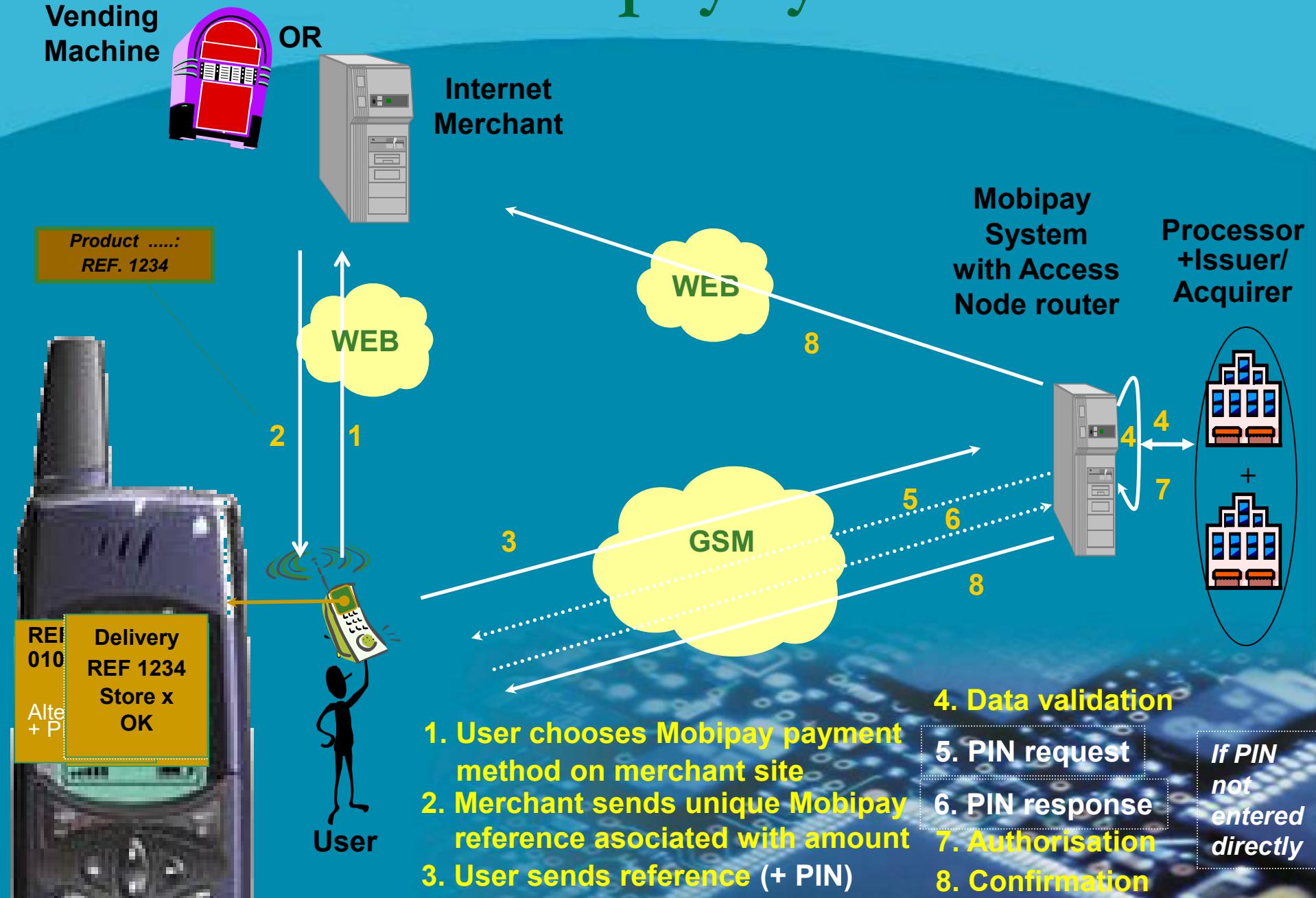
- Authentication
- Integrity
- Non-repudiation
- Fraud reduction

Content Provider/ Merchant



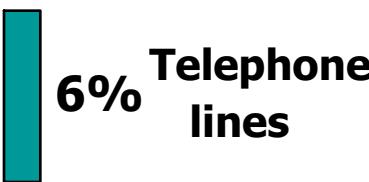
- Getting Paid
- User adoption
- Low Cost

Mobipay system



Conclusion

**Annual growth
1990-1999**



**Cellular
subscribers**

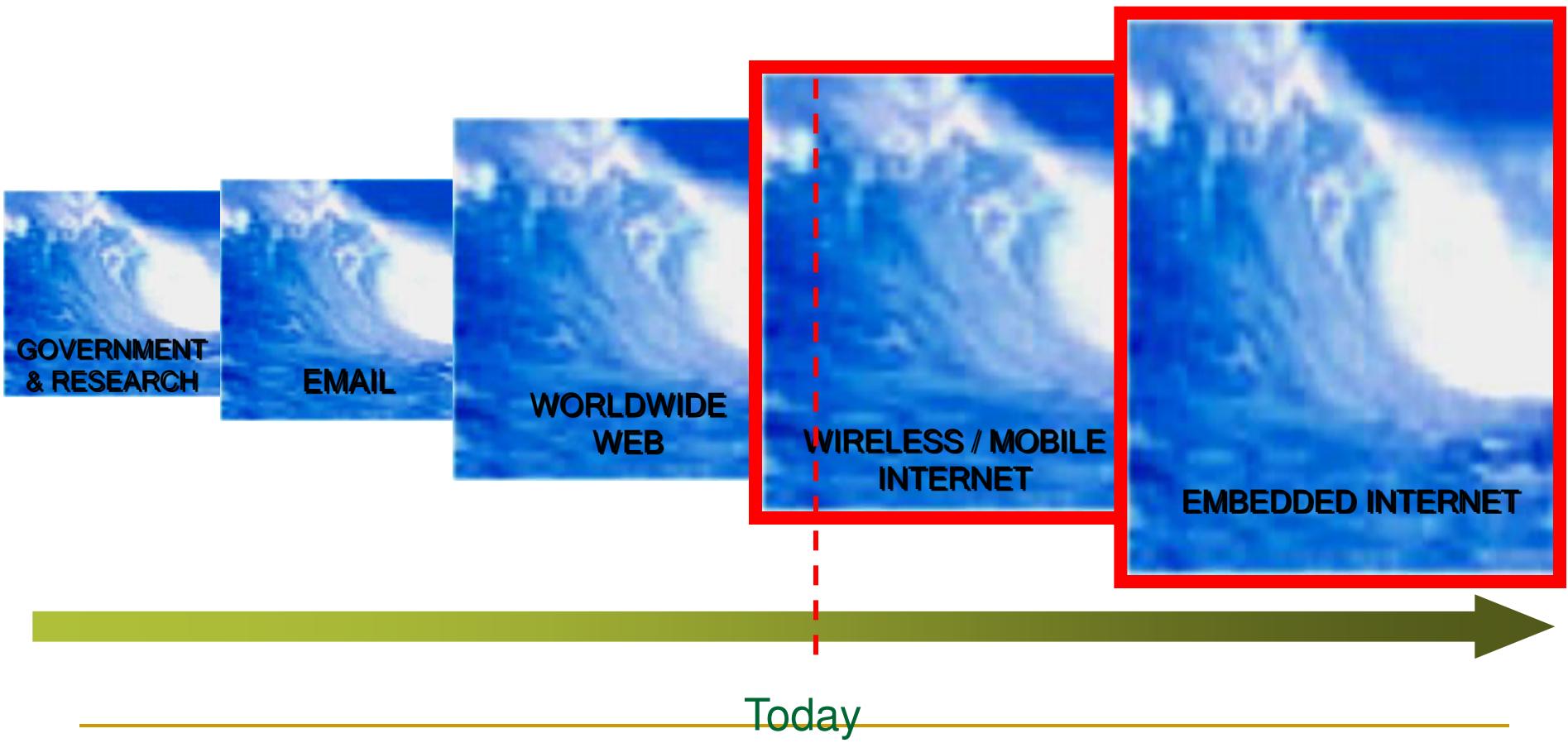
52%

- Meteoric growth of the Internet and mobile communications
- Increasing mobility
- New applications, services and business models
- Enabling technologies

**Internet
hosts**

87%

Internet Waves



Source: Motorola.

Thank you for your
attention!

Reference

- <http://misbridge.mccombs.utexas.edu/knowledge/topics/mcom>
- <http://www.fenestrae.com/>
- <http://www.ti.com/tiris/docs/applications/pos/retail.shtml>
- <http://www.ericsson.com/technology/>
- 前人的投影片
- Computer networking(third edition,James F.Kurose
Keith W.Ross)

E-Payment

- Electronic payment is a financial exchange that takes place online between buyers and sellers
- Electronic payment is essential for all online business to be able to accept and process electronic payments in a fast and secure way. Businesses can gain a significant advantage over their competitors by providing an instant electronic payment Service as it lets customers pay by their preferred way of credit or debit card.
- The various factors that have lead the financial institutions to make use of electronic payments are:
 1. Decreasing technology cost
 2. Reduced operational and processing cost
 3. Increasing online commerce

Electronic Clearing System (ECS)

- Electronic clearing system is an improved version of advanced paper based payment system
 - Electronic clearing system involves transfer of data, which enables transfer of funds from the user of this service to the beneficiaries
 - One can take examples of payment of interest and dividend by companies, payment of income tax refund, salaries, etc
- Parties involved:
- 1.The clearing bank (RBI)
 - 2.The user of the service (The Subscriber)
 - 3.The users bank (sponsor bank)
 - 4.The beneficiary (who receives the payment)

Real Time Gross Settlement (RTGS)

- The RTGS system was introduced in India on March 26, 2004.
- It is a comprehensive and secured online payment and settlement solution.
- It is set up, operated and managed by The Reserve Bank Of India (RBI).
- The customer funds transfer takes two forms :
 1. Outgoing Funds Transfer
 2. Incoming Funds Transfer
- In case of an RTGS system the parties involved are:
 1. The originating Bank
 2. The customer
 3. The beneficiary
 4. The clearing institution
 5. The receiving bank

Digital Cash/Electronic Cash

- Digital Cash also known as E-currency, E-money, DigitalMoney, CyberCurrency,etc...**
- Digital Cash Refer to a System in which a person can securely pay for goods and services electronically without necessarily involving a bank to mediate etransaction.**
- It is based on cryptographic system called as Digital Signature**
- A pair of numeric keys works in random, one for locking and other for unlocking. Message encoded with numeric key by supplying all the customers with its public key**

E-Cheques

- Electronic cheques are another form of Electronic tokens. They are designed to accommodate the many individuals and entities that might prefer to pay on credit or through some mechanism other than cash
- This method has been deliberately designed to work in the manner conventional cheques work

Payment transaction sequence in an electronic check system

Mobile Commerce

Unit 5

- Introduction to Mobile Commerce
- Services of M-Commerce
- Difference between M-commerce and PC based E-commerce
- Advantages and Disadvantages of M-commerce



Introduction

Mobile Commerce , also known as m-commerce, is defined as the process of performing business transactions using handheld mobile devices which are connected through wireless networks. The business transaction may range from buying and selling of goods, making mobile payments, downloading audio/video contents, playing online games, using numerous software applications or getting booking tickets.

- Mobile devices include cellular phone, handheld computers such as palmtops or laptops, pagers, smartphones and Personal Digital Assistants (PDA).
- The mobile users can access internet through these devices without any wired connection.
- Using WAP (Wireless Application Protocol), m-commerce employs web-ready micro browsers in these mobile devices to surf through the internet anytime, anywhere.
- WAP enabled smartphone equipped with Bluetooth technology offer fax, email and phone capabilities to the user to facilitate business transactions while in TRANSIT

The content delivery over wireless mobile devices has become more faster, safer as well as cheaper

M-commerce allows choice for performing digital business transactions.

Sometimes referred to as next generation e-commerce.

Mobile Commerce can be broadly divided into three categories

Mobile Banking	<p>It is a state of art process that has been introduced in the banks to make sure that the customers are better equipped with all the systems and process. Mobile banking is accessed through mobile and people can use it for benefit as customers physical presence is not required. This has made life a lot easier</p>
M-Payment (Mobile payment)	<p>It is a point of sale payment made through a mobile device, such as cell phone, personal digital assistant (PDA) Using m-payment, a person with a wireless device could pay for items in a store or settle a restaurant bill without interacting with any staff member</p>
Mobile Money	Mobile Wallets

Unique features of M-Commerce

Mobility and availability

Savings on electricity

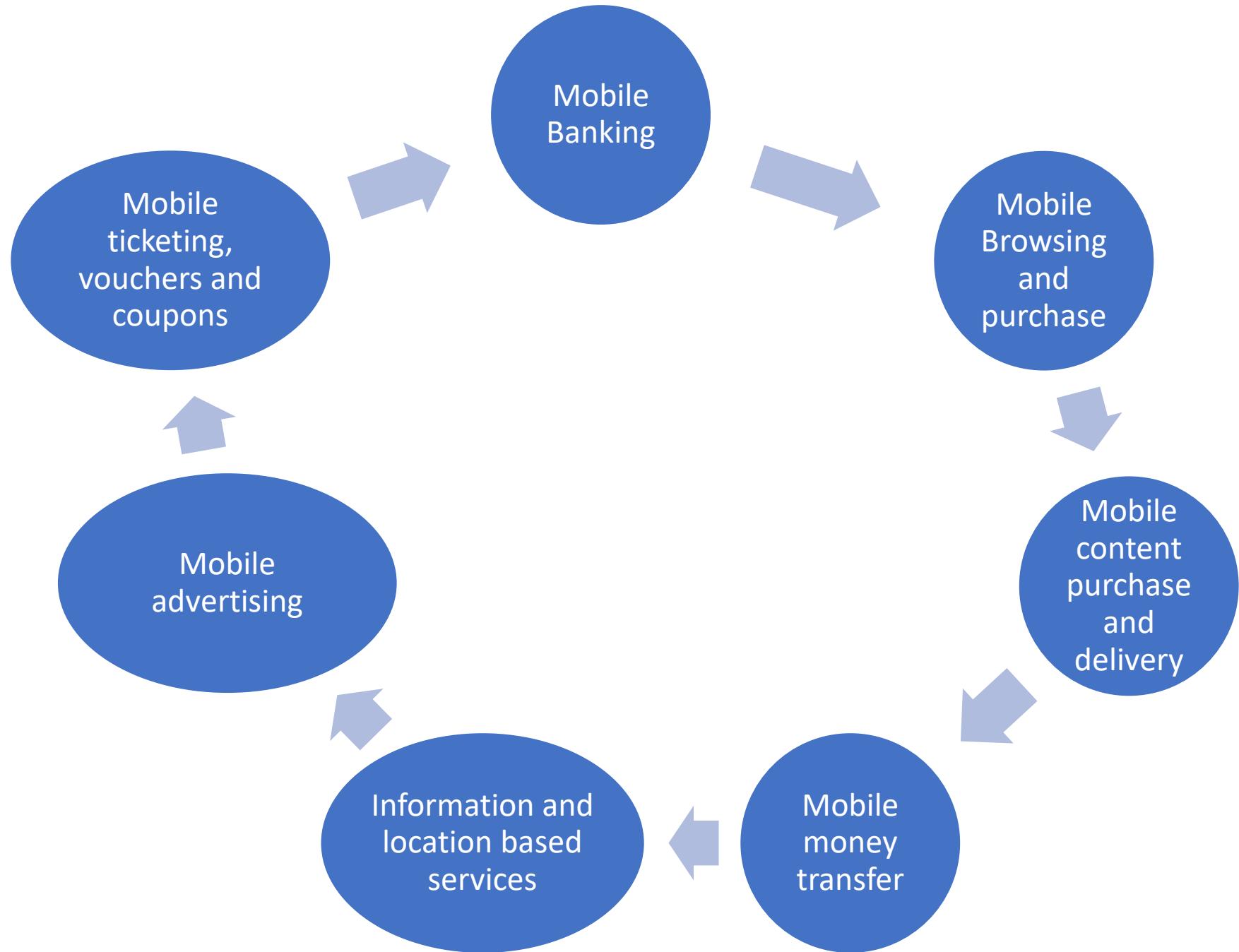
Comfort, convenient and spontaneity

Speed

Easy user experience

Smart CRM

Use of Mobile Commerce



Why do users prefer using mobile devices in transactions and commercial activities

- Mobile devices improve efficiency
- Mobile devices promote timeliness
- Mobile device improve communications and relationships between parties involved
- Mobile devices offer a wider reach

Wireless Communication Technology

M-commerce is based on wireless communication technology, the data transfer is facilitated by microwaves, radio waves or infrared waves. It eliminates the cumbersome cabling process.

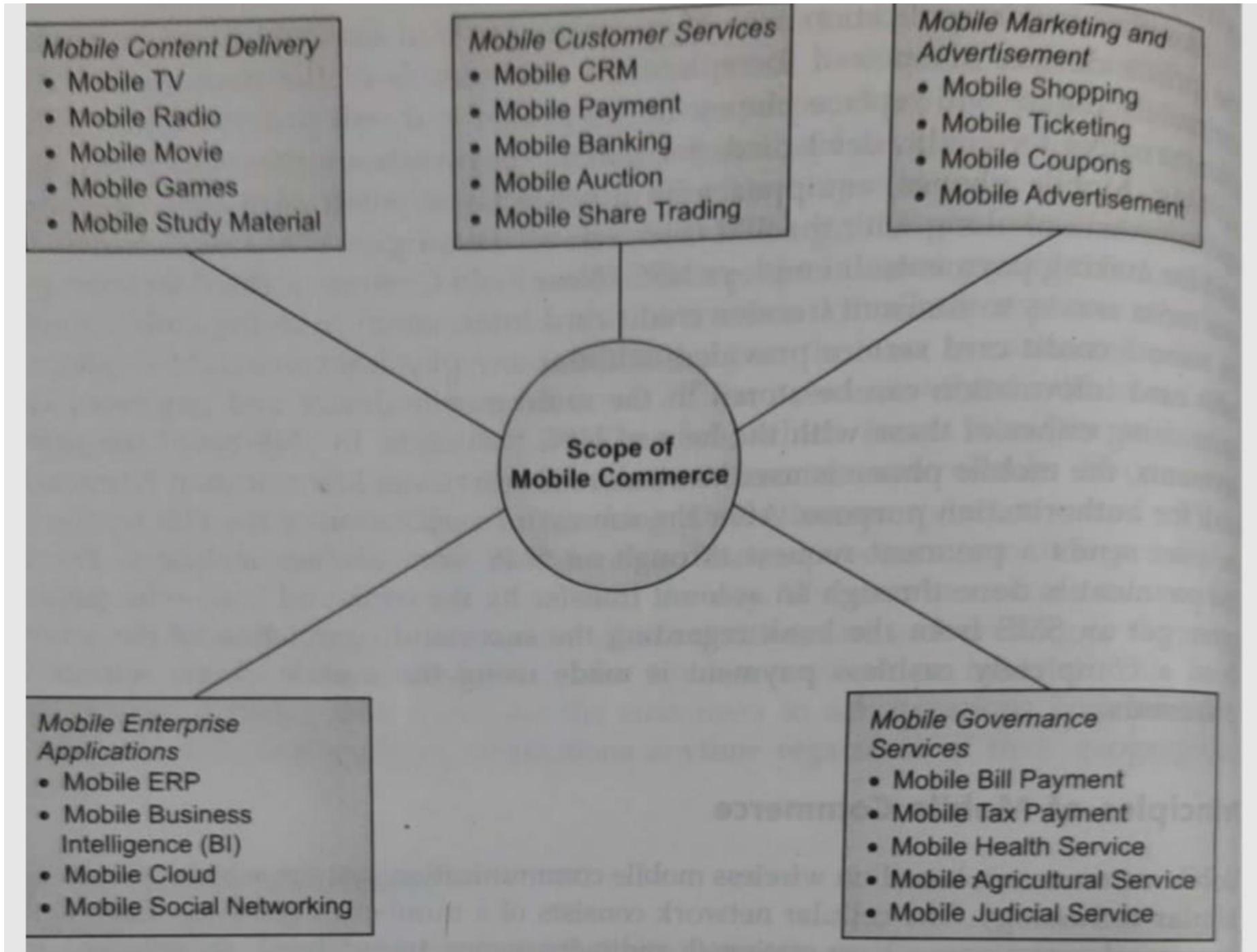
Scope of Mobile Commerce

Mobile Commerce provides instant connectivity between mobile users irrespective of their geographical location and time of the day.

Spread across the globe

Application of M-Commerce

- Downloading MP3 music, playing online games or participating in line video conferencing while in transit have become a reality now.
- SMS based text messaging finds wide acceptance in day to day business transactions.
- Another major application area of m-commerce is in the field of micro payments.
- Mobile phones have replaced credit cards, money in the pockets.
- Mobile phones equipped with a contact less smart card , can act as a digital card, uses NFC (Near Field Communication) technology



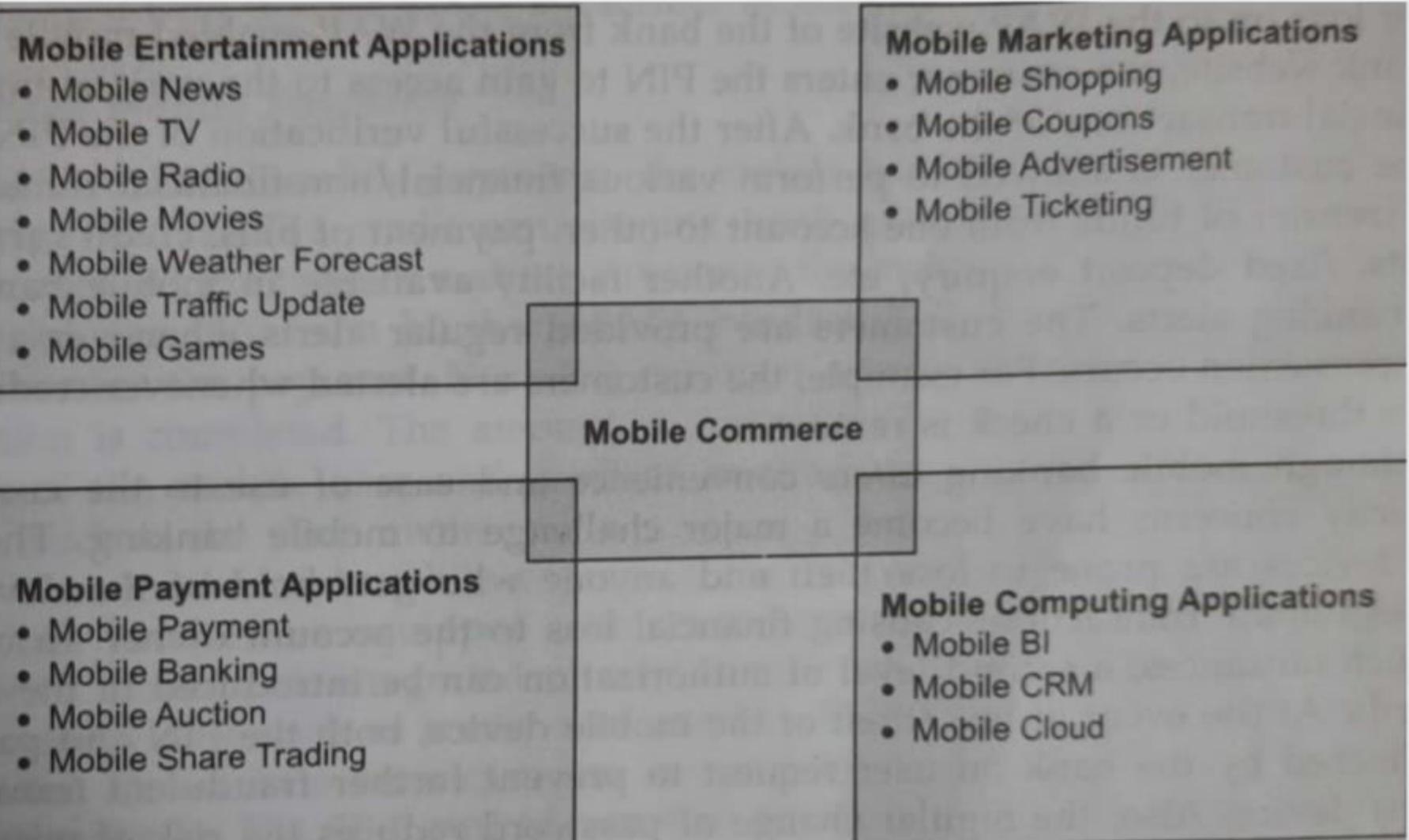
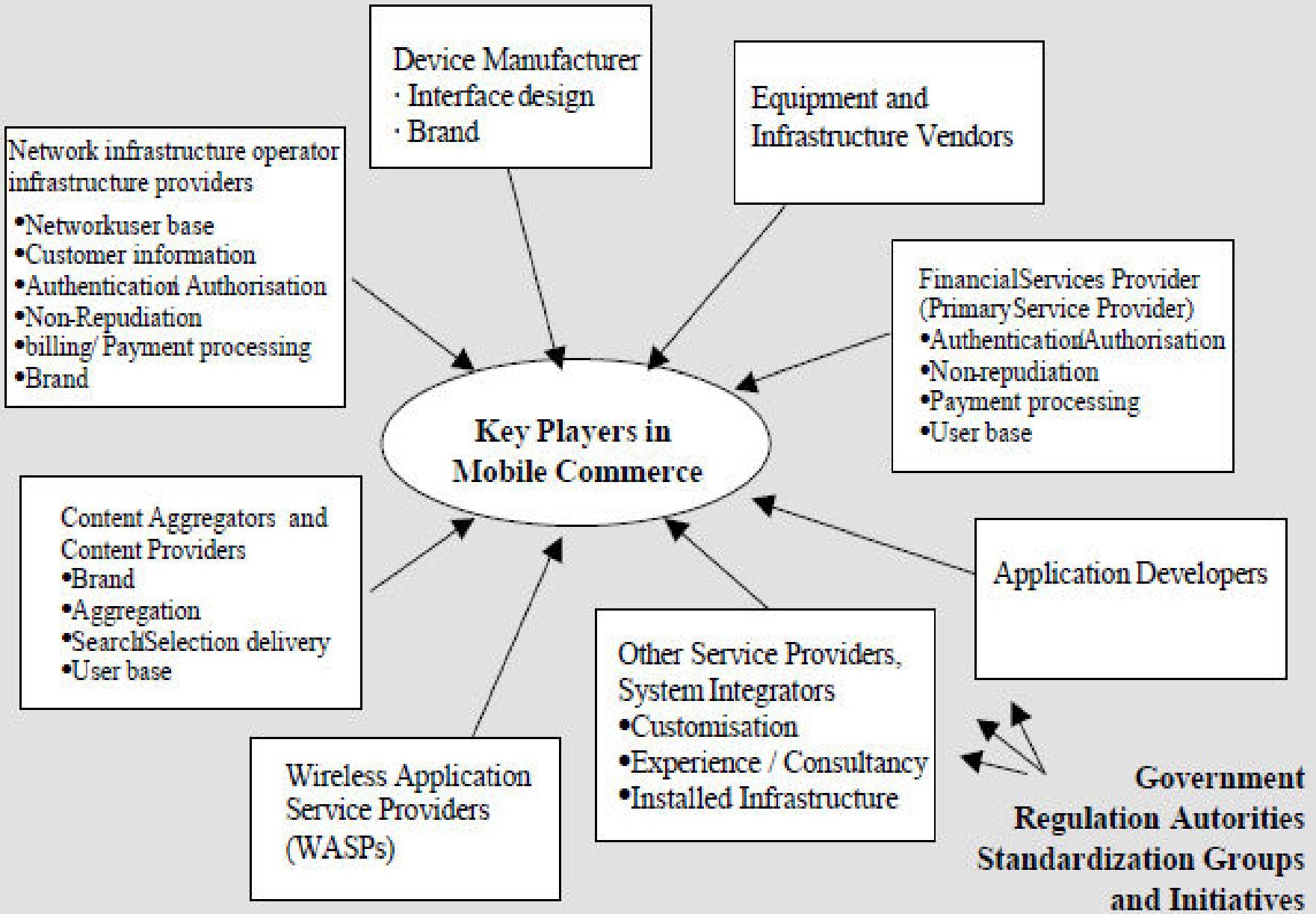


Figure 1.3 Mobile Commerce Applications.

Requirements of m-commerce system

- It should enable end users to conduct mobile commerce transactions easily, in a timely manner, and ubiquitously.
- It should allow products and services to be personalized or customized upon user request and demand. (Customization)
- It should fully support a wide range of mobile commerce applications for content providers; therefore they can design their content with different software's

- Maximum compatibility is desirable and needed because so many technologies are now available and new techniques are constantly being added to mobile commerce systems.
- Program/data independence is held, it can result into change of system components does not affect the existing programs/data.

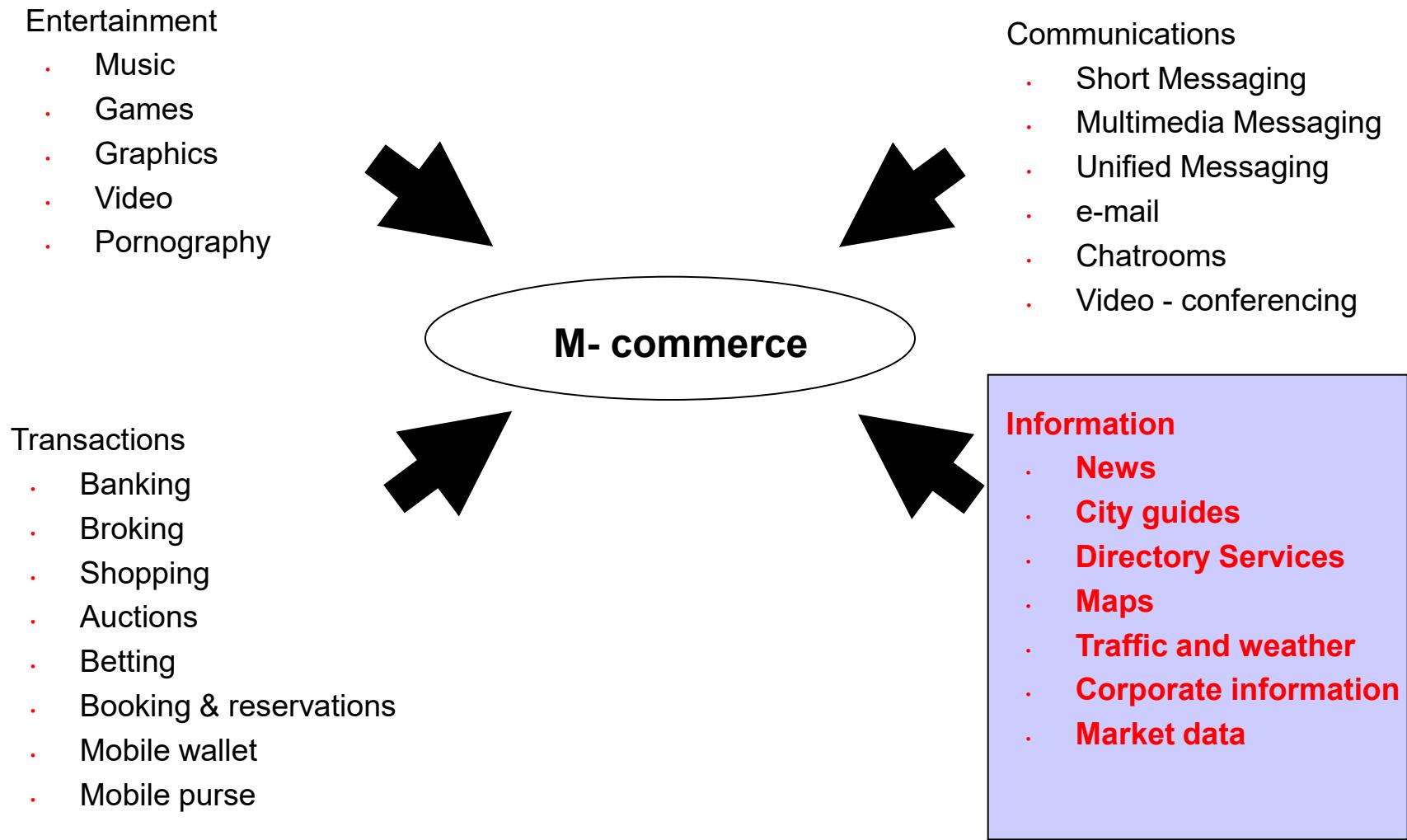


Mobile Service Scenarios

- Financial Services.
- Entertainment.
- Shopping.
- Information Services.
- Payment.
- Advertising.

And more ...

Early content and applications have all been geared around information delivery but as time moves on the accent will be on revenue generation.



Classes of M-Commerce Applications

Exhibit 8.2 Classes of M-Commerce Applications

Class of Applications	Examples
Mobile financial applications (B2C, B2B)	Banking, brokerage, and payments for mobile users
Mobile advertising (B2C)	Sending user-specific and location-sensitive advertisements to users
Mobile inventory management (B2C, B2B)	Location tracking of goods, boxes, troops, and people
Proactive service management (B2C, B2B)	Transmission of information related to distributing components to vendors
Product locating and shopping (B2C, B2B)	Locating/ordering certain items from a mobile device
Wireless reengineering (B2C, B2B)	Improvement of business services
Mobile auction or reverse auction (B2C)	Services for customers to buy or sell certain items
Mobile entertainment services (B2C)	Video-on-demand and other services to a mobile user
Mobile office (B2C)	Working from traffic jams, airport, and conferences
Mobile distance education (B2C)	Taking a class using streaming audio and video
Wireless data center (B2C, B2B)	Information can be downloaded by mobile users/vendors
Mobile music/music-on-demand (B2C)	Downloading and playing music using a mobile device

Source: U. Varshney and R. Vetter, "Recent Advances in Wireless Networking," *IEEE Computer*, June 2000.
© 2000 IEEE.

Limitations of M-Commerce

- Usability Problem

- small size of mobile devices (screens, keyboards, etc)
- limited storage capacity of devices
- hard to browse sites

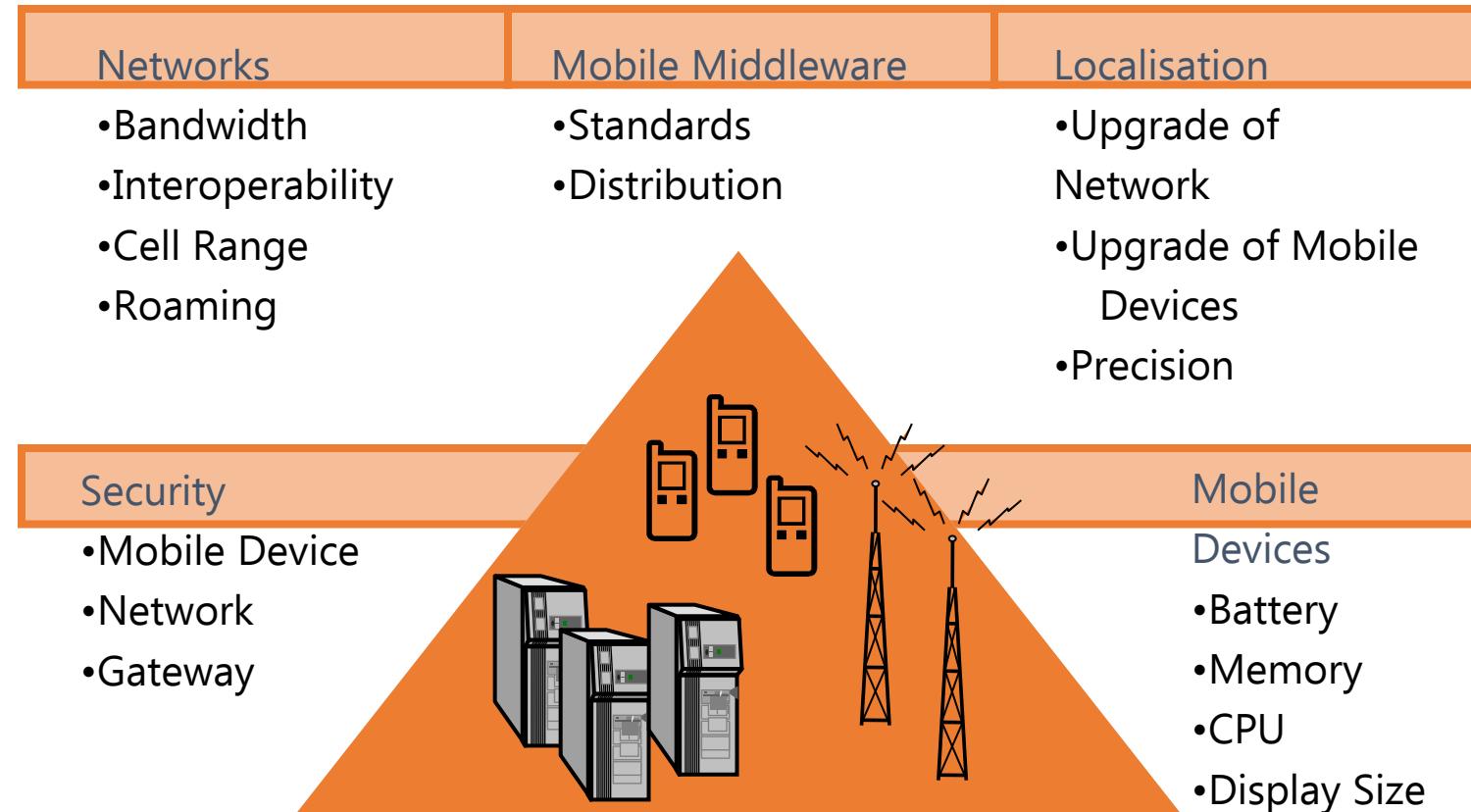
- Technical Limitations

- lack of a standardized security protocol
- insufficient bandwidth
- 4G licenses'

Limitations of M-Commerce

- Technical Limitations...
 - transmission and power consumption limitations
 - poor reception in tunnels and certain buildings
 - multipath interference, weather, and terrain problems and distance-limited connections
- WAP Limitations
 - Speed
 - Cost
 - Accessibility

Limiting technological factors



Potential Health Hazards

- Cellular radio frequencies = cancer?
 - No conclusive evidence yet
 - could allow for myriad of lawsuits
 - mobile devices may interfere with sensitive medical devices such as pacemakers

Benefits of Ecommerce

- Anytime
- Anywhere
- Cost effective
- Personalized Services

Limitations of E-commerce

- Mobile device limitations
 - Small screen
 - Low speed processor
 - Small memory capacity
- Wireless network limitations
 - Bandwidth restrictions
- Security issues

Trends of M-commerce

1. Chatbots
2. Augmented reality
3. Geofencing
4. Purchase via one click
5. Personalization
6. Big data
7. Increased trust
8. Faster checkouts
9. Easier of use sites

	mCommerce	eCommerce
History	From the 1990s	From the 1970s
Definition	mCommerce, or Mobile Commerce, refers to the process of buying and selling products and services with the use of internet/cellular data via wireless handheld devices.	eCommerce, or Electronic Commerce, refers to the activities of buying and selling products and services with the use of electronic systems such as the internet.
Similarity	Simply put, both of these definitions refer to online transactions.	

	mCommerce	eCommerce
Devices used	Handheld devices such as smartphones and tablets	Computers, laptops, ...
Connection-dependency	Mandatory (*)	Mandatory (*)
Reachability	With push notifications in place, mobile commerce can reach a wider range of users even when they're on the go.	Limited
Mobility	High: Users can make transactions everywhere as long as they are connected to the Internet.	Low: Users can make transactions on their computers and laptops with limited mobility

Platform	Web stores and native apps	Web stores
Payment Gateway	Caller's rate, mobile banking or user's credit card	Credit Cards
Location-tracking capability	Yes	No
Security	Rely on the web security combined with built-in mobile security features	Rely mainly on the web security

Widespread use of Mobile Apps

- Apps are dedicated
- Apps can easily utilize the features
- Some apps can be used offline (memory management and storage)
- Apps load quickly
- Apps are available for almost anything

Advantages of Mobile apps

- Provides relevant information
- Provides discount, offers and rewards
- Use of mobile app as a marketing channel