Scope:

This course will explore the wealth of online learning environment and adopt methods for system online implementation.

Objectives:

To make students acquitted with the recent trends and developments in technology which covers e-Commerce e-Security, e-Logistics and knowledge management aspects.

Unit I

E-Business- Importance and scope of E-Commerce - Models of E-Commerce - Limitations and Advantages of E-commerce – Banking -Transactions: Inter-Banking, Intra Banking, Electronic Payments, (Payment-Gateway Example) - Securities in E-Banking - SSL, Digital Signatures, Service Provided - ATM Smart card, Electronic Clearing System - Telephone, Electricity Bills - E-commerce opportunities and challenges for Indian Industrialists.

Unit II

E-Security- Firewalls - Electronic Market - E-shop - Introduction to Security - Types of Securities, Security Tools, Network Security. CRM: Sales, Marketing and Service Management, BPO/BCP – Needs – Guidelines - Merits and Demerits, Call Center - Functioning, Ethics.

Unit III

Content Management and Disseminations: E-learning - Models WBT, CBT, Virtual Campus, LMS and LCMS, Video conferencing, Chatting, Bulleting, Building Online community, Dashboard Models - Asynchronous and Synchronous Learning.

Unit IV

E-Logistics - Logistics and Supplier Chain Management, Warehousing management, Transportation/Distribution Management. E-Governance models - G2B, G2C, C2G, G2G-Challenges to E-Governance, Strategies and Tactics for implementation of E-Governance - Disaster Recovery Management.

Unit V

Knowledge Management-Components - Types – models - Knowledge Management Cycle – tools - approaches. GIS/GPS - Nature of geographic data, Spatial objects and data models, Getting map on computers, GIS Standards and Standardization process of GIS development, Implementation and deployment Phases.

Suggested Readings:

Text Book:

1. Gaynor, G. H. (2009). *Handbook of Technology Management*. New Delhi: Tata McGraw Hill.

References:

1. Agarwal. A. (2008). *Governance: Case Studies.* Hyderabad: India Universities Press.
2. Jawadekar. *(2013).Management Information System*. (5th edition). New Delhi: McGraw Hill Education Books**.**
3. Amrit Tiwana. (2010).*The Essential Guide to Knowledge Management. (2nd edition)*. New Delhi: Prentice Hall.

KARPAGAM ACADEMY OF HIGHER EDUCATION

(Deemed to be University)
(Established under section 3 of UGC Act 1956)
Coimbatore-641021

DEPARTMENT OF MANAGEMENT

Name: **Dr. S.VIDHYA (Assistant Professor)**
Department: **Management**
Subject Code: **17MBAPS303B** Semester: **III** Year: **2017-19 Batch**
Subject: **Emerging Trends in Technology - Lesson Plan**

UNIT - 1			
S. No	**Lecture Hours**	**Contents**	**References**
1	1	E-Business- Importance and scope of E-Commerce	R2 – Pg 26-32,644
2	1	Models of E-Commerce	R2 – Pg 32-35
3	1	Limitations and Advantages of E-commerce	R2 – Pg 35-40
4	1	Banking -Transactions: Inter-Banking, Intra Banking	T1 – Pg 11,4, 11.6
5	1	Electronic Payments, (Payment-Gateway Example) - Securities in E-Banking	R2 – Pg 648-672
6	1	SSL, Digital Signatures, Service Provided	T1 – Pg 3.10, 6.21
7	1	ATM Smart card, Electronic Clearing System	T1 – Pg 4.14,9.14
8	1	Telephone, Electricity Bills	T1 – Pg 11.14
9	1	E-commerce opportunities and challenges for Indian Industrialists	J1
10	1	Recapitulation and Discussion on important questions	-
Total no. of Hours planned for Unit 1			**10**
UNIT - 2			
1	1	E-Security- Firewalls	T1 – Pg 16.4,35.6
2	1	Electronic Market - E-shop	T1 – Pg 6.4-6.11
3	1	Introduction to Security - Types of Securities	R2 – Pg 85-87
4	1	Security Tools, Network Security	R2 – Pg 87-92,99
5	1	CRM: Sales, Marketing and Service Management	R2 – Pg 498
6	1	BPO/BCP – Needs – Guidelines	R2 – Pg 323-329
7	1	Merits and Demerits, Call Center - Functioning, Ethics	R2 – Pg 331- 338
8	1	Case Study	W1
9	1	Recapitulation and Discussion on important questions	-
Total no. of Hours planned for Unit 2			**9**
UNIT – 3			
1	1	Content Management and Disseminations	T1 – Pg 6.4- 6.13
2	1	E-learning - Models WBT, CBT	T1 – Pg 19.2-19.12
3	1	Virtual Campus	T1 – Pg 38.4-38.12,6.16

S. No	Lecture Hours	Contents	References
4	1	LMS and LCMS	T1 – Pg 18.9-18.23
5	1	Video conferencing, Chatting, Bulleting	T1 – Pg 13.3-13.4
6	1	Building Online community	W2
7	1	Dashboard Models	W2
8	1	Asynchronous and Synchronous Learning	W2
9	1	Case Study	W1
10	1	Recapitulation and Discussion on important questions	-
Total number of hours planned for Unit 3			**10**
UNIT – 4			
1	1	E-Logistics- Logistics and Supplier Chain Management	T1 – Pg 7.10- 7.20
2	1	Warehousing management	R2 – Pg 614-625
3	1	Transportation/Distribution Management	W3
4	1	E-Governance models	W3
5	1	G2B, G2C, C2G, G2G	W3
6	1	Challenges to E-Governance	W3
7	1	Strategies and Tactics for implementation of E-Governance	R2 – Pg 97, 33.12
8	1	Disaster Recovery Management	W3
9	1	Recapitulation and Discussion on important questions	-
Total no. of Hours planned for Unit 4			**9**
UNIT – 5			
1	1	Knowledge Management-Components – Types	T1 – Pg 19.1-19.4
2	1	Models, Knowledge Management Cycle, tools	R2 – Pg 422-458
3	1	approaches ,GIS/GPS - Nature of geographic data	W4
4	1	Spatial objects and data models	W4
5	1	Getting map on computers, GIS Standards and Standardization process of GIS development	W4
6	1	Implementation and deployment Phases	R2 – Pg 628-637
7	1	Recapitulation and Discussion on important questions	-
8	1	Revision of Previous Year Question Paper	-
9	1	Revision of Previous Year Question Paper	-
10	1	Revision of Previous Year Question Paper	-
Total no. of Hours planned for Unit 5			**10**

Suggested Readings:

Text Books:

T1. Gaynor, G. H. (2009). *Handbook of Technology Management*. New Delhi: Tata McGraw Hill.

Reference Books:

R2. Jawadekar, *(2013).Management Information System.*5th edition, New Delhi: McGraw Hill Education Books.

Journals:

J1. Global Journal of Business Management and Information Technology

Websites:

W1. www.icmrindia.org

W2. www.citeseerx.ist.psu.edu

W3. www.managementmania.com

W4. www.esri.com

UNIT-I

SYLLABUS

E-Business- Importance and scope of E-Commerce - Models of E-Commerce - Limitations and Advantages of E-commerce – Banking -Transactions: Inter-Banking, Intra Banking, Electronic Payments, (Payment-Gateway Example) - Securities in E-Banking - SSL, Digital Signatures, Service Provided - ATM Smart card, Electronic Clearing System - Telephone, Electricity Bills - E-commerce opportunities and challenges for Indian Industrialists.

E-Business

Online Business or e-business is a term which can be used for any kind of business or commercial transaction that includes sharing information across the internet. Commerce constitutes the exchange of products and services between businesses, groups and individuals and can be seen as one of the essential activities of any business. Electronic commerce focuses on the use of ICT to enable the external activities and relationships of the business with individuals, groups and other businesses or e business refers to business with help of internet i.e. doing business with the help of internet network. The term "e-business" was coined by IBM's marketing and Internet team in 1996.

Importance and scope of E-Commerce

E-commerce

E-commerce (short for "electronic commerce") is trading in products or services using computer networks, such as the Internet. Electronic commerce draws on technologies such as mobile commerce, electronic funds transfer, supply chain management, Internet marketing, online transaction processing, electronic data interchange (EDI), inventory management systems, and automated data collection.

Modern electronic commerce typically uses the World Wide Web for at least one part of the transaction's life cycle, although it may also use other technologies such as e-mail.

Scope and Importance

Electronic Commerce is more than just buying and selling products online. It also includes the entire online process of developing, marketing, selling, delivering, servicing and paying for products and services. India has shown tremendous growth in the E-commerce segment. With an **internet user base of over 300 million**, India has third largest internet population after US & China.

India has witnessed a major breakthrough E-commerce success stories particularly in **e-retail in Consumer Electronics & Fashion Apparel & Home Furnishing segments**. E-commerce creates new opportunities for **entrepreneurial start-ups**.

Ease of Internet access, Safe and secure payment modes coupled with aggressive marketing by E-Commerce Giants has revolutionized this segment. Rapid development in mobile technology has given way to **Mobile Commerce** with many E-Commerce companies shifting to App only model.

- **Social Media: Majority of online buying decisions are made on Social Media**. Social network like Facebook, LinkedIn, Twitter, Google+, Pinterest etc have become a medium for easy log-in and purchase. Moreover, the clients can stay updated via the posts published on this media. Further, the advertising & promotions on these social sites has increased the chances of success of generating transactions to many folds.

- **Drone Delivery:** Companies have been working their way around to innovate the delivery process to shorten human effort as well as time. The answer to these problems is Delivery by Drones. DGCA is now fast tracking the process of issuing guidelines for the use of drones for civil purposes in India. If everything goes as per the plan**, then India might become the first country in the world to allow the use of drones for civil purposes.**

- **App only Approach:** Statistics suggest the future of internet lies in mobiles. Experts say more than 580 million people in India will use the Internet by 2018, and 70-80% of them will access the Web on mobile phones. This will cause all major players to switch to app only model. About two-thirds of its online traffic of Flipkart comes from users in small cities and towns. Flipkart's app-only approach assumes larger significance in these places where most people don't own desktop computers and have limited access to broadband.
- **Google's Buy Now Button:** Google is reportedly working on its own "Buy Now" style button that would allow e-shoppers search for products on Google and purchase them with a single click, right through Google's own search results page. The button will be displayed near sponsored search results beneath a "Shop on Google" heading at the top of the page.
- When users click on the Google's "Buy Now" button, they will be re-directed to another Google page that will allow them to choose specific item details, such as color and size, and then select a shipping route. Google would then pass on order information, including the customer's name and shipping address, to the retailer.

- **Artificial Intelligence:** As the ecommerce space gets saturated, investors looking for innovative use of technology are zeroing in on companies developing artificial intelligence (AI) solutions. Jet Airways is experimenting with one such solution devised by Vizury. **It sifts through the individual's public content on the internet, as well as the customer's previous searches and creates an instant profile. Based on this information, the airline knows whether to package hotel deals, or simply stick with airfare discounts. The system also allows them to predict how likely it is for the customer to upgrade, and how flexible would the customer be to change travel location o r date.**

Models of E-Commerce

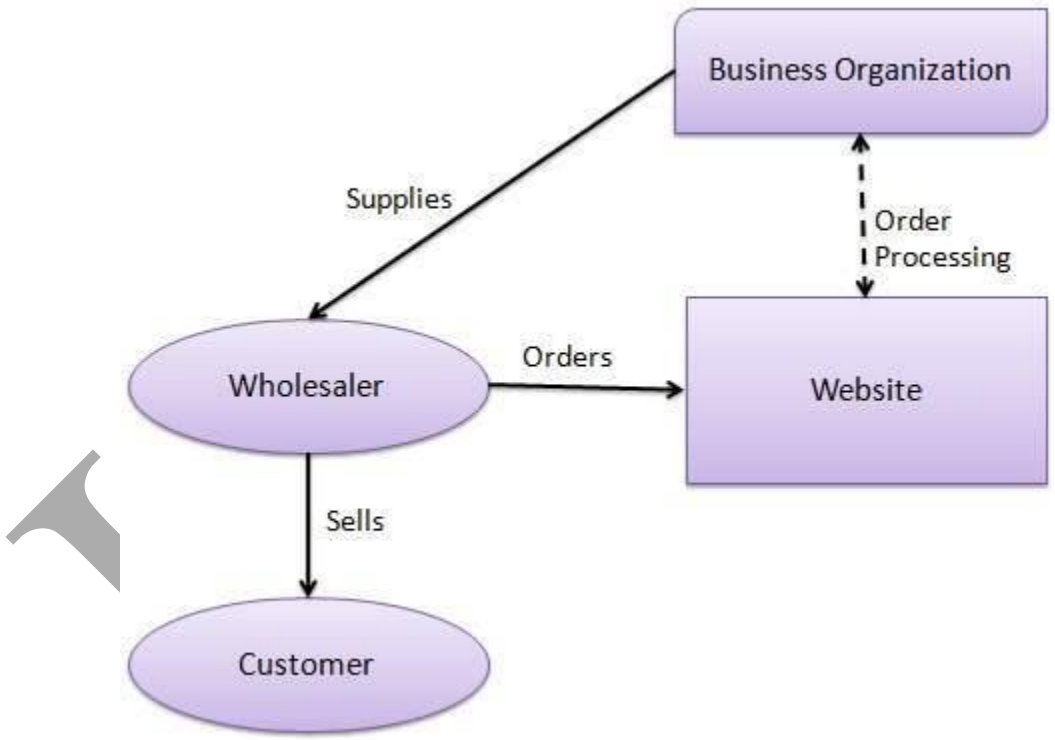
E-commerce business models can generally be categorized into the following categories.

- Business - to - Business (B2B)
- Business - to - Consumer (B2C)
- Consumer - to - Consumer (C2C)

- Consumer - to - Business (C2B)
- Business - to - Government (B2G)
- Government - to - Business (G2B)
- Government - to - Citizen (G2C)

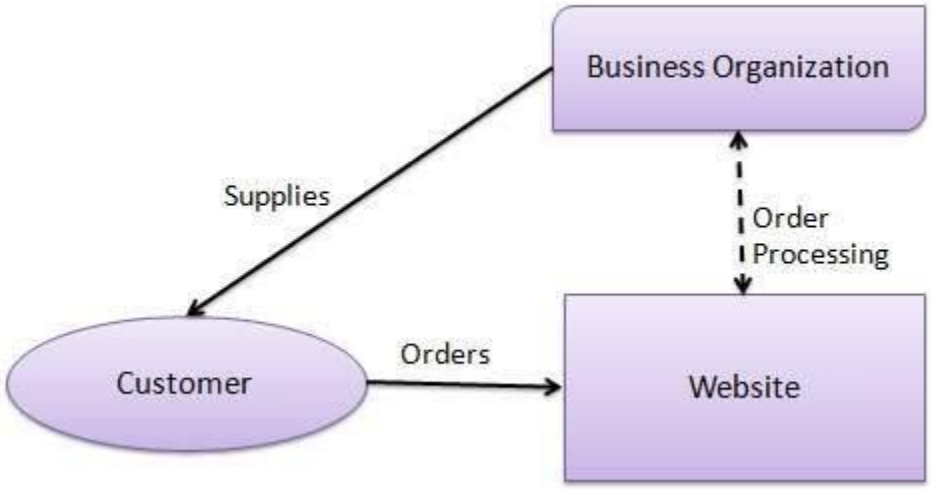
Business - to - Business

A website following the B2B business model sells its products to an intermediate buyer who then sells the product to the final customer. As an example, a wholesaler places an order from a company's website and after receiving the consignment, sells the end product to the final customer who comes to buy the product at one of its retail outlets.



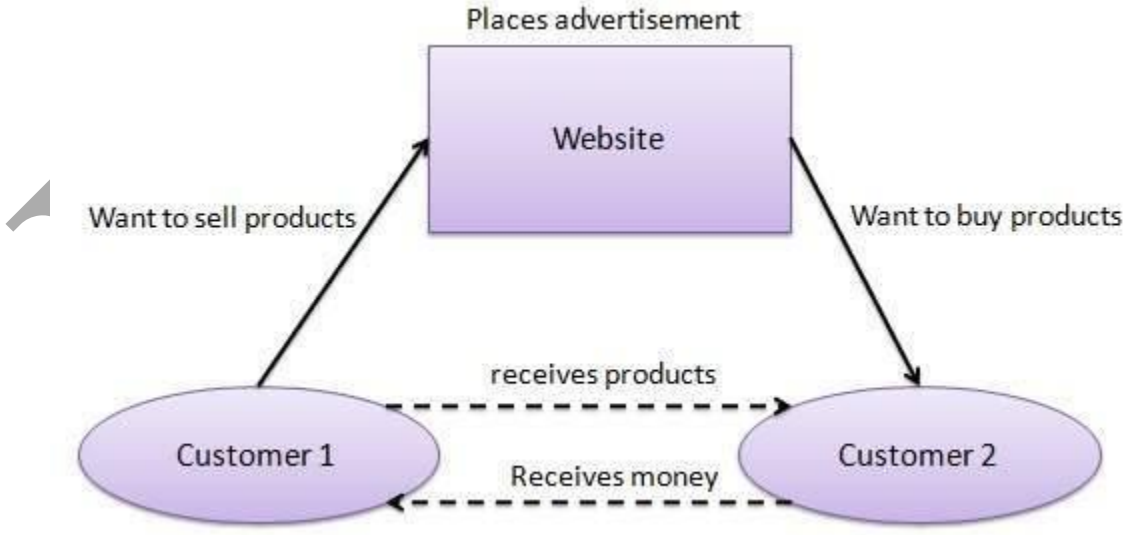
Business - to - Consumer

A website following the B2C business model sells its products directly to a customer. A customer can view the products shown on the website. The customer can choose a product and order the same. The website will then send a notification to the business organization via email and the organization will dispatch the product/goods to the customer.



Consumer - to - Consumer

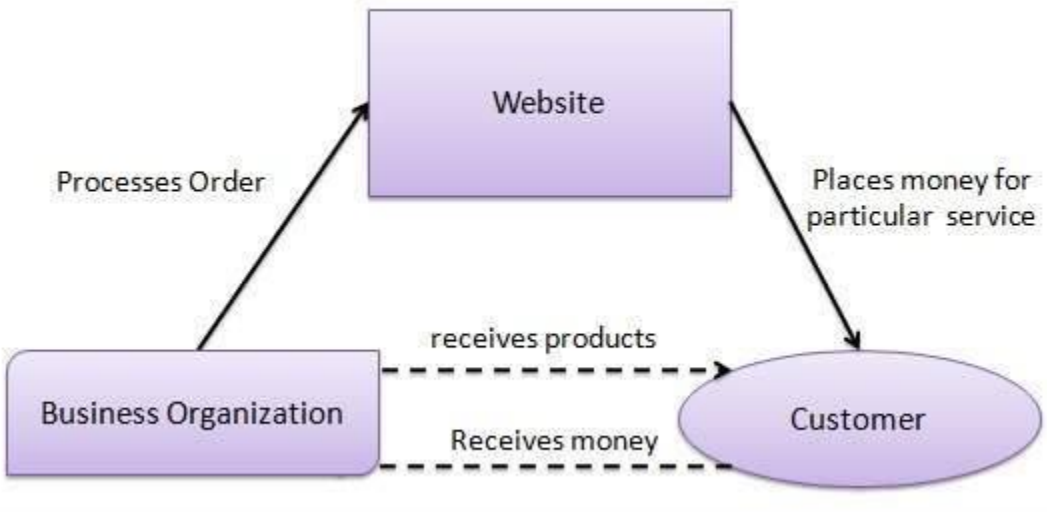
A website following the C2C business model helps consumers to sell their assets like residential property, cars, motorcycles, etc., or rent a room by publishing their information on the website. Website may or may not charge the consumer for its services. Another consumer may opt to buy the product of the first customer by viewing the post/advertisement on the website.



Consumer - to - Business

In this model, a consumer approaches a website showing multiple business organizations for a particular service.

The consumer places an estimate of amount he/she wants to spend for a particular service. For example, the comparison of interest rates of personal loan/car loan provided by various banks via websites. A business organization that fulfills the consumer's requirement within the specified budget approaches the customer and provides its services.

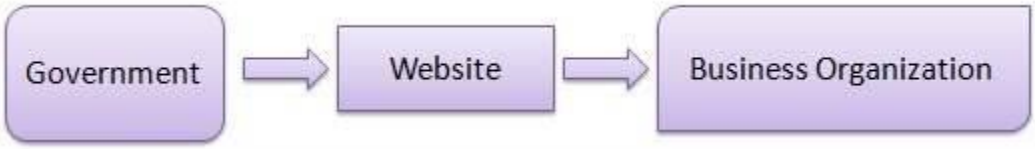


Business - to - Government

B2G model is a variant of B2B model. Such websites are used by governments to trade and exchange information with various business organizations. Such websites are accredited by the government and provide a medium to businesses to submit application forms to the government.

Government - to - Business

Governments use B2G model websites to approach business organizations. Such websites support auctions, tenders, and application submission functionalities.



Government - to - Citizen

Governments use G2C model websites to approach citizen in general. Such websites support auctions of vehicles, machinery, or any other material. Such website also provides services like registration for birth, marriage or death certificates.

The main objective of G2C websites is to reduce the average time for fulfilling citizen's requests for various government services.

Limitations and Advantages of E-commerce

E-Commerce, in-spite of the opportunities it presents also has poses certain challenges which are sometimes too much to handle for start-ups:

- **E-Infrastructural Issues:** Internet is the backbone of e-commerce. Unfortunately, in India internet penetration is so far dismally low at 0.5 per cent of the population, penetration of personal computer (PC) as low as 3.5 per thousand of population and penetration of telephone only 2.1 per cent of population, **e-commerce remains far away from the common man**.

- **Branding & Marketing:** To get people to come on an e-Commerce site and make a purchase involves heavy cost due to branding and marketing. This cost is significant and can be brought down to cost per customer, if the volumes permit to do so. **Experts say that the average figure for this metric in the current e-Commerce ecosystem is between INR 500 – 1000 customer**, which isn't sustainable for even medium sized companies, let alone early stage ones.

- **Declining Margins:** With the introduction of a large number of players in the already competitive e-commerce market, **the customer is pampered by offering huge discounts, offers, taking returns etc. resulting in razor-thin margins**.

- **Logistics & Supply Chain: Logistics failure in any area can mean detrimental damage to a startup's future** and can hurt the brand overall. Add to this the need for a guaranteed return policy. Getting this right is a challenge.

- **Tax related issues:** Tax rate system of Indian market is another factor for lesser growth rate of E- Commerce in India in comparison to other developed countries like USA and UK. In those countries, tax rate is uniform for all sectors whereas **tax structure of India varies from sector to sector**. This factor creates accounting problems for the Indian online business companies.
- **Touch and Feel:** Indian customers are more comfortable in buying products physically. Companies dealing with products like apparel, handicrafts, jewelry have to face challenges to sell their products as the **buyers want to see and touch before they buy these stuffs**.

Banking –Transactions

A bank is a financial institution licensed to receive deposits and make loans. Banks may also provide financial services, such as wealth management, currency exchange and safe deposit boxes.

Inter-Banking

Inter Bank Transfer enables electronic transfer of funds from the account of the remitter in one Bank to the account of the beneficiary maintained with any other Bank branch. There are two systems of Inter Bank Transfer - RTGS and NEFT. Both these systems are maintained by Reserve Bank of India.

RTGS - Real Time Gross Settlement - This is a system where the processing of funds transfer instructions takes place at the time they are received (real time). Also the settlement of funds transfer instructions occurs individually on an instruction by instruction basis (gross settlement). RTGS is the fastest possible interbank money transfer facility available through secure banking channels in India.

NEFT - National Electronic Fund Transfer - This system of fund transfer operates on a Deferred Net Settlement basis. Fund transfer transactions are settled in batches as opposed to the continuous, individual settlement in RTGS. Presently, NEFT operates in half hourly batches currently there are 23 settlements on all working days including working Saturday (Excluding Sundays / Holidays / 2nd and 4th Saturdays): 08.00 AM to 07:00 PM.

Intra Banking

Intra bank transfer means transferring of amount to beneficiary having account in same bank. E.g- A who has a account in SBI transfer 500rs to B who also has account in SBI. Interbank transfer means transferring of amount to beneficiary having account in different bank.

Electronic Payments, (Payment-Gateway Example)

E-commerce sites use electronic payment, where electronic payment refers to paperless monetary transactions. Electronic payment has revolutionized the business processing by reducing the paperwork, transaction costs, and labor cost. Being user friendly and less time-consuming than manual processing, it helps business organization to expand its market reach/expansion. Listed below are some of the modes of electronic payments −

- Credit Card
- Debit Card
- Smart Card
- E-Money
- Electronic Fund Transfer (EFT)

Credit Card

Payment using credit card is one of most common mode of electronic payment. Credit card is small plastic card with a unique number attached with an account. It has also a magnetic strip embedded in it which is used to read credit card via card readers.

When a customer purchases a product via credit card, credit card issuer bank pays on behalf of the customer and customer has a certain time period after which he/she can pay the credit card bill. It is usually credit card monthly payment cycle. Following are the actors in the credit card system.

- **The card holder** − Customer
- **The merchant** − seller of product who can accept credit card payments.
- **The card issuer bank** − card holder's bank
- **The acquirer bank** − the merchant's bank
- **The card brand** − for example, visa or Master card.

Debit Card

Debit card, like credit card, is a small plastic card with a unique number mapped with the bank account number. It is required to have a bank account before getting a debit card from the bank. The major difference between a debit card and a credit card is that in case of payment through debit card, the amount gets deducted from the card's bank account immediately and there should be sufficient balance in the bank account for the transaction to get completed; whereas in case of a credit card transaction, there is no such compulsion.

Debit cards free the customer to carry cash and cheques. Even merchants accept a debit card readily. Having a restriction on the amount that can be withdrawn in a day using a debit card helps the customer to keep checks on his/her spending.

Smart Card

Smart card is again similar to a credit card or a debit card in appearance, but it has a small micro processor chip embedded in it. It has the capacity to store a customer's work-related and/or personal information. Smart cards are also used to store money and the amount gets deducted after every transaction.

Smart cards can only be accessed using a PIN that every customer is assigned with. Smart cards are secure, as they store information in encrypted format and are less expensive/ provides faster processing. Mondex and Visa Cash cards are examples of smart cards.

E-Money

E-Money transactions refer to situation where payment is done over the network and the amount gets transferred from one financial body to another financial body without any involvement of a middleman. E-money transactions are faster, convenient, and saves a lot of time.

Online payments done via credit cards, debit cards, or smart cards are examples of e money transactions. Another popular example is e-cash. In case of e-cash, both customer and merchant have to sign up with the bank or company issuing e-cash.

Electronic Fund Transfer (EFT)

It is a very popular electronic payment method to transfer money from one bank account to another bank account. Accounts can be in the same bank or different banks. Fund transfer can be done using ATM (Automated Teller Machine) or using a computer.

Nowadays, internet-based EFT is getting popular. In this case, a customer uses the website provided by the bank, logs in to the bank's website and registers another bank account. He/she then places a request to transfer certain amount to that account. Customer's bank transfers the amount to other account if it is in the same bank, otherwise the transfer request is forwarded to an ACH (Automated Clearing House) to transfer the amount to other account and the amount is deducted from the customer's account. Once the amount is transferred to other account, the customer is notified of the fund transfer by the bank.

Securities in E-Banking

Security is an essential part of any transaction that takes place over the internet. Customers will lose his/her faith in e-business if its security is compromised. Following are the essential requirements for safe e-payments/transactions −

- **Confidentiality** − Information should not be accessible to an unauthorized person. It should not be intercepted during the transmission.
- **Integrity** − Information should not be altered during its transmission over the network.

- **Availability** − Information should be available wherever and whenever required within a time limit specified.
- **Authenticity** − There should be a mechanism to authenticate a user before giving him/her an access to the required information.
- **Non-Repudiability** − It is the protection against the denial of order or denial of payment. Once a sender sends a message, the sender should not be able to deny sending the message. Similarly, the recipient of message should not be able to deny the receipt.
- **Encryption** − Information should be encrypted and decrypted only by an authorized user.
- **Auditability** − Data should be recorded in such a way that it can be audited for integrity requirements.

Measures to ensure Security

Major security measures are following −

- **Encryption** − It is a very effective and practical way to safeguard the data being transmitted over the network. Sender of the information encrypts the data using a secret code and only the specified receiver can decrypt the data using the same or a different secret code.
- **Digital Signature** − Digital signature ensures the authenticity of the information. A digital signature is an e-signature authenticated through encryption and password.
- **Security Certificates** − Security certificate is a unique digital id used to verify the identity of an individual website or user.

Security Protocols in Internet

We will discuss here some of the popular protocols used over the internet to ensure secured online transactions.

Secure Socket Layer (SSL)

It is the most commonly used protocol and is widely used across the industry. It meets following security requirements −

- Authentication
- Encryption
- Integrity
- Non-reputability

"https://" is to be used for HTTP urls with SSL, where as "http://" is to be used for HTTP urls without SSL.

Secure Hypertext Transfer Protocol (SHTTP)

SHTTP extends the HTTP internet protocol with public key encryption, authentication, and digital signature over the internet. Secure HTTP supports multiple security mechanism, providing security to the end-users. SHTTP works by negotiating encryption scheme types used between the client and the server.

Secure Electronic Transaction

It is a secure protocol developed by MasterCard and Visa in collaboration. Theoretically, it is the best security protocol. It has the following components −

- **Card Holder's Digital Wallet Software** − Digital Wallet allows the card holder to make secure purchases online via point and click interface.
- **Merchant Software** − this software helps merchants to communicate with potential customers and financial institutions in a secure manner.
- **Payment Gateway Server Software** − Payment gateway provides automatic and standard payment process. It supports the process for merchant's certificate request.
- **Certificate Authority Software** − this software is used by financial institutions to issue digital certificates to card holders and merchants, and to enable them to register their account agreements for secure electronic commerce.

Digital Signatures, Service Provided

A digital signature is a mathematical scheme for presenting the authenticity of digital messages or documents. A valid digital signature gives a recipient reason to believe that the message was created by a known sender (authentication), that the sender cannot deny having sent the message (non-repudiation), and that the message was not altered in transit (integrity). Digital signatures are a standard element of most cryptographic protocol suites, and are commonly used for software distribution, financial transactions, contract management software, and in other cases where it is important to detect forgery or tampering.

Authentication

Although messages may often include information about the entity sending a message, that information may not be accurate. Digital signatures can be used to authenticate the source of messages. When ownership of a digital signature secret key is bound to a specific user, a valid signature shows that the message was sent by that user. The importance of high confidence in sender authenticity is especially obvious in a financial context. For example, suppose a bank's branch office sends instructions to the central office requesting a change in the balance of an account. If the central office is not convinced that such a message is truly sent from an authorized source, acting on such a request could be a grave mistake.

Integrity

In many scenarios, the sender and receiver of a message may have a need for confidence that the message has not been altered during transmission. Although encryption hides the contents of a message, it may be possible to *change* an encrypted message without understanding it. (Some encryption algorithms, known as nonmalleable ones, prevent this, but others do not.) However, if a message is digitally signed, any change in the message after signature invalidates the signature. Furthermore, there is no efficient way to modify a message and its signature to produce a new message with a valid signature, because this is still considered to be computationally infeasible by most cryptographic hash functions (see collision resistance).

Non-repudiation

Non-repudiation, or more specifically non-repudiation of origin, is an important aspect of digital signatures. By this property, an entity that has signed some information cannot at a later time deny having signed it. Similarly, access to the public key only does not enable a fraudulent party to fake a valid signature.

Note that these authentications, non-repudiation etc. properties rely on the secret key *not having been revoked* prior to its usage. Public revocation of a key-pair is a required ability; else leaked secret keys would continue to implicate the claimed owner of the key-pair. Checking revocation status requires an "online" check.

ATM Smart card, Electronic Clearing System

On most modern ATMs, the customer is identified by inserting a plastic ATM card with a Magnetic Stripe or a Plastic Smart Card with a Chip that contains a unique card number and some security information such as an expiration date or CVVC (CVV). Authentication is provided by the customer entering a Personal Identification Number (PIN). Using an ATM, customers can access their bank deposit or credit accounts in order to make a variety of transactions such as Cash Withdrawals, Check Balances or Credit Mobile Phones. ATMs often provide the best possible exchange rates for foreign travelers, and are widely used for this purpose. Many ATMs have a sign above them, indicating the name of the bank or organization owning the ATM .

Electronic Clearing Service (ECS) is mode of electronic funds transfer from one bank account to another bank account using the services of a CLEARING HOUSE. This is normally for bulk transfers from one account to many accounts or vice-versa. A Clearing House is a financial institution that provides clearing and settlement services for financial and commodities derivates and securities transactions. These transactions may be executed on a future exchange or securities exchange. A clearing house stands between 2 clearing firms also known as the member firms or clearing participants and its purpose is to reduce the risk of one clearing firm failing to honor its trade settlement obligations.

A Clearing House reduces the Settlement Risks. There are two types of ECS called the

• ECS (Credit) i.e. used for affording credit to the large number of beneficiaries by raising a single debit to an account, such as dividend, interest or salary payment.

• ECS (Debit) i.e. used for raising debits to a number of accounts of consumers/ account holders for crediting a particular institution.

Telephone, Electricity Bills

Timely payment of telephone and electricity bills and even insurance premiums will soon be an input for determining the credit worthiness of a borrower by credit information bureaus with the Reserve Bank of India pushing for an expansion of data on borrowers.

According to the central bank, this will improve credit bureau coverage from 20% to 70% of prospective borrowers and will enable those in remote areas to get loans. At present, when a borrower seeks a personal loan or a credit card, the lending institution checks his credit score from credit information bureaus like Cibil, which gives it an idea of his record in repayments. Based on the score, the institution decides whether to lend and at what rate.

E-commerce opportunities and challenges for Indian Industrialists

Electronic commerce, commonly written as e-commerce is buying and selling of products and services by businesses and consumers over the Internet. Electronic commerce draws on technologies such as mobile commerce, electronic funds transfer, supply chain management, Internet marketing, online transaction processing, electronic data interchange (EDI), inventory management systems, and automated data collection systems. Consumers take advantage of lower prices offer by wholesalers retailing their products. This trend is set to strengthen as web sites address consumer security and privacy concerns.

Due to the popularity of e-commerce there is a tremendous increase exchange of goods and services both regionally and globally. Now-a-days it has become the virtual main street of the world. This online business refers to the E-commerce which is recently moved in to developing countries like India. Today, e-commerce has grown into a huge industry.

This is outcome of a review of various research studies carried out on E-commerce. The present study has been undertaken to analyze the present trends of e-commerce in India & examine the challenges & opportunities of e-commerce in India.

Part A (ONE Mark)

Multiple Choice Questions

Online Examination

Part B (2 Marks)

1. Draw any two ATM Smart Cards
2. Brief on Electricity Bill?
3. Define Digital Signature?
4. Define E- Banking
5. Write short notes on Electronic payments and give one example about it.
6. Draw any two ATM Smart Cards.
7. List out the SSL requirement.
8. What are all the points in securities of E- Banking?
9. Write short notes on Electronic payments and give one example about it.

Part C (5 Marks)

1. Explain the E-commerce opportunities and challenges for Indian Industrialists.
2. How do you manage the technology in the emerging industries? Explain.
3. What do you mean by world class organization? What are the strategies for developing the world class organization?
4. Elaborate international technology management policy with examples?
5. Briefly elaborate the models of e- commerce.
6. What is intra banking and inter baking explain with example?

KARPAGAM ACADEMY OF HIGHER EDUCATION						
Department of Management						
Unit 1-Emerging Trends in Technology -Multiple Choice Questions- Each Question Carry ONE Mark						
S.No	**Question**	**OPTION 1**	**OPTION 2**	**OPTION 3**	**OPTION 4**	**ANSWER**
1	NPOs Stands for _____	Non Profit Organizations	Non Private Organizations	Non Public Organizations	None of the above	Non Profit Organizations
2	Knowledge management incorporates ideas and processes from many different sources and_____	Discipline	Techniques	Technologies	Information	Technologies
3	A supply chain is made up of a series of processes that involve an input a _____ and an output	Shipment	Supplier	Customer	Transformation	Transformation
4	Knowledge is created in the minds of_____	People	Technology	Human mind	None of the above	People
5	The impact of cost reduction of profit is much larger than the impact of increased	Innoation	Production	Information	Sales	Sales
6	The globalization of society that will continue to increase the independence of_____	Business and industries	National and regional economics	Products and services	All the above	All the above
7	A _____ is viewed as a storage facility necessary to accomplish basic marketing processes	Warehouse	Godern	Distribution centre	All of the above	Warehouse
8	The overriding goal of these shifts in focus is to achieve a fundamental transformation in _____	Government departments	Agencies	Units	All of the above	All of the above
9	_____ in a new idea at the advent of logistics and supply chain management	Distribution centre	Warehousing	Storage	None of the above	Distribution centre
10	Government's long history of learning how to work with regulatory issuses in the use of KM and _____	Information technology	Commerce	Human resource	Computer	Information technology
11	Many business are just beginning to understand the _____ of electronic records	Sensitivity	Discoverability	Both A and B	All of the above	All of the above

12	In government the driving impetus is from the _____	Private policy	Public policy	Both A and B	None of the above	Public policy
13	Govermental organizations worldwide are facing several chllenges as _____	Administrative	Executive	Jidicial bodies	All of the above	All of the above
14	_____ Knowledge is knowledge that has been or can be written down and contained in documents and other media	Tacit knowledge	Explicit knowledge	Both A and B	None of the above	Both A and B
15	When a manager of employees as one of the factors of production is the basic assumption of the _____ version of HRM	Soft	Hard	Medium	Indifferent	Hard
16	_____ Have freed knowledge workers from the tyranny of being chained to a desk	Smart phones	Tablets	Computers	All of the above	All of the above
17	OMB Stands for_____	Online of Management and Budget	Office of Management and Budget	Order of Management and Budget	None of the above	Office of Management and Budget
18	Information and communications technology constitutes one of the three chief building blocks of_____	Knowledge management	Information management	business management	None of the above	Knowledge management
19	Knowledge management is not about building a smarter _____ communications network	Internal	External	Both A and B	None of the above	Internal
20	KM may be considered to be the latest manifestation in a logical progression of governments concerns with_____	Data	Information management	Knowledge	All of the above	All of the above
21	_____ may be located at any point in a logistics system, but usually have some type of strong locational relationship to production facilities	Storage warehouses	Distribution centre	Godowns	None of the above	Storage warehouses
22	After 2002, the movement became the less dramatic but equally innovative concept of _____	E- commerce	E- learning	E- government	E- security	E-government
23	The base on which one can divide warehouses are	Ownership and services	Ownership	Services	None of the above	Ownership and services
24	The primary benefit of _____ is that it combines the logistical flow of several small shipments to a specific market area	Consolidation	Operation	Economic	None of the above	Consolidation

25	_____ function refers to the transhipment of goods from the production plant in bulk quantity by low rate volume shipment to the distribution warehouse and then reshipment in small quantities to different customers	Break bulk	Export warehouse	Inport warehouse	Cold storage	Break bulk
26	_____ are built at strategic locations with adequate transport and communication facilities	Buffer storage warehouses	Distribution warehouses	Import & export warehouses	None of the above	Buffer storage warehouses
27	PMA was offered as a way of getting government to be more focused on_____	Citizens	Results	Both A and B	All of the above	All of the above
28	FEA Stands for_____	Federal Enterprise Architecture	Federal External Architecture	Federal Enterprise Area	Federa External Area	Federal Enterprise Architecture
29	Developing a coordinated federal _____ and local policy on the use of information technology is a key goal of the program	Political forces	State	Information	Units	State
30	E- government included _____ components	One	Three	Four	Two	Four
31	A secure government _____ and central database was estblished to enhance communication and colloboration between agencies	Extranet	Intranet	Internet	None of the above	Intranet
32	A system for the _____ delivery of government services was developed	Web- based	Internet	Intranet	Extranet	Web - based
33	E- government components were supported by_____	Voice mail	E- mail	Virtual reality	All of the above	All the above
34	_____ consists of processes to ensure the right person is in the right jo at the right time	SMHC	EEG	BPI	IFP	SMHC
35	_____ Is the basis for cooperative actions that involve multi-party processes, and which often include public participation	Intellectual capital	Actual capital	Stakeholders	None of the above	Intellectual capital
36	Acceptance of knowledge management principles and programs by the states mirrors the difficulties states are experiencing in the _____ level of KM	Business	IT- component	Computers	None of the above	IT-component

37	Seasonal storage of goods to select business is known as_____	Stockpiling	Value added services	Demand pattern	None of the above	Stockpiling
38	The combined knowledge management concepts of _____ are core elements in both the reinvention of government and e- government models	Learning organizations	Process optimization	Both A and B	None of the above	Both A and B
39	The goal of process optimization is ti increase the efficiency of organization process with regard to_____ through effectively managing the organizations knowledge	Cost	Time	Quality	All of the above	All of the above
40	The concept of knowledge base is important to cooperative planning processes in _____	E- commerce	E- learning	E- government	E- security	E-government
41	The knowledge base is refers to the complete collection of all _____	Expertise	Experience	Knowledge	All of the above	All of the above
42	Establishment of a government -wide communication infrastructure to anable cooperation among the different _____ components	public sector	Private sector	business management	None of the above	Public sector
43	The elements of warehousing costs are_____	Cost of presurement of storage space	Handling and transfer cost	Administrative cost	All of the above	All of the above
44	The key product of the process is development of a _____	Knowledge chain	producing	Customizing	None of the above	Knowledge chain
45	The term mechanism refers to the structure or arrangement of the parts of a system or _____	Sources	Mechanical device	Electrical device	None of the above	Mechanical device
46	The architecture of a social system defines the way _____are organized to form a knowledge management system	People	Technology	Knowledge resources	All of the above	All of the above
47	Many authors _____ in the KM field of inquiry seemto have their particular favourite lists of basic elements for knowledge management	Researching	Writing	Both A and B	None of the above	Both A and B
48	In a social processes subsystem, knowledge sharing and distribution are_____	Enabled	Disabled	Promoted	Both A and C	Both A and C

49	The four social processes include_____	Socialization	Internalization	Combining	All of the above	All of the above
50	A human interactions subsystem makes its possible to support and value knowledge_____	Creating	Collecting	Sharing	All of the above	All of the above
51	A colloborative culture subsystems include all the KM applications designed to improve the _____provided by an agency	Product and services	Sources	Information	None of the above	Product and services
52	Learning organizatons can exist only when experience and knowledge are consistently and extensively_____	Valued	Shared	Promoted	All of the above	All of the above
53	The second type of knowledge is fundamentally difference from_____	Tacit knowledge	Explicit knowledge	Business knowledge	Management knowledge	Explicit knowledge
54	Explicit knowledge what is found in_____	Report and mannuals	Films	Radio scripts	All of the above	All of the above
55	The conversion of information into knowledge entails a vastly different process than converting data into _____	Information	Human interaction	Socialization	Internalization	Information
56	Data conversion or transformation is both a mechanical and _____	Physical process	Software programs	Modern desktop	Mental process	Mental process
57	_____ needs a rich communications environment , culture of sharing and trust	Tacit knowledge	Explicit knowledge	Business knowledge	None of the above	Tacit knowledge
58	_____ can be transferred through normal communications media	Tacit knowledge	Explicit knowledge	Business knowledge	None of the above	Explicit knowledge
59	They bridge formal organizational boundaries, thus increasing the collective store of_____	Knowledge	Skills	Professional	All of the above	All of the above
60	While designing the layout of a warehouse _____ in to the considered mainly	Purpose of the facility	Warehouse space requirement	layout of the facility	All of the above	All of the above

UNIT-II

SYLLABUS

E-Security- Firewalls - Electronic Market - E-shop - Introduction to Security - Types of Securities, Security Tools, Network Security. CRM: Sales, Marketing and Service Management, BPO/BCP – Needs – Guidelines - Merits and Demerits, Call Center - Functioning, Ethics.

E-Security

Electronic security system refers to any electronic equipment that could perform security operations like surveillance, access control, alarming or an intrusion control to a facility or an area which uses a power from mains and also a power backup like battery etc. It also includes some of the operations such as electrical, mechanical gear. Determination of a type of security system is purely based on area to be protected and its threats.

- CCTV (close-circuit televisions) Surveillance Security System
- Fire Detection/Alarming System
- Access Control/Attendance System

Firewalls

It's a barrier between Local Area Network (LAN) and the Internet. It allows keeping private resources confidential and minimizes the security risks. It controls network traffic, in both directions. Both hardware and the software can be used at this point to filter network traffic. There are two types of Firewall system: One works by using filters at the network layer and the other works by using proxy servers at the user, application, or network layer.

Key Points

- Firewall management must be addressed by both system managers and the network managers.

- The amount of filtering a firewall varies. For the same firewall, the amount of filtering may be different in different directions.

Types of Firewalls

Here are the most important types of firewalls you need to know about:

- Network Firewalls
- Next-Generation Firewalls
- Web Application Firewalls
- Database Firewalls
- Unified Threat Management
- Cloud Firewalls
- Container Firewalls
- Network Segmentation Firewalls

Traditional network firewall

Packet-filtering network firewalls provide essential network protection by helping to prevent unwanted traffic from getting in to the corporate network. They work by applying a set of network firewall security rules to decide whether to allow or deny access to the network. Typical rules include: denying entry to all traffic except for traffic destined for specific ports corresponding to specific application running inside the corporate network; and allowing or denying access to data using specific protocols or from specific IP addresses.

- **Protection level: High**. The vast majority of network compromises are caused by malicious data gaining access to the corporate network from outside, and a traditional firewall can help prevent this by controlling access to the network. But firewalls are only as effective as the staffs that manage them: about 99% of firewall breaches are caused by simple mis-configurations rather than flaws in the firewall itself. Read more about fine-tuning and optimizing firewalls rules.

- **Strengths and weaknesses:** The availability of open source firewall software that runs on standard hardware means that a network firewall solution can be built at very low cost. A traditional network firewall is also only as effective as the rules that it applies, so a firewall configured with ineffective or outdated rules will let in traffic that should be excluded.
- **Vendors:** Barracuda, Check Point Software, Cisco, Sophos, Juniper Networks, Palo Alto Networks
- **Open source firewall software:** pfSense, Untangle, Smoothwall Express

Next-generation firewalls (NGFWs)

Next-generation firewalls serve the same purpose as traditional firewalls – protecting the network from unwanted data traffic – but they work in a different way to achieve this. Specifically, NGFWs offer application awareness with full stack visibility by looking at the contents of each data packet, rather than just its port, source and destination IP address, and protocol. By using an application layer firewall, this enables you to ban the use of specific applications, such as peer to peer file sharing applications, or to restrict how applications are used, for example, by allowing Skype to be used for voice over IP calls, but not for file sharing.

- **Protection level: Very high**, because of the high level of granular control they provide. These capabilities may be required for PCI or HIPAA compliance.
- **Strengths and weaknesses:** NGFWs provide far more granular control over what data is and is not allowed to access the corporate network, allowing NGFWs to mitigate a wider range of possible threats. But NGFWs are more expensive than traditional firewalls, and because they carry out packet inspection rather than simple packet filtering they have a more limited data throughput which can cause network performance issues.
- **Vendors**: Barracuda, Check Point Software, Cisco, Sophos, Juniper Networks, Palo Alto Networks

Web application firewalls

A web application firewall is usually a proxy server that stands between an application running on a server and the application's users who access the application from outside the corporate network. The proxy server accepts incoming data and then establishes its own connection to the application on behalf of the external user. A key benefit of this setup is that the application is shielded from port scans, attempts to determine the software running on the application server, or other malicious activity directed by end users at the application. The proxy server also analyzes the data to filter malicious requests (such as deliberately malformed requests designed to result in the execution of malicious code), preventing them from ever reaching the web application server.

- **Protection level: High**, because they provide a buffer between the web application server and unknown and possibly malicious users out on the internet who could otherwise gain access to the web application server directly. This is important because many applications hold confidential data that is valuable to hackers, making web-facing applications a particularly attractive target.
- **Strengths and weaknesses:** Web application firewalls are simpler and less prone to security vulnerabilities than web application servers themselves, and more easily patched. That means they can make it significantly harder for hackers to reach applications behind the firewall. But not all applications are easily supported by proxy firewalls, and they can reduce the performance of the protected application to end users.
- **Vendors:** F5 Networks, Fortinet, Barracuda, Citrix, Imperva

Database firewalls

As the name suggests, database firewalls are a subset of web application firewalls designed to protect databases. They are usually installed directly in front of the database server they protect (or near the network gateway when they are designed to protect more than one database running on more than one server).

They are designed to detect and prevent specific database attacks, such as cross site scripting, that can lead to attackers accessing confidential information stored on the databases.

- **Protection level: High**. Corporate data tends to be extremely valuable, and the loss of confidential information is usually expensive and costly in terms of lost reputation and bad publicity. For that reason, it is necessary to take all reasonable steps to protect databases and the data they contain. A database firewall adds significantly to the security of this stored data.
- **Strengths and weaknesses:** Database firewalls can be an effective security measure, and they can also be used to monitor and audit database accesses, and to produce compliance reports for regulatory purposes. However, they are only effective if they are correctly configured and updated, and offer little protection against zero-day exploits.
- **Vendors:** Oracle, Imperva, Fortinet

Unified Threat Management (UTM) appliances

UTM appliances provide a nearly complete security solution for small- and medium-sized business in the form of a single box that plugs in to the network. Typical UTM features include a traditional firewall, an intrusion detection system , internet gateway security (which includes scanning incoming traffic such as emails for viruses and other malware or malicious attachments, and web address blacklisting to prevent employees from visiting known malicious sites such as phishing sites), and they sometimes contain web application firewall and next-generation firewall (NGFW) features as well.

- **Protection level: Medium**. Most UTMs do a good job securing a network, but best-of-breed solutions for each security function are likely to offer better protection.
- **Strengths and weaknesses:** The key attraction of UTMs is simplicity: a single purchase covers every security need, and all the security features can be controlled and configured from a single management console. Some UTMs offer a base level of security in the initial purchase price, and extra security services (such as IPS) can be enabled for an additional license fee.

- Although the key drawback is that UTMs may not provide the same level of protection as a combination of more complex products, this may be academic because often the choice is between having a UTM and having no security solution at all.
- **Vendors:** Leading UTM vendors include Fortinet, SonicWALL, Juniper Networks, Check Point Software, Watch Guard and Sophos

Cloud-based firewalls

A cloud based firewall is an alternative to a firewall running in the corporate data center, but its purpose is exactly the same: to protect a network, application, database, or other IT resources.

- **Protection level: High**. A cloud firewall provided as a service is configured and maintained by security professionals who specialize in firewall management, so it is capable of offering very good levels of protection for the assets it is protecting.

  It is also likely to be highly available with little or no scheduled or unscheduled downtime. They are usually implemented by configuring corporate routers to divert traffic to the cloud-based firewall, while mobile users either connect to it via a VPN or by using it as a proxy.

- **Strengths and weaknesses:** A major benefit of using a cloud-based firewall is that multiple sites, including small branch offices, can benefit from the protection it provides without having to route all traffic through a central corporate firewall, or to configure and maintain multiple firewalls at different locations. A cloud-based firewall is also highly scalable, unlike an on-premises firewall, which may need to be replaced if the company grows and bandwidth requirements exceed the capabilities of the existing equipment. The key drawback of a cloud-based firewall is that a service provider is unlikely to know the specific security requirements of its customers on an ongoing basis as well as internal staff would. And once a company switches to a cloud-based firewall, it may lose in-house security skills, which can be hard to replace.
- **Vendors:** Zscaler, Forcepoint, Fortinet

Container firewalls

A container firewall is used to protect and isolate containerized application stacks, workloads and services on a container host. It works in a similar way to a conventional firewall, but it also filters all container traffic within a container environment as well as ingress and egress from the protected containers out to external networks and other non-containerized applications.

- **Protection level: Medium**. All containers require security to be applied to them, but as a relatively new computing paradigm, they are often not well understood. That means that while some level of firewalling is desirable, other security considerations (such as ensuring that the contents of each container is up to date) are arguably more important.
- **Strengths and weaknesses:** A container firewall is likely to be easier to configure than a host-based firewall running on each container. But in smaller environments it may be unnecessary and hard to justify on a cost basis.
- **Vendors**: NeuVector, Juniper Networks, Twistlock

Network segmentation firewalls

A network segmentation firewall (also known as an internal network firewall) is used to protect sites, functional areas, departments or other business units by controlling network traffic that flows between them. They are implemented at subnet boundaries. That way a network breach may be contained in one area rather than spreading all over the network. It can also be used to provide added protection to areas of the network that warrants it, such as databases, or R&D units.

- **Protection level: Medium**. Although a network segmentation firewall may prevent an attacker from moving from part of the network to another, in practice it may only slow down an attacker's progress unless the initial breach is detected quickly.
- **Strengths and weaknesses:** If an attacker gains access to the network, then a network segmentation firewall may make it significantly harder for them to access particularly sensitive data. But it can introduce performance and availability issues and may present a single point of failure for some network services.
- **Vendors**: Fortinet

Electronic Market

Electronic markets (or electronic marketplaces) are information systems (IS) which are used by multiple separate organizational entities within one or among multiple tiers in economic value chains. In analogy to the market concept which can be viewed from a macroeconomic (describing relationships among actors in an economic systems, e.g. a monopoly) as well as from a microeconomic (describing different allocation mechanisms, e.g. public auctions of telephone frequencies) perspective, electronic markets denote networked forms of business with many possible configurations:

First, the topology of electronic markets may be centralized or decentralized in nature. Centralized electronic markets are hubs which often provide services to their participants.

Decentralized settings involve sequential relationships within value chains which often are found when electronic messages are exchanged directly between businesses (electronic data interchange, EDI).

Second, the services provided by electronic markets may serve infrastructural or allocation purposes. Among the infrastructure services are routing, messaging, identification and partner directories whereas allocation services enable pricing process which in turn may be static or dynamic in nature. Typical implementations are catalogs, exchanges and auctions.

Third, the relationships of actors involved in electronic markets may be stable or atomistic in nature. The former usually refers to classical supply chains where business collaborate during a longer period of time. In the latter case, the transaction partners are only stable for a single transaction. This is usually to be found in auction and other exchange settings.

This leads to two definitions: In a narrow sense Electronic Markets are mainly conceived as allocation platforms with dynamic price discovery mechanisms involving atomistic relationships. Popular examples originate from the financial and energy industries. In a broader sense, price discovery is not critical for electronic markets. This covers all forms of electronic collaboration between organizations and consumer as well as vice versa.

E-shop

E Shop Inc. (formerly known as **Ink Development Corporation**) was a software company founded in 1991. It was started as a software company to develop products for Go Corporation's Pen Point operation system. In later years, it developed software for the Windows for Pen Computing and Magic Cap platforms. In 1993, it was renamed to e Shop Inc. and developed electronic commerce software, focusing primarily on the "business-to-consumer" marketplace.

E Shop was acquired by Microsoft in June 1996 for less than $50 million and e Shop's technologies were integrated into Microsoft Merchant Server. Pierre Omidyar, one of the founders of e Shop, earned over 1 million from the deal and later went on to found eBay.

Introduction to Security

As Internet use is developing, more and more companies are opening their information system to their partners and suppliers. Therefore, it is essential to know which of the company's resources need protecting and to control system access and the user rights of the information system. The same is true when opening company access on the Internet.

Moreover, because of today's increasingly nomadic lifestyle, which allows employees to connect to information systems from virtually anywhere, employees are required to carry a part of the information system outside of the company's secure infrastructure.

Risk in terms of security is generally characterized by the following equation:

$$\text{Risque} = \frac{\text{Menace x Vulnérabilité}}{\text{Contre-mesure}}$$

The **threat** represents the type of action that is likely to be of harm, whereas **vulnerability** (sometimes called *flaws* or *breaches*) represents the level of exposure to threats in a particular context. Finally, the **countermeasure** is all of the actions implemented to prevent the threat. The countermeasures to be implemented are not only technical solutions but also include user training and awareness as well as clearly defined rules. In order to secure a system, the potential threats must be identified so as to identify and anticipate the enemy's course of action. Therefore, the goal of this report is to provide an overview of possible hacker motivations, categories them and give an idea of how they work in order to better know how to limit the risk of intrusion.

Goals of IT Security

Information systems are generally defined by all of a company's data and the material and software resources that allow a company to store and circulate this data. Information systems are essential to companies and must be protected. IT security generally consists in ensuring that an organization's material and software resources are used only for their intended purposes.

IT security generally is comprised of five main goals:

- **Integrity**: guaranteeing that the data are those that they are believed to be
- **Confidentiality**: ensuring that only authorized individuals have access to the resources being exchanged
- **Availability**: guaranteeing the information system's proper operation
- **Non-repudiation**: guaranteeing that an operation cannot be denied
- **Authentication**: ensuring that only authorized individuals have access to the resources

Confidentiality

Confidentiality consists in making information unintelligible to individuals other than those involved in the operation.

Integrity

Verifying data integrity consists in determining if the data were changed during transmission (accidentally or intentionally).

Availability

The goal of availability is to guarantee access to a service or resources.

Non-repudiation

The **non-repudiation** of information is the guarantee that none of the parties involved can deny an operation at a later date.

Authentication

Authentication consists in confirming a user's identity, i.e. guaranteeing for each party that their partners are truly who they think they are. An access control (e.g. an encrypted password) grants access to resources only to authorized individuals.

Need for a Global Approach

Information system security is often the subject of metaphors. It is often compared to a chain in the example that a system's security level is only as strong as the security level of its weakest link. Likewise, a reinforced door is useless in protecting a building if its windows are left wide open.

All this goes to show that the issue of security must be tackled at a global level and must comprise the following elements:

- **Making users aware of security problems**
- **Logical security**, i.e. security at the data level, notably company data, applications and even operating systems

- **Telecommunications security: network technologies, company servers, access networks, etc.**
- **Physical security** or *the security of material infrastructures*: secure rooms, places open to the public, company command areas, employee workstations, etc.

Implementing a Security Policy

The IT system security is generally limited to guaranteeing the right to access a system's data and resources by setting up authentication and control mechanisms that ensure that the users of these resources only have the rights that were granted to them.

And yet security mechanisms can create difficulties for users. Instructions and rules often become increasingly complicated as networks grow. Thus, IT security must be studied in such a way that it does not prevent users from developing uses that they need and so that they can use information systems securely.

This is why one of the first steps a company must take is to define a **security policy**, which is implemented with the four following stages:

- Identify the security needs and the IT risks that the company faces and their possible consequences
- Outline the rules and procedures that must be implemented for the identified risks in the organization's different departments
- Monitor and detect the information system's vulnerabilities and keep informed of the flaws in the applications and materials being used
- Define the actions to be taken and the individuals to contact in case a threat is detected

The security policy is all of the security rules that an organization (in the general sense of the word) follows. Therefore, it must be defined by the management of the organization in question because it affects all the system's users.

In this respect, it is not the job of the IT administrators to define user access rights but rather that of their superiors. And IT administrator's role is to ensure that IT resources and the access rights to these resources are in line with the security policy defined by the organization.

Moreover, given that he or she is the only person who masters the system, he or she must give security information to the management, advise the decision makers on the strategies to be implemented, and be the entry point for communications intended for users about problems and security recommendations.

A company's IT security depends on employees (users) learning the rules through training and awareness-building sessions. However, security must go beyond employee knowledge and cover the following areas:

- A physical and logical security mechanism that is adapted to the needs of the company and to employee use
- A procedure for managing updates
- A properly planned backup strategy
- A post-incident recovery plan
- An up-to-date documented system

The Causes of Insecurity

Insecurities are generally broken down into two categories:

- **An active state of insecurity**, i.e. user ignorance of the system's functionalities, some of which can be harmful to the system (e.g. not deactivating network services that are not needed by user)
- **A passive state of insecurity**, i.e. lack of knowledge of the security measures in place (e.g. when the administrator or user of a system does not know what security devices he or she has)

Types of Securities

Security by design

Security by design, or alternately secure by design, means that the software has been designed from the ground up to be secure. In this case, security is considered as a main feature.

Some of the techniques in this approach include:

- The principle of least privilege, where each part of the system has only the privileges that are needed for its function. That way even if an attacker gains access to that part, they have only limited access to the whole system.
- Automated theorem proving to prove the correctness of crucial software subsystems.
- Code reviews and unit testing, approaches to make modules more secure where formal correctness proofs are not possible.
- Defense in depth, where the design is such that more than one subsystem needs to be violated to compromise the integrity of the system and the information it holds.
- Default secure settings, and design to "fail secure" rather than "fail insecure" (see fail-safe for the equivalent in safety engineering). Ideally, a secure system should require a deliberate, conscious, knowledgeable and free decision on the part of legitimate authorities in order to make it insecure.
- Audit trails tracking system activity, so that when a security breach occurs, the mechanism and extent of the breach can be determined. Storing audit trails remotely, where they can only be appended to, can keep intruders from covering their tracks.
- Full disclosure of all vulnerabilities, to ensure that the "window of vulnerability" is kept as short as possible when bugs are discovered.

Security architecture

The Open Security Architecture organization defines IT security architecture as "the design artifacts that describe how the security controls (security countermeasures) are positioned, and how they relate to the overall information technology architecture. These controls serve the purpose to maintain the system's quality attributes: confidentiality, integrity, availability, accountability and assurance services".

Techopedia defines security architecture as "a unified security design that addresses the necessities and potential risks involved in a certain scenario or environment. It also specifies when and where to apply security controls. The design process is generally reproducible." The key attributes of security architecture are:

- The relationship of different components and how they depend on each other.
- The determination of controls based on risk assessment, good practice, finances, and legal matters.
- The standardization of controls.

Security measures

A state of computer "security" is the conceptual ideal, attained by the use of the three processes: threat prevention, detection, and response. These processes are based on various policies and system components, which include the following:

- User account access controls and cryptography can protect systems files and data, respectively.
- Firewalls are by far the most common prevention systems from a network security perspective as they can (if properly configured) shield access to internal network services, and block certain kinds of attacks through packet filtering. Firewalls can be both hardware- or software-based.
- Intrusion Detection System (IDS) products are designed to detect network attacks in-progress and assist in post-attack forensics, while audit trails and logs serve a similar function for individual systems.
- "Response" is necessarily defined by the assessed security requirements of an individual system and may cover the range from simple upgrade of protections to notification of legal authorities, counter-attacks, and the like. In some special cases, a complete destruction of the compromised system is favored, as it may happen that not all the compromised resources are detected.

Today, computer security comprises mainly "preventive" measures, like firewalls or an exit procedure. A firewall can be defined as a way of filtering network data between a host or a network and another network, such as the Internet, and can be implemented as software running on the machine, hooking into the network stack (or, in the case of most UNIX-based operating systems

such as Linux, built into the operating system kernel) to provide real time filtering and blocking. Another implementation is a so-called "physical firewall", which consists of a separate machine filtering network traffic. Firewalls are common amongst machines that are permanently connected to the Internet.

Some organizations are turning to big data platforms, such as Apache Hadoop, to extend data accessibility and machine learning to detect advanced persistent threats.

However, relatively few organizations maintain computer systems with effective detection systems, and fewer still have organized response mechanisms in place. As a result, as Reuters points out: "Companies for the first time report they are losing more through electronic theft of data than physical stealing of assets". The primary obstacle to effective eradication of cyber crime could be traced to excessive reliance on firewalls and other automated "detection" systems. Yet it is basic evidence gathering by using packet capture appliances that puts criminals behind bars

Security Tools

Along with networking's continuous advances come new security threats, which multiply seemingly by the day. The dynamic nature of attacks demands dynamic multipoint security solutions.

Network management systems, with their monitoring capabilities and unified views into infrastructure dynamics, give IT organizations a powerful weapon for fighting cyber threats. To secure today's distributed networks, IT teams also must develop defense-in-depth strategies that combine network-enforced security technologies with best practices.

The following products should be part of every IT organization's network security toolset:

1. INTRUSION DETECTION AND PREVENTION SYSTEMS

IDS and IPS tools help IT staff identify and protect their wired and wireless networks against several security threat types. These technologies, like several other categories of network security tools, are being deployed with greater frequency as networks grow in size and complexity.

Annual IPS revenues are expected to more than double between 2012 and 2017 (from $1.21 billion to $2.44 billion) according to estimates from the research and analysis firm Frost & Sullivan.

Both IDS and IPS solutions detect threat activity in the form of malware, spyware, viruses, worms and other attack types, as well as threats posed by policy violations. IDS tools passively monitor and detect suspicious activity; IPS tools perform active, in-line monitoring and can prevent attacks by known and unknown sources. Both tool types can identify and classify attack types.

2. ANTI-MALWARE

Anti-malware network tools help administrators identify block and remove malware. They enable the IT department to tailor its anti-malware policies to identify known and unknown malware sources, for example, or survey specific users and groups.

Malware is always on the lookout for network vulnerabilities — in security defenses, operating systems, browsers, applications and popular targets such as Adobe Flash, Acrobat and Reader — that they can exploit to fully access a victim's network. Best practices call for a multipronged defense that might also include IP blacklisting, data loss prevention (DLP) tools, anti-virus and anti-spyware software, web browsing policies, egress filtering, and outbound-traffic proxies.

3. MOBILE DEVICE MANAGEMENT

MDM software bolsters network security through remote monitoring and control of security configurations, policy enforcement and patch pushes to mobile devices. Further, these systems can remotely lock lost, stolen or compromised mobile devices and, if needed, wipe all stored data.

4. NETWORK ACCESS CONTROL

NAC products enforce security policy by granting only security policy–compliant devices access to network assets. They handle access authentication and authorization functions and can even control the data that specific user's access, based on their ability to recognize users, their devices and their network roles.

5. NEXT-GENERATION FIREWALLS

This technology expands on traditional stateful inspection to provide next-generation network security services, including application visibility and control and web security essentials. Next-generation firewalls also improve on standard firewall capabilities through application-awareness features.

6. AUTHENTICATION AND AUTHORIZATION

Traditional directory-based services, such as Active Directory, authenticate users and grant access based on authorization rules. Newer identity-based security technologies manage authentication and authorization through such methods as digital certificates and public key infrastructure solutions. Additional security is provided by the SNMP protocol itself. The most recent version, SNMPv3, provides authentication, authorization and encryption capabilities lacking in the previous two versions.

Network Security

Network security consists of the policies and practices adopted to prevent and monitor unauthorized access, misuse, modification, or denial of a computer network and network-accessible resources. Network security involves the authorization of access to data in a network, which is controlled by the network administrator. Users choose or are assigned an ID and password or other authenticating information that allows them access to information and programs within their authority. Network security covers a variety of computer networks, both public and private, that are used in everyday jobs; conducting transactions and communications among businesses, government agencies and individuals.

Networks can be private, such as within a company, and others which might be open to public access. Network security is involved in organizations, enterprises, and other types of institutions. It does as its title explains: It secures the network, as well as protecting and overseeing operations being done. The most common and simple way of protecting a network resource is by assigning it a unique name and a corresponding password.

Network security concept

Network security starts with Authentication, commonly with a username and a password. Since this requires just one detail authenticating the user name—i.e., the password—this is sometimes termed one-factor authentication. With two-factor authentication, something the user 'has' is also used (e.g., a security token or 'dongle', an ATM card, or a mobile phone); and with three-factor authentication, something the user 'is' is also used (e.g., a fingerprint or retinal scan).

Once authenticated, a firewall enforces access policies such as what services are allowed to be accessed by the network users. Though effective to prevent unauthorized access, this component may fail to check potentially harmful content such as computer worms or Trojans being transmitted over the network. Anti-virus software or an intrusion prevention system (IPS) helps detect and inhibit the action of such malware. An anomaly-based intrusion detection system may also monitor the network like wire shark traffic and may be logged for audit purposes and for later high-level analysis. Newer systems combining unsupervised machine learning with full network traffic analysis can detect active network attackers from malicious insiders or targeted external attackers that have compromised a user machine or account.

Communication between two hosts using a network may be encrypted to maintain privacy. Honey pots, essentially decoy network-accessible resources, may be deployed in a network as surveillance and early-warning tools, as the honey pots are not normally accessed for legitimate purposes. Techniques used by the attackers that attempt to compromise these decoy resources are studied during and after an attack to keep an eye on new exploitation techniques. Such analysis may be used to further tighten security of the actual network being protected by the honey pot. A honey pot can also direct an attacker's attention away from legitimate servers. A honey pot encourages attackers to spend their time and energy on the decoy server while distracting their attention from the data on the real server. Similar to a honey pot, a honey net is a network set up with intentional vulnerabilities. Its purpose is also to invite attacks so that the attacker's methods can be studied and that information can be used to increase network security. A honey net typically contains one or more honey pots

CRM: Sales, Marketing and Service Management

Customer Relationship Management (CRM) is to create a competitive advantage by being the best at understanding, communicating, delivering, and developing existing customer relationships, in addition to creating and keeping new customers. It has emerged as one of the largest management buzzword. Popularized by the business press and marketed by the aggressive CRM vendors as a panacea for all the ills facing the firms and managers, it means different things to different people. CRM, for some, means one to one marketing while for others a call centre. Some call database marketing as CRM. There are many others who refer to technology solutions as CRM. If so, what is CRM?

Business was built on trust. They could customize the products and all aspects of 4 delivery and payment to suit the requirements of their customers. They paid personal attention to their customers, knew details regarding their customer's tastes and preferences, and had a personal rapport with most of them.

In many cases, the interaction transcended the commercial transaction and involved social interactions. Even today, this kind of a relationship exists between customers and retailers, craftsmen, artisans – essentially in markets that are traditional, small and classified as pre-industries markets.

These relationship oriented practices have changed due to industrial revolution.. Businesses adopted mass production, mass communication and mass distribution to achieve economics of scale. Manufactures started focusing on manufacturing and efficient operations to cut costs. Intermediaries like distributors, wholesalers and retailers took on the responsibilities of warehousing, transportation, distribution and sale to final customers. This resulted in greater efficiencies and lower costs to manufacturers but brought in many layers between them and the customers. The resulting gap reduced direct contacts and had a negative impact on their relationships.

Technological Advancement

More information, communication and production technologies have helped marketers come closer to their customers. Firms operating in diverse sectors ranging from packaged goods to services started using these technologies to know their customers, learn more about them, and then build stronger bonds with them through frequent interactions.

Marketers could gain knowledge about customers, which helped them respond to their needs through manufacturing, delivery, and customer service. Technology also enabled ordering and product-use related services. Though the emergence of CRM in recent times coincided with the information age, one must remember that technology is just an enabler. Technology enabled marketers overcome several long felt shortcomings of mass marketing. Some of these included:

➢ Inefficiencies of mass marketing: 1980s and early 1990s witnessed some of the most radical business transformations that resulted in cost reductions in almost all functional departments except marketing. Manufacturing and related operations costs were reduced through business process reengineering, human resource costs were reduced through outsourcing, restructuring and layoffs, financial costs were reduced through financial reengineering but marketing costs kept increasing due to increased competition and product parity in virtually every industry.

➢ Lack of fast, effective and interactive models of customer contact, feedback and information.

➢ Lack of consolidated information about customer interactions, purchase behavior and future potential.

Intensive Competition

In competitive markets, especially the ones that were maturing and witnessing slow or no growth, marketers found it more profitable to focus on their existing customers. Studies have shown that it costs up to 10-12 times more to attract a new customer than to retain an existing customer. Marketers have now started focusing on the lifetime value of customers. They are moving away from just trying to sell their products to understanding, customers needs and wants and then satisfying their needs. This has led to a relationship orientation which creates opportunities to cross sell products and services over the lifetime of the customer.

Growing Importance of the Service Sector

The service sector contributes to over two-third of the GDP of most advanced economies. In India, the services sector contributes to over 50 per cent of the economy. One of the characteristics of the service industries is the direct interaction between the marketer and the buyer. In services, the provider is usually involved in the production as well as delivery directly.

For example, professional service providers like a doctor or consultant are directly involved in production as well as delivery of their services. Similarly, the customers are directly involved in production in the purchase and consumption of these services. These direct contacts create opportunities for better understanding, a better appreciation of needs as well as constraints and emotional bonding all of which facilitate relationship building. Therefore it should come as no surprise when you see the service firms pioneering many of the customer relationship initiatives. Firms operating in the financial services, hospitality business, telecom, and airlines are the early adopters and extensive users of CRM practices.

CRM in Marketing

Introduction

The concept of managing relationships with customers is not new. Companies have been interfacing with customers since the beginning of trade. However, the focus has always been to sell the products or services, as opposed to focusing on Customer Retention. Competition, driven by globalization and the Internet, has changed the face of business. Customers now have a variety of choices and, most importantly, they are becoming far more knowledgeable and demanding. The power has truly shifted to the customer. With this scenario, most companies realize that they need to treat their customers with more care. Companies are now desperately searching for different ways to manage customer relationships effectively, not only to acquire new customers, but also to retain the existing ones. According to a Harvard Business Review Study, some companies can boost their profits by almost 100% by retaining just 5% or more of their existing customers.

CRM Applications

The genesis of CRM is Sales Force Automation (SFA). Current CRM applications are a convergence of functional components such as sales, marketing, and customer service, advanced technologies & communication channels.

Sales Applications - The thrust of sales applications is automating the fundamental activities of sales professionals. Common applications include:

➢Calendar and scheduling

➢Contact and account management

➢ Compensation

➢ Opportunity and pipeline management

➢ Sales forecasting

➢ Proposal generation and management

➢ Pricing

➢ 47 Territory assignment and management

➢ Expense Reporting

Marketing Applications

Marketing Applications from the newest breed of applications in the CRM space. These applications complement sales applications and provide certain capabilities unique to marketing.

➢Common applications include:

➢Web-based/traditional marketing campaign planning, execution and analysis

➢Collateral generation and marketing materials management

➢ Prospect list generation and management

➢ Budgeting and forecasting

➢ A marketing encyclopedia (a repository of product, pricing and competitive

➢ Information, Lead tracking, distribution and management

Marketing applications primarily aim to empower marketing professionals by providing a comprehensive framework for the design, execution and evaluation of marketing campaigns and other marketing related activities. For example, a successful marketing campaign typically generates qualified sales leads that need to be distributed to sales professionals who need to act upon them. Marketing and sales automations are therefore complementary

One-to-One Relationship Marketing

It is an approach that concentrates on providing services or products to one customer at a time by identifying and then meeting their individual needs. It then aims to repeat this many times with each customer, such that powerful lifelong relationships are forged. As such it differentiates customers rather than just products

One to One Marketing is more than a sales approach. It's an integrated approach that must permeate all parts of an organization: marketing, sales, production, service, finance, etc. In fact, One to One Marketing needs to become the guiding vision that drives the whole company. One to One Marketing recognizes that lifetime values of loyal customers who make repeat purchases far exceed that of fickle customers who constantly switch suppliers in search of a bargain. This is particularly true within financial services where the customer acquisition costs are very high.

Whilst at first the concept appears to be only suitable for a niche market of rich clients, modern information technology, particularly the new interactive mediums, provide an opportunity to bring personalized and customized products to the mass market yet at a mass produced price. This is called Mass Customization.

However, it does require new thinking that breaks away from the traditional concepts of mass marketing and mass production. It is now recognized that the acquisition costs of a new customer is many orders of magnitude greater that of retaining an existing customer.

For example, in the general insurance industry acquisition costs can be equal to 2 to 3 years profit, yet many customers are switching suppliers every year! Further, with the introduction of Data Mining, many companies are now realizing that just 20% of their customers provide 80% of the profits. Worst, many of the remaining 80% of customers are lost-makers.

One to One Marketing is different to mass marketing because it differentiates the customers & not products, and because it selects customers based on their lifetime value. Studies show that such an approach produces a more profitable income stream and more competitive advantage. Many of these more profitable customers are discerning, and they demand or aspire to more personalized products and services. It is true that the provision of such products and services has in today's mass markets become an expensive niche, and many customers feel "forced" to take the standard offerings.

No wonder they become dissatisfied and switch when a new bargain is advertised. And in situations where there is no mass market. (e.g. solicitors) customers are becoming resentful for the apparent poor value for money. But now we have powerful and plentiful IT system, allowing us to create a whole new paradigm. It's called Mass Customization.

Mass Customization

Mass Customization harnesses these new technologies to bring customized and personalized products and services to customers at a mass production price. The uniqueness and profitability of customized products and services, together with the economies of scale and mass market penetration, stemming from the use of mass production techniques.

Mass Customization introduces a new paradigm whereby companies seek to fragment the market through economies of scope. Customers become integral with the product and service design processes, with more sophisticate customers undertaking simulations to answer "what-if" questions. Products and services are assembled from components to build unique products for individual needs. Mass Customization, like One to One Marketing, requires new organizational thinking. Every customer interaction provides an opportunity to learn more about the customer's needs and to then amend their existing products or services to meet their changing circumstances. True customer service leading to strong relationships and enhanced lifetime value. Every employee becomes a marketer.

Mass Customization is a componentized approach for assembling individual products and services to meet the unique needs of your customers but at the same cost as a mass produced product. Using modern information technology, customers, agents, distributors or employees can assemble these products and services to meet your customer's specific requirements.

But it doesn't stop at product sales. Over time, the products and services are amended so that they continue to meet customer needs, and continue to reinforce the bonds between you and your customers. When One to One Marketing is combined with Mass Customisation we have a very powerful synergy that provides a true competitive advantage. Relationship marketing as practised in various sectors along with some effective tips on using your customer's database.

CRM in Service Management

When you think about CRM, do you think first (and often only) of one department in your company? For instance, some companies use CRM for sales management and/or to handle marketing campaigns and market segmentation. Others use it for knowledge management. And some companies use CRM in the customer support department providing service management. But the role of CRM can be more than just a tool for sales force automation, marketing or customer support. In fact, CRM can help you automate your business processes and integrate every client-facing department with your service organization, resulting in increased customer satisfaction, long-term relationships and increased sales.

What worked for a technical support provider? The company is a leading provider of remote service and technical support for consumers, home office users and small businesses in the U.S. Its industry-certified agents deliver online support for all technologies, including PCs, Macs, Smartphone devices, net books, MP3 players, network devices, printers and digital cameras. Business partners include major service providers, retailers and hardware and software manufacturers.

In order to efficiently manage customer support activities for one of its partners the company needed a CRM system. Its choice was a customized, integrated NetSuite solution. Now customer records and cases are created dynamically in NetSuite using SuiteTalk, and both sets of records include customized fields.

Also part of the solution: The logic for closing a case by adding filters notes and work time for each support technician, quote and status. The solution helps the company deliver rapid, transparent and quality customer support services to its partner. Personalized support has helped strengthen the business relationship between the two firms. What worked for an online file backup service provider? A start-up company that provides online backup solutions for file storage and protection needed a CRM solution to deliver better service management of subscription plans, integrated payment processes and accurate reporting. The company needed a website that would serve as a marketing interface and portal for customers' data, a unique customized application, and a backend CRM solution for service management and reporting.

First the process flow was analyzed and customized. Then NetSuite was implemented to handle the business processes; and a unique Facebook-dedicated application was developed to enable file access to customers via the social network. The new website and customized application serve as single point of communication, and both are integrated with NetSuite to meet all of the service management and backend reporting requirements, from subscription plans to invoicing and payments. This CRM integration helped the company deliver faster services to its subscribers, improved customer satisfaction, and led to a more efficient internal reporting process. What's more, the innovative Facebook integration solution opened access to a large pool of potential clients

BPO/BCP

Business process outsourcing (BPO) is defined as a subset of outsourcing that involves the contracting of the operations and responsibilities of a specific business process to a third-party service provider. Originally, this was associated with manufacturing firms, such as Coca-Cola that outsourced large segments of its supply chain.

BPO is typically categorized into back office outsourcing, which includes internal business functions such as human resources or finance and accounting, and front office outsourcing, which includes customer-related services such as contact centre services.

BPO that is contracted outside a company's country is called offshore outsourcing. BPO that is contracted to a company's neighboring (or nearby) country is called near shore outsourcing.Often the business processes are information technology-based, and are referred to as ITES-BPO, where ITES stands for Information Technology Enabled Service. Knowledge process outsourcing (KPO) and legal process outsourcing (LPO) are some of the sub-segments of business process outsourcing industry.

BCP

Business continuity planning (or business continuity and resiliency planning) is the process of creating systems of prevention and recovery to deal with potential threats to a company. Any event that could negatively impact operations is included in the plan, such as supply chain interruption, loss of or damage to critical infrastructure (major machinery or computing /network resource). As such, BCP is a subset of risk management. In the US, government entities refer to the process as continuity of operations planning (COOP).

A Business Continuity Plan outlines a range of disaster scenarios and the steps the business will take in any particular scenario to return to regular trade. BCP's are written ahead of time and can also include precautions to be put in place. Usually created with the input of key staff as well as stakeholders, a BCP is a set of contingencies to minimize potential harm to businesses during adverse scenarios

Needs

The main advantage of any BPO is the way in which it helps increase a company's flexibility. However, several sources have different ways in which they perceive organizational flexibility. In early 2000s BPO was all about cost efficiency, which allowed a certain level of flexibility at the time. Due to technological advances and changes in the industry (specifically the move to more service-based rather than product-based contracts), companies who choose to outsource their back-office increasingly look for time flexibility and direct quality control. Business process outsourcing enhances the flexibility of an organization in different ways:

Most services provided by BPO vendors are offered on a fee-for-service basis, using business models such as Remote In-Sourcing or similar software development and outsourcing models. This can help a company to become more flexible by transforming fixed into variable costs. A variable cost structure helps a company responding to changes in required capacity and does not require a company to invest in assets, thereby making the company more flexible.

Another way in which BPO contributes to a company’s flexibility is that a company is able to focus on its core competencies, without being burdened by the demands of bureaucratic restraints. Key employees are herewith released from performing non-core or administrative processes and can invest more time and energy in building the firm’s core businesses. The key lies in knowing which of the main value drivers to focus on – customer intimacy, product leadership, or operational excellence. Focusing more on one of these drivers may help a company create a competitive edge.

A third way in which BPO increases organizational flexibility is by increasing the speed of business processes. Supply chain management with the effective use of supply chain partners and business process outsourcing increases the speed of several business processes, such as the throughput in the case of a manufacturing company.

Finally, flexibility is seen as a stage in the organizational life cycle: A company can maintain growth goals while avoiding standard business bottlenecks. BPO therefore allows firms to retain their entrepreneurial speed and agility, which they would otherwise sacrifice in order to become efficient as they expanded. It avoids a premature internal transition from its informal entrepreneurial phase to a more bureaucratic mode of operation.

A company may be able to grow at a faster pace as it will be less constrained by large capital expenditures for people or equipment that may take years to amortize, may become outdated or turn out to be a poor match for the company over time.

Although the above-mentioned arguments favor the view that BPO increases the flexibility of organizations, management needs to be careful with the implementation of it as there are issues, which work against these advantages. Among problems, which arise in practice are: A failure to meet service levels, unclear contractual issues, changing requirements and unforeseen charges, and a dependence on the BPO which reduces flexibility. Consequently, these challenges need to be considered before a company decides to engage in business process outsourcing.

A further issue is that in many cases there is little that differentiates the BPO providers other than size. They often provide similar services, have similar geographic footprints, leverage similar technology stacks, and have similar Quality Improvement approaches

In this troubled economy every rupee is precious. The business needs to control costs wherever possible. Outsourcing certain aspects of the business to third parties, can be a powerful cost cutting move that also frees up for more important tasks such as finding new clients and product development.

Focus on Core Activities

In rapid growth periods, the back-office operations of a company will expand also. Outsourcing those activities will allow refocusing on those business activities that are important without sacrificing quality or service in the back-office.

Cost and efficiency Savings

Back-office functions that are complicated in nature, but outsourcing enable the business to perform it at a consistent and reasonable cost.

Expansion and growth

Outsourcing helps to reduce the investment in backend activities. Hence the firm can use its resources for its further expansion and developmental activities.

Customer support

Having a live person to deal with customer questions and concerns is an important part of building the business' credibility. When it is outsourced the call professionals can represent the business with authority.

Benefits of latest development

The outsourcer generally maintains a world class information technology and techniques. Therefore the client company is also benefitted from the technical expertise of the outsourcing company

Guidelines

BPO/KPO/Domestic & International Call Centres/NOC etc. are covered under the 'Other Service Provider' (OSP) Category by the Department of Telecommunications.

The companies who are providing the 'Applications Services' means providing services like tele-banking, tele-medicine,tele-education, tele-trading, e-commerce, call centre, network operation centre and other IT Enabled Services, by using Telecom Resources provided by Authorized Telecom Service Providers. The 'Telecom Resource' means Telecom facilities used by the OSP including, but not limited to Public Switched Telecom Network (PSTN), Public Land Mobile Network (PLMN), Integrated Services Digital Network (ISDN) and /or the telecom bandwidth provided by authorized telecom service provider having valid licence under Indian Telegraph Act, 1885.

The 'Company' means a company registered under Indian Companies Act including foreign companies permitted by RBI under Foreign Exchange Management Regulations and registered under Part-XI(Section 591 to 608) of the Companies Act, 1956 for setting up a place of business in India. 'Domestic OSP' are the OSP providing the Application Services within national boundaries. 'International OSP' is the OSP providing the Application Services beyond national boundaries.

General conditions of OSP registration

Registration may be granted to any company to provide Application Services. These service providers will not infringe on the jurisdiction of other Authorized Telecom Service Providers and they will not provide switched telephony.

The entities entitled for OSP registration must be a company registered under Indian Companies Act,1956. A Company may apply for registration to the Authority in the preformed prescribed by the Authority from time to time.

Online system for OSP registration

It is mandatory to get new Registration Number allotted by the Online OSP Registration system for the existing OSP Registrations. In case you have existing registered OSP sites for which you would like to get the new Registration Number from the system please contact Assistant Director General (ADG) of the concerned Telecom Enforcement, Resource and Monitoring Cell (TERM Cell) preferably before applying for the login-id from the system.

Terms and conditions of the OSP registration are available on the DOT website. Bangalore, Chennai, Hyderabad, Gurgaon, NCR, Ahmedabad, Mumbai and Pune are Tier I cities that are leading IT cities in India.

With rising infrastructure costs in these cities, many BPO's are shifting operations to Tier II cities like Nashik, Sangli, Aurangabad (Maharashtra), Mangalore, Mysore, Hubli-Dharwad, Belgaum, Coimbatore, Nagpur, Trichy, Kochi, Trivandrum, Chandigarh, Mohali, Panchkula, Bhubaneshwar, Jaipur, Visakhapatnam, Raipur and Lucknow.

Tier II cities offer lower business process overhead compared to Tier I cities, but have a less reliable infrastructure system which may hamper dedicated operations. The Government of India in partnership with private infrastructure corporations is working on bringing all around development and providing robust infrastructure all over the nation.

Merits and Demerits

Cost advantages:

The most obvious and visible benefit relates to the cost savings that outsourcing brings about. You can get your job done at a lower cost and at better quality as well. Due to the difference in wages between western countries and eastern europea, the same kind of work that is done over there can be done in Poland at a fraction of the cost. There is a cost savings of around 30% by outsourcing your work to Poland. Plus, the quality of the services provided is high thereby ensuring that low-cost does not mean low-quality.

Increased efficiency:

When you outsource your business needs to an outsourcing partner like getsix, they bring years of experience in business practices and expertise in delivering complex outsourcing projects. Thus, they can do the job better with their knowledge and understanding of the domain. This leads to an increase in productivity and efficiency in the process thereby contributing to the bottom-line of your company.

Focus on core areas:

Outsourcing your business processes would free your energies and enable you to focus on building your brand, invest in research and development and move on to providing higher value added services.

Save on infrastructure and technology:

Outsourcing eliminates the need for investment in infrastructure as the outsourcing partner takes the responsibility of the business processes and hence develops infrastructure for the same.

Skilled resources:

You no longer need to invest in recruiting and training expensive resources for your business. Providers like get six take care of the resourcing needs with their pool of highly skilled resources. The resources employed by get six are well educated in the respective business areas and are experienced in handling the business needs of companies that want to outsource. Further, get six employs world class business practices perfected over the years by catering to customers around the globe. Get access to the expertise and capabilities of get six Solutions.

Time advantage:

Apart from the cost advantage, the other much touted benefit has to do with the time zone differential between your country and the location you are outsourcing to. Get your job done while you are closed for the day and wake up to your service being delivered the next morning. This unique advantage gives you the benefit of round-the-clock business operations.

Faster and better services:

Make your service offerings better with high quality deliverables and decrease the lead time it takes for your product to reach the marketplace. Thus you would be faster in getting your ideas converted into products and better at delivering the value-added proposition.

Some of them disadvantages are:

Some of the major risk factors involved in outsourcing are:

- Service expectation mismatch;
- Lower than anticipated cost savings;
- Data theft;
- Intellectual property protection;
- Higher training costs;
- Monitoring costs;
- Compromising confidentiality;
- Loss of control;
- Information security;
- Customer dis- satisfaction; etc.

In case of offshore outsourcing, cultural mismatch or language barrier can pose a great challenge.

Call Center

A call centre or call center is a centralized office used for receiving or transmitting a large volume of requests by telephone. An inbound call centre is operated by a company to administer incoming product support or information enquiries from consumers. Outbound call centers are operated for telemarketing, solicitation of charitable or political donations, debt collection and market research. A contact centre is a location for centralized handling of individual communications, including letters, faxes, live support software, social media, instant message, and e-mail.

A call centre has an open workspace for call centre agents, with work stations that include a computer for each agent, a telephone set/headset connected to a telecom switch, and one or more supervisor stations. It can be independently operated or networked with additional centers, often linked to a corporate computer network, including mainframes, microcomputers and LANs.

Increasingly, the voice and data pathways into the centre are linked through a set of new technologies called computer telephony integration.

The contact centre is a central point from which all customer contacts are managed. Through contact centres, valuable information about company are routed to appropriate people, contacts to be tracked and data to be gathered. It is generally a part of company's customer relationship management. The majority of large companies use contact centres as a means of managing their customer interaction. These centres can be operated by either an in house department responsible or outsourcing customer interaction to a third party agency (known as Outsourcing Call Centres)

Call Center Functioning

Call centres are multi-functional and unusual in the sense that they do not follow conventional opening hours. Although settings are that of an office environment, the shift patterns and customer service aspect can somehow be likened to the hospitality industry for example.

Beside knowledgeable shift leaders along with the usual soft skills and good practice that employers look for in call-handlers such as good customer rapport, time efficiency and accurate data capture… what does it take to get the most out of a call centre?

I've compiled a top five list of some of the obvious and less obvious functions and skills-sets which apply to the good practice of call centre management.

1) Meeting customer expectations: When businesses outsource they want their customers treated with the same care that they would extend themselves, all while keeping calls concise and cost efficient. Your service is only as good as your agents so how is this achieved? a) Through taking ownership of the issue while maintaining control of the call. b) Dealing with escalations rapidly and ensuring correct departments are informed. c) Becoming an expert in the field with skilled agents so that callers feel they are in safe hands in addition to follow ups.

2) 24 hour response can have its challenges. Absorbing clients from various sectors who require engineer call-outs and lone worker support are particularly popular for out of hours support. The solution is to remain flexible with an ability to alter scripting or rotes at short notice.

Similar to extreme weather conditions or other unpredictable circumstances especially within the travel sector; good management techniques and flexibility of agents to deal with sudden influxes, combining a degree of empathy with call control is essential.

3) Up-selling and closing sales: Product knowledge but also operators with sales skills and result-focused incentives. Working in conjunction with cart-abandonment and lead generation sites for up-selling and closing sales.

4) Live Chat and Social Media support is perfect for 24 hour contact centres as agents can pick up chats or status-updates in between calls or at agreed priority level. Be it product-based sales or service enquiries it means that customers are being dealt with in real time as well as use of company websites maximized. Clients can gauge response-levels by paying per chat and being contactable 24 hours; perfect for start-ups or testing the market when trying to expand internationally.

5) Tailored caller experience: Each business knows their customers best, therefore details such as individual queue messages and music, or the choice between full call volume cover, overflow capture or out of hours only provides flexibility and offers convenience as a service.

Call Center Ethics

Call Centre Code of Conduct

The Call Centre is committed to providing service excellence to our customers while creating and maintaining a clean safe work environment for ourselves, promoting respect, trust and tolerance of each other's differences. This code defines the parameters within which a rewarding and mutually supportive working environment can be created and is based on the assumption that most employees already uphold these standards of conduct.

1. Honesty

All offers must be stated clearly and honestly so that both parties know precisely what they have committed to and what they can expect in return.

2. Proper Identification

All telemarketing calls should begin with the name of the company on whose behalf you are calling clearly stated, followed by the name of the agent calling.

3. Purpose of the Call

The telephone representative will disclose the principle reason for the call as soon as is possible in the conversation.

4. Hours of Operation Outbound Calls

Outbound calls to either business or consumer shall not be placed during hours that may be perceived as unreasonable that is before 8:00am or after 9:00 pm(local time at called party's location).On Saturdays it is suggested that no calls are placed before 10:00am or after 9:00pm. On Sundays no calls are suggested before 12:00 noon. No calls should be made on public or religious holidays. The telephone representative shall be sensitive to any inconveniences caused during weekend calling.

4a. Inbound Calls

The timing of inbound calls is determined by the customer and the offer or agreement of the service provider.

5. Training

Prior to making or receiving calls, all telemarketing representatives shall receive adequate training in professional telemarketing skills and adhere to recognized practices and procedures including adherence to any and all laws and regulations pertaining to telemarketing.

6. Privacy

Telemarketing technology enables the collection and exchange of personal information on a scale unprecedented in the history of civilization. There is increased potential for violating the privacy of individuals or groups. It is the responsibility of the teleprofessional to maintain the privacy and integrity of all data describing individuals. This includes taking precautions to ensure the accuracy of the data collected as well as protecting it from unauthorized access or accidental disclosure to inappropriate individuals. Procedures shall be implemented to allow individuals to review their records and correct any inaccuracies.

7. Integrity

Honoring one's commitments is a matter of integrity and honesty. For the tele professional this includes honoring contracts, agreements, and assigned responsibilities.

8. Respect

Respect for ourselves, respect for others, and respect for our environment.

9. Testimonial

Any testimonial given by a marketer will be accurate and with permission of the original source.

10. Client Privacy

Marketers will remove a customer's name from a call list when asked to do so by that customer. Customers who have an unlisted phone number will not be contacted unless they have given consent to do so.

11. Children

Marketers will use common sense and discretion when marketing to children. They will be sensitive to the age targeted along with the knowledge and maturity of this demographic

Part A (ONE Mark)

Multiple Choice Questions

Online Examination

Part B (2 Marks)

1. Write four merits of Call Center
2. Write about the merits of E-Commerce.
3. Write short notes on Online purchasing system.
4. What are the demerits of BPO?
5. Define E-Security
6. Write four merits of Call Center.
7. List out the Security Tools.
8. Define firewalls.

Part C (5 Marks)

1. Explain the technology intelligence and their evolution
2. Brief explanation about CRM
3. Give the introduction of the securities and types of securities
4. Write about e- market and E shop with examples.
5. What are the guidelines and needs for BPO.
6. Merits and demerits of BPO/BCP.
7. Brief explanation about service management

KARPAGAM ACADEMY OF HIGHER EDUCATION						
Department of Management						
Unit 2 -Emerging Trends in Technology -Multiple Choice Questions- Each Question Carry ONE Mark						
S.No	**Question**	**OPTION 1**	**OPTION 2**	**OPTION 3**	**OPTION 4**	**ANSWER**
1	_____ may be used as a synonym for communities of practice	Communities of practice	Communities of interest	Knowledge management	None of the above	Communities of interest
2	_____ is a knowledge management professional at the U.S . Department of transportation's highway administration	Murphy	Barry	Feller	Mike burk	Mike burk
3	Which of the following resources is a source of competitive advantage	Physical resources	Human resources	Organizational resources	All of the above	All of the above
4	In human resoure management, the goal is to become a_____ organization	Knowledge- based	Learning	Both A and B	All of the above	All of the above
5	Informayion consists of facts and data that are organized to describe a particular _____	Situation or condition	beleifs	Expectations	None of the above	Situation or condition
6	Knowledge consists of _____	Facts	Truths	beleifs	All of the above	All of the above
7	When a manager of moved to another country for employment is called	International manager	Foreign manager	Expatriate	None of the above	Expatriate
8	KMAT stands for_____	Knowledge Managemnt Assessment Tool	Knowledge Management Access Tool	Knowledge Management Access Transfer	Knowledge Management Assessment Tool	Knowledge management Assessment Tool
9	Technology is approached from_____ different points	Three	Two	Several	One	Several
10	All refer in the brodest sense to the concept of computer- enabled_____	Collection	Transmission of data	Information	All of the above	All of the above

11	Information technology is generally considered to refer to computer- aided hardware and software used in the _____	Collection	Storage	Codification	All of the above	All of the above
12	Information and communications technology has produces a number of new tools for knowledge management, including the_____	Internet	Intranet	Extranet	Both A and b	Both A and b
13	_____ is the term used to mean information technology architecture that emcompasses the entire organization	Information architecture	Communication technology	Extranet architecture	None of the above	Extranet architecture
14	_____ was first used in the 1980s to refer to an enter prise wide model for all data creation nd movement in an ornization	Information architecture	Communication technology	Extranet architecture	None of the above	Information architecture
15	There are _____ parts to designing information technology system architecture	Three key	Four key	Two key	One key	Two key
16	The informtion is the _____ the system is the means to explore it	Asset	Liability	Technologies	Mental process	Asset
17	Value stream mapping is an application of process mapping developed to apply _____ principles to process improvement	Management	Lean	Supply chain	Cycle time	Lean
18	Many information and communication technology tools found in the _____	Creation	retrieval	Transfer process	All of the above	All of the above
19	ICT enables transformtions and innovations in such features of public programs as_____ of program services	Policy fomation	Administration	Both A and B	None of the above	Both A and B

20	_____ includes considering costs and benefits across government for hardware and softwre technologies	Information technology	Information and communication technology	Total cost of ownership	None of the above	Total cost of ownership
21	A key reason for these high failure rates was the lack of commitment by_____ management to stay the course	Middle level	Junior level	Senior level	Super senior level	Senior level
22	The _____ sample was divided roughly fifty-fifty in its answers to the question of where they believed KM technology is headed	Chief information officer	Chief executive officer	Both A and B	All the above	All of the above
23	The second major trend in KM technology is the growing demand for coloboration capability in KM communications_____	Hardware	Software	Both A and B	None of the above	Both A and B
24	Public sector knowledge management included programs for_____	Documenmt management	Workflow systems	Information portals	All of the above	All of the above
25	The _____ has made it possible for other companies to eliminate intermediaries and seli directly to the end consumer	SCM	Internet	Competition	Global sourcing	Internet
26	Mobile technology is a _____affecting knowledge management and information technology	First trend	Second trend	Third trend	fourth trend	Fourth trend
27	_____ of elected officials are all candidates for greater use of mobile technology	Staffs	Executives	CEOs	None of the above	Staffs
28	M- government is facilitated by_____ in technology	One direction	Two directions	Three directions	Four directions	Two directions
29	The M-government second direction is_____	Wireless technology	Information technology	Mobile technology	None of the above	Mobile technology

30	LAN stands for_____	Local Area Network	Local Access Network	Both A and B	None of the above	Local Area Network
31	Most governments believe that mobile technologies greatly improve the _____ in the management	Efficiency	Effectiveness	Responsiveness	All of the above	All of the above
32	_____ Types of interoperbility have been identified	One	Two	Three	Four	Two
33	_____ refers to the different agency networks that collect, organize, disseminate information	Technical interoperability	Operational interoperability	Technological interoperability	None of the above	Operational interoperability
34	_____ refers to hardware and software compatibility	Technical interoperability	Operational interoperability	Technological interoperability	None of the above	Technical interoperbility
35	Overcome barriers of ambiguity about_____	Users	Statutory authority	Standards	Limitations	Statutory authority
36	Overcome problems of lack of experience among_____	Users	Statutory authority	Standards	Limitations	Users
37	Exmples of M- government applications at the state level included_____	California	Virginia	New york	All of the above	All of the above
38	_____ analysis relates to what processes activities and decisions actually create costs in your supply chain	Cost driver	Value proposition	Cost reduction	Target costing	Cost driver
39	VITA stands for_____	Virginia Information Technology Agency	Virginia Information Technology Area	Both A and B	None of the above	Virginia Information Technology Agency
40	Reverse logistics is required because	Goods are defective	Goods are unsold	The customers simply change their minds	All of the above	All of the above
41	Which of the following is not true about training_____	It is a short duration exercise	It is technical in nations	It is primary for managers and executives	It is concerned with specific job skills	It is primary for managers and executives

42	In which type of analysis are corporate goals and plans compared with the existing manpower, inventory to determine the training needs	organization analysis	Operation analysis	Individual analysis	None of the above	Organization analysis
43	The process of enhancing the technical skills of workers in a short period is called_____	Training	Development	Education	None of the above	Training
44	E-learning is all about_____	Computers and compating	Being technology-triven	Electronics	Experience	Experience
45	The planned use of networked information and communications technology for the delivery of training is called_____	E- learning	Role playing	Case study	Programmed learning	E- learning
46	The term of learners working online in a realtime mode using the internet is knowm as	Individualized selfbased e- learning online	Individualized selfbased e-learning offline	Group based e-learning synchronously	Group based e-learning asynchronously	Group based e-learning synchronously
47	Which of the folloeing is not scripting language	HTML	XML	Post script	Java script	Post script
48	Which of the following is a platform free language	Fortran	Assembly	C	Java	Java
49	A digital signature is _____	Scanned signature	Signature in binary form	Encrypting information	Handwritten signature	Encrypting information
50	Mechanism to protect private networks from outside attacks is	Firewall	Antivirus	Digital signature	Formatting	Firewall
51	A computer system that permits multiple users to run programs at same time	Real time system	Multi programming system	Time sharing system	Multi tsking system	Multi tasking system
52	Computer communication technology that provides a way to interconnect multiple computer across short distnce is	LAN	WAN	MAN	Wireless network	LAN

53	Telnet is a service that runs	Television on net	Remote program	Cable TV network	Telenext	Remote program
54	A device that forwards data packet from one network to another is called a	Bridge	Switch	Hub	Gateway	Switch
55	Which of the following is the fastest media of data transfer	Co- axial cable	Untwisted wire	Telephone lines	Fibre optic	Fibre optic
56	A tool that s used to transfer data/files mong computers on the internet	FTP	Archie	TCP	Dgopher	TCP
57	HTML is a	Programming language	Scripting language	Web browser	Network protocol	Scripting language
58	Secret key encryption is also known as a	Asymmetric encryption	Symmetric encryption	Secret encryption	Private encryption	Private encryption
59	The concept of electronic cash is to execute payment by	Credit card	ATM Card	Using computers and networks	Cheque	Using computers and network
60	SMTP is a	Networking protocol	Protocol used for tranferring message between end user and mail server	Protocol used for smart card message interchange	Encryption standard	Protocol used for tranferring message between end user and mail server

UNIT-III

SYLLABUS

Content Management and Disseminations: E-learning - Models WBT, CBT, Virtual Campus, LMS and LCMS, Video conferencing, Chatting, Bulleting, Building Online community, Dashboard Models - Asynchronous and Synchronous Learning.

Content Management and Disseminations

Digital content management system is a software system that provides preservation, organization and dissemination services for digital collections. By adapting the systems analysis process, the University of Arizona Library analyzed its needs and developed content management system requirements for finding a suitable information system that addresses the increasing needs of digital content management. Dozens of commercial and open source candidates were examined to match against the requirements. This article provides detailed analysis of three major players (Greenstone, Fedora, and D Space) in key areas of digital content management: preservation, metadata, access, and system features based on the needs of the University of Arizona Library. This paper describes the process used to analyze and evaluate potential candidates and includes results of analysis to illuminate the process.

E-Learning Definition

A learning system based on formalized teaching but with the help of electronic resources is known as E-learning. While teaching can be based in or out of the classrooms, the use of computers and the Internet forms the major component of E-learning. E-learning can also be termed as a network enabled transfer of skills and knowledge, and the delivery of education is made to a large number of recipients at the same or different times. Earlier, it was not accepted wholeheartedly as it was assumed that this system lacked the human element required in learning.

However, with the rapid progress in technology and the advancement in learning systems, it is now embraced by the masses. The introduction of computers was the basis of this revolution and with the passage of time, as we get hooked to smart phones, tablets, etc, these devices now have an importance place in the classrooms for learning. Books are gradually getting replaced by electronic educational materials like optical discs or pen drives. Knowledge can also be shared via the Internet, which is accessible 24/7, anywhere, anytime.

Description

E-learning has proved to be the best means in the corporate sector, especially when training programs are conducted by MNCs for professionals across the globe and employees are able to acquire important skills while sitting in a board room, or by having seminars, which are conducted for employees of the same or the different organizations under one roof. The schools which use E-learning technologies are a step ahead of those which still have the traditional approach towards learning.

No doubt, it is equally important to take forward the concept of non-electronic teaching with the help of books and lectures, but the importance and effectiveness of technology-based learning cannot be taken lightly or ignored completely. It is believed that the human brain can easily remember and relate to what is seen and heard via moving pictures or videos. It has also been found that visuals, apart from holding the attention of the student, are also retained by the brain for longer periods. Various sectors, including agriculture, medicine, education, services, business, and government setups are adapting to the concept of E-learning which helps in the progress of a nation.

Models

1. Situated Cognition Theory

The Situated Cognition Theory was first published in 1989, but its principles are still just as applicable today. Essentially, the theory is based on the concept that you cannot separate knowing from doing. It also stresses how important it is for people to apply the things they learn within a clear context. It also stipulates that learning is a social endeavor that gives people the opportunity to expand their knowledge through discussions and group problem-solving tasks.

2. Socio cultural Learning Theory

The original work detailing the Socio cultural Learning Theory was written in the early 1930s. Due to political turmoil under Stalin and translation issues, it took a long time for it to become widely known. The theory revolves around three critical elements. These are culture, language, and the zone of proximal development. It suggests that our environment plays a crucial part in a learner's development. For example, peers have the power to influence how a learner thinks or feels about a particular subject.

3. The ADDIE Model

This acronym stands for Analyze, Design, Develop, Implement, and Evaluate. The ADDIE model was first designed in the 1975 by the U.S. Army by the Centre for Educational Technology at Florida State University. It is comprised of the five factors listed above, which helps Instructional Design professionals tackle eLearning projects in stages. ADDIE tackles eLearning development rather than learning behaviors. It allows Instructional Designers to delve into the needs, learning objectives, and desired outcomes so as to create more personalized eLearning resources.

4. Merrill's Principles of Instruction

Merill's theory is based on the different ways that learning can be facilitated. Each phase in the learning process has an important role to play. There are four core phases of learning: demonstration, activation of previous knowledge, application, and integration into real world challenges. The approach is task-centered. This theory also involves "scaffolding", whereby learners are gradually introduced to more complex ideas and concepts as the lesson progresses.

5. Individualized Instruction

As the name implies, the Individualized Instruction Theory revolves around the individual and how they learn. If you are learning something and catch on quickly, you can keep going. However, if you are not connecting with the material, the theory allows you to go at your own pace. It also accounts for learners who respond better to different learning preferences.

Individualized Instruction centers on 4 key principles:

- Learners should be able to complete the work autonomously. As a result, they have the opportunity to focus on their own strengths and areas for improvement.
  - Each lesson should be followed by an assessment to gauge learner progress.
  - Written learning materials are preferred over presentations.
  - Facilitators support learners and add a level of social interactivity to the experience.

6. Bloom's Taxonomy of Learning Objectives

This well-known theory was first developed in the 1950s. While some contemporary theories focused on pure memorization of facts, Bloom focused on the cognitive domain. This portion of the theory moves up a hierarchy of processes starting at the most basic. These specific processes include: Remembering, Understanding, Applying, Analyzing, Evaluating, and Creating. The committee which was overseen by Bloom also stipulated that there are 3 essential domains to consider: cognitive, affective, and psychomotor.

7. The SAM Model

This Instructional Design model allows the Instructional Designer to make changes by performing small steps and multiple iterations. You begin with the short Preparation Phase, where information on the eLearning project is gathered. Then you move to the Iterative Design and Iterative Development where the design is created and reviewed. This process allows for more flexible designs with rapid changes as the eLearning project moves forward.

WBT

Short for ***W**eb-**b**ased **t**raining*, a generic term for training and/or instruction delivered over the Internet or an intranet using a Web browser. Web-based training includes static methods -- such as streaming audio and video, hyperlinked Web pages, live Web broadcasts, and portals of information -- and interactive methods -- such as bulletin boards, chat rooms, and messaging, video conferencing and discussion threads.

Businesses often use Web-based training to educate employees. The instruction can be facilitated and paced by the trainer or self-directed and paced by the trainee.

CBT

C*omputer-****b****ased ****t****raining* (**CBT**) is a type of education in which the student learns by executing special training programs on a computer. CBT is especially effective for training people to use computer applications because the CBT program can be integrated with the applications so that students can practice using the application as they learn.

Historically, CBTs growth has been hampered by the enormous resources required: human resources to create a CBT program. And hardware resources needed to run it. However, the increase in PC computing power, and especially the growing prevalence of computers equipped with CD-ROMs, is making CBT a more viable option for corporations and individuals alike. Many PC applications now come with some modest form of CBT, often called a *tutorial*.

Virtual Campus

A **virtual campus** or **e campus**, refers to the online offerings of a college or university where college work is completed either partially or wholly online, often with the assistance of the teacher, professor, or teaching assistant. Many colleges and universities now offer such courses (or entire degree programs) either partially or wholly online. There are an estimated 4,500 such institutions with total enrollments approaching perhaps 2,000,000.

The majority of students using virtual campuses to obtain online degrees are adult's students for three main reasons:

- Flexibility – Adults with full-time jobs and families would find it impossible to attend daily at a traditional school setting. Online classes allow students to work at their own pace and work around their busy lives.
- Cost – The cost of an online degree is relatively cheaper than at a traditional college setting. Obtaining your degree online eliminates costs such as classroom costs and facility upkeep costs that traditional students are required to pay because they are using the campus. However, the cheaper cost of an online degree does not diminish the value of the degree.

- Broad Choices – Students can remain at home and have availability to degrees that may not be offered by universities or colleges nearby.

Schools use a variety of tools for conducting classes – typically called learning management systems (LMS) or course management systems (CMS). CMS may also refer to CONTENT Management Systems.

Some of the aspects that go under virtual campus include various types of learning activities such as lectures, homework, discussions, readings, assignments. Classes are usually self paced using online documents and databases that might be available to them. Tests and other assignments are available online in specific programs used for online classes. Other methods used in virtual campus are live sessions, videoconferencing, discussing and sharing various applications. Individuals are able to access the materials any time they want under the teacher's control and are able to access anywhere online where they're able to access internet usage. Email is a big part of the virtual campuses and is often used before, during and after sessions. This aids individuals in exchanging information and or point them to the right direction that would be useful in increasing and understanding various methods available to them via documents and online sources.

LMS and LCMS

If you're confused about the differences between a learning management system (LMS) and a learning content management system (LCMS), you're not alone. Not only are the names similar, some suppliers are positioning LCMSs as the new wave of LMSs. In fact, an LMS and an LCMS are complementary but very different systems that serve different masters and address unique business challenges.

In essence, an LMS is a high-level, strategic solution for planning, delivering, and managing all learning events within an organization, including online, virtual classroom, and instructor-led courses. The primary solution is replacing isolated and fragmented learning programs with a systematic means of assessing and raising competency and performance levels throughout the organization. For example, an LMS simplifies global certification efforts, enables companies to align learning initiatives with strategic goals, and provides a viable means of enterprise-level skills management.

The focus of an LMS is to manage learners, keeping track of their progress and performance across all types of training activities. It performs heavy-duty administrative tasks, such as reporting to HR and other ERP systems but isn't *generally* used to create course content.

In contrast, the focus of an LCMS is on learning content. It gives authors, instructional designers, and subject matter experts the means to create e-learning content more efficiently. The primary business problem an LCMS solves is to create just enough content just in time to meet the needs of individual learners or groups of learners.

Rather than developing entire courses and adapting them to multiple audiences, instructional designers create reusable content chunks and make them available to course developers throughout the organization. This eliminates duplicate development efforts and allows for the rapid assembly of customized content.

How does an LCMS fit within an LMS infrastructure?

Because an LMS can have a direct impact on the work of thousands of learners and manages all aspects of organizational learning, experts recommend starting with an LMS that can be easily integrated with an LCMS.

IDC's report: The Learning Content Management System: A New E-Learning Market Segment Emerges explains: "LCMSs and LMSs are not only distinct from one another; they also complement each other well. When tightly integrated, information from the two systems can be exchanged, ultimately resulting in a richer learning experience for the user and a more comprehensive tool for the learning administrator. An LMS can manage communities of users, allowing each of them to launch the appropriate objects stored and managed by the LCMS. In delivering the content, the LCMS also bookmarks the individual learner's progress; records test scores, and pass them back to the LMS for reporting purposes."

Differences and overlap

Both an LMS and an LCMS manage course content and track learner performance. Both tools can manage and track content at a learning object level, too. An LMS, however, can manage and track blended courses and curriculum assembled from online content, classroom events, virtual classroom meetings and a variety of other sources. Although an LCMS doesn't manage blended learning, it does manage content at a lower level of granularity than a learning object, which allows organizations to more easily restructure and repurpose online content.

In addition, advanced LCMSs can dynamically build learning objects based on user profiles and learning styles. When both systems adhere to XML standards, information is passed easily from the object level to the LMS level. The following chart, based primarily on research conducted by Brandon Hall, summarizes the capabilities and differences between the two systems:

	LMS	LCMS
Who benefits?	All learners; organization	Ccontent developers; learners who need personalized content
Provides primary management of	Learner performance; learning requirements; learning programs and planning	Learning content
Manages e-learning	Yes	Yes
Manages traditional forms of training, such as instructor-led	Yes	No
Tracks results	Yes	Yes
Supports learner collaboration	Yes	Yes
Includes learner profile management	Yes	No
Allows HR and ERP systems to share learner data	Yes	No
Schedules events	Yes	No
Offers competency mapping/skill gap analysis	Yes	No
Includes registration, prerequisite screening, and cancellation notification	Yes	No
Creates test questions and test administration	Yes	Yes
Supports dynamic pretesting and adaptive learning	No	Yes
Supports content creation	No	Yes
Organizes reusable content	Yes	Yes
Includes workflow tools to manage content creation process	No	Yes
Develops content navigation controls and user interface	No	Yes

Video conferencing

DEFINITION

Video conferencing is a technology that allows users in different locations to hold face-to-face meetings without having to move to a single location together. This technology is particularly convenient for business users in different cities or even different countries because it saves the time, expense and hassle associated with business travel. Uses for video conferencing include holding routine meetings, negotiating business deals and interviewing job candidates.

BREAKING DOWN 'Video Conferencing'

Video conferencing main advantage over teleconferencing is that users can see each other, which allows them to develop stronger relationships. When a video conference is held for informal purposes, it is called a video call or video chat.

Different Ways to Hold Video Conferences

There are varieties of ways video conferencing can be conducted. Individuals may use web cameras connected to our built into laptop, tablet, or desktop computers. Smart phones equipped with cameras may also be used to connect for video conferences. In such instances, a software-based platform typically is used to transmit the communication over Internet protocols. The stability and quality of the video conference may fluctuate with the speed and reliability of the data connection.

Some businesses use dedicated video conferencing rooms that have been equipped with high-grade cameras and screens to ensure the conversation is clear and with limited technical faults. Third-party providers often install and assemble the hardware needed to conduct the video conference. Companies with multiple offices might establish direct video communications between their locations in order to allow their teams to work more collaboratively. Video conferencing can also be used as a medium for conducting training, with the instructor teaching a remote class from most anywhere. This can be done in a corporate context, especially for getting workers the knowledge they need to better perform their jobs.

The academic world can also make use of video conferencing to connect a traditional classroom setting with students who are based a considerable distance from the school.

A video conference may also be used to conduct regular meetings with a company staff or to confer with shareholders about the latest activities at the business. It may be used to announce significant changes at a company, such as introducing a new CEO, or to present information in an interactive way that allows all participants to engage in discussion about what they see on screen.

Hotels and conference centers sometimes make video conferencing services available to guests who require such services. This may be offered in suites or conference rooms that have been equipped for this purpose.

Video conferencing is the technology that allows you to hold meetings with several correspondents who are located in different places while seeing them and talking to them in real time. It is different from simple video calling, which is normally one-to-one video communication.

Some time ago, video calling or conferencing was a luxury and required expensive and (then) complex equipment and expertise. Today, you literally carry it in your pocket. You can participate in and host video conferencing sessions on your smart phone and mobile device as well as on your computer with basic hardware and adequate Internet connectivity.

Video conferencing has become more common and more accessible thanks to the advent and development of Voice over IP, which harnesses the underlying IP infrastructure of the Internet to make free communication possible. Packets of video data, along with packets of voice and other types of data, are carried on the Internet, thereby making voice and video communication free.

You need to be aware that video conferencing has a much higher bandwidth requirement that a simple video call. A typical estimate for a session with decent quality video would be 1 Mbps for each participant. If HD video quality is of importance, consider this as the minimum value. Each participant also needs to have the same connectivity provisions, failing which they risk missing much of the session and also messing around with the whole collective experience.

The most well-established free video conferencing tool around is Skype. As it stands today, however, it may not be the best. Alternative tools include TeamViewer, Google Hangouts, join.me and many others.

No Need to Travel

It costs a lot of money and a lot of time to travel to meet people. With video conferencing, you can organize and hold a meeting within the hour with participants from remote places all over the world. They only need to have the necessary equipment and be present in front of the screen at the chosen time. The pre-meeting organization can be done via email or instant messaging.

Bind Your Mobile Workers

Your workforce may be scattered around the city of around the country if they are mobile workers. They connect back to base through their mobile devices. You can leverage this existing mobile infrastructure to conduct video conferencing meetings with your workforce. Besides, the visual nature of video conferencing even allows you to check the activities and whereabouts of your employees.

It Aids Telecommuting

Video conferencing is also an essential tool for teleporting or telecommuting- working away from the office, often at home. If your business has a quite open timetable and your workers or co-workers work from home, one way to curb the lack of interaction within the workforce and the lack of downward instruction or upward reporting is video conferencing.

Organize Meetings Independent of Time

Now that meetings online are free from the huge obstacle of travel expenses and restrictions, they can be organized more often. You can meet people around the world every day or even several times a day. This allows your business to move at the speed the world is moving. Your business moves without you having to move. And that's very fast.

Your meetings can be very short notice. Participants will no longer have excuses related to location and travel; they only have to free themselves. This means that you can schedule video conferencing meetings quickly and get it running quickly. You can also easily squeeze in anyone with a tight schedule.

Humanize Your Conversation

Take this point in contrast with voice communication or email correspondence. Video is moving pictures, which are worth more than a million words. By showing yourself and seeing others, you can work the charms of body language, which is so important in business and other activities involving human interaction. Also, seeing someone while talking to them completely changes the nomenclature of a conversation is it for business or in a personal relationship.

Show Things

Seeing believes, and showing is convincing. Through video conferencing, you can write on a board and show it to everyone, demonstrate your latest product, or introduce a new recruit. Often, you can show things that you cannot take along with your in your suitcase while traveling to a meeting.

Learn and Teach Online

There are great courses being offered and great teachers teaching everywhere, but most of them are probably very far from you. If you are a teacher or trainer, your market may be far from where you are. Video conferencing is a great way of acquiring and sharing knowledge beyond hurdles. While it will not be like being physically present, the interaction is adequate. You will be able to use multimedia facilities like online interactive whiteboards, and you can use online collaboration tools.

Chatting and Bulleting

On the Internet, chatting is talking to other people who are using the Internet at the same time you are. Usually, this "talking" is the exchange of typed-in messages requiring one site as the repository for the messages (or "chat site") and a group of users who take part from anywhere on the Internet.

In some cases, a private chat can be arranged between two parties who meet initially in a group chat. Chats can be ongoing or scheduled for a particular time and duration. Most chats are focused on a particular topic of interest and some involve guest experts or famous people who "talk" to anyone joining the chat.

Online chat may refer to any kind of communication over the Internet that offers a real-time transmission of text messages from sender to receiver. Chat messages are generally short in order to enable other participants to respond quickly. Thereby, a feeling similar to a spoken conversation is created, which distinguishes chatting from other text-based online communication forms such as Internet forums and email. Online chat may address point-to-point communications as well as multicast communications from one sender to many receivers and voice and video chat, or may be a feature of a web conferencing service.

Online chat in a less stringent definition may be primarily any direct text-based or video-based (webcams), one-on-one chat or one-to-many group chat (formally also known as synchronous conferencing), using tools such as instant messengers, Internet Relay Chat (IRC), talkers and possibly MUDs. The expression *online chat* comes from the word *chat* which means "informal conversation". Online chat includes web-based applications that allow communication – often directly addressed, but anonymous between users in a multi-user environment. Web conferencing is a more specific online service that is often sold as a service, hosted on a web server controlled by the vendor.

Building Online community

1. Consistency/Content

It all starts with great content. Content that isn't about you, but about the community. Whether it be bunny lovers, football fans or 16-year-old band geeks. Content that is educational, inspirational and/or entertaining. Your unique spin. There is a lot of content out there. You have to find a way to stick out and be different. Perhaps nobody in your niche does video. That sounds like an opportunity. Perhaps nobody in your niche interviews people.

Sounds like an opportunity. Perhaps everyone does really long text posts. What if you did a tip of the day? Fitting in was never popular, right? Consistently is also huge. How often are you posting? Do you disappear for weeks on end with no updates and then create the ole "sorry I haven't posted!" post? Sure, it is OK to go on vacation or something like that (send me a postcard), but why not give a quick heads up?

Think about the traditional media consistency model. TV, radio, print. There are seasons and schedules. We new media types play by our own rules, but consistency never goes out of style.

The really cool thing about new media (blogging, video blogging, online magazine, content creating, whatever you want to call it) is you can use different mediums on your channel. For example, it would be really hard for a TV show to suddenly focus on text the next day…awkward and not really possible.

Starting the first week of January, I went to an everyday posting model. First, I started by doing all tips. Then all interviews. Now it is a mix and numerous mediums as well (like this shiny text post!). The consistency factor is (unless there is notice), I post five days a week. It might be a video. It might be an article. It might a who-knows-what. But, something to help entrepreneurs like you build your business smarter, faster, cheaper will be posted.

A final note on consistency is narrowing your topic to something replicable. Meaning there is plenty of content that can be created and not a finite amount. You don't want to run out!

2. Designed To Share

The content that gets shared the most online is like peanut butter…easily spreadable. Good content is spread by your community. On Face book, Twitter, etc. Perhaps posted to their blog or sent to a social bookmarking site.

How do you make it sharable?

For one thing, and I wish it didn't matter, but headlines matter. Is it complicated? Trying to be too clever? Too boring? There isn't an exact formula here; however, the shorter and more relevant gets shared. Think of it like one of those tabloid-terrible magazines. "Zombie Baby Eats Britney Spears!" If gets your attention.

The other HUGE component, is adding the right plugins to your blog to enable one (or two maximum) click sharing. If you have to put on a safari coat and go hunt for the button to send it to Facebook, people won't do it. Make it easy to send to at the very least the most popular sites.

3. Schmoozing On Social Media

If you are creating online content and looking to build a community, you have to get active on social media in your niche. Sharing the content of others. Sharing your content. Answering questions. Asking questions. Connecting with relevant people. Listening.

It isn't rocket science, it is human. Your community is made up humans and not Google Robots. The more one-on-one connections you make and offer value to, the better off you will be.

And this doesn't mean you have to be active on every site. For example, I spend most of my social media time on Twitter and Facebook. Some people spend more time on LinkedIn. Or wherever. The bottom line is you get to choose based on your comfort level, what works and of course where your niche hangs out online.

4. Engaging/Caring

When someone leaves a comment on your site, you have two choices. Respond or not. It is up to you. Some people never respond. Some people respond to every comment no matter what.

Of course, over time, it will be difficult to respond to everything as your community grows. However, I've noticed success when you make it a priority. Give every comment a hug. Someone took a bit out of their busy schedule to leave it.

Same goes for social media. Are you a robot or a person? If someone asks you a question do you respond? Now, of course, there are limitations to this. You can't sit there all day and answer questions or say hi to everyone; however, I bet we can all block out a little time to do so, can't we? Small talk and caring goes a long way.

And you can't fake it or outsource it.

5. Enabling Others to Promote Your Work:

You can't go out this alone. If all you do is talk about yourself and how neat your business is, it will be impossible to gain long term traction (unless you are some sort of magical wizard or something).

The best way to enable others is to give credit. People like a little love especially if it is genuine and useful.

6. Interviews

After conducting 100+ interviews in three years, I can conclusively say that it is an incredible way to build your brand. It is sort of the perfect storm. You are creating valuable content for your community, promoting someone else and making a new connection (the person you interview). As long as the content of the interview is useful and amazing, you can create your own interview machine.

7. Promoting Others & Telling Them about It

When you mention someone or something in a post, freaking tell them about it! This doesn't mean stalk them with multiple emails and Twitter direct messages. It means, send a quick note to them to let them know. The Nametag Guy Scott Ginsberg taught me this one. A quick note with the link and thanking them for the inspiration. Don't ask them to Tweet it. Don't ask them to put it on Facebook. Don't ask for anything. Just thank and be genuine. And guess what? Good things will happen. Karma is a good thing. It will end up getting shared one way or another.

8. Guest Posts/Videos/Articles

Finding sites in your niche that allow guest posting is an incredible way to build community and bring in new folks. Being a good writer or creator of any medium can qualify you to do guest posts. The key here is to be specific and take your same philosophy to other people's sites. Meaning being a trusted resource and not a product pusher. I contribute about six weeks to Small Biz Trends plus have done guest videos for Hubspot and Personal Branding Blog to name a few of many.

9. PR:

Making yourself an available expert for other new media sources (and traditional) is a huge key to bringing new people to your site. The more good content you create and share, the more leverage you will have when reaching out to someone. Media loves experts. What are you an expert in? And I'm not talking about a guru on top of a mountain. I'm talking about what knowledge or unique perspective do you bring to the table? For example, I love functional technology. Stuff that is easy to use and doesn't take Einstein to figure out.

So, I offered up to Great Day St. Louis to be their business and technology expert. Now, I appear on the show every six weeks to talk about unique topics. It is really fun and markets me and The Rise to the Top. Now, imagine if I went to them from the non-expert perspective and said "Hi guys, can I come onto Great Day and promote my resource for forward-thinkers called The Rise to the Top? It is really great and amazing. You will love it!" Nope. Wouldn't work. Fail.

10. Live Events/Speaking

Much of building a community online involves offline connections. While a virtual handshake is amazing, nothing quite replaces a real life one. How can you bring people together in your niche? It can be something really simple like a Tweet Up. Or maybe some kind of unique book club (who knows). But, if you can get people away from their computers, it will only do good things. This is the idea behind our event series. I wanted to bring together amazing people. Entrepreneurs, innovators, forward-thinkers, etc. to munch on some food, mingle, and learn. How can you bring people together in your niche? Plus in this social web era, photos, videos, etc. from the event can be positioned online and continue to build the community.

You now have more people to connect with. Another benefit of becoming a trusted resource and community builder, is your content can be turned into speeches, discussions, round tables, whatever. If you position yourself as a speaker, not only will you be educating and inspiring the audience, but you will be introducing people to a slice of you. If they want another slice, they can check out your website later.

You might want to speak for free (content resulting in sales). Or eventually become a paid speaker. The world is hungry for more passionate, interesting speakers. I bet you could be one of them.

11. Create An Unfair Advantage:

I'm sure you have some kind of major advantage you can jump on. Don't be embarrassed by it, USE it. Go with it. Something (ANYTHING) that separates you from the pack. Perhaps you are really ridiculously good looking like Derek Zoolander. Or super smart and others ogle over your brain. Or you are really outgoing. Or you have a lot of connections. Whatever it is, use it your advantage. My unfair advantage (besides hair gel), was TV. I created something unique on television which kickstarted RISE.

We started as a local TV show in St. Louis. First on "My Network TV" and then on ABC on Sunday mornings after George Stephanopoulos and late night after Jimmy Kimmel Live (fun fact: We are doing another season on ABC this fall). TV was a massive credibility builder and separated from the pack. How can you leave the pack in your dust?

12. Time

You can now build by being smarter, faster, cheaper (as opposed to dumber, slower, expensive). But don't confuse "faster" with "instantaneous." At the end of the day, it takes time. Nobody watched Wine Library TV for 8 months when Gary Vaynerchuk launched it. My first blogs posts got about 9 views. Jason Cohen, from A Smart Bear, told me in this interview that he started blogging, and blogging, and blogging…a lot of time passed…and then it became popular.

But, if you follow 1-11 in your unique way and stick with it, good things will happen. Who knows? You might be the next rising start we talk about on RISE.

5 Tips for Building an Online Community for Your Business

1. Have a critical mass of passionate customers.

The number one point of an online community is that it be a place where like-minded people engage with each other. If customers aren't genuinely interested in your brand, starting an online community could be like throwing a party and no one came.

How do you know if you have enough brand appeal? It tends to be a feel thing. We had only a few hundred customers when we set up our community, but we were picking up vibes from the previous mailing list process that customers craved a better way to interact. So creating a community isn't about the size of your company, its annual revenue or the number of customers; it's about those customers' passion for your products.

2. Give up control

You may have built the community and manage it, but you must recognize that it really belongs to the users. As scary as freewheeling customer-to-customer communication can be, take a deep breath and understand that the quickest way to kill a community is to discourage open discussion.

Never delete a post (unless it's spam). Never sanitize negative feedback. Remember that the community can be an invaluable reality check and feedback mechanism. One of the reasons you initiated the community in the first place is because you know don't have all the answers, right?

3. Make the community a rich experience.

Some rudimentary online communities are little more than online product support forums. That's fine, but a truly energetic community is a venue for so much more. Ours, for example, has not only a discussion forum, but also a feature requests area for customers to provide insights into what they want to see in future products, a knowledge resource base, a job board, software and more. Activity on all is high.

4. Be prepared to invest in infrastructure.

Spearheading an online community doesn't happen automatically -- you need a team and the right software. Don't skimp on either. We've grown the team that manages our community from one person to six in the last few years. And we decided to invest in customized software on which the community runs. Why? Because the community has to be buttoned up technologically -- be pleasant to use, rarely if ever go down -- if customers are going to want to use it.

One thing we don't have is an employee dedicated to watching the community. We're certainly on top of what's going on in there, since so many employees subscribe and participate. But remember, it's not our place to interfere with customer-to-customer communication, so it wouldn't make sense to have an official hall monitor.

5. Don't get hung up on measurement.

We live in a time when measurement rules -- everyone wants to be able to look at a dashboard and see how an activity is trending. It's difficult to measure the ROI from an online community. If the community is going strong, you know it, and that is victory in and of it. We have a simple metric to assess our community's value -- number of posts. Follow these five tips and you could be watching with amazement as an online community grows around your brand.

Dashboard Models

Dashboards often provide at-a-glance views of KPIs (key performance indicators) relevant to a particular objective or business process. In the other, "dashboard" has another name for "progress report" or "report."

The "dashboard" is often displayed on a web page which is linked to a database that allows the report to be constantly updated. For example, a manufacturing dashboard may show numbers related to productivity such as number of parts manufactured, or number of failed quality inspections per hour. Similarly, a human resources dashboard may show numbers related to staff recruitment, retention and composition, for example number of open positions, or average days or cost per recruitment. The term dashboard originates from the automobile dashboard where drivers monitor the major functions at a glance via the instrument cluster.

Benefits

Digital dashboards allow managers to monitor the contribution of the various departments in their organization. To gauge exactly how well an organization is performing overall, digital dashboards allow you to capture and report specific data points from each department within the organization, thus providing a "snapshot" of performance.

Benefits of using digital dashboards include:

- Visual presentation of performance measures
- Ability to identify and correct negative trends
- Measure efficiencies/inefficiencies

- Ability to generate detailed reports showing new trends
- Ability to make more informed decisions based on collected business intelligence
- Align strategies and organizational goals
- Saves time compared to running multiple reports
- Gain total visibility of all systems instantly
- Quick identification of data outliers and correlations

Classification

Dashboards can be broken down according to role and are either strategic, analytical, operational, or informational. Strategic dashboards support managers at any level in an organization, and provide the quick overview that decision makers need to monitor the health and opportunities of the business. Dashboards of this type focus on high level measures of performance, and forecasts. Strategic dashboards benefit from static snapshots of data (daily, weekly, monthly, and quarterly) that are not constantly changing from one moment to the next. Dashboards for analytical purposes often include more context, comparisons, and history, along with subtler performance evaluators. Analytical dashboards typically support interactions with the data, such as drilling down into the underlying details. Dashboards for monitoring operations are often designed differently from those that support strategic decision making or data analysis and often require monitoring of activities and events that are constantly changing and might require attention and response at a moment's notice.

Types

Digital dashboards may be laid out to track the flows inherent in the business processes that they monitor. Graphically, users may see the high-level processes and then drill down into low level data. This level of detail is often buried deep within the corporate enterprise and otherwise unavailable to the senior executives.

Three main types of digital dashboard dominate the market today: stand alone software applications, web-browser based applications, and desktop applications also known as desktop widgets. The last are driven by a widget engine.

Specialized dashboards may track all corporate functions. Examples include human resources, recruiting, sales, operations, security, information technology, project management, customer relationship management and many more departmental dashboards. For a smaller organization like a startup a compact startup scorecard dashboard tracks important activities across lot of domains ranging from social media to sales.

Digital dashboard projects involve business units as the driver and the information technology department as the enabler. The success of digital dashboard projects often depends on the metrics that were chosen for monitoring. Key performance indicators, balanced scorecards, and sales performance figures are some of the content appropriate on business dashboards.

Asynchronous and Synchronous Learning

What is the definition of synchronous learning?

Synchronous learning involves online studies through chat. This kind of learning can only happen online. By being online, you can stay in touch with your teacher and other students. It's called synchronous learning, because the systems allow students to ask their teacher or fellow students' questions instantly through **instant messaging**.

What is asynchronous learning?

On the other hand we have asynchronous learning. This can be carried out online and offline. Asynchronous learning involves coursework delivered via web, email and message boards that are then posted on online forums. Students are not able to have instant messaging via this online forum. A benefit of asynchronous learning is that you're able to be self-paced.

So, what's the difference?

A significant difference between synchronous and asynchronous learning is the instant messaging and immediate feedback. With synchronous learning you have got instant messaging and immediate feedback from your fellow students or teacher.

Asynchronous learning doesn't include that. If you're having trouble answering the questions, you're not able to ask them directly. Then again, with asynchronous learning you can be self-paced. This is not possible with synchronous learning.

Synchronous e-learning vs. asynchronous e-learning tools and technologies

In today's e-learning environment the type of learning that takes place is generally divided into one of two categories: ***synchronous*** and ***asynchronous***. Both learning strategies have their own pros and cons, and the technique that is right for a student greatly depends upon their method of absorbing the information that is being provided.

Examples of synchronous e-learning are online chat and videoconferencing. Any learning tool that is in real-time, such as instant messaging that allows students and teachers to ask and answer questions immediately, is synchronous. Rather than learning on their own, students who participate in synchronous learning courses are able to interact with other students and their teachers during the lesson.

The main benefit of synchronous learning is that it enables students to avoid feelings of isolation since they are in communication with others throughout the learning process. However synchronous learning is not as flexible in terms of time as students would have to set aside a specific time slot in order to attend a live teaching session or online course in real-time. So it may not be ideal for those who already have busy schedules.

Asynchronous learning on the other hand can be carried out even when the student or teacher is offline. Coursework and communications delivered via web, email and messages posted on community forums are perfect examples of asynchronous e-learning. In these instances, students will typically complete the lessons on their own and merely use the internet as a support tool rather than venturing online solely for interactive classes.

A student is able to follow the curriculum at their own pace without having to worry about scheduling conflicts. This may be a perfect option for users who enjoy taking their time with each lesson plan in the curriculum and would prefer to research topics on their own.

However, those who lack the motivation to do the coursework on their own may find that they do not receive significant benefit from asynchronous learning. Asynchronous learning can also lead to feelings of isolation, as there is no real interactive educational environment.

Ideally, effective e-learning courses should include both asynchronous and synchronous learning activities. This allows students and teachers to benefit from the different delivery formats regardless of their schedules or preferred learning methods. This approach provides students with access to immediate help if needed, while still giving them the ability to learn at their own pace.

Part A (ONE Mark)

Multiple Choice Questions

Online Examination

Part B (2 Marks)

1. Define LMS.
2. Define Service Management.
3. Define CBT.
4. Write short note on Ethics.
5. Define LCMS.
6. Short notes on Virtual Campus.
7. Define Video conferencing.
8. What is Chatting?

Part C (5 Marks)

1. Explain learning organization and their characteristics?
2. Explain the business appraisal of technology potential?
3. What are the benefits and barriers to the learning organization?
4. What is business process Re-engineering? Explain its benefits and drawbacks?
5. Elaborate international technology management policy with examples?
6. Explain Content Management and Disseminations.
7. Write about Models of WBT and CBT
8. What are the Dashboard Models?
9. Explain the Asynchronous and Synchronous Learning.

KARPAGAM ACADEMY OF HIGHER EDUCATION						
Department of Management						
Unit 3 -Emerging Trends in Technology -Multiple Choice Questions- Each Question Carry ONE Mark						
S. No	**Question**	**OPTION 1**	**OPTION 2**	**OPTION 3**	**OPTION 4**	**ANSWER**
1	TELNET is a	Network of telephones	Television network	Remote login	Remote log- off	Remote login
2	The internet is	Network of networks	Website	Host	Server	Network of networks
3	An business that allows consumer to name their own price for products and services following which e- business model	B2B	B2G	C2C	C2B	C2B
4	Kerberos in an encryption based system that uses	Secret key encryption	Public key encryption	Private key encryption	Data key encryption	Secret key encryption
5	The methods of payment for online consumers are	Electronic cash	Credit/debit	Electronic checks	All of the above	All of the above
6	DNS is a	The distributed hierarchical naming system	The vertical naming system	The horizontal naming system	Client server system	The horizontal naming system
7	A firewall is	An established network performance reference point	Software or hardware used isolate the private network from a public network	A virus that inpects macros	A predefined encryption key used to encrypt and to decrypt data transmissions	Software or hardware used isolate the private network from a public network
8	A router	Screens incoming information	Distributes informtion between networks	Clears all viruses from a computer system	Is a work virus	Distributes information between networks
9	LDAP stands for	Lightweight Data Access Protocol	Lightweight Directory Access Protocol	Large Data Access Protocol	Large Directory Access Protocol	Lightweight Directory Access Protocol

10	E- commerce not suitable for	Sale/ purchase of expensive jewellery and antiques	Sale/purchase of mobile phones	Sale/ purchase branded cloths	Online job searching	Online job searching
11	Amazon.com comes under the following model	B2B	B2C	C2C	C2B	B2C
12	Hups are present in the network	To interconnect the LAN with MANs	To interconnect the LAN with WANs	To interconnect the WANs with WANs	To interconnect the WANs with LANs	To interconnect the LAN with WANs
13	Firewalls oprete by	The pre-purchase phase	Isolating intranet from extranet	Screening packets to from the networks and provide controllable filtering of network traffic	None of the above	Screening packets to from the networks and provide controllable filtering of network traffic
14	The mercantile process mode consists of the following phases	The prepurchase phases	Purchase consumeration	Post- purchase interation	All of the above	All of the above
15	DRM stands for	Data Reference Model	Data Report Model	Directory Reference model	Directory Report Model	Data Reference Model
16	What type of internet technology sends information to you without you requesting that information	F2b2c	Infoware	Push	Wiki	Push
17	What is the second generation of the web called	New web	Emerging space	Second life	Web 2.0	Web 2.0
18	What type of web technology allows its community member to continously change the contents on a website	Intelligent bots	Social networks	Wiki	Blog	Wiki
19	What type of web technology provided news that automatically download to your desktop	Social network	RSS Feed	Podeast	Wiki	Rss feed
20	What type of web technology geats on online community where people can make statements and others can real and responds to those statements	Journal	Podcust	ASP	Blog	Blog

21	What kind of environment in facebook of myspace part of	Wiki	Social networks	Blog	Volp	Social network
22	What terms refers to living life through technology	Virtual - living	E- living	Virtual space	E- society	E- society
23	What 3-D environment allows you to speak to someone who is for away but at the same time see them as a holographic image	CAVE	Virtual space	E- space	Volp	CAVE
24	What type oh technology allows you to use your finger eye or voice print to secure your information resources	Haptics	Caves	Biometrics	RFID	Biometrics
25	What kind of technology allows you to verbally speak with someone over the internet	Wiki	Social networks	E- phone	Volp	Volp
26	Electronic commerce endeavors to improve the execution of business transactions over various_____	Networks	Intranet	Extranet	None of the above	Networks
27	Electronic commerce enables the execution of information - laden transactions between_____ parties using interconnected networks	Several	Two or more	One	None of the above	Two or more
28	EFT Stands for_____	Electronic Funds Transfer	Electronic Funds Transmission	Electronic Flow transfer	None of the above	Electronic Funds Transfer
29	Which of the following is the largest community in classification of e - commerce?	Business to Business(B to B)	Business to Consumer(B to C)	Business to Government(B to G)	Government to Government(G to G)	Business to Business(B to B
30	Business exchanges traditionally conducted with _____	Paper	Purchase order	Shipping documents	All of the above	All of the above
31	Electronic commerce is process of _____	Buying	Time	Communication	None of the above	Buying
32	A business application of electronic commerece_____	Online banking	Electronic tickets	Teleconferencing	All of the above	All of the above

33	A component of video conferencing _____	Fridge	Tv or monitor	Machine	None of the above	Tv or monitor
34	Types of videoconferencing_____	Point - to - point	Multi - point	Quiz time	All of the above	All of the above
35	A dedicated system is used to _____ types	Four	Two	Three	One	Three
36	Coder is also known as_____	Decompressor	Compressor	Packets	Digitl network	Compressor
37	Video conferencing is simple vehicle for _____ communication	Images	Speech	Interactive communication	Mail	Interactive communication
38	Advantage of videoconferencing is_____	Reduce cost	Improve communication	Both A and B	None of the above	Both A and B
39	The basic level of relationships are formed over_____	F*T*E	E*T*X	F*T*E*T*X	All of the above	F*T*E*T*X
40	Technology platform for building online communities_____	Blogs	Word	HTML	Java	Blogs
41	Example of synchronous E-learning	E- mail	Telephone calls	Letter	Facebook newsfeed	Telephone calls
42	Example of asynchronous E- learning	Chat	Instant messaging	E-mail	F2f conversion	E-mail
43	Among these which is a social media	Blogs	Youtube	Ms. Office	None of the above	Youtube
44	Intranet means_____	Group of interconnected computers ina private network	Group of computers connected to an external network	Group of interconnected computers	None of the above	Group of interconnected computers ina private network
45	There are_____ concepts of business logistics	Three	Five	One	Four	Three
46	It is estimated that the logistics costs of a new car are about	10 - 20%	20 - 25 %	25 - 30 %	30 - 40 %	25 - 30 %
47	Lead time and order cycle time are the same as	Customer service time	Supply chain flow	Logistical clockage	Replenishment time	Replenishment time
48	A supply chain is essentially a sequence of linked	Customer and prospects	Supplier and manufacturer	Suppliers and customers	Warehousing and wholesaling units	Suppliers and customers

49	Types of warehousing is _____	Public warehousing	Private warehousing	Contract warehousing	All of the above	All of the above
50	POTS stands for_____	Plain Old Telephone System	Plain Old Trade System	Product Old Telephone System	None of the above	Plain Old Telephone sYstem
51	The business rational for the use of electronic commerce can be explained by the simple question	Profit = Revenue - Cost	Profit = cost - revenue	Both A and B	None of the above	profit = Revenue - cost
52	The goal of the electronic commerce research and its associated implementations is to reduce the _____ in online transactions	Buyers	Sellers	Friction	intermediaries	Friction
53	The term e - commerce includes	Electronic trading of physical goods and intangibles such as information	The electronic provision of services such as after sales support or online legal advice	All the steps involved in trade such as online marketing ordering payment and support for delivery	All of the above	All of the above
54	The reduction of friction in online commerce will enable smoother transactions between_____	Buyers	Sellers	Intermediaries	All of the above	All of the above
55	_____ transfer optimizes electronic payments with electronically provided remittance information	POTS	EFT	EDI	None of the above	EFT
56	Electronic messaging technologies steeam line business procsses by reducing paperwork and _____	Increasing automation	Purchase order	Shipping documents	None of the above	Increasing automation
57	Electronic data interchange enables suppliers to deliver parts directly to the _____	Factory floor	Resulting in savings in inventory	Ware housing	All of the above	All of the above
58	_____ has been particularly successful for retail ctegory management	EFT	EDI	POTS	None of the above	EDI

59	Electronic data interchange technology has improved_____ for both manufcturers and retailers	Buying practices	Reduce costs	Both A and B	None of the above	Both A and B
60	Social interaction created a sense of virtual community among the cyberspace inhabitants and helped give rise to he concept of a_____	Globl village	Groupware	Killer app	None of the above	Global village

UNIT-IV

SYLLABUS

E-Logistics - Logistics and Supplier Chain Management, Warehousing management, Transportation/Distribution Management. E-Governance models - G2B, G2C, C2G, G2G- Challenges to E-Governance, Strategies and Tactics for implementation of E-Governance - Disaster Recovery Management.

E-Logistics

E-logistics can be defined as the application of Internet based technologies to traditional logistics processes. E-logistic is the logistical process that governs everything related to the online marketplace. It is a relatively novel concept. It is a dynamic set of communication computing and collaborative technologies that transform key logistical processes to be customer-centric by sharing data, knowledge and information with supply chain partners. It helps in coping with newly arising logistics challenges. The key elements of e-logistics are multi channel operation, cross border functionality, warehouse layout and inventory, planning and forecasting and performance management. Success in e-logistics depends on the focus selected for the online shop. Proper collaboration, transparent communication with customers for delivery and returns are the other key factors that determine the success of e-logistic.

Definition

E-logistics is defined to be "the mechanism of automating logistics processes and providing an integrated, end-to-end fulfillment and supply chain management services to the players of logistics processes. Those logistics processes that are automated by e-logistics provide supply chain visibility and can be part of existing e-Commerce or Workflow systems in an enterprise". (Watson Research Center, 2007)

Major components of E-logistics

A typical E-logistics process, three components come into play: Request for Quotes (RFQ), Shipping and Tracking. The Logistics intercommunicate with the business process manager in an e-commerce server. It is the role of the business service manager to invoke the RFQ (request for Quote) process. After getting the response, the purchase order is updated, after which the shipping process is invoked by the business process manager. Once the products are shipped for the specified destination, the tracking number is then provided to the customer. This tracking number is mapped to the PO number in an e-commerce system. This facilitates easy tracking of shipments for the customers. This is the essential interaction of a business process manager and e-logistics.

Process involved in e-logistics

1)Method of payment

2)Check product availability

3)Arrange shipments

4)Insurance

5) Replenishment

6)Contact with customers

7)Returns

Supplier Chain Management

What is Supply Chain Management (SCM)?

Supply chain management (SCM) is the active management of supply chain activities to maximize customer value and achieve a sustainable competitive advantage. It represents a conscious effort by the supply chain firms to develop and run supply chains in the most effective & efficient ways possible. Supply chain activities cover everything from product development, sourcing, production, and logistics, as well as the information systems needed to coordinate these activities.

The concept of Supply Chain Management (SCM) is based on two core ideas:

The first is that practically every product that reaches an end user represents the cumulative effort of multiple organizations. These organizations are referred to collectively as the supply chain. The second idea is that while supply chains have existed for a long time, most organizations have only paid attention to what was happening within their "four walls." Few businesses understood, much less managed, the entire chain of activities that ultimately delivered products to the final customer. The result was disjointed and often ineffective supply chains. The organizations that make up the supply chain are "linked" together through physical flows and information flows.

Physical Flows

Physical flows involve the transformation, movement, and storage of goods and materials. They are the most visible piece of the supply chain. But just as important are information flows.

Information Flows

Information flows allow the various supply chain partners to coordinate their long-term plans, and to control the day-to-day flow of goods and materials up and down the supply chain.
Supply chain management (SCM) is the broad range of activities required to plan, control and execute a product's flow, from acquiring raw materials and production through distribution to the final customer, in the most streamlined and cost-effective way possible.

Supply chain management is the design, planning, execution, control, and monitoring of supply chain activities with the objective of creating net value, building a competitive infrastructure, leveraging worldwide logistics, synchronizing supply with demand, and measuring performance globally.

Origin of the term and definitions

In 1982, Keith Oliver, a consultant at Booz Allen Hamilton (now Strategy), introduced the term "supply chain management" to the public domain in an interview for the Financial Times. In the mid-1990s, more than a decade later, the term "supply chain management" gained currency when a flurry of articles and books came out on the subject. Supply chains were originally defined as encompassing all activities associated with the flow and transformation of goods from raw materials through to the end user, as well as the associated information flows.

Supply chain management was then further defined as the integration of supply chain activities through improved supply chain relationships to achieve a competitive advantage. In the late 1990s, "supply chain management" (SCM) rose to prominence, and operations managers began to use it in their titles with increasing regularity

According to the Council of Supply Chain Management Professionals (CSCMP), "supply chain management encompasses the planning and management of all activities involved in sourcing, procurement, conversion, and logistics management. It also includes coordination and collaboration with channel partners, which may be suppliers, intermediaries, third-party service providers, or customers".

Functions

Supply chain management is a cross-functional approach that includes managing the movement of raw materials into an organization, certain aspects of the internal processing of materials into finished goods, and the movement of finished goods out of the organization and toward the end consumer. As organizations strive to focus on core competencies and become more flexible, they reduce their ownership of raw materials sources and distribution channels. These functions are increasingly being outsourced to other firms that can perform the activities better or more cost effectively.

The effect is to increase the number of organizations involved in satisfying customer demand, while reducing managerial control of daily logistics operations. Less control and more supply chain partners lead to the creation of the concept of supply chain management. The purpose of supply chain management is to improve trust and collaboration among supply chain partners thus improving inventory visibility and the velocity of inventory movement. On a broader level, supply chain management consists of these four major functions and key element components, such as:

Integration: This forms the crux of the supply chain and is meant to coordinate communications to produce effective and timely results. It can include innovation of new software or advanced technological processes to improve communications.

Operations: This involves management of the day to day operations in the eCommerce business. For example, it may deal with keeping an eye on the inventory or coming up with marketing approaches.

Purchasing: This deals with the purchasing decisions and management, such as purchasing raw materials, source materials and so on.

Distribution: This deals with the management of logistics across wholesalers, retailers, and customers. This may mean keeping an eye on the shipment, and other details.

In addition to these, there are also some subsidiary functions that an effective supply chain management process fulfills, such as:

- Aligning distribution flows
- Integrating the functions from manufacture to delivery
- Designing complex and advanced systems
- Managing an coordinating resources

Warehousing management

A warehouse management system (WMS) is a software application, designed to support and optimize warehouse or distribution center management. They facilitate management in their daily planning, organizing, staffing, directing, and controlling the utilization of available resources, to move and store materials into, within, and out of a warehouse, while supporting staff in the performance of material movement and storage in and around a warehouse.

Use case

Warehouse management solutions are primarily tactical tools, purchased and used by businesses to satisfy the unique customer demand requirements of their supply chain(s) and distribution channel(s), when the inventory and workload is larger than what can be handled manually, with spreadsheets. Motivation to purchase generally comes from a need to support sales growth or improve performance, and occasionally both.

Features

A WMS uses a database configured to support warehouse operations, containing detail describing a variety of standard warehouse elements including:

1. Individual stock keeping units (SKUs) that are handled and stored, e.g., weight, dimensions, case pack, automatic ID labels (bar codes, etc.), and inventory by location with manufacture date, lot code, etc. SKUs may include basic materials, fabricated parts, assemblies, and industrial and consumer finished goods, etc.;
2. Warehouse storage locations, e.g., individual location number, picking sequence, type of use (picking, reserve storage, etc.), type of storage (each, case, pallet), location size or capacity, storage restriction (flammable, hazardous, high value materials, outdoor, etc.), etc.;
3. Dock doors, e.g., individual number, etc.; and
4. Expected labor productivity rates by function or activity, e.g., cases picked per man-hour, etc.

Daily management functions include

1. Planning - finalizing the daily plan for receiving dock activity, selecting the workload/orders to be processed in the day or shift, (this may also be done by the business system), and calculating an estimate of the labor and vehicles required to pick and ship the orders to ensure the staffing is appropriate, and carriers are notified in time to meet the daily requirements.
2. Organizing - sequencing the orders to be picked. Organizing orders for picking can be accomplished in many ways, meeting the needs of the user. The primary objective is to be intentional, and not to pick the orders in the sequence in which they were received unless the company wants to pay a carrier make sense for transportation and delivery. The initial way of organizing was called Wave Planning or Wave Picking, with two objectives, a. to minimize need for dock staging space, by having orders arrive at the shipping dock in trailer load sequence, and b. to create an order of flow that will support monitoring the progress through the day and eliminate/reduce last minute requests for overtime or delay of carrier departure, etc.

3. Staffing - assign staff to work functions and areas, by Wave, to minimize staging.
4. Directing - ensuring the documented processes and procedures are embedded in the WMS and are consistently applied, used and appropriate for the nature of the work and service level intentions of the company (e.g., International Standards Organization 9000 (www.iso.org)). This function may also be used to divide individual orders into logical work units and the ability to assign them to separate individuals for performance, consistent throughput requirements and physical layout, e.g., separating individual case picking from each unit picking, and individual pallet load picking, to improve productivity and supporting Control.
5. Controlling - providing milestones for management to monitor progress through the day, providing the opportunity to respond to problems in a timely way, and report data for performance analysis.

Integration

Warehouse management systems support warehouse staff in performing the processes required to handle all of the major and many minor warehouse tasks such as receiving, inspection and acceptance, put-away, internal replenishment to picking positions, picking, packing, order assembly on the shipping dock, documentation, and shipping (loading onto carrier vehicles). A warehouse management system also helps in directing and validating each step, capturing and recording all inventory movement, and status changes to the data file.

A warehouse management system usually represents the central unit in the software structure of a warehouse. The WMS receives orders from the overlying host system, mostly an ERP system, manages these in a database and, after appropriate optimization, supplies them to the connected conveyor systems.

This becomes clear when you look at the processes necessary for e-commerce: as soon as a customer places an order on a website the information is passed along via the business host computer (mostly an ERP system) to the WMS. All necessary steps to manage this order, pick the ordered items, etc., are then processed within the WMS. Afterward, information is sent back to the business host computer to support financial transactions, advance shipping notifications to customers, inventory management, etc.

A modern WMS will connect to a variety of communication technologies (radio frequency), automatic ID technologies (barcode, RFID, etc.), mobile computers, and occasionally automated material handling (conveyors and sortation) and storage equipment (carousels, automatic storage and retrieval, etc.).

Types

Warehouse management systems can be standalone systems, part of supply chain execution suites, or modules of an enterprise resource planning (ERP) system. Depending on the size and sophistication of the organization, warehouse management can be as simple as handwritten lists or spreadsheets using software such as Microsoft Excel or Access, as well as specialty WMS software systems.

Transportation/Distribution Management

Transportation logistics management is an integral part of delivering goods from suppliers to customers. Everything and everyone involved in the delivery of products or materials is encompassed by supply chain management, including transportation logistics management. Logistics experts need to focus on transportation, specifically the efficient planning and procurement of transportation for products and materials. Freight trains, trucks, ships, and planes move goods every day. Knowledge of the rules, regulations, benefits, and costs associated with these modes of transport is necessary.

Distributed management is a management method for people to work together over the web to accomplish desired goals. Management activities are distributed through the people doing the work.

Transportation management system (TMS)

A transportation management system (TMS) is a subset of supply chain management concerning transportation operations and may be part of an enterprise resource planning system.

A TMS usually "sits" between an ERP or legacy order processing and warehouse/distribution module. A typical scenario would include both inbound (procurement) and outbound (shipping) orders to be evaluated by the TMS Planning Module offering the user various suggested routing solutions. These solutions are evaluated by the user for reasonableness and are passed along to the transportation provider analysis module to select the best mode and least cost provider.

Once the best provider is selected, the solution typically generates electronic load tendering and track/trace to execute the optimized shipment with the selected carrier, and later to support freight audit and payment (settlement process). Links back to ERP systems (after orders turned into optimal shipments), and sometimes secondarily to WMS programs also linked to ERP are also common.

Functionalities

Transportation management systems manage four key processes of transportation management:

1. Planning and decision making – TMS will define the most efficient transport schemes according to given parameters, which have a lower or higher importance according to the user policy: transport cost, shorter lead-time, fewer stops possible to ensure quality, flows regrouping coefficient, etc.
2. Transportation Execution – TMS will allow for the execution of the transportation plan such as carrier rate acceptance, carrier dispatching, and EDI.
3. Transport follow-up – TMS will allow following any physical or administrative operation regarding transportation: traceability of transport event by event (shipping from A, arrival at B, customs clearance, etc.), editing of reception, custom clearance, invoicing and booking documents, sending of transport alerts (delay, accident, non-forecast stops.)
4. Measurement – TMS have or need to have a logistics key performance indicator (KPI) reporting function for transport.

Various functions of a TMS include:

- Planning and optimizing of terrestrial transport rounds
- Inbound and outbound transportation mode and transportation provider selection
- Management of motor carrier, rail, air and maritime transport
- Real time transportation tracking
- Service quality control in the form of KPIs (see below)
- Vehicle Load and Route optimization
- Transport costs and scheme simulation
- Shipment batching of orders

- Cost control, KPI (Key performance indicators) reporting and statistics
- Freight Audit

Typical KPIs include but not limited to:

1. % of On Time Pick Up or Delivery Performance relative to requested
2. Cost Per Metric - mile; km; weight; cube; pallet
3. Productivity in monetary terms, e.g., cost per unit weight or shipping unit
4. Productivity in operational terms, e.g., shipping units/order or weight/load

However, all the above logistical functions need to be scrutinized as to how each parameter functions.

E-Governance models

Electronic governance or e-governance is the application of information and communication technology (ICT) for delivering government services, exchange of information, communication transactions, integration of various stand-alone systems and services between government-to-citizen (G2C), government-to-business (G2B), government-to-government (G2G), government-to-employees (G2E) as well as back office processes and interactions within the entire government framework. Through e-governance, government services will be made available to citizens in a convenient, efficient and transparent manner. The three main target groups that can be distinguished in governance concepts are government, citizens and businesses/interest groups. In e-governance there are no distinct boundaries

G2B

Government-to-business, referring to the conducting of transactions between government bodies and business via the Internet. Government-to-Business (G2B) is the online non-commercial interaction between local and central government and the commercial business sector with the purpose of providing businesses information and advice on e-business 'best practices'. G2B:Refers to the conduction through the Internet between government agencies and trading companies.

B2G

Professional transactions between the company and the district, city, or federal regulatory agencies. B2G usually include recommendations to complete the measurement and evaluation of books and contracts.

G2C

The goal of Government to Customer (G2C) e-Governance is to offer a variety of ICT services to citizens in an efficient and economical manner, and to strengthen the relationship between government and citizens using technology. G2C (Government to Citizen) is a term that refers to the relationships between organizations (subjects) of public administration and a citizen. The designation can be used for any relationship between the subject of public administration and the citizen, most often it is used as one of the basic relationship within e-Government models. The initiative comes from a federal organization (public administration) and citizens are the target group.

C2G

The aim of G2G is to enable governments and organizations related to them to more easily work together and to better serve citizens within key lines of business.

Government to government (G2G) is the electronic sharing of data and/or information systems between government agencies, departments or organizations. The goal of G2G is to support e-government initiatives by improving communication, data access and data sharing.

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Challenges to E-Governance

E-governance helps people, businesses and the government to interact with one another by bringing them closer. Cognizant of the importance of e-governance, the Government of India has taken several positive measures in this regard.

The objective of National e-Governance Plan (NeGP), as stated, is to "make all Government services accessible to the common man in his locality, through common service delivery outlets, and ensure efficiency, transparency & reliability of such services at affordable costs to realize the basic needs of the common man."

However, in India, there are large differentials in terms of skewed income and wealth distribution, median income, functional literacy, lack of basic infrastructure. All these combine to pose major challenges to the effective implementation of e-governance.

Low per capita income

A large number of the people in India are poor, with low disposable personal income, which is an obstacle for economic progress. The required infrastructure, such as telephone lines, etc. required for Internet, email access, is too costly for the poor. This creates a formidable challenge to realize the fruits of the e-governance measures.

Integration of services

The performance of e-governance depends on complete integration of services. This is a major challenge because of the language barriers – there are 18 official languages in India. Further, the States and the Union governments are headed by different political dispensations. This creates political and language issues. Thus, even though the National Informatics Centre is the only body responsible for creating a framework for integration of the services, there is no ready-made solution that can be used by NIC to integrate the multitude of services.

Technical challenges

Despite six decades of independent political existence, the differentials with respect to technical skills and accessibility across different sections of people still remain unaddressed. Access to Internet is not easy in rural areas, as well as in small towns. Therefore, there are no political incentives for spending time and money on measures that benefit people. Further, there is little education and awareness of the benefits of using technology.

Lack of awareness of benefits of e-governance

This is yet another harsh reality. People are not aware of e-governance and its projects, such as G2C, G2G or G2B, let alone their benefits.

Inadequate infrastructure

The speed of government websites and their user-friendliness are not very good, even in urban areas. If the websites are not designed well, visitors will not find them of much use. Often, there is an absence of uninterrupted electricity, Internet access and fast communication, which becomes a major challenge to e-governance implementation.

Security issues

Technology keeps on changing at a fast pace, which most government departments and agencies are unable to keep pace with. This makes security vulnerable. With hackers using new technologies, ensuring security for online transactions is absolutely essential. There have been many instances of government websites being defaced/ hacked.

Need for restructuring

Implementing e-governance norms necessitates a number of administrative changes, which require streamlining of administered norms. This involves doing away with modules that are no longer relevant and create obstacles to e-governance.

Strategies and Tactics for implementation of E-Governance

1. To build technical infrastructure/framework across India

India lacks a full fledged ICT framework for implementation of e-governance. Complete implementation of E-governance in India will include building technical Hardware and Software infrastructure. It will also include better and faster connectivity options. Newer connectivity options will include faster Broadband connections and faster wireless networks such as 3G and 4G. The infrastructure must be built by Government, Private Sector as well as individuals. Infrastructure will also include promotion of Internet Cafes, Information and Interactive Kiosks. However while building technical infrastructure, disabled persons must also be considered. The technology implemented, shall incorporate the disabled persons.

2. To build institutional capacity

Apart from building technical infrastructure, the Government needs to build its institutional capacity. This will include training of Government employees, appointment of experts.

Along with the Government has also to create an Expert database for better utilization of intellectual resources with it. Apart from this, the Government has to equip the departments with hi-technology and has also to setup special investigating agency.

3. To build legal infrastructure

For better implementation of e-governance, the Government will need to frame laws which will fully incorporate the established as well as emerging technology. Changing technology has changed many pre-established notions; similarly the technology is growing and changing rapidly. It is important, that the Government makes laws which incorporate the current technology and has enough space to incorporate the changing future technology. These IT laws need to be flexible to adjust with the rapidly changing technology. Currently India has only the IT Act, 2000 which is mainly E-Commerce legislation. India has also modified many laws to include electronic technology; however it is not sufficient to cover e-governance completely.

4. To build judicial infrastructure

Overall technological awareness in current Judges is very low. The judiciary as a whole needs to be trained in new technology, its benefits and drawbacks and the various usages. The judiciary may alternatively appoint new judges with new judges and setup special Courts to deal with the matters relating to ICT. The Government can also setup special tribunals to deal with matters relating with ICT.

5. To make all information available online

The Government has to publish all the information online through websites. This can be facilitated through centralized storage of information, localization of content and content management. The information of government is public information; therefore the citizens are entitled to know every piece of information of the Government, because the Government is of the People, by the People and for the People.

6. To popularize E-governance

Literacy percentage in India is alarming. The whole world is moving towards e-governance, but India still lacks in the literacy department. The people need to be educated and made e-literate for e-governance to flourish. There are very few e-literate people in India is very low. The Government needs to campaign for e-governance, increase people's awareness towards e-governance.

Government can only encourage people to go online if it can make people feel comfortable with e-governance. This can be done through educating the people about the advantages of e-governance over physical governance. This can also be done through raising awareness of the leaders who can motivate the people to go online.

7. Centre-State Partnership

Indian setup is quasi-federal. Therefore Centre-State and inter-state cooperation is necessary for smooth functioning of the democratic process. This cooperation is also necessary for successful implementation of e-governance. This cooperation shall extend to Centre-state, inter-state and inter-department relationships. For the same the Government can setup a Central Hub like the current Government of India portal, for accessing the information of all the organs of the central government and also all the state government. The states can cooperate with the Centre to create a National Citizen Database.

8. To set standards

Finally it is important to set various standards to bring e-governance to the quality and performance level of private corporate sector. The Government of India is currently working on standards management and has various drafts prepared for the same. These standards include following: Inter-operability standards, Security standards, Technical standards, Quality standards. Government websites in India currently have no uniform standard. Many Government of Maharashtra websites differ in standards within even two of its web pages. There is no set standard as to quality of the information, document, the formats, etc. It is very important for the Government to set uniform national standards to be followed by all the Governments and agencies.

Disaster Recovery Management

IT is great when things are going smoothly. VOIP, telephones, EDI for transmitting data will handle the numerous day to day activities of an organization and nobody gives it a second thought. The problems begin when IT stops working. When the Data flow gets disrupted, all hell breaks loose and business efficiency is compromised. This is when IT Disaster Recovery Management comes into play.

A disaster can be anything that puts an organization's operations at risk, from a cyber attack to equipment failures to natural disasters. The goal with DR is for a business to continue operating as close to normal as possible. The disaster recovery process includes planning and testing, and may involve a separate physical site for restoring operations.

Disaster Recovery Management: Involves a set of policies, tools and procedures to enable the recovery or continuation of vital technology infrastructure and systems following a natural or human-induced disaster. Disaster recovery focuses on the IT or technology systems supporting critical business functions, as opposed to business continuity, which involves keeping all essential aspects of a business functioning despite significant disruptive events. Disaster recovery can therefore be considered as a subset of business continuity.

Classification of disasters

Disasters can be classified into two broad categories. The first is natural disasters such as floods, hurricanes, tornadoes or earthquakes. While preventing a natural disaster is impossible, risk management measures such as avoiding disaster-prone situations and good planning can help. The second category is man-made disasters, such as hazardous material spills, infrastructure failure, bio-terrorism, and disastrous IT bugs or failed change implementations. In these instances, surveillance, testing and mitigation planning are invaluable.

The importance of disaster recovery: RPO and RTO

As businesses have become more reliant on high availability, the tolerance for downtime has decreased. A disaster can have a devastating effect on a business. Studies have shown that many businesses fail after experiencing a significant data loss, but DR can help.

Recovery point objective (RPO) and recovery time objective (RTO) are two important measurements in disaster recovery and downtime.

RPO is the maximum age of files that an organization must recover from backup storage for normal operations to resume after a disaster. The recovery point objective determines the minimum frequency of backups. For example, if an organization has an RPO of four hours, the system must back up at least every four hours.

RTO is the maximum amount of time, following a disaster, for an organization to recover files from backup storage and resume normal operations. In other words, the recovery time objective is the maximum amount of downtime an organization can handle. If an organization has an RTO of two hours, it cannot be down for longer than that. The RPO and RTO help administrators choose optimal disaster recovery strategies, technologies and procedures.

Meeting tighter RTO windows requires positioning secondary data so that it can be accessed faster. Recovery-in-place is one method of restoring data more quickly. This technology moves backup data to a live state on the backup appliance, eliminating the need to move data across a network. It can protect against storage system and server failure. Before using recovery-in-place, an organization needs to consider the performance of the disk backup appliance, the time needed to move data from a backup state to a live state, and failback. Since recovery-in-place can take up to 15 minutes, an organization may need to perform replication if it wants a quicker recovery time.

Preparing for a disaster requires a comprehensive approach that encompasses hardware and software, networking equipment, power, connectivity and testing that ensures DR is achievable within RTO and RPO targets. While implementing a thorough DR plan isn't a small task, the potential benefits are significant.

Control measures

Control measures are steps or mechanisms that can reduce or eliminate various threats for organizations. Different types of measures can be included in disaster recovery plan (DRP).

Disaster recovery planning is a subset of a larger process known as business continuity planning and includes planning for resumption of applications, data, hardware, electronic communications (such as networking) and other IT infrastructure. A business continuity plan (BCP) includes planning for non-IT related aspects such as key personnel, facilities, crisis communication and reputation protection, and should refer to the disaster recovery plan (DRP) for IT related infrastructure recovery / continuity.

1. IT disaster recovery control measures can be classified into the following three types:
2. Preventive measures – Controls aimed at preventing an event from occurring.
3. Detective measures – Controls aimed at detecting or discovering unwanted events.

4. Corrective measures – Controls aimed at correcting or restoring the system after a disaster or an event.

Good disaster recovery plan measures dictate that these three types of controls be documented and exercised regularly using so-called "DR tests".

Strategies

Prior to selecting a disaster recovery strategy, a disaster recovery planner first refers to their organization's business continuity plan which should indicate the key metrics of recovery point objective (RPO) and recovery time objective (RTO) for various business processes (such as the process to run payroll, generate an order, etc.). The metrics specified for the business processes are then mapped to the underlying IT systems and infrastructure that support those processes.

Incomplete RTOs and RPOs can quickly derail a disaster recovery plan. Every item in the DR plan requires a defined recovery point and time objective, as failure to create them may lead to significant problems that can extend the disaster's impact. Once the RTO and RPO metrics have been mapped to IT infrastructure, the DR planner can determine the most suitable recovery strategy for each system. The organization ultimately sets the IT budget and therefore the RTO and RPO metrics need to fit with the available budget. While most business unit heads would like zero data loss and zero time loss, the cost associated with that level of protection may make the desired high availability solutions impractical. A cost-benefit analysis often dictates which disaster recovery measures are implemented.

Traditionally, a disaster recovery system involved cutover or switch-over recovery systems.[citation needed] Such measures would allow an organization to preserve its technology and information, by having a remote disaster recovery location that produced backups on a regular basis. However, this strategy proved to be expensive and time-consuming. Therefore, more affordable and effective cloud-based systems were introduced.

Some of the most common strategies for data protection include:

- backups made to tape and sent off-site at regular intervals
- backups made to disk on-site and automatically copied to off-site disk, or made directly to off-site disk
- replication of data to an off-site location, which overcomes the need to restore the data (only the systems then need to be restored or synchronized), often making use of storage area network (SAN) technology
- Private Cloud solutions which replicate the management data (VMs, Templates and disks) into the storage domains which are part of the private cloud setup. These management data are configured as an xml representation called OVF (Open Virtualization Format), and can be restored once a disaster occurs.
- Hybrid Cloud solutions that replicate both on-site and to off-site data centers. These solutions provide the ability to instantly fail-over to local on-site hardware, but in the event of a physical disaster, servers can be brought up in the cloud data centers as well.
- the use of high availability systems which keep both the data and system replicated off-site, enabling continuous access to systems and data, even after a disaster (often associated with cloud storage)

In many cases, an organization may elect to use an outsourced disaster recovery provider to provide a stand-by site and systems rather than using their own remote facilities, increasingly via cloud computing.

In addition to preparing for the need to recover systems, organizations also implement precautionary measures with the objective of preventing a disaster in the first place. These may include:

- local mirrors of systems and/or data and use of disk protection technology such as RAID
- surge protectors — to minimize the effect of power surges on delicate electronic equipment

- use of an uninterruptible power supply (UPS) and/or backup generator to keep systems going in the event of a power failure
- fire prevention/mitigation systems such as alarms and fire extinguishers
- anti-virus software and other security measures

Part A (ONE Mark)

Multiple Choice Questions

Online Examination

Part B (2 Marks)

1. What is E-logistics?
2. What are the G 2 C and C 2 G?
3. Write a note on Building Online Community.
4. Write a short note on G2B.
5. Define E- logistics.
6. Short notes on SCM.
7. What is the e governance?

Part C (5 Marks)

1. Explain the business and government relations?
2. Write about the E-Governance models.
3. What is Logistics and Supplier Chain Management and explain?
4. Brief notes on disaster recovery management?
5. What are the challenges for the E-Governance models?
6. Explain the Transportation/Distribution Management.
7. What are the Strategies and Tactics for implementation of E-Governance?
8. Explain E-logistics with examples?

KARPAGAM ACADEMY OF HIGHER EDUCATION						
Department of Management						
Unit 4 -Emerging Trends in Technology -Multiple Choice Questions- Each Question Carry ONE Mark						
S. No	**Question**	**OPTION 1**	**OPTION 2**	**OPTION 3**	**OPTION 4**	**ANSWER**
1	The web also enabled small business to complete on a more equal technological foot with resource rich _____ companies	International	Transactional	Multinational	None of the above	Multinational
2	Interest in electronic commerce is being fueled by_____	Economic forces	Customer interaction forces	Technology driven	All of the above	All of the above
3	_____ motivting the shift to electronic commerce are internal s well as external	Economic forces	Customer interaction forces	Technology driven	None of the above	Economic forces
4	External integration molds the vast network of_____	Suppliers	Government agencies	Large corporations	All of the above	All of the above
5	JIT stands for	Just - In - Time	Just - In - Trade	Both A and B	None of the above	Just - In - Time
6	While technology is important to_____ of that information is indispensable	Information integration	Coordination	Both A and B	None of the above	Both A and B
7	_____ integration also ensures that critical dta is stored digitally in formats and on media that permit instantaneous retrivel and electronic transmission	Internal	External	Both A and B	None of the above	Internal
8	Digital convergence has _____ dimensions	one	Two	Three	Four	Two
9	Convergence of content and convergence of transmission technology is dimensions of _____	Ditribution	Physical location	Digital convergence	Content	Digital convergence
10	_____ also enables companies to use networked databases and eletronic publishing to improve corporate and individual decision making and information proceesing	Content convergence	Electronic commerce	Convergence of transmission	Pipelines	Content convergence

11	_____ is convergence of communication equipment that provides the pipelines to transmit voice data image and video over the same line	Content convergence	Electronic commerce	Convergence of transmission	Pipelines	Convergence of transmission
12	_____ is reshaping the competetive environmnet for telecommunications services around the globe	Digital convergence	Content convergence	Convergence of transmission	None of the above	Digital convergence
13	_____ not only affects transaction between parties it can also influences the way market will be structured	Electronic lEarning	Electronic commerce	Electronic security	None of the above	Electronic commerce
14	Multimedia content and network publishing infrastructure is _____	Java	World wide web	HTML	All of the above	All of the above
15	Network infrastructure is _____	Telecom	Cable tv	Wireless internet	All of the above	All of the above
16	Messaging and information distribution infrstructure is _____	EDI	E-mail	Transfer protocol	All of the above	All of the above
17	Common business services infrastructure is _____	Security	Electronic payment	Directories	All of the above	All of the above
18	Electronic commerce applications is _____	Supply chain management	Remote banking	Both A and B	None of the above	Both A and B
19	HTML stands for_____	HyperText Markup Language	HyperText Mass Language	Both A and B	None of the above	HyperText Markup Language
20	_____ related to electronic commerce emcomposses such issuses asa universal access, privacy, and information pricing	Private policy	Public policy	Both A and B	None of the above	Public policy
21	Technical standards dictate the specifics of_____	information publishing tools	User interfaces	Transport	All of the above	All of the above
22	_____ developed a business model that allows each content provider to set fees and to retain the majority of revenues generated by their content	Microsoft	Sony	Samsung	None of the above	Microsoft
23	Which of the following is not the example of business to consumer (B to C) e - commerce?	Amazon.com	e - bay.com	dell.com	lastminute.com	e - bay.com

24	There are _____ distinct general classes of electronic commerce applications	One	Two	Three	Four	Three
25	Examples of third party logistics providers are	FedEx and rosenau transport	Sential self storage and UPS	Fedex and UPS	None of the above	Fedex and UPS
26	Workgroup communications enable managers to communicate with employees using _____	Electronic mail	Videoconferencing	Bulletin boards	All of the above	All of the above
27	Intra organizational electronic commerce the largest area of growth can be seen in the development of_____	Corporate intranet	Corporate extranet	Corporate internet	All of the above	All of the above
28	Social interaction electronic applications enable consumers to communicate with each other through_____	Electronic mail	Videoconferencing	Newsgroups	All of the above	All of the above
29	Most firms in the financial sector including_____ are intermediaries	Banks	Insurance companies	Mutual funds	All of the above	All of the above
30	Today's business environment is characterised by _____ dynamic forces	two	Three	Several	One	Several
31	Integrate the technology into high value added areas such as_____	Distribution	Sales and marketing	Customer management	All of the above	All of the above
32	_____ requires systematic long term development of processes that are flexible responsive and constantly improving in quality	Total quality management	Sales and marketing	Customer management	Distribution	Total quality management
33	Time compression endeavors to improve cycle times and move toward more flexible prouction called_____	Customer service	Total quality	Mass customization	None of the above	Mass customzation
34	_____ is an important prrequisite for making a large investment	Cost benefit analysis	Total quality management	Customer service	None of the above	Cost benefit analysis
35	Internet access for consumers and organizations such as_____	America online	Microsoft network	Compuserve	All of the above	All of the above
36	Network management , system integration, and backbone access services for other service providers such as_____	UUNET	PSI	BBN	All of the above	All of the above
37	Client and server software for nvigating and publishing content on the internet such as_____	Netscape	Microsoft	Netmanage	All of the above	All of the above

38	Payments system for online purchases such as_____	First virtual	Cybercash	Openmarket	All of the above	All the above
39	PL stands for_____	Three points logistics	Third party logistics	Three points location	None of the above	Third party logistics
40	TCP stands for_____	Transport Control Protocol	Transfer Control Protocol	Transport Control Provider	None of the above	Transport Control Protocol
41	The adopdation of _____ as a universally accepted protocol has been a driving force behind the growth of the internet	EDI	TCP / IP	NSF	None of the above	TCP / IP
42	A widely used local area networking standard that speaks a language called_____	TCP	NSF	IPX	EDI	IPX
43	_____ Providers have realized that it is futile to fight the trend	Business internet service	Internet protocol	Both A and B	None of the above	Business internet service
44	The most successful internet business is _____	Business internet service	Selling process	Both A and B	None of the above	Selling process
45	IAPs stands for_____	Internet Area Providers	Internet Access Providers	Intranet Access Providers	None of the above	Internet Access Providers
46	The differerent types of internet Access providers are_____	Online services	telco	Local providers	All of the above	All of the above
47	Long distance telephone companies are_____	AT&T	MCI	Sprint	All of the above	All of the above
48	The regional telephone companies are_____	Ameritech	Pacific bell	Bell atlantic	All of the above	All of the above
49	_____all offer direct internet access for the dial up user	IAPS	Netcom	Microsoft network	All of the above	All of the above
50	The_____ of trhe internet provides an alternative voice based communication with customers fellow employees and partners	E-mail component	Netcom	Microsoft network	IAPs	E-mail component
51	Online services traditionally have been _____ consisting of their own network of servers	Open systems	Close d systems	Netcom	None of the above	Closed systems

52	Apart from the transmission of the _____ typically did not interface with the internet	Electronic mail	Online service providers	Both A and B	All of the above	All of the above
53	America online provides access to a flight reservation system called easy sabre which is not available on the_____	Internet	Intranet	Extranet	None of the above	Internet
54	The seller must concentrate on removing unnecessary barries for	A quick response	Customer convenience	Transportation modes	A piggyback operation	Customer convenience
55	Leading communications carriers such as_____ have noticed the increasing number of internet users	MCI	AT&T	RBOCs	All of the above	All of the above
56	The principle methods of competition in the online industry are_____	Price	Content	Ease of use	All of the above	All of the above
57	_____ conduct the commerce over the internet is an inportant issue for risk averse consumers	Security	Learning curve	Complexity	Speed and relibility	Security
58	ISDN stands for_____	Integrated Servces Digital Network	Integrated Services Digital Netcom	Both A and B	None of the above	Ingtegrated Services Digital Network
59	_____ is simply the use of electronic means to transfer funds directly from one account to another, rther than by cheque or cash	M - Banking	O - Banking	E - Banking	D - Banking	E - Banking
60	Integrated services digital network is a multi purpose system integrating a large vareity of voice data, and image via a_____	Multiple network	Double network	Single network	None of the above	Single network

UNIT-V

SYLLABUS

Knowledge Management-Components - Types – models - Knowledge Management Cycle – tools - approaches. GIS/GPS - Nature of geographic data, Spatial objects and data models, Getting map on computers, GIS Standards and Standardization process of GIS development, Implementation and deployment Phases.

Knowledge Management

Knowledge management is the systematic management of an organization's knowledge assets for creating value and meeting tactical & strategic requirements. It consists of the initiatives, processes, strategies, and systems that sustain and enhance the storage, assessment, sharing, refinement, and creation of knowledge.

Each enterprise should define knowledge management in terms of its own business objectives. Knowledge management is all about applying knowledge in new, previously overburdened or novel situations.

Knowledge Management is a Continuous Cycle

Knowledge management is currently seen as a continuous cycle of three processes, namely −

- Knowledge creation and improvement
- Knowledge distribution and circulation
- Knowledge addition and application

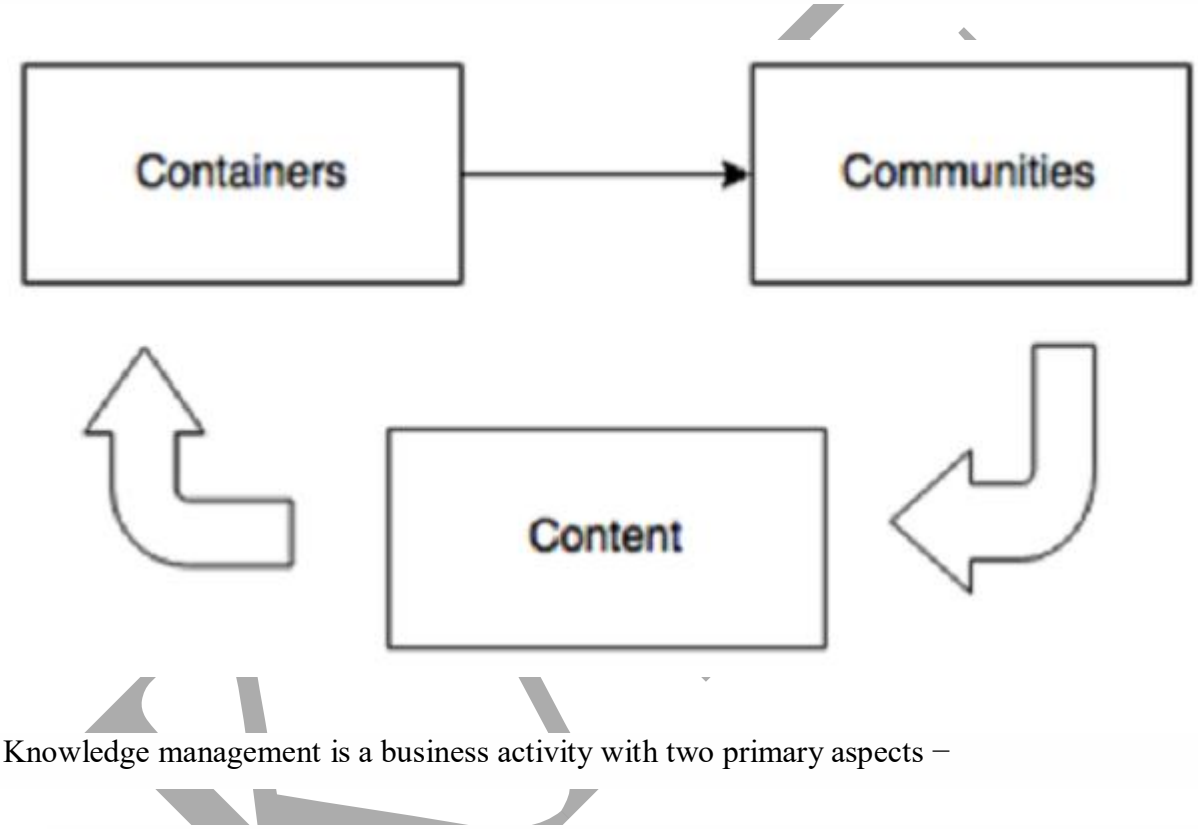
Knowledge management expresses a deliberate, systematic and synchronized approach to ensure the full utilization of the company's knowledge base, paired with the potential of individual skills, competencies, thoughts, innovations, and ideas to create a more efficient and effective company.

In simple words, knowledge management incorporates both **holding and storing** of the knowledge perspective, with respect to the intellectual assets.

It is the deliberate and systematic collaboration of an organization's people, technology, processes, style and structure in order to add value through reuse and innovation.

Knowledge Management Theory

There are three distinct perspectives on Knowledge Management which leads to a different estimation and a different definition.



Knowledge management is a business activity with two primary aspects −

- Executing the knowledge component of business activities as an explicit concern of business in strategy, policy, and practice at all levels of the organization.
- Maintaining a direct link between an organization's intellectual assets both explicit recorded and tacit personal know−how personal know−how and positive business results.

What Cognitive Science or Knowledge Science Perspective Says?

Knowledge management is the transformation of knowledge in the form of insights, understandings, and practical know-how that we all possess in other manifestations like books, technology, practices, and traditions within organizations of all kinds and in society in general.

According to the Process/Technology Perspective

Knowledge management is the concept under which information is changed into actionable knowledge and made available effortlessly in a usable form to the people who can leverage it according to their needs.

Why Knowledge Management

Application of Knowledge Management KMKM lie in the below four key areas

- **Globalization of Business** − Organizations today are more universal i.e., they are operating in multiple sites, multilingual, and multicultural in nature.
- **Leaner Organizations** − Organizations are adapting to a lean strategy where they understand customer value and focus on key processes to continuously increase it. The ultimate goal is to provide perfect value to the customer through a perfect value creation process that has zero waste.
- **Corporate Amnesia** − we are freer as a workforce, which creates issues regarding knowledge continuity for the organization and places with continuous learning demands from knowledge worker. We no longer expect to spend our entire work life with the same organization.
- **Technological Advances** − the world is more connected with the advent of websites, smart phones and other latest gadgets. Advancements in technology has not only helped in better connectivity but also changed expectations. Companies are expected to have online presence round the clock providing required information as per the customer needs.

Knowledge Management serves as one of the major response to the challenge of trying to handle this complex, information overloaded work environment. As such, Knowledge management is perhaps best clustered as a science of complexity.

Components

There are seven fundamental elements that must be in place for a system to be considered a 'KMS'. The collective of the seven elements is referred to as **a Knowledge System Architectural Model (KSAM),** and are outlined as follows.

1. Strategy – Any strategy should identify the problem or the opportunity, and set the purpose/objective for the knowledge strategy. It may also link this to policy and governance arrangements and take into consideration the culture(s) of the organisation. In many cases, risk is a driver that should be identified and assessed.

2. Actors – People are central to any KMS and there are different participants with differing backgrounds and experiences. There are a number of roles involved in a KMS to ensure the system is effective. These include owners, sources, targets, enablers, boundary spanners, communities and champions.

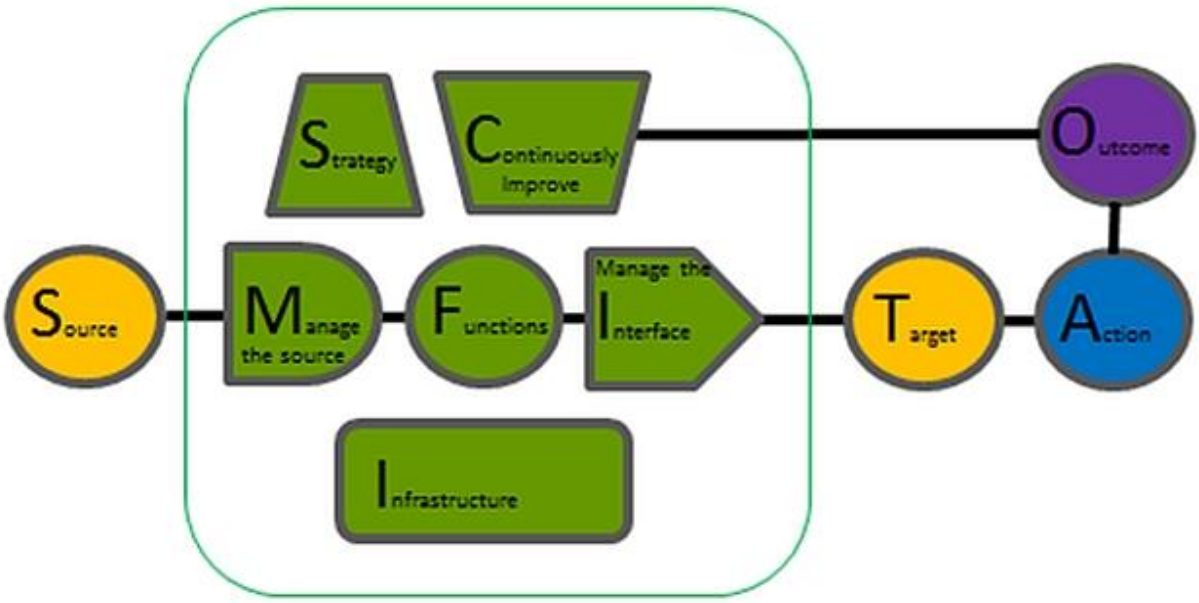
3. Manage the Knowledge Source – Some KMSs (but not all) may hold explicit knowledge. Irrespective, there must be a source that the knowledge has come from and that relationship/interface needs to be managed. A system should address the authenticity, reliability, sufficiency and currency of the knowledge. Wherever possible, knowledge should be held by the source external to the system and leveraged when needed rather than maintaining it in the KMS as information.

4. Interface – The user requires some sort of interface with the KMS and this might be a push, pull or interactive mode. The interface may be human, structural or technological for the delivery or facilitation of knowledge or a knowledge management service. The delivery interface should address the mode, facilitation/interface, a certain style, and adaptation techniques, provide access control and be accessible to people with physical restrictions or a disability. This aspect is what Nonaka refers to as 'BA'.

5. Functionality – KM systems are developed to support and enhance knowledge-intensive processes, tasks or projects of creation, construction, identification, capturing, acquisition, selection, valuation, organization, linking, protection, structuring, formalization, visualization, transfer, transformation, distribution, retention, maintenance, refinement, revision, evolution, accessing, retrieval and last but not least, the application of knowledge.

6. Infrastructure – Most KMSs will require some form of infrastructure to enable the system to function. This may include facilities, equipment, repositories, instruments, tools, templates, software, networks and hardware.

7. Continuous improvement – A KMS should be regularly reviewed to ensure that it is meeting the objectives identified in the strategy and requirements.



Types

In the modern economy, the knowledge that it is able to harness is the organization's competitive advantage. This competitive advantage is realized through the full utilization of information and data coupled with the harnessing of people's skills and ideas as well as their commitments and motivations. In the corporate context, knowledge is the product of organization and systematic reasoning applied to data and information.

It is the outcome of learning that provides the organization's only sustainable competitive advantage. As such knowledge is an essential asset that has become more important than land, labor or capital in today's economy.

In general, there are two types of knowledge: tacit knowledge and explicit knowledge. Tacit knowledge is that stored in the brain of a person. Tacit knowledge is personal. It is stored in the heads of people. It is accumulated through study and experience. It is developed through the process of interaction with other people. Tacit knowledge grows through the practice of trial and error and the experience of success and failure.

Tacit knowledge, therefore, is context-specific. It is difficult to formalize, record, or articulate. It includes subjective insights, intuitions and conjectures. As intuitive knowledge, it is difficult to communicate and articulate. Since tacit knowledge is highly individualized, the degree and facility by which it can be shared depends to a great extent on the ability and willingness of the person possessing it to convey it to others.

The sharing of tacit knowledge is a great challenge to many organizations. Tacit knowledge can be shared and communicated through various activities and mechanisms. Activities include conversations, workshops, on-the-job training and the like. Mechanisms include, among others, the use of information technology tools such as email, groupware, instant messaging and related technologies.

In managing tacit knowledge, the very first hurdle to most organizations is identifying the tacit knowledge that is useful to the organization. Once relevant tacit knowledge is identified, it becomes extremely valuable to the organization possessing it because it is a unique asset that is difficult for other organizations to replicate. This very characteristic of being unique and hard to replicate is what makes tacit knowledge a basis of the organization's competitive advantage. Accordingly, it is essential for an organization to discover, propagate and utilize the tacit knowledge of its employees in order to optimize the use of its own intellectual capital.

In any organization, tacit knowledge is the essential prerequisite for making good decisions. A new executive not yet familiar with the organization will find it difficult to make good decisions since he or she has yet to acquire tacit knowledge about the workings of the organization. Tacit knowledge is therefore crucial to getting things done and creating value for the organization.

This is the essence of the "learning organization". Management and employees need to learn and internalize relevant knowledge through experience and action. And they need to generate new knowledge through personal and group interactions within the organization.

Explicit knowledge is that contained in documents or other forms of storage other than the human brain. Explicit knowledge may therefore be stored or imbedded in facilities, products, processes, services and systems.

Explicit knowledge is codified. It is stored in documents, databases, websites, emails and the like. It is knowledge that can be readily made available to others and transmitted or shared in the form of systematic and formal languages.

Explicit knowledge comprises anything that can be codified, documented and archived. These include knowledge assets such as reports, memos, business plans, drawings, patents, trademarks, customer lists, methodologies, and the like. They represent an accumulation of the organization's experience kept in a form that can readily be accessed by interested parties and replicated if desired. In many organizations these knowledge assets are stored with the help of computers and information technology.

Explicit knowledge is not completely separate from tacit knowledge. On the other hand, the two are mutually complementary. Without tacit knowledge it will be difficult, if not impossible, to understand explicit knowledge. For example, a person without technical, mathematical or scientific knowledge (tacit knowledge) will have great difficulty understanding a highly complex mathematical formulation or chemical process flow diagram, although it may be readily available from the organization's library or databases (explicit knowledge).

And unless we try to convert tacit knowledge to explicit knowledge, we cannot reflect upon it, study and discuss it, and share it within the organization - since it will remain hidden and inaccessible inside the head of the person that has it.

Interaction between types of knowledge

Both types of knowledge can be produced as a result of interactions or innovations. They can be the outcome of relationships or alliances. They permeate the daily functioning of organizations and contribute to the attainment of their objectives. Both tacit and explicit knowledge enable organizations to respond to novel situations and emerging challenges.

Personal knowledge can become organizational knowledge through the dynamic interaction between tacit knowledge and explicit knowledge.

This dynamic process is the essence of knowledge creation in an organization. This interaction between the two types of knowledge brings about what is called the four modes of knowledge conversion (Nonaka 1996).

The process of knowledge creation is based on a double spiral movement between tacit and explicit knowledge. Below given Figure shows the four modes of knowledge conversion: socialization (from individual tacit knowledge to group tacit knowledge), externalization (from tacit knowledge to explicit knowledge), combination (from separate explicit knowledge to systemic explicit knowledge), and internalization (from explicit knowledge to tacit knowledge). To tacit knowledge to explicit knowledge from tacit knowledge Socialization Externalization From explicit knowledge Internalization Combination Socialization is a process of creating common tacit knowledge through shared experiences. In socialization, a field of interaction is built where individuals share experiences and space at the same time. Through this process common unarticulated beliefs and embodied skills are created and developed. In socialization, the tacit knowledge of one person is shared and transmitted to another person and it becomes part of the other person's tacit knowledge.

Externalization is a process of articulating tacit knowledge into such explicit knowledge as concepts and/or diagrams. The process often uses metaphors, analogies, and/or sketches. This mode is triggered by a dialogue intended to create concepts from tacit knowledge. A good example of externalization is the process of creating a new product concept or developing a new production process. Here the tacit knowledge in the brains of experts are articulated and expressed as concepts or drawings, thus becoming explicit knowledge that can be further studied and refined.

Combination is a process of assembling new and existing explicit knowledge into a systemic knowledge. For example a researcher can assemble an array of previously existing explicit knowledge in order to prepare a new set of specifications for a prototype of a new product.

Or an engineer can combine available drawings and design specifications to produce a new process design or equipment. What commonly occurs is the combination of a newly created concept with existing knowledge to produce something tangible (e.g., a new product model).

Internalization is a process of embodying explicit knowledge into tacit knowledge or an individual's know-how or operational knowledge. An excellent example of this is "learning by doing or using." Explicit knowledge that is available as text, sound, or video facilitates the internalization process. The use of operating manuals for various machines or equipment is a quintessential example of explicit knowledge that is used for internalization. The instructions are learned and become part of the person's tacit knowledge.

Models

All the Knowledge Management models described in this chapter attempt to address knowledge management from a universal and broader perspective.

Von Krogh and Roos Model

The von Krogh and Roos model of organizational epistemology 19951995 is the first model that precisely differentiates between individual knowledge and social knowledge.

This model, analyzes the following aspects

- Why and how the knowledge gets to the workers of a company
- Why and how the knowledge arrives at the organization
- What does knowledge mean for the workers as well as the organization
- What are the barriers of organizational knowledge management

In their organizational model, knowledge is to be found both in the mind of the people and in the links between them.

This model examines the nature of knowledge management from the perspective of −

- Staff members
- Communication and connection
- Organizational structure and layout
- Network between members and
- Management of human resources

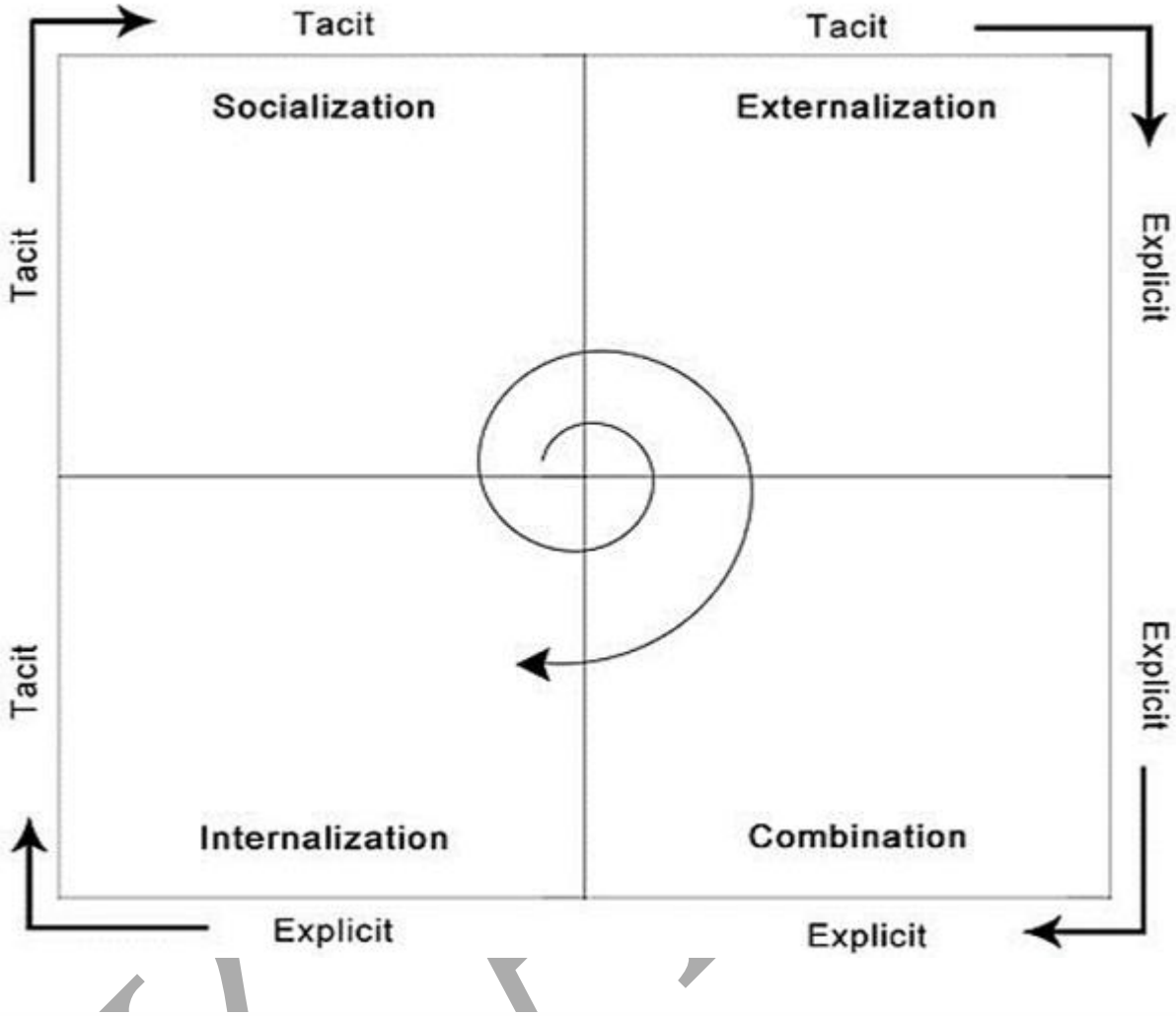
The above five factors create issues that can prevent knowledge management strategies.

Nonaka and Takeuchi

The Nonaka and Takeuchi model of KM has its base in a universal model of knowledge creation and the management of coincidence.

There are four different modes of knowledge conversion in the Nonaka and Takeuchi model of knowledge conversion −

- Socialization tacittotacittacittotacit i.e. Indirect way,
- Externalization tacittoexplicittacittoexplicit i.e. Indirect to Direct way,
- Combination explicittoexplicitexplicittoexplicit i.e. Direct way, and
- Internalization explicittotacitexplicittotacit i.e. Direct to indirect way.



Socialization is the technique of sharing tacit knowledge through observation, imitation, practice, and participation in formal and informal communities and groups. This process is basically preempted by the creation of a physical or virtual space where a given community can interact on a social level.

Externalization is the technique of expressing tacit knowledge into explicit concepts. As tacit knowledge is highly internalized, this process is the key to knowledge sharing and creation.

Combination is the technique of integrating concepts into a knowledge system. Some examples or cases would be a synthesis in the form of a review report, a trend analysis, a brief executive summary, or a new database to organize content.

Internalization is the technique of embodying explicit knowledge into tacit knowledge.

Choo Sense-Making KM model

The Choo Sense-Making KM Model 19981998 focuses on

- Sense Making
- Knowledge Creation
- Decision making skills

These three highly interconnected processes play a major role in the enfoldment of the organization's knowledge vision, it's potential to knowledge creation and its commitment into taking knowledge creation to the utmost consequences.

Sense Making − Its long-term aim is the warranty that organizations will adapt and continue to prosper in a dynamic and complex environment through activities of prospecting and interpretation of suitable information enabling it to understand changes, trends and scenarios about clients, suppliers, competitors and other external environment actors.

Knowledge Creation − It is a process that allows a company to create or acquire, organize and process information in order to generate new knowledge through organizational learning. The new knowledge obtained, allows company to develop new abilities and capabilities, create new products and new services, improve the existing ones and redesign its organizational processes.

Decision Making − The Company must choose the best option among those that are plausible and presented and pursue it based on the organization's strategy. Decision making process in companies is constrained by the bounded rationality principle.

This model focuses on how informational elements are selected and fed into organizational actions.

WIIG Model

Karl Wiig KM model 19931993 marks the basic principle which says, in order for knowledge to be useful and valuable, it must be organized and synchronized.

Some essential dimensions in the WIIGS KM model are −

- Completeness
- Connectedness
- Congruency and
- Perspective and purpose

Completeness − It describes how much relevant knowledge is available from a given source. Sources vary from human minds to knowledge bases like, tactic or explicit knowledge like, tactic or explicit knowledge.

First of all, we have to make sure, that the knowledge is complete if all the information available on the subject is there but if no one knows of its existence, they cannot make use of this knowledge.

Connectedness − It briefs about the well-understood and well-defined relations between the different knowledge objects. Most knowledge objects are connected to each other, the more connected a knowledge base is then the more consistent the content and the greater its value.

Congruency − A knowledge base congruent when all the facts, concepts, perspectives, values, judgments, and relational links and connections between the objects are consistent. Most knowledge content do not meet such ideals.

Perspective and Purpose − It is a technique through which we know something but from a particular point of view for a specific purpose. We organize much of our knowledge applying to the dual dimensions of perspective and purpose.

This model attempts to define different levels of internationalization of knowledge and therefore could be seen as a further refinement of the fourth Nonaka and Takeuchi quadrant of internalization.

Boisot I-Space

This model is based on the key concept of information which is good and that is different from a physical asset.

Boisot differentiates information from data by emphasizing that information is what an observer will extract from data as a function of his or her expectations or prior knowledge.

Boisot's model can be seen as three dimensional cube with the following dimensions −

- From uncodified to codified
- From concrete to abstract
- From undiffused to diffused

He proposes a Social Learning Cycle SLCSLC that adopts the I-Space to model the dynamic flow of knowledge through a series of six phases −

- **Scanning** − Wisdom is gained from generally available or diffused data.
- **Problem-Solving** − Problems are solved offering structure and coherence to these insights as knowledge becomes codified.
- **Abstraction** − The newly codified wisdom is generalized to a wide range of situations as knowledge becomes more abstract.
- **Diffusion** − the new wisdom are shared with a target population in a codified and abstract form as knowledge becomes diffused.
- **Absorption** − The newly codified insights are applied to a variety of situations generating new learning experiences as knowledge is absorbed and produces learnt behavior and so becomes uncodified or tacit.

- **Impacting** − Abstract knowledge becomes fixed in concrete practices, for example in artifacts, rules or behavior patterns as knowledge becomes concrete.

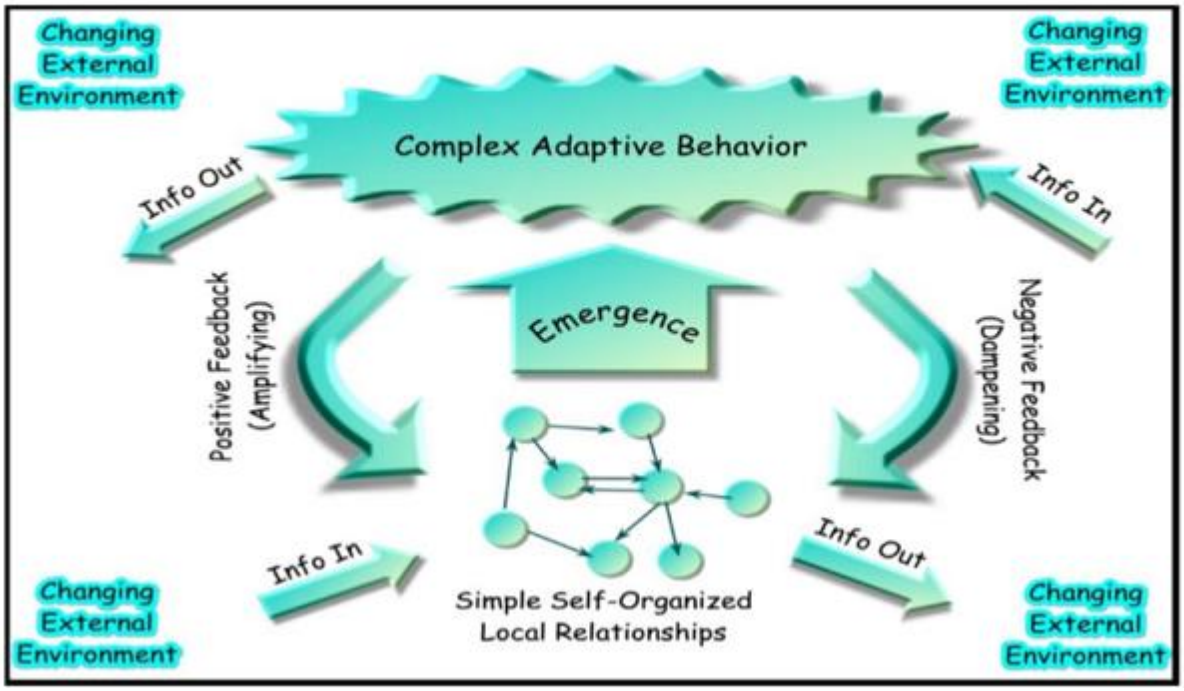
The Boisot's model considers companies as living organisms. Their process of growing and developing knowledge assets within companies is always changing.

This means that companies need to adopt a dynamic KM strategy which accommodates the dynamic nature of the organizational learning cycle.

Complex Adaptive System Models

According to the ICAS Intelligent Complex Adaptive Systems Intelligent Complex Adaptive Systems theory, an organization is seen as an adaptive, complex system.

Complex adaptive systems include many independent agents that interact with one another locally and their combined behavior gives rise to complex adaptive phenomena.



These models contain a series of functions that makes sure that the viability of any living system in general and of organizations, in particular.

ICAS systems are based on cybernetics principles,which uses communications and control mechanisms in order to understand, describe and predict what a viable organization should do.

Adaptive systems involve lots of independent agents which are interacting. Their behavior makes possible the appearance of some complex circumstances of adaptation. A general model of a complex behavior is the result of all the interactions. Inside the adaptive model, the intelligent elements are made of people who are self-organized, but who can remain as a part of general hierarchies of the organizations.

The challenge is to use the advantage offered by the force of the people when they cooperate, keeping a global sense of unity. Organizations solve issues by creating options, using resources, both internal and external, that can add value over the initial input.

Knowledge Management Cycle

Knowledge management cycle is a process of transforming information into knowledge within an organization. It explains how knowledge is captured, processed, and distributed in an organization. In this chapter, we will discuss the prominent models of knowledge management cycle. Knowledge management cycle is a process of transforming information into knowledge within an organization. It explains how knowledge is captured, processed, and distributed in an organization. In this chapter, we will discuss the prominent models of knowledge management cycle.

Till date, four models have been selected based on their ability to meet the growing demands. The four models are the Zack, from Meyer and Zack (1996), the Bukowitz and Williams (2000), the McElroy (2003), and the Wiig (1993) KM cycles.

Zack	Bukowitz & Williams	WIIG	McElroy
Acquisition	Get	Creation	Learning
Refinement	Use	Sourcing	Validation
Store	Learn	Compilation	Acquisition
Distribution	Contribute	Transformation	Integration
Presentation	Assess	Application	Completion

Zack Knowledge Management Model

The Zack model is extracted from work on the design and development of information products. In Meyer and Zack's approach, the network between each stage is designed to be logical and standardized.

In this cycle, the major developmental stages of a knowledge repository are analyzed and mapped to the stages of a KM cycle.

The stages are acquisition, refinement, storage/retrieval, distribution, and presentation/use. This cycle is also known as the "refinery."

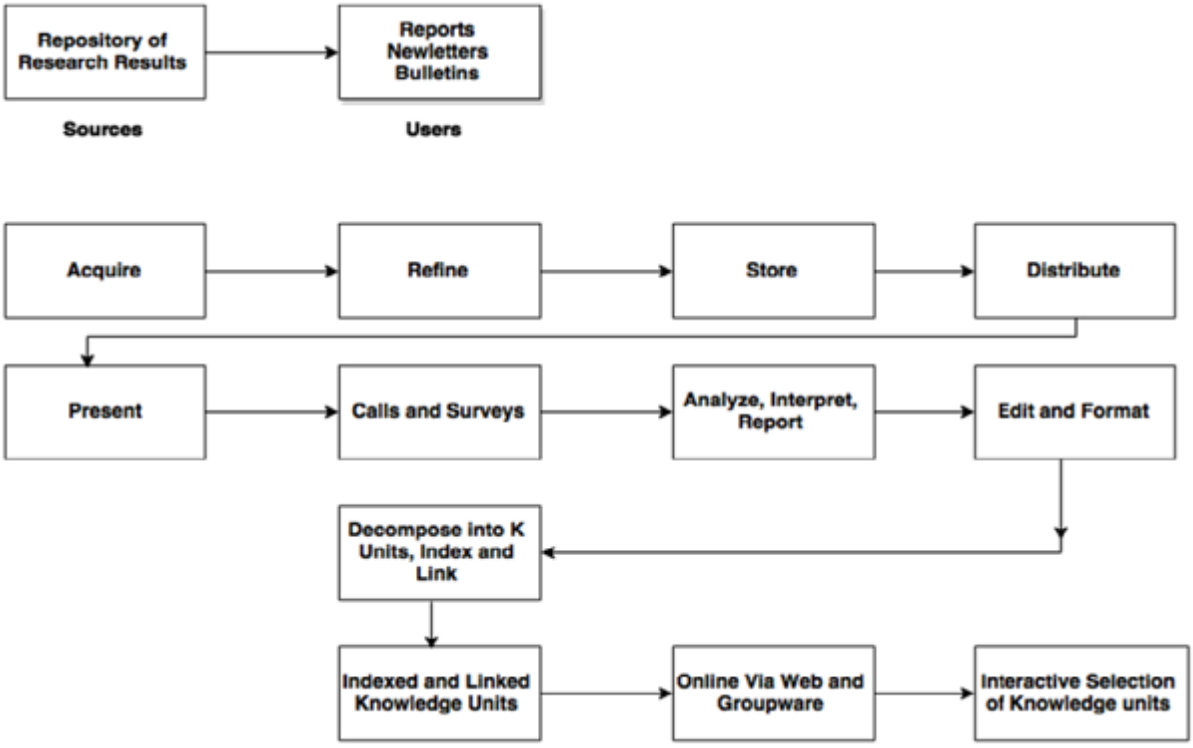
Acquisition of Data or Information

Acquisition deals with issues regarding origin of raw materials such as scope, breadth, depth, credibility, accuracy, timeliness, relevance, cost, control, and exclusivity.

The guiding principle is the well- known proverb of "garbage in, garbage out." That is, highest quality source data is required, else the intellectual products produced downstream will be lower.

Refinement

Refinement may be physical (like migrating from one medium to another) or logical (like restructuring, relabeling, indexing, and integrating.)



Refining also defines cleaning up (like sanitizing content so as to ensure complete anonymity of sources and key players involved) or standardizing (like conforming to templates of a best practice or lessons learned as used within that particular organization).

This stage also adds up to the value by creating more readily usable knowledge objects and by storing the content more deniable for future use.

Storage / Retrieval

Storage or Retrieval forms a bridge between the upstream addition and refinement stages that feed the repository and downstream stages of product generation. Storage can be physical (file folders, printed information) as well as digital (database, knowledge management software).

Distribution

Distribution defines how the product is to be delivered to the end-user (like fax, print, email) and encloses not only the medium of delivery but also its timing, frequency, form, language, and so on.

Presentation

Context plays an important role in Presentation or Application stage. The performance of each of the preceding value-added steps is evaluated here – for example, does the user have enough context to be able to make use of this content? If not, the KM cycle has failed to deliver value to the individual and ultimately to the company.

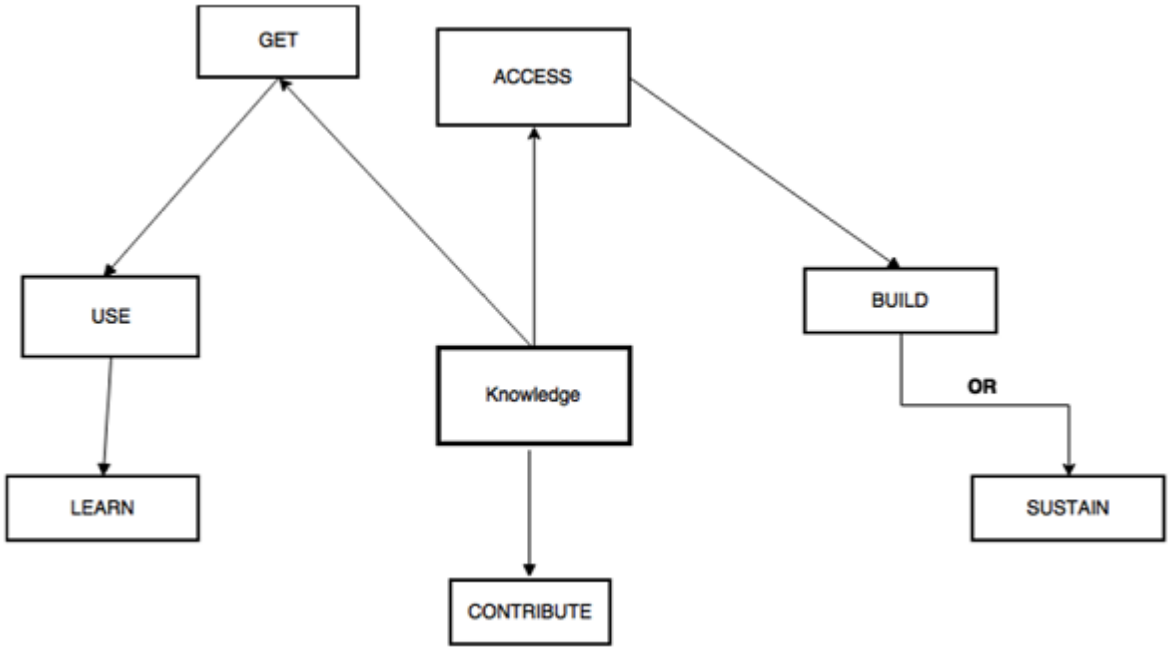
The repository and the "refinery" combined enable the management of valuable knowledge of a firm. In this cycle, there is also an impression of having to continually renew the repository and the refinery in order to avoid elimination.

The Meyer and Zack model is one of the most complete picture of the key elements engaged in the knowledge management model. To be specific the notion of refinement is a crucial stage in the KM cycle and one that is often neglected.

Bukowitz & Williams Model

Bukowitz and Williams portray a knowledge management process framework that outlines "how organizations generate, maintain and expand a strategically correct stock of knowledge to create value".

In this framework, knowledge includes knowledge repositories, relationships, information technologies, communications infrastructure, functional skill sets, process know-how, environmental responsiveness, organizational intelligence, and external sources.



These stages aim on more long-range processes of matching intellectual capital to strategic needs.

- **Get Stage** is the first stage, it consists of seeking out information required in order to make decisions, solve problems, or innovate.
- **Use Stage** is the next stage, and it deals with how to combine information in new and interesting ways in order to foster organizational innovation. The spotlight is primarily on individuals and then on groups.
- **The Learn Stage** points to the formal process of learning from experiences as a means of creating competitive gain. Learning in enterprises is important because it serves the transition step between the application of ideas and the generation of new ones.
- **The Contribute Stage** of the Knowledge Management cycle deals with encouraging employees to post what they have learnt to the communal knowledge base (like a repository). Only in this way, can individual knowledge be made visible and available to the entire organization, where and when appropriate.

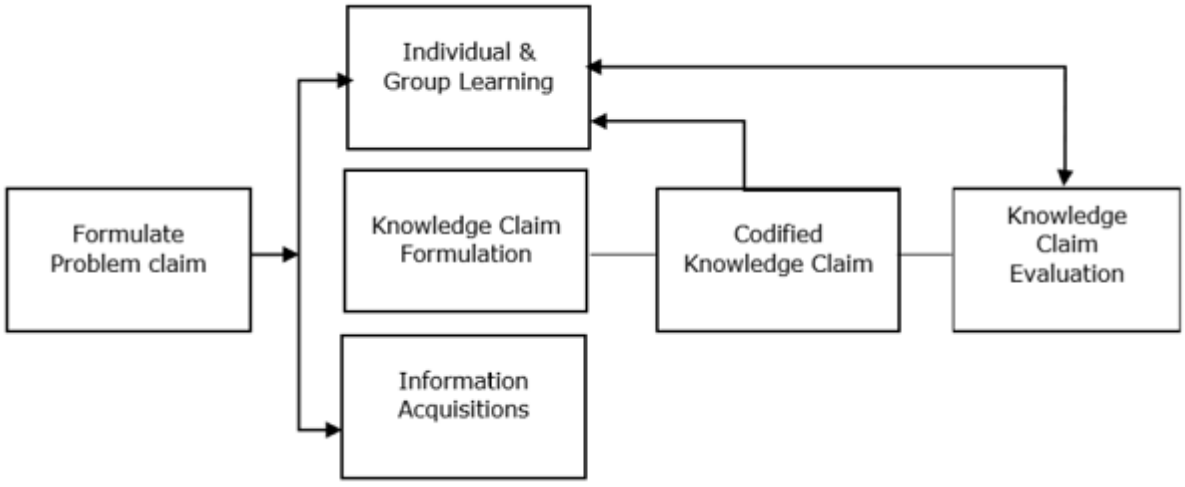
McElroy Model

McElroy outlines a knowledge life cycle that consists of the processes of knowledge production and knowledge integration, with a series of feedback loops to organizational memory, beliefs, and claims and the business-processing environment.

- Problem claim formulation is an attempt to learn and state the specific nature of the detected knowledge gap.
- Knowledge claim formulation acts as a response to approved problem claims via information acquisition and individual and group learning.
- New knowledge claims are tested and examined through knowledge claim evaluation processes.
- Evaluation of knowledge claims results in surviving knowledge claims that will be integrated as new organizational knowledge or falsified/undecided knowledge claims.

Experience gained from the application of knowledge in the organizational knowledge base leads to new claims and resulting beliefs, triggering the cycle to begin all over again.

In knowledge production, the primary processes are individual and group learning. Knowledge claim formulation, information acquisition; codified knowledge claim and knowledge claim evaluation.



These knowledge production processes can be briefed as −

- Individual and group learning marks the first step in organizational learning.
- Knowledge claim validation includes codification at an organizational level.
- A formalized procedure is essential for the receipt and codification of individual and group innovations.
- Information addition is the process by which an organization deliberately or serendipitously acquires knowledge claims or information produced by others, usually external to the company. This stage plays a basic role in formulating new knowledge claims at the organizational level.

Knowledge integration is the process by which an organization announces new knowledge claims to its operating environment and retires old ones. It includes all knowledge transmission such as teaching, knowledge sharing, and other social activities that either connects an understanding of previously produced organizational knowledge to knowledge workers or accommodate newly minted knowledge.

One of the advantages of the McElroy cycle is the clear description of how knowledge is examined and a conscious decision is made as to whether or not it will be included into the organizational memory. The authorization of knowledge is a step that clearly differentiates knowledge management from document management. The KM cycle aims at processes to identify knowledge content that is of value to the organization and its employees

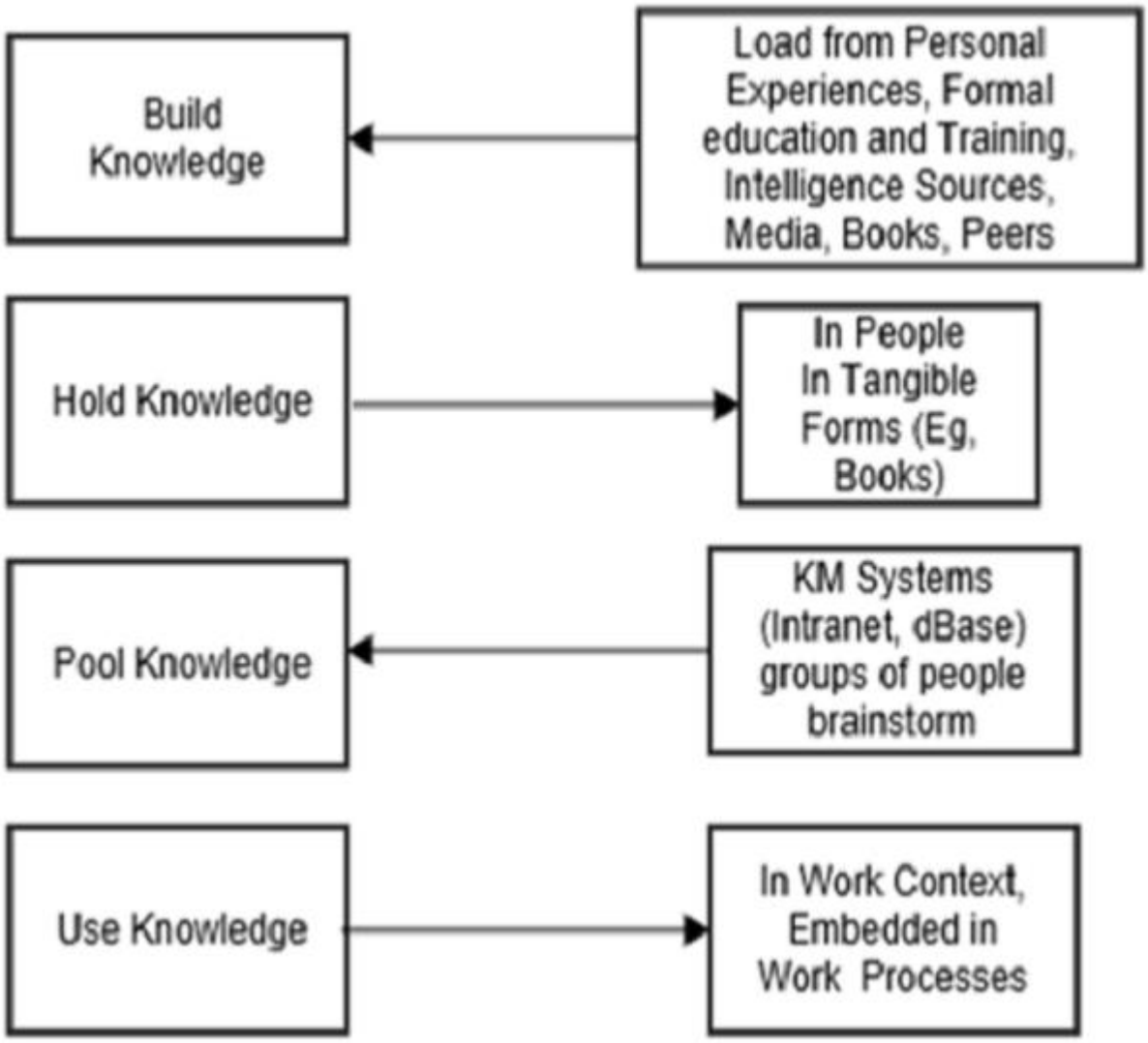
WIIG Model

WIIG highlights the three conditions that need to be present for an organization to conduct its business successfully.

- It must have a business (commodities/services) and customers.
- It must have resources (people, budget, and facilities).
- It must have the strength to act.

WIIG marks the major purpose of KM as an effort "to make the organization intelligent-acting by facilitating the creation, accumulation, deployment and use of quality knowledge." WIIG's KM cycle shows how knowledge is built and used as individuals or as organizations.

The following figure shows the four major steps of the WIIG model.

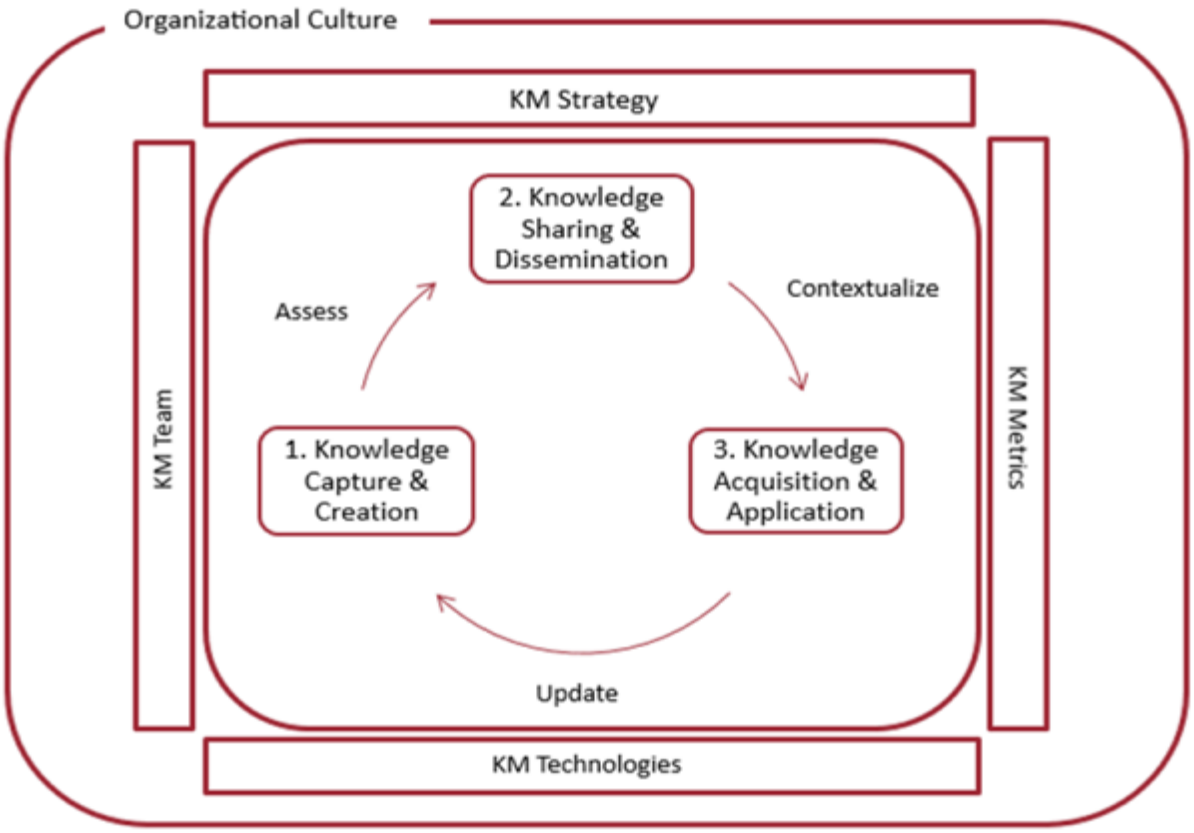


- **Building knowledge** − From external and internal knowledge sources
- **Holding knowledge** − Storing the information in a particular form
- **Pooling knowledge** − Through intranets and knowledge management portals
- **Applying knowledge** − In the context of work embedded in process

Integrated Cycle

The following are the three major stages of integrated cycles of knowledge management strategy when introduced in any organization −

- Knowledge capture and/or creation
- Knowledge sharing and dissemination
- Knowledge acquisition and application



Knowledge Capture states the identification and frequent codification of existing (usually previously unnoticed) internal knowledge and know-how within the organization and/or external knowledge from the environment.

Knowledge Creation is the advancement of new knowledge and know-how innovations that did not have a previous existence within the organization.

Once, it is clear that the newly identified content is of sufficient value, the next step is to contextualize this content. This involves maintaining a connection between the knowledge and those knowledgeable about that content.

Contextualization also indicates identifying the key elements of the content in order to better match to a variety of users. Finally, contextualization succeeds to when the new content is firmly, precisely yet seamlessly, embedded in the business processes of the enterprise.

The knowledge management cycle is then rechecked as users understand and decide to make use of content.

The users will update usefulness, and they will signal when it becomes out of date or when this knowledge is not applicable

Tools

Knowledge Acquisition and Application

Knowledge acquisition is the process used to describe the rules and ideologies required for a knowledge-based system. It is the process of extracting knowledge from experts and structuring this knowledge into a readable form.

Some techniques used in the process of extracting information are Interviewing, Observations, Protocol Analysis, and Brainstorming.

It is ideally driven by strategies − for example, an organization decides what knowledge is needed, what it has, and then fills in the gap by developing new knowledge or acquiring it. Knowledge acquisition has several applications that we will be discussing in this chapter.

Codifying Explicit Knowledge

Converting unspoken knowledge to a categorical form by way of codifying, and to acquire this tacit knowledge as explicit meta-knowledge knowledge about knowledge about knowledge.

This is basically a directory which knows what and how to contact them. The aim of the codification is to make it easy to organize, locate, share, store, and use the knowledge. Common material including codified knowledge are manuals, spreadsheets, decision support systems and procedures.

Anyhow, the codification process is generally expensive and it is difficult to code for universal understanding too.

Creation of Tools

Knowledge creation is all about continuous transfer, combination, and conversion of the different types of knowledge, as users practice, interact, and learn.

Content creation and management tools are essential to structure and organize knowledge content for each retrieval and maintenance. It consists of the following tools −

- Authoring Tools
- Annotation Tools
- Data Mining and Knowledge Discovery
- Templates
- Blogs

Authoring Tools

Authoring tools include the software that allow users to create web page or multimedia applications. These are tools by which various media elements are brought together to structure and flow.

Authoring tools align with the aim of capturing the author's tacit knowledge and helping structure that knowledge into an explicit form.

Annotation Tools

Annotation tools help in addition of explanatory comments to a document after it has been created. The comments can be public as well as private. Tools like track changes in MS Word is an example of annotation tools. This tool also helps with the goal of capturing tacit knowledge by allowing authors to connect their expertise to a certain document.

Data Mining and Knowledge Discovery

Data mining pioneers new or hidden patterns in data that resides in multiple databases. It includes statistical analysis to discover relations, correlation, and market related analysis.

Various analysis tools are approached in data mining such as statistical analysis tools e.g. SAS, data mining suites, and data visualization tools.

This tool accomplishes the goal of creating new knowledge by being able to analyze existing data and making something useful out of it. It also helps in predicting future occurrence and forecast expected outcomes.

Templates

It includes designing or patterning of an item that acts as a guide for designing or constructing similar items. This tool is helpful to organize knowledge in a systematic manner, by following an established design.

Blogs

These are web pages that typically focus on a specific subject. They can be like personal pages that are much like personal diaries which are periodically updated and accessible publicly. This web tool fits with the aim to elicit knowledge, by authors being able to express their unique ideas and opinions.

Sharing and Dissemination Tools

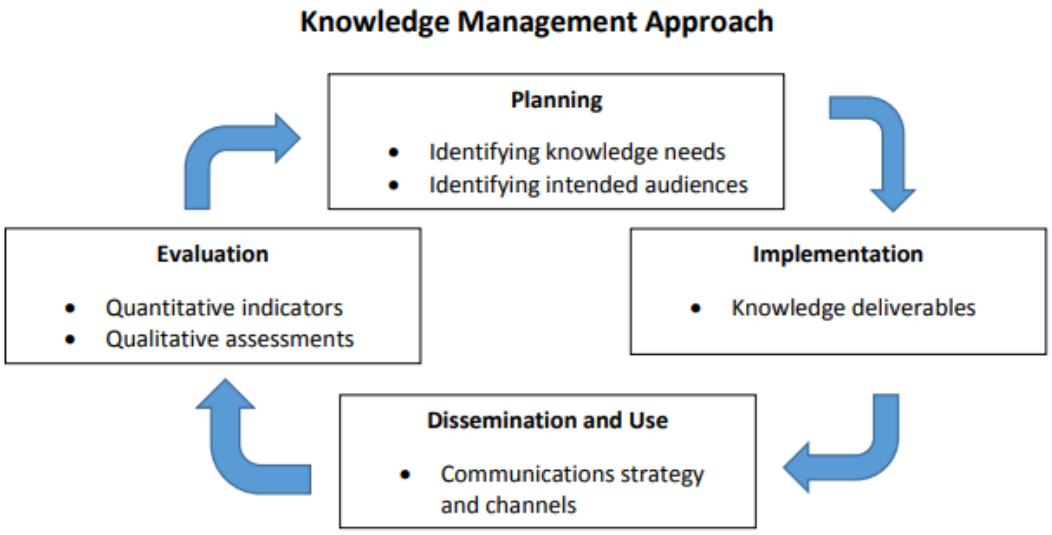
It includes groupware and collaborative tools. This tool acts as enablers of knowledge flow and knowledge-sharing activities among personnel. Groupware invokes class of software programs that allows working together while located remotely from each other. Here, collaboration is mainly referred as groupware, or work group productivity software. For example − LAN Local Area Network

Typically, a groupware supports the following operations −

- Password Protection of document
- Schedule meeting and allocate resources

- File distribution
- Electronic newsletter
- Email Electronic mail
- Group Calendars
- Collaborative writing system
- Video Communication System
- Chat Systems
- Wikis

Approaches



Planning

The planning stage is the starting point of identifying knowledge needs. Again, it is back to the 'four questions' listed above. It is possible that a knowledge gap is identified first and then a programme built around bridging that gap, but it is more usual for it to be the other way around, that is, a real world problem needs to be solved and the missing knowledge to help solve it has to be identified. Or, something has to change or be influenced (a process, institution, policy, etc.) and knowledge has to be brought to bear to contribute to the governance outcome desired.

Closely connected to identifying knowledge needs is identifying the intended audience(s). Identifying audiences at this first stage is essential – and refining them as necessary during programme implementation – if the knowledge developed will be used for their benefit.

The development of strategic guidance, background material and evidence-based information related to water security provides the knowledge and justification to manage water more sustainably. Knowledge products produced by GWP are a mix of global level debate on cutting edge water management policy, such as the Technical Committee publications, generic guidance on prominent issues, such as IWRM in municipalities, and location-specific data generation such as vulnerability assessments and hydrological modeling results.

Of equal importance is GWP's work on awareness raising and facilitating better access to information on water security. To this end, publicity campaigns targeted at the general public on topics such as water efficiency and sanitary heath are initiated and media training workshops are organized.

One of the most important advantages to identifying knowledge needs during programme planning is that it will tend to be demand-driven and "bottom up."

Implementation

Knowledge is being gathered, developed, and refined throughout the implementation phase. It is being done, in most cases, by a large number of people and through a large number of activities.

For example, any number of knowledge players can be involved:

- GWP Partners
- TEC members
- Regional and country experts'
- Strategic allies/Knowledge partners
- Reference Group
- Consultants

And any number of capacity-building activities, such as dialogues and workshops, can contribute to the knowledge deliverables. Depending on the size and extent of the programme, a KM focal point may be necessary. GWP's capacity development work makes use of different approaches to raise awareness and enhance knowledge among government institutions and other stakeholders on water security. One example is large scale capacity building initiatives targeted at national planners and decision makers from a range of sectors each of whom has a training plan tailored to their day-to-day tasks.

Alternatively, training workshops may be organised according to a specific topic and target group, such as international water law for legislators from countries sharing a river basin. Capacity building activities may also be on a smaller scale, targeting, for example, more efficient irrigation practices among farming communities in a single catchment or rainwater harvesting in urban districts. The end goal of implementation, when it comes to knowledge, is to **complete the knowledge deliverables.**

As implied by the four questions, the knowledge deliverables should support the governance outcomes or 'influencing strategy' of the programme.

Dissemination and use

When a programme or project comes to an end, it can be said that the role of knowledge may be just beginning. Once the deliverables have been completed, they need to be disseminated to target audiences that were identified at the planning stage. It is also likely that new audiences were identified during implementation.

The key task at this stage is to ensure the uptake of knowledge that was created and/or packaged. There are many tools that can be used:

Peer-to-peer learning, exchange•Publications Events, forums, high-level briefing• Training material • Knowledge centres, hubs• Webinars, ppts • Websites, intranets, helpdesks• Case studies, impact stories • South-to-south workshops• Communities of practice

New technology provides many opportunities for learning (webinars, e-Learning, online discussion groups, etc.) which could be done in cooperation with knowledge partners (see below). In addition, with GWP's focus on youth engagement it is important that knowledge is communicated in a way that appeals to a younger generation. Building the capacity of 'water leaders' and those 'outside the water box' also have to be thought of well before knowledge products are completed.

GWP's web-based ToolBox plays a central (but not exclusive) role in the network's dissemination and use strategy. As noted above, the ToolBox provides a comprehensive classification of the governance outcomes that GWP seeks to influence. So it is important that there be a tight connection between programme implementation 'on the ground' and the 'change areas' enumerated in the Tool Box. One key to success at this stage is to have a communications strategy and plan in place well before the knowledge products are completed.

Evaluation

To 'close the loop' on the knowledge approach, there needs to be an assessment of the knowledge component. This is the place where learning for continuous improvement takes place. Sometimes formal reviews are carried out if the programme is large enough or if it is a donor requirement. Quantifiable indicators to measure knowledge impact should be looked at if possible. At other times, more informal and less expensive ways of learning might be appropriate. For example, trying to identify if decision makers explicitly state the rationale behind a decision that can be traced to use of GWP's knowledge. It is important to demonstrate the uptake of GWP's knowledge in order to communicate GWP's added value to its Partners, including donors.

The ideal place to make provision (in budget and activities) for this last stage is at the first stage of planning.

GIS/GPS

Global Information System (GIS): Software program that enable users to store and manipulate large amounts of data from GPS and other sources. Global Positioning System (GPS):
A satellite system that projects information to GPS receivers on the ground, enabling users to determine latitude and longitude coordinates.

Examples of GPS and GIS

Global Positioning System (GPS): An agricultural producer may use a handheld GPS receiver to determine the latitude and longitude coordinates of a water source next to a field or vineyard.

Global Information System (GIS): Following a chemical spill, maps obtained from a GIS system can reveal environmentally-sensitive areas that should be protected during response and recovery phases.

Nature of geographic data, Spatial objects and data models

What are geographic data?

Geographic data link place, time, and attributes.

Place

Place, or location, is essential in a geographic information system. Locations are the basis for many of the benefits of geographic information systems: the ability to map, to link different kinds of information because they refer to the same place, and to measure distances and areas. Without locations, data are said to be "aspatial" and have no value at all within a geographic information system.

Time

Time is an optional element. Many aspects of the earth's surface are slow to change and can be thought of as unchanging. Height above sea level changes slowly because of erosion and movements of the earth's crust, but these processes operate on scales of hundreds or thousands of years, and for most applications (except geophysics) we can safely omit time from the representation of elevation.

On the other hand, atmospheric temperature changes daily, and dramatic changes sometimes occur in minutes with the passage of a cold front or thunderstorm, so time is distinctly important.

Attributes

Attributes refer to descriptive information. The range of attributes in geographic information is vast. Some attributes are physical or environmental in nature (e.g., atmospheric temperature or elevation), while others are social or economic (e.g., population or income). There are five main types of attributes: nominal, ordinal, interval, ratio, and cyclic.

Spatial objects Data models

Data in a GIS represent a simplified view of the real world. Physical entities or phenomena are approximated by data in a GIS. These data include information on the spatial location and extent of the physical entities, and information on their non-spatial properties.

Each entity is represented by a spatial feature or cartographic object in the GIS, and so there is an entity-object correspondence. Because every computer system has limits, only a subset of the essential characteristics is represented for each entity. We may represent lakes in a region by a set of polygons. These polygons are associated with a set of essential characteristics that define each lake. All other information for the area may be ignored, e.g., information on the roads, buildings, slope, or soil characteristics. Only lake boundaries and essential lake characteristics have been saved in this example.

Essential characteristics are defined by the person, group, or organization that develops the spatial data or uses the GIS. The set of characteristics used to represent an entity is subjectively chosen. What is essential to describe a forest for one person, for example a logger, would be different than what is essential to another person, such as a typical member of the Sierra Club? Objects are abstractions in a spatial database, because we can only record and maintain a subset of characteristics of any entity, and no one abstraction is universally better than any other.

A data model may be defined as the objects in a spatial database plus the relationships among them. The term model is fraught with ambiguity, because it is used in many disciplines to describe many things. Here the purpose of a spatial data model is to provide a formal means of representing and manipulating spatially-referenced information. In our lake example our data model consists of two parts. The first part is a set of polygons (closed areas) recording the shoreline of the lake, and the second part is a set of numbers or letters associated with each polygon.

A data model may be considered the most recognizable level in our computer abstraction of the real world. Data structures and binary machine code are successively less recognizable, but more computer-compatible forms of the spatial data.

Coordinates are used to define the spatial location and extent of geographic objects. A coordinate most often consists of a pair of numbers that specify location in relation to an origin. The coordinates quantify the distance from the origin when measured along a standard direction. Single or groups of coordinates are organized to represent the shapes and boundaries that define the objects. Coordinate information is an important part of the data model, and models differ in how they represent these coordinates. Coordinates are usually expressed in one of many standard coordinate systems. The coordinate systems are usually based upon standardized map projections that unambiguously define the coordinate values for every point in an area.

Common Spatial Data Models

Spatial data models begin with a conceptualization, a view of real world phenomena or entities. Consider a road map suitable for use at a statewide or provincial level. This map is based on a conceptualization that defines roads as lines. These lines connect cities and towns that are shown as discrete points or polygons on the map. Road properties may include only the road type, e.g., a limited access interstate, state highway, county road, or some other type of road. The roads have a width represented by the drawing symbol on the map, however this width, when scaled, may not represent the true road width.

This conceptualization identifies each road as a linear feature that fits into a small number of categories. All state highways are represented by the same type of line, even though the state highways may vary. Some may be paved with concrete, others with bitumen. Some may have wide shoulders, others not, or dividing barriers of concrete, versus a broad vegetated median. We realize these differences can exist within this conceptualization.

There are two main conceptualizations used for digital spatial data. The first conceptualization defines discrete objects using a vector data model. Vector data models use discrete elements such as points, lines, and polygons to represent the geometry of real world entities.

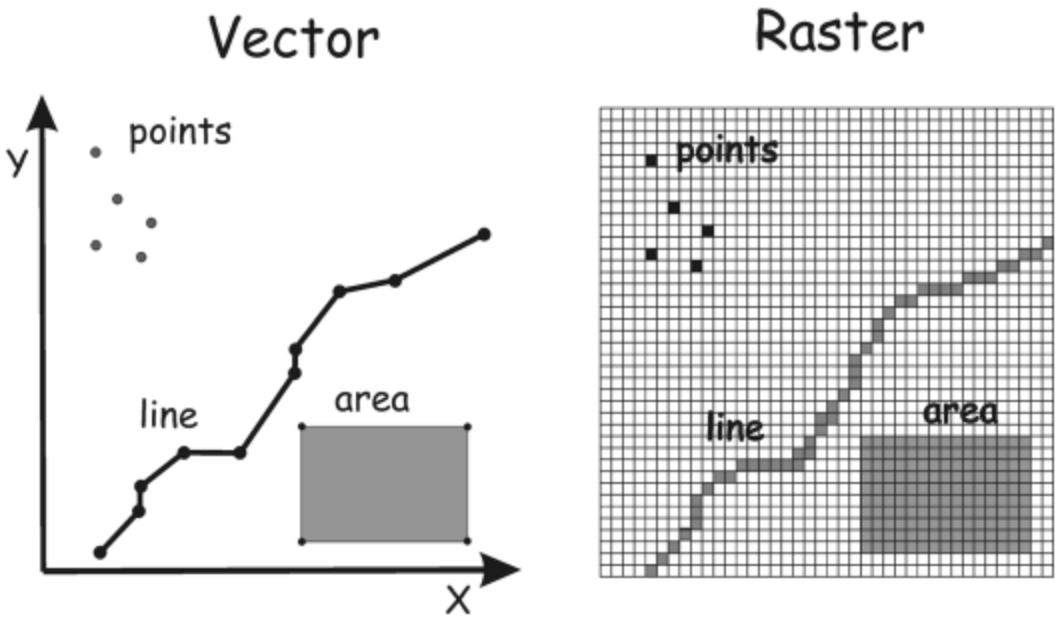
Vector data model

A farm field, a road, a wetland, cities, and census tracts are examples of discrete entities that may be represented by discrete objects. Points are used to define the locations of "small" objects such as wells, buildings, or ponds. Lines may be used to represent linear objects, e.g., rivers or roads, or to identify the boundary between what is a part of the object and what not a part of the object is. We may map land cover for a region of interest, and we categorize discrete areas as a uniform land cover type. A forest may share an edge with a pasture, and this boundary is represented by lines.

The boundaries between two polygons may not be discrete on the ground, for example, a forest edge may grade into a mix of trees and grass, then to pasture; however in the vector conceptualization, a line between two land cover types will be drawn to indicate a discrete, abrupt transition between the two types. Lines and points have coordinate locations, but points have no dimension, and lines have no dimension perpendicular to their direction. Area features may be defined by a closed, connected set of lines.

Roster data model

The second common conceptualization identifies and represents grid cells for a given region of interest. This conceptualization employs a raster data mode. Raster cells are arrayed in a row and column pattern to provide "wall-to-wall" coverage of a study region. Cell values are used to represent the type or quality of mapped variables. The raster model is used most commonly with variables that may change continuously across a region. Elevation, mean temperature, slope, average rainfall, cumulative ozone exposure, or soil moisture are examples of phenomena that are often represented as continuous fields. Raster representations are commonly used to represent discrete features, for example, class maps such as vegetation or political units.



Getting map on computers

Georeferencing: Earth is a three dimensional surface. In maps, this three-dimensional surface is transformed in to flat surface. For the transformation, map projections are employed. Locations on the map are drawn using Cartesian coordinates obtained through map projections. Geographic graticules (latitudes and longitudes) are later drawn in maps. Sometimes, Cartesian coordinate grids are also drawn on maps. In georeferencing earth coordinates are assigned to spatial data. Either lat/long or Cartesian coordinates can be used in georeferencing maps in GIS. Cartesian coordinates allow measurements, e.g. area and lengths and are thus frequently used. Geographic coordinates do not allow measurements. A map can also be referenced without using a map projection. In such case, it is difficult to integrate GIS layers obtained from different sources.

A map which is to be geo-referenced is called the source map and the reference map is the map which has known coordinates. Points whose reference coordinates are known and which are clearly identifiable on both the source and reference maps are known as control points. For coordinates of control points in two maps, coefficients of a polynomial transformation equation are estimated.

Map Projection

Map projection is transfer of positions on earth to corresponding points on a flat sheet of paper. Because of the shape of the earth, this transformation involves approximations and is not distortion free. Distortions occur in lengths, angles, shapes and areas. Scale is a ratio of length on map to its counterpart on the earth. Since large size of features on earth surface, a scale is needed to draw these features on a small sheet of paper. Earth shape is assumed spherical or spheroidal. An intermediate plotting surfaces namely cylinder, cone or plane is used in projections. Corresponding projections are called cylindrical, conical and azimuthal respectively.

Distortions occur in projecting earth surface on to intermediate plotting surface. Ideally, areas distances, directions, angles and shapes should be preserved. In reality, few of these properties are preserved. Based on application, choice is made as to which propertied are to be preserved and appropriate map projection is selected. In areal distortions area of a figure may increase or reduce. In linear distortion length and its curvature may change. In angular distortion an angle may increase or decrease. In shape distortion, a square may become parallelogram, rectangle or may have curved boundaries or both. A point may be distorted in to a line. In equal area projections, area of a figure is preserved. In the process distortions are introduced in distances and angles or shape of figures. In conformal projection, shape is preserved. In this process, areas figures are distorted. Projections with these contrasting properties are called equal area and conformal projections respectively. With different orientation of intermediate plotting surface, it is possible to obtain different projections.

Azimuthal projections are called polar, equatorial or oblique depending on point of contact of plane falling on poles, equator or at intermediate latitude. For conic and cylindrical projection based on orientation of axis of the plotting surfaces, the projections are classified. When the axis coincides with earth's polar axis, perpendicular to it and lying in equatorial plane and is oblique to it, the projections are called regular or equatorial, transverse and oblique respectively. The plotting surfaces can also be tangential or secant to the earth surface. Normally for projection, mathematical approach is used.

GIS Standards and Standardization process of GIS development

Necessity of the Standard

The most important problem to build GIS is prepared geographic dataset to be operated in GIS. The cost to acquire geographic dataset is estimated at 60 or 80 percents. A problem to be solved is to acquire low-cost and high-quality geographic data, however a cost to acquire geographic dataset is high. If dataset acquired once is used many times, the cost per an usage becomes relatively cheaper. Therefore, interoperable geographic dataset with common format is desired to prepare. The table 1 represents some formats of geographic dataset that were prepared by the recent developing studies in Japan International Cooperation Agency (JICA). Various kinds of format are used in GIS of many countries. The format of geographic dataset depends on the GIS applied in the system. We understand that datasets with the same format is needed, because many sets of GIS are already introduced in many countries.

The trend of Standardization

In order to acquire interoperable geographic dataset, each country has planned to prepare the common format. The Digital Mapping Format (DM-format) was prepared in Japan for the purpose of making the common format. The SDTS in the United States of America and the GDF in the United Kingdom were also prepared by the same reason. The SDTS was adopted in Australia, New Zealand and Republic of Korea at a later time. With advancing to apply GIS worldwide, it is difficult to analyze various data with these common formats developed by each country.

And the standardization of geographic information to manage interoperable data has come to be required, in order to apply the distributed data management system, which system manages operations to query, relate to, classify, analyze and represent by using dataset stored in different systems separately, instead of using own dataset. The discussion to make the standard for interoperable data has started by government, academic and industrial experts in the Technical Committee of ISO.

Implementation and deployment Phases

System deployment phases

Pilot Phase

- Represent all critical hardware components planned for the final system solution.
- Use proven low-risk technical solutions to support full implementation.
- Include test efforts to reduce uncertainty and implementation risk.
- Qualify hardware solutions for initial production phase.

Initial Production Phase

- Do not begin until final acceptance of pilot phase.
- Deploy initial production environment.
- Use technical solutions qualified during the pilot phase.
- Demonstrate early success and payoff of the GIS solution.
- Validate organizational readiness and support capabilities.
- Validate initial training programs and user operations.
- Qualify advanced solutions for final implementation.

Final Implementation Phase

- Do not begin until final acceptance of initial production phase.
- Plan a phased roll-out with reasonable slack for resolving problems.
- Use technical solutions qualified during previous phases.
- Prioritize roll-out timelines to support early success.

Implementation strategies are accelerating with faster technology evolution

- Production upgrades are scheduled to enable required technology advancement.
- Product upgrade deployments are integrated into production roll-out schedule when ready.
- Enterprise GIS environments are upgraded incrementally to meet operational requirements.
- Functional and performance testing is completed before production roll-out.
- Configuration control for each upgrade is critical for implementation success.

Part A (ONE Mark)

Multiple Choice Questions

Online Examination

Part B (2 Marks)

1. Write short note on Knowledge Management Cycle.
2. Write the Components of KM.
3. List out the types KM
4. Short notes on Implementation and deployment Phases
5. What are the approaches of KMC
6. Give a list about tools of KMC.

Part C (5 Marks)

1. Explain in detail on collaborative knowledge intensive industry environment?
2. Elucidate the technology developments in the field of IT and telecommunication with examples
3. What is global competitiveness? Explain its current trends?
4. Elaborate on the integration of road mapping with the business and technology
5. Explain the technology developments in the field of biotechnology and the bio pharm with examples
6. Describe the factory and the office automation in detail?
7. Explain the development and the significance of the knowledge intensive industries
8. Explains the phase 2 and phase process of road mapping process?
9. Explain marketing technology and their importance?
10. Elucidate the difference between the technology competitiveness in the developed and the developing countries.

KARPAGAM ACADEMY OF HIGHER EDUCATION						
Department of Management						
Unit 5 -Emerging Trends in Technology -Multiple Choice Questions- Each Question Carry ONE Mark						
S. No	Question	OPTION 1	OPTION 2	OPTION 3	OPTION 4	ANSWER
1	OLTP systems designed for _____ business transactions have been gathering detailed financial operational and sales transaction data for decades	One day	Day to day	Two day	None of the above	Day to day
2	A_____ is essentially a collection of multimedia pages	Web server	Client server	Graphical images	None of the above	Web server
3	The web can be used on any TCP / IP network not just the _____	Private network	Public network	Private corporate network	None of the above	Public network
4	_____ is as simple as adding tag lines to text for administrators	XML	JAVA	HTML	Miicrosoft	HTML
5	_____ is software that insulates applications from the complexity of the heterogeneous hardware and software	Middleware	Ease of use	HTML	XML	Middleware
6	_____ is the process of recreating a design by analysing a final product	Forward engineering	Reverse engineering	Backward engineering	None of the above	Reverse engineering
7	The purpose of supply chain management	Provider customer satisfaction	Improve quality of a product	Integrating supply and demand manaement	Increase production	Integrating supply and demand manaement
8	Interacts with other applications and provides open communication intrefaces for_____	Distributed applications	Enables workflow integration	Software distribution	All of the above	All of the above
9	The combination of hypertext and multimedia is powerful for_____	Technical users	Nontechnical users	Both A and B	None of the above	Nontechnical users
10	The use of graphics and multimedia contributed to a _____	User - friendly environment	Ego - friendly enironment	Social environment	None of the above	User - friendly environment

11	Due to small change in customer demands inventory oscillations become progessively larger looking through the supply chain. This is known as	Bullwhip effect	Netchain nalysis	Reverse logistics	Reverse supply chain	Bullwhip effect
12	The web server functions can be categorized into _____	Information retreival	Data and transaction management	security	All of the above	All of the above
13	The _____ has made it possible for other companies to eliminate intermediaries and sell directly to the end consumer	SCM	Internet	Competition	Global sourcing	Internet
14	Business customers are flocking toward _____ intranets	Web - based	Network - based	Netcom - based	None of the above	Web - based
15	The goal Is to utilize the benefits of the _____ architecture to link users and resource through out the organization	Close	Open	Communication	Security	Open
16	Examples of such business functions include_____	Advertising	Markrting	Sales	All of the above	All of the above
17	Marketing related uses of the web include_____	Brand name management	Disseminating product catalogs	Product announcement	All of the above	All of the above
18	The internet technology that makes marketing advertising feasible is the ability to broadcost information using_____	Web bulletin boards	Web bill boards	Pointcasting	All of the above	All of the above
19	SEC stands for_____	Securities and Exchange Commission	Securities and Express Commision	Both A and B	None of the above	Securities and Exchange Commision
20	The software industry has been a pioneer in using the internet for_____	Product distribution	Information service	Web distribution	None of the above	Product distribution
21	The web broadens the variety of content available to the consumer and offers the creator of content a large market with_____	MInimal distribution costs	Product distribution	Web distribution	Doom	Minimal distribution costs

22	Switchboard has a _____ function that controls who can gain access to an individual's e-mail address	Minimal distribution costs	Product distribution	Web distribution	Knock - knock	Knock - knock
23	_____ are two areas where new online products have the potential to do well because of the interactivity enabled by the web	Communication and security	Educaion and entertainment	Development and distribution	None of the above	Education and entertainment
24	External web applications garner the _____	Media coverage	Intranets are revolutionizing internal	corporate wide networks	All of the above	All of the above
25	OLTP Stands for_____	Online Transaction Processing	Online Transfer Processing	Both A and B	None of the above	Online Transaction processing
26	The network infrastructure provides point of access to the internet for_____	Consumers	Corporate users	Both A and B	All of the above	All of the above
27	OLAP stands for_____	Online Analytical Processing	Online Aceessing Processing	Both A and B	None of the above	Online Anlytical Processing
28	There are _____ types of corporate communications that intranet webs can facilitate	One	Two	Three	Four	Two
29	Every company has fundamental business processes_____	Meetings	Product planning	Budgeting	All of the above	All of the above
30	_____ applications that enable terms departments or entire corporations to set up information pages reducing bulky an paper based information	Two	Several	One to many	None of the above	One to many
31	_____ applications include bulletin boards that facilitate exchnges of information between members of a group	Two	Several	One to many	Many to many	Many to many
32	The _____ department in every large orgnization publishes employee handbooks containing information about employeement for various programs and services	Finne	Human resource	Production	Marketing	Human resource

33	_____ also solve information access problems	Intranets	Extranets	Internets	None of the above	Intranets
34	Businesses are aware that the methods of conveying information by_____	Paper	FAX	Disk are inefficient and costly	All of the above	All of the above
35	Conferencing enables employees to _____ nd have meetings with video nd data	Brainstorm	Answer questions	Both A and B	All of the above	All of the above
36	Companies are relucant to implement a network centric computing solution for their OLTP applications for _____ reasons	Two	Several	Three	Four	Several
37	_____based procurement simplifies routine transactions reduces paper handling and provides an electronic communications framework for daily procurement activities	Electronic data interchange	Online Analytical Processing	Online Transaction Processing	None of the above	Electronic data interchnge
38	Data warehousing sifts quickly through terabytes of_____ for strategic decision making	Economic	Demographic	Enabling support	All of the above	All of the above
39	The number of acting ith the data can be _____	Large	Small	Large and Small	None of the above	Large
40	Horizontal or cross - industry applications include _____	Financial	Manufacturing	Human resource software	All of the above	All of the above
41	A_____ application would track a customer order from sales production suppliers and ultimately to delivery	Horozontal	Vertical	Both A and B	None of the above	Vertical
42	Major vertical markets include_____	Financial services	Retailing	Education	All of the above	All of the above
43	Logistics is the part of a supply chain involved with the forward and reverse flow of	Goods	Services	Cash	All of the above	All of the above
44	A internet supports a vareity of important tools such as_____	File transfer	Electronic mail	News groups	All of the above	All of the above
45	When _____ started to populate corporate desktops each system recided on an individual's desk and was not linkes with others	PCs	Client/ server	IP	None of the above	PCs

46	Which of the following is true for supply chain management	The physical material moves in the direction of the end of chain	Flow of cash backwards through the chain	Exchange of information moves in both the direction	All of the above	1990s
47	An _____ is an excellent platform for publishing information internally	Intranet	Extranet	Internet	None of the above	Intranet
48	The web is already forcing _____ to adapt its popular windows operating system	Microsoft	Sony	Computers	None of the above	Microsoft
49	_____ interaction allows the web to grow without any centralized control	Client/ server	PC	Microsoft	Multiform applications	Client/ server
50	Web clients provide a graphical user interface for accessing and displaying content.Thease programs are available on_____	IBM compatible PCs	Apple macintosh computers	UNIX platforms	all the above	All the above
51	HTTP stands for_____	Hypertext Transport Protocol	Hypertext Transfer protocol	Both A and B	None of the above	Hypertext Transport Protocol
52	_____ provides the language that allows servers and browsers to communicate	HTML	XML	HTTP	PCs	HTTP
53	Web servers integrate diverse sources of data by allowing_____ programs to run in response to client requests	HTTP	XML	CGI(Common gateway interface	HTML	CGI
54	The types of Business to Business e- commerce are_____	Direct selling and support to Business	Industry portals	Information sites about a industry	All of the above	All of the above
55	CGI stands for_____	Common gateway Interface	Control Gate way Interface	Both A and B	None of the above	Common Gateway Interface
56	MIME stands for_____	Multipurpose internet mail extensions	Mtinational internet mail extensions	Both A and B	None of the above	Multipurpose internet mail extensions
57	The HTTP protocol borrows a design for extensible data typing type negotiation from the_____	MIME	CGI	HTML	XML	MIME

58	DBMS stands for_____	DataBase Management Systems	DataBsr Managing Systems	DataBasr Management Server	None of the above	DataBase Management Systems
59	_____applications capture manage and share an organizations structured data in systems that range from departmental applications to an enterprise wide data architecture	CGI	DBMS	HTTP	HTML	DBMS
60	Traditionally database HR applications had an _____ and resources solely within a single organization	Internal	Data centric focus	Deesigned to share data	All of the above	All of the above