



UNIVERSITY OF COLOMBO, SRI LANKA

UNIVERSITY OF COLOMBO SCHOOL OF COMPUTING

DEGREE OF BACHELOR OF INFORMATION TECHNOLOGY (EXTERNAL)

Academic Year 2020 – 3rd Year Examination – Semester 6

IT6305 – e-Business Applications

Structured Question Paper

(TWO HOURS)

To be completed by the candidate

BIT Examination Index No:

Important Instructions:

- The duration of the paper is **2 (Two) hours**.
- The medium of instruction and questions is English.
- This paper has **4 questions** and **15 pages**.
- **Answer all questions.** All questions carry **equal** marks.
- **Write your answers** in English using the space provided **in this question paper**.
- Do not tear off any part of this answer book.
- Under no circumstances may this book, used or unused, be removed from the Examination Hall by a candidate.
- Note that questions appear on both sides of the paper.
If a page is not printed, please inform the supervisor immediately.
- Calculators are **not** allowed.
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Questions Answered

Indicate by a cross (x), (e.g. ☐) the numbers of the questions answered.

To be completed by the candidate by marking a cross (x).	Question numbers			
	1	2	3	4
To be completed by the examiners:				

- 1) Use the following case study to answer the questions given in Q1 and any other questions which refer to the case study.

‘CRISPY’ is a bakery chain situated in Bambalapitiya, Nawala, Maharagama, Dehiwala, Nugegoda and Wattala. It commenced its operations in the year 2010. It was started by a former bakery owner and his wife. Their son studied the bakery business abroad and came back to Sri Lanka with an MBA and a good training on bakery production and marketing. The vision of CRISPY is “to be the most preferred baker in the country”. Their products include a variety of bread, buns, cakes, cupcakes, brownies, rolls, muffins, cookies, pastries and a wide range of easy breakfast / lunch / dinner products.

The owners of CRISPY invested in state-of-the-art technology at the commencement of the business. They have been focusing their business on product quality and customer satisfaction. Their head office is situated in Nawala where all manufacturing of finished products happens and are then delivered to other locations twice a day. All locations are connected through a web-based solution to monitor their financial and administrative operations.

The industry they are in is very competitive due to the high demand for fast food catering to the busy lifestyles of working people. Since CRISPY is focusing on the market for main meals as well as short eats, it caters to a wider segment of the market. In future, they want to focus on diabetic bread, low calorie bread and nutritious bread in addition to other healthy food.

CRISPY has 5 branches which are situated in strategic locations where there is a lot of traffic throughout the morning and evening hours. If they carry out proper market research, they will see that there are many customers who want to buy just a few items such as bread and cake and prefer to drive-through without getting out of their vehicle. Home-delivery service and large scale catering are other strategies adopted by their competitors, some of whom have been in the industry for over 25 years. Newcomers to the industry offer a range of other beverages and collaboratively work with supermarket chains or cafeterias in popular clothing shops.

Due to the pandemic and frequent lockdowns, CRISPY wants to seriously consider enhancing their web-based solution with online ordering, corporate bulk ordering, online payments and cash/credit handling with their customers (corporate/individual), suppliers and collaborators from other industries.

- (a) Carryout a Situational Analysis for the company “CRISPY” to identify their Strengths, Weaknesses, Opportunities and Threats.

(10 Marks)

Strengths	Weaknesses
<ol style="list-style-type: none"> 1. In business for over 12 years 2. Former bakery owner has started the business – experience 3. There are branches in heavily populated cities such as Bambalapitiya, Nawala, Maharagama, Dehiwala, Nugegoda and Wattala. 4. Son studies bakery business abroad and Has MBA and the knowledge in Marketing . 5. products include a variety of bread, buns, cakes, cupcakes, brownies, rolls, muffins, cookies, pastries and a wide range of easy breakfast / lunch / dinner products. 6. Focus on quality + customer satisfaction. 7. Investment in latest technology at start 8. Has a web based administrative solution to monitor process from head office. 9. Five branches in strategic locations 	<ol style="list-style-type: none"> 1. No web based solution for product ordering. 2. No online payment system hence badly affected due to lockdowns. 3. Machines which were state of the art may be outdated now. 4. Outdated business strategies and took too much time to change. 5. No use of social media strategies for marketing as it is a very strong tool in eMarketing.
Opportunities	Threats
<ol style="list-style-type: none"> 1. High demand for fast food 2. High demand for takeaway main meals 3. Diabetic Products / Low calorie products 4. Nutritious bread and healthy products 5. Good strategic expanding in to other locations 6. Drive-through for takeaway customers 7. Commencing Home delivery service 8. Introducing large scale catering for functions 9. Collaborations with beverage companies 10. Collaborate with supermarket chains and Café's. 11. Opening branches in collaboration with supermarkets and clothing shops 12. Opening new branches in franchise with cafes, universities and schools 13. eBusiness Solution for marketing/online order 14. Focus on Corporate bulk ordering. 15. Fully fledged eBusiness solution with online ordering, corporate bulk ordering, online payments and cash/credit handling with their customers (corporate/individual), suppliers and collaborators. 	<ol style="list-style-type: none"> 1. Very competitive industry 2. Long standing competitors 3. New competitors coming in to the industry 4. Competitors new strategies - home delivery and large scale catering 5. New comers collaborations with beverage companies 6. Competitors collaborations with supermarkets /Café's 7. Covid-19 pandemic effecting all businesses 8. Lockdowns and Curfew effecting business badly. 9. Economic Crisis hit SL. 10. Crisis situation due to corrupted politicians and people protesting against these corruptions.

- (b) Carryout Michael Porter's Five Forces analysis on "CRISPY" and the industry it is in. Propose two (2) eBusiness strategies to deal with the situation to minimise the forces.

(9 Marks)

ANSWER IN THIS BOX

1 – Threat of New Entrants – V. High

New entrants are coming to the market with new strategies such as home delivery and new collaborations with soft drink producers, supermarkets and clothes shops. New healthy products are being introduced to the market.

2 – Bargaining Power of Customers – V. High

Customers have a wide variety of choices. After the pandemic, they are demanding online ordering/payments and home delivery. Therefore, they have high bargaining power. They go for health products and nutrition as well. Customers want convenience and quality.

3 – Bargaining power of Suppliers – Low

There seems to be not much of a problem with suppliers. The industry is large and competitive. There could be many suppliers.

4 – Bargaining power of substitutes – low

Almost no Substitute products. Only substitute products could be healthy food market.

5 – Rivalry among competitors – V. High

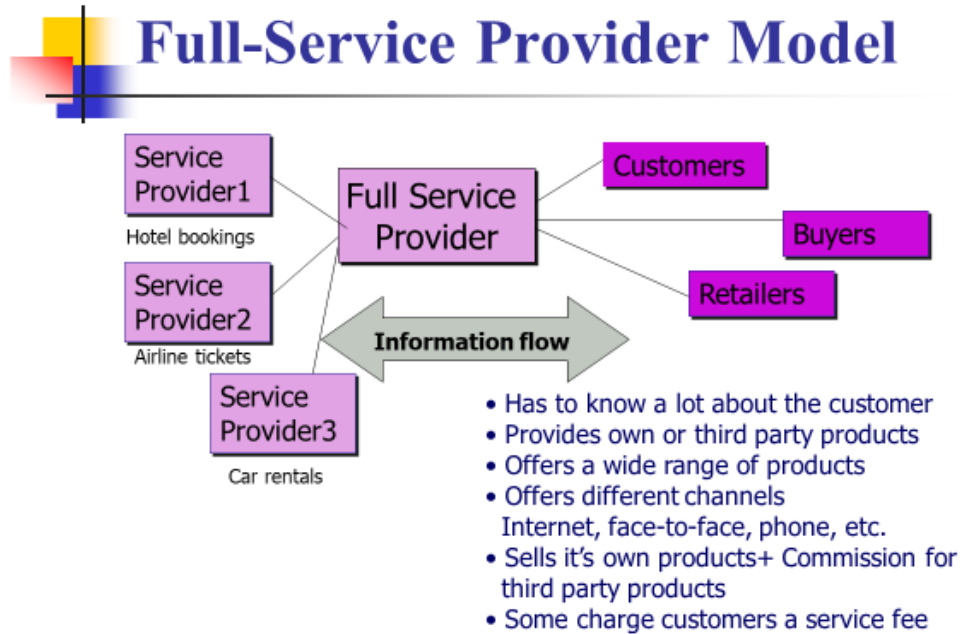
- Rivalry is very high as long standing competitors and newcomers of various standards are in the market.
- They adopt new strategies and collaborations all the time. Eg ; home delivery, large scale catering and collaborations with supermarkets, clothing shops..
- Competitors seem to be having strong collaborations with soft drinks manufacturers which gives them an added advantage.

Two Strategies:

1. eBusiness Solution for proper Supply Chain Management as indicated in the case.
2. Collaborate with all service providers with online ordering, corporate bulk ordering, online payments and cash/credit handling with their customers (corporate/individual), suppliers and all service providers.

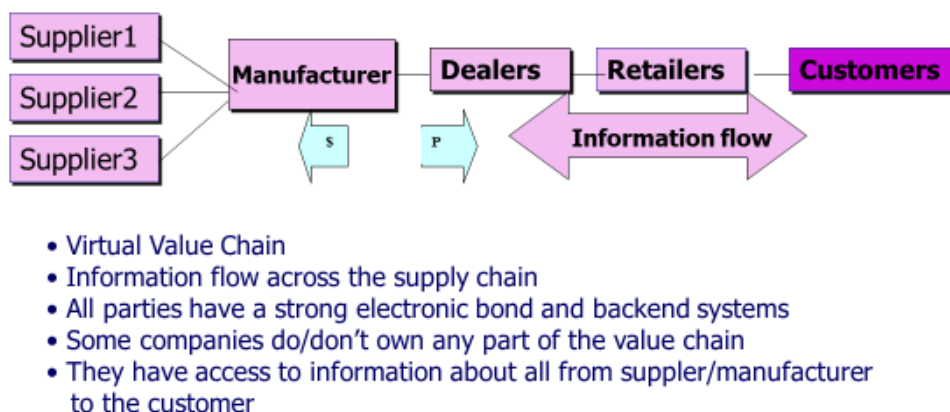
- (c) Considering the new collaborations that “CRISPY” can establish with corporate entities, propose two eBusiness models to incorporate in the new solution that would help to strengthen these corporate customer collaborations. Justify your answer using illustrations where necessary.

(6 Marks)

ANSWER IN THIS BOX

Collaborate with all service providers with online ordering, corporate bulk ordering, online payments and cash/credit handling with their customers (corporate/individual).

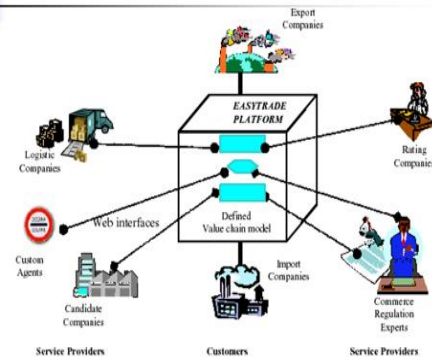
Supply Chain Model



As they are managing several locations, with many suppliers, distributors and marketers along with many selling locations, its better to have a supply chain management system.

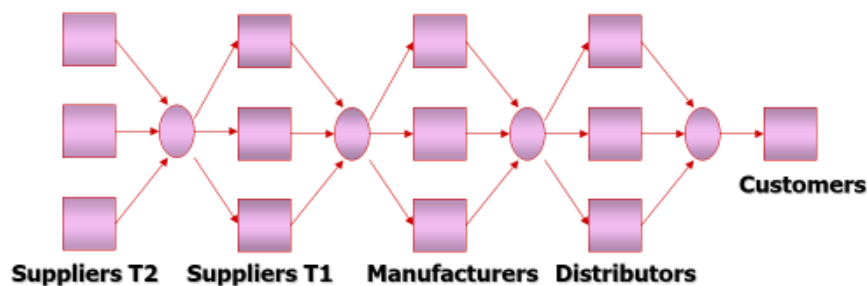
- 2) (a) Illustrate and describe the benefits of using the following eBusiness Models for customers and companies discussing an ideal situation in the market for using each of them.
- Global Trade Platform
 - Digital Value Hub or eRegion

(8 marks)

ANSWER IN THIS BOX**A Global Trade Platform for SMEs****A Global Trade Platform for SMEs**

It is an innovative ICT platform

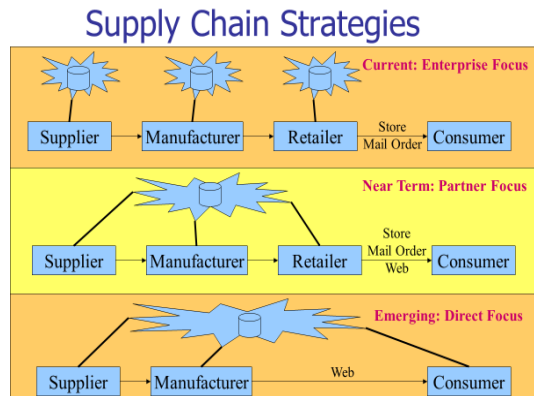
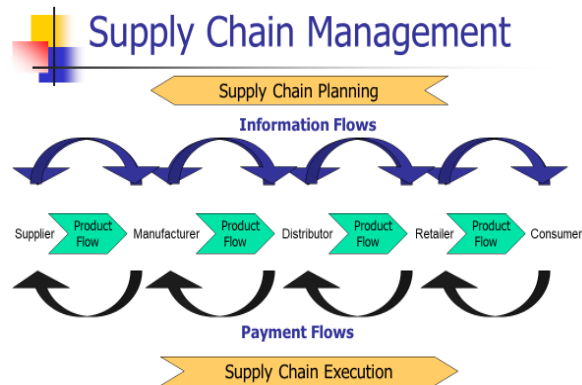
- dedicated to foreign trade
- which allows organisations (especially SMEs) to manage and carry out their business to business transactions on the Internet
- inside a high security environment
- involving different types of users such as companies, banks and other foreign trade sector operators.
- Export advice on the tax, customs duties, legal and administrative requirements for products depending on the origin/destination. exporter/importer selects payment terms.

Digital Value Hub - eRegion

- Strong B2B partnerships and collaborations between nodes in the supply chain
- The industry competitors' willingness to work together
- Trust relationships among the competitors in an industry
- A strong force against foreign competition

- (b) Describe CRM (Customer Relationship Management), SCM (Supply Chain Management) and Knowledge Management systems, giving an example for each.

(9 marks)

ANSWER IN THIS BOX

Eg: Soft Drink Industry, Textile Industry, etc.

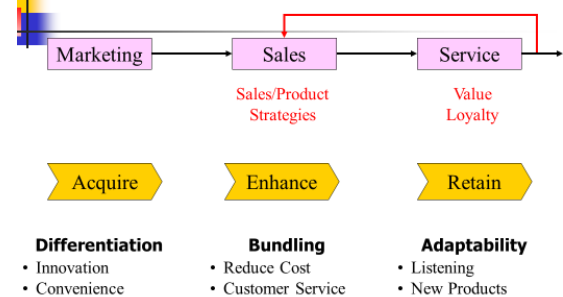
Customer Relationship Management (CRM)

Some facts

- It cost **6 times** more to **sell** to a **new customer** than to sell to an existing one.
- A typical **dissatisfied** customer will **tell 8 to 10** people.
- The **odds** of **selling** a product to a new customer are **15%**, whereas the odds of selling to an **existing customer** are **50%**
- **70%** of **complaining** customers will **do business** with a company again if it **quickly takes care** of the problem.

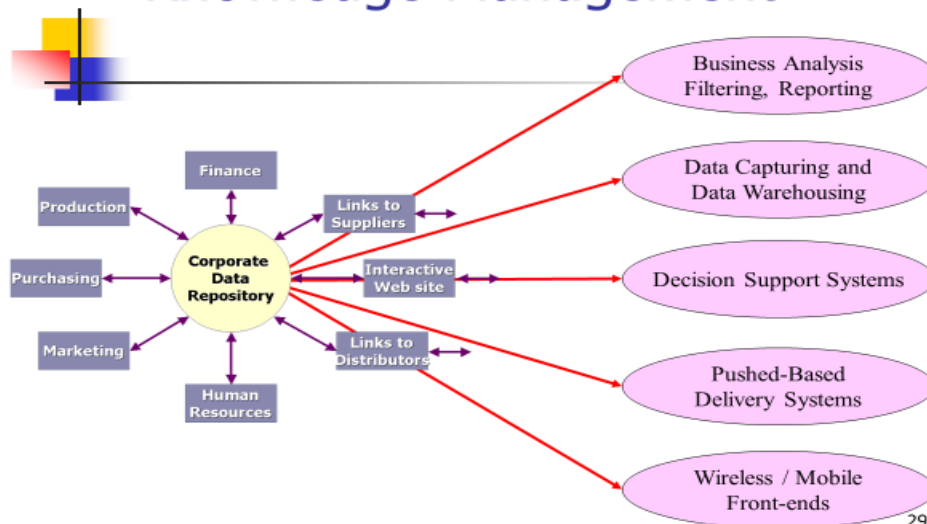
Objective: Retain Customers

CRM Strategy



Eg: Supermarket Chains, Clubs, Hotels, etc.

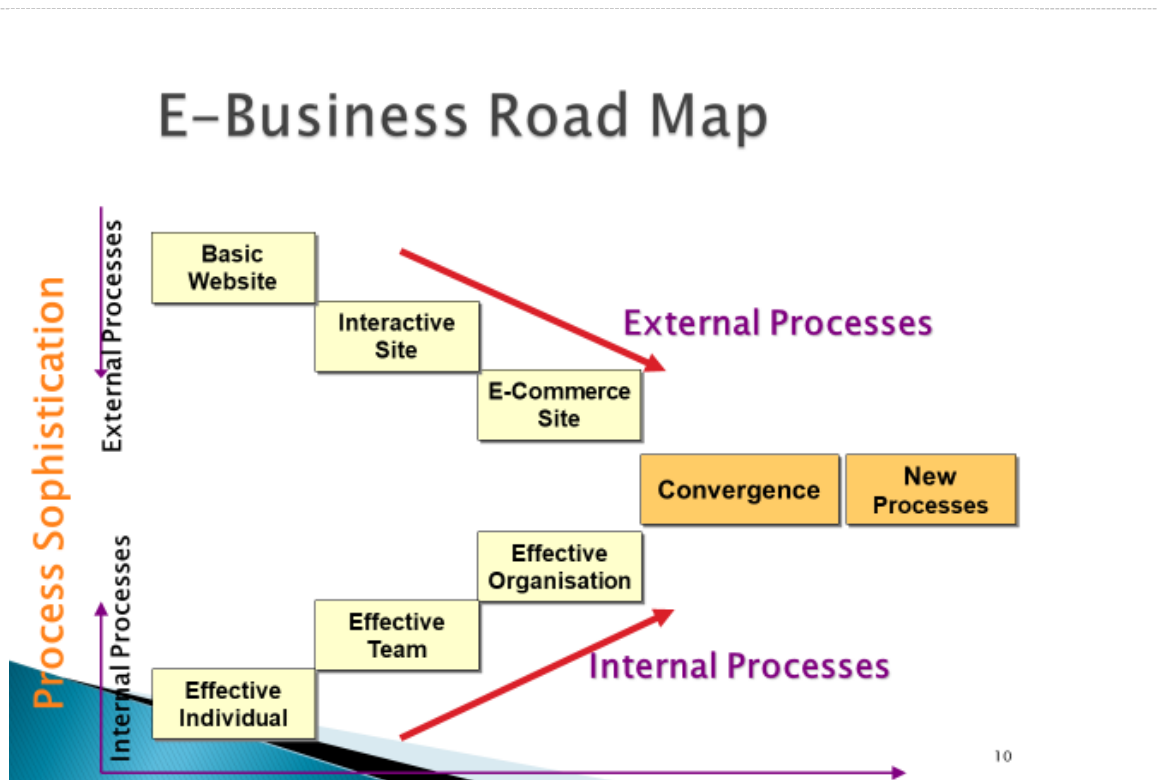
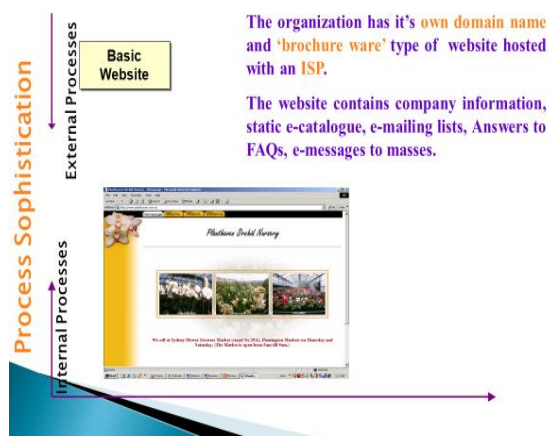
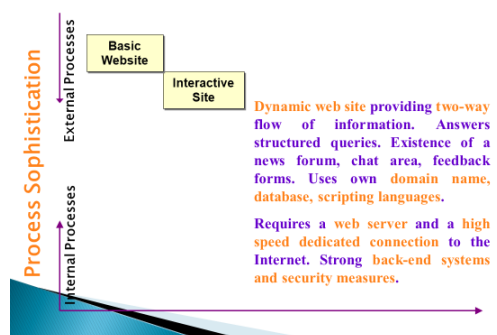
Knowledge Management



Eg: Many multinational companies in the Manufacturing sector

- (c) A Roadmap is useful to decide where an organisation is and where to go from there, according to organisation's goals and market trends. Illustrate and briefly describe the stages of the eBusiness Roadmap.

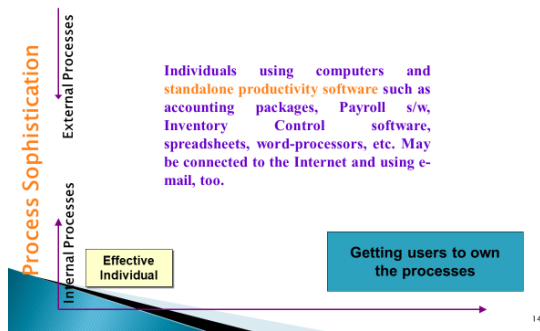
(8 marks)

ANSWER IN THIS BOX**Basic Web Site****Interactive Site**

eCommerce Site

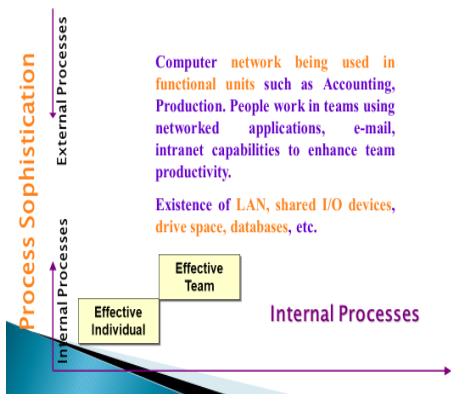


Effective Individual

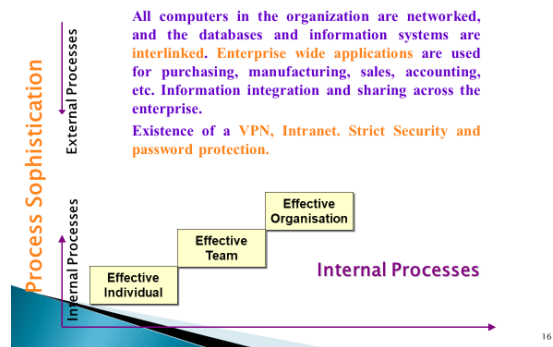


3)

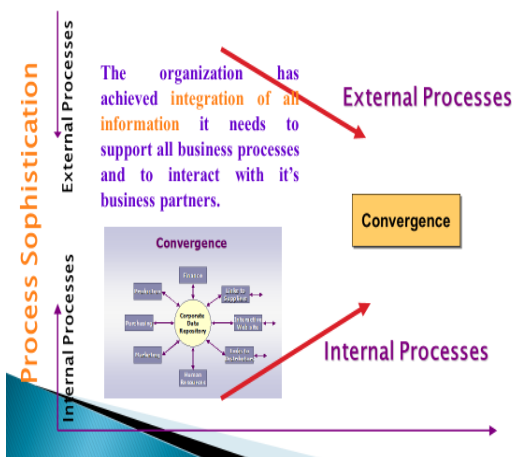
Effective Team



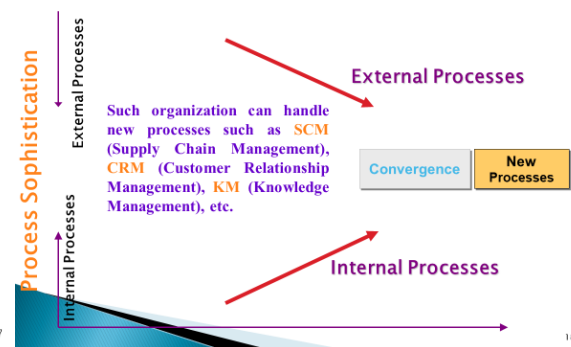
Effective Organisation



Convergence

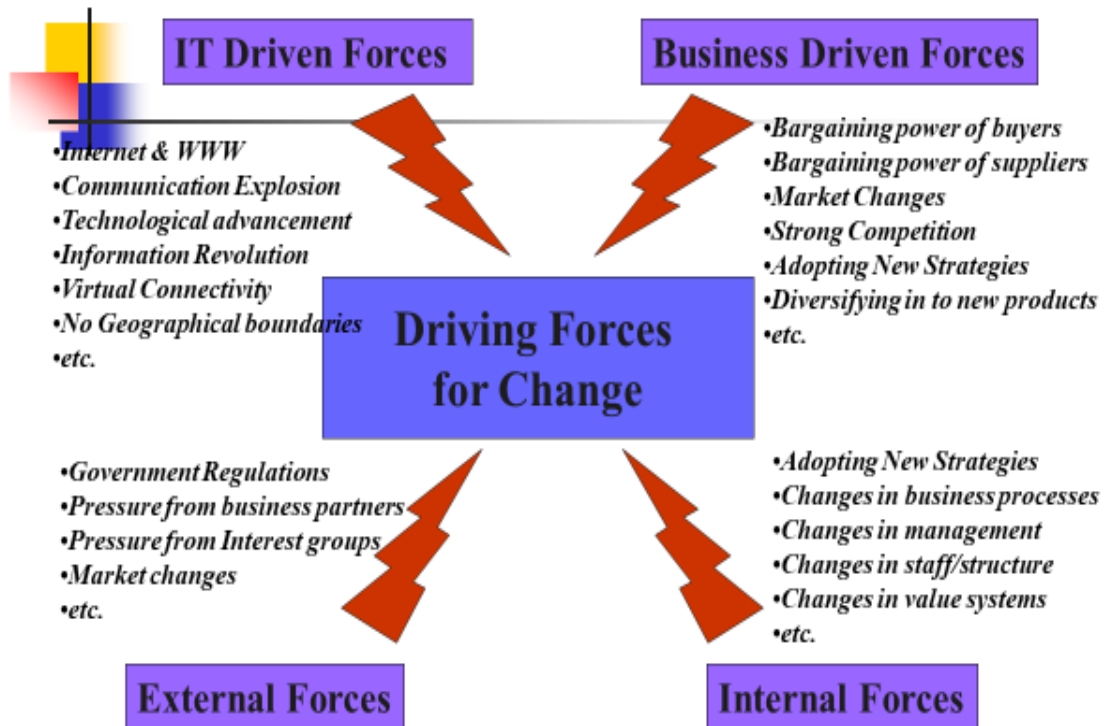


New Processes



- (a) Describe four (4) different types of driving forces influencing an organisation to eTransform.

(6 Marks)

ANSWER IN THIS BOX

- (b) Briefly describe three (3) products that can be digitised and three (3) products that cannot be digitised under product disruption.

(6 Marks)

ANSWER IN THIS BOX**Can Be Digitised:****Product Disruption:****Examples of Digitization Across Industries**

Industry	Traditional Format	Digital Format
Product Substitution		
Recorded music	LP records, tapes	CDs, MP3
Journalism	Newspaper, magazine, television, radio	Web site

Product Digitization:**Examples of Digitization Across Industries**

Industry	Traditional Format	Digital Format
Service Substitution		
Banking	Cash, check	Smart card, web banking and payment systems
Photo-finishing	Film to paper	Digital to paper, film to digital


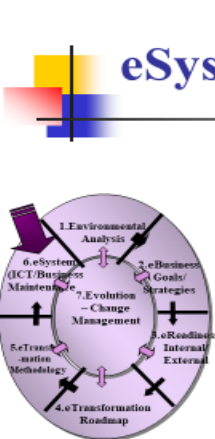

Cannot be Digitised:

1. Medicine
2. Clothes
3. Transportation vehicles

(c) Using an appropriate model for eTransformation is a crucial factor for the successful transformation of a company to move from Real to Virtual. Describe the following stages of the model 7 Es in eTransformation.

- i. eReadiness
- ii. eSystems
- iii. Evolution – Change Management

(7 Marks)

	<h3 style="text-align: center;">eReadiness (Internal/External)</h3> <p>Internal:</p> <ul style="list-style-type: none"> • Business processes – Well defined processes • Applications & Infrastructure • Web presence – Existence/ usage • Skills –Level of IT skills of the employees • Executive mgt – Commitment/Support • External connectivity – Channels • Future directions – Plans for expansions <p>External:</p> <ul style="list-style-type: none"> • Customers, Suppliers, Potential users
	<h3 style="text-align: center;">eSystems (Policies, Support, Maintenance)</h3> <ul style="list-style-type: none"> • Management Controls : Standards, guidelines to users, Procedures, Manuals • Security Measures : To deal with common threats (sabotage, hacking, privacy, etc.) and contingency planning and disaster recovery • IT Maintenance and Support: (Support for ICT infrastructure, upgrading, backing up, maintenance, troubleshooting, Support by the ISP and Vendors)
	<h3 style="text-align: center;">7S Model for Change Management</h3> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Business processes, methods, procedures and controls</p> <p>Systems</p> </div> <div style="text-align: center;"> <p>Formal/informal communication Channels, Organisational Structure Hierarchical ? Network?</p> <p>Structure</p> </div> <div style="text-align: center;"> <p>Business Strategy, Strategic alliances, marketing, product and service development, sales and channel distribution, business systems and processes</p> <p>Strategy</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;"> <p>Skills, aptitude, Educating, Training needs of the Staff</p> <p>Skills</p> </div> <div style="text-align: center;"> <p>Shared Values</p> </div> <div style="text-align: center;"> <p>Behaviour of key managers and the way they relate to employees</p> <p>Style</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;"> <p>People employed, their positions, Levels,numbers and adequacy</p> <p>Staff</p> </div> </div>

- (d) Social media platforms allow users to have conversations, share information and create web content on current affairs. There are many forms of social media, including blogs, micro-blogs, wikis, social networking sites, photo-sharing sites, video-sharing sites, podcasts, etc. Discuss the advantages and disadvantages of using social media to express political views, vent social frustrations and discuss current affairs of the country.

(6 Marks)

ANSWER IN THIS BOX**Advantages**

Social Media allows cultural diffusion among people from different parts of the world

- Social Media Used for Promotion and Advertising:
- Social Media Helps in Connectivity Between the People
- Social Media Used for the Noble Causes
- Social Media Drive Traffic To Your Website
- Social Media is a Source of the Latest Information and Update
- Social Media Helps in Educations
- Social Media Help in Building Communities of the People
- Social Media Reach Large Audiences
- Using Social Media for Job Search
- Social Media Direct Connection To Audiences/Customer Interaction
- Social Media Helps Government
- Social Media Improves Business Reputation
- Social Media Used for Entertainment
- Social Media Use for Awareness
- Social Media Used for Professional Growth
- Social Media Increase in Human Interaction
- Social Media Spread Information Fast
- Social Media Cost-Effective
- Social Media Used for Communication

Disadvantages

- Lacks Emotional Connection. ...
- Gives People a License to be Hurtful. ...

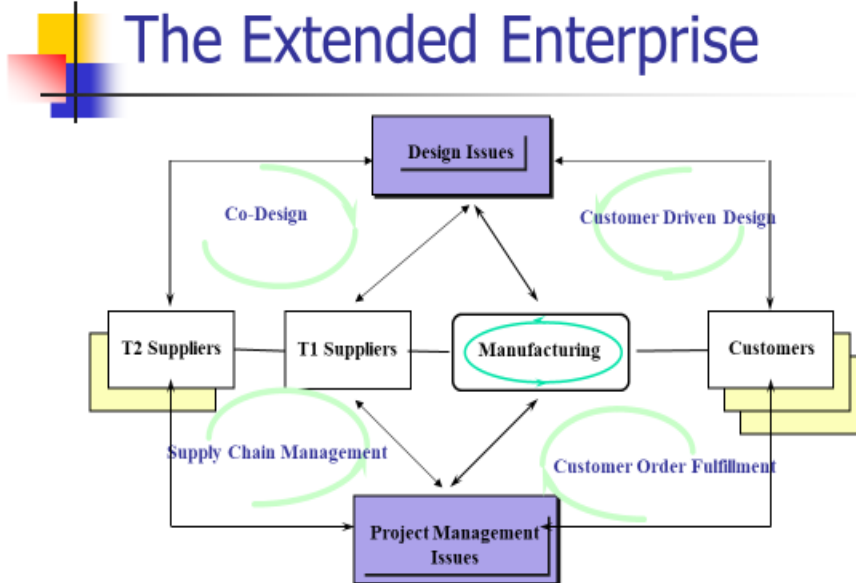
4)

- Decreases Face-to-Face Communication Skills. ...
- Conveys Inauthentic Expression of Feelings. ...
- Diminishes Understanding and Thoughtfulness. ...
- Causes Face-to-Face Interactions to Feel Disconnected. ...
- Facilitates Laziness.

- Social Media Used for Hacking
- Social Media Cause Security Issues
- Decreases Face-to-Face Communication Skills
- Social Media Spread Fake News Very Fast
- You can Receive Negative Feedback on Social Media
- Social Media Ruin Reputation
- Addiction of the People to Social Media
- Cheating and Relationship Issues on Social Media
- Social Media Cause Health Issues
- Social Media Bullying or Cyberbullying
- Time Wasting on Using Social Media
- Social Media Causes Sleep Problems
- Social Media Negative Impact on Children
- Social Media Negative Effects on Family Relationships
- Social Media Causes Depression and Loneliness
- Social Media Causes Distraction
- Start Using Drugs and Alcohol
- Fraud and Scams on Social Media Platforms
- Creating fake profiles and sending threats or bullying or such acts can ruin the mental health and reputation of targeted individuals

- (a) An Extended Enterprise eBusiness Model is a way to carry out collaborative manufacturing which is used by large International manufacturers such as Boeing. Illustrate and discuss important considerations when using this model, its features and the technology that enables it.

(6 Marks)

ANSWER IN THIS BOX

The Extended Enterprise

The Extended Enterprise can be regarded as a kind of enterprise, which is represented, by all those organizations, customers, suppliers and sub contractors, engaged collaboratively in the design, development, production and delivery of a product to the end user.

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Important considerations for collaborative manufacturing

- **Trust** is the fundamental building block of collaboration.
- Only **accurate, timely, available, and real-time information** gives everyone the ability to react in the interest of the value chain network.
- There should be **high visibility and accuracy** of all data sources.
- Utilizing **effective information technologies** toward the focused objective is a must.

(b) Are the following statements TRUE or FALSE? Justify your answer giving an illustration of the model mentioned in each while highlighting the validity of the statement.

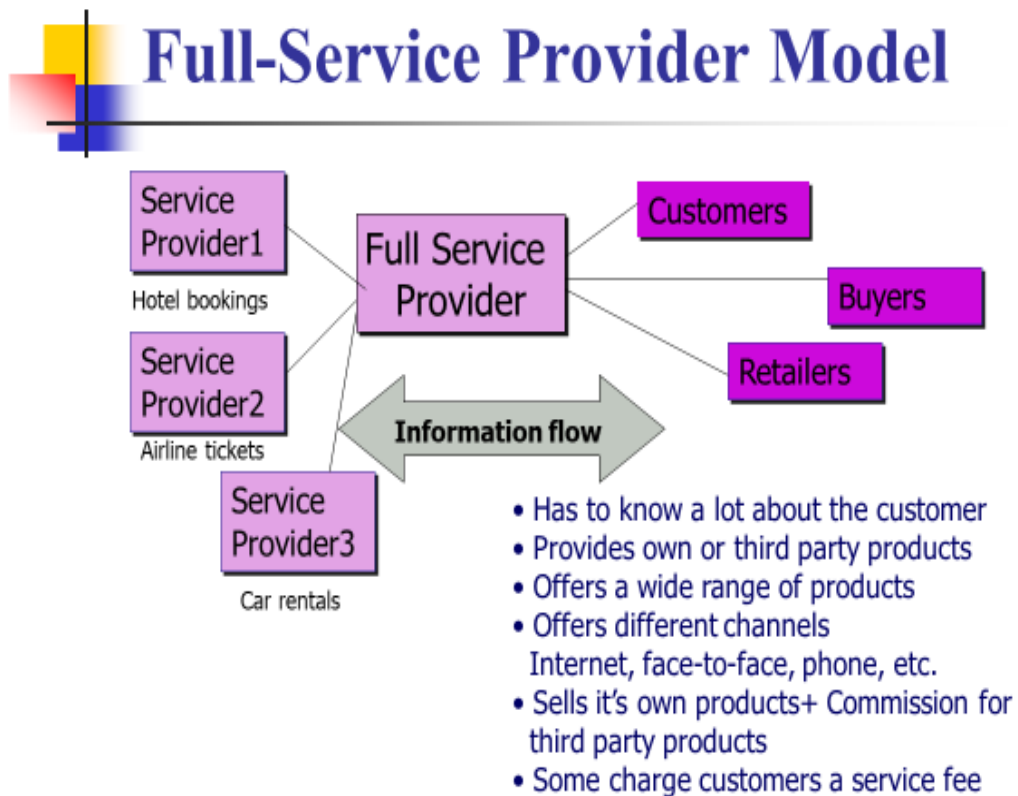
- i. “An Airline ticketing agency has transformed their business into a travel and tour organising company. With the heavy competition in the industry, the company has decided to collaborate with hotel bookings, transport services, adventure parks etc. and therefore follow the **Supply Chain eBusiness Model**”.
- ii. “During lockdowns due to the Covid–19 pandemic, a supermarket chain decided to have an eBusiness Portal to cater to customers. Due to high rivalry among competitors and the high bargaining power of buyers, it decides to follow the **Revenue sharing eBusiness Model** to sell its products.”

(8 Marks)

ANSWER IN THIS BOX

(i) **FALSE**

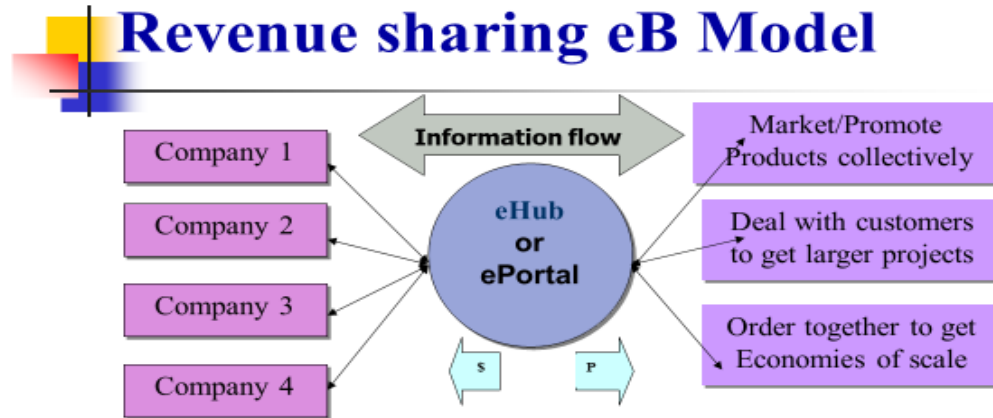
Here, the more suitable model is the Full Service Provider model as the services are from different industries related to the services offered by the ticketing agency.



8

(ii) **FALSE**

Due to high rivalry among competitors a company can never use the Revenue sharing eBusiness Model as you need TRUST and not competition and rivalry to work together.



- The sellers get together through a Portal through Highly Trusting each other.
- They Market/ Promote products collectively to a larger mkt segment
- Sellers can work on larger projects/orders as they work collectively
- Collective bulk orders give them bargaining power over suppliers
- Resources as well as profits are shared among companies

9

(c) State one example of a mobile application to solve a problem existing in society today. List three (3) arguments as to why a mobile application is more suitable than a web-based information system.

(5 Marks)

ANSWER IN THIS BOX

Examples: eBanking, eChannelling, Ordering Online, Etc

One can use mobile applications much conveniently than web-based information system during the following instances:

- During the lockdown
- during the crisis situation in the country
- the power cuts and power disruptions
- staying in long queues for fuel, gas and other commodities

Why Mobile applications are better for these from a technical point of view:

- Mobile apps offer better personalization
- Ease of sending notifications
- Making use of mobile device features
- Ability to work offline
- Apps can work faster than websites

(d) Describe an application where ICT could be effectively used in the agricultural sector in a developing country. Briefly discuss the following:

- i. What are the problems in the sector (that can be solved using ICT)
- ii. The solution proposed
- iii. The challenges that will be faced

(6 Marks)

ANSWER IN THIS BOX

Farmers need to deal with many problems, including how to:

- Cope with climate change, soil erosion and biodiversity loss
- Satisfy consumers' changing tastes and expectations
- Meet rising demand for more food of higher quality
- Invest in farm productivity
- Adopt and learn new technologies
- Stay resilient against global economic factors
- Inspire young people to stay in rural areas and become future farmers
- Handle Small and fragmented land-holdings.

Solutions can be proposed using the following technologies appropriately.

- 1 Wireless technologies.
- 2 Global Positioning System (GPS)
- 3 Geographic information systems.
- 4 Computer-controlled devices (automated systems)
- 5 Smartphone mobile apps in agriculture.
- 6 RFID for Animal identification.
- 7 E-commerce.
- 8 Sensing technologies.

Challenges exist to using ICTs in this field, such as: erratic power supplies; fluctuating networks; high costs of ICT infrastructure; low incomes of rural farmers; lack of policies to enhance ICT development in rural areas; and a lack of necessary skills to use the technologies
