

Technology, Innovation & Value Creation

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Strategic Level**
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STRATEGIC MANAGEMENT

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LEADERSHIP

CA - STRATEGIC LEVEL



Technology, Innovation & Value Creation

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Technology, Innovation & Value Creation – (12%)

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INTRODUCTION

Technology Development is a support activity in the Value Chain. Development of Technology create new paths for Operational Efficiency & Product Innovation which Leads towards High revenue & low cost.

This chapter looks at the aspects of Technology & Innovation, the role of IT in a business function, e-business and innovation backed by developed technological platforms.

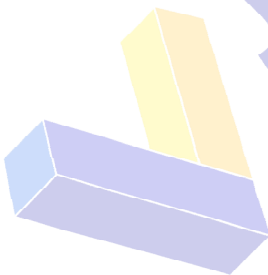
How Technology Adds Value

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IT & Competitive Strategy

IT can increase competitive advantage in 02 different ways;

a) By Reducing Cost

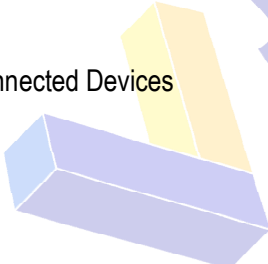


b) By Differentiating Products

2.0 Information Technology Infrastructure

IT systems for most of the organizations are Threshold resources which merely establish as threshold competence. At the same time some companies have made their IT platform a unique resource which will lead towards developing a Competitive Advantage.

Companies may use different types of IT infrastructure in different functional areas of the business;

Standalone Computers	
Network	
Intranets & Extranets	
 <p>Connected Devices</p>	
Centralized & Decentralized Processing	

Internet

Intranet

Extranet

Electronic Mail (E-Mail)



JMC vLearning
"your virtual learning partner"

Wireless Fidelity (WiFi) Internet Access

Home Based work operations and field based work is facilitated via Wifi and Networking solutions.

Enterprise Resource Planning

3.0 E-business

Electronic Business / e- business is the automation of business processes of all types through electronic means. This can be in the level of e-mail based actions to fully web based solutions.

E-business which includes a Financial Transaction is known as e-commerce. It can be technically defined as “Transformation of Key Business Processes through the use of Information Technology”

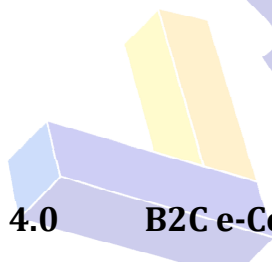
Following are a few E-Business Processes / Platforms;

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Most e-commerce is one of following 02 types;

B2B (Business to Business)

B2C (Business to Consumer)



4.0 B2C e-Commerce

There can be different forms of B2C e-Commerce business models.

Advertising Model	
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Infomediary Model	
Merchant Model	
Manufacturer Model	
Subscription Model	

Following issues should be seriously considered in starting up an e-commerce operation;

- Value Proposition
- Revenue
- Market Opportunity
- Competitive Environment
- Competitive Advantage
- Market Strategy
- Arrangement of Operations

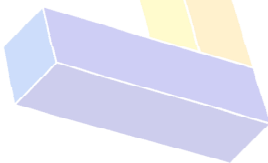
- Management Team

Development & Growth of internet based platforms and infrastructure has made following changes to the B2C Business Operations;

- Direct Contact with Customers
- Convenience for Customers
- Success of Small Companies
- Virtual Business Model
- Economies of Information
- Speed of Transactions

Further following two Market place Channel structure changes have taken place due to growth of internet.

(i) Disintermediation



(ii) Re-intermediation

E-Marketing : the 6 I's Model

In the modern business, marketing has developed to take advantage of the improved computer technology & 6 I's model summarizes this under;

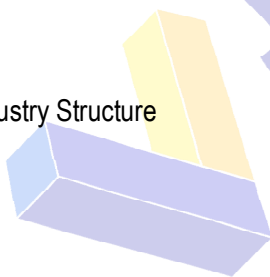
Interaction

Intelligence

Individualization

Integration

Industry Structure



Independence of Location

- Wider Choice of Suppliers
- Improved Manufacturing Cycles

Further, following E-Procurement Models are used;

- Public Web
- Exchange
- Supplier Centric
- Buyer Centric
- B2B Market Place

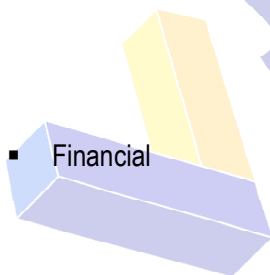
7.0 Managing Research & Development (R&D)

R&D is an important source of innovation for an organization.

Both Market Research and R&D initiatives are costly and are subject to many ways of being failures.

Following problems can be seen in R&D;

- Organization & management



- Evaluation & Control

- Cultural issues

8.0 Managing Innovation

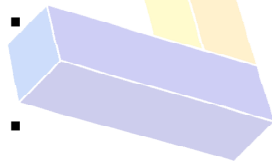
Speed of innovation and focus on innovation contributes significantly for the competitiveness of the business. Anyway the strategic importance of innovation to the organization depends on 02 key factors;

1. How much value will be created by innovation

2. Whether it will deliver a competitive advantage for the business

Innovation Diffusion Model

This model shows how new Ideas & Innovations are spread and adopted by users. Everett Rogers in 1995 in this model defines "Diffusion" as The Process by which an innovation is communicated through certain channels over time among members of a social system. He further argues that there are four factors that influence the diffusion of an innovation.

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Roger also suggested that there are five stages in the acceptance of an innovation.

Awareness	
Interest	
Evaluation	
Trial	
Adoption	

Roger highlighted that there is a "Life Cycle" to the adoption of an Innovation.

1. Innovators
2. Early Adopters
3. Early Majority
4. Late Majority
5. Laggards

9.0 Cloud & Mobile Technology

Cloud computing is a general term for anything that involves delivering hosted services over the Internet. It involves both storing data and processing data.

A cloud service has three distinct characteristics that differentiate it from traditional web hosting:

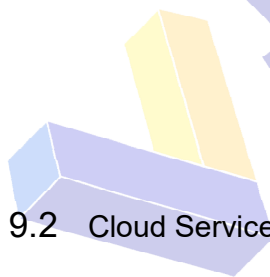
1. It is sold on demand, typically by the minute or the hour;
2. It is elastic — a user can have as much or as little of a service as they want at any given time; and
3. The service is fully managed by the provider (the consumer needs nothing but a personal computer and Internet access).

9.1 Cloud Computing Deployment Models

Private Cloud Services

Public Cloud Model

Hybrid Cloud



9.2 Cloud Service Categories

There are three broad service categories:

Infrastructure as a Service (IaaS)

Platform as a service (PaaS)

Software as a service (SaaS)

IaaS

IaaS providers supply a virtual server instance and storage, as well as application program interfaces that enable users to migrate workloads to a virtual machine. (A virtual machine is a self-contained operating environment that behaves as if it is a separate computer.)

Users have an allocated storage capacity and can start, stop, access and configure the virtual machine and storage as desired.

PaaS

In the PaaS model, cloud providers host development tools on their infrastructures and users access these tools over the internet. PaaS is used for general software development, and many PaaS providers host the software after it's developed.

SaaS

SaaS is a distribution model that delivers software applications over the internet; these applications are often called web services. Users can access SaaS applications and services from any location using a computer or mobile device that has internet access.

9.3 Cloud Computing Benefits

Cloud computing boasts several attractive benefits for businesses and end users. Five of the main benefits of cloud computing are:

Self-service provisioning: End users can spin up compute resources for almost any type of workload on demand. This eliminates the traditional need for IT administrators to provision and manage compute resources.

Elasticity: Companies can scale up as computing needs increase and scale down again as demands decrease. This eliminates the need for massive investments in local infrastructure, which may or may not remain active.

Pay per use: Compute resources are measured at a granular level, enabling users to pay only for the resources and workloads they use.

Workload resilience: Cloud service providers often implement redundant resources to ensure resilient storage and to keep users' important workloads running - often across multiple global regions.

Migration flexibility: Organizations can move certain workloads to or from the cloud - or to different cloud platforms - as desired or automatically for better cost savings or to use new services as they emerge.

10.0 Big Data

10.1 What is big data?

'Big data' is a popular term used to describe the exponential growth and availability of data, both structured and unstructured.

Big data is the term used to describe the growth of structured and unstructured data. Some experts argue that Big Data may be as important to business as the internet.

Organizations today have more transactional data than they have ever had before – about their customers, suppliers and about their operations. More generally, the growth of the internet, multimedia, wireless networks, smartphones, social media, sensors and other digital technology are all helping to fuel a data revolution.

Sensors embedded in physical objects such as mobile phones, motor vehicles, smart energy meters, RFID tags, tracking devices and traffic flow monitors all create and communicate data which is shared across wired and wireless networks that function in a similar way to the internet.

Consumers using social media, smartphones, laptops and tablets to browse the internet, to search for items, to make purchases and to share information with other users also all create trails of data. Similarly, internet search indexes (such as Google Trends) can be sources of data for Big Data analytics.

In a commercial setting, Big Data is being used to identify trends that may exist in vast quantities of data in the pursuit of value creation.

10.1.1 Three Vs of big data

Big data can be defined by considering the three Vs: volume, velocity and variety.

Volume – The vast volume of data generated is a key feature of big data. The main benefit of big data analytics comes from the ability to process very large amounts of information.

Velocity – This refers to the speed at which 'real time' data is being streamed into the organisation, and with which it is processed within the organisation. Online retailers are able to compile records of each click and interaction a customer makes while visiting a website, rather than simply recording the final sale at the end of a customer transaction.

Variety (or variability) – A common theme in relation to big data is the diversity of source data, with a lot of the data being unstructured (ie not in a database). For example, keywords from conversations people have on Facebook or Twitter, and content they share through media files (tagged photographs, or online video postings) could be sources of unstructured data.

10.1.2 The fourth V of big data

The three V's has now been extended to include veracity.

Veracity (truthfulness) – Although the volume of data available to organisations is greater than ever before, for that data to be beneficial for decision making it needs to be reliable and truthful. If the data is not truthful (for example, due to bias or inconsistencies within it or occurring during its collection) this could reduce the value of any decisions which are informed by it.

10.1.3 Big data analytics

Big data analytics refers to the ability to analyse and reveal insights in data which had previously been too difficult or costly to analyse, due to the volume and variability of the data involved. In the past it has sometimes been referred to as 'data mining'.

The aim of big data analytics, is to extract insights from unstructured data or from large volumes of data.

10.1.4 Value of Big Data

- Creating Transparency
- Performance Improvement
- Market Segmentation & Customization
- Decision Making
- New Products & Services

10.4 Criticisms of big data

Harford (2014) highlighted a number of criticisms levied at Big Data.

- (a) Big data is simply a buzzword, a vague term that has turned into an obsession in large organisations and the media. Very few examples exist where analysing vast amounts of data have resulted in significant new discoveries.
- (b) There is a focus on finding correlations between data sets and less of an emphasis on causation. Critics suggest that it is easier to identify correlations between two variables than to determine what is actually causing the correlation.

- (c) A failure to understand the factors giving rise to a correlation mean that analysts have no idea what factors may cause the correlation to break down.
- (d) Analysing a data set, regardless of its size is not necessarily representative of the entire data population as a whole. Harford (2014) suggests that, if an organisation wishing to understand the public mood solely used the social networking site Twitter to analyse all of the tweets made, this would not represent the views of all members of society. Research indicates that Twitter users tend to be young, urban individuals.
- (e) The costs and upheaval involved in enhancing data architectures and IT applications in order to store and analyse big data sets may prove prohibitive for smaller organisations.
- (f) As more and more data is being recorded about the personal details, habits, opinions and choices of individuals, concerns are growing about how this data is stored, used and circulated to others, Increasingly, governments are concerned about the intrusive nature of technical companies, and the impacts they have upon the private lives of their citizens. We are likely to see increasing levels of legislation in this area, much of it centred around the need to protect individuals and companies from the consequences of cyber crime.

