INFS1000 – Digital Business Innovation

Week 1 - Introduction to Information Systems

How a Business is Organised Internally:

- **Functional Organisation**: Vertical and horizontal dist of tasks.
  - **Horizontal**: Dividing org into diff depts (functional specialisation).
  - **Vertical**: Dividing org into diff hierarchical levels (COC).
- **Process Organisation:** Org mats/value flow through org. Fulfil orders, get things done (ops).

Information System: Made up of computer hardware, software, data, procedures and people.
Information Technology: Includes raw technology such as hardware, software and data.

Example: Airline Reservation System

1. **Hardware**: Hundreds of computers, and routers linked together.
2. **Software**: Hundreds of diff programs to record customer details, reservations, promo, etc.
3. **Data**: About flights, customers, reservations etc.
4. **Procedures**: Followed by airline personnel, travel agents, and customers.
5. **People**: Customers, travel agents, airline staff, IT personnel.

Key Elements of BIS: Business goals and objectives; IS; info; BPs; development and use; change, innov and transformation.

Development & Use of Information Systems
Any Business Professional Needs to:

1. Take an active role in IS to ensure systems meet their needs.
2. Understand impact of IS on workplace and organisation.
3. Consider users' needs during new development.

How Do Successful Business Professionals Use IS?

- Developing right IS requires input from those with knowledge of bz not just IT experts.
- Think creatively about opportunities and find ways to apply IT and IS. Create innovative applications using new techs (e.g. AI, Blockchain) to gain competitive advantage with IS.

Week 2 - Introduction to Business Processes

How did Information Systems Get Here?

- **Various parts of a business must work together as an integrated system:** Flows of info and documents (e.g. purchase orders), materials and products (within and across bzs) and money (payments).
- Often cross-functional.

What is a Business Process?

- Structured network of activities supported by resources, facilities and info that interact to achieve some bz function. Aka business systems. BPs turn input into higher value output.

Characteristics of Well-Designed Business Processes

1. **Complete**: Includes all activities necessary to achieve bz goal.
2. **Minimal**: Doesn't include unnecessary activities (cost efficient).
3. **Well-Structured**: Activities are organised in a logical sequence.
4. **Embedded**: Logically connect with other BPs in the organisation.

Outcomes: Increased effectiveness (value for customer) AND increased efficiency (less cost for bz).

Levels of Abstraction

- BPs exist on many diff levels of a bz.
- On the highest level, the core value creation of a bz can be depicted as one high-level BP. For example, source → produce → sell → ship → provide service.

- BP can be broken-down to smaller sub-processes until describing granular activities on the work level. For example, receive documents → specify quantity → update docs → send docs to manager for approval → …

Business Infrastructure
- Repetitive use of IS gets standardised over time and becomes part of the infrastructure.
- BPs and IS are both part of the infrastructure and hence two sides of the same coin.
- Drives efficiency.

How do Information Systems Support Business Processes?
1. IS supports activities in a business process.
   - Several activities may use one IS. Activity may have its own or have several IT systems.
2. New BPs may require design of new IT system
3. New IS facilitates new activities and leads to changes in existing BPs. From 'As is' process to 'To Be' process.
4. Some processes are automated (run by IT systems) while others are manual.

Benefits of Information Technology Use in Business Processes
+ More accurate info: BPs draw on databases, ensuring accurate info across activities and BPs.
+ More automated (e.g. automated customer credit check)
+ More streamlined, faster (e.g. ERP system for quick hand-over of activities between workplaces)
+ More efficient so less costs (all of the above can reduce costs)

Week 3 - Strategy & Competitive Advantage

Where do objectives come from?
1. Organisations examine industry structure to understand opportunities and risks.
2. Devise a competitive strategy to leverage opportunities and respond to risks.
3. Design organisational structures and processes to implement strategy.
4. Design (or buy) and implement IS (features, applications) to execute processes.

Competitive Strategy Determines Information Systems
1. **Industry Structure**: By analysing market structures, nature of competition, company's strategic position (e.g. PFF).
2. **Competitive Strategy**: By formulating the right competitive strategy for the company.
3. **Value Chains**: By creating suitable internal structures.
4. **Business Processes**: By designing efficient business processes.
5. **Information Systems**: By designing and implementing IS (with use of the 5 components).

Porter's Five Forces
1. **Bargaining power of customers**: Some factors tend to increase buyer power such as if market is concentrated, low switching costs (standardised g/s), buyer has all relevant info.
2. **Bargaining power of suppliers**: Some factors increase supplier power such as if market is dominated by a few suppliers, suppliers more concentrated than buyers, no substitutes, supplier input to quality of products are critical.
3. **Threat of new entrants**: Depends on entry barriers such as capital requirements, EOS, customer switching costs, expert knowledge, govt policies, access to suppliers and distributers.
4. **Rivalry among existing firms**: Depends on no of rivals, level of differentiation, height of customer exit barriers.
5. **Threat of substitutes**: Depends on avail of similar products, customer switching costs, aggressiveness of producers.

RIVALS PRODUCTS ARE NOT SUBSTITUTES.

How Does Analysis of Industry Structure Determine Competitive Strategy?
Porter Identified Four Competitive Strategies:
Cost Leader
1. Broad cost leadership across industry (most efficient).

2. Narrow cost leadership focused on particular industry segment (most efficient).

Differentiation

3. Broad differentiation across industry (most effective).
4. Narrow differentiation focused on particular industry segment (most effective).

How Does Competitive Strategy Determine Value Chain Structure?

Value Chain: Network of value-creating activities that consist of:

- **Primary Activities**: Add value directly to customers.
- **Support Activities**: Assist primary activities.

Generic model that mainly fits manufacturing organisations.

Porter's Value Chain Model

- **Primary Activities:** Marketing and sales, inbound logistics, ops or manufacturing, outbound logistics, service and support.
- **Support Activities**: Human resources, accounting and infrastructure, procurement and technology.

Activities in Value Chain

- Each **primary** activity clearly adds value to the product. Other primary activities (support) such as production, sales and service also indirectly contribute to value creation for customers.
- **Three Support Activities**: HR (training, recruiting, compensation), accounting and infrastructure (general management, finance, acctg, legal), procurement and tech (finding vendors, nego prices, R&D, new techniques, methods and procedures).

How do Value Chains Relate to Business Processes & Information Systems?

Business Processes: Describe how to execute value creation in value chain. Links together diff parts of value creation (e.g. integrated manufacturing planning so cross-functional processes). An IS may then be designed to support BPs.

How do Information Systems Provide Competitive Advantage?

Principles of Competitive Advantage

Product Implementations: Create new g/s, enhance g/s, differentiate g/s.

Process Implementations: Lock in customers and buyers, lock in suppliers, raise barriers to market entry, establish alliances, reduce costs.

Competitive Advantage via Business Process Design

1. **Lock in Customers**: Create high switching costs (e.g. Facebook).
2. **Lock in Suppliers**: Make it easy to connect and work with org (e.g. cross-organisational just-in-time delivery process)
3. **Create Entry Barriers for New Entrants**: Make it difficult (costly) for new competitors to enter the market (e.g. EOS through process optimisation).
4. **Establish Alliances with Competitors**: Standardise processes, share costs, develop joint processes (e.g. Star Alliance, OneWorld).

<u>Week 4 - Databases</u>

What is the Purpose of Database?

- To store and organise info on important bz objects (e.g. customers, products, suppliers, transactions, equipment, locations, staff).
- Spreadsheet can only keep list of single bz object (e.g data about customers).
- Keeps lists of multiple bz objs and their interrelationships (e.g. customers and their purchases, suppliers and deliveries, equipment and its availability etc).

Overview:

1. **User**: Has to solve problem using data stored in database (e.g. check schedule of classes for the semester).