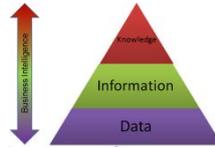


**Week 1**

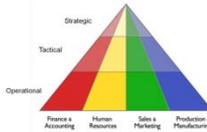
Information systems are a set of **interwoven components** (people, processes, data, technology) that **deliver meaningful information** (by capturing processing, storing and distributing information) to **support processes** (business, decision and collaborative) that **strategically manage**, co-ordinate and control **an organisation to deliver value**.

Data → information = understanding relations  
Info → knowledge = understanding patterns  
Knowledge → wisdom = understanding principles



**Some major impacts of information systems** – reduce costs/improve productivity, improve customer satisfaction, create competitive advantages, generate growth, generate new revenue streams, optimise the supply chain

**Support all functions and levels of an organisation** – strategic (manage) ↓ tactical (co-ordinate) ↓ operational (control)



**Week 5**

**Reach** – anywhere/anytime/anyplace, **Range** – complexity  
**Collaboration systems** – facilitate sharing and flow of information  
Knowledge (explicit/tacit) / content / workflow / groupware

**ERP** = mother-system overarching everything

**Week 7 – Enterprise Architecture**

Plans for how an organisation will build, deploy, use and share its data, processes and IT assets.  
It includes site, skin, structure, services, space plan, and stuff.  
Why? To increase IT usage, enterprise agility, reducing IT costs, technical adaptability, service-oriented architecture

3 types: **Information** (supports operations): Storage, backup, recovery, disaster recovery, business continuity planning  
**Infrastructure** (supports change): hardware, software, telecommunication equipment  
**Measurement:** Accessibility (who), availability (times), reliability, maintainability (updates), portability (devices), scalability, usability (how easy is it to use?)  
**Sustainable application** (support sustainability): how applications integrate/relate - cloud/virtual computing, web-based, client-server

**Week 8 – BI, Data Warehousing, Mining, Visualisation**

How to make our planet smarter – **integration** (linking data, warehouses) and **insight** (analysis, OLAP, mining, visualisation)  
**Data warehouse:** A logical collection of information, gathered from many different operational databases, that supports business analysis and decision-making.  
The primary purpose is to aggregate information through an organisation (and external sources) into a single repository.  
**Characteristics:** Subject-oriented, integrated, time-variant (looking at the past), non-volatile (no changes until new data is added)  
**Data cleansing:** Extraction, Transformation, Loading

**OLAP:** 3D analysis of data  
**Data mining:** The process of analysing data to extract information not offered by the raw data – cluster, association, statistics

**Week 9 – Networks and Mobility part 2**

**Intranet:** Internalised portion of the internet, protected from outside access, providing information to only its employees.  
**Extranet:** Intranet available to 'strategic allies'.  
**VPN (virtual private network):** Using public telecommunication infrastructure to provide **secure** access to organisation networks  
**VAN (value added network):** A private network for third-party use

**Week 2**

Identifying the industry you are in is important  
Porter's five forces, generic strategies, value chain

**Week 3**

What is a **business process**? – A collection of **interrelated tasks**, initiated in **response to an event**, which achieve a specific **result** for the user of the process – customer-facing or business-facing  
Compared with KPIs  
**Business process management, modelling, re-engineering**

Transformation = turning inputs into outputs  
Operations management = the management of systems or processes that transform resources into goods and services

**Weeks 4-6 - Systems (TPS, DSS, EIS, Collaboration, ERP, CRM, SCM)**

**Week 4**

**Transactions** support **processes** which provide **information** through KPIs to **users** to make **decisions** – structured/unstructured  
Information = fine/coarse, transactional/analytical  
**CRUD** = create/read/update/delete

**Data rich/information poor** – lots of data but no understanding  
Data / analysis / decision **latency** = time taken to move to that step  
**Intelligence density** – amount of decision-useful information that a user gets from a system / certain amount of time.

**Week 7 – Data and databases**

Databases store operational data/transactional information that are transformed to produce analytical information to support decisions.  
A database is an organised collection of logically related data.  
**Hierarchy:** database, table, record, field  
**Quality organisational information** – accuracy, completeness, consistency, uniqueness, timeliness. **Garbage in, garbage out causes** – customers lie, different standards, abbreviations, dodgy sources  
**Database management system** - CRUD, control access (SQL, Access)  
**Entity relationship diagram** – Primary keys allow to identify a record

**Week 8 – Software and Hardware**

**Software:** BIOS (basic input-output system), operating system, applications (e.g. browser, communication – relate to systems)  
**Hardware:** Physical components, e.g. motherboard, CPU (contains transistors; arithmetic control unit), RAM (temporary memory)  
**Moore's Law:** the number of transistors on a chip will double approximately every two years.  
Computers process data in binary.  
**Sizes**  
1 bit = 1 or 0; 1 byte = 8 bits;  
kilobyte, mega-, giga-, tera-, peta-, exa-, zetta-, yotta-.



**Week 9 – Networks and Mobility part 1**

**Network:** A communications, data exchange, and resource-sharing system creating by linking two or more computers and establishing standards or protocols so they can work together  
**Telecommunication system:** Enables the transmission of data over public or private networks  
**Types of networks:** Wired, cellular wireless, satellite wireless  
**Local area network:** Computers in close proximity  
**Wide area network:** Much greater size (biggest is the internet)

**Week 9 – Programming**

A computing problem can be solved by executing a series of actions in a specific order.

**Algorithm:** A procedure for solving a problem in terms of the actions to be executed and the order in which they are executed

Basically, a set of instructions (examples are recipes)

**Pseudocode:** “Natural-language algorithm”: Artificial information language designed to help programmers “think out” a program before coding it (**Coding languages:** JavaScript, HTML, CSS, etc)

**From idea to algorithm**

Often use **flowcharts** – good visual aid to understanding a programming construct or problem

Symbol	Name
	Flow-line
	Terminal
	Input/Output
	Processing
	Decision

**Week 10: Methodologies**

A lot of systems we build are very expensive and difficult to get right – many of them actually fail

Measuring the quality of a system: **FURPS**

Functionality – features, capabilities, security

Usability – human factors, aesthetics, consistency, documentation  
Reliability – failure frequency or severity, recoverability, accuracy, predictability

Performance – speed, efficiency, resource consumption

Supportability – testability, adaptability, maintainability, serviceability, installability, compatibility

**Consequences of system failures (and vice versa for success)**

Decreased revenue, damage to brand reputation, incurring liabilities or expenses, decreased productivity

**Systems development lifecycle →**

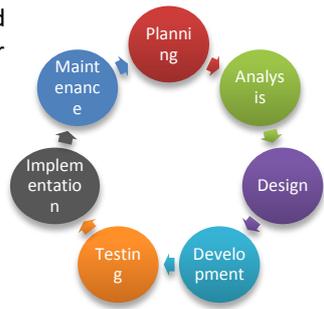
**Traditional methodologies:**

Waterfall – one step to the next  
Spiral model – round in a spiral getting bigger and bigger

**Agile methodologies:**

RAD, XP, RUP, SCRUM

Rapid Application Development: Analysis and quick design → demonstrate, refine, build (loop) → testing → implementation



**Week 10: Project management**

**Project:** A temporary endeavour with a defined beginning and end, undertaken to meet unique goals and objectives

**Successful project:** On time, within budget, meets business requirements and satisfies customer’s needs

**Project management:** The application of knowledge, skills, tools and techniques to project activities to meet requirements

**Deliverable... Milestone... Project manager... PM office...**

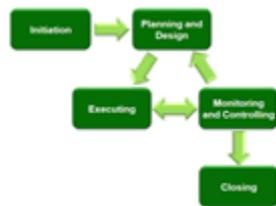
**Risks:** Poor planning/management, change in business goal, lack of support from management, lack of resources, lack of support from IT, tech changes

**Project manager roles**

Draw up project plan (formal document managing and controlling execution), manage triple constraints & soft issues (people, communications, change)

**Outsourcing to professionals is becoming more and more common**

Scope: Must have/nice to have



**Week 11: Ethics – standards of right and wrong**

**Privacy:** the right to be left alone when you want to be, to have control over your own personal possessions, and not to be observed without your consent

**Confidentiality:** the assurance that messages and information are available only to those who are authorized to view them

**Information Laws:** Crimes Act 1961, Copyright (Infringing File Sharing) Act 2011, Official Information Act 1982, Privacy Act 1993, Electronic Transactions Act 2002, Bill of Rights Act 1990

**CSR pyramid**

**Important things:**

**Intellectual property:** property of the mind (ideas)

**Fair use doctrine:** removing copyright for fair use

**Copyright - Pirated/counterfeit software**

**Week 11: Security**

**Why:** To keep competitors from accessing information, prevent private information leaks, theft of property

**Human element is generally a risk to security** – behind the defences already so have access to private data

**Physical security domains:** Security guards, locks, cameras, fire sprinklers. **Digital:** Passwords, firewalls. **Political**

**What happens when it goes wrong?** Financial performance, productivity, damaged reputation

**CIA of security:** Confidentiality, integrity, availability

Also: Authentication, non-repudiation, access control, auditing

**Threats:** Viruses, ID theft, phishing, spam, Social Engineering, hackers

**Defences:** Authentication (something the user knows, has, part of them), prevention and resistance (content filtering, encryption, firewalls, detection and response)

**Security plan:** Security policies, rules and plans

**Week 12: Adaptability**

Sustaining technologies: An innovation that improves upon an already existing product

Disruptive technologies: A completely new innovation that changes the way a process occurs or creates new processes

Disruptive changes are much harder to predict (e.g. printing press, internet)

**Week 12: Success**

**Notes for the exam – from the workshop**

**LITTLE NOTABLES EXCLUSIVE**

**And other stuff I might have missed**

**Vision:** change the world