

# Information Systems

## 3 Systems

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Previously, we saw how Rich Pictures and Data Flow Diagrams help us to visualise how systems work. Now we look at the nature of information processing systems

### 3.1 System

A system is a method to perform a task.

Well known systems include:

- Windows XP Operating System - enables the average human user to use computer hardware
- Banking System - enables customers to save money and to pay for goods or services
- College Enrolment System - enables people to become students on a course of study
- College Timetabling System - enables the right students (and lecturers) to attend the right classes at the right time
- Library Loans Circulation System - enables members to borrow resources such as books, magazines and compact disks, and librarians to keep track of those resources.

A system can itself contain smaller systems. For example a library system might have a system for cataloguing loan stock, a system for obtaining new stock and a system for loaning items to borrowers and recording their return.

### 3.2 Functional Areas

We look at the seven major systems you might find in a college refectory.

**Sales** - snacks, drinks and prepared foods are offered for students and lecturers to purchase. The most and least popular items are identified. Money from sales counted. Busiest and quietest times identified.

**Purchasing** - foodstuffs such as potatoes, rice, vegetables, ... drinks such as tea, coffee, juices, ... snacks such as crisps, biscuits, chocolates, ... cooking materials such as oils, salt, spices, ... are purchased from suppliers on a just-in-time basis. (You don't want your potatoes going mouldy through old age now do you?) Ovens, fridges, freezers, baked potato machines, vending machines, dishwashers, tables, chairs, ... are either purchased outright or hired. Suppliers are continuously evaluated for high quality, cheap prices and quick delivery times.

**Manufacturing** - chips are fried, curries created, sandwiches made, ... plates are polished, tables are tidied, kitchens are cleaned ... all at the right time. Getting the right workers with the right skills in the right place at the right time.

**Marketing** - is about the four P's:

- product - making the right food available at the right time
- price - setting prices that students are happy to pay and without the refectory going bust
- place - making the refectory easy to find and reach, on popular routes used by many students
- promotion - making the eating area welcoming, the food brilliant, the prices outstanding - so students choose to come (and come again) naturally. Advertising the fantastic services and creating a dialogue between consumers (i.e. the students) and the suppliers (i.e. the refectory staff)

**Finance** - bills are paid, prices set, wages given, income balanced against expenditure. Cash flow monitored.

**Personnel** - employing the right people such as cooks, cleaners, counter staff, ... with the right skills, in sufficient numbers. Training for improvement.

**Management** - make:

- strategic decisions - WHAT to do in the future e.g. increase seating capacity by expanding into the adjacent room
- tactical decisions - HOW to implement strategic decisions e.g. deciding which builder is to knock down the adjacent wall
- operational decisions - what to do today e.g. who will cook the chips?

These seven major systems, also known as functional areas, may be found in many businesses.

### 3.3 Exercises

By considering each functional area described in §3.2 above, identify and describe the functional areas for each of the scenarios described below. For a functional area that does not apply write *none*.

- a. WeDriveThemMad is a driving school offering lessons to those who wish to pass their driving test. Students telephone or visit to book and pay for a set of lessons for a particular time and day of the week. An instructor and car is allocated to each set of lessons. A lesson may be one, two or three hours long. Sometimes, a lesson is a mock test, in which case a different instructor is assigned. And again, a different instructor and car may be assigned to accompany a student to an actual driving test. Sometimes, a car is not available because it is being repaired or serviced; an alternative car is supplied. Cars are replaced every two years. And, of course, road tax and insurance are paid every year for each car. The tuition rate is £25 per hour, and driving instructors are paid £12.50 per hour.
- b. WeEntertainYou produces computer games to be bought and enjoyed by the general public. The games are researched, developed and produced by the company themselves. The games are sold by retail chains and via the Internet on the company's website. The company's main aim is to maximise profits and minimise costs.
- c. PhoenixWebsiteServices design, write, maintain and host websites for its clients. A person contacts the company, either in person, by phone or by the enquiries page on the Phoenix website, and expresses an interest in having a website written or changed. A developer is assigned to the project and begins the analysis process, establishing what the client wants, the purpose of the website, and the essential text that is to appear. Then the developer starts the design stage, using the skills and knowledge of the in-house graphics artists, psychologists, marketers, copy editors and the client. Finally, the developer implements the agreed design. The client is charged, typically £2000 for a simple five-page website and £100 per year for hosting services.

### Bibliography

<http://en.wikipedia.org/wiki/system> accessed 8 Dec 2007

<http://greatsystems.com/systems.htm> accessed 8 Dec 2007

<http://en.wikipedia.org/wiki/Marketing> accessed 2 Sep 2008

[http://en.wikipedia.org/wiki/Strategic\\_management](http://en.wikipedia.org/wiki/Strategic_management) accessed 2 Sep 2008

**Next** we focus on information.