
COMP 5204
ENTERPRISE
The Impact of IT
M.Foote Semester-2 2017

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What do we mean by the statement

The Impact of I.T

To answer that question we need

to clarify a few things

[The 6 fundamentals].

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What is I.T

Where is I.T located

When does I.T function

How does I.T function

Who uses I.T

Why

Valid I.T Concerns

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What is I.T

I.T is a generic term used to describe the connections with and data flows between Computers, Devices, Data Communications Equipment and Telecommunications Companies. At this level we consider the topic on a generalist Global view. This is the “Forest” view of the interconnects

The term is also used to describe one single companies view of its own internal technology. (The IT department)

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What is I.T

The topic includes the physical communications layers, transport systems, communications protocols and interactions with networked devices, physical hardware, operating systems, applications, data storage and retrieval as well as the management and processing of information.

So just how BIG is I.T ?

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So just how BIG is I.T ?

The data communications technology field is a global industry. It involves multiple Trillions of dollars $39,000,000,000,000 each year, and is directly responsible for keeping businesses and entire countries “employed” and “alive”

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So just how BIG is I.T ?

Without I.T most of the structures and business operations we take for granted today, would not exist, or would cease to exist very quickly if IT could be… taken down

As such I.T covers multiple technological fields including Hardware, Software, Storage, Data management, Data creation, Data Transmission…

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Where is I.T located

I.T is there when you

- Brush your teeth (plastic injection moulding of the brush shape, size, materials, the toothpaste package and contents, barcode)
- Have a wash (tap water, council records, water treatment plant to kill germs and filter dirt and solid particles)
- Eat your breakfast (packaging, bar codes, storage and delivery, supermarkets),
- Drive to work (car engine management, petrol pump, petrol station bulk storage, delivery, sales, the hot pie and coffee)

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Where is I.T located

I.T is there when you;

- Go downtown for a café lunch (shop cash register, POS terminal, food heating/cooking, ordering of supplies, staff salary, their electricity bill)
- Go to the Cinema (Film Industry, $ticket, digital projector unit,posters
- Go to the Supermarket (the shape of the baked bean can is a mathematical model of maxima/minima for contents and volume, trucking, supplies, variety, item placement, staff salary)

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Where is I.T located

Computers, Cellphones, Printers, Networks, Petrol pump, Cash register, Bank ATM’s, Television, Microwave, Heaters car/truck/motorbike engine management, Airplanes, Ships, Trains, Shops…

EVERYWHERE

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When does I.T function

Most typical systems are user_interactive, they need a person to operate them. Work computers sit idle at night and for periods of inactivity during the day. As the earth is a planet there is a progression of Moring, workday, evening as it revolves, as such the planet never sleeps…

So; IT is effectively operational 24 hours a day right around the planet.

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When does I.T function

Some computer systems are designed to operate only with user activity, some are designed to operate 24x7 under program code control.

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How does I.T function

User Initiated Interactions

(Office workers)

Stored Program Control

(Factory Automation)

Self Directed control & Assisted Self Directed Control

(Artificial Intelligence, with or without human input to “help”the machine to function)

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How does I.T function

User Initiated Interactions:

Typical office computers require human input to perform any sort of work. We use them to collect, manipulate and save data.

- Desktop, laptop, tablet, cellphone
- They remain idle for all of the time that we are not actively “using” them

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How does I.T function

Stored Program Control;

Some systems are automated, after initial programming they are designed to operate according to stored code, perhaps on a 24x7 basis.

- Router, Switch, Nuclear power plant, Industrial chemical processing plant, Automated hot-houses for growing food and plants… [Microcontrollers]
- Traffic lights, street lights for night illumination

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How does I.T function

Self Directed Control;

Modern systems are slowly emerging that use some fields of artificial intelligence to make intelligent decisions and perform intelligent tasks. Some of these systems are simply buried inside commercial devices and most people don’t know.

A modern camera uses “fuzzy logic” to autofocus the lens (move each lens element inwards or outwards to achieve perfect focus) and adapt to changing light conditions.

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How does I.T function

Self Directed Control;

Some companies are developing intelligent software to automatically examine websites on the Internet. Google has been investigating AI for a few years to enable it to find, categorise, store website data at the speed of a machine instead of at human speed.

These systems typically use “Rule based” methods and “Machine Learning” to extract knowledge and understanding from the text on websites

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How does I.T function

Assisted Self Directed Control;

The planet Mars is a long way away. A radio signal takes 20 minutes to reach it, one way.

There is presently a large robotic device wheeling its way across the surface and stopping and taking samples along the way. It can dodge rock and potholes and select “interesting” looking rocks to chip, bore holes in, vaporise with its high power laser and photograph. (Curiosity)

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How does I.T function

Assisted Self Directed Control;

Self directed machinery usually relies upon multiple forms of “input”. The inputs are typically from “Sensors” which are a type of Transducer (a device that changes one type of signal to another).

- Thermometer, Heat to temperature reading
- Wheel, Rotation to forward/backward velocity
- Camera, light waves to image electrical pixels