INST0031
Systems Management

Lecture 1

Introduction to Systems Management

About me

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What we will cover today

- Introduction to the module
  - Aims & objectives of the module
  - Module structure & content
- Overview of what we mean by systems management
- Role of the "system manager"
- "Seminar": Q&A session – System experiences

Introduction

This course provides a sound understanding of a range of issues relating to computer systems management and operation, including: day-to-day systems management, maintenance, user support, project management, system selection and evaluation, types of network, network management; website management, systems access and security, privacy, encryption, virus control, risk management, and system migration.

Aims & objectives of the module

- Investigate and raise understanding of a range of issues related to computer systems management:
  - System management in general
  - Network management
  - Website management
  - Database management
  - Project management
  - And more!
- Identify potential roles, and build insight and practical skills to enable you to fulfill such roles

Module structure and content

- Asynchronous pre-recorded lecture sessions followed by seminars or practical sessions
- Seminar/Practicals will be synchronous though Zoom – The link is available on moodle.
- Lecture slides will also be available as pdf files on moodle

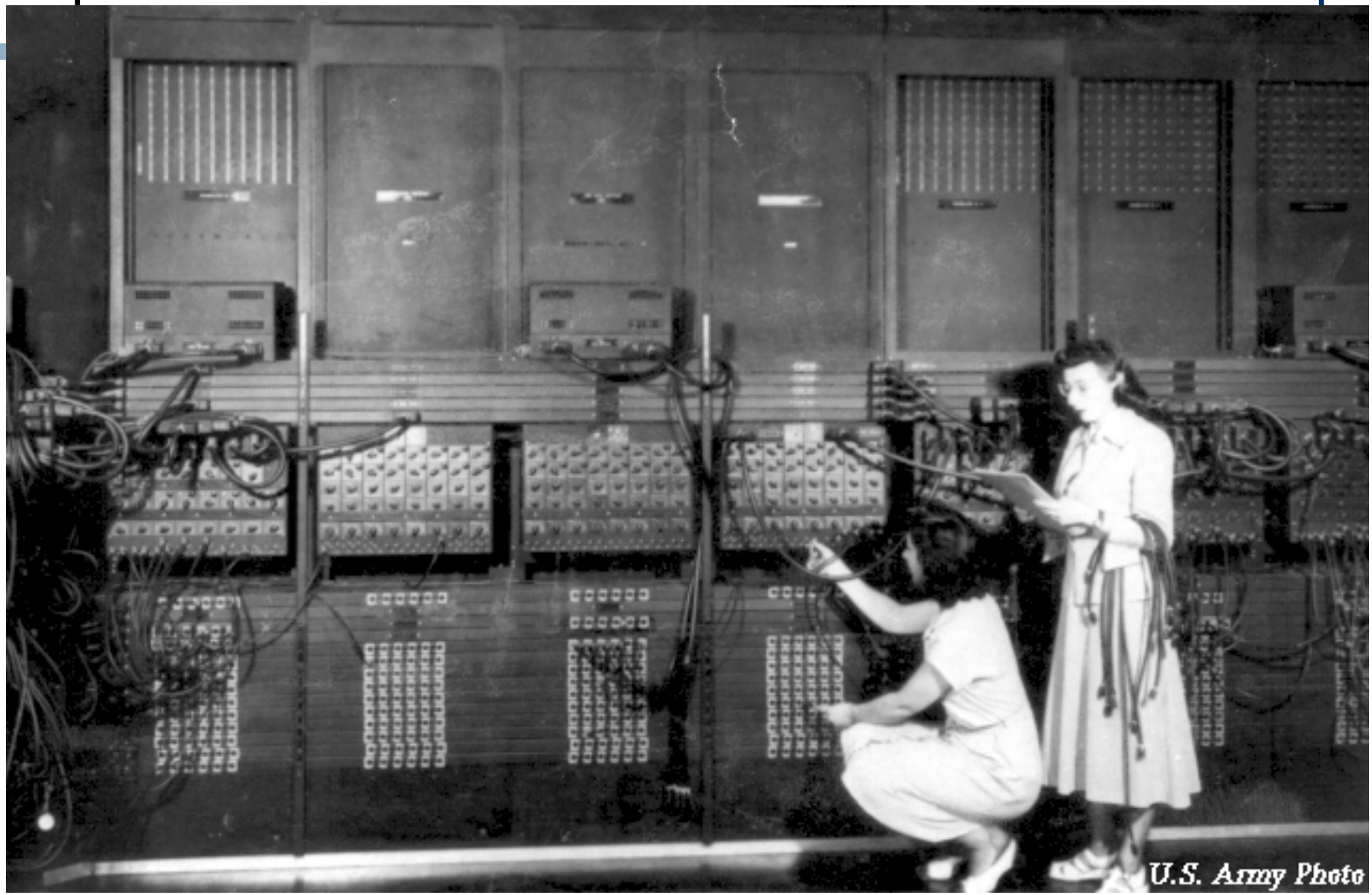
Assessment

- Report
  - No more than 2500 on a given research topic.
- This report constitutes 100% of the assessment for this module, and will be due at the end of therm.
- Submission should be via Moodle according to normal departmental procedure (see departmental handbook).

What do we mean by "Systems Management"?

- "The definition of systems management is often taken for granted yet rarely defined" (Sprague & McNurlin)
- "Facilities to control, co-ordinate and monitor the resources that allow communications in an OSI environment" (ISO)
- In practice?

Looking back a few years



A bit of context…

- In the early days…
  - Big, complex, expensive – and limited! – machines, special facilities required
  - Completely centralised systems – mainframes with dumb terminal access, if any
  - Central "high priest" control – users have little or no control, little understanding

A bit more context…

- In the 70s…
  - The rise of the minicomputer
  - Smaller units with less need for special facilities
  - "Departmentalised" systems, more (and more real-time) users
  - Some devolution of control - first "expert amateurs" – but still a technical environment
  - More varied and smaller, realtime applications, rise of WP and the MUD

Still more context…

- In the 80s…
  - The micro revolution
  - Small, cheap, off-the-shelf desktop computing provision
  - Highly decentralised systems, many non-expert and/or non-technical users
  - Users effectively autonomous – central services lose control
  - Packaged applications esp. office functions

Even more context…

- In the 90s…
  - The network era
  - Still desktop-based, but linked, together and outside
  - Individual resources coordinated in shared environments, focus heavily on end user
  - Trend back towards central control and management to boost effectiveness
  - Explosion of options leads to focus on compatibility

Nearly done with context…

- In the Noughties…
  - The wireless explosion
  - Web with everything
  - Rise of social networking
  - Less about location and hardware, more about apps
  - Security a growing issue

And now?

- Rise of the Cloud (or is it resurrection?)
- Expectation of true "open systems" – interoperability and interchange?
- Integrated global personal computing?
- Hugely powerful and complex systems on the desktop – and elsewhere! Very rapid development
- Personal data concerns becoming more pointed
- Reality of (effectively) technically restricted choice and dependence on specialists – or trust in the unknown?
- The "demise of the hierarchy" in the work environment? User revolution – or capitulation? "Consumer computing"?

A 30-year history of the future…

- MIT Media Lab founder Nicholas Negroponte takes you on a journey through the last 30 years of tech. The consummate predictor highlights interfaces and innovations he foresaw in the 1970s and 1980s that were scoffed at then but are ubiquitous today.
- https://www.ted.com/talks/nicholas_negroponte_a_30_year_history_of_the_future?utm_campaign=tedspread&utm_medium=referral&utm_source=tedcomshare

Today

- *Over half the work force produces information.*
- Every 10 hours, more computers are sold than existed in the entire world 30 years ago.

But enough ranting!

- Whatever the outcome, there is a clear need to manage systems at all levels
- A mission to "improve the performance of people in organizations through the use of information technology" (Sprague & McNurlin)
- Delivering what users want, and what benefits them, through technology.

What do we mean by systems?

- Specifically in this context,
  but not exclusively, computer systems:
  - Hardware
    - Networks
  - Software
    - Data
  - People
- Focus on computing side but inevitable overlap with non-IT systems

What do we mean by management?

- Making sure everything works
  - In a controlled manner
  - To avoid mistakes and inefficiencies
  - In order to succeed…
  - …in whatever we're trying to do!
- Implying the need to
  - Plan
  - Monitor/measure
  - Improve

Role of the "System Manager"

- What is a "system manager"?
  - Who are we talking about?
  - What do we call them?
  - What do they actually do?

Who are we talking about?

- In principle, anyone who has a responsibility for computing resources!
- But more commonly in practice, those who have a role in coordinating and managing groups of people / machines / systems
- Often at an operational level but also at a strategic level

What's in a name?

- A rose by any other name? ☺
  - Systems manager
  - Network manager
  - Computer manager
  - Systems Librarian
  - Webmaster
  - Knowledge Information Architect (!)
- Etc etc etc

Common & basic jobs

- Hugely varied!
- But quite a lot of common ground…
- The following list is neither exclusive nor authoritative (and in places rather arbitrary)!
- Intention is to give you a feel for the breadth of elements involved
- Many of these will be addressed more specifically in later sessions

Planning

- Implicit in many of the other areas…
- Forward planning
- Disaster planning
- Quality planning
- Project planning

Systems analysis

- Developing better systems
- Designing infrastructure
- Investigating needs
- A course all on its own

System migration

- System specification and selection
  - Identifying and specifying requirements
  - Deciding on what systems to buy
- Configuring and setting up systems
- Data conversion
- Upgrading

Day-to-day management

- Monitoring and evaluating systems use
- Troubleshooting/problem solving
- Setting standards
  - Quality systems and benchmarks
- User management
- Network management
- Project management

Housekeeping functions

- Document/data management
- Backup
- Archiving
- Knowledge management
- Hardware & software maintenance

Security

- Privacy & data protection
  - Rights allocation
  - Registration
- Virus control
- Encryption
- Ensuring data quality
- Ensuring system reliability

User support

- Training/supporting people to use systems
- Documentation, user manuals
- Helpdesk provision
- Online help systems
- Decision support/MIS
- Expert systems

Networking

- Ensuring compatibility
- Website management
  - Intranet
  - Extranet
  - Internet
- Website promotion

Information and Systems Management today

- At Google I/O 2019, the company announced the Pixel 3A and 3A XL, along with a new Nest Hub Max smart display that has a camera, and updates coming to Android Q and Google Assistant. In addition, Google is bringing the new Live Caption feature to videos and audio.
- https://www.youtube.com/watch?v=wm2v6IpKXI4

OK…

- That's all for today….. ☺

Questions?