Communication and documentation during systems development

Communication and documentation

- Information systems documentation:
  - System specifications: e.g. requirements, design, software; data dictionary/repository, manuals, etc.
- Written reports
- Presentations

See additional notes on the unit web page included with the lecture notes for week 8

What is documentation?

- Not necessarily a piece of paper.
- Any permanent medium used to communicate to other people can be classed as documentation.
- Product and documentation should be developed at the same time.

Documentation is communication

- the objective is to:
  - create a specific effect
  - on particular readers
  - who want specific information,
  - have particular characteristics and
  - will read under particular circumstances.

Information Systems Documentation

- User Manual
- Systems Manual
- Data Manual
- Program Specification Manual
- Operations Manual

User manual

- Purpose:
  - a contractual obligation
  - a marketing tool
  - a training tool
  - a reference for non-technical people
  - a memory in case key staff leave
- Contents:
  - what the system is about (narrative);
  - how to use the hardware how to carry out tasks - details of manual procedures involved; how to enter data, produce output, interpret output;
  - how to correct mistakes
  - how to solve typical problems;
  - how to ensure security;
  - how to perform backup and recovery.
**Systems manual**

- **Purpose:**
  - to enable technical staff to understand the system so that they can:
    - modify the system
    - evaluate the system’s behaviour
    - fix errors in the system

- **Contents:**
  - overview of the system
  - descriptions of all components
  - system specifications
  - controls, errors, audit trails.

**Data Manual**

- enables (technically-oriented) developers and maintainers to:
  - understand what data is used and where.
  - identify the effects of changes relating to data.

- **Contents:**
  - Files - schemas, sub-schemas, file layouts.
  - Input/Outputs - reports, inputs
  - Data Elements
  - Data Analysis - logical and physical data model

**Program specification manual**

- **Purpose:**
  - to support communication between analyst/designer and programmer;
  - to describe in detail what the program does
  - for initial development;
  - for maintenance.

- **Contents:**
  - design specification (narrative describing the purpose and general functions of the program),
  - listing of each program (for maintenance purposes),
  - layouts of files or database area used,
  - layouts of screens and reports,
  - test plan, test data, test conditions, test results

**Operations manual**

- **Purpose:**
  - Large scale systems may need operations support. If so, a separate operations manual is needed to instruct operations staff in operating and controlling the new system.

- **Contents:**
  - system overview (purpose/functions of the system)
  - processing flow
  - system start-up/shut-down
  - restart and recovery procedures
  - security/backup procedures
  - tape/disk library instructions
  - user contacts and procedures
  - priority of jobs
  - report distribution information

**Operations Manual**

Planning large-scale system operations:

- Large scale systems require:
  - breakdown of the work into jobs (individual programs)
  - scheduling of these jobs into a sequence

For each job:

- narrative description of the job
- job flowchart
- job schedule requirements
- job set up instructions
- input control procedures
- operator’s instructions
- job rerun/recovery procedures
- data control instructions
- report distribution instructions

**Good Documentation**

Good documentation:

- reduces the need to refer problems to system developers
- overcomes users’ fears of equipment and software
- ensures successful first encounters with a system
- enables users to find what they want and understand it when they find it
- is accurate and complete
- is written for the intended audience and purpose
- has good reference aids (table of contents, thorough index, cross-referencing)
Planning your documentation

- **Audience** - sets the tone, style, language and emphasis
  - level of computer sophistication
  - background, training, or education
  - attitude towards your message
  - cultural background
- **Purpose** - why is the documentation necessary?
  - identifies the content
  - indicates the level of detail required
- **Medium**
  - paper-based manuals and reference cards
  - on-line documentation
  - aural and visual training materials

Audience

- **Type of documentation**
  - User Manual
  - System Manual
  - Data Manual (Data Dictionary)
  - Program Manual
  - Operations Manual
- **Audience**
  - users - new, intermediate, experienced
  - client, maintenance team
  - developers, maintenance team
  - developers, maintenance team
  - operators, technical staff

Document organisation - principles

- Make the organisation of material apparent to readers
- Tell them what you are going to tell them before you tell them
- Organise the document in ways expected by readers:
  - chronological order
  - most important to least important
  - order of need
  - order of difficulty
  - question / answer order
  - compare/ contrast order
  - alphabetical order

Documentation organisation

- Chunking - the rule of seven
- Titles - briefly describe upcoming information
- Relevance - put related information together
- Consistency – style, voice, emotion
- Hierarchy of structure - Chapters, Sections, Topics
- Integrated graphics – appropriate, support text
- Accessible detail - access routes to different levels of detail (overall/general, specific, fine detail)

Choose appropriate media

- **Manuals**
  - Most common ... not good for trivial problems.
- **Brochures**
  - Main capabilities are highlighted ... emphasises simplicity and elegance, not the detail of manuals. 4 - 8 pages fully describing the system.
- **Quick reference guides**
  - 90% of the time 90% of the needs of 90% of the readers can be met by a simple summary card.
- **On-line help**
  - Ideal reminders ... useful as an aid for experienced user BUT are not a replacement for manuals

Online vs paper-based documentation

- Online easier to distribute and maintain
- Printing costs reduced
- Online enables different search paths to the same information
- Easier for user to become disoriented
- Online documentation must be written differently
- Online documentation must be consistent with paper-based documentation
Reference Aids
- Information contained in a large, complex document is often inaccessible
- Use:
  - Glossaries
  - Indexes (very important)
  - Contents page
  - Others
  - Numbering systems
  - Page, Sections, paragraphs, items
  - Section dividers - tabbed card, coloured pages, section/chapter summaries

Colour and graphics
- Use a minimum number of colours
- Be consistent and familiar (e.g. red for hot) in your use of colour codes
- Don’t rely on colour alone to discriminate between items
- Graphics can make a document more effective:
  - Points in a text can be emphasised
  - Can increase reader’s interest
  - Can replace, clarify or simplify the text

Layout and Pagination
- Layout:
  - Be consistent in your layout
  - Use type size (at least 4 points different) or bolding to indicate relative importance or weight
- Page:
  - Use a page size suited to the environment that the document is going to be used in
  - Make sure page numbering is clear

Planning a Cost-time Schedule for documentation
- Why? - Often documentation is forgotten, ignored or dismissed as not being important.
- Aim - to develop an estimate of the time required for documentation DURING development .. not a trivial task.
- Time vs Cost - be realistic about your estimates ..
- Time saved in the documentation task will be wasted many times over explaining things not included or not clearly described in the documentation provided.

The Documentation Process
- Specify the document
- Draft and edit the document
- Review the document
- Publish the document
- Maintain the document

Effective documentation check list
- Objective clearly stated
- Target audience identified
- Consistent approach used (wording, structure, layout) - templates help
- The principles of documentation organisation and development have been followed
- Maintenance process in place
- Put yourself in the users’ position - can you easily find what you’re looking for?
References