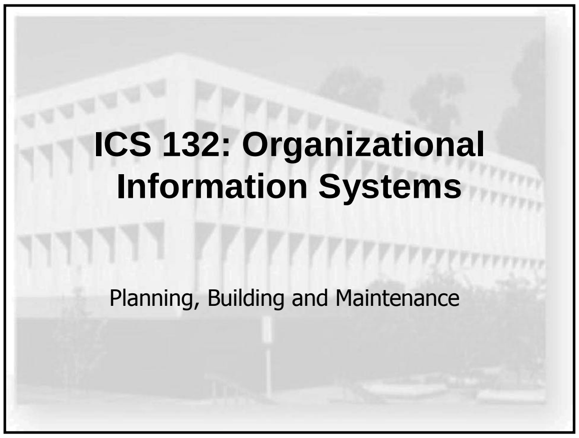
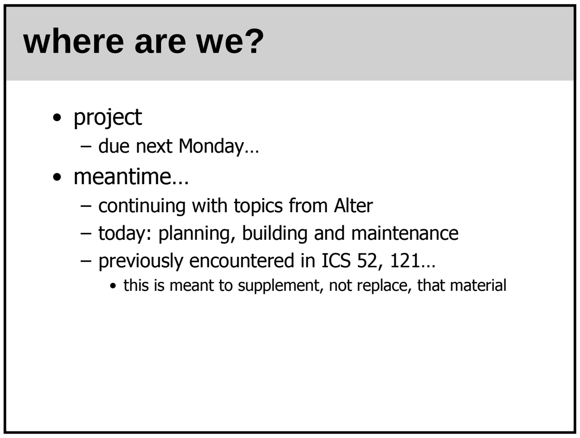


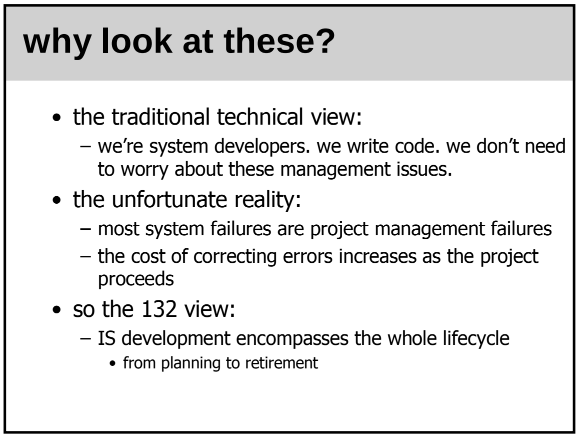
ICS 132: Organizational Information Systems

Planning, Building and Maintenance



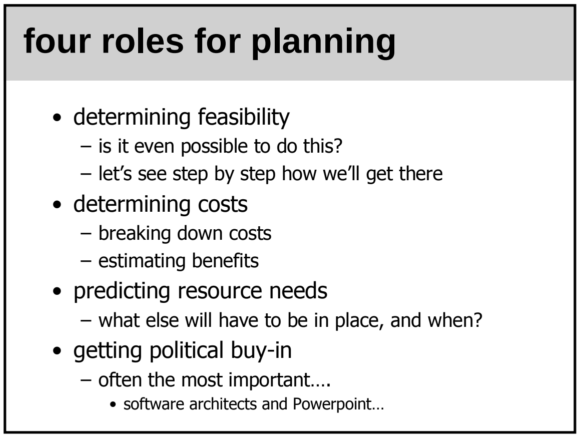
where are we?

- project
  - – due next Monday…
- meantime…
  - – continuing with topics from Alter
  - – today: planning, building and maintenance
  - – previously encountered in ICS 52, 121…
    - this is meant to supplement, not replace, that material



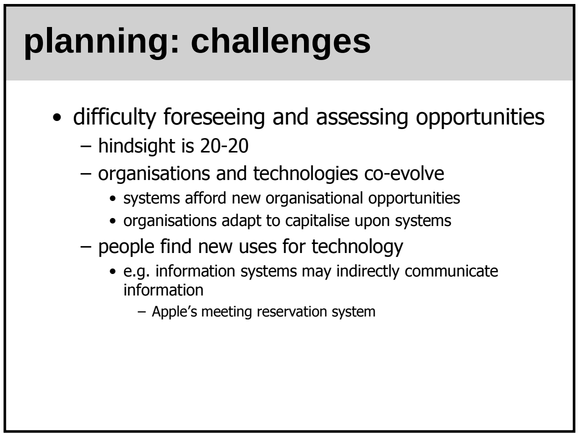
why look at these?

- the traditional technical view:
  - – we're system developers. we write code. we don't need to worry about these management issues.
- the unfortunate reality:
  - – most system failures are project management failures
  - – the cost of correcting errors increases as the project proceeds
- so the 132 view:
  - – IS development encompasses the whole lifecycle
    - from planning to retirement



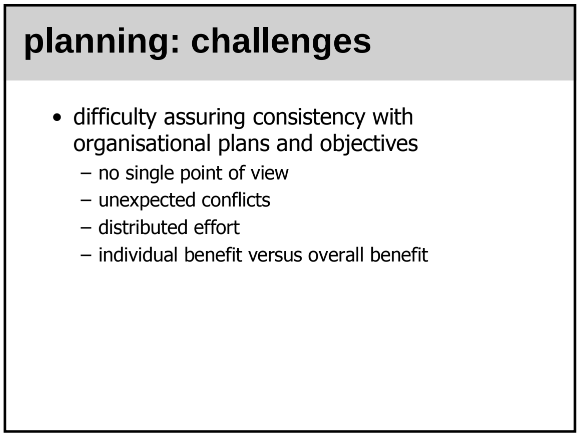
four roles for planning

- determining feasibility
  - – is it even possible to do this?
  - – let's see step by step how we'll get there
- determining costs
  - – breaking down costs
  - – estimating benefits
- predicting resource needs
  - – what else will have to be in place, and when?
- getting political buy-in
  - – often the most important….
    - software architects and Powerpoint…



planning: challenges

- difficulty foreseeing and assessing opportunities
  - – hindsight is 20-20
  - – organisations and technologies co-evolve
    - systems afford new organisational opportunities
    - organisations adapt to capitalise upon systems
  - – people find new uses for technology
    - e.g. information systems may indirectly communicate information
      - – Apple's meeting reservation system



planning: challenges

- difficulty assuring consistency with organisational plans and objectives
  - – no single point of view
  - – unexpected conflicts
  - – distributed effort
  - – individual benefit versus overall benefit

planning: challenges

- difficulty building large systems
  - long-term development efforts
    - changing circumstances
    - problems of consistency
  - distributed effort
    - coordinating all the players
    - getting agreement
  - project failure is a huge problem
    - both common and costly
    - once you have a plan, sticking to it is hard
    - when your plan starts to fail, recovery is even harder

planning: challenges

- difficulty maintaining information systems performance
  - as usual, performance can have many meanings
    - throughput, efficiency, quality, costs, reliability…
  - two challenges
    - *delivering* performance
    - *maintaining* performance
      - the environment is continually changing
      - the organisation is continually changing
      - new approaches can yield short-term benefit
    - many factors (as shown by WCA)

planning: challenges

- difficulty collaborating with system builders
  - one of the reasons for 132!
    - creating more informed project managers
    - creating more informed system builders
  - different models of performance
    - business performance
    - system performance
      - system can perform well but business goals fail
      - business goals can succeed without system optimisation
        - » ensuring that your effort is worthwhile

planning: principles

- support the firm's business strategy with appropriate technical architecture, standard and policies
  - this is more than "do it right"
  - focus on *business strategy*
    - you need to be able to articulate this!
  - the importance of *scale*
    - *but…* watch out for issues of maintenance and evolution

planning: principles

- evaluate technology as a component of a larger system
  - the best technology does no good without an infrastructure to make it work
  - don't ask *what can this technology do?*, but rather, *what kind of use are we in a position to make of it?*

planning: principles

- recognise life cycle costs, not just acquisition costs
  - "Total Cost of Ownership"
    - support, administration, training, running costs, consumables, …
    - infrastructure (and it's own knock-on costs)

planning: principles

- design information systems to be maintainable
  - supporting *monitoring*, *control*, *evolution*
    - making it possible to find out what's going on!
  - "IS maintenance" might actually be a response to changes in the organisation or the work itself

planning: principles

- recognise the human side of technology use
  - human issues
    - training
    - growth
    - motivation
      - all those good "Human Relations" school ideas…
  - this is not just a question of design, but a question of engagement
    - ethnographic techniques
    - the Scandinavian "Participatory Design" movement

planning: principles

- support and control the technical side
  - 132 may emphasize human issues, but the technology doesn't look after itself…
  - continual monitoring
  - functional maintenance
    - making sure hardware is reliable
  - preventative maintenance
    - software
    - data
  - who's responsible?

cost-benefit analysis

- evaluating specific plans
- comparing alternatives
- do the benefits outweigh the costs?
  - seems obvious, but not always
  - measurement may not be straightforward
  - remember the *time value* of money
    - unused monies don't just sit around collecting dust
  - and don't forget the cost of CBA!

cost-benefit analysis

- costs and benefits stated objectively
  - but of course, they're not! issues of perspective
    - statement of purpose
      - decision-making? background information?
    - time period
      - before the fact? monitoring an ongoing project?
    - scope
      - considering radical alternatives?
    - criteria

cost-benefit analysis

- costs
  - resources required to procure a solution
    - not always financial, but expressed financially
      - equipment
      - wages for work
      - rent for space

cost-benefit analysis

- benefits
  - cost savings
    - inc. better utilization of assets, reduced inventories...
  - cost avoidance
  - improved performance
  - "intangibles"
    - e.g. better information

cost-benefit analysis

- some problems
  - how much time to spend identifying alternatives?
  - cost accounting problems
    - double counting, omitting costs, hidden costs, spillovers
  - quanitifying benefits
    - intangibles
      - e.g. morale, improved decision-making
  - underestimating cost, overestimating benefit
    - temporal effects too...

development models

- traditional system development
  - this is the conventional approach CS discusses
  - e.g. the SE model at the heart of ICS 52, 121
- prototyping
  - an iterative model
    - *quickly* build a mock-up or basic functional system
    - put it into limited use, see what works and doesn't
  - preparatory to full system development, or standalone
  - various things to learn:
    - what's easy or hard technically
    - what's easy or hand organisationally
  - only as good as your ability to evaluate it

development models

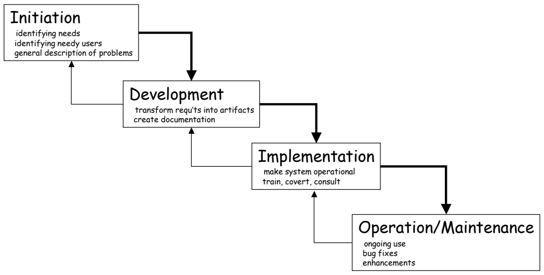
- application
  - better to buy than to build
  - formal relationships for quality, support, maintenance
  - customisation generally needed
    - but not always possible…
- end-user development
  - a Holy Grail of interactive system development
  - example: spreadsheets
  - EUD is normally a response to individual problems
    - not a strategic organisational approach
    - but, may favour distributing the ability to solve problems

the blame lifecycle

- idiot managers
- idiot users
- lousy vendors and their damnable lies
- government
- capitalist avarice

- lack of the right tools
- lack of the right methods
- lack of sufficient willpower

the blame lifecycle



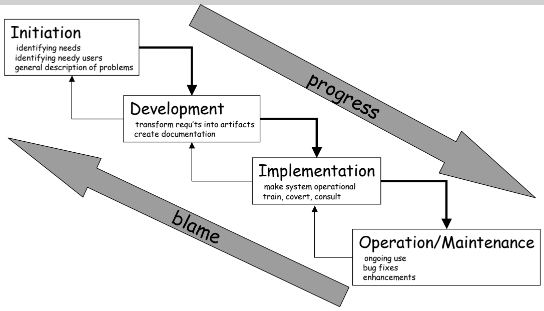
Initiation
identifying needs
identifying needy users
general description of problems

Development
transform requ'ts into artifacts
create documentation

Implementation
make system operational
train, covert, consult

Operation/Maintenance
ongoing use
bug fixes
enhancements

the blame lifecycle



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maintenance

- most of a project lifetime is maintenance
  - if it takes longer to build than to use, you're doing something wrong…
- varieties of maintenance
  - regular maintenance
  - accommodating changing needs
  - accommodating changing technologies
- designing for maintenance
  - modularity
  - scalability
  - flexibility

summary

- this class talks about technology in context
  - in general, organisational context
  - today, temporal context
    - what comes before… planning
    - what comes after… maintenance
- planning isn't just deciding what to do
  - evaluating options & managing resources
  - you will be called on these!
- maintenance is the major part of use
  - meeting changing needs
  - accommodating new opportunities

next time

- security
- read Alter ch 13