Tutorial notes: Scoping your analysis

→ Scoping the problem
  % How do you stop looking for bigger problems to solve?
→ Scoping the solution
  % How do you stop yourself from computerizing everything?
→ Two case studies:
  % Hotel checkout system
  % Computer Books by Mail

Scoping decision I

→ Decide the scope of the problem:
  % E.g. Bookstore example:
    "Textbooks are often not ordered in time for the start of classes"
  % But that's just a symptom. (So you ask the manager "why?")
  % Is that just a symptom of some other problem? (Is that the instructor "why")
    "Because the instructors aren't allocated to courses early enough"
  % Is that just a symptom of some other problem? (Do that the instructors "why")
    "Because we never know who's available to teach until the last minute"
  % Is that just a symptom of some other problem? (Do ask the dept chair "why")
    "Because instructors want to hire don't accept our offers early enough"
  % Is that just a symptom of some other problem? (Do ask the dept chair "why")
    "Because someone else seems to wait for ages before making offers"
  % Is that just a symptom of some other problem? (Do ask the dept chair "why")
    "Because there's always uncertainty about who gets hired, sabbaticals, etc.
  % Is that just a symptom of some other problem? (Do ask the dept chair "why")
    "Because we never know who's available to teach until the last minute"
  % Is that just a symptom of some other problem? (Do ask the dept chair "why")
    "Because there's always uncertainty about who gets hired, sabbaticals, etc.
  % Is that just a symptom of some other problem? (Do ask the dept chair "why")
    "Because we never know who's available to teach until the last minute"
  % Is that just a symptom of some other problem? (Do ask the dept chair "why")
    "Because instructors want to hire don't accept our offers early enough"
  % Is that just a symptom of some other problem? (Do ask the dept chair "why")
    "Because some other universities seem to wait for ages before making offers"
  % Is that just a symptom of some other problem? (Do ask the dept chair "why")
    "Because we never know who's available to teach until the last minute"
  % Is that just a symptom of some other problem? (Do ask the dept chair "why")
    "Because instructors want to hire don't accept our offers early enough"
  % Is that just a symptom of some other problem? (Do ask the dept chair "why")

Scoping decision II

→ Decide the scope of the solution
  % Say you decided that delay in processing booklists from instructors is the right level of problem to tackle.
    ➔ "So, let's computerize the submission of textbook forms from instructors"
  % But while we're at it:
    ➔ "I would help if we also computerized the submission of orders to the publishers"
    ➔ "And of course:
      ➔ "we ought to computerize the management of book inventories too, so we can quickly check stock levels before ordering new books"
    ➔ "And in that case:
      ➔ "we might as well computerize the archives of past years booklists so that we can predict demand better"
    ➔ "And therefore:
      ➔ "It would also make sense to provide a computerized used book exchange, because that has a big effect on demand for new books"
  % And then of course there's... oh, wait, this is going to cost millions!
    ➔ Bookstores manager: "Tell me again how this automated used book exchange will help me order books faster?"
How to scope the solution

→ Difficulty:
  ½ We could keep on throwing more technology at the problem forever
  ½ It’s hard to decide when to stop adding extra “bells and whistles”

→ Approach (select among alternatives carefully...)
  ½ Is there a reasonable expectation that this alternative can be implemented?
    (independently of all the other options?)
  ½ Is there a reasonable expectation that implementing this alternative will
    (help to) solve the original problem?
    (without also having to address other aspects of the problem?)
  ½ Is this a solution that the stakeholders can live with?
    (do the “local experts” think they would use all these functions?)
  ½ Is this a solution that someone will pay you to build?
    (Hint: a feasibility study should quantify the return on investment for each
     alternative)

Analysis

→ What are the problems?

→ What are the alternatives?

→ What are the selection criteria?

→ What recommendation would you make?

Example: A Hotel Checkout System

→ Current system:
  ½ The customer’s account is updated twice a day with charges including:
    ➢ room charge per day,
    ➢ room service charges (for such things as snacks delivered to one’s room)
    ➢ room movie charges (if the customer uses the room’s pay-TV)
    ➢ restaurant charges (if the customer dines in the hotel’s restaurant and charges
      the bill to her room)
  ½ When the customer leaves she is supposed to mention any recent charges,
    which are then added to the bill and the bill is paid in full.

→ Hotel management want to change it because:
  ½ there are often billing errors, such as:
    ➢ customers leaving without paying some charges;
    ➢ sometimes customers are double-billed because they declare a certain charge,
      for which they have already been billed.
  ½ management expects business to grow
    ➢ a major extension to the hotel is being built
    ➢ manual updates of customer records will become problematic
  ½ so they’d like continuous on-line updates of customer accounts from:
    ➢ the hotel catering service (responsible for room service)
    ➢ the pay-TV system (charge a customer as soon as she starts viewing a movie)
    ➢ and the hotel restaurant (assume there is only one).

Computer Books by Mail (CPM)

→ Current situation
  ½ Established 12 years ago, CPM’s business has been to act as book-jobber:
    ➢ receiving orders from librarians for books about computers
    ➢ ordering the books from the appropriate publisher, at a discount
    ➢ filling the order on receipt of the books from the publisher.
  ½ Invoices are produced by a service bureau computer from forms filled out
    by CBM staff.
  ½ Business currently running at about 100 invoices per day
    ➢ each with average of 4 book titles and average value per invoice of $150.

→ CBM Corp., recently acquired by a holding corporation
  ½ New management plans to expand the operation considerably:
    ➢ improving service levels by holding stocks of the 100 most frequently ordered
      book titles
    ➢ allow all professionals (not only librarians) to order by calling a toll-free number:
      1-800-372-6657 (800-CP-BOOKS, of course) as well as by mail, as at present.
  ½ This will mean some new functions will be needed:
    ➢ credit checking
    ➢ an inventory control system of some sort
    ➢ rapid access to a catalog of books for phone sales stuff to verify authors and
      titles and to be able to advise callers what books are available on any given topic.
Analysis

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