VI. Scoping

Scoping the Problem and the Solution
Choosing Among Alternatives

Example: The Hotel Checkout System
Example: The Computer Books By Mail Corporation

Business Process Reengineering

Two Scoping Steps

- Scope the problem
  - "Meeting scheduling is too costly right now" vs
  - "We need to improve productivity"

- Scope the solution
  - "Build a system that schedules meetings", vs
  - "Build a system that maintains people's calendars" vs ...

...And Two More Steps

- Choose a business process
  - "Ask the secretary, who handles the rest" vs
  - "Negotiate with participants meeting details."
- Choose among alternative computerized solutions, given a business process
  - "Computer generates schedule, given request details", vs
  - "Solution produced by secretary and computer"

Beware of the difference between problems and symptoms!

Scoping the Problem

For the 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?": "Because we don’t receive the booklists from instructors early enough"

Is that just a symptom of some other problem?…so ask the instructors "why?": "Because the instructors aren’t allocated to courses early enough"

Is that just a symptom of some other problem?…so ask the UG office "why?" "Because we never know who’s available to teach until the last minute"…more…

Scoping the Problem (cont’d)

- Is that just a symptom of some other problem? ...so 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?...so
  - Ask the dept chair "why?": "Because instructors we want to hire don’t accept our offers early enough"

- Is that just a symptom of some other problem?...so
  - Ask the new recruits "why?": "Because some other universities seem to wait for ages before making offers"
  - …more…

Scoping the Problem (cont’d)

- Is that just a symptom of some other problem?…so ask U of Waterloo, etc, "why?": "Because it takes our department a long time to reach consensus on hiring"

Is that just a… …oh wait… …maybe we can develop a decision support system for faculty hiring at U of Waterloo, and that will help us get our textbooks for the start of class…
Scoping the Solution

Say you decided that delay in processing booklists from instructors is the right level of problem to tackle. “So, let’s computerize submission of textbook forms from instructors.”

But while we’re at it, “it 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 year booklists so that we can predict demand better.”

Choosing Among Alternative Business Processes

What is the space of alternatives we are choosing from? There are two dimensions along which we have choices.

The first (and most important) is between different business processes, i.e., between different ways of accomplishing the same task, e.g., handling an invoice, handling a loan application, handling an insurance claim,...

The second is between different levels of computerization.

Consider the purchasing department of a university:

- Current process: If someone wants to buy equipment, she requests a purchase order from the purchase order department, purchases order is issued, vendor sends equipment to purchase order department, is paid and equipment is shipped to researcher.

- Alternative process: Researcher’s department issues purchase order, gets equipment, charges researcher’s budget.

There are clearly other alternatives as well...
The Computer Books By Mail Corp.

The new management plans to expand the operation considerably, improving service levels by holding stocks of the 100 most frequently ordered book titles and making it possible for all professionals (not only librarians) to order by calling a toll-free number, 1-800-372-6657 (800-DP-BOOKS, of course) as well as by mail, as at present. This will create problems of credit checking and create the need for an inventory control system of some sort. The people who take the orders over the phone will need rapid access to a catalog of books to verify authors and titles and to be able to advise callers what books are available on any given topic.

The volume of transactions on the new system will, of course, depend on the acceptance of this new method of ordering, but it is projected to grow to 1,000 invoices per day or more, though with a lower average of books per invoice (since librarians tend to order more books at a time than professionals).

Alternative Scopes

- Computerize the order verification process.
- Computerize accounts receivable.
- Integrate order verification, requisitions and accounts receivable.
- Of course, each one of these alternatives will have different budget and project-length implications.

Business Process Reengineering

- Requirements analysis may require changes in business processes, hence business process re-engineering (BPR).
- BPR calls for a drastic, global restructuring of an organization which eliminates boundary lines between departments and makes the organization focus on the global business processes that define its business.
- For an insurance company, these business processes might be: sellInsurancePolicy, processRenewal, handleInsuranceClaim.
- For a telephone company the business processes might include: sellSubscription, processMonthlyPayment, handleServiceCall, handle-Problem.

Breaking Local Boundaries

- "Conventional" work structure tries to divide up tasks into ever smaller subtasks which are assigned to departments, teams or individuals.
- BPR proposes work teams which collectively take responsibility for a business process and carry it out from start to finish.
- For example, the conventional way of handling insurance claims might be to give each claim to an assessor, who checks it out and passes it on to a lawyer, who makes his recommendation and passes it on to the finance department, etc.
**The BPR Way**

- The BPR way, has a team of people handle all aspects of an insurance claim and process it from start to end.
- Often, this restructuring reduces wasteful paper shuffling, replaces it with (computerized) information handling.
- The members of a team can now identify with each case they handle, get credit/blame for the handling.

**BPR got much publicity in the ‘90s**

(...first good, then bad!)

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**Additional Readings**
