The CEO Questions

- How much should we be spending on IS?
- What ROI should we accept for IT projects?
- How do we measure the value of IS?
- Are we getting value from our Investment in IS?

Questions about the Questions

- Is there such a thing as an IT project?
  - A: no, except for infrastructure
- Who should answer the questions?
  - A: not the CIO
- Are firms in the business of securing an ROI in IT?
  - A: no; firms use IT to enable the processes which are the manifestation of their strategies.
- Why use capital investment techniques, when capital is often the smallest part of the costs?
  - A: because ROI is what CFO's know
- When will the ROI questions stop?
  - A: when there's something better

The ROI Question

"What is our ROI in IT?," asks the CEO of the CIO.

The CIO options include:

- Lying - "It's 12%"
- Diverting - "good question, let's get the guy who did the ROI for the corporate jet in on this"
- Technobabbling - "Well, we measure function points per fortnight"
- Last resort - reason, but it's probably too late for that.

System Dynamics-Based Simulation vs. ROI

- Major electronics company.
- Central IS undertook major project to install CAD, CAM, KBE etc., in the engineering departments of their many lines of business.
- Encountered resistance on roll out.
- Sponsored authors to "develop a general method of demonstrating the value of the engineering ITs (the BITs)."
- Based on attitudes expressed in prior slides, a System Dynamics approach was proposed to demonstrate:
  - specific effect of BITs on the engineering operations,
  - effect of the changes in operations on sales and income,
  - effect of changed operations on the business in general.

A Project to Introduce IT to Engineering Development
Main Process

- A Quote which is accepted leads to a major development project.
- Development Phase is followed by long Introduction Phase.
- Whole process duplicated for modifications to existing product.

Dynamics of the Quote Preparation Phase

- Another quote starts when one is completed.
- Quote Preparation and the other major phases have ~10 subprocesses affected by one or more EITs.
- The main effect of the EITs is to reduce the duration of the subprocesses that aggregate to Quote Time.
- Quote Time is calculated in the IT Plans sector.
- "Reservoir" form of levels (stocks) allows for analytical setting of initial values (no equilibration period).

Two Phases

- The capacity devoted by reduced process times is used to generate more quotes and undertake more development projects - more realistic than assuming headcount will be reduced.
- Model assumes the firm will respond to RFQ's that it now ignores.
- At this point, accept%, success% and new RFQs are independent variables.

An IT Plan (schedule) - 1 of 4 phases*, 1 of 6 EITs**

- In the full model, the schedule for each of 6 EITs in each of 4 phases (Quoting, Development, Introduction and Modification) can be independently varied.
- I.e., CAD(Quote) % Enabled and CAD(Development) % Enabled are independent.
- For realistic combinations of schedules the impact on the durations of the 4 phases was calculated (off-line) and the resultant scenarios evaluated.
- This allowed examination of the questions:
  - "Where should we start?"
  - "How much better is half-a-loaf than no bread?"

Scheduling the Introduction of One Technology

- Key input is the CAD Start up Plan - e.g. users per week for weeks 26 to 78.
- Use of Maximum CAD Users provides a measure of the progress of the project - CAD % Enabled. This in turn leads to demonstrating the benefits of the project as it progresses.

Scenarios

- In the full model, the schedule for each of 6 EITs in each of 4 phases (Quoting, Development, Introduction and Modification) can be independently varied.
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  - "Where should we start?"
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The IT Plan and Its Cost

- Above structure replicated for each technology, and all the Weekly Costs are summed to give IT (weekly) Costs.
- In the full model, the shown costs are supplemented with one-time site hardware costs, new and upgraded workstation costs and maintenance costs, all according to explicit schedules.
- The users per seat and users per license connect proposed working arrangements with the IT costs.

Sales and Finance

- Initial value of new product flow stored for pre IT rate.
- Cash used as the Balance Sheet entity

Adding the Dependencies

Financial Outcome

- RFQs
- Quote Prep
- Devel Backlog
- Development

- In the true spirit of System Dynamics, the new linkages would be through a level of Customer Expectation, determined by the current performance parameters, suitably delayed and relative to the competition.

Looking Back

- This project was sponsored even though at least 2 major ROI studies had shown favorable return for the project. They lacked credibility, and in them:
  - Savings came from reduction in labor hours, but headcount was not really expected to be reduced.
  - The Gantt charts used to derive new Time to Market were neither correlated with specific ETIs, nor able to show benefits as the project progressed.
- System Dynamics approach forced explicit attention on business/market assumptions.
- Approach well received by firm. Being deployed within firm.
- As the firm embraces simulation, it is willing to incorporate more systems thinking into the model.

Biographies

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