CAPE for BPR

by

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First in a series of articles discussing the many roles for Computer-Aided Parametric Estimating (CAPE) in Business Process Reengineering (BPR)

Business Process Reengineering (BPR) is the reengineering of an organization by examining existing processes and then revamping and revising them for incremental improvement. BPR finds ways for organizations to *do more with less*. When asked for a quick definition of BPR, authors of Reengineering the Corporation Michael Hammer and James Champy, say that it means *"starting over"*. Today's competitive business environment demands that every organization actively pursue BPR to maintain profits and grow. Michael Hammer estimates that American companies will spend $32 billion on BPR this year.

Management Consulting firms that specialize in BPR are doing a brisk business mentoring Fortune 500 companies in the BPR process. Dr. H. James Harrington, a Principal at Ernst and Young, defines a step-by-step approach to BPR:

Phase 1 Organize for improvement, including BPR education and communication, defining critical major processes, selecting process owners, defining preliminary boundaries, forming and training the process improvement team, boxing in the process, establishing measurements and goals, and developing the project and change management plan.

Phase 2 Develop an understanding of the process, including flowcharting the process, preparing the simulation model, conducting a process walk-through, performing process cost and cycle time analysis, and implementing quick fixes.

Phase 3 Streamline the process, including redesigning the process, reengineering the process, benchmarking the process, analyzing improvement costs and risks, and selecting the preferred process.

Phase 4 Model, implement, measure, and control, including developing the implementation plan, installing the new process, and installing in-process measurements and feedback systems.

Phase 5 Design and implement continuous improvement, including qualification of the process and ongoing improvements.

CAPE tools, like the PRICE models, are critical to BPR on two levels. On the first level, CAPE tools can improve and streamline the BPR phases -- essentially *reengineering* the BPR process. Process modeling, cost and schedule estimates, risk assessment, productivity benchmarking and process improvement benchmarks are inherent to BPR. Specifically, CAPE models can be used during each BPR phase:

Phase 1 Rank candidate processes for improvement by estimating return on investment and risks.
Phase 2 Establish productivity measurement benchmarks to determine "best practices", identify "centers of excellence", and set improvement goals.
Phase 3 Model, measure, and control the process.
Phases 4 & 5 Continuously benchmark improvement.

On the second level, CAPE technology is the "best practice" for estimating. CAPE brings speed, accuracy and flexibility to estimating and risk assessment, processes often bogged down in bureaucracy and unnecessary detail. CAPE technology can streamline many business processes:

1. Bid/No-Bid decision making

2. New business venture analysis
3. Cost/performance tradeoffs during design-to-cost
4. Vendor source selection and negotiation
5. Proposal pricing
6. Project status review and estimate to complete
7. Level of repair analysis
8. Hardware and software valuation for financial analysis

Experience shows that speed and accuracy improvements in the processes listed above dramatically improve profits and ultimately help businesses grow and be successful.

This is the first in a series of PRICE Newsletter articles addressing the utility of CAPE in BPR. This first article will discuss the role of CAPE during BPR Phase 1: Rank candidate processes for improvement by estimating return on investment and risks.

The criteria used for ranking candidate processes for reengineering typically includes return on investment (ROI) analysis. A key element of any process improvement plan is the role of information technology. When a BPR initiative revises the model of how an organization should perform, information systems teams are often severely challenged. The IS organization must support existing enterprise information needs while revamping the information systems and technology to support the emerging business model. Life-cycle costs for new enterprise information systems, and the associated risks, are often the major contributor to BPR investment analysis.

Let's assume that during an organization's BPR Phase 1, several major processes are identified for improvement (e.g., time and record keeping, inventory control, business expense reporting and reimbursement, proposal pricing, etc.)

Improvement plans for each process involve revamping the associated information systems. Determination of "Investment" during the ROI analysis requires credible cost estimates. However, most information managers are helpless when asked to estimate software life-cycle costs.

CAPE tools provide a solution. PRICE S streamlines software investment estimates and risk assessment. Figure 1 shows the investment analysis flow and the role of PRICE S. The speed and accuracy of estimating with PRICE S allows time to analyze many conceptual improvement alternatives for each process. After reengineering designs are determined for each process, risk assessment using PRICE S's uncertainty and risk analysis utilities is performed. Figure 2 shows the results of software life-cycle investment risk analysis from PRICE S. This analysis, along with estimates for hardware costs and "Return", are used to rank and select a process for improvement.

Look in the next issue of the PRICE Newsletter for more information on streamlining Business Process Reengineering with the incorporation of the CAPE tools.

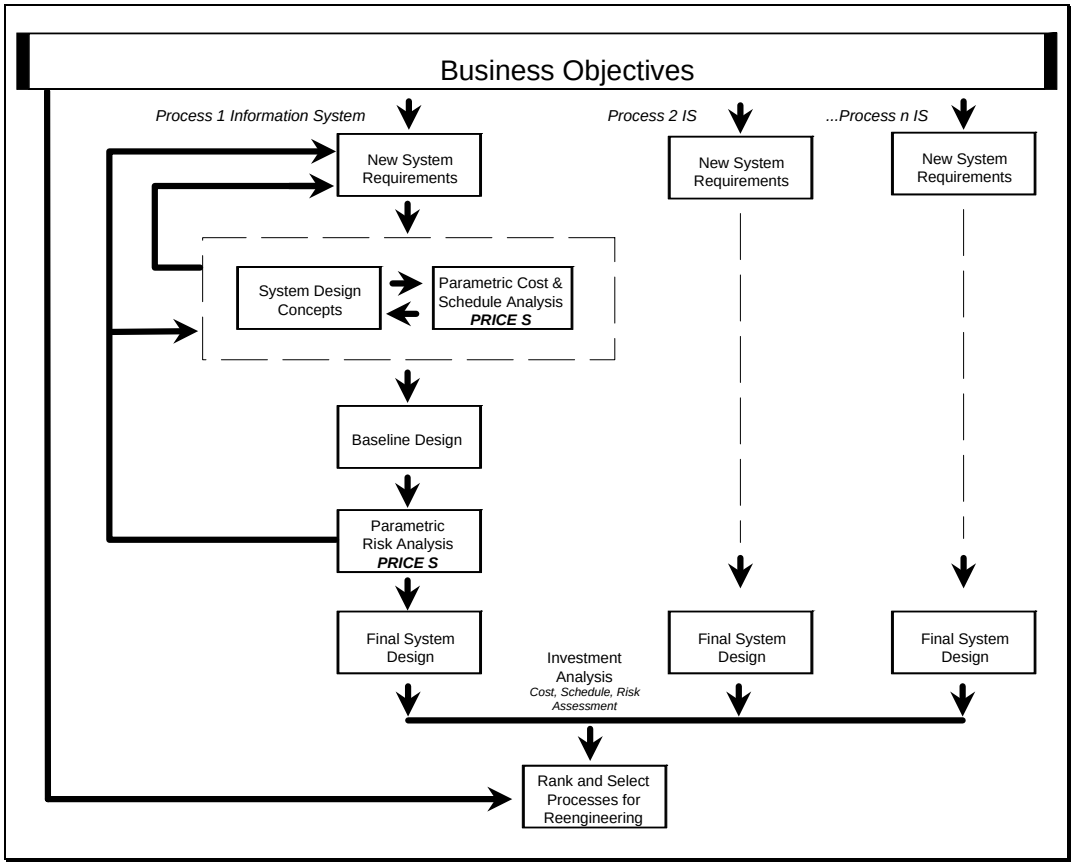
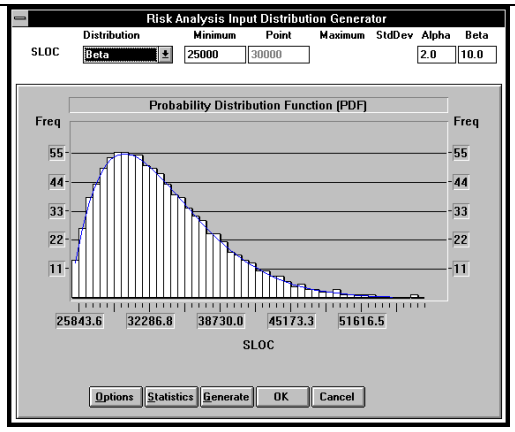
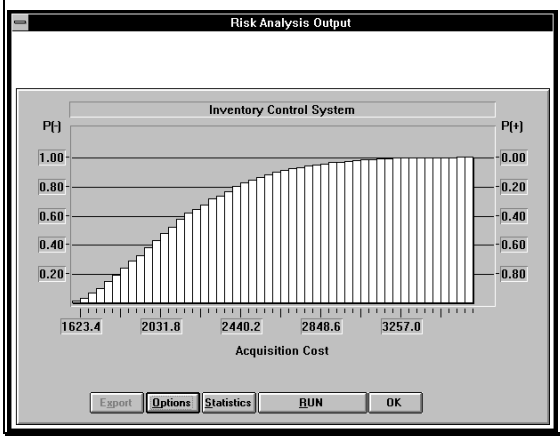


Figure 1: *BPR often demands revamping enterprise information systems to support process improvement. The flowchart shows the role of PRICE S in determining IS design, life-cycle investment costs, and risk.*

PRICE S translates uncertainty in the size of a new Inventory Control System to software life-cycle cost and schedule risk. The 50% confidence level estimate ($2.098M) is most often used as a point estimate for a project.



However, prudent information systems managers typically budget to the 90% level ($2.658M). Since projects differ tremendously in uncertainty, it is wise to rank and select software investment costs by their 90% confidence level estimates versus their point estimates.



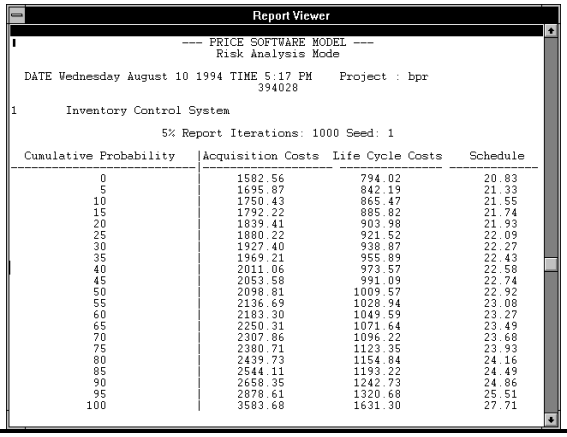


Figure 2: *PRICE S Risk Analysis*