The AFCMD Software Estimating Project and
REVIC Estimating - S/W Management Model

The Air Force Contracts Management Division is presently utilizing a COCOMO based Software Estimating Model for evaluating proposals. The model which is called REVIC has been calibrated to recent data (Dod Ground based C3I) from a West Coast defense contractor. In addition REVIC (Ray's Enhanced Version in COCOMO) includes features designed to support negotiations based on the needs of Air Force pricing personnel. REVIC automatically determines whether your schedule is shorter or longer than the optimum and adjusts the cost model accordingly. Schedules below Putnam's minimum allowable are also identified.

REVIC is easy to use and runs on both the IBM PC (or clones) and the Macintosh.

Presently the AFCMD is gathering data to populate a software estimating data base and calibrate REVIC (and/or other models) to Avionic, Manned Space, and other environments. To accomplish this we are gathering calibration data, primarily from Defense Contractors.

Revic is probably the best value in town particularly when you consider its price. It is free to Dod Agencies and Defense Contractors. The only stipulations are: it can not be used for commercial purposes or sold. We also ask that you share your successes, suggestions for improvements, and your historical data with us so that the model can be continually improved and will continue to reflect recent software projects.

Presently we would appreciate additional data on Mil-Std 2167 and Ada projects.

If you are interested in obtaining a copy of REVIC please write us at: AFPRO Martin-Marietta
Detachment 10
P O Box 179
Denver, CO 80210

Please include a blank disk.

Thank you,

Lowell Simona and Maj Ray Kile
and the other project participants
COST ESTIMATING LIFE CYCLE

1. PROGRAM INPUTS (LOC, factors, etc.)
2. PARAMETRIC ESTIMATES (EFFORT, SCHEDULE)
3. PROJECT ACTUALS (EFFORT SCHEDULE)

DATA BASE MANAGEMENT SYSTEM
(WERLING'S PROTOTYPE)

THE DATA BASE
(WERLING'S PROTOTYPE)

Make Cost Estimating Relations file
(REVIC1.BAS)

Estimating Model
(REVIC.BAS)

Cost Estimating Relations File
(REVIC.DAT)

Performance Evaluation Program

Reports
Graphs

Regression Analysis Program(s)

Reports
Graphs

New Cost Estimating Relationships (CER)
(coefficients, tables, etc.)

Put new CERs into estimating model

Program Reports

Now Costs

Yearly Estimating

Relational (CER)

Effort factor, etc.)

Current Estimate

Project Specific Data File

Program Reports
Managers have been accused of conjuring up software development cost estimates via a number of state-of-the-art methods such as voodoo, Ouija boards and tarot cards. No doubt these accusations resulted from the lack of reality reflected in the numbers. In truth, managers have actually had very little else to help determine resource needs. Now there is an alternative to the supernatural—CoCoPro™.

**Function:**
Based upon Barry Boehm's constructive cost modeling method, CoCoPro estimates resources needed to complete a software development project. The program uses exponential functions and attributes to calculate development costs. The former provide the basic formulae, the latter furnish the modifiers—parameter settings pertinent to a specific project. These modifiers cover personnel experience and capabilities, project complexity, product factors and hardware limitations.

To compute costs, the user enters salary/overhead costs and code length information into the system, selects attribute and model levels and CoCoPro provides the calculations.

**Inputs:**
- Personnel cost per month
- Code length
- Attribute levels
- Model selection

**Outputs:**
- Cost per code line and entire project
- Development time
- Time distribution over project phases

**Features:**
CoCoPro computes an accurate picture of the resources needed to complete a software project. Features include:
- 15 attributes that provide the basis for resource projections
- History and driver files form past project data base which CoCoPro uses to tailor estimates to user environment
- Project costs, development time, manpower and time distribution over phases is provided
- Constant and exponential values for organic, embedded and semidetached models can be user modified

**Benefits:**
- Automates the cost estimation process
- Provides method for conducting trade-off studies
- Factors in past user performance for greater accuracy
- Revises estimates quickly and easily
The program's 15 attributes contribute to CoCoPro's accuracy.

CoCoPro calculates project costs, manpower requirements, and development time.

CoCoPro is a trademark of TGL Software Group.

---

**COMPONENT NAME:** 2 way ASCII Bridge

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Low</th>
<th>Nom</th>
<th>Hi</th>
<th>Kthroi</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELY</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>DATA</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>CPLX</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TIME</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>STOR</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>VTAT</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TURM</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>RQLY</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Ulow</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Low Nom Hi Uhi Kthroi</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

- **KDSI:** 10.000
- **COST/MM ($):** 4000.00
- **COST/LINE($) :** 9.77
- **PROJECT:**
  - **RRF:** 100.00
  - **KEDSI:** 100.00
  - **MAN MONTHS:** 24.44
  - **TIME TO DEV.:** 8.42
  - **PRODUCTIVITY:** 409.22
  - **AVG. F.S.P.:** 2.90
  - **PEAK F.S.P.:** 3.52

OK