ESCOMO

SELENA D. REECE AND MAUREEN J. KUTZIK

NAVAL UNDERWATER SYSTEMS CENTER
MORE EFFECTIVE AND EFFICIENT USE OF A HUMAN

DISSEMINATION OF EXPERTISE

EXPERTISE IS PLACED IN A SHARED DATABASE WHICH ALLOWS FOR STUDY OF CONSISTENCY AND RELIABILITY

NEW KNOWLEDGE CAN BE DERIVED FROM THE SYNERGISM OF MANY EXPERTS
EXPERT SYSTEM APPROACH

- MODELS THE EXPERT'S PROBLEM SOLVING PROCESS
  - APPROACH
  - ACTIONS
  - JUDGEMENTS

- PROTOTYPE DEVELOPMENT METHODOLOGY
  - SUSTAINED KNOWLEDGE ENGINEER/EXPERT INTERACTION
  - INCREMENTAL SYSTEM DEVELOPMENT
CONVENTIONAL COCOMO

- Requires expertise on the part of the user to select mode and cost driver attributes
- System gives no feel for the accuracy and applicability of output
- System gives no guidance on which cost driver attributes could realistically be modified to produce a feasible schedule and effort
- System provides no validity check of user inputs

EXPERT SYSTEM COCOMO

- System could aid in the estimation of cost driver attributes
- System could criticize COCOMO estimates when appropriate
- System could assist in translating goals into conditions
- System could perform consistency checking to detect input conflicts
RESOURCES:

- **VAX**

- **Ada** - FOR THE ALGORITHMIC

- **PROLOG** - FOR THE EXPERT SYSTEM PORTION

* *Ada is the registered trademark of the Ada Joint Program Office in the Department of Defense*
indicates path for writing into the mailbox
indicates communication path with the shared text file

"pasgo"

"adago"
GUIDANCE ON SETTING PCAP

Please enter a rating for the effective programming ability of your programming team.

\[\text{i: help.}\]

The purpose of this rating is to specify the combined ability of the entire programming team. The evaluation should not consider level of experience of the programmers; experience effects are covered by other factors. The following illustrates how to make this judgement:

Analysis of your team indicates an average team with one exceptional programmer. Based on this analysis a rating of "high" is selected because an exceptional programmer can address the more difficult programming issues and offer guidance to the rest of the team.

Please enter a rating for the effective programming ability of your programming team.

\[\text{i: high.}\]

Please enter a rating for the efficiency and thoroughness of the team.

\[\text{i: high.}\]

Please enter a rating for the ability of your team to communicate and cooperate.

\[\text{i: low.}\]

Based on your answers PCAP will be set to nominal.
ESCOMO'S PAYOFFS

AID IN ESTIMATION OF COST DRIVER ATTRIBUTES

PERFORM CONSISTENCY CHECKING TO DETECT INPUT CONFLICTS
The setting(s) of RELY = h and CPLX = h are inconsistent with your previous inputs of:

- MODE : organic
- ACAP : l
- VEXP : l

Organic mode projects tend to have a minimal need for innovative data processing architectures and algorithms (a low complexity) and a basic requirement for software conformance with pre-established requirements and/or external interface specifications (a nominal reliability). You should consider changing the mode of development or the settings for rely and cplx.