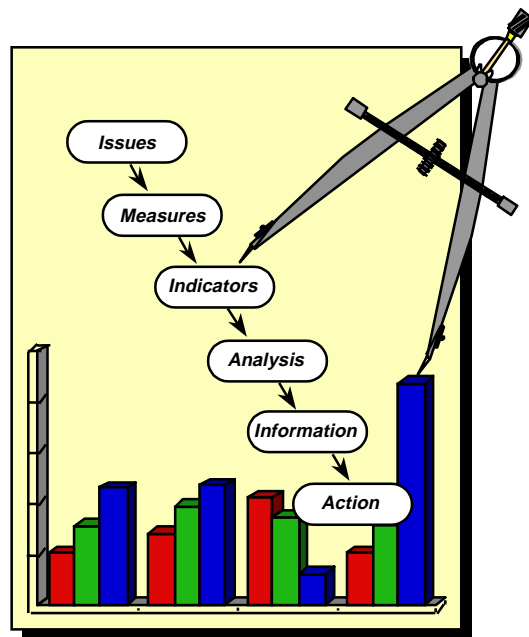


# ***Practical Software Measurement***

***A guide to objective program insight***



## ***Software Product Engineering Measurement***

***July 24, 1997***

***Joint Logistics Commanders  
Joint Group on Systems Engineering***

***Office of the Under Secretary of Defense  
Acquisition and Technology***

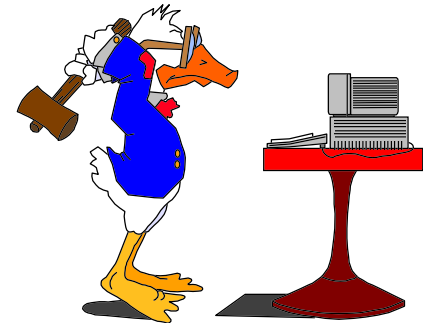
## Workshop Participants

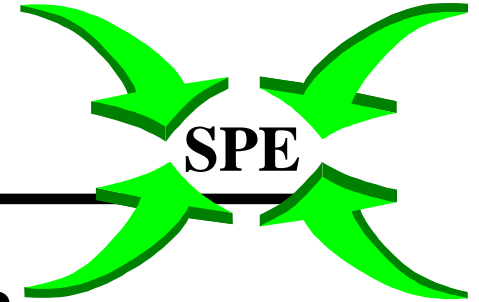
- ***Sean Arthur***
- ***Ed Dudash***
- ***Ken Kelly***
- ***Linda Rosenberg***
- ***Jeff Antoniewski***
- ***Marie White***
- ***James Schottenloher***
- ***Robert Vienneau***
- ***Michael Roberts***
- ***Forrest Brown***
- ***Robert Laws***
- ***Wendell Mullison***
- ***Bonnie Bollinger***
- ***Lynn Knight***
- ***Dick Newhall***



## ***Restatement of Objectives***

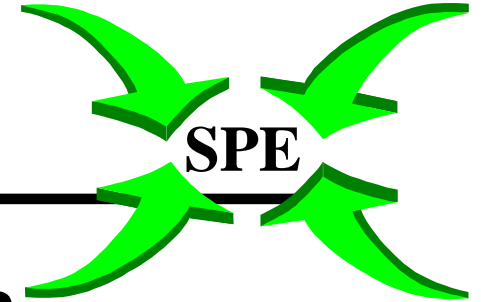
- ***Identify key SPE issues and customer needs***
  - ***Context Issues***
  - ***Measurement Issues***
- ***Formulate Requirements for SPE effort***
- ***Identify SPE product(s)***





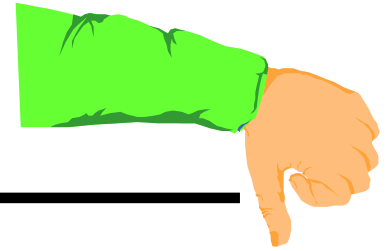
## ***SPE “Context” Issues***

- ***Assessing the accuracy with which user expectations are captured***
- ***Impact of life cycle***
- ***Standards (internal/external)***
  - ***Adhering to***
  - ***Capturing intent***
  - ***Establishing adequacy ?***
- ***Providing guidance for interpreting measures***



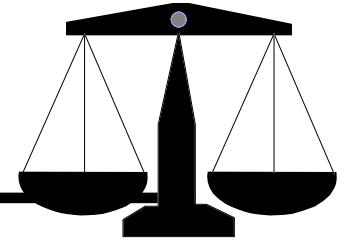
## ***SPE “Context” Issues***

- ***Interface: Human, System (HW/SW)***
  - *Quality & Functionality*
- ***Functionality & Quality Focus***
- ***Process and Product artifacts***
- ***Customer Categories***
- ***Measuring Internal & External Quality***
  - *Quality attributes of the product*
  - *Quality attributes of use*



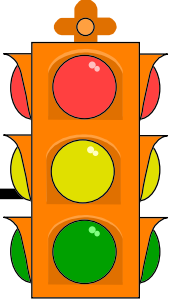
## ***SPE “Context” Issues***

- ***Judged inappropriate***
  - ***Facilitating communication***
    - ***PM issue***
  - ***Establishing effectiveness of SPE measurement process***
    - ***Process issue***
  - ***Improving Product Engineering process***
    - ***Process Issue***
  - ***Cost & Schedule***
    - ***PM Issue***



## ***SPE “Measurement” Issues***

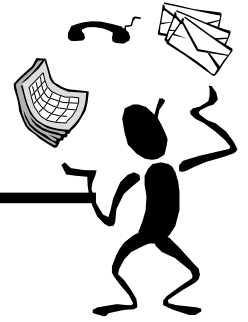
- ***User expectations as related to functionality***
- ***Changes in quality - both positive and negative***
- ***Operator usability quantification via development measures***
- ***Group current issues and abstract to higher level***



# ***SPE “Measurement” Requirements***

- ***Guidance on defect classification and definition.***
- ***Discussion on the use of product measures to determine when products are ready for release. (intermediate & final)***
- ***Development measures can be used to support maintenance issues (fnctlty/quality)***





## ***SPE “Measurement” : Other Considerations***

- ***Measures should work in any environment***
- ***Acquisition may be another category for customer***
- ***Investigate IEEE & ISO Software Quality Stds***
- ***Relationship of formal SW inspection data to SPE***
- ***Process adherence impacts product quality***
- ***Products can include training manuals***

# ***Conclusions And Recommendations***

- ***The SPE measurement effort will assess the impact and incorporate the findings relative to the above identified:***
  - ***“Context” issues***
  - ***“Measurement” issues***
  - ***“Measurement” requirements***



## ***Next Steps - Action Items***

- ***Survey analysis***
- ***SPE Planning Group consider workshop results (7/29)***
- ***Issues and Requirements***
- ***Products of SPE Effort***
- ***Strategic plan***

