Using Function Point Analysis for Project Tracking and Earned Value Analysis

Steve Keim
s.keim@davidconsultinggroup.com
September 18, 2008

The David Consulting Group
Achieving Software Excellence

www.davidconsultinggroup.com

Copyright © 2008. David Consulting Group

Project Management Challenge

- Accurately reflect the progress of a software development project

Copyright © 2008. David Consulting Group

Step 1 – Identify Project Phases

- Typical Phases:
  - Proposal
- Following SDM – Phases are Identified
  - Analysis
  - Business Requirements
  - Technical Requirements
  - Construction
  - Integration Testing
  - User Acceptance Testing

Copyright © 2008. David Consulting Group

Step 2 – Allocate Effort by Phase

- Use historical data in your organization to determine the percentage of effort allocated to each of the identified Phases
- If you do not have historical data, use industry standards

Copyright © 2008. David Consulting Group

Step 3 – Identify any sub-tasks

- Identify any tasks within the phases that need to be discreetly reported
  - Develop UAT test cases
  - Develop User Manual
  - Develop User Training

Copyright © 2008. David Consulting Group

Step 4 – Allocate Percentages to Tasks

- Based on past organizational data, determine the percentage of each phase allocated to that task based on effort data
- Where the percentages for the tasks do not add to 100% for a particular phase, use a generic entry to represent the remainder of the tasks within the phase.

Copyright © 2008. David Consulting Group

Step 4 – Identify Project Elements

- Perform a function point count for the project
  - The function point count lists each of the work elements to be managed in the project schedule

Copyright © 2008. David Consulting Group

Basis for Project Tracking

- There is a breakdown of Phases for the Project with percentage allocation of effort by Phase
- There is a breakdown of discrete Tasks within each Phase with percentage allocation of effort by Task
- The function point count provides a breakdown of all of the elements that need to be addressed for each phase and/or task

Copyright © 2008. David Consulting Group

Determining Project Progress

- For each element (function) of the Function Point Count, determine what phases are complete
- Each phase is a percentage of the overall project
- Apply the percentage for the completion of the corresponding phase for the function against the number of function points for that function to determine the contribution of that function to the overall project completion

Copyright © 2008. David Consulting Group

Determining Project Progress

- Sum the total and apply it against the total functional size to determine the project progress as a percentage
- Project Progress = Sum (Progress of function * size of function) / Overall Project Size
- (Easier to do with a spreadsheet)

Copyright © 2008. David Consulting Group

Earned Value

- The software development portion of a project is assigned a dollar value
- The Earned Value is the dollar amount attributable to the completed activities for the project
- Earned Value = % Project Progress * Project Total Value

Copyright © 2008. David Consulting Group

Project Plan

- Setting up your project plan correctly means having projected completion dates established for each part of your work breakdown structure (functions by phase)
- Planned Value can be determined using the same approach as earned value – and associated to the dates on the plan.

Copyright © 2008. David Consulting Group

Project Progress Reported by Earned Value vs Planned Value

- Based on the Project Plan, the Planned Value can be computed for each review point
- If the Earned Value at a point in time is greater than the Planned Value, then more work has been accomplished than planned – The project is ahead of schedule
- If the Earned Value at a point in time is less than the Planned Value, then less work has been accomplished than planned – The project is behind schedule

Copyright © 2008. David Consulting Group

Project Budget Reported by Earned Value vs Actual Costs

- Earned Value can also be compared to the Actual Costs of the project at any point in time.
- If the Earned Value is greater than the Actual Cost, the project is under budget for that point in time.
- If the Earned Value is less than the Actual Cost, the project is over budget for that point in time.

Copyright © 2008. David Consulting Group

Change Management

- Proper Project Change Control is accomplished by adding elements to the Work Breakdown Structure / Functions in the function point count
- Automatically adjusts progress and Earned Value
- Project value should change with good Scope Control

Copyright © 2008. David Consulting Group

Questions

Copyright © 2008. David Consulting Group

Bibliography

- http://en.wikipedia.org/wiki/Earned_value_management
- Defense Systems Management College (1997). *Earned Value Management Textbook, Chapter 2*. Defense Systems Management College, EVM Dept., 9820 Belvoir Road, Fort Belvoir, VA 22060-5565.
- Fleming, Quentin; Joel Koppelman (2005). *Earned Value Project Management*, Third Edition, Project Management Institute. ISBN 1-930699-89-1.
- Marshall, Robert A. (2006-11-09). The contribution of earned value management to project success on contracted efforts: A quantitative statistics approach within the population of experienced practitioners. PMI (www.pmi.org).
- (1998) *ANSI EIA-748A Standard*, June1998, Electronic Industries Alliance.
- Sumara, Jim; John Goodpasture (1997-09-29). Earned Value -- The Next Generation -- A Practical Application for Commercial Projects.
- Goodpasture, John C. (2004). *Quantitative Methods in Project Management*. J. Ross Publishing, pp. 173-178. ISBN 1-932159-15-0.
- Sulaiman, Tamara (2007-01-08). AgileEVM -- Earned Value Management The Agile Way. Agile Journal.

Copyright © 2008. David Consulting Group