Proposed Organizational Measures for PSM

The concept of organizational measures is to define measures that can be used by the organization to measure organizational processes and to track progress against process goals and process improvement initiatives. A second priority is to bridge the measurement gap between enterprise level managers and the projects. Enterprise level measurement needs are typically defined around the Balanced Scorecard and are driven downward through the organizational levels to the projects While the Balanced Scorecard is an excellent tool for the higher levels of management; it is not designed to assist in developing base measures. Somewhere in the middle of the organization, the Balanced Scorecard performs a handoff to PSM in order to specify project and base measures. We see that handoff at the organizational level.

The major headings and subheadings for the following list of proposed measures are consistent with the format of the Balanced Scorecard.

The individual measures in the list are provided to assist in placing the headings in context and are intended to show some of the lower level data that are necessary to construct and/or support some of the higher order indicators. They are also intended to structure the data to provide a cost based approach to decision making; to support long-term strategies, to justify and prioritize improvement initiatives and acquisitions, and to compete effectively for scarce corporate funding.

Many of the measures are still at the conceptual level and will be further refined in the white paper and at the next technical working group.

Baselines are not identified in the list below. The organizational measurement white paper will discuss recommendations for baselines.

Financial Measures

In keeping with the recommendation to develop a cost-based culture, the recommended financial measures are presented in each of the general categories below. Many of the standard general ledger categories are not presented, in order to focus on areas that are more in line with the project and process improvement activities.

- Planned vs. Actual Budget
- Earned value management (SPI, CPI) – view of all current projects and historical trends
- Percentage of projects with identified financial benefits
- Yield of Planned vs. Actual benefits achieved for projects, acquisitions and initiatives
- Cost of Quality

- Cost of Rework
- Cost of licenses for development support tools (total and by tool)
- Cost/benefit of late/early delivery
- Planned/actual cost/benefits of technology acquisitions

Customer Satisfaction

Measured by overall satisfaction rating from periodic satisfaction surveys.

Customer satisfaction should be surveyed routinely over time, and should reflect current status of the customer view regarding the entire spectrum of applications and services provided. Survey data can be augmented by more proactive data derived from marketing staff, help desks, operations, and tracking defect data and service delivery status.

Production and Support Services

- Percent of service level agreements (SLAs) negotiated by organizational area
- Level of satisfaction by SLA category (Reported through surveys)
- Number and duration of production outages
- Mean time to failure for production outages
- Range and mean time to repair for production outages
- Cost to business for production outages (Direct cost, Client Cost)

Help desk

- Helpdesk calls (Total and by type)
- Average and range of calls per Help desk staff
- Percentage of calls stopped by help desk
- Range and median time to close help desk requests

Product Delivery

- Percent of required functionality delivered (average and range)
- On time delivery, number of days early/late
- Percent delivered within budget

Customer Satisfaction Survey results by category:

- Functionality
- Implementation
- Training

- Documentation
- Price
- Courtesy and knowledge of staff
- Ongoing support and maintenance
    - Field Service/Repair
    - Help Desk
    - Maintenance
- Reliability
- Performance
- Usability

Development Backlog

- Total backlog cost (estimated value of work waiting to be executed)
- Aged backlog - number of requests in backlog (30, 60, 90, >90 days)

Internal Process Measures

Productivity – Measured by total units produced /total effort

- Cost per project phase
- Units produced per phase
- Effort per phase by type (planners, SE, developers, designers, coders, testers, QA, CM, etc.)
- Rework as a percentage of total project effort
- COTS as a percentage of total size (COTS, GOTS, Reuse, NDI)

Quality – Measured by defects delivered per nominal project size/type

Defect data (D/D + E)

- Development defects by type and priority, including phase found and phase of injection (life cycle phase)
- Post-release defects by type and priority (30 days, 90 days, 180 days)
- Unplanned production outages (number and duration)

Inspections

- Percent of inspections by type (requirements, design, code, test case, documentation, etc.) (planned vs. actual)
- Number of defects found by inspection type (planned vs. actual)
- Inspection effort as a percentage of total effort (in staff hours)

Cycle Time – Average project length from initiation to first customer shipment, tracked over time for normalized projects (by project type)

- Normalized project length = [Project length in days]/[project size in units
- (Improvement ROI?) Opportunity Cost /Benefit = [Average days saved or overrun] x [Average daily project cost]

Asset/Portfolio Management

Infrastructure

- Cost of license fees per product
- Number of seat licenses per product
- Usage per seat per product (hours per month – average and range)
- Critical computer resources…

Portfolio Management

- Average cost and effort to repair legacy defects vs. newer architectures cost and effort for defects
- Average enhancement cost and effort of legacy systems vs. newer systems cost and effort for enhancements
- Planned/actual cost/benefits to replace vs. upgrade legacy systems
- Rate of implementation for legacy system replacement
- Aging life of existing platform
- Ability to hire programmers
- Cost/effort of service life extensions (emulation, etc.)
- Throughput of existing system compared to newer architecture

Implementation of process improvement and acquisition initiatives

- Cost and effort status for development of PI initiatives (Plan vs actual)
- Rate and percentage of deployment to all organizational areas (Plan vs Actual)
- Proportion of active projects using deployed processes (by process category)

- Cost of initiative (acquisition, development, deployment, training, usage)
- Expected vs. actual benefit from process deployment

Subcontract management

- Projects at risk
- Total second tier subcontractors per project [*should we keep this?*]
- Small business percentage goals (plan vs. actual)
- 'Bait and switch' by subcontractor
- Percent of subs by maturity level

Project performance

- Projects at Risk

Learning and Growth (Human Resource Measures)

Staffing

- Staff size and cost (actual vs. authorized, overall and by function i.e. software engineers, system engineers, etc.)
- Salary range per job category (current vs. market)

Skills, Experience and training (by role, job type, staff level and teams) [*Can we in fact measure teams?]*

- Skills needed for planned jobs vs. actual skills inventory (current and projected, technical and management)
- Needed skills training available via internal and external training
- Cost of training (current and projected)
- Effectiveness of delivered training (measured by follow-up surveys)
- Technical experience (average months per staff person by skill category)
- Number of staff with domain experience (by domain or line of business)
- < 2 years, 2-5 years, > 5 years
- Numbers eligible for retirement
- Single points of failure
- Age of staff (Median and range by type, level, domain, location)
- Training hours per staff member (plan vs. actual) by type

- Number and percent of functional areas with formal training program
- Number of advanced degrees
- Number of patents awarded
- Number of certifications by type (PMI, DAWIA, etc.)

Job satisfaction

- By survey category
- By job category, organization, location
- Status of current initiatives to address dissatisfaction
- Absenteeism
- Transfers out by reason type

Turnover and recruitment [Consider requested transfers within company]

- Turnover rate (Overall, by location, per job category)
- Turnover reason (by type, location and job category)
- Average time to replace (entry level, experienced level, job category, location)
- Recruitment cost (including moving, interviews, finders fees, advertising, college recruiting, etc.)
- Job offer acceptance rate
- New employee training cost (entry level, experienced level, job category, location)
- Effectiveness of recruitment strategies (internships, etc)
- Number of participants
- Percent of participants hired (offered, accepted)
- Dollars invested per hire (yearly expenditure / hire)

Contractor Usage (Supplemental staff)

- Contractor Engagement Duration and Cost by location and skill (number contractors <3 mos, 3-6 mos, 6-12 mos, 12-24 mos, >24 mos)
- Contractor % of staff by location and skill