Software Manager's Responsibilities

Job Description

The software manager has many activities that he/she must complete and be cognizant of while fulfilling this role. Some examples of the software manager's job responsibilities include:

- Supporting the organization's matrix or projectized tenets
- Supporting the organization's software engineering Computer Aided Software Environment (CASE)
- Establishing a software engineering approach for development
- Identifying training needs and objectives, reviewing training objectives with the lines of business and program managers and product, and implementing a training plan
- Providing historical data or metrics for on-going software development activities
- Meeting budget, schedule and quality objectives established for each software development
- Defining and implement a recruiting strategy
- Completing a process improvement assessment, implementing and initiating a plan to achieve higher process improvement
- Writing at least two unsolicited white papers, which result in a new task on an existing contract or support a new business initiative

This Management Performance Appraisal provides a more detailed example of how this fits into the Software Manager's responsibilities. Notice that the bolded topics relate directly the modules within this course.

Acme Corporation

Management Performance Appraisal

Name: John Doe **Time on Position:** 1 year

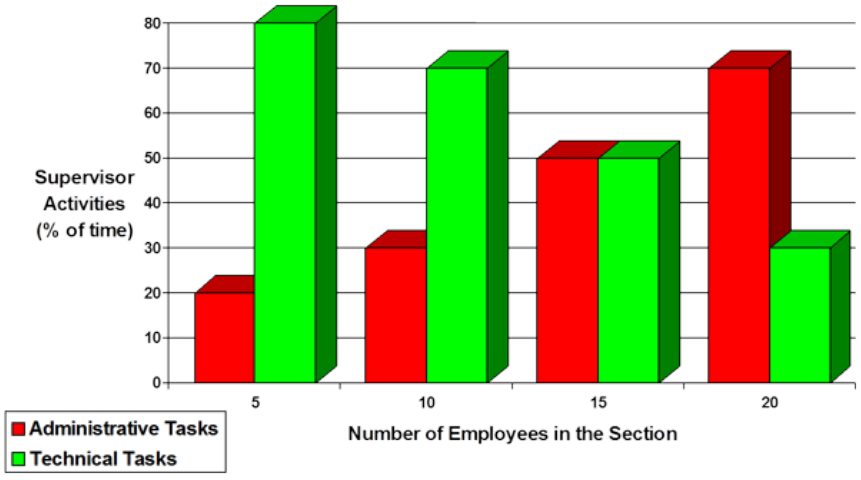
Position: Supervisor, Advanced Applications Development **Performance:** Excellent

Position Objectives
1. **Staffing**: Support the matrix tenets: • Periodically review WADs with appropriate Program Managers • Ensure timely notification regarding movement of personnel (hire, terminate, transfer) • Meet staffing commitments
2. **Retention**: Support the Acme Software Engineering CASE strategy: • Use the workstation environment as appropriate for continued software development on the XYZ project • Enhance the computer aided support environment (CASE) • Correlate the XYZ CASE environment with required inputs/outputs to/from interfacing groups (CM, QA, System Engineering, Program Office)
3. **Risk**: Establish a software engineering approach for development of the XYZ software system, including interfaces with System Engineering, CM, QA, PMO, and DSS. Support development of a standardized complies with the department approach for use throughout the department. Ensure that the section approach, tailored as appropriate, complies with the department approach.
4. **Training**: • Identify training needs/objectives for personnel in the section • Review training objectives with line-of-business managers and program managers • Produce and implement a training plan

5. **Metrics**: Provide historical data (metrics) for on-going software development activities (repository to be defined)
6. **Earned Value Management (EVM)**: Meet budget, schedule, and quality objectives established for each software development activity
7. **Recruitment**: Continue the strategy of local campus recruiting. Enhance our relationship with local universities through classroom lecture support, briefings at club meetings, mentor or sponsorship programs, etc.
8. **Process Improvement**: Complete an SEI assessment, implement and initiate a plan to achieve a level 2 rating (this objective is contingent on Acme management approval of the required budget)
9. **New Business Initiative**: Participate in writing at least two unsolicited white papers which result in a new task on an existing contract, or support a new business initiative such as a Request for Proposal (RFP)
Performance

Manager versus Supervisor

As the number of employees that a supervisor manages grows, the administrative tasks increase and the technical tasks decrease. Generally, when manager is responsible for 15 engineers he/she performs about 50% administrative tasks and 50% technical tasks as show in the table below. This can vary by company but has been shown to be a good estimate in most environments.



Management terms are used differently in organizations. Let's define the Supervisor, Section Manager, or "First Line Manager" as responsible for an organization ranging from 5 to 25 employees. This supervisor interacts externally with CM, QA, Systems Engineering, and Program Management Office personnel assigned to the same project. The supervisor interacts internally with the members of his/her section, typically 5 to 25 employees at various levels of seniority.

The Middle Manager

The Manager, Department Manager, Middle Manager, or "Second Line Manager" is the person typically responsible for an organizational size ranging from 25 to often over 100 employees. He/she is sometimes called the Manager of Managers. This higher-level manager will typically have minimum technical

responsibility with perhaps 10% of his/her time focused primarily on reviewing Requests for Proposals (RFPs), deliverables, software standards, or procedures. This manager interacts extensively outside his/her organization working with other functional managers, program managers, and customers. Internally, this manager will interact primarily with his/her direct staff (supervisors and principal engineers, generally five to ten senior employees).

The Middle Manager within an organization is between the Program Managers, Upper Managers, and the employees as well as the customers and users. Program Managers and Upper Managers are most concerned about budget constraints, schedule demands, responses to customer demands, and process improvement. Employees, however, want to understand how their salary increases, enroll in training programs, and have knowledge of their benefits, improve the work environment, and acquire new technology. In addition to the internal staff needs, software managers must also address the needs of the customers who are focused on the cost and schedule. Customers are the agents for the users and have the functional perspective. Customers are focused on the legal and contractual issues; they may not be engineers and may not have the operational experience. Users are focused on the job description; they know the operational environment and they want the capability now. Users are generally not concerned with budget constraints.

"Middle" Manager (within the organization)

Program Managers & Upper Managers
- **budgets constraints**
- **schedule demands**
- **response to customer demands**
- **process improvement**

Employees needs
- **salary increases**
- **training**
- **benefits**
- **work environment**
- **technology**

"Middle" Manager (with customers & users)

Customers
- **focused on cost & schedule**
- **agents for the users**
- **functional perspective**
- **focused on legal & contractual issues**
- **may not be engineers**
- **may not have operational experience**

Users
- **focused on job description**
- **know the operational environment**
- **want capability now**
- **not concerned with budget constraints**

Career Track

In most organizations, employees move up the career track initially based on years of experience and educational background. Typically, a Master's degree is worth two years of experience. If we use a Grade 1 to Grade 6 scale, the new employee right out of college is a Grade 1. As he/she gains some experience, he/she is promoted to Grade 2 and a few years later to Grade 3, Senior Engineer. There are fewer positions at the higher grades; there is competition for these slots after Grade 3, where the promotions are based on more than years of experience. Many people retire as a Grade 3 Senior Engineer. At this grade, he/she is an individual contributor and/or a small team leader. A Grade 4 Staff Engineer generally has at least 8–12 years of experience and often leads a team of 4 to 7 people. It is not until Grade 5, the Supervisor, or Senior Staff Engineer where the employee begins to determine if he/she will follow the functional (management) or technical track. Sometimes employees go back and forth

straddling the line, performing a role on one project as a Functional Manager but on the next project in a technical capacity, perhaps as the Chief Engineer, but this is not the norm. Generally, an employee chooses which role he/she prefers and is best suited. At Grade 6, the employee becomes a Second Line Manager if on the management track or a Principal Engineer if on the technical track.

The following image depicts one possible, and common, career path for software engineers within many organizations.