

I HAVE TWO MANAGERS?! - ONE COMPANY'S MODEL FOR A CONSULTATIVE TESTING TEAM AND MATRIX MANAGEMENT

Amy Yosowitz
Senior Information Technology Manager, Quality Assurance
Apollo Group, Inc.
amy.yosowitz@apollogrp.edu

APOLLO BACKGROUND

- Apollo Group, Inc is the parent organization of University of Phoenix and several other educational institutions
- Apollo IT develops and tests both internal- and external-facing software for staff, students, and faculty
- Focus today is on the methodologies of the Business Systems Division (BSD)
- BSD develops and tests software used by staff who support students (admissions, academic counseling, student records, etc)

TESTING ORGANIZATION

- Follows consultative model and matrix management reporting structure
- Senior QA Manager with one QA Manager and total of 25 Software Quality Analysts (SQAs) on team

Common Model	Apollo Model
Pool of resources with generally similar product and testing knowledge	Pool of resources, each with varying testing experience and each with specialized product/business knowledge
Resources are assigned relatively short-term tasks, then when complete, are assigned to new testing tasks	Resources are each dedicated to a development team and perform all testing that team needs on an ongoing basis
QA management distributes tasks among SQAs	QA management mainly serves as a mentor and advocate for quality. SQAs, along with their respective dev leads, delineate the testing tasks that need to be done for a particular release cycle of each product. Each SQA sits embedded within the development team they serve
SQAs all sit together in a central area	
Some SQAs create tests, others execute those tests	Each SQA is responsible for both test case creation and execution for their product

CONSULTATIVE MODEL

- QA management assigns testers to a particular development team permanently
- Assignment takes into account multiple items:
 - communication style
 - business knowledge
 - technical skill
 - SQA's ability to work independently
 - style of development team

MATRIX MANAGEMENT

- Technically, SQA reports to a QA manager but has a dotted line to a development team lead
- Dev lead has overall responsibility for their respective application(s)
- Day-to-day interaction is mainly between SQA and dev lead
 - understanding requirements
 - creating estimates
 - defining the testing approach
 - test cases
 - troubleshooting
 - raising system issues

MATRIX MANAGEMENT

- QA management has more general oversight
- QA managers ensure SQAs are doing the right things to test their applications
- QA management mentors SQAs on:
 - areas of testing (including design and execution)
 - technical skills
 - communication skills
 - system integration points
 - time management

MATRIX MANAGEMENT BENEFITS



- Best of both worlds:
 - dev lead who knows ins and outs of their particular product
 - QA manager with QA process expertise and a higher level view of all of our systems
- Multiple escalation paths for issues, ensuring quality
- Ever heard “I know you haven’t had enough time to test, but we need to send this to production anyway”?
 - QA manager and dev lead examine these situations together and work to assess risk and arrive at the best possible outcome

ROLES



- There are three primary roles that are the players in this model:
 - Software Quality Analyst (SQA)
 - Quality Assurance Manager (QA manager)
 - Development Team Lead (dev lead)

SQA ROLE



- Often functions as a “jack of all trades” – part tester, part business analyst, part developer
- Helps the dev team to understand the user perspective and business reasoning
- Decides what testing is necessary for new changes and bug fixes
- Compiles all test cases and test data
- Maintains and executes manual and automated regression test scripts
- Creates and maintains automated smoke test scripts, used both in the QA environment as well as for production release validation

SQA ROLE (CONTINUED)



- Logs and helps the dev lead to prioritize bug reports
- Makes go/no-go release recommendations to the dev lead, but does not have the final decision
- Generally has responsibility to protect the production environment
- Often has responsibility to organize, script, and/or perform product demonstrations for business users
- Calculates Defect Detection Rate (DDR) metrics on a regular basis
- Directly observes end users at least a few hours per month

QA MANAGER ROLE



- Mentors SQAs in various areas
- Helps SQAs reach beyond the everyday to provide the most value to the organization
- Mediates conflicts between SQAs and development
- Serves as the advocate for the SQA and for quality software in general
- Performs all administrative tasks for SQAs
- Addresses any testing or SQA concerns the dev lead raises
- Organizes training and mentoring opportunities
- Manages the SQA team to work toward larger initiatives like quarterly goals

QA MANAGER ROLE (CONTINUED)



- Coordinates testing large IT projects
- Spreads knowledge between development teams, including:
 - best practices
 - process improvements
 - problem solutions
- Understands the high-level system architecture, data sharing between applications, and dependencies between products

DEV LEAD ROLE



- Leader and single point of contact for an application
- Has ultimate accountability for the quality and success of their application(s)
- Represents the application to the corresponding business unit(s)
- Manages and organizes developers and their work
- Ensures adherence to team's chosen processes and standards
- Interacts with the SQA on day-to-day activities

DEV LEAD ROLE (CONTINUED)



- Works with SQA to prioritize testing:
 - new features
 - bug fixes
 - regression tests
- Regularly reviews regression test cases for coverage and depth
- Makes the final go/no go decision on production releases, using information provided by the SQA

CORE ELEMENTS - MEETINGS



- Monthly one hour SQA/QA Manager meetings
- Monthly ½ hour QA manager/dev lead meetings
- SQAs and dev leads encouraged to have monthly one-on-ones
- Dev team 15-minute daily stand-up (including SQA)
- Weekly 90-minute BSD SQA team meeting, led by QA managers
 - Announcements
 - “Bug of the Week”
 - General Topic
- Monthly one hour all SQA/SQE meeting for all of IT

CORE ELEMENTS – OTHER PRACTICES



- Two-week release cycles (overlapping or consecutive)
- Reviews
 - Semi-annual and Annual
 - Peer feedback
 - Collaboration between QA manager and dev lead
- Metrics (Defect Detection Ratio and Day-by-day)
- SQAs sit among development team
- SQAs attend most meetings with business
- SQAs do not make final go/no-go decision on releases
- SQAs move between projects every few years
- Quarterly goals
- Ratio of one SQA for every three developers

MISCELLANEOUS ELEMENTS



- Application Software Quality Engineer (SQE) team
- Database SQE team
- Database developer team separate from application development team
- Human-Computer Interaction (HCI) specialist team
- No traditional business analysts
- Follow a mix of various agile methodologies

OVERALL MODEL ADVANTAGES



- Each SQA has a great sense of ownership, loyalty, and belonging to their development team and their product.
- SQAs are the subject matter experts and are very much go-to people on their respective development teams.
- SQAs are typically the “right hand man” for their development lead.
- The dev leads have a high sense of trust in their SQA.
- QA is an essential depended-upon part of the organization.
- The SQAs get a great variety in their jobs.
- There is little to no “throw the code over the wall” mentality.
- We have very few examples of contentious relationships between QA and development.

MODEL CHALLENGES



- Difficulty in setting and ensuring adherence to standards, such as:
 - test case documentation
 - automation scripting
 - telecommuting policy
- Difficulty in objectively monitoring productivity of SQAs
- SQAs' focus on one application at the expense of understanding multiple applications, their dependencies, and the entire system
- Vacations
- Keeping up with automated regression

CONCLUSION



- Consultative model and matrix management reporting have been extremely successful for the Business Systems Division of Apollo IT
- SQAs feel very valued and fulfilled in their jobs
 - very little turnover
- Organization values quality from the top down
- We enjoy taking part in creating innovative software that fulfills our business goal of serving students well

QUESTIONS?

