HOMEWORK ASSIGNMENT: CHAPTER 20

**Question 20.1:**

**What strategies other than those listed in the chapter might be used to serve goals of reducing cost and risk for building a new piece of desktop publishing software (your role would be: Quality Manager).**

To respond to the textbook’s question, strategies which might be relevant as listed in the book help shape the context of my answer: include adapting the motivations of critical path analysis to minimize the schedule impact of testing the software against a large number of printers (just-in-time/lean methodology) by ensuring product releases are sent to scheduling when the printers are available for testing, exclusively, in the case the printers’ allocation will be split between internal departments for general overhead functions and the software department using them for testing of the publishing software.

To reduce cost and risk, it would be beneficial to have eons to devote to architectural design and testing to minimize paying for re-development or correction of base code, but the Development Manager is likely to see things from a schedule perspective that is realistic and would prefer to have the budget allocated according to his tastes. The Qual. Mgr. and Devel. Mgr. are likely to be in conflict in this way. Analyzing bugs at multiple levels of the developmental architectural and across multiple iterations/releases to the highest degree ie:ODC/RCA (and lowest granularity!) possible will ensure the least likely prevalence of bugs, but achieving such an optimum will be infeasible in most situations.

**Question: 20.2:**

**What risks and risk avoidance steps might you foresee or recommend in the face of using a 3rd part contracted developers for the obtaining of software modules and reducing project costs.**

A possible consequence of using a contracted provider for certain modules of a system might be the contracted-out modules will fail to meet consistency or correctness quality measures, their delayed receipt may negatively affect project goals, the possibility of receiving buggy or obfuscated code (pre-compiled classes, for example), among many. To control against such risks, managerial reviews can be conducted by personnel interactively communicating to discuss achievement of milestones, provisioning contracts upon quality criteria conformance (and/or requiring test-driven development methodology be used?).

NOTE: I found 20.3 a bit difficult to answer based on the textbook’s explanation.

**HELPFUL APPENDIX NOT SUBMITTED BUT FOR MY FUTURE REFERENCE:**

**Question 20.3:**

**What useful information could be derived from applying ODC and analyzed correlation between fault types and triggers & between fault types and impact, beyond the information available from each classification alone?**

Between fault types and triggers, using ODC information such as whether unit tests were effective against the program evaluated may be revealed based on whether the characterization of fault triggers can be deemed owing to an algorithmic type error. If a high proportion of the faults discovered are due in nature to algorithmic types of error, it can be suspected the unit tests did not succeed in isolating the root cause of such errors (triggers) before the errors were ‘thrown.’ If the trigger is only realized when components are assembled together, as at the integration or system levels, the results achievable through such error analysis are only made possible through a process such as ODC, versus analysis at the unit test level.

**20.4**

The textbook references [CHBC93] as listed here.

Jarir K. Chaar, Michael J. Halliday, Inderpal S. Bhandari, and Ram Chillarege. 1993. In-Process Evaluation for Software Inspection and Test. IEEE Trans. Softw. Eng. 19, 11 (November 1993), 1055-1070. DOI=10.1109/32.256853 <http://dx.doi.org/10.1109/32.256853>