TDDE46: Software Quality
Lab 2
SOFTWARE PROCESS MODELLING AND IMPROVEMENT

Objectives:

1. The main objective of this lab to let student familiar with software process modelling.
2. To understand the problem scenario to convert it into diagram to do modelling
3. Improve process where it is needed.
4. Use of CMMI to improve process, if needed
5. **Between 15:30 – 16:30**, you will discuss your solution with another group.

Problem Scenario:

BlaBla AB is an innovative web cam company who was making a good profit until today. The current year is not good for them due to higher increase in demands and low supply as well as some serious bugs reported by users in the web cams. They want to hire a new team, but they realized that it would take more effort and money because they do not have any documentation of their work such as what requirements they have or how do they do their work (i.e., development, testing, or deployment). This lack of documentation will not help newcomers to understand the product and processes. The planned to hire a consultant company (i.e., your company) that can document their processes (i.e., what activities they have and how do they do their work) and improve their process so at-least they can cope with the higher demands of web cam together with few bugs in system.

You took the contract and your realized that you need to interview the people in BlaBla company to understand their process. Then, you can document it through modelling or diagram and then you can suggest the improvement. **Make Assumption, if needed! You can use CMMI as guide to improve process areas of your choice.**

Exercise 1:

You have interviewed different people in BlaBla AB and the interview transcription has been provided in Appendix A. Read the transcript and model the software process in term of diagram in your way. Use the software https://www.draw.io/. Show and explain the diagram to your instructor. You may model the whole transcript into one process or different processes. We leave this to your creativity.
Instructor will examine if you captured the process in a good way such as it is very important that you look for people involved such as developer, testers or coordinator and what document (i.e., test case, test suit or any other document) and when they do what and whether they have automation or manual work.

Exercise 2:

Now at this stage, you understand BlaBla AB's process/processes. Recommend at least 2-3 improvements to their process/processes and the rational/motivation behind these improvements. Think creatively. Look at your previous experiences. There is a possibility that BlaBla AB may not agree with your suggestions but if you provide

good motivation, they may listen to you. Discuss these improvements with your instructor. You can take help from CMMI standard or any process improvement standards.

Exercise 3:
Between 15:30 – 16:30, you will discuss your solutions (process capturing and suggestions) with another group. Write a paragraph, how and why your solution is different as compared to another group. Upload the paragraph on Lisam in lab2. The deadline is on the same day until 17:00.

[Note: The following transcript is literally extracted from the actual audio recording word-by-word. This might not be grammatically correct due to the fact that interviewee are not native speakers]

Appendix:

People involved in this interview from your company:
K, F/F1, E
People involved in this interview from BlaBla AB:
T, M, F2, M2

K: that's wonderful, and if we start up with some thing to discuss , we can take off first of all your entire process in SE, do you follow any process model? Do you think?

F2: I guess wo do, but not something that I know, I know that name group doing this and that and we are doing something agilish, that we basically evolve ourselves, I think.

M: more structure but it changed over time but become what we have today.

E: for something very specific in BlaBla AB, in a way, like:

F2: In some way, it is, because BlaBla AB is a kind of unique company, coz, we do a lot of thing, that is done informally, there is not a lot of documentation and strategic decision and so on, there is a lot of just agreements among people so it is very agile and open that way. And that is why, it might be hard to use the process somewhere else but it works fine here because everybody gets to learn how they do stuff and people come that come from Ericsson and start working here and throw their hands up and say, how is this gonna work, where is the decision and where is the document and after a few weeks, they get to know how (M mentioned she did this herself.) and then they know that you are supposed to talk to if you wana know the stuff and then moves along like that.

F2: there are some parts that are documented of-course, but it is quite organic

K: so, do you think of a testing phase or testing activities that you distinguish from other parts. Now it's time for testing stuff or is this very continuous.

M2: it is very continuous, but we have some testing done by developers and the technical coordinators the people are integrating making sure that their code is correct before integrating and then we have small tests just small tests just one integrating just making sure that it compiles and so, and then every day, every night, we have this huge test suit running 6 to 7 hours, running on all products active on platform, and so yes, we have them, testing phases.

K: during night.

Ma: yah, that is just a regression test but of course all developers and all tester are running a lots of test during a night.

F2: can depends if it is a project where we are developing a new product, then there is more like milestone and this is time to do the beta testing and but might be more specific test phase if you go towards a main software platform its more continuous to talk about testing and I think, it depends.

F1: I have a question, you said different people and different role are doing testing at different time, perhaps, so is there any systematic way that these different test activities that run in parallel, they synchronize , is there a like a person like that other results from other different testing – is it your role , sorry M2, Where does all the result go? Is there any synchronization to it,

M2: for the regression test, yes, that is my team, and some writing all the tests right now we have 89 plots (7:03) running around 2500 tests each.

F1: Yah, Wow,

M: automation only

M2: yes automation only.

F1: are these the same test that we have or increased (7:20)??

T: we have between 1800 and 3500 depending on products, depending on features that the product support so it is same suit, but they average between it is probably around 2500.

K: wait, if we have a little look under tooling side, what type of test systems do you use and how do you execute the tests

T: so the tests are executed on Jenkins server every night on schedule, I think, (M2 confirms) where you re-build the firmware and then we run the regression test suit on it every night on it and then we run python for test code.

F2: we built our own test framework around AbraKaDebra which is unit test framework from beginning but we adapted it to work as more of a functional testing which bring some of the testing feature with it and then we put on our own stuff around it.

E: do you need special hardware sometimes, you run just software only, like what equipment you need sometimes.

T: we always require a physical product for testing other than that we have several requirements on the configuration of product such as certain cable to put but other than that there should be no real requirement other than networking and power.

F1: is this setup automatically in the test in the infrastructure that run the test or is it always on or off (9:22).

T: it is always more or less up, there are some changes ????(9:25) may be later on, may be on demand on,

F2: we are expecting from a testing point of view everything to be running all the time, we do not do power this on or off, expecting it to work.

F1: I see.

E: so how does this, if you have a code change, how does it get to test environment. Like ok, this was changed, do I need to run it or you just run it, or it does not matter that you changed it or not the code or both.

M2. Yes both, regression tests are running every night at 10 so all developers are testers integrate the code (10:10) is between, around 9am until 7pm, so then it is open for inituition?? (10:18) at 7pm it closes the firmware for compiling for new release and is done and at 9 we start regression testing

K: but when the coder finished coding, do they check in to some pre-run test or local test or

M2: yes, they have run, sometimes they have run the same test suits as we do but on the minimal set of products and they are running unit-tests. It's up to each team what test to run, we have a work going on trying to follow this (perhaps M2 is showing some diagram or paper), setting up test suit, testing some features from each team. As a common test suit a smaller one, not six to seven hours, they are communicating now all this to different team to

setup small test suit. But its not a formalized for what they need to test, but they know what is been regression testing

K: but even for these smaller tests, they are using actual hardware, nothing is simulated.

M2: no, not at all.

F1: for instance, if I am developer doing changes and I need to do within 9am to 7pm, then I choose which test, will It run. Is that it?

M2: Developers are running, they are running several tests but that is depending on which team they are intuiting from and then intuitor sums (12.25) up all the changes and run during the night and so they are running this, their tests and then when we open intuitor(12:34) in the morning they integrated and then we run regression testing.

K: we can check in for different teams (12:43)

M2: yes

T/M (12:46) yah, but there are no requirements on test cases being run

M2: no, not at the moment, but there is CI tomorrow work and then they are setting up, if you are intuiting through these 5 teams now right now, you should run this test but and developer should run it and not the intuitor so we trying to kept off the integrator. Developer needs, they know exactly what to be done when tests are green, they are ready to integrate.

E: what are their feeling about testing environment and test frameworks, is it good, bad or frustrating.

M2: I am satisfied, I am working closely with these guys,

E: why is it good?

M2: what year was it, 3 years ago, we introduced the talk suits (13:56), (M confirmed 3-4 years ago) before that the developers developed their test suit, so we just , at that point , we changed it to QA so they were developers in test suits, and developer were developing a code so that was a change and that change was quite calm to developer to accept that someone else is writing my tests and I do not know what test are doing and I do not know why is it failing, as I have not written the test. So can be hard to get them accept this change and we had some years but with failing tests because of the test but that is now took off two years ago so the test suit is reliable but it takes time for the developer to feel that…hmmm they are little bit unsecure.

K: but can they submit a test case, if they like to.

T (15:20): developer anyone can write test cases for our team if they want to but, in fact, we kind of want them to write because we are a small team and we cannot write all tests that needs to be written so certain team have requirements when new code comes in that they have to write test cases for automation. Our test case suit called TIMBAKTU, so if we ever say TIMBAKTU, you know what we are talking about and it is difficult to remember but so we prefer if other people write test cases for us, and we review it and make sure it runs and maintain it afterword that how we can scale as a team.

F: do you have systematic way of reviewing the test cases, are their specific properties in the test that you say it is a bad test or good test when you review it.

M (16:13): the rules is how test should look with documentation and standard of the code, to follow the rules of python and etc.

T: so certain requirements like there has to be test description at the docks spring (16.27) of the method all the test steps need to be clear in the mode function that runs the test cases or everything complicated needs to be done into library outside the test cases etc. etc and we are very quick ???? (16.41) in if we had a lot of different opinion but that is fine, because all test cases does not like exactly the same but it still the same quality and our rule is also that we have to run test case 3 times a night on each product, we have for at least 4 days (F confirmed it). Sometimes it can be two time as it depends how long it takes to run the test suits.