## SUT DESCRIPTION

In my eDp project stream, ‘Upload’ domain area chosen for SUT. It is a combined feature, consists of multiple states of jobs executed and might be verified. Uploads running by several types of authorized users and processing two major sub-flows: documents file and load file uploads.

## Part 1

* Is it necessary to set up test automation processes for this SUT? Why?

eDp is considered as long-term project, it passed already approx. 3 years in Epam and planned to be liquid for 5+ years from customer side.

eDp consists of many modules (20+), the substantial part of them currently have active development state and produces many issues, such are Undo work data, Undo meta data overlay, Placeholder support, Billing reports, Postback. This explained by high complexity and business logic of the project components. It is not wise to take in automation development new and not stable components.

Meanwhile, each new feature development or modification now is lifting up the costs of manual check for critical path flow and regression, as more tests running with variety of scenarios and data sets. As well test team has to perform daily and weekly environment smokes. Automation of at least one of main components, as ‘Upload’ processing, would have help to speed up performing of routine checks.

eDp releases to Production monthly, therefore automation of main flows would have decrease time much on regression cycle that is now running in a two each iterations. This will exempt facilities on deep new feature testing and exploratory tests in regression.

* What should/could be automated for this SUT? Why? How?

Many scenarios should be automated for ‘Upload’ processing, as users producing uploads frequently. As well main steps of upload process are sable and will not expected to have many changes in logic. Examples:

* Regular user uploading;
* Uploading with adding working data;
* Non-usual file types uploading;
* Uploading with OCR recognition of documents;
* Load file uploads with metadata;
* Load file replacing uploads;
* Load file republishing uploads;

In addition, many P1 issues scenarios could be automated, as these areas attract much attention from customer:

* Load file uploads with family structure;
* Uploading with family structure and file tree structure;
* Uploading with deduplication of documents;
* Load file uploads with OCR recognition;

Actually at the project we’re using Test Complete and SOAP UI PRO tools for performing most of UI/back end testing that includes Keyword Driven Tests, Script testing, endpoints checks. These technics used depending on the feature or a part of the application.

For Production smoke test, we have initial .Net frame work developed with Selenium/WebDriver. On the perspective, we plan to integrate Selenium automation more widely, scale, update existing solution and cover most projects areas with tests: uploading, productions, search, work data, doc list.

## Part 2

For calculating ROI (Return of Investments) value for SUT simplified approach based on man-hours is used:

, where

*CM* – cost of manual testing (man-hours)

*I* – investments into automation (man-hours)

,

*FW* – time spent for implementing framework;

*S* – time spent for creating TA scenarios;

*E* – time spent for tests execution (human job);

*R* – time spent for results analyzing.

Insert all the elements into formula we will have the following:

Cost of manual testing - (Framework scale/setup/update + Scenarios development + Execution test + Result analysis)

***ROI*** = ---------------------------------------------------------------------------------------------------------------------------

Framework scale/setup/update + Scenarios development + Execution test + Result analysis)

My project has stable SUT with perspective of support 5+ years.

Average time required for manual testing is 20 man-hours per week.

We expect to have three persons in testing effort.

***Cost of manual testing*** = 20 man-hour per week \* 3 person\* 52 weeks \* 5 years = 15600 man-hours

***FW*** = 80 man-hours \* 3 person = 240 man-hours

Time for automated scenarios create = 150 man-hours per week \* 4.5 weeks\*4 months duration = 2700 man-hours

Automated test execution & result analysis = 15 man-hours per week \* 5 years \* 52 weeks = 3900 man-hours

(15600 - (240 +2700+3900)) 15600 – 6840

ROI = --------------------------------------- = ------------------ = 1.28

(240 +2700+3900) 6840

By the result of calculation, we got positive ROI rate, which means that we do not expect material losses for project in future. Moreover, rate value has reached one unit, which show that automation project expected to been paid off. Along with that total rate is more than one point, which shows that profits from investment could count 28% in 5 years. In addition, we can admit that manual test execution costs doubly surpasses the automation investments.

These all considered as valuable marks for starting SUT automation for our project.