



CHAPTER 5

CONCLUSION AND RECOMMENDATION

5.1 Conclusion

Mobile type Approval is a process in the telecommunication organization. Usually, the workflow of the process is not in the vertical line. It is developed in the horizontal line through the organization. Generally, there are two main functional units involve in this process. Those are Marketing and Engineering. For the case company, there are three main functional units: Marketing, Engineering and Service Center. Moreover, there are other two functional units outside the company involved in this process also. Those are Post and Telegraph Department (PTD) and Telephone Organization of Thailand (TOT) which are State Enterprises. Each functional unit has developed its own subprocess in order to reach the same goal.

Normally, Type Approval process is the process to do testing and develop test report to confirm that the product is met the specification and standard. In the telecommunication business; especially mobile phones, Mobile Type Approval process is necessary and under the law. For the case company in this research, any new model of mobile phone which is going to sell in the market has to pass through this process in both PTD and TOT. Owing to the case company has operated and maintenance the mobile phone network, the top management has played more interest on quality. So they assign one section in the Engineering department to check the quality of mobile phone in the Mobile Type Approval process. Owing to running in this business, After sale-service is important. Then Service Center has joined in this process also.

However, time is important in the competitive market. The longer the process is, the more time is used. In the marketing point of view, the timing in the type approval process should be short as much as possible. Marketing expects the Mobile Type Approval process should not be longer than 7 weeks or 35 working days. But from the data of the survey, it takes about 12 weeks or 60 working days. Sometimes Marketing has launched new model in the market before Engineering has finished testing. Therefore, this research is developed in order to improve efficiency and reduce timing in this process. This research covers only the subprocess within the organization.

Hose of Quality (QFD phase 1) is a good method in developing new products or services; including planning for improvement process. It makes us understand more in customer requirements and needs. This makes us be able to respond or develop technical requirement more correctly. Moreover, The priority of each technical response can be calculated for suggesting which technical response should be done first. For Business Process Improvement (BPI), it is a good method for in

improving the process. It makes everyone to work as a team, understand the problems, and help each other in solving the problems. However, BPI will not be effective if there is no management support and teamwork.

In order to improve the process, customer requirement is surveyed by using questionnaires. Four questionnaires have been developed to collect the data according to the methodology of QFD phase 1 (House of Quality). At the same time, development team is setup and trained to understand the concept of QFD. The members of this team are chosen from people in the process. First questionnaire is distributed to the customers who are officers of private company in Bangkok area. Questions in this questionnaire survey about problems in mobile phone and suggestions for improving mobile type approval. From conclusion, the researcher has found that 71% of customers has ever found the problem with mobile phone. However, the researcher has found that this group of customer is not the real target group of customer in Mobile Type Approval process. They are indirect customers. So the second questionnaire is developed.

Second questionnaire is distributed to the marketing officers who take care about importing and planning to launch the new model of mobile phone in the market. From 22 questionnaires that are returned, the customer requirement of Mobile Type Approval process has classified into three groups: Testing, Support Information, and Test Report. They want to test the mobile phone in many aspects (Standard, Transmitter and Receiver, Sensitivity, and Function in menu). They do testing with SIM Card whether it can operate property with every brand of SIM card. They do testing with Network whether it can work properly. They do testing with Value Added Services and New Services whether it can support and use all of them. They also expect to be supported information (list of mobile that has passed type approval and support services) quickly. They want the test report to be finished on schedule and 100% accuracy. They want the process to take short time as much as possible. They want the test topics to be updated. And they want quick response when the problems are found. All of these requirements are listed and filled in the left side of HOQ.

Third and fourth questionnaire are developed to survey the data for completing HOQ. Both of these questionnaires are distributed together to the marketing officers as same as the second questionnaire. Then the customer important and customer rating for each customer requirements are listed in the HOQ. Besides, Improvement ratio can be calculated. Then it is shown that "Take short time in testing" is the most important of customer requirement that should be improved

The research takes this information to the development team in the meeting, and let them brainstorm to create technical response in order to improve the process. All of the idea is listed out. No matter it is good or bad, big or small. Then these ideas are grouped and listed as technical requirement in the HOQ. And then the researcher asks the development team to fill in the relationships between each technical response and customer requirement, competitive technical benchmark, target setting, and technical correlation matrix. Then the technical response priorities are calculated. Therefore, the priorities of technical response are listed.

BPI approach has developed at the same time of developing HOQ. EIT consists of three persons who are managers of each functional unit. They are Terminal Product Marketing manager (Marketing department), Headquarter Service manager (Service department), and Technical Service Support manager (Engineering department). Firstly, the research as appointing to be BPI champion meets with them and overview about BPI approach. Then they can identify the sequence of events and activities that will be developed in BPI cycle. After that they explain the goal for improving the process to everyone in the meeting. Besides, the business strategy is reviewed and customer requirements from the survey are informed to everyone. Then the subprocess of "Testing at Engineering" is chosen to be critical process for improvement. Moreover, EIT has appointed Import & Type Approval manager to be process owner of "Coordinating to do type approval by Marketing", Service Development manager to be process owner of "Testing at Service Center", and Senior Handset Engineer to be process owner of "Testing at Engineering". Then each process owner selects PIT members of his own process.

In phase 2 of BPI approach, PIT develops the goal, objective and mission. Each process owner has to define his process boundaries. The researcher as BPI Champion have provided training to PIT members about basic teamwork and problem-solving tools. Besides, they are asked to develop list of inputs and outputs of their process. Customer, business measurements and expectations for each subprocess are defined also. Next, flowchart of the process is shown and explained for understanding. Timing of the process during September 1999 to January 2000 is collected and presented to everyone. From the data it is shown that the average timing for the process is 58 working days. This is delay 23 working days from the Marketing has expected. For testing at Service Center, it takes 4 working days, delay 2 working days from expected. For testing at Engineering, it takes 27 working days, delay 12 working days from expected.

In phase 3 of BPI approach, everyone in the improvement team is trained to understand the basic tools to streamline the process. These basic tools are Bureaucracy elimination, Duplication elimination, Value-added assessment (VAA), Simplification, Process cycle-time reduction, Error proofing, Upgrading, Simple language, Standardization, Supplier partnerships, Big picture improvements, Automation and/or mechanization. After the training, PIT members have been assigned to identify improvement opportunities for the process. Then they proposed 12 activities to improve the process.

- (1) Request 3 mobile phone samples from suppliers.
- (2) Change the method of testing applicability to be checking the test report from test house.
- (3) Create procedure in updating the test topics; especially new services
- (4) Assign the owner for each test.
- (5) Develop new form of test report.
- (6) Eliminate bureaucracy in registering IMEI and create subprocess for register IMEI (emergency case)
- (7) Eliminate no-value-added activities; especially the test topics.
- (8) Simplify the process of testing SIM Card by transferring the activity to Handset Technology section.
- (9) Reduce the process time by rearranging the process into parallel.
- (10) Errorproof the process by developing the test procedure and expect result of each test.
- (11) Review equipment in order to upgrade it.
- (12) Create roadmap for upgrading people.

After PIT members have brainstormed, the flowchart of new process has been documented. Then the researcher has summarized and presented the new way of developing the process to everyone. Moreover, each owner of the test group presents his own information about his responsibility in the process.

Before implementing the new process in the phase 4 of BPI, PIT members recommend the Senior Handset Engineer to create in-process measurements and targets. According to feedback is very important for improving the process, PIT members have assigned the researcher to a contact person for some suggestions and feedback of the new process.

After the new process has implemented for 6 months, the process has been audited and evaluated whether it can perform at the appropriate level when the actives are linked together. Form the time used for overall process is decreased from 58 working days to 49 working days and to 35

working days when excludes external activity (TOT). Time used for testing at Service Center is decreased from 4 working days to 3 working days. And time used for testing at Engineering is decreased from 27 working days to 14 working days. In addition, from in-process measurement; Testing with test equipment, SIM card and network takes 5 working days each. Testing with existing services takes 3 working days. And testing with new services (both MobileLife and WAP) takes 4 working days each.

In order to develop continuous improvement (BPI phase 5), the improvement activities are reviewed. The activity no. 2-5,7,8,10-12 have considered to be effective. Activity no. 1, 6, and 9 have some problems. Then PIT and PIT have suggested a new way of developing them. After that the improvement process is evaluated and benchmark with the process before improvement. In summary, the process is more efficiency and effective due to Engineering can develop testing according the Marketing requirement, and the timing is improved also.

In conclusion, it can conclude the improvement for this research in four aspects:

(1) Improve efficiency of the process

This research has increased efficiency by eliminating redundant activities. Time used in the process is improved also. And this brings the new model of mobile phone to the market faster.

(2) Improve visibility of the process

The step for measuring the process is created, so Marketing has monitoring capability the process by model. Moreover, priority for testing can be set up.

(3) Improve Quality of the process

Developing the test procedure and expect result of each test makes the process more standardize.

(4) Improve in relationship – teamwork

Developing BPI in the process, it makes Marketing and Engineering work closer as a team, and makes working environment more friendly and constructive.

In addition, there is no recruitment for more engineers. The improvement makes the existing testers have more time to do another kind of works and supports. In this case, engineers in the Engineering have more time to do testing with existing services and new services.

5.2 Recommendation

Although the data shows that the timing of the process is improved, we should develop improvement continuously. This is because the customer requirement may be changed in the future. For Mobile type Approval process, test topics increased every month owing to the company has launched new services. Despite the process has been improved, there is something that we can not control it; for example, the subprocess at PTD and TOT. Besides, we should choose the person who is not too busy to be development team or PIT member because it needs to take time to cooperate in order to develop improvement. Each person, who has joined the improvement team; not only PIT and process owner but also EIT, has to understand and intend to improve the activities with his best; otherwise the improvement will not be effective.

In addition, although it is found that there is some improvement in the process, there are some external activities including in the process. In order to implement BPI in the external activities (especially for TOT and PTD), it needs the following requirements: policy to agree with the improvement, allowance to access information to develop new workflow, cooperation of the personnel to identify the new workflow, resource support in order to brainstorm the problems to find possible streamlining, management support to get process implement with reduction of steps with additional effort and resource, and monitoring capability to measure results.

Besides, before developing and distributing the questionnaire for surveying the customer requirements, we should know who is the real customer. For example, in the research the questionnaire no. 2 is developed because the researcher has found that the target customer of questionnaire no. 1 is not the real customer. The real customer of this process should be the marketing staffs who responsible for importing and planning to launch the new model of mobile phone. Therefore, in order to survey the customer requirement, we should be careful in determining the customer.