

Feasibility analysis of Agile Methodology versus traditional Waterfall model for testing in the AMS engagement

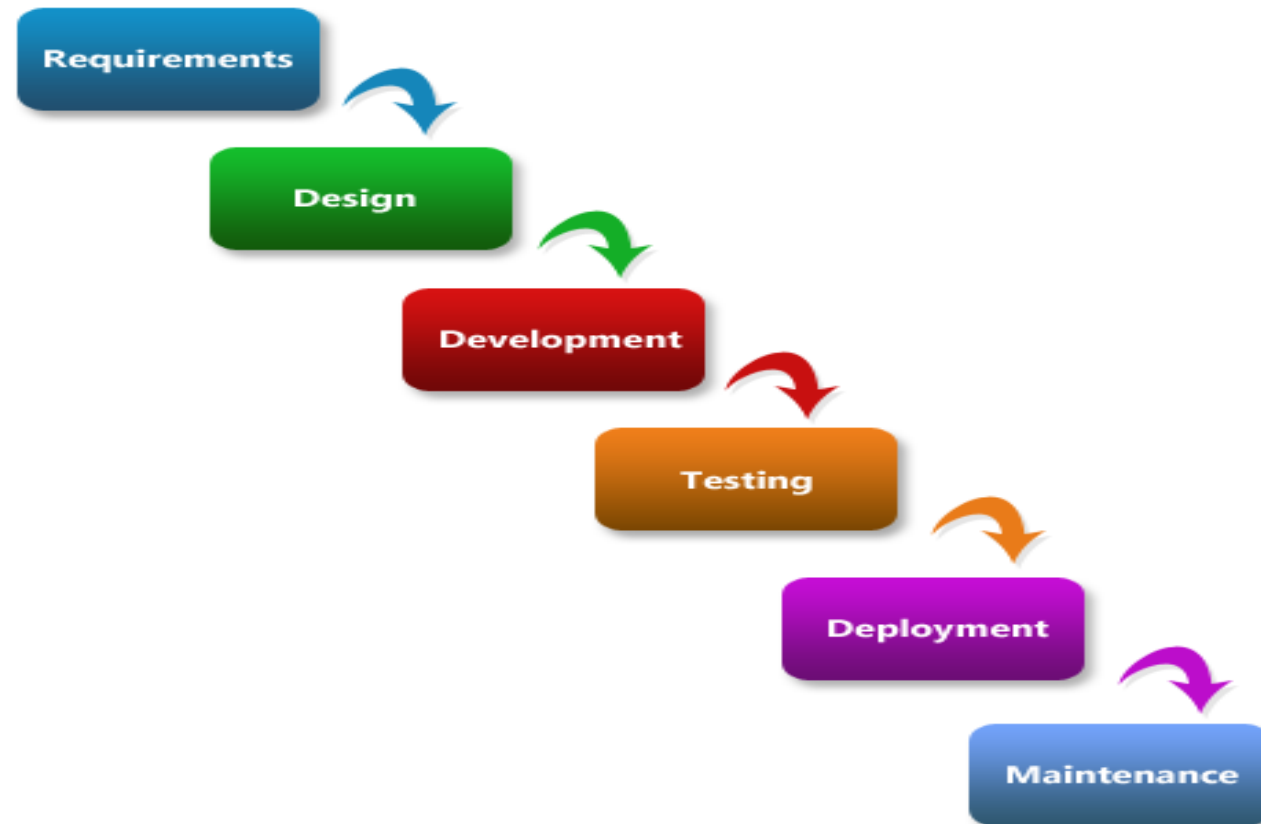
DR. SWATI SINGH

PGDHM18

IIHMR, JAIPUR

Waterfall Methodology

Traditional Waterfall Methodology



Agile Methodology



RATIONALE OF THE STUDY

To give suggestions to improvise the testing process to provide better client service and customer value

This study aims to understand which methodology will yield the most effective results when applied to testing in the AMS engagement

RESEARCH QUESTION

Is it feasible to transition the existing traditional Waterfall methodology to Agile for testing process in AMS engagement?

OBJECTIVES OF THE STUDY

1. Getting a macroscopic overview of the process of EMR testing in the existing AMS engagement
2. Understanding the pros and cons of application of Agile and Waterfall models in EMR testing
3. Analysing the feasibility of implementing Agile methodology in the EMR Testing in the engagement

METHODOLOGY

The study was conducted over a span of two months from March 10, 2015 to April 30, 2015 in an EMR project

Study Design – Descriptive

Study Type – Quantitative and Qualitative

Sample size-481 test cases

The data with respect to two different markets was collected with 239 test cases in market 1 and 242 test cases in market 2. All test cases included under all testing team members were included

Data Collection Methods

Primary data was collected through observation of the testing process informal interviews of the project members

Secondary data was collected through documentation available on testing process

Data collection Tool- Interview Checklist

DESIGNING THE TRANSITION TO AGILE

Under the waterfall methodology, the team members divide the modules among themselves and begin with the application regression testing, following which integration testing is started.

Under the new methodology, the modules were first prioritised and divided into high, medium and low priority modules. Agile method was applied only to application regression testing.

- Prioritization of the modules
- Setting up of a timeline for regression testing of the modules
- Sprint planning meeting
- Daily stand up meetings

Prioritization of the modules- The modules were prioritised depending on two factors

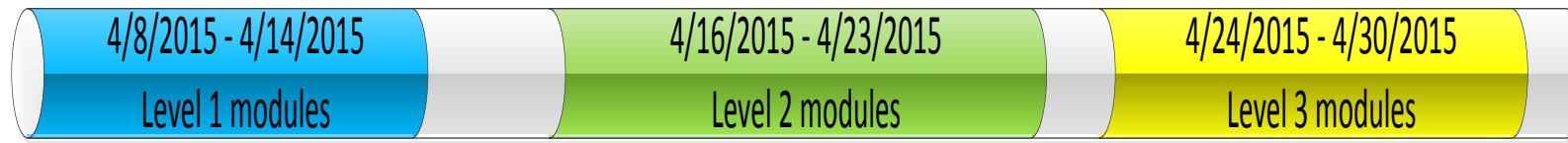
- Effect on patient's safety
- Revenue to hospital

The modules that effected patient's safety as well as revenue were categorized as Level 1.

Those affected one of them were categorized as Level 2 and others as Level 3.

Module	Affects patient's safety	Revenue to the hospital	Priority
Emergency	Yes	Yes	Level 1
Inpatient Pharmacy	Yes	Yes	
Outpatient Pharmacy	Yes	Yes	
Outpatient dept.	Yes	Yes	
Orders	Yes	Yes	
Scheduling	Yes	Yes	
Inpatient dept.	Yes	Yes	
Hospital services		Yes	Level 2
Professional services		Yes	
Surgery & Anesthesia		Yes	
Radiology		Yes	
Oncology		Yes	
Information management			Level 3
Technical			
Documentation			

Setting up of a timeline for regression testing of the modules



4/8/2015

4/30/2015

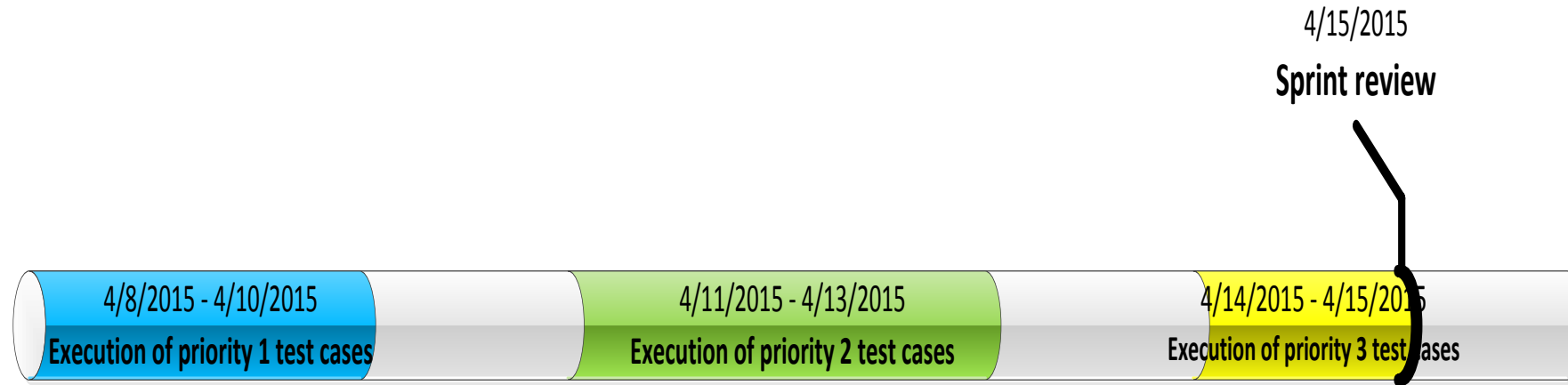
Sprint planning meeting

Meeting among all the project members was conducted in the beginning of the test cycle to prioritise the test cases within each module.

Within each module the test cases were divided into three different priorities. The priority 1 test cases were executed in the first three days of the week followed by priority 2 and 3 cases.

The entire workflow was thus divided into week-long sprints. Sprints were formed for all three level of modules.

Sprint for test case execution within Level 1 modules



4/8/2015

4/15/2015

Daily stand up meetings

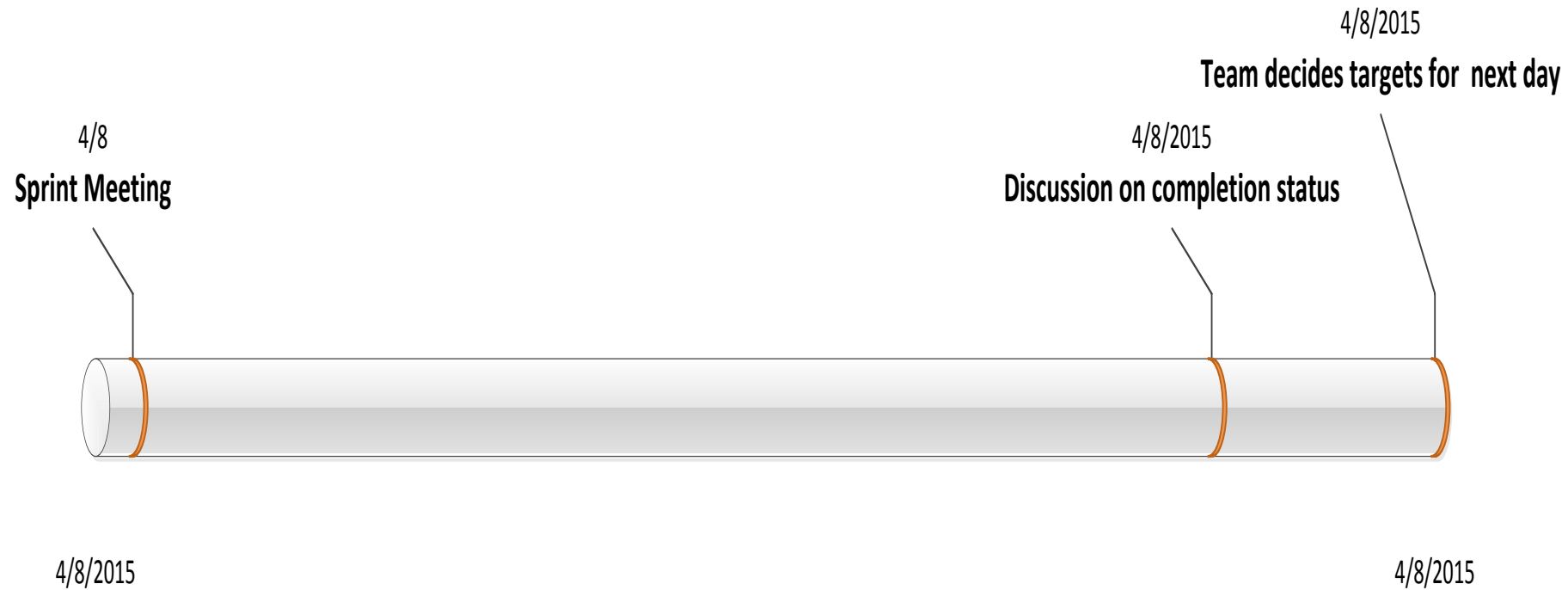
Morning Stand up

- 10 minutes meeting daily in the mornings to discuss the agenda of the day
- Discussion on what was done since last meeting and what will be done till the next meeting
- Notes were made of any issues that were brought up by the team members

Meeting at the end of the day

- The team had a discussion on the completion status
- A rough work plan was drawn for the next day

An example of daily sprint assessment plan

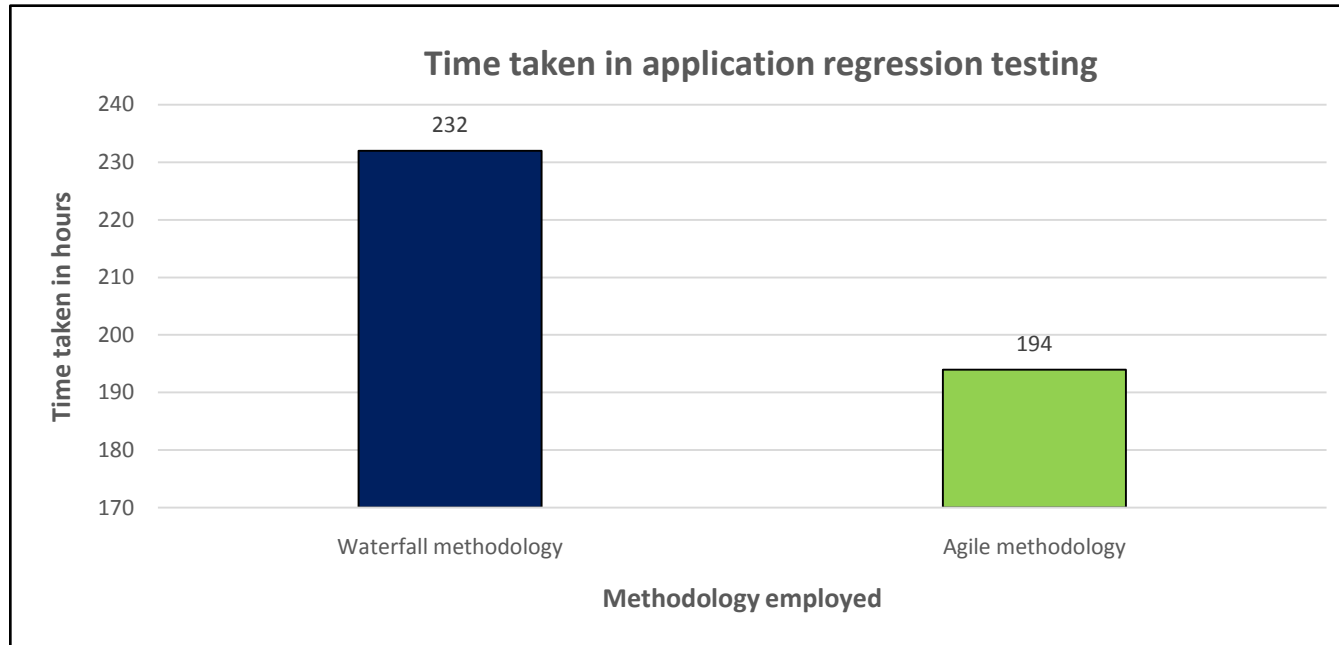


TESTING STATUS BOARD

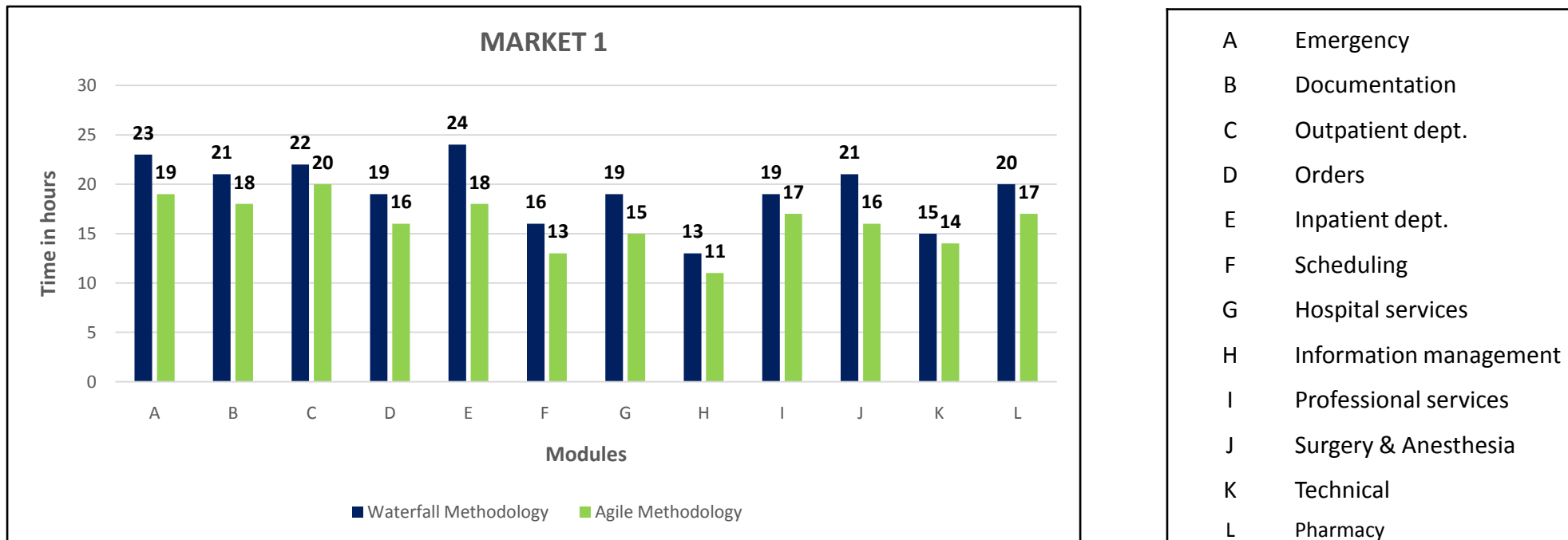
At the end of each day, the status board was updated in accordance to the completion status discussed in the meeting. The format of the board was as follows:

Test cases received	No. of test cases executed	No. of test cases passed	No. of test cases failed	No. of test cases not started

RESULTS

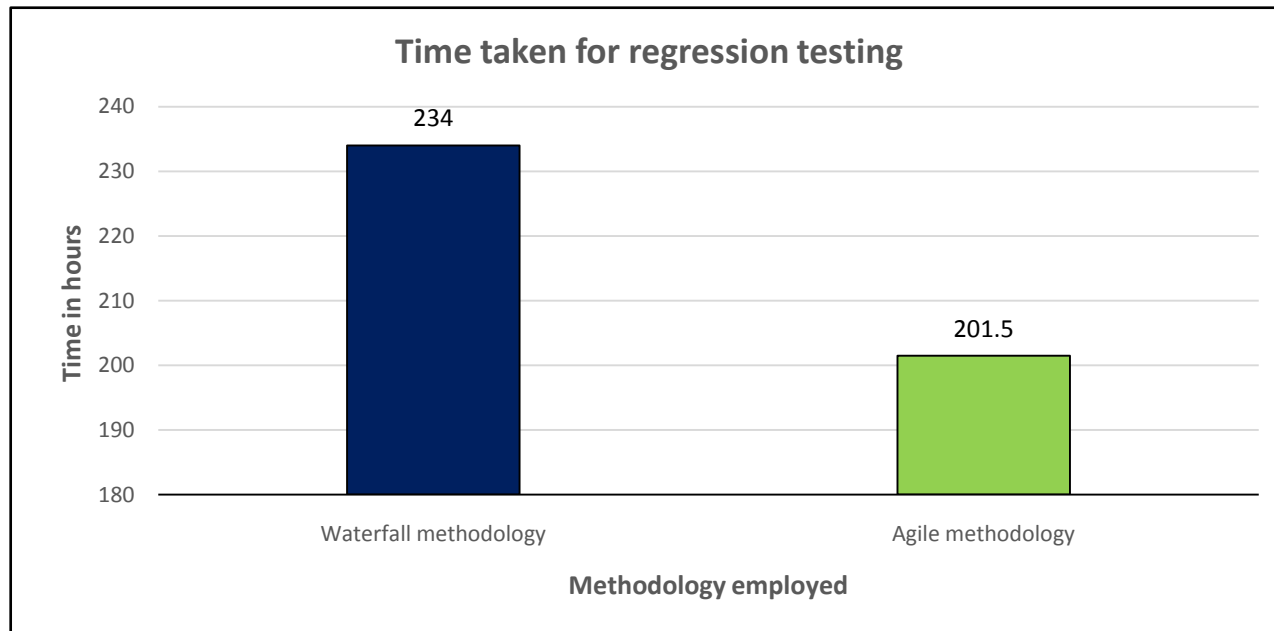


The results showed that there was a reduction of 38 hours from the previous test cycle i.e. An improvement of **16.38%**

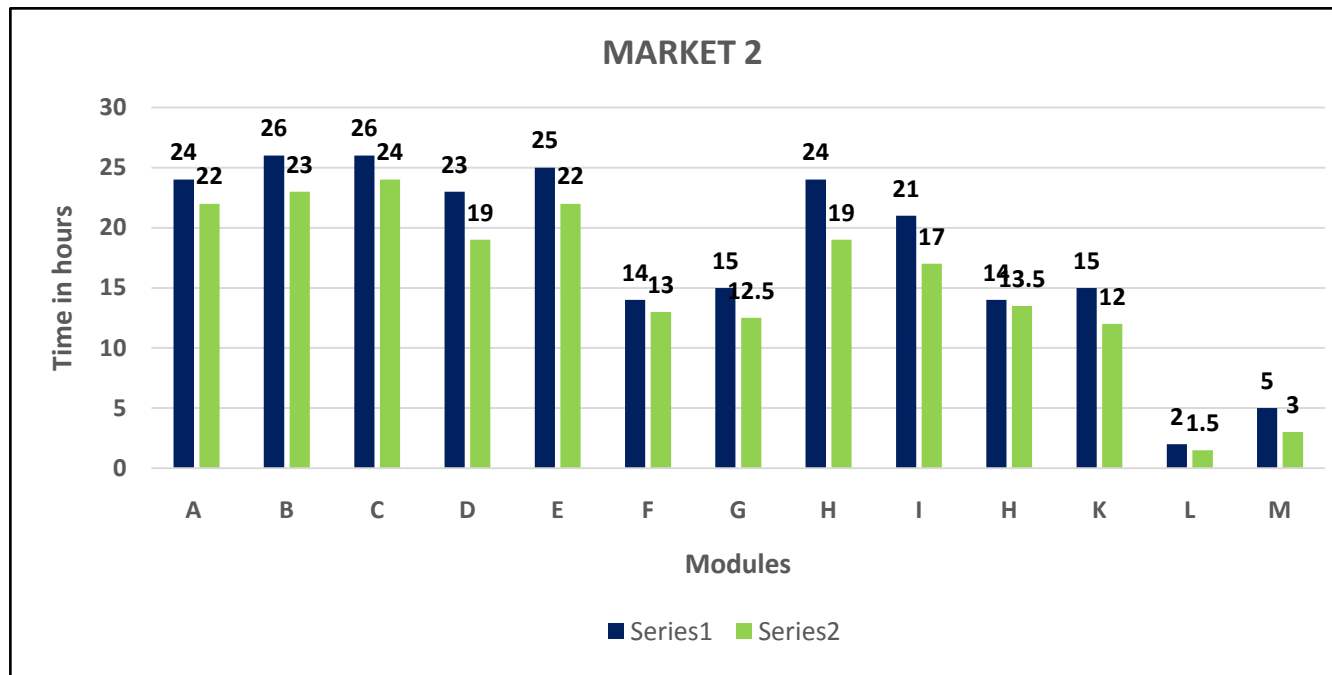


It was observed that there was an average difference of 2.32 hours in execution of testing of the modules under both the methodologies.

Market 2



The results showed a difference of 32.5 hours which corresponded to an improvement of **13.8%**



A	Emergency
B	Documentation
C	Outpatient dept.
D	Orders
E	Inpatient dept.
F	Scheduling
G	Hospital services
H	Information management
I	Professional services
J	Surgery & Anesthesia
K	Technical
L	Radiology
M	Oncology

It was observed that there was an average difference of 2.5 hours in execution of testing of the modules under both the methodologies

DISCUSSION

Break down of the work into sprints- The entire process was broken into weekly sprints. Setting up of sprints provided a deadline within which the activities had to be completed.

Stand up meetings- The meetings helped in setting targets for a day and provided a platform to the project members to know their current status. Also, discussion on issues brought up helped in dealing with similar issues more effectively.

Prioritisation of modules and test cases within modules- This helped in focusing on more important issues first. Through prioritisation of test cases, the most time consuming work was finished first.

Better utilisation of human resources- pre-planned goals, periodic monitoring and better communication within members led to less time wastage and increased efficiency which led to decrease in time taken for test case execution

CONCLUSION

As evident from the results of the study, the testing team has been able to benefit by adopting Agile methodology that has resulted in the reduction in time taken in the testing process, ability to increase the test coverage and increased productivity of the team members

This was accomplished by collaborating with the functional teams in the areas of better planning, prioritization of work and more effective communication within the members of the project.

To achieve the goals of improved test coverage, better utilization of the practitioners and high quality client service delivery which in turn would translate as optimal patient care delivery for health care organizations, Agile Methodology would be the right fit to drive the testing the enhancements and updates sent by the vendor.

LIMITATIONS

- The data of only two out of three markets could be included owing to time constraint
- The information on time taken for execution of test cases was collected through informal interviews of the project members

THANK YOU