

Report On
Agile Project Management at CHEQ Lifestyle Technology, Inc

By

Kumod Kumar Sah
20264061

An internship report submitted to BRAC Business School in partial fulfillment
of the requirements for the degree of **Masters in Business Administration (MBA)**

Graduate School of Management
BRAC University
December 2022

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Declaration

It is hereby declared that

1. The internship report submitted is my own original work while completing my degree at BRAC University.
2. The report does not contain material previously published or written by a third party, except where this is appropriately cited through full and accurate reference.
3. The report does not contain material which has been accepted, or submitted, for any other degree or diploma at a university or other institution.
4. I have acknowledged all main sources of help.

Student's Full Name & Signature:

Kumod Kumar Sah
20264061

Supervisor's Full Name & Signature:

Dr. Syed Mahbubur Rahman
Associate Professor, BBS
BRACU

Letter of Transmittal

Dr. Syed Mahbubur Rahman

Academic Supervisor

MBA Program

BRAC University

66 Mohakhali, Dhaka-1212

Subject: Internship report submission on “**Agile Project Management at CHEQ Lifestyle Technology, Inc.**”

Dear Sir,

It is my pleasure to submit my internship report” Agile Project Management at CHEQ Lifestyle Technology, Inc” based on your supervision and direction.

Your timely and valuable guidance, suggestions, and advice helped me prepare this report flawlessly. I have attempted my best to finish the report with the essential data and recommended proposition in as compact and comprehensive a manner as possible. Furthermore, I seek your apology for any mistakes in the writing.

Thank you very much for your consideration. It has been my pleasure to work under your supervision. I trust that the report will meet the expected outcome.

Sincerely yours,

Kumod Kumar Sah

20264061

BRAC Business School

BRAC University

Date: December 22, 2022

Non-Disclosure Agreement

This non-disclosure agreement is made and entered into by and between **CHEQ Lifestyle Technology, Inc** and the undersigned student at BRAC University, **Kumod Kumar Sah**.

Letter of Authorization

December 15, 2022

Dr. Syed Mahbubur Rahman

Associate Professor

MBA Program

BRAC Business School

BRAC University

Dear Dr. Syed,

The final internship report of Kumod Kumar Sah has been submitted to me for clarification. By going through the report and all the project details, including his involvement in exact as well as I, found nothing that interrupts the company's privacy and values. In addition to that, the information provided is legal.

Best wishes.

Md. Shah Jalal

Sr. Technical Project Manager

CHEQ Lifestyle Technology, Inc.

Acknowledgement

I would like to express my deepest appreciation to Dr. Syed Mahbubur Rahman, Associate Professor from BRAC Business School for providing me guidelines on internship procedure at CHEQ Lifestyle Technology, Inc. I will always be grateful to him for helping me throughout the process, from initial stage to completion.

I would like to thank my supervisor Mr. Md. Shah Jalal, Sr. Technical Project Manager for being tolerant and supportive throughout my internship period at CHEQ Lifestyle Technology, Inc. I would also like to thank Mr. Mizanur Rahman, Head of Engineering and Mr. Afsar Ahmed, Project Manager along with other seniors for providing me opportunities and guidance to complete my project throughout my time there.

I am very grateful to my office colleagues for being so helpful and kind. I am very grateful to my friends at BRACU, without whom it would be impossible to complete my report. Finally, I would like to thank BRACU for providing me with this opportunity to study and research at a prestigious university that provides real-world experience along with academic studies.

Executive Summary

In the last semester of my MBA at BRACU, I had to do an internship program of 3 months at a company. My internship company was CHEQ Lifestyle Technology, Inc. It is the world's first social payments platform that connects consumers with businesses for amazing and frictionless experience of dining. CHEQ's universal app can be used to order as well as pay at any restaurant, café, bar, or stadium. The head office of CHEQ is in the USA while the engineering team is in Bangladesh, where I did my internship.

During my internship period, I worked on a project. The name of the project was, "CHEQ Payment System". I worked closely with the Project Manager to learn the skills of managing a software project. I gained theoretical knowledge on Agile, Scrum, and Kanban while technical skills to handle the projects using technologies like Jira, Excel and SQL. Apart from that I learnt managerial communication and estimation skills.

Keywords: Project Management; Agile Methodologies; Scrum; App; Software;

Table of Contents

Declaration	ii
Letter of Transmittal	iii
Non-Disclosure Agreement	iv
Letter of Authorization	v
Acknowledgement	vi
Executive Summary	vii
Table of Contents	viii
List of Figures	x
List of Acronyms	xi
Chapter 1 Overview of Internship	1
1.1 Student Information	1
1.2 Internship Information	2
1.2.1 Period, Name of Company, Department, and Address	2
1.2.2 Supervisor Information of Internship Company	2
1.2.3 Job Description of the Position	3
1.3 Internship Outcomes	3
1.3.1 Contribution of Student to the Company	4
1.3.2 Benefits to the Students	4
1.3.3 Obstacles Encountered during Internship	5
1.3.4 Recommendations	5
Chapter 2 Organization Part	6
2.1 Introduction	6
2.1.1 The Report Sources	6
2.1.2 Objective of the Report	6
2.1.3 The Report's Scope	7
2.1.4 Methodology	8
2.1.5 Limitations of the Report	8
2.2 The Company's Overview	9
2.2.1 Overview of the organization	9
2.2.2 History of CHEQ Lifestyle Inc.	10
2.2.3 Purpose	10
2.2.4 Organizational hierarchy	11
2.3 Management Practices of CHEQ Lifestyle Inc.	12
2.3.1 Leadership Style	12
2.4 Operations Management and Information System Practices	13
2.5 Industry and Competitive Analysis	15
2.6 Conclusions	18

Chapter 3 Project Part	19
3.1 Introduction.....	19
3.1.1 Literature Review	20
3.1.2 Objective of CHEQ Payment System.....	21
3.2 Methodology.....	22
3.2.1 Scrum Framework	22
3.2.2 Tools & Technology	23
3.3 Analysis on Project Management.....	25
3.3.1 Team Formation & Roles Division.....	25
3.3.2 Sprint Planning Meeting	26
3.3.3 Daily Standups	27
3.3.4 Tracking Progress	27
3.3.5 Sprint Review	32
3.3.6 Retrospective.....	32
3.3.7 Release Planning	33
3.4 Conclusions.....	33
3.5 Recommendations	34
References	35

List of Figures

Figure 1: Organizational Hierarchy	11
Figure 2: Porter's Five Forces Model	16
Figure 3: The Scrum Framework	22
Figure 4: Sprint Planning Meeting	26
Figure 5: Jira Scrum Board (1 of 3)	29
Figure 6: Jira Scrum Board (2 of 3)	30
Figure 7: Jira Scrum Board (3 of 3)	30
Figure 8: Velocity Report	31

List of Acronyms

PM	Project Manager
POS	Point of Sale
CPS	CHEQ Payment System
API	Application Protocol Interface
UAT	User Accepted Testing
QA	Quality Assurance

Chapter 1 Overview of Internship

1.1 Student Information

BRAC Business School, BBS in short is a specialized business school in BRAC University that offers professional academic programs in master's in business administration, MBA. To graduate from the MBA department, it is required to complete an internship report with a reputable company where I can utilize my practical knowledge and gain skills so that I can build my career. I learned the working techniques and gained insights into the industry. I worked in a technology firm, CHEQ Lifestyle Technology, Inc where I was working for the last 3 months as an intern in Project Management from 1st October 2022 to 31st December 2022. I was assigned for the “CHEQ Software Project” where my supervisor was Mr. Md. Shah Jalal, Senior Technical Project Manager.

This internship report contains the work that I did at CHEQ, company's overview and activities, my learnings, work experience, and how I developed myself and my learnings. academic supervisor Dr. Syed Mahbubur Rahman approved the topic before starting the internship. Student information is given below:

Name: Kumod Kumar Sah

Student ID: 20264061

Program Name: Master of Business Administration (MBA)

Major Subject: Operations Management

1.2 Internship Information

1.2.1 Period, Name of Company, Department, and Address

For the partial fulfillment of the academic degree required for the master's in business administration (MBA) program, I was appointed as an intern at CHEQ Lifestyle Technology, Inc for three months. I was offered internship at its Engineering division that is in Dhaka, Bangladesh. I worked in the Project Management department as an intern.

Internship Period: 1st October 2022 to 31st December 2022

Company Name: CHEQ Lifestyle Technology, Inc

Department: Project Management

Address: 6th Floor, Elegant Heights, GA 30/2 Pragati Sharani, Shahajadpur, Dhaka 1212

1.2.2 Supervisor Information of Internship Company

At CHEQ Lifestyle Technology, Inc, I worked as a Project Management intern for three months. Mr. Mizanur Rahman is the Head of Engineering and Mr. Afsar Ahmed is Senior Project Manager. Mr. Md. Shah Jalal, who is a Senior Technical Project Manager, was my direct supervisor who taught me the tools, tactics, and procedures of Project Management. Mr. Jalal has more than 20 years of experience as a Project Manager in different organizations. Apart from that, he is certified Scrum Master and has conducted pieces of training and workshops in Bangladesh as well as abroad.

Supervisor Name: Mr. Md. Shah Jalal

Designation: Senior Technical Project Manager

1.2.3 Job Description of the Position

At CHEQ Lifestyle Technology, Inc, I was hired as an intern to assist the Project Manager. I worked closely with the Project Manager in the Project Management Department. My main task was to support the Project Manager daily as well as aid in any other area that required attention.

I performed the following activities at CHEQ Lifestyle Technology, Inc.:

- Participating in Scrum Events with a focus to achieve its objectives
- Communicating details of project issues and impediments with stakeholders
- Collaborating with engineering team for engineering tasks
- Collecting, compiling and producing reports on various metrics
- Using tools like JIRA for Agile Project Management
- Using MS Excel spreadsheet to track and estimate tasks of team members.

1.3 Internship Outcomes

A project management internship lets students like us experience real-world working procedures. We work in a team under the guidance of the Project Manager in various tasks like time estimation, cost estimation, creating reports, and project scheduling. I also observed how the project manager defined goals and gave directions for the completion of the task. It is crucial that the scope of the project is completed on time with the estimated budget. Project managers can work in all sorts of industries like IT, finance, healthcare, defense, and others. The professional behavior of the staff helped me to learn a lot from them. The internship at CHEQ Lifestyle Technology, Inc lasted for 12 weeks. During the 12 weeks internship period, I applied my theoretical knowledge gained at BRAC university to the tasks that I performed here. The learnings here will surely be beneficial for my future career in Project Management.

1.3.1 Contribution of Student to the Company

As an intern, I was able to support CHEQ Lifestyle Technology, Inc. in a variety of ways. I handled the scheduling of tasks and the estimation of the working time of the employees. I also tracked the work that employees were doing at the company, to remove any kind of impediments. If the impediments were not handled, they can seriously hamper the tasks to be performed. My main contribution included assisting the project manager by collecting, compiling and reporting data in a spreadsheet using Microsoft Excel. I also took part in product demonstrations and provided feedback.

1.3.2 Benefits to the Students

I am very grateful to work at a company like CHEQ Lifestyle Technology, Inc. It is a global company with headquarters in the USA and engineering division in Bangladesh. I had the opportunity to work in a diverse cultural office. I enjoyed my time here by learning and networking with the people from both Bangladesh as well as the USA. This is an incredible opportunity for any student who wants to work globally in the project management of the technology domain. Working here also helped me to know about the difficulties that project managers face as well as other team members while working in a team.

At CHEQ Lifestyle Technology, Inc, I observed and gained first-hand experience with the tasks, tactics, and procedures of project management. I can now handle project management tasks in any company. I can also lead the team to complete tasks within the scope of the project, stipulated time, and estimated budget. In summary, I learned about the role of a Project Manager in any company. The skills, knowledge, and mindset that a project manager requires was effectively learned by me during the internship.

1.3.3 Obstacles Encountered during Internship

As I was new to the professional experience, I faced some difficulties. It took me some time to grasp the concept of working in a real-world work setting. As the company was already working with international clients, all the employees were busy with their assigned tasks. Tasks like scheduling were done automatically through project management software, and I was new to those tools, so I required training to handle the software. I didn't have any training earlier regarding that project management software. The supervisor was also reluctant to share more information by showcasing the privacy concerns, that produced some difficulty for me to gain in-depth knowledge about the matter.

1.3.4 Recommendations

My 12 weeks at CHEQ Lifestyle Technology, Inc was very fruitful and it inspired me in a lot more ways. Meanwhile, from my observations over the last 3 months at the company, I would like to mention some recommendations for the company. It is positive feedback for the company, if they wish, they can implement it.

- The company has no policy to provide internships but provided me with internship upon request. It should tie up with universities so that more students can get opportunity.
- Time management is another issue here. As all employees are busy in the assigned task, interns don't get enough time to learn new skills and techniques. If the period of internship could be extended a little bit, we could learn more.
- Lunch should be provided at the office as interns are mostly students and they are unable to bear the extra expenses.

Chapter 2 Organization Part

2.1 Introduction

2.1.1 The Report Sources

This internship report was written as a part of the academic requirements for the MBA program at BRAC University. The main aim of internship is to introduce students with real-world experience of the business market along with acquainting them with the process of working in the office. The objectives of the internship are as follows:

- To gain exposure to the particular career path of operations management
- To articulate the theoretical understandings about the project management
- To understand the job responsibilities while working in an organization.
- To fulfill the BRACU MBA program's academic requirement.

2.1.2 Objective of the Report

Completion of internship is a requirement in order to graduate from Brac Business School. Internship program is added so as to provide graduates with a real-world experience after academic sessions in the university. The primary goal of an internship to apply the theoretical concepts in the real-world setting, in the meantime, students complete the degree. The academic knowledge that a student gets in the university is reflected while working in the real setting of corporate world.

The objective of the report can be observed in two forms:

- Primary Objective
- Specific Objective

Primary Objective

- To describe the agile project management methods in a project at CHEQ Lifestyle Technology Inc. and the learnings of the internship

Specific Objective

- To connect the knowledge gained at classes in the university to the real-world settings
- To research and analyze the different project management methods used in managing the project
- To provide recommendations to the problems encountered during the internship
- To complete the requirements of the MBA Program.
- To gain knowledge about the agile methodologies used in the project management
- To learn working methods of different software tools and techniques

2.1.3 The Report's Scope

The internship report explains the project management methodologies used at CHEQ lifestyle technology Inc to manage different software projects. The main focus of this research is to identify the process and execution of agile project management principles and problems encountered during the execution of the project methods. The important goal of this report is to understand the infrastructure and human resource required to complete the task quickly. Project management is one of the major methods of fulfilling the tasks in stipulated time within the budget of the project.

2.1.4 Methodology

Data Sources: This internship report was completed using both primary as well as secondary data.

The details of the data source are as follows:

Primary Data

- Interview, Discussion with Sr. Project Manager and technical project managers at Project Management department of CHEQ Lifestyle Technology Inc.
- Observations and Participation in the meetings and events

Secondary Data

- Website, reports, book related to the company
- Reports of internship that were published previously
- Internal communication system of the company

2.1.5 Limitations of the Report

CHEQ Lifestyle Technology Inc is facing a high competition in its market, so most of the information was kept secret from interns. Sometimes, it was difficult for me to gather all the essential information required from the management, that I wanted. However, while this report was being written, following limitations can be observed

Period of Time

CHEQ Lifestyle Technology Inc. is a four-day office in a week. Therefore, it was hard to get enough time for the collection of data, Moreover, I had to complete all the tasks within three months from October to December, which is itself very less time to

complete the report. Also, due to the traffic conditions, I couldn't reach office on time most of the days that ate most of my valuable time.

Privacy Policy

Due to privacy policy of the company, all the enough required data was not available on request. The competitive advantage of the company could be leaked in the time.

Location

The head office of CHEQ Lifestyle Technology Inc is in the USA while the engineering team is in Bangladesh I worked at the engineering team in Dhaka, that's why this study is limited to the particular location of the office.

Insufficient Experience

This was my first experience at a real-world company, that's why it took me a long time to understand the practical approach of the organizations.

2.2 The Company's Overview

2.2.1 Overview of the organization

CHEQ lifestyle technology Inc. is the world's first mobile payments platform for the restaurant and hospitality industry that enables general public to not only purchase and gift socially but also allows users to pay for and send drinks to each other. CHEQ is a social payments platform. It provides POS services, mobile orders and peer payments. CHEQ lifestyle technology Inc. also allows people to send food and drinks to their friends in real time, no matter where they are. It is using the advantage of users engaging creatively with the social purchasing and gifting. In the stadiums, CHEQ lifestyle technology Inc. allows spectators an ability to place on-premise food and

beverages orders easily from their mobile devices. After that, they can have it delivered to their seats. Consumers don't have to wait for the food and they can get friction-free experiences in the stadiums.

2.2.2 History of CHEQ Lifestyle Inc.

Prior to CHEQ, there was no any company working in the social payments and social gifting features. It was developed from the ground up to address the issues faced by general public that included significant limitations in mobile payments as POS solutions that are at the verge of legacy.

CHEQ lifestyle technology Inc. was founded on Jan 1, 2021 by three founders Jake Stones, Jim Castillo and Thomas Lapham with an aim to provide superior payments platform that makes the restaurant, café, bar and stadiums job easier. CHEQ raised \$5,470,000 as a pre seed from the Yard Ventures and the WestRiver group.

2.2.3 Purpose

The mission slogan of CHEQ is “ To build universal app for social payments”

The purpose of CHEQ lifestyle technology Inc. as observed are as follows:

- Create consumers and businesses to create frictionless, amazing in-person experience.
- Execute a universal ordering and payment app that can be used by any restaurant, café, bar or stadium.
- Make social and mobile transaction fun, easy, and worry free.
- Assist users to send food and drinks to their friends from anywhere in the world.
- Enhance the fan experience through mobile payments, express kiosk technology, and social integration

2.2.4 Organizational hierarchy

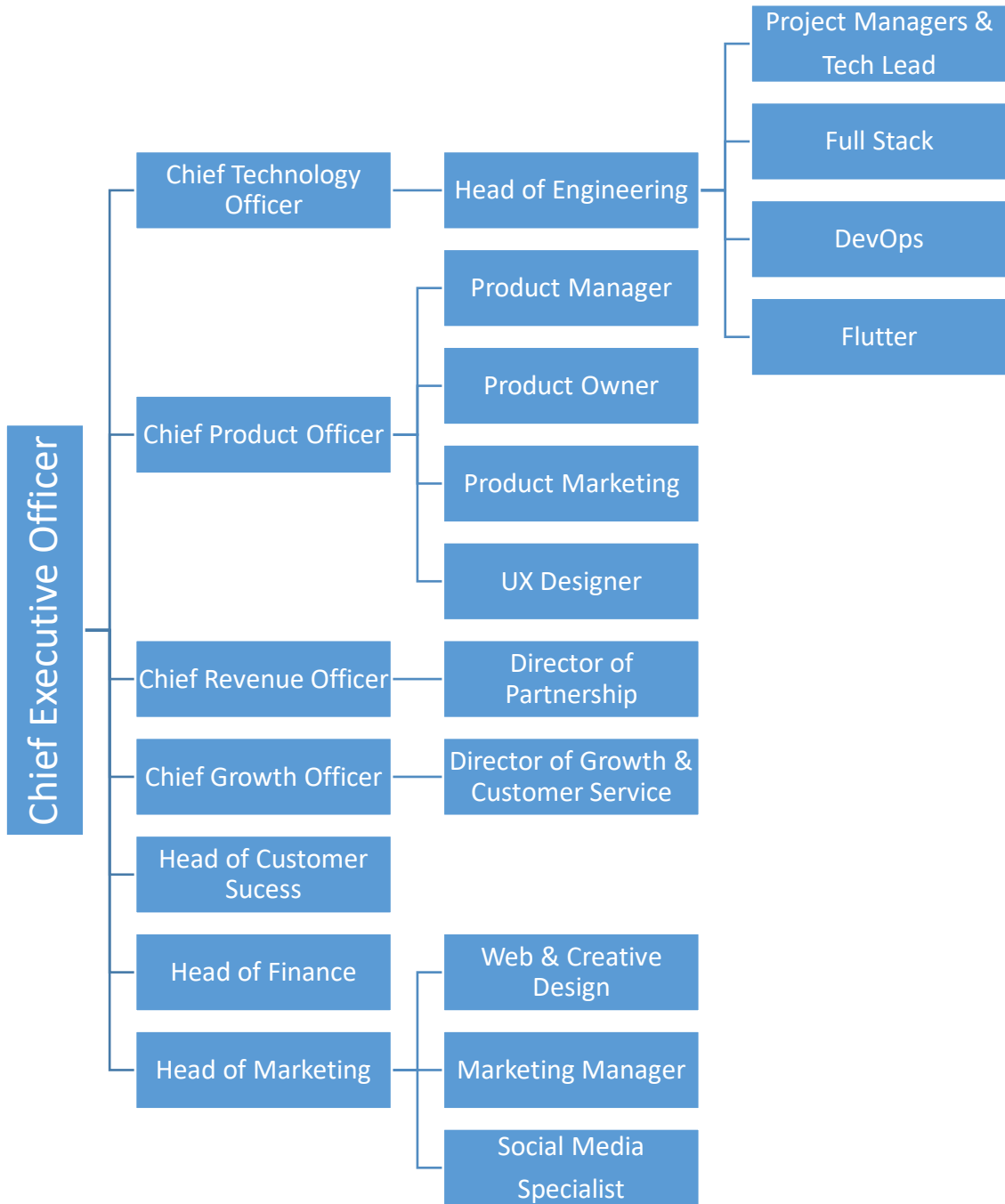


Figure 1: Organizational Hierarchy

2.3 Management Practices of CHEQ Lifestyle Inc.

2.3.1 Leadership Style

Leadership style is basically the approach utilized by the leaders so that they can influence, motivate and direct their followers. The implementation plans and strategies to accomplish any objectives within the organization is defined by the style of the leadership. The stakeholders have a lot of expectations from the leaders which they need to fulfill so as the team is highly motivated and performs the task. The most important thing in the leadership style is the trust. If the employees trust their higher authority, then there are chances that the employees will complete the set goals on time as well as they will frequently communicate with their team members.

Transformational Leadership

At CHEQ lifestyle technology inc. the leadership style is transformational leadership. It is basically the type of leadership in which the higher management works to transform the business by inspiring the team members. Team members are able to achieve and are capable of doing things that they never thought about. At CHEQ, team members need to be creative and innovate continuously as it is the technology sector. CHEQ lifestyle technology inc. is a high-growth oriented organization that is constantly trying to push boundaries in innovation and productivity. Higher authority also constantly guides the employees on the challenge they are facing. Because of the transformational leadership, the employees at CHEQ lifestyle technology have led to higher productivity and engagement.

2.4 Operations Management and Information System Practices

Operations Management can be defined as the field of business management that is concerned with the administration of the business practices so that the efficiency is maximized within an organization. Operations Management involves all aspects of the business management, from planning, organizing, implementing and monitoring of the strategies of the organization. Basically, operations management can be termed as being involved in managing the operations and process of the organization. Moreover, functions of operations manager include supply chain management, product design, quality control along with the delivery management. Operation managers have a cross-functional role where they assume a list of responsibilities across many domains. Operations management ensures that the services is provided to the customers with maximum efficiency. Excellent customer service is also one of the major aspects of the operations management. If the organization wants to achieve higher profits and maximum number of customers, then they should focus on their operations management.

Information system comprises of aspects for collecting, analyzing, storing, and processing data so that it can be used for providing information, knowledge or service. The company where I did my internship relied heavily on the information systems to manage the day-to-day operation as well as to better interact with the customers and suppliers. With the proper utilization of information system, the company can compete in the competition. Furthermore, this is the engineering office while the head office is situated in the USA so the information system comes handy to communicate as teams are dispersed in different areas of the world. As CHEQ is a technology company, so it relies on different types of technologies and practices. Use of technologies varies from one organization to other. Also, the technology depends upon the type of projects that are being developed at the company. Some of the technologies that are used in CHEQ lifestyle technology Inc. are as follows:

Scrum

Scrum is the tool to implement the agile methodology. Agile methodology is an approach to develop software, product, or service. It works in all situations. Basically, the agile methodology involves planning, development, delivery and operations. With the agile process, we can complete our work on time with clear scope. Scrum is the most common framework in agile. Scrum is an empirical process in which the decisions are based on past experiences and results of experimentation. It needs to heavily adapt to the learning and situations that arises in the course of performing work.

Jira

Jira is a proprietary product developed by a company called Atlassian. Through Jira we can work in agile project management as well as track bugs in our products. Jira is the famous issue tracking and project management tools that is used by the professionals all over the world. Jira can be used for all kinds of project management from software development to scrum management to content management and all.

Kanban

Kanban is a workflow management method that is used to define, manage and improve the services so that the knowledge of the work is delivered. Through Kanban, we can visualize works, maximize efficiency and continuously improve on all aspects. There is a Kanban board where the works are represented so that it allows transparency and optimization of the work across the teams and can handle even major complex projects in a singular environment.

Microsoft Excel

Microsoft Excel is one of the widely used spreadsheet developed by Microsoft. It has all kinds of features from calculation to computation, graphing as well as macro programming language.

At CHEQ lifestyle technology inc. excel is used for a lot of tasks that includes calculation, accounting, making graphs, goal planning, mock-ups, task list, check list, project management charts, time logs, attendance sheets, forms and planning.

Microsoft Teams

Microsoft teams is a platform so that people can chat, meet, call and collaborate in a single place, no matter where the people are based. It is a proprietary software developed by the Microsoft so that team members from around the world can talk to each other for professional as well as personal tasks. People can collaborate seamlessly across time and space. It has the capabilities of the online meeting software as well as scheduling meetings.

2.5 Industry and Competitive Analysis

Each company has to face competition in the domain of business they are doing. Due to the globalization and industrialization, the companies have to find new ways to innovate and stay ahead of their competitors. If any companies fail to do so, they can have serious consequences in the business. Competitive analysis gives critical information about the company as well as provides insights on the areas where the company needs to focus on. It analyzes the overall aspects of the competitive edge of the company so that companies can focus on their growth to gain maximum profit and make sustainable impact.

Porter's five forces model can be applied in any domain of the industry. It helps to understand the level of competition that the industry is facing, not only within the industry but also outside of the industry. It helps the businesses to enhance the company's ability for a long-term profitability. It identifies and analyzes the five competitive forces that is evident in all the possible industries. Furthermore, it helps all kinds of industries to determine their weakness and strength. To determine the future corporate strategy and to identify the structure of the industry, this model is helpful. It is named after Michael E. Porter, who was a professor in

Harvard Business School in 1979. Today, it has become a vital framework for each industry so that they are able to analyze their competitive environment. It is an important tool for managers to guide business strategy within and outside of the organization, so that they can increase the competitive advantage, it is widely used to evaluate business before entering into any new markets.



Figure 2: Porter's Five Forces Model

The Porter's five forces are as follows:

1. Competition in the industry
2. Potential of new entrants in the industry
3. Power of Suppliers
4. Power of customers
5. Threat of substitute products

Based on the CHEQ lifestyle technology Inc., I have tried to analyze the Porter's five forces model. The analysis is as follows:

1. Competition in the industry

Everything is going digital in nowadays world. People are moving to online transactions at the comfort of their home. There are lot of companies offering online services to their clients. However, the scope of online payment is very wide and expands to lot more industries than we can imagine. If we talk about overall digitization, then the competition is obviously high, but in the same way, digitization within the food industry and social integration is still in its nascent days.

2. Potential of new entrants in the industry

In the particular industry, where CHEQ is providing its services, there is high potential of new entrants in the industry. The industry is technology based, so anyone can build the platform and enter the company, while only few can differentiate themselves with each other based on the services they offer.

3. Power of Suppliers

As it is technology company, so there is very less power of the suppliers. There is no specific product as the main product of the company is software which is intangible. None of the hardware is involved of the company.

4. Power of customers

In the case of the customers, their influence is higher. The product is customer focused, so it needs more acceptance within the customers. The products should be used by the customers, otherwise the business will be obsolete.

5. Threat of substitute products

In technology, there is always threat of some kind of new technology. The service can be made better by some other kind of technology. This is a vicious cycle of products.

2.6 Conclusions

In the preceding, I have discussed about the management practices of the CHEQ lifestyle technology inc. along with that it includes the leadership style, operations management and the information systems that is currently being implemented in the organization. As they work with high technical tools, so the work is of higher quality and because of that it has established itself as the market leader in its domain. I am very grateful to this company for providing me such type of exposure by letting me involved in the tasks

Chapter 3 Project Part

3.1 Introduction

From cafes, restaurant, bars to stadiums, lot of different types of business are onboard with the CHEQ all over the world. There are different types of payment systems being used all over the world, depending upon the country and the service provider. Consumers at different locations use payment systems as per their preference. This creates a problem for the merchants who are using the service. Even the consumers face difficulty to pay for the product or service they demand. This results in the decrease in sales as well as loss of customers. Because of this, CHEQ system was directly hampered as the merchant using their systems could not process the transactions causing troubles in the business. The only way was to develop one universal payment gateway that will work over all the payment systems and all over the world.

CHEQ Payment Service (CPS) is a dedicated service for making the mobile payments over point of sale easy and accessible. The core responsibility of the CHEQ payment service is to abstract away all the implementation and integration details of different payment processor. All the types of gateways that CHEQ uses and provides will be structured and generalized API to interact with different processors. It will live as separate service as well as decoupled from the core backend. CHEQ payment service will be preferably be accessible via payments and POS systems in any place where the electronic transaction takes place. It will be available to all the businesses associated with CHEQ.

Agile methodology project management will be used to developed this system. As the other functionalities of system are already being used so small increments needs to be added and updated as we progress. Customer feedback is appreciated and incorporated in the service. The end user of the service will be the customer. Customer are also testers who will test the viability of the CHEQ payment system that will be developed.

3.1.1 Literature Review

Huge impact has been done in the daily life of all the human beings due to the fast advance of mobile technology. Wireless and networking technologies. Mobile commerce applications are on the rise in the recent years and more and more people are exploiting the mobile commerce as well as use of mobile for safer transaction of the money. P2P payment transactions support the related transactions between the mobile server and the payment server (**Gao et. al.,2005**) The social cost of a company's payment system is reduced substantially by the growth of the electronic payments. If the payment is online then the users are very much sensitive. They will pay for the low cost of the available items. Usage instrument differs but the payment instruments are needed by consumers even in the developed countries. Currently, there is a challenge to make the technology driven payments systems effective and efficient. Governments are coming up with policies that support cashless systems but also people are more inclined towards the amount of cash and circulation system (**Humphrey et. al.,2001**). The global trends is going towards the online payment services where there is no exchange of hard cash so that there are less chances of cash being lost as well as damaged.

Point of Sale (POS) is a time or place where customers complete the retail transaction at any commercial venues providing all types of products or services. It can also be considered as a point where customer and merchant interact and exchange payments and service. It is a type of electronic payment system. Due to the advancement of the technology, new methods are being developed which enables public to conduct banking transactions easily and hassle free (**Okeke et. al., 2018**). Point of sale (POS) is one of such examples of the world that is being globalized increasingly both in banking as well as non-banking institutions. Different variables like security, control,

convenience, consumer resources as well as awareness are to be considered while using the online transactions. The electronic transactions can be used to mobilize money safely, encourage savings and keep money within the country. Another feature of the electronic payments is that the spending of the individuals can be tracked and can be encouraged to other economic activities. Globally, mobile transactions have become trend that is dealing with one dollar to multi-million-dollar business. Trade and commerce all around the world are impacted due to the electronic payment systems. It may take some more effort to implement than the cash system.

Waterfall project management is considered as linear and phased approach while agile methodology is considered as iterative process in the software development (Casteren, 2017). As the customers mindset is constantly changing, waterfall model becomes outdated because of the long-time frame. Agile methodologies are used to produce fast results so as to meet customer needs.

3.1.2 Objective of CHEQ Payment System

CHEQ payment systems (CPS) is basically developed for all kinds of mobile transactions. It is a universal application for all CHEQ payments that will be carried out on the platform. The basic objectives of the CHEQ payment system are as follows:

- To authorize the point-of-sale payments between the customer and the merchant
- To capture the data of the transactions occurred on the platform securely
- To initiate any refund requests by the customers at any point of time on the platform
- To cancel the payments as required, both by the customer as well as the merchant

- To integrate different payment processor and gateways that are used by consumers

3.2 Methodology

3.2.1 Scrum Framework

One of the famous and widely used agile methodology is the Scrum. Scrum is designed to guide teams so that they work iteratively and incremental delivery of the product or service. It follows an empirical process. The empirical process is significant for the team so that they can respond to the customer feedback in an effective and efficient manner. We can control the requirements through the scrum by fixing the cost and the schedule. Scrum framework is heavily dependent upon the collaboration of the team and the customer. If the customer is not available, then customer representative should be present with the team. The customer representative should provide feedback to the team on the product or service that is developed.

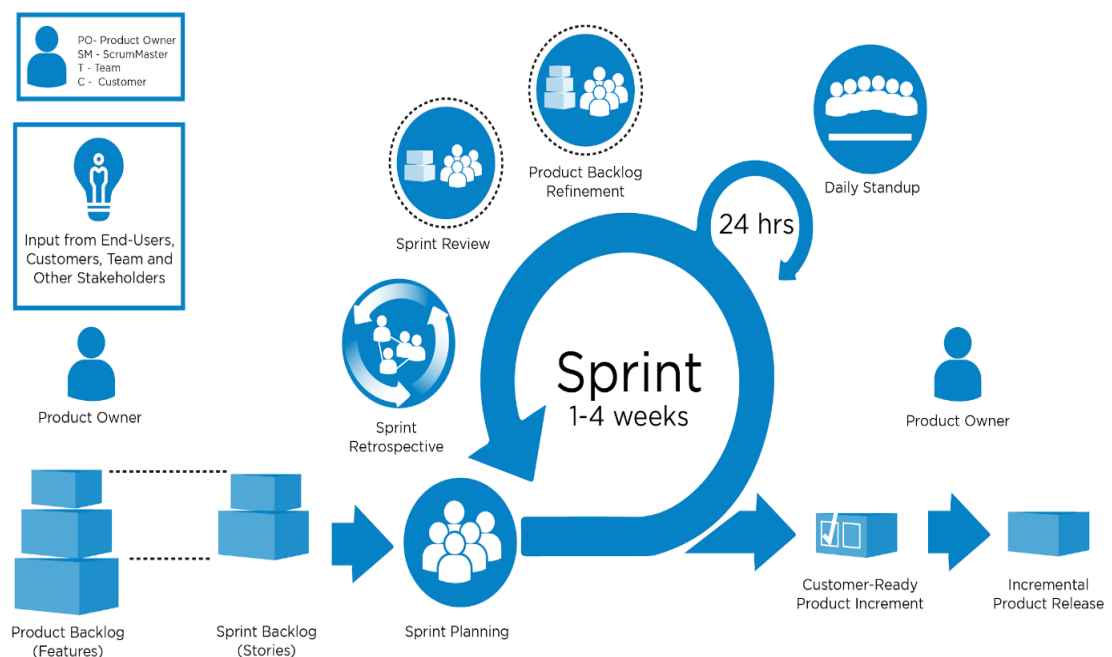


Figure 3: The Scrum Framework

Any project in Scrum is started with a vision of the product. The features of product are listed as importance according to the priority. These features are called as product backlog. Product backlog is maintained by the Product Owner. Product owner is basically a customer or customer representative. A time box is set up in which stipulated time, the iteration of the product is done. The iteration is called as sprint. Sprints are from one-four weeks in length. The same length of the sprint is continued throughout the project. The team selects items based on priority from the product backlog into the sprint backlog. In the sprint planning meeting the sprint backlog is created.

The work begins as soon as the sprint backlog is committed. The team focuses on the task by remaining shielded from all types of distractions. No any kind of change is incorporated in the sprint backlog, once it is selected to work upon. If any change is to be made, it can only be done in the next product backlog sprint. The team conducts 15 minutes standup meetings to check upon each other team members. At the end of the sprint, the demo is displayed and feedback is collected from the stakeholders. Retrospective is also held so as they can improve in the next sprint.

3.2.2 Tools & Technology

As CHEQ payment system is a technology related product developed for the point-of-sale. Project manager should have a basic understanding of the technology that is being used in the project. It helps project managers to keep track of the project. The types of technology used in the project are as follow:

- Adyen

Adyen is a payment technology that allows business to accept different types of payments. The different types of payments may include mobile, point-of-sale or ecommerce. For merchants, it offers merchant online services through credit

cards, debit cards, wire transfers or online transactions. It can connect merchants to all range of international payment methods and credit cards.

- Shift4

Shift4 is a payment processing company. It processes payments for different types of business from retail, hospitality to restaurant industries. Shift4 gathers business intelligence as well as integrates payment processes into various hardware and software process. It also offers cloud-based analytic software.

- Typescript

Typescript is a type of programming language. It is free and open source. Typescript is designed to develop large applications for both the client-side as well as server-side. It makes the java script codes easier to process.

- Node.js

It is a type of server-environment. It can run cross-platform on any type of operating system like Windows, Linux, Unix or macOS. It is a back-end runtime environment that executes java script code outside the web browser. It allows the creation of web servers that can handle various core functionalities.

- Nest.js

Nest.js is a type of framework to build node.js server-side applications. The applications built using nest.js are highly scalable and testable. It offers multiple functionalities with less code. A whole new feature can be started to build with a single line of command.

- Express.js

It is a minimal and flexible node.js web application framework. Express.js provides a robust set of features for both web and mobile applications. It is very useful technology.

3.3 Analysis on Project Management

CHEQ payment system development started using scrum as the agile methodology. This method of project management is widely used in the technology industry. Here at CHEQ, this project management methodology is used to develop any kind of product or to add new types of features. It gives the organization ability to complete the task efficiently and effectively on time.

3.3.1 Team Formation & Roles Division

A team was formed that consisted of seven people. There is no any sub team or hierarchy in the scrum. The team was cross-functional, self-organizing and capable of developing the CHEQ payment systems. No explicit intervention is to be made to the team from outside. The team takes their own decision and are responsible for their tasks. Three roles were assigned in Scrum and responsibilities were divided. The roles and responsibilities were as follows:

A. Product Owner – 1 Person

- To represent the voice of customer about CHEQ payment systems
- To own the product backlog and communicate vision to the team
- To define and prioritize backlog items to work in the sprint
- To provide guidance on the features of the system and make decision

B. Scrum Master – 1 Person

- To facilitate team communication about the CHEQ payment system
- To remove obstacles and meditate with the team regarding issues
- To negotiate with stakeholders of the CHEQ payment system

C. Developers – 5 Person

- To be responsible for the delivery of CHEQ payment system

- To own tasks and make task commitments about the development
- To report daily status about each other related to CHEQ payment system

3.3.2 Sprint Planning Meeting

Sprint planning meeting was held in the beginning of every sprint. It was conducted on the first day of the sprint. All the seven team members were present in the sprint planning meetings. The team members were one product owner, one scrum master and seven developers. At the meeting the product owner presented the set of features that he wanted to be completed in that sprint. The team determines the way in which those features will be completed. The work estimates were also determined so as to review if the tasks can be completed within that sprint time or not. The tasks were also prioritized based on the urgency that needed to be completed in that certain sprint. The tasks that had lower priority was to be completed in the next sprint.

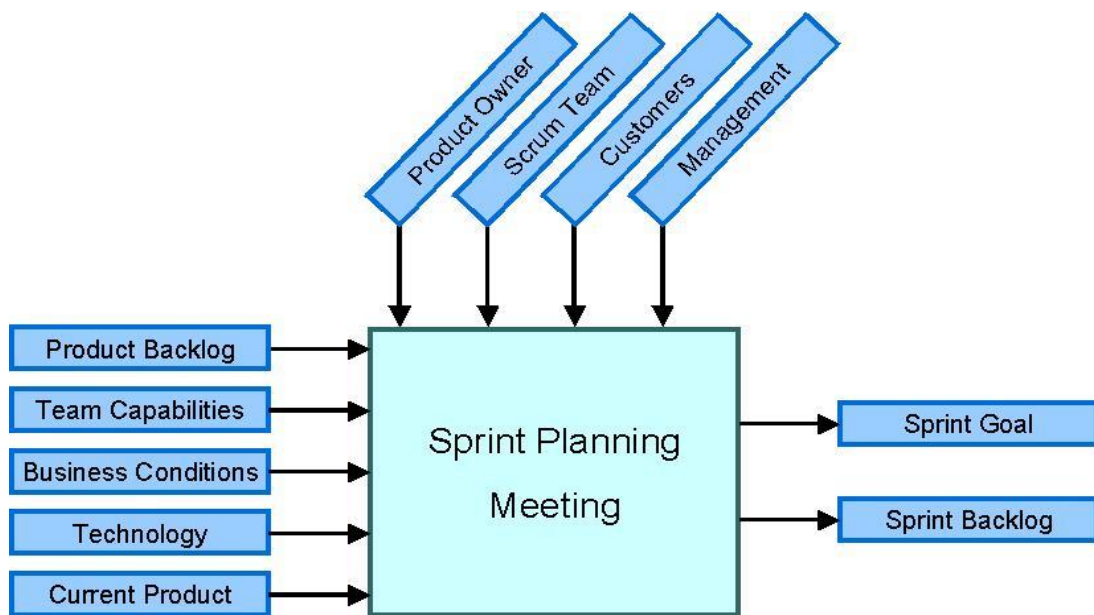


Figure 4: Sprint Planning Meeting

The features of the CHEQ payment systems that had high priority were chosen to work in the sprint while the features of the payment system that was not immediately required was to be put on hold till it got the team's approval to continue. At the end

of the meeting, all the attendees including product owner, scrum master and the developers were sure about the CHEQ payment features that needed to be worked upon and developed within that particular sprint. The team collectively commits to the batch of work to be done. The features of the CHEQ payment system to be built, tested and released is finalized in this meeting.

3.3.3 Daily Standups

Daily standups are conducted for a 15-minutes every day of the sprint. In this daily standup meetings five developers and one scrum master was present. Sometimes the product owner was also present but it was not mandatory. Daily standups are held at the same time and same place on every working day of the sprint. The major purpose of the daily standups was to improve communication as well as identify any impediments. The benefit of daily standup was that it promoted quick decision-making. No any other meetings were required to be held in order to complete the task in that meeting. The attendees took turns to speak about the tasks that they did yesterday and the tasks that they will be doing today. It created focus and improved self-management. Daily standups in agile methodologies are significant as they boost the morale of the team, provides motivation and builds connection. It also helped the team to align on the features of the CHEQ payment systems.

3.3.4 Tracking Progress

After the sprint planning meeting is completed and the team has made commitments for the features of CHEQ payment systems, the task is started to work upon. The progress needs to tracked in order for the transparency so that every member in the team is aware of the tasks being done as well as features being built. It also shields the team from external interventions. The stakeholders can get full perspective of the progress

being made on the project. It makes everyone feel invested in the outcome of the project.

Jira Scrum Board was used to track the progress in CHEQ payment systems. It provided a visual display of the tasks that was being worked upon and the tasks that were completed. It creates a culture of collaboration. During the development cycle, Jira Scrum Board helped to derive the iterative delivery and unify the team around the goal of completing the CHEQ payment systems. It is a single source of truth that increases team communication and transparency. It improves sprint planning and optimizes the development process so as to increase the focus of the team.

All the tasks that were assigned to the team members were included in the Jira Scrum Board. It helps to plan and work on different issues in a synchronized manner. It lets us to know what needs to be done and what the team members are going to work upon. It helps in executing the work while achieving the product delivery rather than spending huge amount of time in documenting the process. It is a very resourceful solution to manage the life cycle of any project. Multiple scrum boards can be used to facilitate the works being done during the sprint. Reports are also generated so that the progress of the project as well as the time spent on the project can be tracked. Jira Scrum Board is the single source of trust for a team required to finish the task. The blockers can be distinguished rapidly and everyone can clearly understand the project.

Bugs can also be tracked with the help of Jira scrum board. Bugs can be found and recorded in the CHEQ payment systems whenever arises. Team members can see each bug and the issues. Project managers can prioritize the bugs that needs to be addressed. Jira scrum board also allowed the project managers to acquire significant information about the team members in real-time. Project managers can also create a special space

where the team members can add additional information about the project. Jira Scrum board helps to keep updated to all the team members about the progress of the project as well as the stakeholders are engaged.

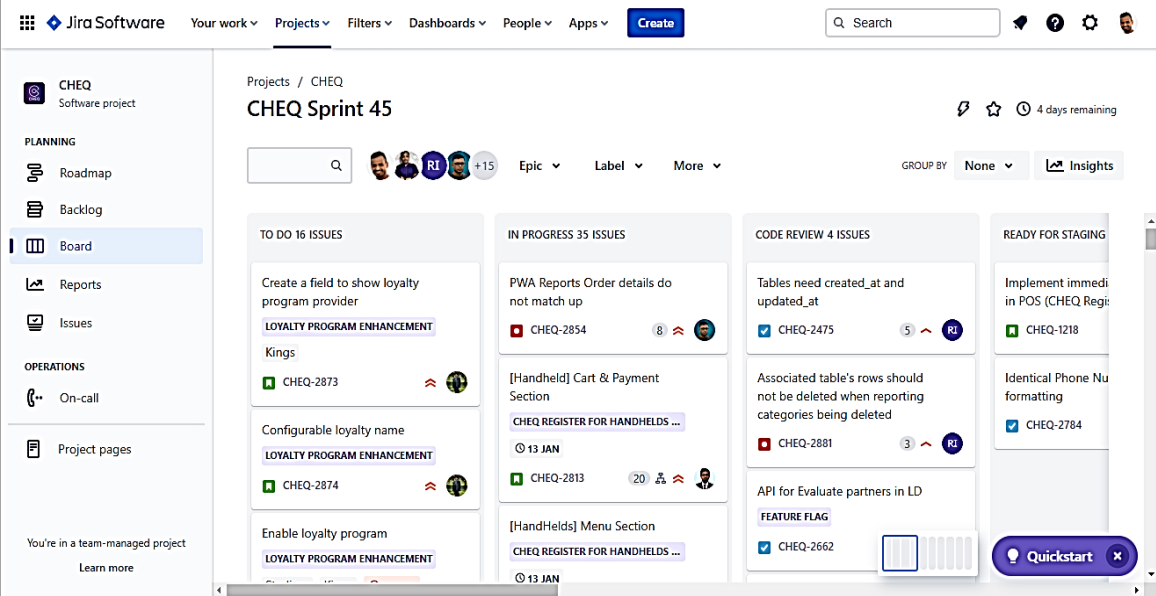


Figure 5: Jira Scrum Board (1 of 3)

The above Jira Scrum Board shows one of the sprints of the CHEQ payment systems. It is the CHEQ sprint 45. It contains to do issues, in progress issues, code review issues and ready for staging. It also shows the number of issues in each of the columns. Dev, Staging, UAT and production are the four environments in which the tasks are completed. To do issues represents the issues which needs to be worked upon. Those issues are finalized to be in the sprint backlog but currently are not being worked upon. In progress issues are the issues on which the developers are working upon. These issues are currently being developed of the CHEQ payment systems. Code review denotes that the feature of the CHEQ payment systems has been developed but needs to be review for any bugs or errors. It helps to minimize the errors in production.

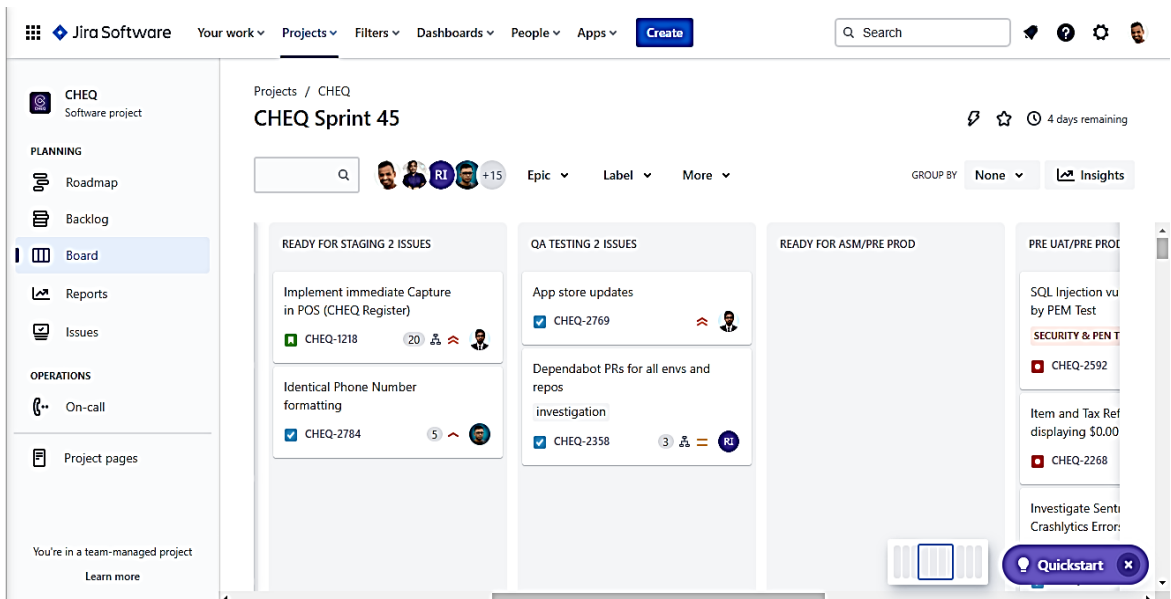


Figure 6: Jira Scrum Board (2 of 3)

The above figure shows the other three columns of the Jira Scrum Board. The columns that are being displayed are Ready for staging, QA testing and Pre-prod. In the ready for staging columns, the features of the CHEQ payment systems that are developed are ready for the testing features. Those features are developed as well as their code was reviewed. In the QA testing column, the issues that are being currently tested is kept. The QA team tests those issues so as to find any types of bug or errors.

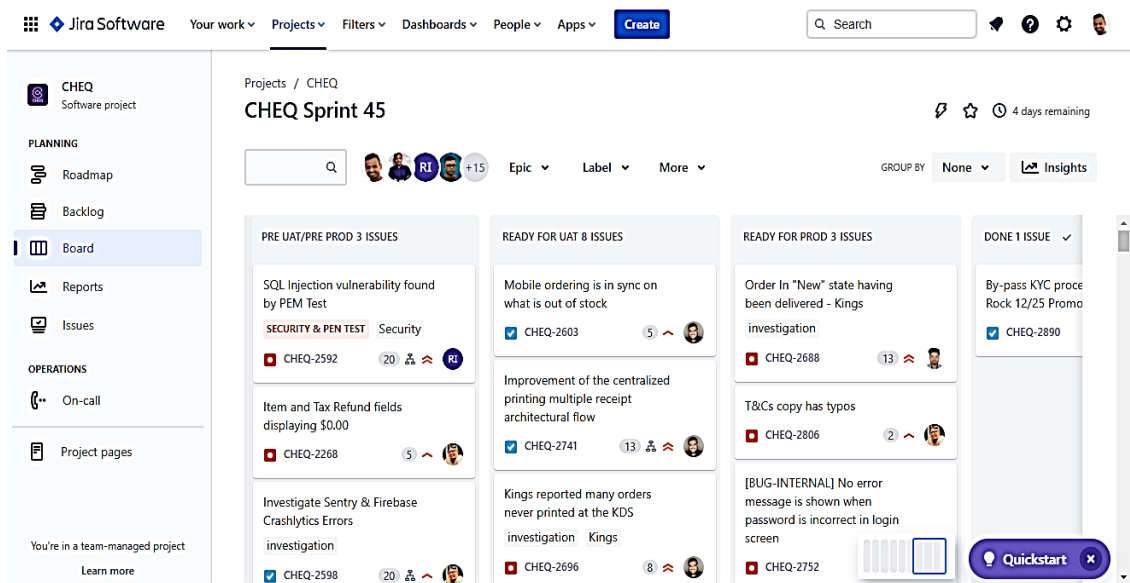


Figure 7: Jira Scrum Board (3 of 3)

From the above Jira scrum board, we can see four columns namely Pre-UAT, Ready for UAT, Ready for Prod and Done. Pre-UAT column denotes that still some works are being done on those issues after the QA has found out the bugs and reported to the developer. The developer then works on those issues. Ready for UAT denotes that the issues are ready for the user accepted testing. The features of the CHEQ payment systems cannot still be released to public but they are still being tested from the user point of view. Ready for prod denotes that all the issues that needed to be addressed are completed and are ready for production. Those features of the CHEQ payment systems can now be released to the public. The Done column denotes the tasks that are completed. Those are the features that are already in use and released to the customers. Done column is the final column in the Jira scrum board which is the ultimate destination of all the product backlog.



Figure 8: Velocity Report

Velocity report is the measure of the amount of work that can be completed in a single sprint. It is the major metric in the scrum. Velocity report gives the idea about how long does it take to complete the task in comparison to other sprints. Velocity report is also used to forecast release and product completion dates. It is also used to plan the future reports more accurately. The project managers can track how many tasks their team has

reported as complete. It also helps the project managers to estimate the effort required in the future sprints if the team composition as well as the duration of the sprint remains the same.

3.3.5 Sprint Review

At the end of each sprint, Sprint review meetings are held. The stakeholders of the CHEQ payment systems were invited by the team in the sprint review meetings. The features that are completed are demoed to the stakeholders and feedbacks are collected. The product owner keeps the track of the feedback with the help of the project manager. The feedback collected are later accommodated into the next product backlog. During this meeting a basic explanation of what has been done and what else needs to be done is discussed. Apart from the demonstrations, any increment to be done is put forward for the team. The product owner projects the likely delivery of the features based on the progress of the project. The team also collaborates on what needs to be done next along with the review of the timeline and budget of the project. The next feature that contains the functionality or capability of the CHEQ payment systems is to be worked upon is also discussed in the sprint review meeting.

3.3.6 Retrospective

Retrospective is the meeting of the internal team without any stakeholders. In the retrospective meeting, the team discusses about what went well and what they wish to continue doing. They also discuss about the difficulties that they faced during the sprint. The scrum master also collects the recommendations from the team members about the sprint. An action plan may be developed based on the recommendations and are included in the next sprint which will take place. The retrospective is held again at the end of other sprint and the efficiency of the feedbacks that were collected during the

earlier retrospective are analyzed. Retrospective ensures that each team members are working towards a single goal as teams have to quickly adapt to the rapidly changing the needs of the customer. The scrum master helps with the flow of information within the team, as the team needs to pivot quickly. It is used to monitor the performance as well as manage the work of the team members.

3.3.7 Release Planning

The features of the CHEQ payment systems are released during the release planning. It is also a way to do long-term planning for a certain time box that contains multiple sprints. This can be either released to the costumers or released internally. The release planning meeting is attended by the entire team. The product owner presents the features that are required in the CHEQ payment system and the team gives feedback about which features can be completed in the next sprint. Team members also estimate the time required for the features to complete within that quarter. The release planning is sometime cost-driven, time-driven or feature-driven. Cost-driven release planning denotes the budget and determines how the project will be completed if the money runs out. Time-driven release planning is concerned with the number of features that will be completed within the stipulated deadline. Feature-driven release planning basically talks about the number of features that can be completed in the number of upcoming sprints.

3.4 Conclusions

In project management, agile methodology with scrum is the most effective framework. This methodology allows the complex tasks to be broken down into small tasks. The mindset of the costumers is constantly changing and the organizations have hard time in keeping up with the demands of the costumers. It creates a lot of tasks to be done as well as complexity in the

project. It becomes difficult for the companies to track the progress of the report. Agile methodology of project management comes to the rescue of this problem. It makes the projects easy to track as well as monitor. Through this methodology, the team members are also tracked of their capability and contribution to the project. The tools and methods used in agile can also be used to estimate and further project the time and requirements for the project. Based on the learnings from the earlier projects, the blocks in the new projects can be handled as well as such mistakes cannot be repeated in the new and upcoming projects. I got experience and insights on the project management system through this internship. I can now apply these agile project management systems in any of the further project that I can be involved in. I enjoyed working at CHEQ lifestyle technology inc. as well along with meeting with other important personnel working in the domain of project management.

3.5 Recommendations

- Agile methodology is very flexible type of project management. This flexibility also means lower degree of predictability. It becomes difficult to accurately predict the time or resources.
- Collaboration and communication are the backbone of the agile methodologies but from the team point of view, it takes a lot of time and effort to keep up with the updates.
- Overall commitment is required from all of the stakeholders. Even if any one of the stakeholders seems uninterested then it can hamper the project.
- The features are completed and released very rapidly, therefore there is no time for documentation. In the future, it can create some kind of misunderstandings and difficulties for new members of the team.
- The structure of agile methodology is also not fixed, due to which it becomes difficult for some individuals to keep track of the project.

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