A Capstone Project on

iTEAMS: Web-Based Task Management System

Submitted in partial fulfillment of the requirement for the course of

Master in Information Technology

By

Nathanael Joshua M. Labios

School of Sciences and Engineering
University of Asia and the Pacific

UA&P
UNIVERSITY OF ASIA AND THE PACIFIC

Certificate of Completion

This is to certify that this capstone project entitled "**iTEAMS: Web-Based Task Management System**" and submitted by **Nathanael Joshua Manalaysay Labios** to fulfill part of the requirements for the degree **Master in Information Technology** was successfully defended on **20 June 2023**.

Joel D. Mendoza
Capstone Project Adviser

Giuseppe C. Ng
Lead Examiner

This capstone project manuscript is hereby officially accepted as partial fulfillment of the requirements for the degree of **Master in Information Technology**.

Cyrus Paolo M. Buenafe
Director, Master in Information Technology

Florencio O. Gaa, Ph.D.
Dean, School of Sciences and Engineering

UNIVERSITY OF ASIA AND THE PACIFIC
LIBRARY

Annex I.

Declaration of Authenticity by Thesis Writer

I, Nathanael Joshua M. Labios

Name of Thesis Writer

hereby certify that the soft copy of my thesis entitled:

iTEAMS: Web-Based Task Management System

is an exact copy of the approved hardbound manuscript/work.

I make this Certification under pain of administrative and/or academic sanction/s in the event that what I certify is untrue.

Nathanael Joshua M. Labios

Printed Name & Signature

07/05/2023

Date

Annex 2

AUTHORIZATION BY AUTHOR

I, Nathaniel Joshua M. Gabios, the author of the work/thesis entitled:

iTEAMS: Web-Based Task Management System

hereby grant non-exclusive rights to the University of Asia and the Pacific Foundation, Inc., (UA&P) represented herein by the UA&P LIBRARY, the non-exclusive right:

1. To store, catalogue, and archive in the UA&P Library Collection, and conserve the same;

2. To make changes in the format of the work for purposes of long-term storage and electronic communication as described herein;

3. Subject to the manner and conditions described herein, to communicate the work to the public using digital or electronic means on the World Wide Web, in PDF or Adobe format, to be undertaken under the auspices and control of UA&P or its duly authorized electronic/technical resources;

A. Conditions—With this Authorization, the following conditions apply:

1. The Work/Thesis shall be uploaded to the Library database only and viewed from its website accessed via the University Library by *bona fide* students and employees of UA&P and other researchers, with the corresponding fee fixed and enforced by the Library.

2. The abstract and the preliminary pages shall be made accessible over the World Wide Web through the university library website after electronic acceptance of *Terms of Use* (TOU) by all users.

3. The Full Text of the Work/Thesis may, at the sole discretion of UA&P be made accessible to UA&P patrons, other researchers, and other users over the World Wide Web exclusively accessible only via pre-approved subscription online and with electronic acceptance of *Terms of Use* (TOU) by all users.

4. UA&P shall install the appropriate software that will electronically block:

    (a) Object linking and embedding function
    (b) Storage into any user's storage devices
    (c) Printing

and ensure that copyright restrictions are on view to the public.

B. Author's Undertaking and Warranty—As author of the work, I undertake and represent:

1. To submit to the UA&P Library a soft copy of the above work in addition to its hard copy, as approved by the Dean, ensuring that the copy submitted follows the guidelines for submission and is identical, in all respects, to the original approved work.

2. That the Thesis/Feasibility Study is original work and does not infringe on any intellectual property rights of others;

3. That I own full copyright over the work with full publishing rights;

4. That I am solely responsible for the contents of the work, including all supplementary materials;

5. That I hold the UA&P Library and UA&P Foundation free and harmless from any and all claims arising from any violation of intellectual property rights.

6. That I have the moral right under the Law to execute this Authorization in favor of UA&P;

Pasig City, Philippines, July 2023.

Nathnael Joshua M. Galicia
Signature over Printed Name
Author

172 Alfonso Street, Ortigas Extension,
Brgy. Rosario Pasig City, Met. Manila, 1609
Address

Annex 3

TERMS OF USE

For users of UA&P Online Resources

Use of the UA&P Library resources does not give users ownership of any intellectual property rights in its Services, or the content accessed. Users may not use content from our Services unless permission is obtained from its owner or the use is otherwise permitted by law under the principle of Fair Use in the Intellectual Property Code, and in all cases, the user shall exercise proper attribution of authorship of resources.

The UA&P Library, its officers, agents, and employees shall not be responsible for lost profits, financial losses or indirect, special, consequential, exemplary, or punitive damages that may arise in the course of the use of its Services or the content accessed, and are held by the user to be free and harmless from any claim, suit or action arising from or related to the use of the Services or violation of these terms, including any liability or expense arising from claims, losses, damages, suits, judgments, litigation costs and attorneys' fees.

☑ I accept.

ABSTRACT

Task Management Systems have always been a go-to solution for companies regarding workload distribution, bookkeeping of client inquiries, and history of product enhancements in tasks distributed among employees to keep the workload fair, formal, detailed, and documented. This helps organizations keep track of their deliverables, implementations, schedules, and milestones to date.

This study discusses the development and implementation of an online task management system (iTEAMS) that will be able to replace the current LAN-Based task management system (TEAMS) of Software Farm International, Inc. (SFI). The study initially discusses the accessibility and connectivity issues that SFI employees have been experiencing with TEAMS when they first implemented work-from-home arrangements. A survey resulted in employees wanting a secure, new, and improved version of TEAMS that can be accessed via web browser so that they will not have to remotely connect to SFI servers to use a task management system. As the proponent studied the process of TEAMS, other issues on the current task management software became more prominent such as the software's constant crashing, its ancient architecture, and the program's inability to adapt to SFI's current workflow.

The study then tackled the development of the new iTEAMS Task Management System, which would later be evaluated by SFI employees through several surveys before, during, and after development, along with other measurement tools to evaluate the employees' productivity using the new system and the application's accessibility. The system is designed to replace the decade-old TEAMS software with more efficient processes, enhanced reports generation, minimal issues, more flexibility, and a smoother work process than its predecessor.

ACKNOWLEDGEMENT

The proponent would like to acknowledge and give his warmest thanks to Mr. Giuseppe Ng for being the proponent's consultant for this research, for his continuing support for this research, and to the faculty members of the University of Asia and the Pacific.

The proponent would also like to thank the Software Farm International, Inc. employees and the WinStockSS Team for their support, cooperation, and understanding of the proponent while undertaking this research with him.

The proponent would also like to thank our Lord, Jesus Christ, for his daily guidance, guiding the proponent through all the difficulties throughout this research. The proponent will keep on entrusting the future to You.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF KEYWORDS

iTEAMS	iTEAMS Task Management System (proposed product)
TEAMS	TEAMS Task Management System (an existing system used by SFI)
SFI	Software Farm International, Inc.
TPMS	Task Performance Monitoring Sheet
VPN	Virtual Private Network
WFH	Work-From-Home Arrangement
QA	Quality Assurance
PM	Project Manager
LAN	Local Area Network
ASYST	Accounting System (SFI)
IT	Information Technology
IS	Information Systems
SMB	Small and Midsize Business
AES	Advanced Encryption Standard
TLS	Transport Layer Security
AWS	Amazon Web Services
RSA	Rivest-Shamir-Adleman Encryption Algorithm
VB6	Visual Basic 6.0
CRUD	Create, Read, Update, and Delete
SDLC	Software Development Life Cycle
RDP	Remote Desktop Platform
RDS	Remote Desktop Services

I. INTRODUCTION

Task management is beneficial in every organization because it helps to maintain and organize workloads circling the organization and helps distribute tasks, workloads, and responsibilities fairly and efficiently.

A task management system aims to consolidate task management processes into one controllable technology platform that gives the user real-time information on how the process is going (Nickl, 2022).

This research aims to develop and implement an online task management system for Software Farm International, Inc. The system considers the processes of the company's older, LAN-based task management system (TEAMS), developed in 2011. It substantially improves with updated features, functionalities, and the adoption of information on the company's new business methods.

A. Company Background

Software Farm International, Inc. (SFI) is a complete computer systems provider founded in 1993 and currently holds offices in Ortigas. The company's mission is to design, develop, and deliver high-quality, industry-specific business systems software solutions, thereby creating healthy returns for the stakeholders, while its vision is to be a leading provider of business systems to any industry the company specializes in (SFI, 2022).

SFI currently has two (2) departments: ASYST, which focuses on accounting system software, and WinStockSS, which focuses on stockbroker system software. There are three trademark solutions under ASYST: the *ASYST Accounting System,* which provides an overall view of a company's operation and financial performance; *ASYST.NET,* which is a built-in module for the *ASYST Accounting System* that allows anytime-anywhere access for users; and *ASYST Construction* which provides an accounting system, material purchase, and management system designed for construction companies. The WinStockSS department, on the other hand, offers the trademark solution of SFI called *WinStockSS.NET. WinStockSS.Net* is the current backroom accounting software solution for the

Philippine Stock Exchange (PSE) (SFI, 2022).

Workload Management

SFI has an existing LAN-based task management system named TEAMS, developed using Microsoft Visual Basic 6.0 (VB6). The company developed TEAMS which has been deployed in its production server since 2011. TEAMS helps all the employees, including the company's senior management, to observe the flow of all the tasks in SFI. The tasks are divided by department, release dates, priority, employees assigned, date accepted, status, and other details. TEAMS also help people manage everything they need to do on a single platform, making prioritizations easier while occasionally monitoring their progress.

The TEAMS' original process in the current SFI procedures includes creating, reading, updating, and deleting tasks. Everyone on the team can perform the Create, Read, Update, and Delete (CRUD) procedures, including programmers, project managers, team leads, system analysts, and company executives. The team lead and system analysts also take on sorting tasks per release version and overseeing the progress reports.

Figures 1.1 to 1.3 show screenshots of the TEAMS Interface.

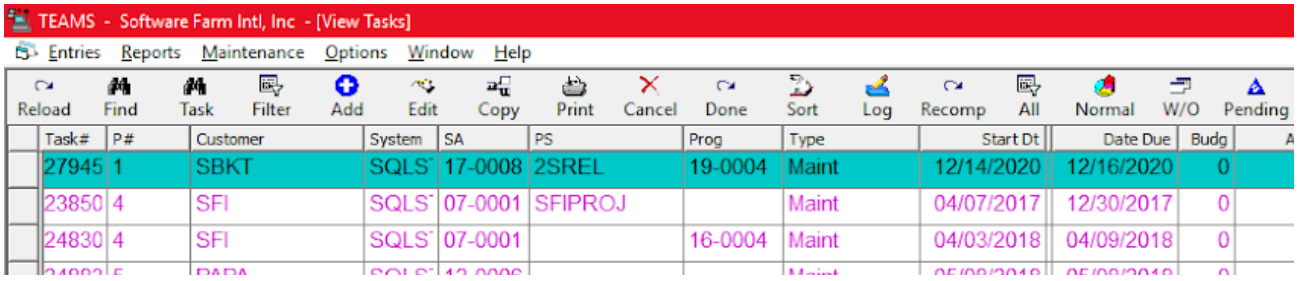

Figure 1.1. TEAMS Menu Interface

The menu interface of TEAMS displays all the tasks with no sorting and filters. Figure 1.1 above also shows the details of the tasks arranged by columns such as task number, customer, system, personnel assigned, due date, status, description, priority, and target release. The menu also shows a list of buttons for the users to execute processes such as reload, filter, add, edit, cancel, and many more. We can also see the

list of other tab menus above the menu, such as entries, reports, maintenance, options, window, and help.

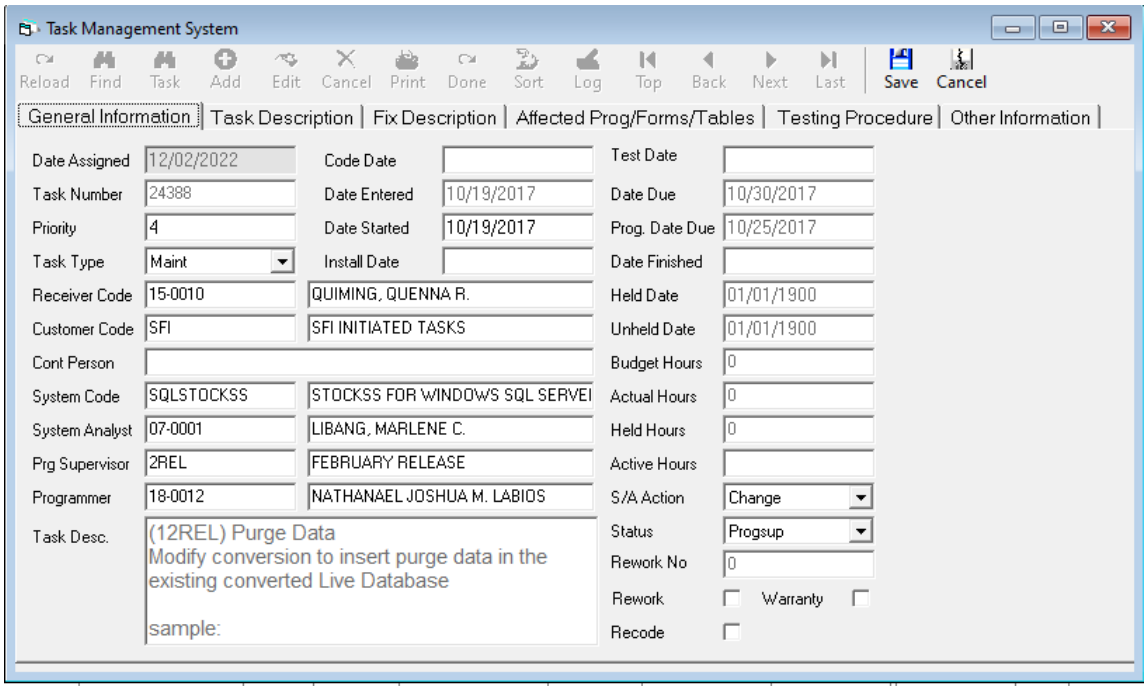

Figure 1.2. TEAMS Task Interface

The task interface of TEAMS displays the specification of a single task in full detail. The figure above shows every detail related to the task the user wanted to see. The interface also has different tabs according to the type of information the user wants about a task, such as general information, task description, fix description, testing procedure, and other information. The figure also shows the available buttons for the window: the Save and Cancel buttons that let the user update the task data or return to the menu interface.

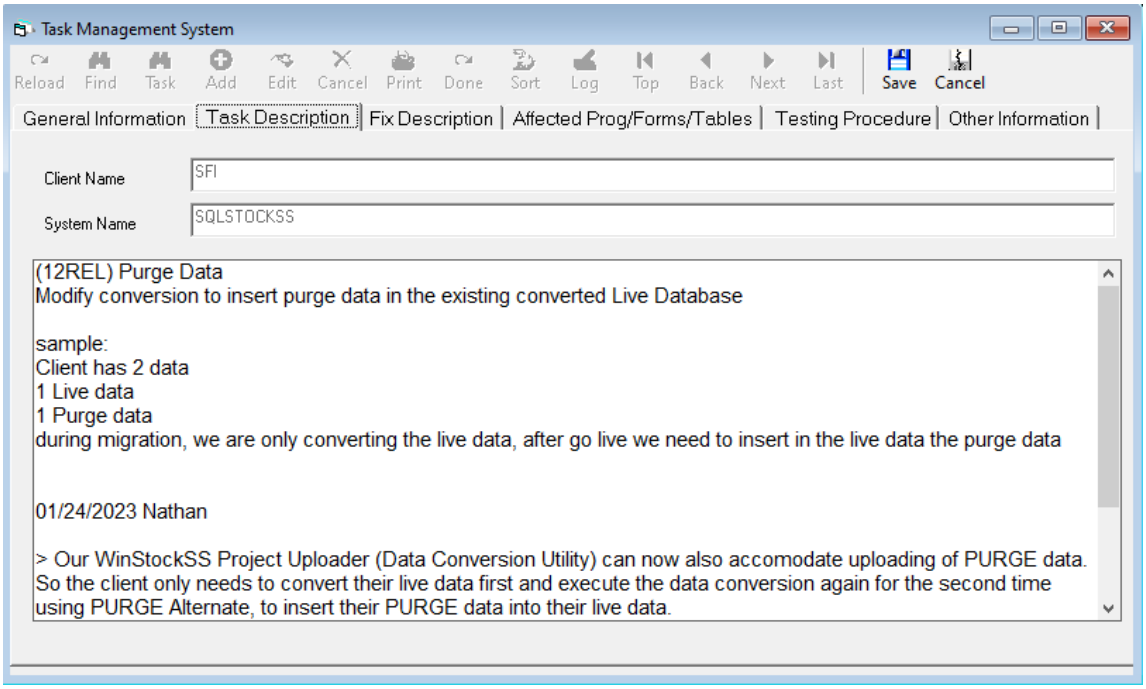

Figure 1.3. TEAMS Task Description Interface

The task description interface of TEAMS shows the full task description of a task (see Figure 1.3). The interface provides a text box for adding details regarding a specific task. The other tabs, such as fix description, affected forms, testing procedure, and other information, also have the same interface as the task description. The only difference is the type of information the user puts into the tasks' designated tabs.

Work From Home (WFH) Arrangement

Since its founding, SFI has never implemented a work-from-home arrangement permanently. However, there were times when it was granted to certain employees for a certain amount of time before the global pandemic. Since the global pandemic, SFI and other companies have decided to implement a work-from-home arrangement. SFI has implemented a VPN and Remote Desktop Connection facility for employees to connect to the SFI servers, remote-control their office desktops, and access TEAMS and other software using their home desktops to do work from home.

This arrangement can provide users access to systems and software like the usual on-site arrangement. However, the work-from-home setup yields much slower connectivity and often more frequent disconnections. In an eight-hour observation period, about 4 to 7 disconnections occurred for every user,

attributed to using the VPN to access TEAMS. The remote desktop connection showed instability, which was compounded by the internet connection issues that the employees faced. Understandably, remote desktop connection protocols demand more bandwidth because more data is transferred, including the remote system's entire graphical interface.

As mentioned by (Gibbs et al., 2021), the productivity of IT Professionals decreases during WFH setups due to the following reasons:

- Lack of focus
- Distractions at home
- Lack of communication, coordination, and collaboration
- Lack of productive interactions

Furthermore, Thorstensson (2020) mentioned that employees' productivity suffers in a WFH setup due to reasons presented in Table 1.1.

Table 1.1. Distractions Employees Suffer in WFH Setups

Technical Distractions	**Internal Distractions**	**External Distractions**	**Communicational Distractions**	**Psychological Distractions**
Slow internet	Anxiety	Urgent family issues	Limited communication	Feeling alone
Electrical power restrictions	Stress	Slacking during working hours	Feeling out of touch	Feeling disconnected
Social distractions				Feeling isolated
Entertainment at home				Feeling demotivated
Intensive use of social media				

Task Collaboration

According to Lai (2011), collaboration is the mutual interest of a group of people to accomplish a mutual problem using coordinated efforts. Collaboration involves people working together to accomplish the same task rather than in separate duties that involve separate portions. Collaboration works best in cases such as colleagues struggling on a matter or task, working together and sharing each other's ideas to solve problems faster, and often figuring out a much better approach in solving such struggles.

Task Collaboration at SFI

As an organization focused on Information Technology services, SFI has always promoted a teamwork-based environment. From setting the goals, briefing on the enhancements, and delegating tasks, all the way to developing and implementing goals. SFI promotes collaboration by dividing a certain enhancement into tasks in their respective depth and priority. Each of the tasks is assigned to three (3) employees. The tasks would consist of a Systems Analyst, a Receiver (QA, PM, or Team Lead), and a Programmer.

SFI also promotes a teamwork-based environment by encouraging its employees to brainstorm on tasks and allowing a certain number of employees to work on the same module with tasks assigned to each. Team members get to familiarize themselves with the modules developed through training. Likewise, the efforts and accomplished tasks are considered a team score rather than a point attributed to a single individual.

Table 1.2 shows SFI's three-core role in task supervision.

Table 1.2. SFI Three-Core Role

System Analyst	Receiver / QA	Programmer
The one who supervises the finished output of the task and checks if it is up to standard before marking the task as ready for implementation and release. (SFI, 2022)	The one who usually puts up the task directly from a client request and supervises the initial testing of the task. (SFI, 2022)	The one who writes and modifies the code as instructed in the task according to the instructions stated by the receiver. If the task is completed based on the instructions, submit it to the receiver for testing. (SFI, 2022)

B. Statement of the Problem

Although SFI has extensively used TEAMS for task management and workload distribution, it has shown several usability issues. One of these is the software's unavailability to perform with off-site access, which has been the cause of extreme delays as regards the performance of work-from-home employees since Employees will have to connect to their designated office workstations to access TEAMS from a remote site.

Problem Statement

Since its release in 2011, SFI has continued to use TEAMS, an internal task management system developed by the company. It was developed using Visual Basic 6.0 (VB6) and was originally designed to be a standalone application accessible within the company's local area network.

TEAMS has been a reliable software for SFI. However, the employees have been experiencing accessibility issues, especially during the pandemic, given the work-from-home and remote-access arrangements. With the company planning to continue its work-from-home arrangements even after the pandemic, it is foreseen that the employees' productivity will continue to be severely affected, given the software's performance and connectivity issues. As productivity concerns continue to be raised to the management, the company has realized that system maintenance and upgrade are no longer feasible since the software and platform used for TEAMS are considered obsolete and deprecated.

The purpose of this research is to address the said issues by looking into the performance and accessibility issues of TEAMS to develop and implement a web-based system using industry-standard technologies. This research also aims to address the known usability issues of the existing application by introducing updates on the interface that adapts to the company's current workflow. Finally, the researcher also intends to assess employee productivity improvement with the newly deployed web application.

Objectives

The general objective of the research is to design a state-of-the-art task management system that will result in the company operating the same or as much better as before they introduced a work-from-home arrangement. We also have four specific objectives to accomplish to achieve the general objective. These objectives include identifying the in-depth structure of TEAMS to be aware of the work processes internally and in a technical approach, identifying and removing structures and features of TEAMS that have become obsolete and serve no use for SFI anymore, creating a system that will replace and improve the workflow of the current TEAMS, and evaluating the system based on productivity, accessibility, and survey results.

Significance of the Project

The proposed research is crucial for SFI because the project can help the company increase its employees' productivity under the post-pandemic work arrangements. The clients of SFI will also considerably benefit from this initiative due to the prompt delivery of SFI's products and solutions. Likewise, the company's employees will be more productive while enjoying the benefits of a work-from-anywhere approach. As for the company's stakeholders, a potential increase in product deliveries would mean increased profit and could open doors to future investment opportunities and further build client relationships.

C. Initial Analysis

This section discusses the problem's analysis, data gathering using SFI's method of measuring productivity, and the formulation of possible workarounds to address the problem.

The Task Performance Monitoring Sheet (TPMS)

SFI monitors the tasks of each employee using its own *Task Performance Monitoring Sheet* (TPMS). TPMS is a document printed by the team lead after every program release to see the progress compared to previous releases. The document shows the total number of tasks per status grouped per version or release. The statuses are listed below.

SFI Task Statuses

- **New** – newly added or newly assigned tasks
- **Code** – when a programmer is coding a task
- **Testing** – the task is up for initial testing
- **Reproduce** – task fails to meet the company or task standard and is up for rework for the programmer.
- **Held** – the task is postponed.
- **Analyze** – the task is set for a briefing by the higher-ups, such as new enhancements to the team.
- **Progsup** – task passes the first testing phase and is up for the second phase.
- **Install** – the task is ready for compiling and will be deployed upon the scheduled release date.

February 2019		
Version 14.2		
	Version 14.1	Version 14.2
Total Tasks	100	100
New	2	0
Code	1	2
Testing	11	1
Reproduce	4	7
Held	0	10
Analyze	0	4
Progsup	1	2
Install	81	74
% Install	**81%**	**86%**

Figure 1.4. TPMS Overview

Figure 1.4 shows an overview of the Task Performance Monitoring Sheet (TPMS). One can see the total number of tasks grouped by status (rows) and for every version or release (columns). The percentage (%Install) is calculated by the total number of "Install" status tasks, which are the tasks ready for deployment, and divided by the total number of tasks minus the number of tasks with "Held" and "Analyze" statuses. This figure is multiplied by 100 to get the Install Percentage or Team Score.

Figure 1.5 below shows the formula to compute the team score.

SFI Team Score Formula

$$\% \text{ Install} = \frac{I}{T - (A + H)} \times 100$$

Variables:
T = Total Number of Tasks
I = Number of "Install" Tasks
A = Number of "Analyze" Tasks
H = Number of "Held" Tasks
% Install = Install Percentage / Team Score

Figure 1.5. SFI Team Score Formula

The TPMS Overview table in Figure 1.4 shows that the team score of version 14.2 increased by 5 percent with fewer 'Install' tasks but with higher counts of 'Held' and 'Analyze' tasks. The reader may refer to the appendices for a more in-depth review of SFI's TPMS compilation from 2019 to 2021.

Productivity Breakdown Based on Install Percentage

The graph below (figure 1.6)reveals the decrease in productivity of SFI employees based on an SFI team's series of TPMS scores from 2019 to 2021.

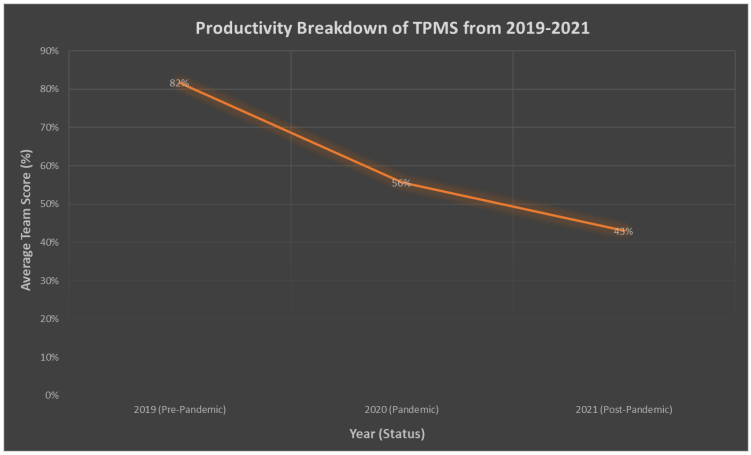

Figure 1.6. Productivity Breakdown of TPMS from 2019-2021

When mandatory work-from-home (WFH) was implemented in 2020, an overall decline in productivity rate via the Average Team Score) resulted., Before the drop in performance, employees worked in the offices and did not need to use a VPN and remote connection to work.

Alternative Solutions

With the main problem being attributed to network-related issues and the accessibility of TEAMS in a work-from-home setting, a couple of workarounds were performed.

The solutions revolve around the use of Remote Desktop Platforms (RDP) or Software and the use of a Virtual Private Network (VPN) to connect to the server remotely. Remote Desktop Platforms enable users to access a computer or device remotely. Virtual Private Networks, on the other hand, allow users to access public networks such as the Internet in a secure and protected connection.

Remote Desktop Platforms (AnyDesk & TeamViewer)

The solution will be to use remote desktop platforms such as AnyDesk and TeamViewer to connect to the server remotely at home. These platforms will allow the employees to access the server and TEAMS from there with a secure connection. Secure remote access is a combination of security measures and procedures programmatically designed to prevent unauthorized access to Private digital assets, intrusion, and loss of sensitive or confidential data (VMware, 2023).

However, this may cause a delay due to latency problems, and remote desktop connections mainly use both the download and upload speed of an internet connection which may be a problem for slower internet connections. Sometimes remote desktop platforms have slow response times. Several cons are the requirement of a powerful Remote Desktop Service (RDS) and workstation to monitor and hold multiple instances simultaneously (DeskGate, 2022).

Refer to Table 1.3 for the pros and cons of remote desktop platforms:

Table 1.3. Pros and Cons of Remote Desktop Platforms

PROS (DeskGate, 2022)	CONS (DeskGate, 2022)
Remote connection	Latency problems
Secure built-in connection	Slow response time
	Requires powerful RDS

	Requires decently built workstation

VPN + Remote Desktop Connection

SFI has been using a VPN for its employees to connect to the office network. The solution allows employees to connect securely, access the servers, and run the TEAMS application remotely.

Similar to Remote Desktop Platforms, VPNs can also be prone to connectivity issues. A VPN can decrease the overall speed of an internet connection because VPN connections are rerouted and encrypted to private servers. VPNs generally are not free, and subscription costs can be a drawback to users.

Refer to Table 1.4 for the pros and cons of VPN:

Table 1.4. Pros and Cons of Virtual Private Network (VPN)

PROS (NordVPN, 2022)	CONS (NordVPN, 2022)
Remote connection	Latency problems
Secure connection	VPN issues for slower internet connections
	Internet speed suffers drastically.
	Subscription cost

Task Compilation Delivery

The Task Compilation Delivery process entails employees manually compiling everything in a written note using pen and paper or in a document file. These will be sent to a staff who must report on-site. The personnel in charge then lists the different tasks that will be assigned to every employee. This procedure bypasses the use of TEAMS in the task distribution and, since this is performed every week, would not be ideal for urgent and critical scenarios. Likewise, the manual compilation is demonstrably prone to human error.

Refer to Table 1.5 for the pros and cons of task compilation delivery:

Table 1.5. Pros and Cons of Task Compilation Delivery

PROS	CONS
Direct task extraction by one person	Long process
No network connection issues	Tasks that are needed in a nick of time
	Waste of time and human resources
	Human errors
	Technically not an IT standard solution

D. Proposed Solution

The proponent proposes to develop and implement a secure web application version of TEAMS, which will adapt the current database structure. The new application will be web-based to provide all the advantages of the TCP/IP framework of network protocols... As a web application that adheres to the W3C (World Wide Web Consortium) standard, the system can be accessed using any web browser. The new system will be called iTEAMS as a tribute to its predecessor.

The Scope of iTEAMS

Refer to Table 1.6 for the features of iTEAMS Task Management System. The table consists of a parent and child feature wherein a parent feature is an entire class of a general feature that houses several classes of specific features and functionalities, which are the child features:

Table 1.6. iTEAMS System Features

Parent Feature	Child Feature
Admin Module	
	Employee Masterfile
	Company Information
	Module Display
	Security Levels

	System Features (built-in enhancements)
	Audit Logs
Masterfile Displays	
	Customer Masterfile
	Position Masterfile
	System Masterfile
Task Display	
	Task Masterfile
	Priority Masterfile
	Release Masterfile
	Task Status Masterfile
	System Analyst Action Masterfile
	Task Type Masterfile
Dashboard	
	Statistical Data Displays
	Overall Activity Observation
	User Profile Display
	To-Do List
	Task Notification Display
	License Information
Optimized, Updated, and Additional Reports	
	Task Listing Reports
	Masterfile Listing Reports
	Employee Task Evaluation Report
	Employee Task Quota Report

	Overdue Tasks Tracking
	Monthly Release Tasks Report
	Assigned Task Per Release
	Task Rework Count Report
	Task Summary Per System
	System Implementation Status Report
	Customer Implementation Status Report
	Release Implementation Status Report
	Audit Trail Report
Task Collaboration Module	
	Chat Module
	Task Chat Channels
	Team Chat Groups
	Direct Messages
	Message Notifications
Responsive Search Integration	
Modern Interface	
Email Integration	
Two-Factor Authentication	

iTEAMS Limitation

Refer to Table 1.7 for the limitations of iTEAMS. The table consists of several limitations or disadvantages of the iTEAMS Task Management System and a brief description that provides a general discussion about each limitation.:

Table 1.7. iTEAMS System Limitations

Limitation	Description
Internet Dependency	iTEAMS is a web application that requires an internet connection.
Client-Based Application (SFI)	iTEAMS is currently based on SFI standards and can only be used for SFI.
No Audio/Video Calls (iTEAMS Chat)	iTEAMS Chat does not offer audio and video calls.

iTEAMS Project Specifications

Here are the specifications of the tools and procedures used in developing iTEAMS. Refer to Table 1.8 for the system features of iTEAMS:

Table 1.8. iTEAMS Project Specification

Specification	Description
PHP Laravel (Backend)	Laravel is an open-source PHP web framework designed for web development. (Laravel, 2023)
Bootstrap 4 (Frontend)	Open-source CSS framework for front-end web development contains HTML, CSS, and JavaScript-based designs. (Bootstrap, 2023)
Microsoft SQL Server 2019 (Database)	Database management system developed by Microsoft mainly serves as a database server. (Wikipedia, 2023)
SQL Server Management Studio 18	Software Application that serves as a user interface

	for Microsoft SQL Server. (Wikipedia, 2023)
OOP Integration	Integration of OOP Style of Programming
Stored Procedure Integration	Integration of SQL Procedures
SFI Standard Coding Structure	Implementation of SFI Standard Coding
SFI Standard Project File Organization Schema	Implements SFI Standard arrangement for files, folders, classes, modules, installer, variables, database schema, and components.

iTEAMS Service Hub (A service platform utility for easier execution of technical processes)

Aside from the task management system, a standalone service hub application that will help the employees of SFI to set up iTEAMS will also be developed. The Service Hub will provide developer-specific tools to facilitate server-side or backend operations. The standalone service hub will include the following utilities:

- Database Creator
- Test Database Environment Creator
- Database Migrator (TEAMS to iTEAMS Database)
- Database Updater
- Website Creator
- Database Purging Utility
- Encryption/Decryption Utility

iTEAMS Hardware Specifications

Table 1.9 shows the hardware specifications of the server and client devices to run iTEAMS:

Table 1.9. iTEAMS Hardware Specifications

ITEM	SERVER	CLIENT
Processor	4x 1-6 GHz CPU	2x 1 GHz CPU
RAM	32 GB RAM	1GB RAM

HDD	320 GB – 8TB	Any
OS	Microsoft Windows Server	Any
Virtual Machine	Basic Large VM	Basic Small VM

The application server would need large storage, memory (RAM), and a Windows Server OS. iTEAMS will be designed to use Microsoft SQL Server (MSSQL) Database. iTEAMS will also be designed to manage image and file attachment storage. For client devices, the minimum requirements to run basic browser-based applications will suffice.

Progress Measurements

The proponent used the following metrics to measure the project's progress:

1. **Periodical Surveys**

   Several surveys will be conducted during development to get the employees' insights and feedback regarding the system's functionalities, how it now affects them at work, and if they encounter connection problems.

2. **TPMS Output**

   The target is for the team score to increase by at least 20% upon adopting the solution.

3. **Number of Disconnections,**

   The number of network or service interruptions, will be monitored. The average of four to seven disconnections per user per day, attributed to the old configuration, should be reduced or eliminated. We are looking at at least 2 disconnections per user per day with the w solution, considering other connectivity issues beyond our control (e.g., service provider issues, public infrastructure).

Project Success

The proponent would consider the project successful if the evaluation result of the system shows either of the following:

- TPMS install percentages have increased by at least 20% to 35% or;

- Install percentages are greater or equal to 70% and above which is the standard completion percentage for SFI or;
- Install percentages are 81% and above, which is the usual percentage for SFI in 2019;
- Connectivity issues while operating the task management system decreases by less than 30% to 50% and;
- Three out of five employees show positive feedback on the system under their current work setup.