

Sustainability Analysis of Requirements Specification

for

WaitrApp

Version 1.0 approved

Prepared by Group W:



**LUT course: CT70A2000 Requirements Engineering of Autumn
2021**

13.10.2021

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Revision History

Name	Date	Reason For Changes	Version
Group W Requirements Engineer	10.10.2021	Original draft of the document	0.1
Group W Requirements Engineer	10.10.2021	Adding content to the document	0.2
Group W Requirements Engineer	13.10.2021	Developer Sign-off	0.3
Group W Requirements Engineer	13.10.2021	Approving the first version of the document with customer	1.0

1. Introduction

Sustainability is the ability to continue a defined behavior indefinitely. Today, software systems are everywhere. Requirements Engineering develops and maintains system requirements specifications (SRS) for a software; hence the requirements engineering has a significant impact on sustainability. This document presents a sustainability analysis for the WaitrApp application.

The purpose of this document is to analyze different sustainability dimensions of the WaitrApp solution to support its SRS documentation. The goal of this document is to develop sustainable user and system requirements for WaitrApp considering individual, social, economic, environmental, and technical aspects for long-lasting application.

1.1 Purpose

The scope of this development cycle is to deliver those features which will meet the customer's needs to release the application. This release includes the main functionality of the WaitrApp: Ability to digitally manage tables and their orders, integration to the "Point of Sale" (POS) system, ability to manage the digital menus and authentication system. The goal is to deliver software which can replace the traditional order intake method of paper and pen. Objectives of the project are increasing the efficiency of customer service and this way to increase the restaurants revenue.

Problems with the project are managing the training of the end users and ensuring that the usage of the software is fluent. This would cause the system to achieve the opposite of the objectives that have been set to the project.

2. Framework for Sustainability of Software System Design (FSSSD)

The two main reasons for developing and implementing the WaitrApp for Wendy's Vegburger was to reduce food-waste and increase profitability. Table below presents sustainability goals in different states of software development lifecycle (SDLC).

SDLC Phases and Karlskrona Manifesto Principles	Sustainability Goals	Sustainability Concepts, Methods and Tools	Indicators / Measure / Metric
Phase 1. Project Definition - Provide users with easy UI to use the application - Ensure integration with POS - Ensure usage via Android devices and web browsers (Chromium based)	Design for: - Available and reliable application - Maintainability - Easy integration	Motivated by designing an application which will meet the quality attribute requirements that will ensure appropriate application	- Employee satisfaction survey - Usability testing - Does the app communicate with POS (y/n) - Does the app run in Android devices and web browsers (Chromium) (y/n)
Phase 2. User Requirements Definition - Insert order via WaitrApp mobile application - Ensure that the menu content can be modified using the admin menu via browser interface - Provide order status to users via mobile application - Send error message to admin when error occurs via mobile app push notification	Increase efficiency, reduce development costs	Sustainability requirement template	How many orders can be handled at the same time and is the order status accurate? Total number of system requirements affected by sustainability requirements
Phase 3. System Requirements Definition - User login with username and password - Table status displayed to the user - Display food and drink menus to the user - Modify food and drink menus via admin tools - Select food items to add them into order - Modify the order after the order has been confirmed - Review the order after the order has been confirmed - Product delivery and payment details - Logout from the application and browser interface	Design for efficiency with sustainability awareness. Design for modularity.	Social and individual dimension of sustainability, Goal Model, Requirements Sustainability Analysis Radar Chart	- Customer orders at the same time - Users logged in at the same time - Employee satisfaction survey

3. Goal Model

The idea of a goal model is to provide a holistic grouping of software application goals into business, usage, and system goals to identify and resolve possible conflicts as early as possible considering the five sustainability dimensions. Figure 1. Presents a sustainability goal model for WaitrApp.

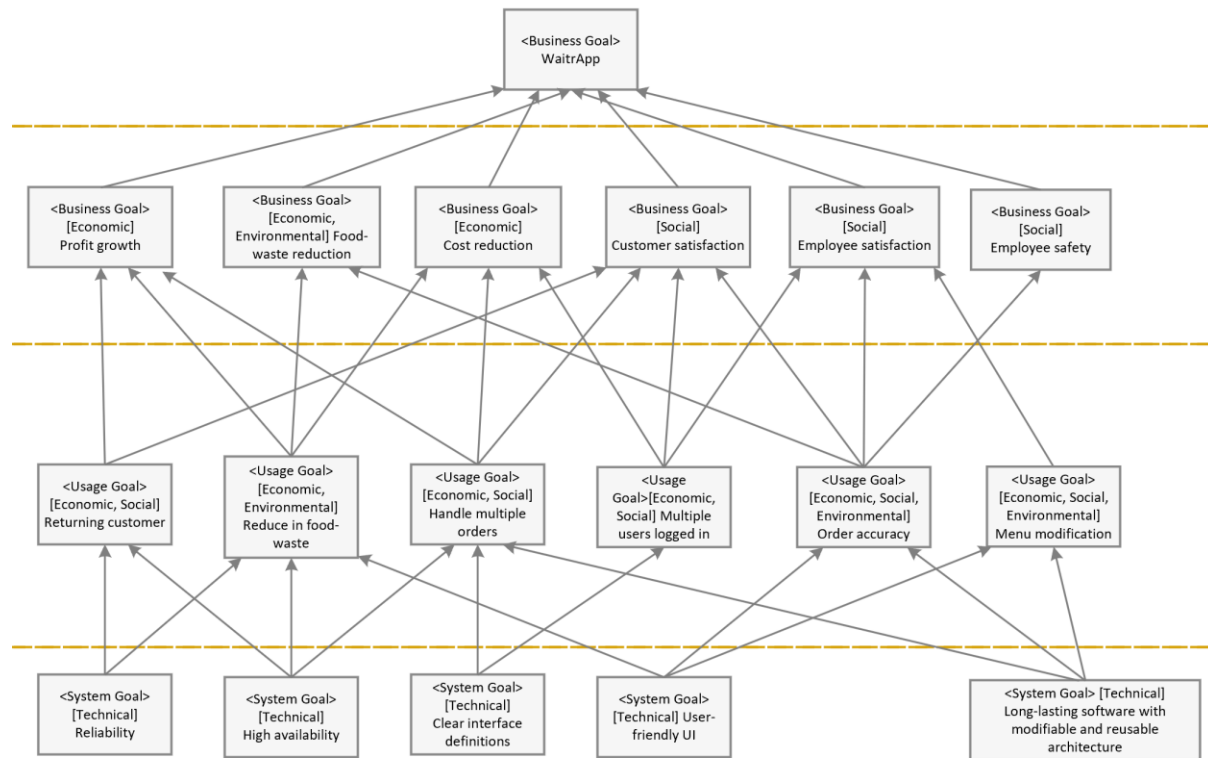


Figure 1. Sustainability Goal Model for WaitrApp

4. Sustainability Requirement Template

Sustainability Requirement Template is a tool for stakeholders to consider how software requirements relate to five sustainability dimensions and help to categorize them. Table below presents the sustainability dimensions of the user and system requirements.

Requirement	Sustainability Dimension	Explanation
Allow admin to create, view, update and delete a menu using the admin tools	Social, individual, technical	This requirement enables easy configuration and modification of menu which increases work satisfactory and helps digitalize menu and dish composition
Allow user to create, view, update, modify and delete an order using the mobile app	Economic, environmental, social, individual	This requirement enables digitalization of order handling which leads to higher order accuracy and work and customer satisfactory, and customer retention, and decreases food-waste and operational costs.
Allow user to view table map	Economic, social	This requirement enables planning for service which leads to higher profitability and work satisfactory.
Integration to POS system	Economic, technical, social	This requirement enables Increase on work satisfactory, since users do not need to input orders to POS system separately
Authentication and authority	Economic, technical	This requirement enables higher profitability
High availability (75%)	Economic, technical, social	This requirement enables higher profitability and work and customer satisfactory
High reliability: Rate of occurrence of failure < 0.02	Economic, technical, social	This requirement enables higher profitability and work and customer satisfactory
Multiple orders handled simultaneously	Economic, social	This requirement enables higher profitability and work and customer satisfactory
Multiple users using the WaitrApp at the same time	Economic, social	This requirement enables higher profitability and work and customer satisfactory
Modular coding practices with modifiable and reusable architecture	Economic, technical	This requirement enables long-lasting software with modifiable and reusable architecture and reduce in operational costs

5. Requirements Sustainability Analysis Radar Chart

Sustainability Analysis Radar Chart expresses the effects and impacts of a software system considering the five sustainability dimensions. The effects and impacts are divided into three categories depending how fast the impact is: immediate effect, enabling effect, and structural impacts. Figure 2. Illustrates Requirements Sustainability Analysis Radar Chart for WaitrApp.

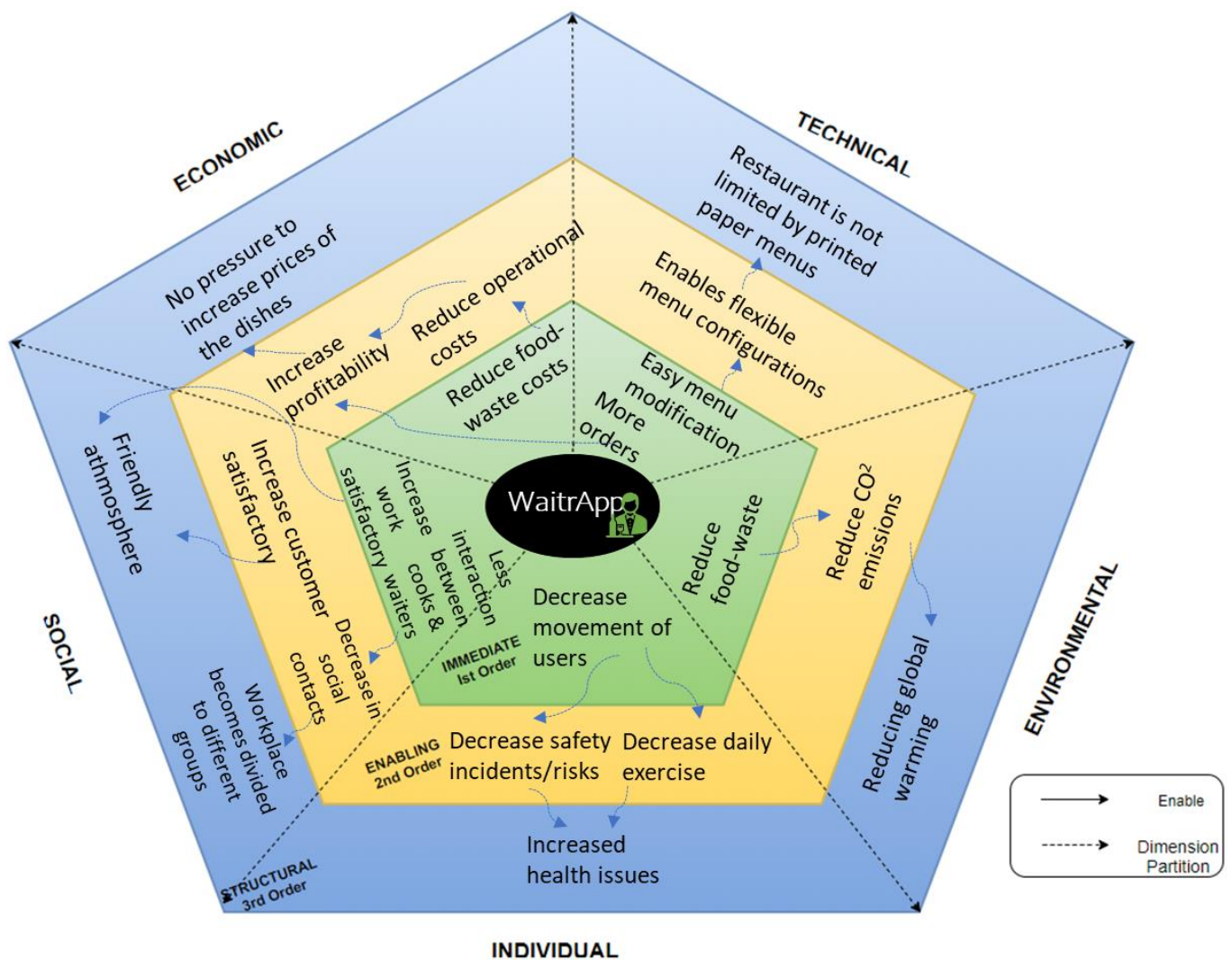




Figure 2. Sustainability Analysis Radar Chart for WaitrApp

Sustainability Analysis of Requirements Specification Approval 13.10.2021

The undersigned acknowledge they have reviewed the **WaitrApp Sustainability Analysis of Requirements Specification** and agree that it meets the set expectations.

Signature:  Date: 13.10.2021
Print Name: 
Title: Quite Senior Designer
Role: Provider, Group W Designer

Signature:  Date: 13.10.2021
Print Name: 
Title: CEO
Role: Sponsor

Signature:  Date: 13.10.2021
Print Name: 
Title: Almost a Developer
Role: Provider, Group W Developer

Appendix A: References

The following table summarizes the documents relevant for the project.

Document Name and Version	Description	Location
WaitrApp Vision and Scope v.1.0	Vision and Scope of WaitrApp solution	Project site
WaitrApp Requirements Management Plan v.2.0	Requirements Management Plan for WaitrApp solution	Project site
WaitrApp Software Requirements Specification v.1.0	Software Requirements Specification of WaitrApp solution	Project site
WaitrApp Use Case Document v.1.0	Use Case Document of WaitrApp solution	Project site

Appendix B: Sustainability Analysis of Requirements Specification Approval Template

The undersigned acknowledge they have reviewed the **WaitrApp Sustainability Analysis of Requirements Specification** and agree that it meets the set expectations.

Signature:	_____	Date:	_____
Print Name:	_____		
Title:	_____		
Role:	_____		
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