1. *Engineering Management*
2. *Information Engineering*

REDESIGN OF DELIVERY AND BILLING SYSTEMS TO REDUCE OPERATIONAL DELAYS AT PT WAJIRA JAGRATARA

FINAL PROJECT

Submitted in Partial Fulfillment of the Requirement for the Bachelor of Engineering Degree in Industrial Engineering

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IN INDUSTRIAL ENGINEERING
DEPARTMENT OF INDUSTRIAL ENGINEERING
FACULTY OF INDUSTRIAL TECHNOLOGY
UNIVERSITAS ATMA JAYA YOGYAKARTA
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IDENTITY PAGE

Final Project Title:

Redesign of Delivery and Billing Systems to Reduce Operational Delays at PT Wajira Jagratara

***IE Body of Knowledge*:**

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2	Challista Natania Chandra (221412064)	International industrial Engineering Program	UAJY	• Interview accounting/admin staff • Identify billing & documentation issues • Map administrative process flow • Review literature (EDMS, billing, SOP) • Conduct root cause analysis • Develop SOP (billing & DO processing) • Draft SOP implementation plan • Validate SOP with stakeholders • Monitor SOP performance
3	Pascavilano Revanda H.N. (221411753)	International industrial Engineering Program	UAJY	• Interview owner & operations manager • Identify managerial & technical issues • Map cross-department workflow

	• Review literature (digital logistics, system integration) • Design integrated digital system alternatives • Develop system architecture (DO, billing, fleet) • Draft implementation plan • Validate integrated system design

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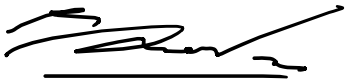
Hereby declare that our work entitled *'Redesign of Delivery and Billing Systems to Reduce Operational Delays at PT Wajira Jagratara'* is our original work produced in the year 2025, and that it does not contain any form of plagiarism from any other works.

Should any inconsistency with this statement be found in the future, we are willing to be subject to academic sanctions in accordance with the applicable regulations, including the revocation of the Bachelor of Engineering degree(s) conferred upon us by Universitas Atma Jaya Yogyakarta.

Thus, this statement is made truthfully and in good faith.

Yogyakarta, 19 December 2025

Declared by the undersigned,





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Dengan ini kami sampaikan bahwa mahasiswa terkait dapat melaksanakan kegiatan Observasi Industri di PT. Wajira Jagratara terhitung mulai tanggal 11 Agustus 2025 sampai dengan selesai. Dalam pelaksanaan kegiatannya, yang bersangkutan wajib untuk mematuhi peraturan Perusahaan selama berada di lingkungan kerja PT Wajira Jagratara.
Demikian kami sampaikan, atas perhatiannya diucapkan terima kasih

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PREFACE

The authors expresses gratitude to God Almighty for His blessings and grace, which have enabled the completion of this final project successfully. This final project report is prepared as one of the requirements for the Final Project in the Industrial Engineering Study Program, Faculty of Industrial Technology, Universitas Atma Jaya Yogyakarta.

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Yogyakarta, 19 December 2025

Authors

TABLE OF CONTENTS

COVER	i
IDENTITY PAGE	ii
APPROVAL PAGE	iv
ORIGINALITY STATEMENT	v
COMPANY AGREEMENT PAGE	vi
PREFACE	vii
TABLE OF CONTENT	ix
LIST OF TABLES	xi
LIST OF FIGURES	xii
LIST OF APPENDIXES	xv
ABSTRACT	xvi
CHAPTER 1 INTRODUCTION	1
1.1 Background	1
1.2 Problem Exploration	2
1.3 Problem Statement	8
1.4 Objective	8
1.5 Scope and Limitations	8
CHAPTER 2 LITERATURE REVIEW AND THEORETICAL BACKGROUND	9
2.1 Literature Review	9
2.2 Basic Theory	19
2.3 Standard and Ethic Code	29
CHAPTER 3 ROOT CAUSE IDENTIFICATION AND ALTERNATIVE SOLUTION SELECTION	34
3.1 Overview of the System	34
3.2 Root Cause Identification	38
3.3 Development and Selection of Alternate Solutions	44
3.4 Team Workplan	51
3.5 Selection of Methods and Tools	54
CHAPTER 4 METHODOLOGY	59
4.1 Final Project Stages	59
4.2 Empathizing	60
4.3 Defining	62
4.4 Ideating	63
4.5 Prototyping and Design Method	65
4.6 Testing	74
4.7 Uniqueness	76
CHAPTER 5 BUSINESS PROCESS REDESIGN	77
5.1 Analysis of Business Process Stages Requiring Digitalization	77
5.2 Digital Transformation of Manual Business Processes	80

CHAPTER 6 FLEET MANAGEMENT SYSTEM 90
6.1 Overview of Fleet Management System 90
6.2 System Requirement Analysis 92
6.3 Proposed Fleet Management System Architecture 95
6.4 Fleet Management System Functional Design 97
6.5 Fleet Management System Design Standards 103
6.6 Rule-Based Allocation Mechanism 105
6.7 User Requirement 109
6.8 User Workflow Design 111
6.9 User Interface Design 115
CHAPTER 7 DEVELOPMENT OF STANDARD OPERATING PROCEDURES AND KEY PERFORMANCE INDICATORS 122
7.1 Standardization Subsystem Overview 122
7.2 Development of Standard Operating Procedures 122
7.3 Process Identification and Mapping 123
7.4 Process Redesign 129
7.5 Standard Reference in the Preparation of SOPs 130
7.6 Drafting SOP 132
7.7 Development of Key Performance Indicator 183
CHAPTER 8 DIGITAL INTEGRATION OF DELIVERY AND BILLING SYSTEMS 193
8.1 Overview of Digital Integration System 193
8.2 Design Standards and Development Methodology 194
8.3 User Requirements 195
8.4 System Architecture Design 196
8.5 Delivery Order Digital Management System 199
8.6 Fleet Management System Design 205
8.7 Digital Billing System Design 211
8.8 Iterative Design 216
8.9 Integration Between Delivery, Fleet, and Billing Systems 219
8.10 Parties Involved 221
CHAPTER 9 IMPLEMENTATION 222
9.1 Prototype Testing for Proposed Driver Application 222
9.2 Digital Integration of Delivery and Billing Systems Prototype Testing 227
9.3 Implementation Involvement 231
9.4 Critical Success Factor Measurement 231
9.5 Cost Analysis 236
9.6 Sustainability 239
CHAPTER 10 CONCLUSION AND SUGGESTIONS 240
10.1 Conclusion 240
10.2 Suggestions 241

BIBLIOGRAPHY 242
APPENDIX 244

LIST OF TABLES

Table 1.1 Stakeholder Issues in Current Operations 3
Table 1.2 Delivery Order Return Delay 5
Table 2.1 Summary Table of Literature Review 13
Table 3.1 Fishbone Diagram and Interrelationship Diagram Element 41
Table 3.2 Relationship Between Key Factors and Alternative Solutions 46
Table 3.3 Criteria Pairwise Comparison Matrix 48
Table 3.4 Normalization Matrix 48
Table 3.5 Assessment Score 49
Table 3.6 Alternative Solution Comparison 49
Table 3.7 Selection of Method and Tools 55
Table 5.1 Waste Analysis in Current Business Process 80
Tabel 5.2 Business Process Improvement 81
Table 5.3 Redesigned Activity Mapping 89
Table 6.1 Relationship Between Identified Waste and Proposed Fleet Management System Design 90
Table 6.2 System Requirements 95
Table 6.3 Driver Mobile Device Requirements 105
Table 6.4 Eligibility Rules for Driver Allocation 107
Table 6.5 Priority Rules for Driver Allocation Management System 108
Table 6.6 User Requirements Analysis of the Fleet Management System 110
Table 7.1 Mapping Between Redesigned Activity and Proposed Standardization 122
Table 7.2 Identification Matrix 124
Table 7.3 SOP and WI Document Structure 127
Table 7.4 Comparation of Current and Improved Condition 129
Table 7.5 Use of Standard References 130
Table 7.6 Role of Framework 184
Table 7.7 Balanced Scorecard Perspective 185
Table 7.8 KPI Measurement Focus 186
Table 7.9 SMART Criteria 187
Table 7.10 KPI Formulation and Calculation Method 189
Table 7.11 KPI Data Source, Monitoring Frequency, and Responsibility 192
Table 8.1 SDLC Stage 194
Table 8.2 User Requirements 196
Table 8.3 Delivery Order System Features 201
Table 8.4 Fleet Management System Features 207
Table 8.5 Digital Billing System Features 213
Table 9.1 Pre-Test Phase Question 222
Table 9.2 Scenario Bases Testing 223
Table 9.3 Result of Pre-test Question 224
Table 9.4 Task Scenario 228

Table 9.5 Generation of Invoice Delays for PT PIMBI CORPS INDONESIA per April 2026 233
Table 9.6 Generation of Invoice After Implementation per June 2026 235
Table 9.7 Results of Cost Analysis Opportunity Cost Calculation 238
Table 9.8 Results of Cost Analysis 238
Table 9.9 Implementation Cost for Third-Party Vendor 238
Table 9.10 Sustainability 238

LIST OF FIGURES

Figure 1.1 Company Structure 2
Figure 1.2 Expeditionary Fleet 2
Figure 1.3 Manual Process of Allocating Drivers 6
Figure 1.4 Relationship Between Issues 7
Figure 2.1 System Development Life Cycle (SDLC) Stage 21
Figure 3.1 Current Business Process 36
Figure 3.2 Fishbone Diagram 39
Figure 3.3 Interrelationship Diagram 42
Figure 3.4 Role of Member to System Diagram 54
Figure 4.1 Overall Final Project Implementation Stages 60
Figure 4.2 Empathizing Process 61
Figure 4.3 Defining Process 62
Figure 4.4 Ideating Process 64
Figure 4.5 Integrated Operational Management System Architecture 66
Figure 4.6 Prototyping Process 68
Figure 4.7 Fleet Management System Prototyping Process 70
Figure 4.8 SOP and KPI Prototyping Process 72
Figure 4.9 Digital Integration System Prototyping Process 74
Figure 4.10 Testing Process 75
Figure 5.1 Waiting Activity Delivery in Order Process 77
Figure 5.2 Waiting Activity in Allocating Driver 78
Figure 5.3 Overprocessing Activity in Administrative Process 79
Figure 5.4 Current Business Process Improvement Analysis 83
Figure 5.5 Improvement Analysis in Business Process Redesign 85
Figure 5.6 Current and Improved Process of Allocating Drivers 88
Figure 6.1. Proposed System Architecture 97
Figure 6.2 Fleet Allocation Module Flow 99
Figure 6.3 Fleet Monitoring Module Flow 100
Figure 6.4 Document Management Module Flow 101
Figure 6.5 Flowchart Rule-Based Driver Allocation 106
Figure 6.6 Main Application Driver Flow 112
Figure 6.7 Digital Queue Driver Flow 113
Figure 6.8. Maintenance Form Filling Driver Flow 115
Figure 6.9 Welcome Page 116
Figure 6.10 Profile Interface 117
Figure 6.11 Task Interface 118
Figure 6.12 Trip Status Update Interface 119
Figure 6.13 Queue Management Interface 120
Figure 6.14 Trip History Interface 121
Figure 7.1 SOP-ORD-001 Page 1 134
Figure 7.2 SOP-ORD-001 Page 2 135
Figure 7.3 WI-ORD-001 137

Figure 7.4 WI-ORD-002 138
Figure 7.5 WI-ORD-003 139
Figure 7.6 SOP-DLV-001 Page 1 141
Figure 7.7 SOP-DLV-001 Page 2 142
Figure 7.8 WI-DLV-001 144
Figure 7.9 WI-DLV-002 145
Figure 7.10 WI-DLV-003 146
Figure 7.11 WI-DLV-004 147
Figure 7.12 WI-DLV-005 148
Figure 7.13 SOP-INV-001 Page 1 150
Figure 7.14 SOP-INV-001 Page 2 151
Figure 7.15 WI-INV-001 153
Figure 7.16 WI-INV-002 154
Figure 7.17 WI-INV-003 155
Figure 7.18 SOP-INC-001 Page 1 157
Figure 7.19 SOP-INC-001 Page 2 158
Figure 7.20 WI-INC-001 161
Figure 7.21 WI-INC-002 162
Figure 7.22 WI-INC-003 163
Figure 7.23 WI-INC-004 164
Figure 7.24 SOP-MVI-001 Page 1 166
Figure 7.25 SOP-MVI-001 Page 2 167
Figure 7.26 WI-MVI-001 169
Figure 7.27 WI-MVI-002 170
Figure 7.28 WI-MVI-003 171
Figure 7.29 SOP-KIR-001 Page 1 173
Figure 7.30 SOP-KIR-001 Page 2 174
Figure 7.31 WI-KIR-001 177
Figure 7.32 WI-KIR-002 178
Figure 7.33 WI-KIR-003 179
Figure 7.34 WI-KIR-004 180
Figure 7.35 WI-MDM-001 182
Figure 8.1 User Layer 196
Figure 8.2 Application Layer 197
Figure 8.3 Data Layer 198
Figure 8.4. Architecture Design 198
Figure 8.5 Delivery Order Flow 199
Figure 8.6 UI Design for Order Data Input 202
Figure 8.7 UI design for Confirm Order 202
Figure 8.8 UI Design for Order Recap Dashboard 203
Figure 8.9 UI Design for DO Verification 204
Figure 8.10 Fleet Management System Flow 205
Figure 8.11 UI Design for Driver Page 208
Figure 8.12 UI Design for Fleet Management Homepage 209

Figure 8.13 UI Design for Real-Time Driver Tracking 209
Figure 8.14 UI Design for ETA Monitoring 210
Figure 8.15 UI Design for Proof of Delivery 211
Figure 8.16 Digital Billing System Flow 212
Figure 8.17 UI Design for Invoice Page 214
Figure 8.18 UI Design for Generating Multiple Invoice 215
Figure 8.19 UI Design for Generate Invoice 215
Figure 8.20 Iterative Design for Order Data Input 216
Figure 8.21 Iterative Design for Order Recap Dashboard 217
Figure 8.22 Additional Design for Driver Allowance Recap Page 218
Figure 8.23 Additional Design for Input Driver Allowance Page 218
Figure 8.24 Integrated Operational Flow 220
Figure 9.1 Task Completion Time of Driver 1 225
Figure 9.2 Task Completion Time of Driver 2 225
Figure 9.3 Task Completion Time of Driver 3 226
Figure 9.4 Task Completion Time of Driver 4 226
Figure 9.5 Task Completion Time of Driver 5 227
Figure 9.6. Usability Score Maze Results 230
Figure 9.7 Average Task Completion Time 231

LIST OF APPENDIXES

Appendix 1. Statement Letter of Group Capstone Design Project 243
Appendix 2. Example of SOP 244
Appendix 3. Discussion with Company Stakeholders 246
Appendix 4. Implementation Process 246

ABSTRACT

PT Wajira Jagratara Transindo is a logistic company specializing in the distribution of motorcycles and electronic products. The company's operational activities are still highly dependent on manual processes, including delivery order management, driver allocation, document handling, shipment monitoring, and billing administration. These conditions result in operational delays, fragmented information, document processing inefficiencies, and the absence of standardized operational procedures. As a result, the service performance and operational efficiency of the company is ultimately affected. Therefore, this capstone project aims to redesign the company's operational system by redesigning its business process and developing supporting managerial and digital solutions.

A business process improvement approach was adopted, starting with problem exploration to understand the existing operational conditions and identify key improvement objectives. Root cause analysis was subsequently conducted to determine the underlying causes of operational inefficiencies, which became the basis for the business process redesign as the primary solution. To support the implementation of the redesigned process, an integrated operational website and driver application were designed to digitalize operational activities, facilitate real-time information sharing and access, also improve process visibility. Furthermore, a hierarchical documentation system consisting of standard operating procedures (SOP) and work instructions (WI) was developed to standardize cross-functional processes and task-level activities. A Key Performance Indicator (KPI) framework was also formulated using the Balanced Scorecard as the performance measurement framework and SMART criteria as the reference for developing measurable and relevant performance indicators.

The project resulted in a comprehensive operational management design comprising redesigned business processes, integrated digital system, standardized operational procedure document, and a structured performance measurement framework. Implementation and evaluation demonstrated that the proposed solution successfully achieved the established critical success factor by improving end-to-end delivery process visibility, accelerating the billing process, enabling real-time monitoring, and integrating operational data across delivery and billing activities. The redesigned digital workflow also enables invoice generation immediately after delivery order verification, reducing the billing process delay to zero days and eliminating the opportunity cost associated with delayed invoicing. These findings indicate that the proposed operational system effectively improves operational effectiveness, efficiency, and process standardization while establishing a sustainable foundation for future digital implementation and continuous improvement.

Keywords: Business process improvement, business process redesign, fleet management system, standard operating procedure, key performance indicator.