

**REDUCING CONTROLLABLE FOOD WASTE THROUGH DATA DRIVEN
TRACKING PROTOCOL IN HOTEL FOOD SERVICE OPERATIONS**

By

Angga Febrian
100001509

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SWISS GERMAN UNIVERSITY
The Prominence Tower
Jalan Jalur Sutera Barat No. 15, Alam Sutera
Tangerang, Banten 15143 - Indonesia

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STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.



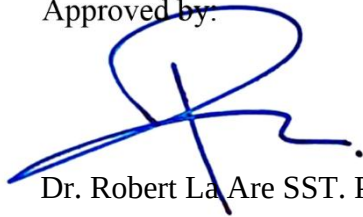
Angga Febrian

Student

8 July 2026

Date

Approved by:



Dr. Robert La Are SST. Par, M. Par

Thesis Advisor

8 Juli 2026

Date

Dr. Nila Krisnawati Hidayat S.E., M.M.

Dean of Faculty Business and Communication

Date

Angga Febrian

ABSTRACT

**REDUCING CONTROLLABLE FOOD WASTE THROUGH DATA DRIVEN
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By

Angga Febrian Students

Dr. Robert La Are SST. Par, M. Par, Advisor

Dr. Nila Krisnawati Hidayat, S.E., M.M., Co-Advisor

SWISS GERMAN UNIVERSITY

Food waste represents one of the most persistent operational and sustainability challenges confronting the global hospitality industry. Within hotel food service environments, controllable food waste arising from overproduction, inaccurate demand forecasting, and inadequate monitoring systems continues to generate avoidable financial losses and environmental impact.

This study examines the implementation of a structured data-driven food waste tracking protocol within a five-star hotel kitchen environment in Jakarta, Indonesia, and evaluates its effectiveness in reducing controllable food waste across a fourteen-day observation period. Grounded in Operational Management Efficiency theory (Geminarqi & Purnomo, 2023), supported by Evidence-Based Management (Rousseau, 2020) and operationalized through the Plan-Do-Check-Act cycle framework (Shi, 2024), the research employs a quantitative two-phase design comprising a pretest phase (Days 1-7) and a posttest phase (Days 8-14), enabling comparative analysis of waste generation patterns before and after tracking protocol stabilization.

Data were collected using a standardized food waste tracking instrument and analyzed through descriptive statistics, Paired Sample T-Test, and Pearson correlation analysis using Jamovi statistical software. Findings reveal a statistically significant improvement in operational efficiency between phases ($p = 0.046$, Cohen's $d = 0.950$), alongside a marginally significant reduction in waste percentage ($p = 0.089$). Mean waste quantity declined by 23.4%, waste per

cover decreased by 43.7%, and waste percentage reduced from 1.61% to 0.91% between phases. Pearson correlation analysis further identified moderate positive relationships between food waste generation and both guest volume ($r = 0.531$) and production quantity ($r = 0.531$), alongside a moderate negative association with operational efficiency ($r = -0.600$).

The findings demonstrate that structured waste tracking, even without advanced technological infrastructure, produces measurable improvements in kitchen operational performance and waste visibility. This study contributes empirical evidence to the limited body of hospitality food waste research conducted within the Indonesian context and offers a practical, scalable framework for evidence-based food waste management applicable across hotel food service operations.

Keywords: controllable food waste, data-driven tracking protocol, hotel food service operations, operational management efficiency, evidence-based management, operational efficiency, Jakarta hospitality



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DEDICATION

This thesis is dedicated to my family for their endless support and belief in my potential. I also dedicate this work to my academic supervisors and lecturers, whose expert guidance and mentorship made this research possible. Finally, this work is dedicated to all who value lifelong learning, with the hope that it contributes meaningfully to our field.



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