

Programme: BA International Hotel Management

Module: BMIH6001 Contemporary Themes In the Hotel and Hospitality Sector.

Assignment Two: Conference Presentation

Sustainability and Food Waste Reduction in the
Hotel Industry: A Case Study of Hilton Hotels

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Introduction



- ▶ **Food waste:** pressing sustainability & operational challenge in hospitality.
- ▶ Hotels generate high waste due to buffets, fluctuating occupancy, and unpredictable demand.
- ▶ **Focus:** Hilton Hotels' AI-driven waste reduction (Winnow Vision system).
- ▶ **Objective:** Critically evaluate AI effectiveness, operational integration, and cultural factors in waste reduction.

(Hawkins et al., 2023).

Why the Theme Matters

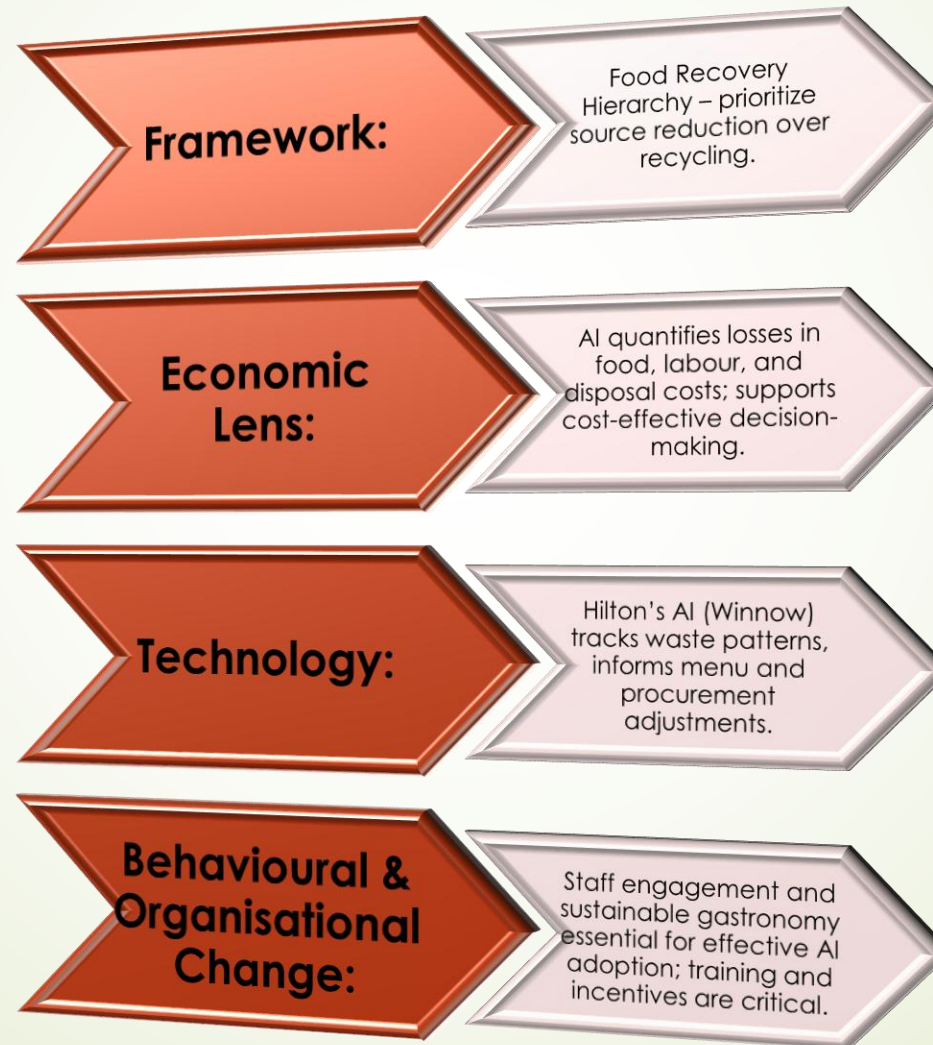
Food waste:
major
operational
cost and
contributor to
greenhouse
gas emissions
(Scope 3).

AI-driven
measurement
converts
hidden losses
into
actionable
decisions.

Guest
expectations
increasingly
tied to
sustainability
performance
and
responsible
consumption.

Effective
reduction
aligns with
net-zero goals
and global
SDG 12
targets.

Literature Review Overview



(WRAP, 2013).

Key Literature Insights

AI interventions (e.g., Winnow) can reduce food waste by **36–45%** within months.

Technology effectiveness depends on **staff compliance, training, and operational integration**.

Operational efficiency gains: smarter menu planning, inventory control, and cost reductions.

Cultural and behavioural change is critical; prevention is more impactful than recycling or donation.

Methodology



Approach: Qualitative, secondary data analysis.

Data Sources:

- Hilton sustainability reports (Travel with Purpose)
- Corporate case studies (Green Ramadan, Green Breakfast)
- Press releases and industry publications

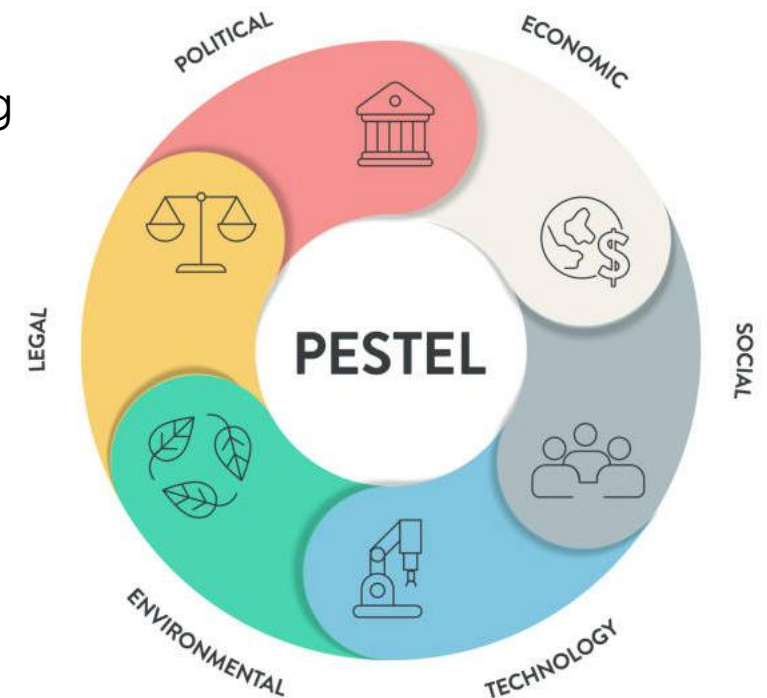
Analysis: Content analysis framed by the Food Recovery Hierarchy (focus on source reduction over disposal/recycling)

Focus: Assess effectiveness, operational integration, and organisational factors of AI-driven waste reduction.

(Hawkins et al., 2023).

PESTEL

- **Purpose:** Assess macro-level influences on AI-enabled food waste strategies at Hilton.
- **Political & Legal:**
 - SDG 12.3: 50% food waste reduction by 2030
 - Hilton uses AI to meet compliance and benchmark reporting
 - Limitation: Legal restrictions on redistribution of surplus
- **Economic:**
 - Food waste = lost raw materials, labor, disposal costs
 - AI tracking enables ROI (approx. 7:1)
 - Barrier: High upfront cost limits adoption in smaller hotels



(Uthaisar et al., 2024).

PESTEL

➤ Social Impacts

- Reduces ethical tension: food waste vs. global hunger
- Enhances brand image and guest loyalty
- Barrier: Liability and regulatory limits on redistribution

• Technological Impacts

- AI enables predictive waste tracking and menu optimization
- Success depends on accurate, consistent staff data entry
- Poor compliance → unreliable insights

• Environmental Impacts

- Minimizes methane emissions from landfill (Scope 3)
- Root-to-shoot gastronomy and source reduction lower footprint
- Challenge: Scaling creative cooking across global properties

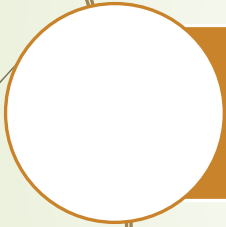


(WRAP, 2013).

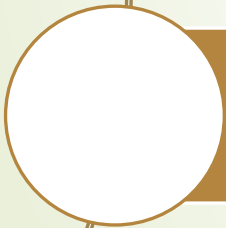
➔ Key Findings and Reflection



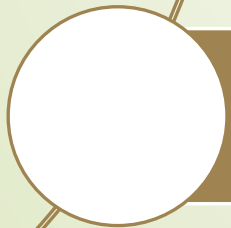
AI (e.g., Winnow) converts food waste into actionable insights → 30–60% reduction in pilot sites



Operational integration, staff engagement, and cultural alignment essential for success



Large chains (Hilton) benefit most; smaller hotels face cost and resource barriers



AI supports regulatory compliance, profitability, and Scope 3 emission reductions

Conclusion & Recommendations

Conclusion

- Food waste reduction = strategic sustainability imperative
- AI (Winnow) + behavioural integration drive measurable reductions
- Prevention must be embedded into operational routines

• Recommendations

1. Develop open-source AI tracking tools for smaller hotels to democratize measurement
2. Integrate food waste reduction metrics into staff KPIs and incentives
3. Establish regional food repurposing centres shared across hotel chains

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