

Sustainability in Hotel Operations

Examining Food Waste Through a PESTEL Lens

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BMIH6001 - Contemporary Themes in

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Context

Why Food Waste Matters in Hotels

- Hotels generate substantial food waste globally (UNEP, 2024)
- Buffet systems structurally incentivise overproduction
- Food waste creates economic loss and environmental harm (WRAP, 2024)
- Increasing regulatory and stakeholder pressure

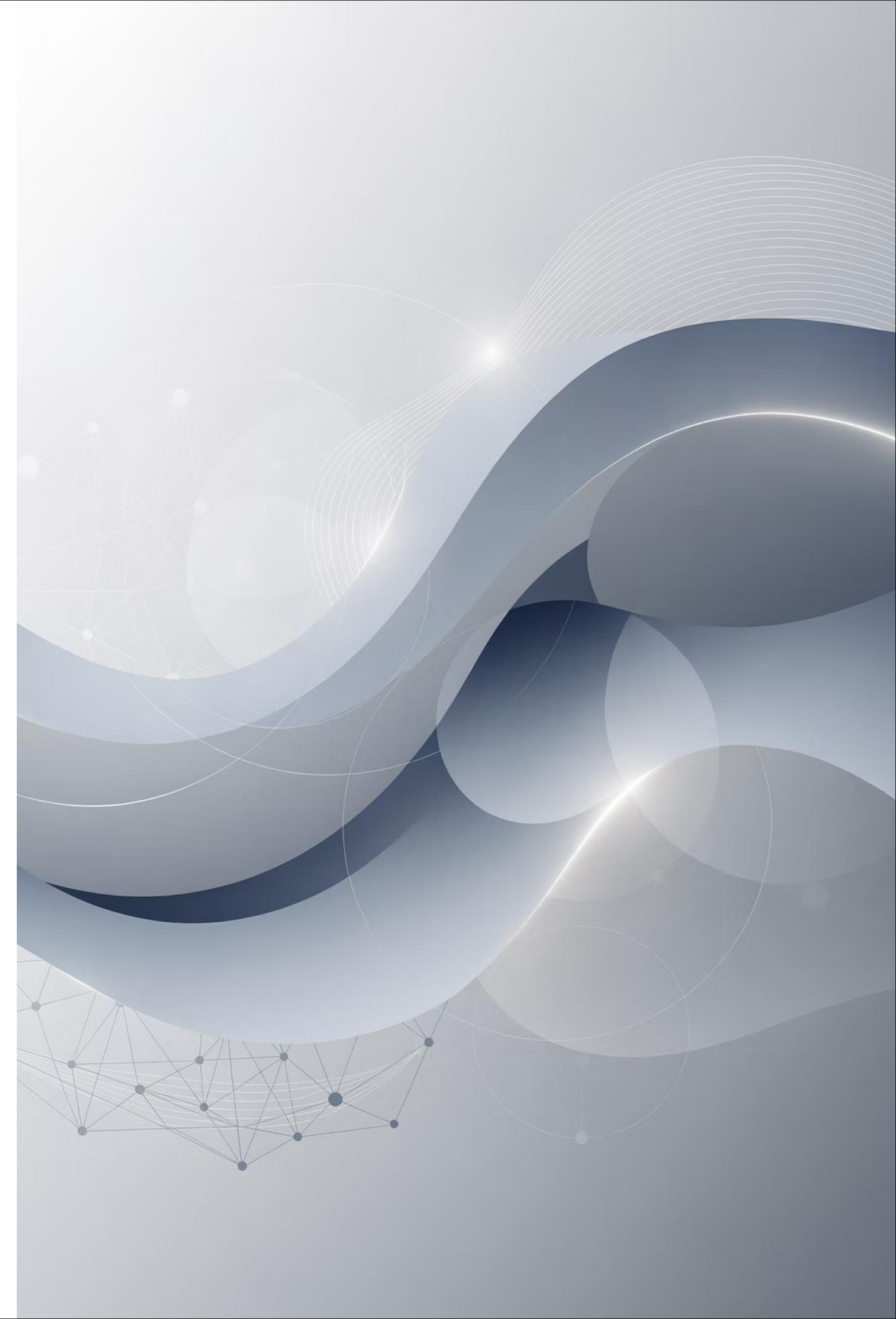
Research Aim & Scope

Aim:

To analyse food waste drivers in hotel operations using a PESTEL framework.

Scope:

- Operational drivers
- Cultural normalisation
- Technological interventions



Literature Gap in Hospitality Food Waste Research

Existing research focuses on:

- Households
- Retail environments

Underexplored areas in hotels:

- Organisational culture
- Operational complexity
- Sector-specific structural drivers

(Dhir et al., 2020; Amicarelli et al., 2022; Kasavan et al., 2022)

Main Sources of Food Waste in Hotel Operations

Procurement and storage

Over-ordering
Poor inventory control

Food preparation

Excessive trimming
Batch cooking

Service and buffets

Buffet surplus
Plate waste

(Wu and Teng, 2023; Tomaszewska et al., 2021)

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Normalisation of Food Waste in Hospitality Culture

- Abundance prioritised over efficiency
- Waste accepted as operational necessity
- Buffet formats generate structural surplus
- Waste rarely integrated into KPIs

(Koiwanit and Filimonau, 2025)

Research Design

Methodology: Secondary Research Approach

- 25 academic and industry sources (2021–2025)
- Thematic synthesis of operational and cultural drivers
- PESTEL framework applied for structured impact analysis



Analytical Framework: PESTEL

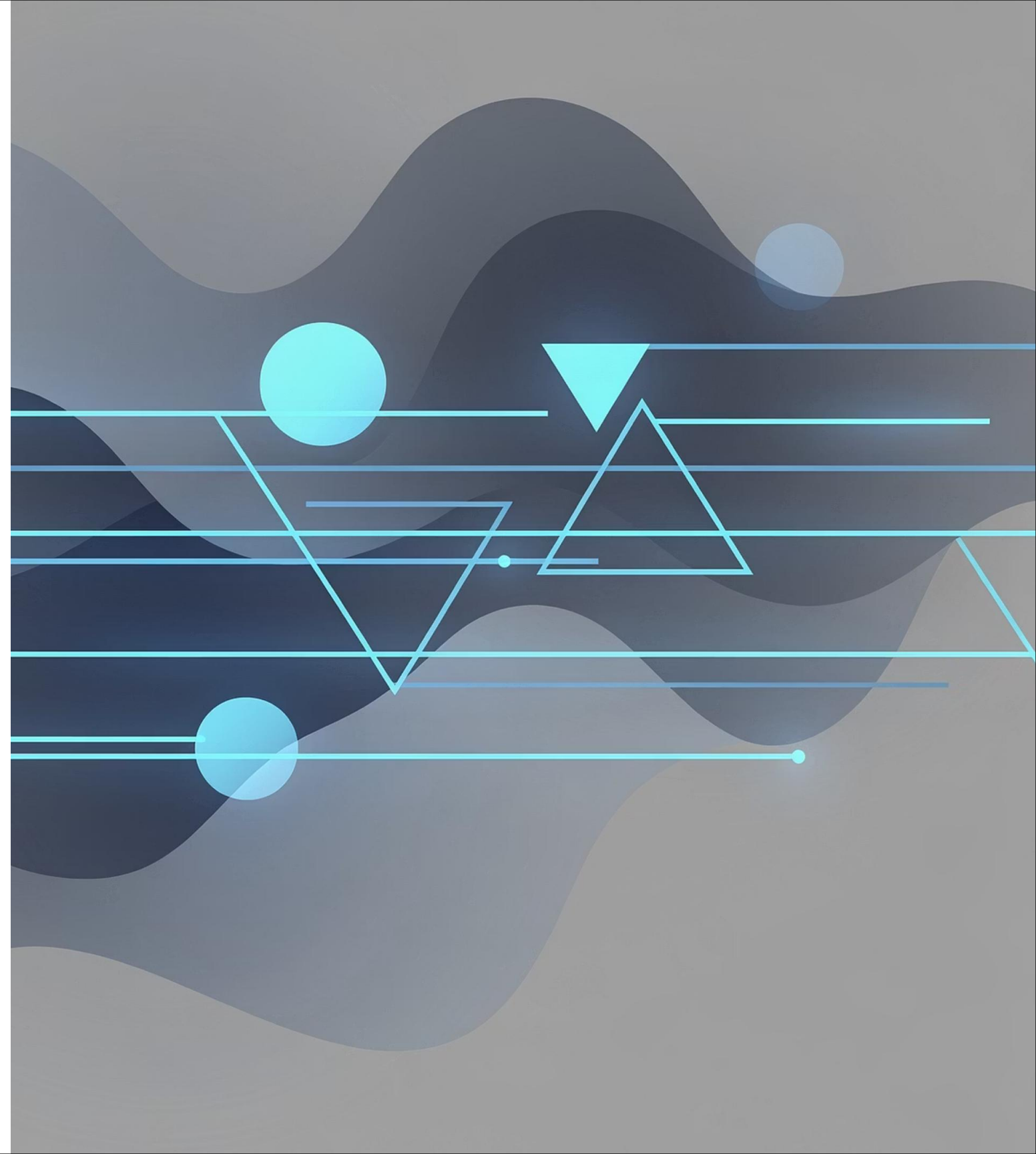
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Political Regulatory pressure on food waste reduction	Economic Cost of overproduction and waste disposal	Social Guest expectations of abundance and choice
4	5	6
Technological AI-based waste monitoring systems	Environmental Carbon footprint of food waste	Legal Food safety and waste reporting regulations

External macro-environmental drivers shaping systemic waste generation.

(UNEP, 2024; WRAP, 2024; Clark et al., 2024)

Technological Implications of AI-Driven Food Waste Monitoring

- Enables real-time waste monitoring
- Identifies operational waste hotspots
- Supports procurement and preparation adjustments
- Facilitates evaluation of reduction interventions
- Adoption constrained by cost and organisational readiness



Key Limitations and Challenges

Operational constraints

Demand variability and service pressures limit forecasting accuracy.

Financial barriers

Monitoring systems require investment with uncertain short-term returns.

Cultural resistance

Established practices may resist organisational change.

Measurement difficulties

Inconsistent methodologies hinder benchmarking.

Conclusion

Food waste in hotels
requires systemic
intervention

Conclusion – Key Insights

- Food waste in hotels is systemic, not accidental
- Technology supports reduction, but culture determines success
- Structural change is required to meet sustainability targets

Practical Implications

Evidence-Based Recommendations for Food Waste Reduction in Hotels – Prioritised Strategic Actions

Systematic measurement (AI tracking)

Staff capability development

Buffet and service redesign

(UNEP, 2024; Clark et al., 2024; Diaz-Farina et al., 2023)

References

- Clark, J. *et al.* (2024) *AI-driven food waste monitoring in hospitality*.
- Derqui, B. and Filimonau, V. (2024) *Barriers to food waste reduction*.
- Koiwanit, J. and Filimonau, V. (2025) *Cultural normalisation of food waste*.
- UNEP (2024) *Food Waste Index Report 2024*. Nairobi: United Nations Environment Programme.
- WRAP (2024) *Hospitality and Food Service Sector Report*. Banbury: Waste and Resources Action Programme.

Full reference list available in the submitted research paper.

Thank you for your attention.