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Innovative Approaches to Optimising Bar Menu Design: Enhancing Operational Profitability and Service Quality

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Abstract

Empirical research on bar operations at Waterpark Odessa and Waterpark-Hotel Zatoka during the summer seasons of 2018–2022 evaluates how compact beverage assortments, standardized production cycles, and visually structured drink cards affect profitability and guest service in seasonal entertainment venues. The study employs a mixed-methods design, combining indices from managerial accounting for core beverage categories with qualitative reconstructions of production flows, stock policies, and menu design decisions. Case evidence is linked to international literature on menu engineering, digital ordering tools, and theme park F&B strategies. The menu redesign replaces overloaded assortments with a focused set of margin-rich beverages, supported by unified ingredients, pre-preparations, and simplified drink assembly schemes. The visual layout draws attention to signature items, family bundles, and photogenic drinks, which are promoted through social media and digital channels. A comparative analysis of records from the pre- and post-optimization periods reveals lower food costs for cocktails and soft drinks, reduced all-inclusive production costs due to decreased labor intensity and waste, shorter service times during peak loads, and higher average check sizes. At the same time, the beverage share in total food and beverage (F&B) revenue moves closer to benchmarks reported for successful bar and nightclub operations. Sales data indicate a shift in demand toward visually highlighted items and bundle offers, while rarely ordered, complex cocktails are losing prominence or disappearing altogether. The case refines menu-engineering approaches for environments with extreme seasonality, pronounced daytime peaks, and guest streams dominated by families. A scalable managerial framework is proposed for beverage assortment design, stock management, menu visualization, and digital ordering in waterparks and related leisure properties.

Keywords: *Menu Engineering, Bar Menu, Beverage Assortment Optimization, Waterpark, Seasonal Entertainment Venue, Digital Menu, Service Speed, Profitability.*

INTRODUCTION

In many foodservice enterprises, the bar segment accounts for a disproportionately large share of profit because raw material costs for beer, cocktails, and non-alcoholic beverages are relatively low [12; 15]. Overloaded and poorly structured bar lists tend to inflate the number of SKUs, slow down production, and create decision fatigue for guests. International research on menu engineering suggests that extensive assortments and a weak focus on high-margin items can lead to reduced profit and complicate stock management [1; 11; 13; 14].

The COVID-19 pandemic and the subsequent period reshaped demand in both on-trade and off-trade channels. Euromonitor reports that on-trade volumes for alcoholic and soft drinks in 2023 remain roughly 10% below 2019 levels, while retail continues to grow steadily [4]. In waterparks and resort complexes, reliance on service speed and to-go formats has increased: guests seek to minimize time spent at the bar and keep their attention focused on recreation rather than waiting in queues. Industry associations and analytical organizations have noted that compact menus and digital ordering tools are used to accelerate service and maintain revenue amid heightened operational uncertainty [2–4; 6; 12].

Menu engineering treats the menu as a managerial tool for steering revenue and costs by placing items according to their popularity and margin [1; 11; 14]. Recent studies extend the classical “stars – plowhorses – puzzles – dogs” matrices by incorporating cross-elasticity of demand, guest behavioral responses, and visual hierarchy in menu layout [13; 14].

For waterpark bar operations, menu engineering covers the selection of a core assortment based on high-margin beverages, alignment of recipes and production flow, food-cost control with reduced waste, development of a coherent visual structure for drink cards, design of points of sale, and deployment of mobile and digital solutions that support choice and shorten guest–bar interaction time.

Studies on digital menus and mobile channels report higher satisfaction and an increased intention to return when navigation is intuitive, the visual hierarchy is clear, and photographs are present, particularly among younger and family audiences [8; 10]. For seasonal venues with pronounced peak loads, such as water parks, a refined

bar menu serves as a tool for mitigating operational risks. Reduction of assortment "noise," concentration on universal items, and simplified drink-assembly schemes lessen dependence on individual bartenders and shorten service time at the counter.

Academic publications on menu engineering over the past five years mainly focus on restaurants and quick-service chains. Research by I. Ardiansyah and co-authors shows that profitability/popularity matrices redirect guest traffic toward higher-margin items, which raises menu profitability [1]. Work by H. Mutlu and colleagues, based on surveys of chefs, confirms wide use of menu engineering in the restaurant sector and links systematic menu evaluation with guest satisfaction [11]. Noone and co-authors expand the methodology by introducing substitution effects within the menu, which increases precision in pricing and item placement [14]. Nebioğlu proposes a process-oriented model of menu management that ties engineering decisions to the operational routines of the kitchen and bar [13]. Studies of fast-food outlets underline how compact menus support faster service and clearer offerings for guests [7].

A separate group of publications concentrates on digital menus, QR-based access, and digital boards. Mohamed and colleagues report that digital menus positively influence guest behavior and increase the intention to revisit due to their interactivity and clarity of information [10]. Research on theme and amusement parks views food and beverage (F&B) as a component that enhances the guest experience and drives growth in the average check through photogenic products, mobile ordering, and gamification [3]. At the same time, systematic studies focused specifically on bar-menu engineering in waterparks remain limited; available case reports mainly address broad trends rather than detailed beverage portfolios and operational models.

The goal of the study is to describe and evaluate a set of innovative solutions for designing and presenting the bar menu in Waterpark Odessa and Waterpark-Hotel Zatoka during 2018–2022, aimed at improving profitability and service quality, and to compare the outcomes with international data from the restaurant and entertainment sectors up to the end of 2023.

Research tasks:

– Systematize international approaches to bar-menu engineering and visual design of drink cards based on studies from the past five years.

– Reconstruct the initial condition of bar operations in the waterparks before optimization (summer seasons 2018–2019) using logbooks and managerial accounting data.

– Describe the implemented solutions related to menu redesign, visual presentation, and bar-operation organization.

– Conduct a comparative analysis of "before/after" metrics: sales structure, food cost, service speed, average check, and qualitative guest evaluations.

– Produce managerial recommendations for F&B directors of seasonal entertainment venues.

Hypotheses:

H1: A compact, structured bar menu with emphasis on high-margin items and visually highlighted "hits" increases gross profitability and the average check.

H2: Standardized recipes and simplified production processes in the bar reduce service time and lower waste levels.

H3: A visually polished drink card in a waterpark with photogenic items amplifies social-media effects and stimulates growth in repeat orders.

MATERIALS AND METHODS

The study examines bar operations at Waterpark Odessa and Waterpark-Hotel Zatoka during the summer seasons of 2018–2022, covering poolside bars, permanent indoor outlets, and takeaway points. On peak days, the water parks primarily served family groups with children, young adults, and corporate parties, with bar activity concentrated during daytime hours in favorable weather conditions.

The analysis draws on managerial-accounting data for the following beverage categories: beer, cocktails, soft drinks, coffee, children's beverages, and simple snacks.

To position the case within international trends, the study uses annual and industry reports of the National Restaurant Association on revenue structure, the impact of COVID-19, and beverage sales dynamics [12]; Euromonitor analyses of the global soft-drinks market and the recovery of the on-trade segment after the pandemic [4; 5]; reports and reviews on bars and nightclubs based on Statista and First Research data [15]; an Inter-American Development Bank study on gastronomic trends and digital strategies [6]; articles on menu engineering and menu management [1; 7; 11; 13; 14]; papers on digital and QR menus [8; 10; 16]; and materials on F&B in theme parks and attractions [3].

The methodological approach combines quantitative and qualitative analysis. Financial indicators are expressed as indices without disclosure of absolute values. The qualitative component covers the logic of assortment reduction, approaches to mise en place and pre-preparation, criteria for item elimination and formation of the core assortment, reconstruction of the bar production cycle and interaction between kitchen and storeroom (including the "one-week" stock policy and the decision to avoid tying up funds in slow-moving inventory), and comparison of the measures adopted with international recommendations on menu engineering, visual menu structure, and digital channels.

A synthesis of international studies and industry reports yields a stable set of solutions for optimizing bar menus (Table 1).

Table 1. International Solutions for Bar Menu Optimization and Expected Outcomes [1–3; 6–8; 10–13; 16]

Solution Group	Description	Expected Outcome
SKU reduction	Decreasing the number of items, removal of low-selling and labor-intensive beverages	Higher stock turnover, simplified logistics, faster production
Clear categorization	Structuring the menu into guest-friendly blocks: beer, cocktails, lemonades, coffee, children's beverages, snacks	Quicker decision-making; reduced cognitive load
Visual highlighting of "hits."	Photographs, special frames, "must try" labels for high-margin items	Demand redistribution toward profitable beverages
Bundle offers	"Drink + snack" sets; family bundles	Growth of average check; lower per-unit sales costs
Digital menus and mobile ordering	QR-based access, digital boards, waterpark app	Shorter queues; demand-data collection; flexible promotions
Limited premium line	A few visually strong items for social media	Stronger brand image; added margin; UGC generation

Many of these solutions first took shape in the fast-food and QSR sector, where compact menus support rapid service [7]. In theme parks and similar attractions, digital tools and visually appealing products are used to deepen guest engagement and encourage user-generated content [3; 8].

During the 2018–2019 seasons, the waterpark's bar menus featured an expanded range of cocktails with multiple alcohol bases, syrups, and decorative elements, along with a large assortment of draft and bottled beers. The soft-drink list contained numerous low-demand items, which made the menu harder to read. The lack of a clear visual structure produced a long, undifferentiated list without any emphasis on best-selling beverages. Storage was stocked with SKUs that included ingredients ordered only occasionally, which reduced inventory efficiency and resulted in unnecessary stock.

Sales distribution across categories was fragmented: several complex cocktails combined low order frequency with high cost, while some beer and soft-drink items showed stable turnover but were effectively hidden within the oversized menu. Operational observations revealed long queues during peak hours, primarily due to the complexity of drink assembly, high waste levels for syrups, fruit, and slow-moving items, difficulties in selecting drinks for guests unfamiliar with cocktail culture, and inconsistent execution of recipes among bartenders. These patterns correspond to those described in the literature for overloaded menus [1; 11–14].

Based on managerial-accounting analysis, several integrated blocks of changes were implemented (Figure 1).

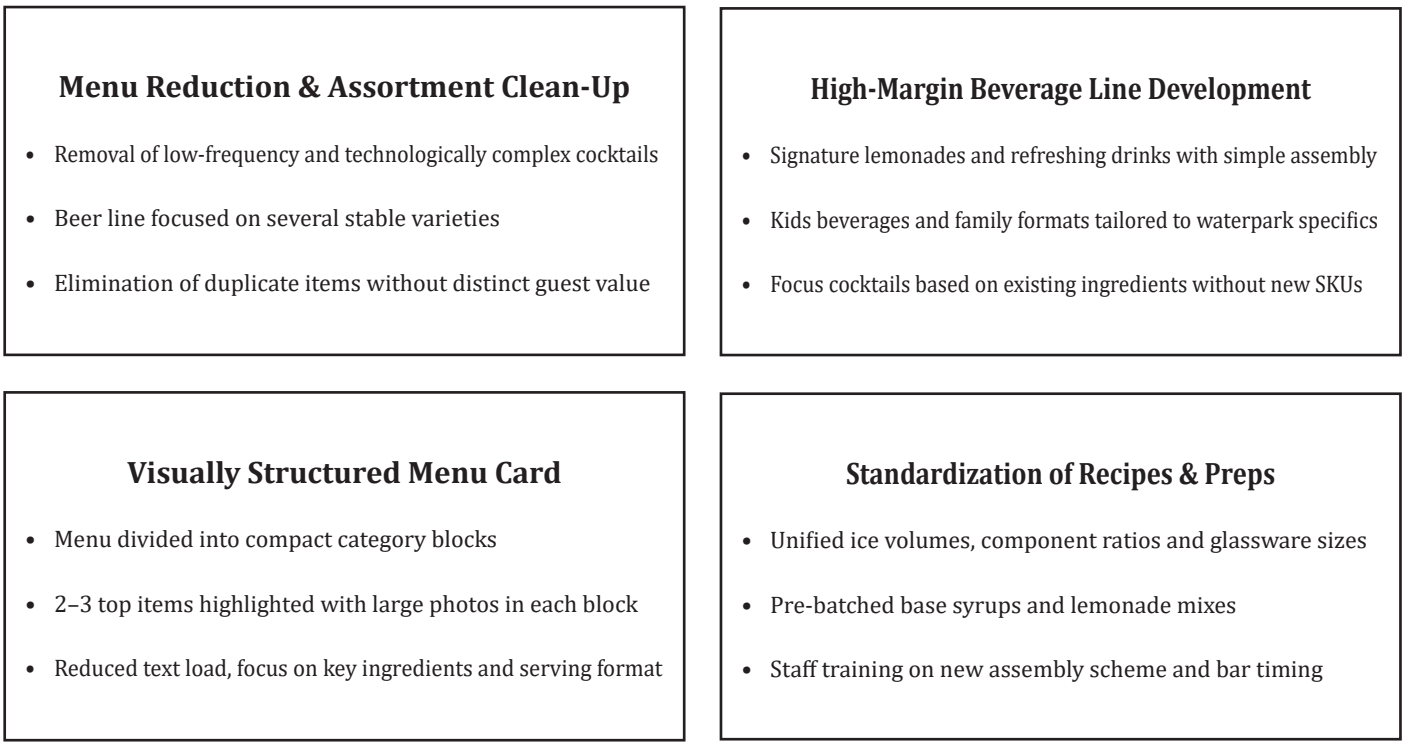

Figure 1. Integrated Managerial Accounting–Driven Beverage Menu Redesign Framework

The volume of assortment by category before and after optimization is shown in Table 2.

Table 2. Structure of the Bar Menu Assortment Before and After Optimization (compiled by author on own research)

Category	Before Optimization (2018–2019)	After Optimization (2020–2022)
Cocktails	34 (wide range; numerous complex recipes)	~27 (reduced; focus on simple and high-margin items)
Beer	30 (multiple types and formats)	~16 (selection of stable performers)
Soft drinks	72 (heterogeneous assortment)	~57 (lemonades and functional beverages)
Coffee	18	~12 (light assortment refinement)
Children's beverages	18 (limited representation)	~37 (expanded; family-oriented sets)
Simple snacks	22	~34 (support for bundle offers)

Managerial-accounting analysis informed several integrated sets of changes (Figure 1). Relative values are reported due to confidentiality restrictions. Food-cost indices for cocktails declined compared with the baseline period, and the reduction for soft drinks was even more substantial due to standardized recipes and reliance on pre-prepared components. Total production cost decreased because complex drinks required less labor, and waste volumes also decreased. Higher individual throughput per bartender during peak hours was confirmed to result in faster service, while regulated procedures reduced variation in performance across staff. Average bar checks increased, and the share of beverages in total F&B revenue rose, approaching levels reported for well-performing bars and nightclubs in industry studies [12; 15]. Lower waste in syrups, fruit, and narrow-use ingredients coincided with a shift in stock toward more versatile components suitable for multiple menu items.

Changes in the visual layout of the menu altered demand patterns and strengthened interest in highlighted items. Observational and managerial accounting data showed higher sales of signature lemonades and family bundles after they were relocated to a dedicated illustrated section. Additional growth was observed for cocktails that regularly featured in guests' social media posts and waterpark photo zones, which increased their visibility. A more coherent menu with a clear hierarchy and fewer options in each category sped up guest decision-making and reduced cognitive load.

DISCUSSION

Findings from the Odessa and Zatoka waterpark case are consistent with several conclusions in the international literature and extend them to a highly seasonal operating environment.

First, the results support the view that menu reduction strengthens cost control and raises the share of high-margin items, a pattern documented in menu-engineering studies [1; 7; 11; 13; 14]. In the waterpark setting, the removal of complex, low-demand cocktails reduces food costs and stabilizes bartenders' workloads.

Second, visual emphasis on "hits" and photogenic beverages reinforces demand shifts toward high-margin items, aligning with the "silent salesperson" concept and findings from recent menu psychology research reviews and empirical studies [8; 10; 11]. A consolidated comparison is presented in Table 3.

Table 3. Comparison of Literature Findings and Waterpark Odessa/Zatoka Case Results [1–3; 6–8; 10–14]

Element	International Research	Waterpark Case Observations
Menu reduction	Lower SKU count improves cost control and simplifies production	Removal of complex and rarely ordered cocktails decreases food cost and stabilizes bar workload
Focus on high-margin items	Highlighting "stars" and using price anchors increases the contribution of margin-rich items to revenue	Visually emphasized lemonades and family bundles show rising shares in sales
Visual menus and photography	Photos and visual cues strengthen choice and stimulate UGC	Photogenic beverages appear more often in guests' social-media posts and drive additional demand
Compact menus under COVID conditions	Compact menus are viewed as a response to demand uncertainty and supply-chain instability.	Transition to a compact menu supports seasonal demand volatility and personnel constraints.

The case supports the prevailing direction of research on menu management. It extends its application to conditions characterized by extreme seasonality, a high proportion of child visitors, and intense peak bar loads. On this basis, several solutions emerge as particularly effective for seasonal venues operating with constrained resources:

- Standardized production cycle. Structured recipes, pre-preparation routines, and transparent task allocation shorten drink-assembly time and reduce variation in product quality.
- SKU reduction and ingredient unification. A compact

assortment built on overlapping base components reduces the risk of slow-moving inventory and simplifies procurement, which becomes particularly relevant under unstable supply chains and fluctuating seasonal demand [2; 6].

- Deliberate visual menu design. A clear structure, highlighted signature items, a moderate number of positions, and the use of photographs guide demand toward management priorities, making guest decision-making easier [8; 10; 11].

The transferability of these findings to other venue types is outlined in Table 4.

Table 4. Applicability of Waterpark Case Solutions to Other Venue Types [1; 3; 6–8; 10–12; 14; 16]

Venue Type	Expected Effectiveness of Menu Reduction	Visual Design and Photogenic Items	Suitability of Digital Menus
Waterpark	High: seasonality and peak loads require simple processes	High: family audience and "Instagram-ready" beverages	High: QR menus and mobile ordering reduce queues
Stadium	High: throughput during match breaks is critical	Medium–high: visual boards and bundle sets	High: pre-order via app
Theme park	Medium–high: menus integrated with attraction narratives	Very high: storytelling through food and beverages	High: integration into park app
Urban casual restaurant	Medium: guests expect variety, yet focus still yields benefits	Medium: photos and design strengthen upsell	Medium: digital tools used selectively

For managers of seasonal entertainment complexes, the most productive approach combines three lines of action: concentrating the assortment, building a strong visual hierarchy within the menu, and standardizing production processes through suitable technology.

CONCLUSION

The mixed-methods analysis supports the hypothesis that a compact, well-structured bar menu focused on high-margin beverages, and backed by a standardized production cycle, lowers relative food costs, raises the share of high-yield drinks in total revenue, and speeds up service. Evidence for the second hypothesis comes from index dynamics and operational observations: standardized recipes and pre-preparation routines narrow the variation in service time between bartenders and cut waste associated with niche ingredients.

The third hypothesis, which concerns the effect of visually organized drink cards and photogenic items on demand and repeat purchases, is consistent with the growing share of visually highlighted "hits" in sales and with international research on digital and visual content.

Practical recommendations for F&B directors of seasonal venues include routine ABC/XYZ analysis of the bar assortment followed by the removal of low-value items; development of a clearly defined core assortment based on unified ingredients; standardization of recipes and division of the production process into simple steps suitable for seasonal staff; creation of a visually structured menu with highlighted hits and photogenic beverages adapted for social-media circulation; and gradual implementation of digital tools (QR menus, digital boards, mobile ordering) at high-load points.

The Waterpark Odessa/Zatoka case shows how individual management practices and international menu-engineering approaches can be combined into a workable model for bar operations management, centred on profitability and a consistent guest experience in a seasonal resort setting.

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