

EUROPEAN INSTITUTE OF INNOVATION, ENTREPRENEURSHIP AND TECHNOLOGY

MODULE

Operations Management in Hospitality

Managing Demand, Supply, and Forecasting in Hospitality Operations

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1. Why the Nature of Hospitality Products Makes Demand and Supply Hard to Balance

Hospitality operations struggle to match what they can offer with what customers want because the product itself resists the kind of buffering that manufacturers take for granted. Four characteristics explain why: intangibility, inseparability (simultaneity), perishability, and heterogeneity (Abdou, 2025).

Intangibility. A guest cannot inspect a hotel room or a restaurant meal before buying it the way they could inspect a physical product, so they rely on cues such as price, brand, and reviews to judge quality in advance (Abdou, 2025). This matters for supply and demand because it makes demand itself harder to predict: customers are, in effect, betting on an experience rather than evaluating a known good, so their booking behaviour is more sensitive to signals of trust and reputation than a manufactured product would be.

Inseparability. Because a hospitality service is produced and consumed at the same time, with the guest physically present and often co-creating the experience alongside staff, there is no factory step where output can be built up in advance of demand (Abdou, 2025). Whatever capacity exists at the moment of delivery is the only capacity available; it cannot be supplemented from a back room once the guest has arrived.

Perishability. An unsold room or an empty restaurant table generates no revenue once the night or the seating has passed, and unlike a physical good it cannot be warehoused and sold later (Abdou, 2025). Perishability is the reason capacity decisions cannot be postponed: every period of low demand is a permanent loss of potential revenue rather than a temporary dip that inventory can absorb.

Heterogeneity. Because service quality depends on staff, timing, and the specific conditions of each encounter, even a standardised hotel chain cannot guarantee that two guests receive an identical experience (Abdou, 2025). This adds a further layer of difficulty on top of the capacity problem: matching supply to demand is not just a question of quantity (how many rooms, how many staff) but of maintaining consistent quality while that quantity is stretched or compressed.

Together, these characteristics mean hospitality businesses face a structural mismatch: demand fluctuates by day, season, and event, while supply is essentially fixed in the short run and cannot

be stored for later use. Managing this mismatch, through the demand- and supply-side strategies discussed below, is therefore central to hospitality operations rather than a peripheral concern.

2. Managing the Mismatch: Level Capacity and Chase Demand Strategies

Operations management offers two broad strategies for reconciling fluctuating demand with limited capacity: levelling capacity and managing demand around it, or chasing demand by adjusting capacity to follow it (Slack & Brandon-Jones, 2019).

Level capacity, manage demand. Under a level-capacity strategy, a hotel keeps its supply of rooms, staff, and facilities essentially constant and instead tries to shift or stimulate demand so that it fits the available capacity (Slack & Brandon-Jones, 2019). This approach suits businesses where demand is relatively stable and forecastable, and where the cost or difficulty of changing capacity quickly is high. Common techniques include offering discounted rates during slow periods, marketing to different customer segments when regular demand is low, repurposing event spaces for parties or weddings, and applying modest overbooking to offset expected no-shows so that fixed capacity is not left idle.

Chase demand, adjust supply. A chase-demand strategy instead varies capacity itself to track demand as closely as possible, for example through flexible staffing plans, cross-training employees to cover multiple roles, temporarily reducing labour during quiet periods, or opening and closing sections of a property as occupancy changes (Slack & Brandon-Jones, 2019). This works best where demand is seasonal or unpredictable and where the workforce can be adjusted without excessive retraining or turnover costs; it is typically easier to apply where jobs require less specialised skill.

Neither strategy is free of trade-offs. Pullman and Rodgers (2010) note that capacity decisions in hospitality directly shape both the guest experience and enterprise profitability, so the choice between levelling and chasing is not purely a cost question. When supply and demand are balanced near an operation's optimum utilisation, for instance around 65–75% for airlines or 70–90% for restaurants, service quality tends to remain high and profitability is sustained (Abdou, 2025). Once demand pushes past that optimum, service errors increase and staff become overstretched even as short-term revenue rises, while excess supply relative to demand leaves costs uncovered and capacity wasted. In practice, most hospitality businesses blend the two strategies: holding a level

of base capacity while using pricing, staffing flexibility, and selective overbooking to manage the gap in either direction.

3. Forecasting: The Foundation That Makes Both Strategies Possible

Whichever strategy a business favours, it can only be applied in advance of demand if that demand can be reasonably forecast. Forecasting is the process of predicting future events so that a business can make informed short- and long-term decisions about staffing, pricing, and capacity, and, ultimately, to identify where profit or loss is likely to arise (Abdou, 2025).

Forecasts can be built top-down, starting from an overall figure such as total weekly revenue and breaking it into daily estimates, or bottom-up, starting from granular daily figures and summing them into an overall total (Abdou, 2025). They also vary by time horizon: short-term forecasts cover up to roughly a year, medium-term forecasts extend from a few months to three years, and long-term forecasts look three years or more into the future (Abdou, 2025), with each horizon suited to a different type of decision, from daily staffing rosters to long-range investment in new capacity.

The literature on tourism and hospitality demand forecasting generally groups methods into three families (Witt, 1995; Song & Li, 2008). Subjective, or judgemental, models rely on human expertise rather than historical data and are used when data is limited or the situation is highly uncertain; examples include the Delphi method, in which a panel of experts answers several rounds of questionnaires to reach consensus, cross-impact analysis, in which experts assess how one anticipated event might affect another, and historical analogy, in which a past situation judged similar to the one being forecast is used as a guide (Abdou, 2025). Causal models instead build a statistical relationship between demand and the factors believed to drive it, such as price, competitor activity, or local events, and are appropriate where those relationships are reasonably well understood (Abdou, 2025; Witt, 1995). Time series models rely purely on historical patterns in the data itself, from simple moving averages to more advanced exponential smoothing, and work best for short-term forecasts where a clear, recurring pattern exists (Abdou, 2025; Song & Li, 2008).

Forecast accuracy also depends on separating internal factors that a business can control, such as its product range, distribution channels, and promotional mix, from external factors it cannot, such

as competitor behaviour, the state of the economy, consumer demographics, and unforeseen events like natural disasters (Abdou, 2025). Because hospitality demand is shaped so heavily by factors outside the operation's control, most hotels in practice combine several forecasting methods rather than relying on one, using judgemental input to interpret and adjust what the quantitative models produce.

Conclusion

Hospitality products are intangible, inseparable, perishable, and heterogeneous, and these characteristics jointly create a structural mismatch between fixed, short-run supply and fluctuating demand. Businesses respond to this mismatch through level-capacity or chase-demand strategies, or some blend of the two, but neither strategy can be applied effectively without a reasonably accurate forecast of future demand. Forecasting therefore sits underneath both approaches: it is what allows a hotel or restaurant to decide, ahead of time, whether to hold capacity steady and manage demand around it, or to flex capacity to follow demand as it changes.

References

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