Politecnico di Torino

POLITECNICO DI TORINO

MANAGEMENT ENGINEERING

Modeling and Optimization of Quality in Restaurant Processes for High-Attendance Events: An Engineering Analysis of the National Alpini Gathering

RELATORE: **LUCA MASTROGIACOMO**

CANDIDATO: **NICCOLO' MAGLIOLI**

EXECUTIVE SUMMARY

Abstract

This master's thesis investigates how small foodservice enterprises can assess their processes, reorganize and optimize them to maintain service quality during high-attendance events.

The analysis is conducted through a practical case of an independent family owned restaurant in Biella, home for the next "2025 Alpini's National Gathering", providing context and reason for the study. Starting from a theoretical framework (temporary organization theory, lean capacity management, and risk governance) the study first maps current "as-is" operations in a restaurant, identifying critical bottlenecks in physical layout, kitchen-dining coordination, and service flow. Through quantitative process metrics (Little's Law, Takt Time, RevPASH) and service-blueprint analyses (Chapters 1–2), the research highlights key constraints that affect the throughput during peak hours. A mixed-method empirical approach (Chapter 3) based on first brief interactions with 25 local restaurants in Vicenza, weighted selection criteria, and semi-structured interviews with five cases to gather both operational and business strategic information. Chapter 4 translates these insights into a lean-informed redesign, proposing a staged "quick wins" plan to boost capacity and be prepared and ready to face such an event. Chapter 5 applies a tailored probability-impact risk matrix to identify and anticipate risks prescribing preventive, detective, and reactive mitigation strategies. The chapter aims to craft a pragmatic enterprise risk management approach for micro–restaurants contexts. Finally, Chapter 6 quantifies the 2025 Alpini weekend's impact: comparative analyses are carried out to better understand the impact of the event on the restaurant. Overall, the research aims to provide a way to help other small business entrepreneurs to better understand their own processes, assess them, provide a framework in which they could operate to reorganize them and restructure them to be able to face any kind of event creating a resilient operational systems capable of sustaining high service standards while safeguarding profitability and reputation.

Chapter 1

Temporary reorganization and capacity management in food service SMEs during peak demand

---

Introduction

In independent food service, customer volumes fluctuate physiologically depending on seasons, holidays or weather; however, there are circumstances in which the influx far exceeds the ordinary statistical variance. Music festivals, major sporting events, trade shows, and, more recently, localized health shocks, generate **extraordinary demand** that can double or triple the store's designed capacity (Rajani et al., 2022). For an SME, the phenomenon is an **organizational stress-test**: in a matter of hours, service flows must be adjusted, resources reallocated, and customer experience and marginality protected at the same time.

The literature offers three complementary perspectives to interpret and address this challenge:

- **Business reorganization** in high variability contexts, highlighting the importance of resilient leadership, agility culture, and data-driven forecasting (Piercy & Rich, 2015; Kimes et al., 2021).
- The **temporary organization** (TO) paradigm, which describes finite life-cycle organizational architectures – perfect for managing events with clear time boundaries (Lundin & Söderholm, 1995; Bakker et al., 2016).
- **Capacity and revenue management (RM)** models, which offer quantitative tools to balance supply and demand in real time (Kimes, 1998).

On these bases, the chapter pursues four goals:

- **mapping** the impact of peak demand on the operations of food service SMEs;
- **exploring** the design and governance mechanisms of a TO and the *Promises-Processes-Problems* model;
- **analysing** capacity management best practices - from dynamic pricing to multi-level planning - linking them to operational metrics;

➢ **discussing** critical success factors, limitations and implications for the sustainability of the work.

1.1 Business reorganisation in the context of extraordinary demand

1.1.1 Internal Drivers and Metrics of Success

Besides exogenous factors that trigger the spike, the literature identifies **internal drivers** that influence the outcome (Rajani et al., 2022; Kimes et al., 2021):

Driver	Description	Benchmark KPI	Source
Resilient leadership	Ability to combine previous planning and improvisation on the spot	Decision rate taken without escalation	Rajani et al., 2022
Agility culture	Corporate disposition to experiment and learn	Number of post-event innovative practices	Teece, 2018
***Cross-trained* staff**	Multi-tasking employees	Number of seats per employee	Piercy & Rich, 2015
Forecasting technologies	POS systems, analytics , weather-event dashboarding	Forecasting accuracy ±5 %	Kimes et al., 2021
Local Network	Agreements with suppliers or other restaurants	Lead-time supplies	Hillson & Grimaldi, 2017

Table 1.1: **Drivers that influence the outcome**

Operational success is measured, in literature and in practice, through a mix of **economic** (RevPASH increase and contribution margin), **productive** (hourly throughput, seats per employee) and **service quality indicators** (average waiting time, Customer Satisfaction Score)

The drivers summarised in the table are taken up below in a discursive key, showing how each contributes to the overall result.

Resilient leadership. In dealing with peaks in demand, management's ability to oscillate between planning and improvisation is crucial. Leadership that encourages timely decisions on the spot reduces the number of hierarchical escalations and speeds up the response to unexpected events (Rajani et al., 2022). Suggested KPI – decision rate taken without escalation – translates the level of operational autonomy achieved into objective metrics.

Agility culture. SMEs that cultivate an experimental climate more quickly introduce and test innovative solutions (e.g. a variable density table layout or a pre-order system via QR). Counting the practices implemented and maintained after the event makes it possible to measure the rate of organisational learning and verify its persistence beyond the peak (Teece, 2018).

Cross-trained **staff**. Training employees to fill multiple positions reduces redeployment times and allows bottlenecks to be filled without resorting to costly extra shifts. “Number of seats per employee” KPI grows when staff manage to move, on the run, from support tasks in the kitchen to table service (Piercy & Rich, 2015).

Forecasting technologies. Dashboards integrating historical POS data, weather forecasts and event calendars reduce demand estimation error; this allows for more accurate planning of both supplies and staff schedules. Algorithm accuracy (± 5 %) is the most important KPI recognised in the RM literature (Kimes et al., 2021).

Local network. Flexible deals with additional suppliers or other restaurateurs in the neighbourhood (e.g. to share refrigerated warehouse) reduce the lead-time of critical supplies. A practical indicator is the average time (in hours) needed to receive emergency batches (Hillson & Grimaldi, 2017).

The combined action of these drivers creates a **dynamic organisational capacity**: resilient leadership activates agility culture, which in turn enhances multi-skilled staff and forecasting technologies; local networking, finally, amplifies responsiveness by extending resources beyond the boundaries of the enterprise. When even one of these elements is

weak, the literature shows a exaggerated increase in waiting times and post-event complaints, with a direct impact on customer satisfaction scores.

1.1.2 Operational effects and means of response

Peak demands simultaneously impact the **kitchen, dining room** and **supply chain**, imposing integrated countermeasures.

Modular layout. Modifying the layout of tables and workstations with furniture on wheels and movable partitions increases seating density by 18% without compromising safety; it also reduces waiter runs by almost 30 metres per service cycle, with an average gain of 45 seconds per table (Principles of Commercial Kitchen Design, 2019).

Queue design. The installation of floor signs, mobile barriers and visual entertainment points decreases the perception of waiting - a psychological variable as important as the actual duration - and keeps the density in the hall within the threshold of 4 persons/m² recommended by the guidelines on crowd safety (Government of Canada, 2024). **Virtual queues** usage via the app shifts the wait outside and allows flows to be segmented into ten-minute slots, reducing traffic peaks at the checkout counter by 20%.

Anticipated prep-work and satellite *mise-en-place*. Advancing the cooking of low-perishable semi-finished products and placing assembly counters outside the hot line reduces the average plate preparation time by 12%, avoiding saturation of critical stations (Piercy & Rich, 2015). This practice is particularly useful when peak demand involves 'quick throughput' menus, such as street-food or finger-food.

Scheduled switch towards take-away. When the density in the room exceeds the critical threshold, a pop-up on the booking app or a QR on the table automatically offers the *fast-lane take-away* discount: in documented case studies, the measure kept a constant internal service rate, shifting up to 15 % of demand to less capacity-intensive channels (Rajani et al., 2022).

1.1.3 From *lean* to resilience: a continuum

The *lean* paradigm aims for efficiency by eliminating inventory, downtime and activities that do not add value. However, the experience of peak demand shows that a rigid adherence to *just-in-time* can undermine **operational resilience**.

- ➢ **Selective buffers.** Empirical studies suggest maintaining buffer stocks of 10-15 % of the average daily consumption of critical commodities such as ice, bottled water, coffee, to be activated only above the expected variance threshold (Piercy & Rich, 2015).
- ➢ ***What-if* analysis.** Discrete event simulations make it possible to test variable capacity scenarios and to quantify the value of the buffer: Rajani et al. (2022) show that a delta of two extra kitchen staff reduces the average flat waiting time by 4.5 minutes in queues longer than ten tickets.
- ➢ **Anticipatory trigger.** Indicators such as event presales, 'full sun' weather alerts (> 28 °C) or local trending topics on social media act as triggers: the algorithm activates extra staff or take-away switches before the room reaches saturation.

This «**leagile**» (lean + agile) approach preserves efficiency benefits under normal conditions, but leaves room for manoeuvre when uncertainty increases.

1.2 Temporary organization paradigm and adaptation of SMEs

The *temporary organisation* (TO) perspective originates from the need to explain organisational structures that, unlike permanent ones, have a **finite life cycle**, a **limited objective** and **a dedicated team**. Although its roots go back to project studies in engineering, it is with the work of Lundin & Söderholm (1995) that TO is formalised around the four attributes *time, task, team, transition*. Two decades later, Bakker et al. (2016) extend the pattern with the *Promises-Processes-Problems* model, pointing out that the success of TOs depends on the ability to:

- ➢ **Keep the promise of worth** (expected outcome of the event);
- ➢ **Manage smooth processes** (rules, roles, temporary routines);
- ➢ **Deal with emerging problems** (conflicts of authority, stress, knowledge loss).

From a meta-theoretical point of view, TO sits at the intersection of **contingency theory** (context-adapted structure) and **dynamic capabilities** (Teece, 2018), serving as a vehicle for rapid reconfiguration in turbulent environments.

1.2.1 Evolution and key dimensions

The literature identifies six dimensions that mark *temporary organisations* and guide their functioning.

Time-boundness. Each TO has a clearly defined beginning and end: this creates urgency, concentrates efforts and helps the team tolerate intense workloads in the awareness that the effort is of limited duration. (Lundin & Söderholm, 1995).

Task-orientation. The temporary organisation exists to realise a specific objective - e.g. serving a certain number of covers with predefined quality standards - and measures success on the basis of a few shared KPIs (Bakker et al., 2016).

Team modularity. Teams are set up on an ad hoc basis, combining permanent staff and resources hired just for the event. Modularity facilitates the rapid reconfiguration of roles in response to unforeseen events (Wagner, 2023).

Flexibility. Rules, procedures and responsibilities can be adapted *in itinere* without going through the permanent hierarchy. This flexibility is essential to solve operational problems in real time (Bakker et al., 2016).

Stakeholder management. To succeed, the TO must coordinate not only internally but also with external stakeholders - suppliers, local authorities, logistics partners - by building flexible agreements and fast communication channels in advance (Weaven, 2020).

Transition & learning. At the end of the event it is necessary to demobilise resources, synthesise lessons learned and transfer useful knowledge to the permanent structure. Without this phase, the value generated by the TO risks being lost (Lundin & Söderholm, 1995).

Together, these dimensions combine structural (time, task, team) and processual (flexibility, stakeholder management, learning) aspects, explaining why TO represents a privileged vehicle for rapid adaptation for food service SMEs.

1.2.2 Implementation in food service SMEs: steps and practices

The documented experiences of restaurateurs operating during city fairs, food festivals or sporting events reveal a recurring operational pathway consisting of **four stages**.

- ➢ **Scoping (-90 to -30 days).** The owner and the management team analyse turnout forecasts, estimate revenues and risks, and set the 'ambition level' expressed in KPIs such as covers/hour, RevPASH and customer satisfaction threshold. The tangible result is a short charter with budget, objectives and roles (Wagner, 2023).
- ➢ **Design (-30 to -7 days).** Dedicated mini-teams are established (kitchen, dining, queue, logistics), 'option-based' agreements are negotiated with critical suppliers and flow layouts are defined. This results in a TO organisation chart and a concise timetable of activities (Weaven, 2020).
- ➢ **Execution (event days).** The service is governed by ten-minute operational briefings every 90 minutes, visual kanbans for critical tasks and POS systems that send alerts when the average table time exceeds the target threshold. Front-line empowerment allows problems to be resolved in real time (Bakker et al., 2016).
- ➢ **Transition (+0 to +7 days).** When the event is over, the TO breaks down: resources return to the permanent structure, KPIs are analysed at the end, and a structured debrief feeds into the updating of SOPs (Lundin & Söderholm, 1995).

In all phases, the presence of *cross-trained* staff (reduces redeployment times by 25 %), timely alignment with external stakeholders - permits, supplies, neighbours - and the use of lightweight technologies (closed chats and task management apps) that replace formal meetings and make every micro-decision traceable, are decisive.

1.2.3 TO and micro-foundations of dynamic capabilities

Applied to the restaurant context, TO becomes a true agility laboratory that activates the three dimensions of dynamic capabilities (Teece, 2018).

- ➢ **Sensing.** Shared dashboards aggregate real-time admissions, waiting times and social mentions, reducing *detection lag* to less than ten minutes.
- ➢ **Seizing.** Counter-measures - reduced menu, geo-localised *dynamic discount*, reallocation of seats - are decided within thirty minutes of the alert, reducing the potential loss of revenue.
- ➢ **Reconfiguring.** The immediate transfer of staff from the *prep station* to the *service station* when room density exceeds 3 persons/m², together with the subsequent inclusion of winning practices in the Standard Operating Manual, demonstrates the ability to realign resources and processes in compressed time.

Behind these macro-processes there are three **enabling mechanisms**:

- ➢ **Intentional coordination.** Timed ‘flash’ briefings align goals between teams and reduce communication errors (Wagner, 2023).
- ➢ **Structured learning.** Formal debriefs and after-action reviews turn effective solutions into reusable checklists, increasing knowledge retention (Bakker et al., 2016).
- ➢ **Extended social capital.** The use of mixed teams (permanent and temporary staff) extends the professional network and promotes skill exchanges that enhance the SME's know-how (Weaven, 2020).

When these mechanisms are orchestrated with clarity of purpose and latent capacity margins, the TO becomes a platform that accelerates the organisational and competitive evolution of the enterprise.

Bakker et al. (2016) propose to observe TOs in three focal points:

- ➢ **Promises.** It is the «dowry» of credibility that convinces the parties (customers, investors, temporary workers) to cooperate. In food service SMEs, the promise has three dimensions: **economic** (incremental revenue), **experiential** (event quality) and **social** (benefits for the local community). A clear promise provides the *north-star* metric against which to evaluate quick choices, avoiding dispersion.
- ➢ **Processes.** They encapsulate all the routines and micro-rules that govern the work during the event. In the cases analysed, four pivotal processes emerge: 1) **“pulse” briefings** at fixed intervals; 2) multi-function **stand-up meetings** to resolve problems; 3) **digital kanban** assigning tasks in real time; 4) **fast feedback loops** with room and kitchen metrics updated every five minutes via display.
- ➢ **Problems.** Conflicts of authority, psycho-physical stress and risk of know-how dispersion are recurring problems in TOs. The literature recommends: **boundary roles** (permanent/temporary liaison) to mitigate hierarchical dualism; **recovery shifts** to prevent burn-out; **structured debrief** and shared repository to crystallise learning.

Integrating the P-P-P model with the dimensions seen in 1.2.1 produces a design compass: *Promise* informs *Task* design, *Processes* modulate *Flexibility* and stakeholder management, *Problems* highlight where to set up slack and *Transition* mechanisms.

1.2.4 Critical success factors and limitations

Clarity of purpose. In a strong time pressure environment, shared goals and KPIs reduce inter-functional conflicts and provide an unambiguous criterion for quick decision-making. Field experiments show that TOs with a single «north-star» KPI (e.g. CSAT ≥ 90 %) experience 15 % fewer procedural errors.

Selective slack. The availability of redundant resources where the cost of failure is highest - typically the hot station and the logistics-supply node - prevents system collapse. A 15 % margin of latent capacity has been shown to halve customer complaints at backlog times (Piercy & Rich, 2015).

Knowledge tracking. Only 60 % of TOs formally document lessons learned; yet, when they do, the ramp-up time in subsequent editions of the event is reduced by 25 % on average (Bakker et al., 2016). Shared repositories and structured debriefs are thus levers of cumulative competitive advantage.

Lack of control of these factors exposes the SME to three main risks: 1) **authority dualism** that slows down decision-making; 2) **burn-out** of 'dual role' staff that compromises the customer experience; 3) **loss of reputation** if the TO appears improvised.

1.3 Capacity management models in food service SMEs

Capacity management in catering is particularly complex because the **perishability** of the service makes it impossible to store unsold production or recover empty seats. During peaks of extraordinary demand - when the intensity of arrivals can double or triple the usual average - SMEs need to master a combination of **Revenue Management (RM)** policies, multi-level planning, *lean* process optimisation and *risk & crowd management* practices to avoid revenue loss and reputational damage.

1.3.1 *Revenue management* and dynamic *pricing*

The pioneering studies of Kimes (1998) transferred the principles of *hotel yield management* to the restaurant context, introducing the **RevPASH** (Revenue per Available Seat per Hour) indicator. RevPASH grows by acting on two sides:

- ➢ **Seating throughput** – that is, how many times a seat is sold in an hour. Techniques such as *menu engineering* reduce meal duration (prep-ready meals, payment at the table via QR), while reservation systems with explicit time windows guide customers to adhere to predetermined stay slots.
- ➢ **Average expenditure per customer** – increased with *upselling* strategies (premium drink pairings) or *price fencing* (creation of price categories based on perceived benefits: patio vs. indoor, table service vs. counter).

The psychology of pricing plays a crucial role: research on the concept of **fairness** shows that customers are more willing to accept **discounts in the soft band** than *surge pricing* in the peaks, which is considered punitive if viewed as unfair. *Dynamic pricing* models supported by machine learning (Freight, 2024) calculate the optimal price based on exogenous variables (weather, local events, future bookings) and automatically adjust table availability in online booking platforms

An often neglected point in SMEs is the quality of **forecasting**: Kimes et al. (2021) show that forecasting errors of more than ±10 % almost completely negate the benefits of dynamic pricing, because they induce staff and stock fluctuations that erode the margin. The introduction of simple ARIMA models or LSTM networks fed by historical POS data, even with limited datasets, reduces the error to below 5 %.

Finally, the effectiveness of RM policies depends on the **perception of fairness**: transparent communication paths (‘event rates’ made explicit in advance) and the offer of fixed-price options (*fixed price menus*) help mitigate the risk of backlash on social.

1.3.2 Multi-level capacity planning

Time horizon	Tools	Expected Output	Source
Strategical	Modular layout and investment in high productivity equipment	+25 % potential throughput	*Principles of Commercial Kitchen Design*, 2019
Tactical (60-90 days)	Supplier agreements, seasonal recruiting	Lead-time reduced by 35 %	Hillson & Grimaldi, 2017

Operational (week-day)	*AI scheduling* and KDS	–18 % under-staffing; –40 % order errors	Rutherford Silvers & O'Toole, 2014

Table 1.2: Multi-level capacity planning

The table summarises the **multi-level** logic that integrates decisions of different time horizons.

From a *strategic perspective*, investing in a **modular layout** (movable walls, furniture on wheels, 'technical floor' electrical systems) allows the room to be reconfigured in a few hours by adapting densities and streams without interrupting operations. The purchase of high-output equipment - combination ovens, continuous basket fryers - increases potential throughput by 25 % and reduces the need to activate extra staff at peak times (Principles of Commercial Kitchen Design, 2019).

At the *tactical level*, agreements with suppliers (fresh-produce, beverage) that include **option clauses** allow for doubling the purchase volume at 48 h notice, reducing logistics lead-time by 35 % (Hillson & Grimaldi, 2017). Similarly, seasonal recruiting campaigns launched 60 days before the event guarantee a pool of workers who can be trained on standard procedures before the peak.

Finally, at the *operational level*, **AI scheduling** algorithms - increasingly accessible in SaaS software - assign shifts by combining demand forecasts, staff qualifications and contractual constraints, cutting under-staffing by almost a fifth. Integrated with **Kitchen Display Systems (KDS)**, such algorithms generate real-time reinforcement 'calls' for distressed stations, reducing order errors by 40 % (Rutherford Silvers & O'Toole, 2014).

The element that connects the three levels is the flow of **forecasting data**: the weather-event triggers identified by Rajani et al. (2022) feed into both operational (opening an external bank) and tactical (activating extra supplies) decisions, while the final results feed back into strategic layout and investment choices.

1.3.3 Lean efficiency and enabling technologies

The *lean* paradigm aims to eliminate all activities that do not add customer-perceived value. In the kitchen, this means reducing superfluous movements with 'island' layouts and

early preparation of semi-finished products, while in the dining room it corresponds to the use of **handheld POS** that avoid unnecessary trips to the till by waiters. Piercy & Rich (2015) document 20 % reductions in preparation time by simply moving mise-en-place containers within 60 cm of the operator.

New **enabling technologies** augment *lean* principles:

- **Kitchen Display Systems** eliminate paper tickets, synchronising cooking times and allowing the status of each dish to be displayed in colour. Customer waiting time is shortened by an average of 3 minutes.
- **IoT sensors** integrated with computer vision algorithms monitor crowd density and automatically initiate a 'take-away' switch when aisles exceed thresholds of 3 persons/m².
- **Temporary dark kitchens** placed in containers adjacent to the main room act as a production buffer: a *hub-and-spoke* configuration that shifts the cooking of low-complexity dishes increasing effective capacity without saturating the scullery.

However, too much lean application can reduce resilience. The literature suggests adopting a **leagile** approach: lean processes under standard conditions, but with **buffer stocks** of critical raw materials and an additional production line ready to be activated just in case.

1.3.4 Risk & crowd management

Managing capacity also means ensuring the **safety** of customers and staff. The Canadian *Crowd Management* Guidelines (Government of Canada, 2024) define density thresholds (4 persons/m² 'attention'; 5 persons/m² 'danger') and gradual *stop entry* procedures. In restaurant contexts, this translates into:

- **Pre-event risk mapping.** Use of the **Cross Risk Breakdown Matrix** (Hillson & Grimaldi, 2017) to map operational, reputational and food safety risks, prioritising countermeasures.
- **Dedicated evacuation procedures.** Escape routes identified every 20 m with illuminated signs and personnel trained to manage one-way flows.

- **Crisis communication.** Pre-designed messages on displays and social media alert in real time of waiting times or any temporary suspension of service, reducing customer anxiety and the risk of disorderly behaviour.

Risk management, therefore, is not a separate process but a **feedback loop** that influences all capacity decisions: from the number of tables arranged in the room to the amount of security personnel and stock levels of essential goods (water, PPE). In the absence of systematic assessment, SMEs risk *service breakdowns* with economic and legal consequences far outweighing the cost of prevention.

1.4 Conclusions

The synthesis of the three strands analyzed shows that effective peak demand management in food service SMEs requires an **integrated trio**:

- ➢ a well-designed **temporary structure** that focuses resources and decisions along a defined time frame, minimizing inertia;
- ➢ a set of **capacity levers & revenue management** - dynamic pricing, modular layout, AI scheduling - orchestrated by high-frequency forecast data;
- ➢ a **leagile approach** that balances efficiency and resilience, safeguarding staff welfare and perceived customer fairness.

The converging literature suggests that businesses that can integrate these three components develop superior **dynamic capabilities** that can be translated into lasting competitive advantage beyond the event. However, two caveats emerge: the need to consider long-term impacts on reputation and employee retention, and the urgency to produce robust quantitative evidence on the ROI of emerging technologies (IoT, ML dynamic pricing).

The chapter thus provided the theoretical and practical framework that will support, in Chapter 2, the formulation of the research questions and the choice of empirical methodology: a case study along the entire *scoping-design-execution-transition* cycle of a restaurant

---

References

Bakker R.M., DeFillippi R.J., Schwab A., & Sydow J. (2016) *Temporary Organizing: Promises, Processes, and Problems*.

Freight (2024) *The State of Dynamic Pricing for Restaurants in 2024, and How to Navigate*.

Government of Canada (2024) *Crowd Management – Events*.

Hillson D., & Grimaldi A. (2017) *Managing Project Risks Using a Cross Risk Breakdown Matrix*.

Kimes S.E., Barrash D.I., & Alexander J. (2021) *Developing a Restaurant Revenue-Management Strategy*.

Lundin R.A., & Söderholm A. (1995) *A Theory of the Temporary Organization*.

MRM – Modern Restaurant Management (2025) *The Urge to Surge: What Surge Pricing Could Mean for Your Restaurant*.

Piercy N., & Rich N. (2015) *High Quality and Low Cost: The Lean Service Centre*.

Principles of Commercial Kitchen Design (2019).

Rajani R.L., Heggde G.S., Kumar R., & Bangwal D. (2022) *Demand Management Approaches in Services Sector and Influence on Company Performance*.

Rutherford Silvers J., & O'Toole J. (2014) *Risk Management for Events*.

Teece D.J. (2018) *Explicating Dynamic Capabilities: The Nature and Microfoundations of (Sustainable) Enterprise Performance*.

Wagner A. (2023) *Temporary Organizing – The New Art of Working*.

Weaven S. (2020) *Surviving an Economic Downturn: Dynamic Capabilities of SMEs*

Chapter 2

Analysis and identification of critical issues in current processes

---

Introduction

Restoration services are one of the most complex operation system in the service industries: supply must combine gastronomic creativity and process rigour, while demand is highly variable as in volume as in product mix. The restaurant taken as a case study in this context represents a significant case of organization «high-mix, high-variability», where co-existence between extensive menu and weekly rotation of customer flows require fine and balanced management decisions. the focus of this chapter is on as-is situation process, by adopting a theoretical system that combines service blueprinting, queueing theory e *Restaurant Revenue Management (RRM)* (Kimes et al., 2021; Roy et al., 2024).

The ultimate goal is to provide an integrated – and critically argued – reading of the causes that limit the current performance, thus providing the evidence base on which the redesign proposals illustrated in the following chapters will be built.

2.1 Sources and data collection method

2.1.1 Triangulation of evidence

The credibility of a process analysis consist in the robustness of the empirical proof from which it starts. For this reason, a triangulation logic was adopted that combines, first of all, the structured data contained in the internal file “Restaurant Specificity”. This document, the result of a technical census conducted by the owner, offers objective parameters that are difficult to alter – for example, net surfaces, installed power, equipment – and constitutes the essential quantitative foundation. Secondly, direct observations carried out on five service shifts fill the gap between design logic and daily practice: the survey, conducted with timestamps per minute, allows us to comprend the real dynamics of the flows, highlighting those micro-temporal deviations (the waiter waiting for the pass, the chef redistributing the orders) that do not emerge from the accounting records. Finally, semi-structured interviews with key figures in *Front of House (FOH)* and *Back of House*

(BOH) add the cognitive dimension i.e. the perception that operators have of constraints and opportunities: this third perspective is crucial because, as Caballero et al. (2020) points out, improvement initiatives often fail not out to miscalculations but as a result of a lack of recognition of consolidated routines.

The integration of these three sources: physical-documentary, observational and perceptual was formalized in a single and normalized database, overcoming terminological inconsistencies through an activity dictionary (for example, unifying “mise en place” and “preset table”) and encoding each occurrence in the *process-activity-delay* framework. The use of a discrete event model then allowed simulating the typical day, isolating the marginal effects of individual bottlenecks in a controlled environment but adhering to real parameters.

2.1.2 Blueprinting and mapping

The choice of the service blueprint as a representation tool derives from its ability to link the actions visible to the customer with the support processes that take place behind the scenes. Unlike a mere plan, the blueprint goes beyond the geometric dimension to incorporate the temporal one, placing on the same flow the gesture of the waiter who welcomes the customer, the point-of-sale and the simultaneous preparation in the kitchen. This “global view” is functional to identify the so-called moments of truth, or those intersections between front-stage and back-stage in which a misalignment immediately translates into a perceived disservice (Nurkamiliaetal., 2022).

In this specific case, first of all, the connecting passage between the kitchen and the dining room, just 1.1m wide, acts as a structural bottleneck: during peak phases, the same opening must accommodate the traffic of hot dishes coming out, dirty dishes coming in and staff crossing the path in opposite directions, with an estimated loss of capacity of between 12% and 15% (Nurkamiliaetal., 2022).

When this physical limitation is added to the second node - the wood-fired oven used at 95% in the 8:00-9:30 pm window - the system slips into an instability zone: a single human error is enough, for example a burnt dough or a request for remaking, to cancel the already small safety margin, to generate a queue of pizzas and, by domino effect, slow down the hot line and prolong the customers' stay at the table (Arnosti, 2022).

The third issue, of an organizational nature, concerns the absence of a true director of orders: the kitchen and the pizzeria use two digital channels that flow in parallel, but in the absence of a synchronous organizazion platform the production batches do not align. The expediter, instead of making the flow smoother, is forced to hold back the ready-made pizzas until the second courses are completed, worsening the overcrowding of the passage and amplifying the funnel effect. This results in the effect known in literature as a *mobile bottleneck*, because the constraint moves alternately between the passage, the oven and the coordination, generating oscillations in waiting times and perceived quality.

2.1.3 Analytical metrics

Performance measurement is anchored to three key indicators. The first is Little's Law, which relates the average number of units in the system (L) to the arrival rate (λ) and the average time spent (W). The power of this law, although often presented in a didactic manner, is in its generality: regardless of the distribution of arrivals or the variability of the service, the product λ×W returns an invariant that allows for an immediate estimate of the saturation of a space. In the restaurant analyzed, the law highlights that the current room configuration – 50 seats that can actually be used in shifts – works at an average occupancy density of 62%, a value that suggests latent capacity but also possible shift inefficiencies.

The second marker is Takt Time, according by lean production principles, defined as the maximum interval within which the system must complete a unit to keep up with demand. In our case, the takt time of 52 seconds in the peak range means that, on average, a main dishes should come out every 52 seconds so that the queue does not get long. Compared to the average cooking cycle of 70 seconds per portion, the 35% gap highlights the urgency of redesigning the preparation or buffering sequence.

Finally, RevPASH (Revenue per Available Seat-Hour) summarizes the economic dimension, offering a direct bridge between operational efficiency and financial result. It is not a simple turnover/seats ratio, but rather an indicator sensitive to the duration of the meal: two shifts with low average spending can generate higher RevPASHs than a single shift with high receipts, demonstrating that optimization does not only involve increasing the average price but also balancing the speed of service and the target's spending capacity (McKinsey, 2023).

2.2 Mapping of current processes

2.2.1 Physical structure and layout

The restaurant's building, a renovated former spinning mill, has architectural constraints that profoundly affect operational flows. The three dining areas, connected by load-bearing masonry arches, force waiters to take “L”-shaped routes to reach the waiter pass: this implies an average delta of fifteen additional steps compared to an open-space layout of the same size. Although the figure may seem marginal, multiplied by the 450 waiter pass exposures recorded on a peak Saturday, it translates into almost seven thousand useless steps, equivalent to an hour of unproductive work. Caballero et al. (2020) demonstrate that even minimal reductions in routes, if systematic, improve the mental saturation of operators and reduce delivery errors.

From the kitchen's point of view, the "hot island" configuration with burners in the center favors communication between batches but complicates the logistics of the dishes, which must complete a semi-circumference to reach the waiter pass. This solution, initially designed to incentivize the brigade, turns out to be sub-optimal when demand exceeds 60 orders/hour, because the pizza line – located close to the wood-fired oven – crosses the trajectories of the exit-return dishes, generating micro-stasis that the digital ticket system cannot prevent.

The entire layout, therefore, highlights a dichotomy between spaces designed for perceived quality (articulated rooms, view of the kitchen) and the need for throughput. Many of the critical issues identified in the following paragraphs arise from this tension.

2.2.2 Customer flow and service sequence

The customer experience begins as soon as they cross the threshold, but the operational process begins in the previous thirty seconds, when the maître, observing the entrance through the reservations monitor, decides which table to assign. This apparently insignificant moment constitutes a crucial point of decision: a choice oriented to the mere convenience of the route (closest table) can, in reality, compromise future rotation if it does not take into account the mix of groups' sizes in the queue. Arnosti (2022) highlights how the seating phase influences 40% of the variability in perceived waiting times. In our case,

direct observation recorded a seating lead-time that oscillates between 80 seconds on weekdays and 6 minutes on peak Saturdays; the sole difference of 40 seconds in average seating time determines, at the end of the shift, a backlog of three groups queuing outside the restaurant.

Once seated, customers interact with a digital ordering system on a handheld device. The introduction of this technology, adopted to reduce transcription errors, has effectively brought the lead time for entering orders to 2.2 minutes, but has transferred the variability to the kitchen, which receives more scattered and less grouped orders. The result is an interstitial load that the grill chef struggles to dispose of, generating, in peak hours, cycles of 18-20 minutes against the 12 of the pizzeria. The asymmetry causes synchronization deviations that the expediter tries to compensate for by holding back ready-made pizzas. The phenomenon, in addition to cooling the product, produces congestion at the pass, making an organizational misalignment visible to the customer that undermines the perception of professionalism.

2.2.3 Front of House vs Back of House

The integration between FOH and BOH is a classic theme in operations literature: Pannell (2019) insists that, in contact-intensive services, the distinction between front-stage and back-stage is more nuanced than the theoretical framework would suggest. In the restaurant studied, the numerical ratio between dining room and kitchen staff – 1.4 – is within the standards, but the lack of *cross-training* reduces the resilience of the system. A waiter who is not trained in boning or plating cannot, in the event of a backlog, relieve the brigade; similarly, a cook who does not know the payment procedure at the table will not be able to support the dining room during queues at the cash register. Literature documents how the introduction of hybrid roles – for example the *expediter* or the *runner* – can reduce the overall lead-time by up to 15% (Hwangetal., 2018), a benefit that in our context would find fertile ground given the limited space for investments in equipment.

2.3 Review of Capacity and Operational Constraints

2.3.1 Theoretical capacity of the dining area

Applying Little's Law to the study yields varying outcomes depending on customer arrival patterns.On a **typical weekday**, the average arrival rate (λ) is approximately 24 customers per hour, with an average stay duration (W) of 1.1 hours. This results in a simultaneous occupancy (L) of roughly 26 customers, comfortably within the venue's standard capacity, allowing smooth service for 50-60 covers without queues or significant overlaps.

Conversely, on **Saturday evenings**, the Gaussian distribution of arrivals shifts considerably. Between 7:00 PM and 10:30 PM, the customer volume increases notably to between 150 and 200, peaking with 90 arrivals occurring between 8:00 PM and 9:00 PM. During these peak hours, the arrival rate (λ) escalates to about 70 customers per hour. With an extended average stay duration (W) of 1.3 hours, the simultaneous occupancy (L) approaches approximately 90 individuals. This significantly exceeds the total available seating capacity of 200 covers, inevitably leading to queues lasting at least 20-25 minutes.

This scenario clearly illustrates how the same infrastructure can either appear excessive or insufficient depending on temporal demand distribution, a phenomenon described by Potter et al. (2019) as "variability amplification."

2.3.2 Kitchen and Pizza Capacity

The maximum output of the wood-fired oven is around 50 pizzas per hour. Each pizza needs about 90 seconds in the oven, plus 30 seconds to load and unload, and 20 seconds for final toppings.

During busy periods, the oven runs at 95% capacity, leaving almost no room for delays. Even minor hold-ups can cause significant backlogs to the process.This is a scenario called the "rigid bottleneck effect" described by Arnosti (2022). This happens because one step in the process cannot speed up, making improvements upstream or downstream less effective.

In the kitchen, the bottleneck is more flexible: grill and sauté stations, operate at about 85% capacity, could increase using batching techniques or by pre-preparing certain ingredients. However, cross-contamination of orders—dishes requiring combination of multiple stations—makes the solution less straightforward compared to a single-stream operation.

A small-scale experiment during a weekday service showed that spreading appetizer preparations between 7:30 PM and 7:50 PM reduced the average lead time for main courses served at 8:15 PM by four minutes, indicating potential for improved level loading.

2.3.3 Takt Time and Flexibility

Although the concept of Takt Time has been used in the automotive industry, it applies effectively to restaurant services as well, since it encourages thinking in terms of synchronized demand.

The 35% gap between takt time and cycle time in our restaurant is not just a numerical issue—it reflects the handcrafted nature of certain steps (such as elaborate plating and final garnishing), which contrasts with the fast-paced expectations of casual dining.

Kambli et al. (2021) suggest that this mismatch can be reduced by introducing “fixed-time” menu segments, where preparation time variability is kept within a two-minute range.

In our case, simulation showed that a fast-track menu line—dishes specifically designed for a 40-second cycle—could help absorb demand peaks without compromising the core menu. The main offerings would still be available, though with slightly longer lead times, but during more manageable periods of service.

2.3.4 Economic Dimension: RevPASH

The RevPASH of €10.2, below the benchmark, can be explained by two main factors. The first is the already mentioned meal duration: a 90-minute seating time dilutes hourly revenue, even if the average bill is high.. The second relates to menu engineering: high-turnover items (such as margherita pizza and plain tomato pasta) offer lower profit margins compared to gourmet options. The promotional layout of the menu emphasizes these basic items, driving demand toward the lower-margin segment.

Kimes et al. (2021) show that simply redesigning the visual layout of a menu can shift the sales mix by 7–10%, a change that in our case would translate into a 1.5-point increase in RevPASH. Therefore, the economic dimension should not be evaluated in isolation, but rather through the combined lens of operations and marketing.

2.4 Challenges During Regular Service

On a weekday, the restaurant may appear to operate under steady-state conditions, but a minute-by-minute analysis reveals hidden inefficiencies.

The first issue is the lead time for main courses: in almost 25% of cases, it goes over fifteen minutes, a limit identified by De Vries et al. (2024) as the point where customer satisfaction starts to drop sharply. The cause is not the cooking time itself, but the difference between how long it takes to prepare dishes and pizzas. When both reach the pass at the same time, the expediter tries to synchronize them by holding the faster dish, which affects serving temperature.

The second issue is about staff organization. The waiter-to-table ratio of 1:5.5 looks fine on paper, but doesn't reflect the uneven distribution between rooms. In the third dining room, which is farther from the pass, the ratio can reach 1:7. This lowers the frequency of check-backs below the three-minute standard suggested by quality service guidelines (Chally, 2023). These small delays add up and make the service feel less personal, leading to missed chances to sell extra drinks—estimated at about 5% of weekday revenue.

Lastly, having only one fixed POS terminal creates short queues at checkout. The average wait time is 90 seconds, which may not seem much, but it has two effects: it keeps tables occupied longer, reducing turnover, and it adds a delay at the end of the customer journey, which hurts the overall memory of a smooth service.

2.5 Challenges During Busy Hours

On Saturday evenings, operations become more strained due to what Hwang et al. (2018) describe as a "shifting bottleneck," where the system's weak point moves between resources depending on which one is overloaded.

Around 7:45 PM, the pizza oven hits full capacity. In just 15 minutes, a backlog of twelve pizzas builds up, delaying mixed orders. This delay pushes back table turnover by an average of seven minutes. Although that might sound minor, it's enough to prevent a short second seating between 9:45 PM and 10:15 PM—resulting in lost revenue during a critical time when the kitchen is preparing to close.

Simultaneously, staff workload reaches about 90% of their capacity, limiting their ability to respond to extra requests. Wait times for an additional drink or dessert increase to 3.5 minutes. This often discourages customers from ordering more, which reduces both average spending and RevPASH. Arnosti (2022) notes that in casual dining, each extra minute of waiting during the dessert phase lowers the likelihood of ordering by roughly 3%. In this setting, it means missing out on high-margin sales just when operating costs are highest.

2.6 Summary of Issues and What to Fix First

The current picture shows that challenges fall into three key areas.

At the **strategic level**, which means long-term planning, the main issue is the building itself. The narrow opening between the kitchen and the dining room, and the divided layout of service spaces, are structural problems. If not fixed, they will make future growth difficult.

At the **tactical level**, looking at the medium term, the lack of coordination between the front and back of house is the big problem. There is no cross-training, and orders are not managed in sync. This leads to delays and missed chances to sell more.

At the **operational level**, which means day-to-day work, adding mobile payment devices and using a smarter seating plan could quickly improve service with little effort.

Deciding what to fix first shouldn’t depend only on how often a problem happens, but on how much it can improve the whole system. For example, using tableside payment may seem like a small change, but it saves table time, reduces the wait customers feel, and improves their last impression—helping RevPASH.

Next in impact is better coordination between the pizza oven and the grill. This takes only some staff training but helps solve a key bottleneck. Finally, widening the kitchen-to-dining room passage is expensive, but it’s important for any real expansion in the future.

The best approach is to start small and build up: first fix the everyday tasks that save time and money, then move on to process improvements, and finally tackle the bigger structural issues. Once those are solved, the restaurant can really grow to its full potential.

References

Arnosti, I. (2022). *Why are waits so long at high utilization?* Journal of Service Operations, 48(2), 115-130.

Caballero, A., Gómez, J., & Torres, M. (2020). *Discrete-event modelling for operational management of restaurants.* International Journal of Hospitality Management, 87, 102-119.

Chally, R. (2023). *The strain of success: How the labor shortage is affecting restaurants.* Hospitality Review, 41(3), 57-72.

De Vries, J., Janssen, M., & Vermeulen, P. (2024). *Worth the wait? How restaurant waiting time influences customer behaviour and revenue.* Service Industries Journal, 44(1-2), 87-105.

Hwang, J., Kimes, S. E., & Noone, B. (2018). *Joint demand and capacity management in a restaurant system.* Journal of Service Management, 29(4), 619-642.

Kambli, P., Smith, K., & Brown, L. (2021). *Improving campus dining operations using capacity and queue management: A simulation-based case study.* Journal of Foodservice Business Research, 24(6), 543-562.

Kimes, S. E., Wirtz, J., & Susskind, A. (2021). *Developing a restaurant revenue-management strategy.* Cornell Hospitality Quarterly, 62(3), 231-246.

McKinsey & Company. (2023). *A recipe for restaurant revenue and sales growth.* McKinsey Global Institute Report.

Nurkamilia, S., Rahman, D., & Yudhistira, B. (2022). *Facility layout planning optimisation in a family restaurant using systematic layout planning and simulation.* International Journal of Industrial Engineering, 29(1), 45-61.

Pannell, D. (2020). *Little law: Mastering queue management for optimal efficiency.* LeanScape Press.

Potter, A., Mason, R., & Lalwani, C. (2019). *On the versatility of Little's law in operations management: A review and classification using vignette methodology.* International Journal of Operations & Production Management, 39(2), 226-247.

Roy, S., Mukherjee, A., & Singh, R. (2024). *Restaurant analytics: Emerging practice and research opportunities.* Journal of Hospitality and Tourism Technology, 15(1), 1-23.

Chapter 3

Qualitative interviews and identification of operational requirements for the specific event

---

Introduction

The following is a brief introduction to the chapter on qualitative interviews, in which the methodological and theoretical framework for conducting interviews with restaurateurs who have faced events characterised by extraordinary peaks in demand is outlined, as well as the objectives pursued. This text serves as a framework to describe the epistemological foundations, the research design, the operating methods and the main aims of the qualitative collection of experiences.

3.1 Practical structure of the statistical survey

3.1.1 Purpose and context of qualitative interviews

This chapter focuses on the collection and analysis of direct experiences of owners, restaurant managers and chef-managers who have managed at least one event characterized by an extraordinary peak in demand (e.g. food and wine festivals, fairs or large cultural events).

The main objective is to obtain a complete understanding of the limits found in standard processes, the reorganization strategies implemented, the difficulties encountered and the lessons learned, in order to identify best practices transferable to the central case study of the thesis.

Qualitative interviews are supposed to be the privileged tool to explore meanings, motivations and complex dynamics that escape standard quantitative measurements, allowing to return a rich and contextualized representation of the phenomena under examination.

3.1.2 Epistemological paradigm and theoretical foundations

In the vein of an approach both interpretive and constructive, it is assumed that the organisational and operational reality of restaurants emerges from the interaction between actors, practices and specific contexts (Merriam & Tisdell, 2015; Creswell, 2013). This epistemological paradigm recognises that knowledge from interviews is co-constructed between interviewer and interviewee, valuing the subjective dimension of experience and the importance of meaning attributed by participants. Semi-structured interviews allow for a balance:

- A methodological track (interview guide) that guarantees coherence and comparability between cases;

- The flexibility needed to follow the narrative thread offered by the interviewee, exploring unexpected or emerging aspects in depth (Kallio et al., 2016).

The adoption of a qualitative design is therefore based on the assumption that textual data (the words and stories of restaurateurs) constitute the primary source for identifying shared patterns and original solutions, providing a basis for the generation of practical insights and operational recommendations..

3.1.3 Research design and sampling

The research involves a qualitative approach with semi-structured interviews, structured according to the four-phase framework of Kallio et al. (2016) for the construction of an “interview guide” sensitive to the survey objectives.

The sampling is of a purposive type, aimed at selecting restaurateurs who have already faced at least one extraordinary demand event, integrated by a snowball selection mechanism that allows reaching further contacts through internal references to the network (Palinkas et al., 2015; Robinson, 2014).

3.1.4 Structure and preparation of the interview

The interview guide was divided into five topics, five thematic blocks, identified on the basis of the research objectives:

- **Pre-event constraints identification:** explore how restaurateurs recognize critical points in standard processes before the event (e.g. bottlenecks in the kitchen, personnel management, logistics).

- **Identifying the requirements**:bring out the priority requirements to effectively address the increase in demand (e.g. spaces, equipment, technologies, specific skills).

- **Requirements validation**: investigate how the requirements were tested and validated (e.g. through simulations, load tests, stakeholder involvement).

- **Process reorganization**: describe the operational changes made in terms of layout, flows, shifts, supplies, technologies used.

- **Lessons learned & recommendations**: collect concrete recommendations and final reflections on what worked and what mistakes were avoided or committed.

The questions within each block are open-ended (integrated with further answers for essential questions such as e.g. “Can you describe a concrete example?”, “What happened immediately after?”) to facilitate the explanation of details and insights.

3.1.5 Concrete objectives and use of results

The final purpose of this introductory phase is to outline how, through the qualitative analysis of the interviews, the following will emerge:

- The main perceived limitations in the pre-event standard processes;

- ➢ The priority requirements identified and the validation methods;
- ➢ The reorganization strategies implemented (changes in layout, staff, technology);
- ➢ The difficulties encountered during implementation (e.g. internal resistance, budget constraints, tight deadlines);
- ➢ The best practices and operational recommendations to be transferred to the case in question, identifying common patterns and innovative solutions.

The aim of this introduction is to provide a comprehensive overview of the methodological premises and research aims, so as to clarify the path that will lead to the generation of evidence that is applicable and significant for restaurateurs who will find themselves facing extraordinary demand events..

3.2 Descriptive analysis of CSV

The exploratory analysis of the CSV file (uploaded as a screenshot in Appendix A) containing data from 25 restaurants in the city of Vicenza revealed some interesting patterns related to operational capacity, geographical location, previous experience in events and perceived quality.

Below we summarize the main results.

3.2.1 Capacity (maximum seats available):

The average capacity of the restaurants in the sample was found to be about 90 seats available. The distribution shows a clear segmentation: a substantial group of establishments (about 40 percent) has less than 60 place settings, indicating small trattorias or taverns; another 40 percent are in the medium-high range (60-100 place settings); finally, a minority (about 5 restaurants, 20 percent of the sample) exceed 100 place settings, approaching 120-150 seats. The latter represent the “big players” capable of accommodating large groups, often having multiple rooms or large stalls. The presence of some restaurants with >120 seats suggests that, within the center of Vicenza, there are locations equipped almost like small banqueting rooms. At the same time, the large

presence of venues under 60 covers signals the importance of typical family-run taverns and trattorias, which face different challenges in case of exceptional influxes (small spaces, kitchen sized for moderate flows, etc.).

3.2.2 Distance to the center/event

Almost all of the restaurants are located within a 800-m radius of the “Piazza dei Signori” (taken as a reference of the historic center and likely the focus of the event). About 60% even fall within 500 m, highlighting a strong concentration in the city center.

Only a few venues (4 out of 25) are between 600 and 800 m away - still within the historic urban circle. No restaurant in the dataset is more than 1 km from the center, an indication that the original selection focused on businesses potentially directly affected by the Adunata (which primarily affected the city center). This “centripetal” distribution implies that most establishments shared a common pool of visitors during the event and likely benefited (or were affected) by similar logistical conditions, e.g., streets closed to traffic, temporary pedestrian zones, installation of additional services such as chemical toilets in the squares, etc. Operationally, the proximity between many of these restaurants also means direct competition in serving the same flows of Alpines and tourists, but also opportunities for cooperation.

3.2.3 Previous experience with “Gatherings” or similar events:

A qualitative variable in the dataset indicated whether the restaurant had prior experience with the “Adunata degli Alpini” (e.g., having participated in previous editions in other cities, or having served groups of Alpini in the past) or with other extraordinary large-scale events (concerts, fairs, etc.). After a series of quick phone calls to find some information on this topic, about half of the restaurants (13 out of 25) turn out to have such prior experience. Among them, some had even prepared their staff for the Vicenza Adunata many months in advance thanks to lessons learned elsewhere. For example, a couple of managers report attending Adunata 2023 in Udine as mere visitors, “studying” how Friulian establishments handled the wave of customers, and then putting similar arrangements into practice in Vicenza. Restaurants with no direct experience of Adunate, however, represent the other half of the sample; some of them, however, had managed local events (e.g., “Adunata del

Bersagliere” or sports rallies) that, although smaller, partially prepared them. This finding suggests that about half of the caterers were facing such operational pressure for the first time without a direct precedent-a condition that, as we shall see from the interviews, led some to underestimate certain problems (e.g., rapidity of running out of stock) compared to those who had historical memory of events.

3.2.4 Menu flexibility:

Another qualitative attribute noted was the degree of flexibility of the menu offered during exceptional events. This information, collected through preliminary exploratory interviews, was coded in the CSV with a simplified score (e.g.: High = reduced or adapted menu to speed up service; Medium = some special dishes added but standard menu maintained; Low = menu unchanged). From the data, about 10 restaurants (40%) showed high flexibility, preparing a dedicated or simplified menu (often with a fixed price) for the gathering to better handle peaks. Another 30% (~8 venues) showed medium flexibility, keeping the usual menu but adding some “themed” dishes or preparing larger portions for sharing. Finally, the remaining ~30% maintained low flexibility, preferring to serve their usual full menu despite the confusion. Note that all selected top restaurants (section 5) fell into the first two categories (medium or high flexibility), highlighting how this criterion was related to a better management of the event.

3.2.5 Ratings and perceived quality

The average rating (derived from online reviews, presumably TripAdvisor or Google) of the 25 restaurants is 4.3 out of 5. As many as 18 restaurants (72%) have a rating ≥4.2, indicating a generally high pre-event customer satisfaction. Only one restaurant fell below 4.0 (3.8 - still fair) and it is no coincidence that it is a very touristy establishment with large volumes and fluctuating service ratings. The distribution of ratings is therefore very concentrated towards the top, a sign that the sample is largely composed of excellent or good standards of local catering. This high average level has positive but also critical implications: these restaurants had a reputation to defend during the Adunata and presumably high quality standards to maintain, challenged however by the abnormal influx of customers. In fact, some interviewees confessed to having ‘sacrificed something on the service’ in order to cope with the volume, such as serving in disposable crockery for speed, a choice they would never have made under normal circumstances but which was

tolerated during those exceptional days without affecting the rating too much (also due to the general understanding of the public for the extraordinary situation).

3.2.6 Emerging operational clusters

Crossing the variables above (seats, menu flexibility, experience, rating), it is possible to outline some clusters of restaurants with similar operational approaches:

Great Strategists: high-capacity restaurants (>100 covers), with previous experience of events and high menu flexibility. These restaurants (about 5 in the sample) approached the Adunata in a proactive manner, implementing significant operational changes. Example: a restaurant with 120 seats set up an additional self-service line in the inner courtyard to dispose of the lunch queue.

Adaptive typical: medium-small (40-80 covers) but highly rated taverns/restaurants, often family-run, which have shown creativity in adapting despite limited resources. They have traditional menus, but many have simplified the offer and organised extra shifts of family staff.

Quality conservatives: restaurants (of various sizes) with excellent ratings that chose not to alter their formula, serving full à la carte menus and maintaining usual standards. They often had no experience in large events and aimed to ‘do their best’ without disrupting operations, accepting to serve fewer covers than they could

Improvised burgers: small premises or bars (≤40 seats) that do not usually do intensive catering but for the Adunata tried to maximise takings by selling sandwiches, snacks, beers at all hours. This cluster (5-6 units) includes, for example, bars with minimal kitchens that improvised grill stations outside. Their experience varied: some profited to the satisfaction of customers, others struggled to cope with the chaotic influx, suffering a few negative reviews for disorganisation.

This descriptive analysis of the CSV provides us a quantitative background: on the one hand it identifies the operational and organisational characteristics of the restaurants, on the other hand it guides the selection of the most significant for qualitative insights (e.g. favouring the clusters ‘major strategic’ and ‘typical adaptive’ to extract best practices). On

the whole, the data suggest that the response to the event was heterogeneous: some restaurants were structurally and culturally predisposed to take advantage of the opportunity (high capacity, flexible lean approach), others were more in difficulty due to physical limitations or a strategic choice not to distort themselves. The next paragraphs will explore these aspects in more detail through summary profiles and the direct voices of restaurateurs.

3.3 Selection Criteria & Scoring Array

In order to identify the five most suitable restaurants to be subjected to in-depth qualitative interviews, multiple criteria were defined based on both practical considerations and theoretical indications (e.g. choosing extreme or paradigmatic cases). A multi-criteria scoring approach was adopted: each restaurant was assigned scores on several key criteria and, through weighted weights, a final aggregate score was calculated. The criteria (with their percentage weights in brackets) are:

3.3.1 Capacity (≥ 80 place settings) - weight 25%.

Seating capacity is crucial for handling mass events: venues with ≥80 seats have higher throughput potential, i.e. they can serve more customers in a given time, all else equal. This threshold value (80) reflects about the 75th percentile in our sample, distinguishing those with a large structure. Restaurants above the threshold were given full marks on this criterion, while scaling proportionally for those with fewer seats (e.g. 60 place settings ≈ 0.75, 40 place settings ≈ 0.5).

3.3.2 Distance (≤ 800 m from the centre/event) - weight 15%.

The proximity to the most important place of the event (Piazza dei Signori/Campo Marzo area) was crucial: within ~800 m it is assumed that the venue was directly hit by the main flow of visitors. Smaller distances also imply more agile logistics (supplies, accessibility) and the possibility of extending activities into nearby public spaces. In the scoring, restaurants ≤800m scored highest. (Practically all those in the dataset already fulfilled this criterion; had there been any further away they would have had progressive penalties as the distance increased).

3.3.3 Previous experience with rallies - weight 20%.

Having direct experience in previous Adunate (or similar events) was considered a strong advantage: it means accumulated know-how, awareness of the typical rhythms and problems (e.g. need for continuous hours, food preferences of the Alpine troops, managing large groups). Restaurateurs with such a background probably adopted more targeted and creative solutions. For scoring, this is a binary attribute: +20% if yes, 0 if no.

3.3.4 Menu flexibility - weight 15%.

Qualitative criterion assessing the propensity to adapt the culinary format. A flexible menu (reduced or thematic) during the event indicates a lean and customer-centred orientation, favouring speed and efficiency over routine. Full marks were given for substantial changes (fixed menu, quick specials, etc.), intermediate marks for partial adaptations, zero for no changes. This criterion also serves as a proxy for managerial aptitude for process innovation.

3.3.5 Rating (≥ 4.2/5) – weight 25%.

The high average customer rating was included as a sign of service quality and pre-event satisfaction. The assumption is that restaurants with an excellent reputation have good operational practices already in place (close-knit teams, customer focus) and therefore interesting to study in a stress context. In terms of scoring, those with ratings ≥4.2 scored full marks, then scaled down to a minimum for those with lower ratings (in the sample they ranged from ~3.8 to 4.7). However, all five selected exceeded the 4.2 threshold, combining quality and ability.

3.3.6 Weighting and final selection

The weights were decided by balancing operational relevance (capacity, rating) with Adunata-specific aspects (proximity, experience, flexibility). Applying this scoring matrix to the 25 restaurants, a scorecard was obtained for each. The final scores (in hundredths) showed a top 5 clearly outnumbering the rest: the top five scored between ~88 and 95 out of 100, outscoring the sixth (around 80) and the others to follow. The five restaurants selected according to this ranking are: Al Ceppo, Bar Borsa, Osteria Il Cursore, Ristorante Al Fiume and Trattoria Ai Sette Santi. These fulfil all (or almost all) the criteria excellently.

Ultimately, the selection matrix made it possible to transparently justify the choice of cases for the in-depth interviews, while at the same time ensuring a certain heterogeneity in the similarity: all five shared high standards and relevance to the event, but varied in type (from bar to typical trattoria to gourmet restaurant), ensuring a richness of perspective. Such variety increases the robustness of the qualitative results, allowing insights to be derived that can be generalised (by conceptual analogy) to a wider range of restaurateurs in similar contexts.

3.4 Qualitative Interviews

All transcripts of the qualitative interviews conducted will be included in the appendix at the end of this entire paper (APPENDIX A).

3.5 Key operational requirements for process reorganisation (extraordinary events)

From the analysis conducted, a number of key operational requirements emerge that restaurants should consider when reorganising their processes in order to successfully manage extraordinary high turnout events. These requirements can be grouped into conceptual categories, accompanied by observed concrete examples and references to best practices:

3.5.1 Use of semi-finished products and advance preparations

A key requirement is to reduce the ‘live’ workload in the kitchen during the event by moving some of it to the preparation phase. This involves adopting semi-finished products (basic preparations) and pre-cooking techniques. Examples: Preparing large quantities of sauces, gravies, broths, side dishes in advance that can be stored and quickly regenerated at the time of serving. Par-cooking meats and pasta dishes: like the example of pre-cooking chicken wings to increase throughput, restaurants can boil pasta halfway through cooking and cool it, then quickly finish it in the pan when ordered (a method often used at banquets). Similarly, fry certain dishes up to 80% cooked in advance and quickly finish frying them on the spot. The adoption of semi-finished products does not have to

mean food of lower quality: it can be self-produced (non-industrial) semi-finished products, such as polenta already cooked in pans then only to be grilled in slices. This requirement meets the objective of decreasing cycle times per portion, increasing the number of dishes that can be served per unit of time without proportionally increasing the stress in the kitchen.

3.5.2 Modular layout and flexible space extension

Provision must be made to quickly reconfigure restaurant spaces to accommodate more people or to change the flow of service. The requirement is for a modular layout, i.e. a physical organisation that allows for adjustments: folding or stackable tables that are easy to add/remove, lightweight and movable chairs, ready-to-use outdoor set-ups (gazebos, parasols, warming mushrooms in winter).

Examples: During the Adunata, several venues made use of extra stalls and rented adjacent spaces Those who had a flexible interior layout (open space without fixed partitions) were able to reorganise the hall into a single convivial area with communal tables, increasing the seating density. One bar converted a lounge corner with sofas into a restaurant area by adding standard tables. Modularity also means setting up mobile workstations: transportable bar counters, additional service islands, such as the tapping carts used in Piazza delle Erbe. Investing in modular elements will pay off at any future event: for example, equip yourself with folding benches and tables in storage that can double the seating coverage if needed. A modular layout also makes it easier to comply with extraordinary regulations: if you need to create a safety exit aisle, you can quickly reconfigure the tables; if you need to isolate an area to dispense plastic alcohol (as per the glass ordinance), you do so by outlining a perimeter with temporary structures. In summary, flexible space design is a prerequisite for adapting operations to the changing needs of an event.

3.5.3 Specialised tasks and dedicated teams

In extraordinary situations, it may be necessary to redefine the roles of personnel from the daily routine in order to maximise efficiency and speed. The requirement here is to limit the scope of tasks assigned to each individual, i.e. to specialise tasks for the event, and if necessary to create separate teams for different functions. Examples: Restaurants have

experienced benefits in having each employee do a specific subtask repeatedly (such as one permanent beverage attendant, one only at the grill, one only at dish assembly). This reduces errors and downtime due to task changes, increasing hourly productivity per person. In parallel, structure dedicated teams: e.g. an ‘external’ group exclusively in charge of outdoor stands and an ‘internal’ group focused on table service, each with a responsible team leader. This approach avoids interference (the waiter who serves inside does not also have to run outside for a beer, and vice versa) and creates small autonomous units that are easier to coordinate. Clearly it requires clear briefings and perhaps simulates their application before the event. Effective management can also include visual signposts or checklists per task (5S principle adapted to the service): e.g. a sign in the sandwich assembly area with the standard filling sequence to maintain uniformity and speed even with temporary staff. Temporary task specialisation must be balanced with staff flexibility (cross-training) to handle load variations between roles, but remains a key requirement to create a smooth workflow under stress.

3.5.4 Fast service and cycle time management:

A cross-cutting requirement - almost the ultimate goal of all others - is to ensure adequate service speed despite high volume. This means setting service level targets (SLAs) and gearing up to meet them. For example: waiting time in line ≤ 5 minutes; time from order to plate on table ≤ 15 minutes; full table turnaround time ≤ 1 hour. Defining these targets as quantitative requirements helps to guide choices (staff needed, processes to be speeded up, etc.). Examples: Many restaurateurs have, implicitly or explicitly, worked to reduce average service times: some with fixed menus (eliminating the time for ordering à la carte and prolonged customer choice), others by pre-counting the bill to be presented immediately after the meal so as not to create waiting times at the till. The literature on quick service reminds us that the customer is sensitive to a few minutes of waiting time and that operational efficiency is crucial for satisfaction (Arnosti, 2022).

Therefore, a key requirement for extraordinary events is to set up processes and resources in such a way as to maximise speed: from the kitchen (enhanced mise en place, fast cooking) to the dining room (streamlined ordering systems, multiple trays to serve several place settings at once) to payment (additional mobile cashier, portable POS devices brought to the table to close the account immediately). This speed should be monitored with indicators: one suggestion is to keep the average waiting time as a KPI in

real time during the event (simply assign a supervisor to time the various steps on a sample basis). If SLA targets are not met, resources should be scaled up promptly or contingency plans activated (e.g. further reducing the menu on the spot, handing out free snacks in the queue to appease tempers and buy time, etc.).

In summary, speed of service is not just a spontaneous outcome but a requirement to be designed upstream, breaking it down into micro-objectives for each stage of the extraordinary customer journey.

3.5.5 Plans for exceptional situations and resilience

At the end, a requirement that is often underestimated but emerged between the lines is to have plans for worst-case scenarios - that is, to consider in advance any specific criticality of mass events. For example, arranging backup power generators if the grid is under stress (imagining tents of outdoor field kitchens that might overload), having extra stocks of basic necessities (water, bread) in case suppliers are delayed, defining safety procedures (what to do if someone gets sick in the overflowing room? what if a small fire breaks out at the outdoor grill?). Operational resilience therefore requires requirements such as: redundancy (of critical equipment, e.g. having two fryers ready in case one fails), contingency plans (lists of emergency numbers, contacts for urgent supply from the cash & carry if something runs out) and staff training on these aspects too (a briefing on ‘what to do if...’ can avoid panic and improvisation in already hectic times).

In summary, restaurateurs wishing to prepare for extraordinary events should incorporate the requirements outlined above in their operational plans: semi-finished products & advance prep, modular layout, specialised tasks, speed orientation (SLA) and resilience. Each of these can be declined into concrete actions adapted to the specific context of the venue. The combination of these elements constitutes a kind of organisational ‘toolbox’ to successfully cope with abnormal waves of demand without compromising the customer experience. As the Vicenza cases show, these measures can make the difference between a restaurant overwhelmed by chaos and one that, despite the pressure, manages to provide efficient service and maintain its reputation.

References

Merriam, S. B., & Tisdell, E. J. (2015). *Qualitative Research: A Guide to Design and Implementation*. Jossey-Bass.

Creswell, J. W. (2013). *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*. Sage Publications.

Kallio, H., Pietilä, A.-M., Johnson, M., & Kangasniemi, M. (2016). "Systematic methodological review: Developing a framework for a qualitative semi-structured interview guide". *Journal of Advanced Nursing*, 72(12), 2954–2965.

Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2015). "Purposeful Sampling for Qualitative Data Collection and Analysis in Mixed Method Implementation Research". *Administration and Policy in Mental Health and Mental Health Services Research*, 42, 533–544.

Robinson, O. C. (2014). "Sampling in Interview-Based Qualitative Research: A Theoretical and Practical Guide". *Qualitative Research in Psychology*, 11(1), 25–41.

Chapter 4

Redesign of operational processes

Introduction

This chapter translates the critical issues and requirements identified in chapters 2 and 3 into operational interventions, with the aim of proposing a **lean, scalable and low-investment reorganization plan** capable of supporting exceptional demand loads without compromising the quality of the service.

4.1 Summary of "as-is" criticalities and "to-be" operational requirements

4.1.1 Main "as-is" critical issues

The dysfunctions observed can be divided into three interdependent levels:

- **Strategic – structural constraints**: narrow kitchen-dining room entrance and fragmentation of the rooms that can make any up-scaling scenario more difficult.

- **Tactical – FOH/BOH misalignment**: the absence of *cross-training* and asynchronous order management generate backlogs and loss of collateral sales.

- **Operational – daily routines**: *slow tableside payments and unoptimized* seating *protocol* worsen the perceived lead time and compress RevPASH.

The priority of intervention doesn’t depend on the frequency with which the criticality occurs, but of its ability to trigger cascading benefits: mobile payment devices and an enlarged kitchen-dining room gate free up table-time and throughput, while the reallocation of the oven-grill flow removes a real bottleneck.

4.1.2 Key operational requirements for extraordinary events

Five essential pillars emerge from the analysis:

- ➢ **Semi-finished products and early preparations** to reduce the "live" kitchen load;
- ➢ **Modular & expandable layout** to reconfigure quickly the restaurant hall;
- ➢ **Job specialization** supported by *cross-training* backups;
- ➢ **Speed of service** anchored to quantitative SLAs (e.g. less than 5 minutes to queue, less than 15 minutes to deliver the ordered dish)
- ➢ **Resilience & contingency planning** (redundancies, extra stock, safety procedures).

4.2 Guiding principles of operational redesign

The proposed redesign is based on three **methodological pillars** that, when properly integrated, make it possible to transform the identified bottlenecks into levers of efficiency. Unlike "one-size-fits-all" approaches, the model here proposed has been adapted through an iterative cycle of qualitative interviews with venue managers subjected to similar demand peaks and two *walk-through benchmark sessions* carried out during the 2024 Gathering of the Alpini.

4.2.1 Lean Thinking & Waste Reduction

The seven wastes catalogued by Shingo find a counterpart in the HoReCa (Out of Home) context: unnecessary room movements, waiting in line, kitchen overproduction, non-optimised internal transport, excessive stocks, redundant processes and defects (incorrect orders). The application of Lean principles (Gladysz et al., 2021) orients the design towards continuous flow layouts, reduction of kilometers traveled by staff and leveling of the workload (*heijunka*). This methodological framework provides the "lens" through which to evaluate each proposal: if an action does not reduce at least one type of waste, it is not implemented.

4.2.2 Service Blueprinting

The detailed mapping of touchpoints, lines of visibility and front-back interrelationships (Dewi et al., 2019) builds the "skeleton" from which starting the redesign. The blueprint highlights the most critical *failure points* (e.g. order switching between oven and grill, payment peaks at the checkout) and allows to test ex ante the effect of alternative solutions. As part of this project, the blueprint has been flanked by *swim-lane* to highlight the accountability of roles, facilitating the subsequent training phase.

4.2.3 Capacity-Driven Scheduling

Demand trajectories during an anomalous turnout event do not follow a Gaussian trend but have compressed load waves (Hwang et al., 2018). Using a *joint demand-capacity management model,* it has been defined a "target curve" of covers/hour on which to calibrate the allocation of physical resources (beverage islands, payment stations) and human resources (kitchen brigades, dining room runners). The advantage of this approach is twofold: it reduces overstaffing when the influx of people is low and *prevents service crashes* during peaks.

4.2.4 Interplay among pillars

Lean provides the criteria for eliminating waste, Blueprinting locates the precise point where to act, Capacity-Scheduling calculates when and how many resources need to be employed. The synergy generates a virtuous cycle "watch → measure → correct" that guarantees consistency between design and operation.

Finally, continuous dialogue with fellow operators has mitigated the risk of *gold-plating*: many technological solutions have been discarded because they couldn’t be put into practice and at the same time they were out of budgets; *fit-for-purpose interventions* have been preferred such as mobile dispensing trolleys.

4.3 Proposals for "tailor-made" reorganisation

The designed actions are grouped by micro-process. Each subsection opens with a **discursive framework** that explains its logic, risk and expected value, followed by operational bullets ready for the implementation checklist.

4.3.1 Layout and Service Flows

The layout is the "quasi-structure" which, although it does not require concrete, determines the routes and consequently the cycle time perceived by the customer. The goal is separating customer-product flows, reducing crossings and eliminating staff reverses. The guiding principle is the **"service triangle"**: the three essential points (food, beverage, payments) must be reached by a one-way flow, without backtracking.

- ➢ Widening the kitchen-living room gap by 70 cm (from 1.30 → 2.00 m) improves the theoretical transit capacity up to +35 % (calculation based on empirical hypothesis).
- ➢ The customer journey is redesigned in a **horseshoe** shape with separate entrance/exit, which allows for tripling density without creating visual bottlenecks.
- ➢ The inclusion of **three modular beverage islands** – each equipped with an independent flow meter – halves the average distance traveled by the restaurant hall staff.
- ➢ A **take-away pick-up *station*** outside the dine-in circuit avoids interference between those waiting and those who consume on site.

4.3.2 Ordering and payment system

The literature shows that the **primacy effect** – first and last impression – affects customer satisfaction (Deloitte, 2023). Reducing cold start (order) and pay-out (account) waiting time is crucial.

- ➢ **Multi-channel ordering**: handheld menus managed by waiters, big advertising in the streets of the menu and different points of contact to order (waiters, cash register, central island), reduce the variance in choice times.
- ➢ **Fast-lane payments**: the combination of tableside POS + 1 external cash register + 1 internal reduces the maximum queue from 12 → 4 people.
- ➢ The **Kitchen Display System (KDS)** applies *bucket logic* (accordion 20 orders) which, when saturated, temporarily blocks the sending of new orders to the grill, preventing over-loading.

4.3.3 Menu engineering & semi-ready solutions

A lean card optimizes throughput and gross margin; the decision to reduce from 48 → 24 items comes out from a **"contribution-margin × complexity" analysis** (Hermida & Arúz, 2020).

- ➢ **Pre-cooking 80%** of meats and first courses allows a *finishing* of < 90", halving the time in the hot line.
- ➢ **Pre-dosed ingredient kits** for signature pizzas eliminate micro-errors and reduce topping waste by 18%.
- ➢ An **independent cold line** (cold rolls, stuffed buns, ready-to-eat desserts) lightens the hot chain at peak times.

In addition, the BCG matrix **was used to analyze and understand how to perform menu engineering**, which crosses popularity (demand share) and contribution margin, offering an immediate reading of the dynamic profitability of each dish, allowing you to distinguish **Star** (high rotation + high margin), **Cash Cow** (high rotation + low margin), **Question Mark** (low rotation + high margin) and **Dog** (low rotation + low margin). In the context of *menu engineering*, its usefulness is twofold: (i) it guides pricing, promotion or delisting decisions by emphasizing the consistency between profitability and operational complexity; (ii) it reduces process variability, because it allows ingredients and preparation techniques to be rationalized by focusing on the most valuable dishes.

Concrete application case: the monthly mapping of the restaurant and the redefinition of the strategies on the occasion of the event identified the *Pizza Margherita and the risotto* as the **Star** (23% of sales, 75% margin for the first, 30% of sales and 60% margin) to be put in the foreground and always guaranteed in stock; the *maxi fries*, **Cash Cow**, were *bundled* with beer to increase the average receipt; the cold buns, together with the stuffed buns, **Question Mark**, were promoted with a "takeaway combo" and monitored for possible climb to **Star**; the hamburger on the plate, **Dog** (even though the argument is not for sales numbers or profitability but in terms of average preparation time >20 min), has been eliminated, freeing up pantry space and time. The intervention reduced the ingredient list by 12 SKUs, cut 45 min of daily prep and increased the gross margin of the menu, contributing to both kitchen throughput and customer satisfaction.

4.3.4 Workforce Management

The specialization-flexibility dichotomy is resolved with an **elastic org-chart**: vertical roles in the 2 hours of peak; cross-training in the curve edges.

- ➢ **Team single peak task** (e.g. "grill only", "beverage only") allows rapid learning curves to be achieved (Tanizaki et al., 2023).
- ➢ **Flexible roster** includes 4 *on-call employees* available within 15′ to reinforce the kitchen or pizzeria.
- ➢ **5S tactile checklists** (coloured labels, tool templates) reduce workstation *setup time* from 7 → 3 min.

4.3.5 Real-time operational governance

It is not enough to plan; it is necessary **to orchestrate**. A FOH supervisor equipped with KPI-live tablets guides micro-adjustments.

- ➢ **Stand-up meetings** every 30′ to reallocate resources according to the *weather radar* of KPIs.
- ➢ "Line-balancing" *protocol*: when the pizzeria backlog > 8 tickets, 1 employee is transferred from the grill to the pizza.
- ➢ **Root cause flash-card**: if two KPIs exceed the yellow threshold simultaneously, cause-effect analysis (5-Why) and corrective action are triggered within 15′.

Overall expected impact
Estimates indicate an increase in throughput to 310 plates/h (+29 %) with a reduction in average customer expected to 4′45" (–37 %), with the same FTE.

4.4 Key Performance Indicators for In-Event Monitoring

"Real-time" KPIs	Definition	Threshold‑target	Data source
Average Input Wait (min)	external waiting line	≤ 5 min	crono supervisor

order to service time (min)	mean ticket KDS	≤ 15 min	direct experience
waiting lines to pay (pp.)	max waiting people	≤ 4	direct experience
customer satisfaction (1-5)	flash - survey rating	≥ 4	personal feedback / review
kitchen throughput (dishes/h)	kitchen / pizzas throughput	≥ 240	report
beverage volume sold (L/h)	beers + soft liters	≥ 75	tapper + cans + report

Table 4.1 : comment on the KPI Table
The selection of the six indicators favours **immediate readability**: each value can be understood "at a glance" by the supervisor even in conditions of stress. The KPI dashboard acts as an **early congestion signal:** for example, a pizzeria throughput > 260 dishes/h with rising order-service time indicates hot line saturation; the suggested response is to activate reduced menu or redistribute employees from the cold area. KPIs are also linked to staff **performance bonuses**, reinforcing incentive-result alignment.

4.5 "Quick Wins" implementation plan (90 days)

Weeks	Actions	Output	Owner
1-2	*Lean Service Training* & SLA	certified staff	Restaurant Owner
3-4	Menu engineering + semi-ready solutions	reduced menu	Exec Chef
5-6	mobile POS + category creation	new category - ready to use POS	Restaurant Owner - IT consultant

7-8	modify the layout	Operating new layout	Restaurant Owner
9-10	*stress-test simulation* (80 coperti/h)	report gaps	Continuous Improvement
11-12	Fine-tuning layout & final briefing	go-live	Owner

Table 4.2: Comment on the Gantt "Quick Wins"
The calendar favors the sequence **foundations → tools → layout → testing**. Lean training affects the mentality with which staff and management will face the subsequent phases. The installation of digital systems (KDS, POS) precedes the physical set-up to allow technicians to calibrate data flows during layout work. The *stress-test* in week 9-10 works as a **crash-proof**: the goal is to bring out latent bottlenecks when there is still room for correction. Finally, week 11-12 consolidates the "mise-en-place" with a final briefing and SLA compliance check before the go-live. Each macro-activity includes daily micro-milestones (not shown in the table) to ensure traceability.

4.6 Conclusions

The solutions outlined, from **the modular layout** to **KPI-centric governance**, transform structural criticalities into levers for value creation. The integrated Lean - Blueprint - Capacity approach, field-tested through interviews and local benchmarks, generates a framework that can be replicated in contexts of high episodic demand. The success of the model will be measured in the **consistency between design and in-event monitoring**: real-time KPIs will provide immediate feedback, while the quick wins plan will ensure that change is absorbed by the organization without friction.

References

Deloitte (2023) *Future of Restaurants and Food Service: Thriving amid Disruption*.
Dewi, R. et al. (2019) *Service Blueprinting to Enhance Restaurant's Service Process*.
Gladysz, B. et al. (2021) *Lean Management Approach to Reduce Waste in HoReCa*.
Hermida, Á. & Arúz, C. (2020) *Menu Engineering: A Benchmark Methodology*.
Hwang, J. et al. (2018) *Joint Demand and Capacity Management in a Restaurant System*.
Tanizaki, K. et al. (2023) *Demand Forecasting in Restaurants Using Machine Learning*.

Chapter 5

Operational hazard management for a restaurant during Alpini's National Gathering in Biella during 2025.

Introduction

Alpini's National Gathering in Biella during 2025 brought around 400 000 guests in three days - nearly ten times the population of the city. For an independent family restaurant , this flow represents a strenuous trial: operational ability under stress, pressure on the machinery, clients and personnel's security at risk. Following the Enterprise Risk Management's principles, this chapter presents: (I) a structural analysis of the hazards through a Risk Heat Map; (II) a cluster classification; (III) Integrated mitigation strategies; (IV) KPI and tracking mechanisms in real time. The proposed measures - prevention, detective, reactive - are calibrated on context of a micro-catering business and sustained by the best practices emerging from the literature on risk management applied to food service (Management 2025; Tang & Luu, 2020).

5.1 Theoretical framework

In normal enterprise risk there are two different perspectives to consider: strategic-holistic approach as determined by **Enterprise Risk Management (ERM)** and tactical-operative approach of **Operational Risk Management (ORM)**.

ERM, as mentioned by *Enterprise Risk Management vs. Operational Risk Management* (2019) paper, aims to connect every long term threat, by defining a risk appetite that outlines investment options: at a local restaurant level, it means finding a way to balance maximum financial profitability with maintaining a high level of ratings and appreciation of local customers.

ORM, on the other hand operates at an operational level: it identifies risks generated or potentially generated by everyday processes - kitchen flows, inventory management, clients safety - and it prescribes specific action points to contain them and prevent them (Tang & Luu, 2020). Finding a way to smoothly operate with both different frameworks

allows to prevent typical disruption and unbalance between strategic ambitious plans and effective and actionable service procedures.

5.1.1 From ISO 31000 to the needs of a micro-enterprise

ISO 31000 defines the risk as the effect of the uncertainty on targets and it formalizes management in four stages:identification,analisis, treatment, monitoring. Though, in a family reality with limited resources, the ISO requirements must be interpreted with pragmatism - for example, replacing cutting-edge software with paper checklists. Mthiyane et al. (2022), and in their studies on SMEs in emerging countries , recommends that "What is important is not the sophistication of the tool, but methodological consistency and clarity for operators".

5.1.2 P-I Matrix (Probability - Impact)

Among different evaluation methods, the **5-level P-I matrix** represents still the most accessible and easy to understand method: it allows the non-technical person to easily get what's the meaning and what's the impact of the matrix, and it allows to building fast consensus on specific priorities (How to calculate your business risk…, 2021). It is also truth though that has some static limits: it's not able to seize neither risk speed propagation nor the ease of risk restoration. For this reason, the P-I matrix is being supported by two guiding questions suggested by Acebes et al. (2023):

- **How quickly can this risk escalate?**
- **How quickly can I restore the normal state?**

The answers of these questions determine whether it is better leaning towards preemptive corrective actions (decreasing probability of risk) or readiness should the risk occur (decreasing its impact).

5.1.3 Priority logics and strategic business decisions alignment

In ERM perspective, the P-I matrix represents a strategic coherent framework: every red-zone risk is compared with strategic improvement goals outlined for the event (increase in revenues, local brand equity increase). If mitigation requires bigger resources than the potential benefits, operational set-up needs to be reconsidered (Management

2025, 2025). Differently yellow risks that have high visibility (for instance bad reviews) can escalate in terms of priority because they undermine brand reputation directly, which represent an essential survival critical factor for local businesses.

5.1.4 Application summary

- ➢ **ERM Framework** → defines the scope and links risk to objectives.
- ➢ **Extended P-I matrix**→ translates the uncertainty in a map easily shareable.
- ➢ **ORM Filters** → decline any risk in procedures and checklists that can be performed in the kitchen and in the dining room, ensuring that the "live" solutions are proportionate to the skills and resources available.

This methodological architecture allows to transform the complexity of norms into lightweight **but robust tools**, suitable for a family restaurant that faces a peak of demand without sacrificing operational solidity and growth ambitions.

5.2 P-I matrix development (Probability - Impact)

5.2.1 Identification of the specific risks of the event

Based on the above inputs, the leading risks to which the restaurant will be exposed have been identified during the Alpini's National Gathering, with a particular focus on the new process called *To-Be.* Every hazard is described in terms of a potential negative event, taking into account both the inherent vulnerabilities (as-is) and of the innovations introduced with the redesign (to-be). The following is a summary list of the specific risks identified:

- ➢ **R1 – Overcrowding and insufficient capacity:** Flow of clients way more above the internal/external capacity, with long queues and potential chaotic crowds outside and inside the restaurant.
- ➢ **R2 – Operational delay and disruption:** Tardiness of the table service due to personnel excessive labour and non-scalable processes. All of this could lead to mistakes in the orders.

- **R3 – Failure of critical equipment:** Disruption or breakage of essential gear during the most important days, compromising the production of beverages and dishes.

- **R4 – Sale of all stock:** Stock out of key ingredients due to an unplanned demand or insufficient additional supplies. It includes the case in which the organisation of the to-be stocks that have been consumed ahead of schedule.

- **R5 – Tardiness or failed delivery of supplies:** Logistical delivery challenges for the suppliers during the event due to mobility, parking and traffic restrictions. The risk is not to receive repayments of raw materials in time during the rally.

- **R6 – Blackouts and power outages:** Electric energy interruption dell'energia elettrica (temporary/local) caused by an overload of the city powerline or Infrastructure failure under stress. It could implicate the complete stop of the kitchen, lights and till functioning.

- **R7 – Malfunctioning computer systems/POS:**Till system or point of sail breakage, alternatively congestion of internet could cause the impediment for money transactions.
  In an environment with lots of deals, restaurants might be the targets of cyber-attacks like the theft of credit card information or malwares on the POS.

- **R8 – Health and safety incidents (H&S):** Adverse events that threaten the safety of customers or staff, including: (a) **injury of the personnel** in the kitchen or in the dining room caused by an hectic pace; (b) **misfortunes or accidents** of customers; (c) **non-compliance of hygienic-sanitary procedures or food poisoning** due to mistakes in HACCP system under stress.

- **R9 – Fire hazard:** The beginning of a fire in the kitchen or a power outage with the necessity of evac of the local. Even a false alarm would result with panic and the stop of the service

- **R10 – Strategic and reputational risks:** (a) **Financial risk of lower-than-expected revenues** or margins eroded by extraordinary costs should

the crowd be less than expected; (b) **Post-event reputational risk**, that is the loss of trust from the clientele (local/tourist) led by a negative experience.

5.2.2 P-I matrix qualitative evaluation and mapping

Every risk R1-R10 is being evaluated in terms of Probability of occurrence and potential impact, giving each risk a score between 1 (minimum) and 5 (maximum). By consider both scores probability and impact together it is possible to prioritize and build a matrix that helps visualize priorities. The following table offers P-I matrix concept and the results obtained.

Risk	***P (1-5)***	***I (1-5)***	***Quadrant (color)***	***brief reason***
R1 – Overcrowding / Insufficient Capacity	***5***	***4***	***High Imp. – High Prob. (Red)***	*Overcrowding is almost certain; may compromise service and image.*
R2 – Operational delays / disservices	***5***	***4***	***High Imp. – High Prob. (Red)***	*With exceptional volumes, severe delays are very likely and impact the experience of many customers.*
R3 – Critical machinery failures	***4***	***4***	***High Imp. – High Prob. (Red)***	*Continuous usage increases potential failures and blocks key production lines.*
R4 – Inventory stocks depletion	***4***	***4***	***High Imp. – High Prob. (Red)***	*Domanda elevata + logistica complessa → perdita vendite.*

R5 – Delays / Failure to deliver by supplier	***4***	***4***	***High Imp. – High Prob. (Red)***	*Concrete delays due to viability; impact on sales capacity.*
R6 – Black-out or power failures	***2***	***5***	***High Imp. – Low Prob. (Orange)***	*Rare event, but paralyzing (kitchen, lights, POS).*
R7 – IT systems / POS malfunctioning	***3***	***3***	***Low Imp. – Low Prob. (Green)***	*Moderate probability and impact; manual workarounds in case.*
R8 – Safety / Hygiene Accidents	***4***	***4***	***High Imp. – High Prob. (Red)***	*Overcrowding and stress increase accidents. people and brand damages.*
R9 – Fire or fire emergency	***1***	***5***	***High Imp. – Low Prob. (Orange)***	*Catastrophic but very unlikely.*
R10 – Strategic risks post-event (brand image)	***2***	***3***	***Low Imp. – Low Prob. (Green)***	*Negative and bad reviews could undermine brand equity/awareness*

Table 5.1: P-I Matrix development

Based on qualitative evaluation, is possible to describe results divided by risk quadrant:

- **Low Impact - Low Probability quadrant (green):** it includes minor risks or remote ones that don't require significant actions other than monitoring; minor management errors or very rare incidents with limited damage like a false fire alarm or a single isolated case of negative review are typical examples, basically these are unlikely events with low impact. These "tolerable" risks typically just need to be monitored, keeping business as usual.

- **High Impact - High Probability quadrant (High isolated Impact):** risks that are in this bracket typically are catastrophic but very unlikely risks types. In this specific context, the main case could be represented by a serious fire inside the kitchen

area; it would have maximum impact (physical damages and business closing time) but probability of it happening is very low thanks to standard preemptive actions and due to the extraordinary nature of the event itself. In the same way, multiple food poisoning or extended blackouts are events that typically have high impact but very low probability. For these kinds of risks the strategy to be considered is preparing detailed contingency plans and relocation measures, as they cannot be eliminated altogether, but being prepared will reduce the consequences.

- **Low Impact - High Probability Quadrant (Frequent Problems):** in this bracket there are the most certain risks that are very likely to occur due to an increase in volumes, but represent a manageable impact. Instances of these risks are: small service delays or micro errors in some orders: with thousands of clients expected during the national gathering, it is almost certain that some of these episodes will occur, but their impact at a single table level is limited (if promptly corrected). Some more instances: lots of clients waiting for an available table, running out of non prioritary dishes at the end of the service. These minor risks mainly require standard procedures and high staff flexibility to be able to tackle the problem immediately.

- **High Impact - High Probability quadrant (Red, major critical scenarios):** these are the main risks of greatest concern, as they combine high probability during the event and high impact on the operation and objectives of the restaurant. In the specific case top of the list is overcrowding and operational delay: it is almost certain that the business will undergo an extreme pressure and if not perfectly managed it could become an extremely negative experience for the clients. Critical machinery failure also is very likable due to high volumes and continuous utilization of the equipment. It is also possible to face a shortage of inventory stocks or not being able to receive a delivery by a supplier, considering logistics, viability limits, affecting sale capacity. Lastly, unfortunately, there's also a higher risk of accidents or security risks due to the very high number of customers: even if single moments could be mitigated, cumulatively a bad management of safety and hygiene could have a disastrous impact on the event. All these risks require prioritise mitigation actions, detailed in the following sections, because these risks represent the most serious threats to event success. Mainly, mitigation actions will aim to reduce the

probability of occurrence (e.g., with preventive measures of organization and control) and reduce the impact should the event occur (e.g., with preparedness and response resources), ideally taking these risks out of the red zone.

5.3 Risk analysis and classification (clusters and causes)

To examine in depth the comprehension and the management, the risks that we identified have been assembled in a telematic cluster typical of corporate risk management: Strategic, Operational, Supply Chain, IT/Tech, Health and Safety, Reputational. This classification helps the association of each group with specific responsibilities and types of countermeasures. In the following list, for every considerable hazard, there are brief descriptions, root causes and possible triggers.

5.3.1 Strategic risks

- **Financial failure of the event** – *Root cause:* optimistic economic planning, high extraordinary fixed costs not balanced by adequate revenue increases, dearth of a risk budget. *Trigger:* crowd be less than expected or average receipt cheaper than the prediction.

- **Loss of regular customers –** *Root cause:* lack of communication to regulars who might find the restaurant inaccessible during the gathering; potential bad experience leading to an estrangement even after the event. *Trigger:* complaints for repeat clients, less visits after the gathering because residents affiliate the restaurant to distresses.

5.3.2 Operational Risks (internal processes)

- **Operational overload and customer disservices** - Root causes: kitchen's limited capacity when facing the expected volumes of customers and orders; insufficient staff or not well trained to effectively manage peaks. Lack of prioritization systems (no queue management method). Trigger: Backlog creation of orders, increase of average waiting time (longer than 30-40 minutes), tables not cleared in the hall and

visibly dissatisfied customers urging the staff.

- **Orders' errors and quality decrease** - Root causes: staff stress and tiredness, difficult effective communication due to chaos and noise, lack of accuracy control mechanisms. Trigger: dishes served cold or either wrong, not-normal increase in complaints or requests for replacement dishes, negative reviews on food/service quality already during the event

- **Failures and internal malfunctions -** Root causes: poor maintenance of intensively used machinery (e.g., refrigerators always open for continuous access, tapping equipment under stress), electrical system near load limit (many appliances running at the same time). Trigger: suddenly decrease of electrical voltage in the kitchen, shutting down a refrigerator or cold room (temperature alarm going off), breaking key utensils (e.g., stuck slicer) in the middle of service. (other malfunctions may include: difficulty in managing cash payments, logistics inconvenients, staff minor errors. These risks follow in the business as usual category but may become problems in extreme conditions).

5.3.3 Supply Chain Risks

- **Critical Raw Materials Stockout** - Root causes: Inaccurate consumption forecasts, lack of available space in the inventory, dependence on just-in-time deliveries. Trigger: critical ingredient ends (meat or tomato for pizzas) in the middle of the service without being able to restock that ingredient immediately: it'll stop the service for that category.

- **supplier deliveries delayed or missed** - root causes: logistics and viability issues and limitations, suppliers naturally overloading due to intense workload. A typical example: supplier camion is unavailable to enter the red zone or reach client's premises; incomplete or completely missed deliveries due to product shortages. (other supply chains risks: non conformant product quality; depending on only one or two suppliers is another very common risk for small businesses).

5.3.4 IT and technology risks

- **Malfunctioning computer systems/POS** – *Root causes:* old hardware or not dimensioned for continuous transactions, no redundancy (just a terminal), unstable internet connection. *Trigger:* the till or POS doesn't work in the middle of payments, impossibility to process electronic payments with a consequential queue formation and loss of revenue.
- **Computer and data security** – *Root cause:* lack of cybersecurity measures. During massive events, it is well-known that restaurants could be targets of opportunistic attacks to steal payments data. *Trigger:* appearance of suspicious activity on the terminal, bank's warnings of irregular payments, guest Wi-Fi overloading.
- **Internal electrical failure** – *Root causes:* electrical panel not adequately protected or monitored, overload due to additional equipment. *Trigger:* general switch release for overload, burning smell from a socket, necessity of operating emergency facilities.

5.3.5 Health & Safety Risks

- **On the job injuries (staff)** - Root causes: high speed rhythms with no resting moments; stress that triggers distraction moments that lead to small errors, intensive usage of equipment as cooking fires and knives. Trigger: deep cut due to knife misutilization, fall due to wet floor, burn or scorch due to high temperature of oven and/or oil. The trigger may be an abnormal increase in access to the first aid kit or a staff member who has to interrupt his or her shift to get medical attention.

- **Customer Accidents** - Root causes: overcrowded spaces, with obstacles due to either tables or furniture or other people. Trigger: a customer may slip and fall could be an instance; other examples may be small arguments and pushing in the entrance hall. Another trigger may be a spontaneous illness, requiring medical intervention.

- **Hygienic problems and food safety** - root causes: production overload that means less attention to HACCP practices, staff not trained well enough when it comes to best safety practices and attention to safety requirements. Trigger:

sudden security control by local authorities or a customer report regarding poor safety conditions after eating. Trigger may also be indirect such as critical failure of an essential refrigerator or other piece of equipment.

- **Fire emergency** - root causes: high usage of fire or other electrical equipment. Trigger: smoke/heat detector going off, smell of burning perceived by staff, start of flames on a pan that are not immediately extinguished. This event is by its nature sudden; triggers are clear environmental signals (fire alarm, sparks, etc.) and requires immediate reaction.

5.3.6 Reputational risks

- **Negative reviews and unfavourable word of mouth** – *Root cause:* Scattered negative experience. Also, bad communication could amplify the frustration. *Trigger:*During the following days, lots of reviews with one or two stars will appear on platforms like TripAdvisor or Google with detailed feedback about the shortage of communication; viral posts on local socials could advise you to not go there with photos about bad dishes or crowds.

- **Damage to public image (media/local)** – *Root causes:*serious accidents (e.g. multiple intoxication, fire evacuated with injuries) that carry the name of the restaurant on the local news pages in negative light; authority intervention. *Trigger:* newspaper articles or local TV reports mentioning the restaurant in connection with negative incidents during the rally; Chain reactions on social media with comments and shares that crystallize the negative reputation.

5.4 Mitigation risk strategies

For each risks analyzed in the previous sections it has been developed a mix of mitigation strategies divided in three different complementary categories: Preventive (actions that needs to be taken before the risk may occur, in order to reduce its probability or avoid it altogether), Detective (Early detection mechanisms and continuous monitoring, to notice in real time problems that may happen and react promptly) and Reactive (Response

measures to be put in place after the risk event has occurred, to contain its impact and re-establish a normal situation). In the next sections the different strategies are proposed, analyzing for each of these expected strengths, necessary resources to be considered, and a ballpark of investment required.

5.4.1 Preventive strategies (Proactive risk reduction)

- **Reorganization layout and temporary flows** - strength: high in preventing dangerous overcrowding situations and expedite the service. It requires an external dehor with beer tapper and additional station for quick drink service; separated queue, dedicated only to take away customers. It reduces pressure on the inside rooms. Resources: renting external equipment; it is also necessary to apply for municipal permits on public land. Estimated Cost: €1.000

- **Extra staff planning and intensive training** - Strength: very high in lowering the risk of operational disruptions and stress incidents. 2-3 more waiters, 1 additional help in the kitchen and 1 to make pizzas, during those 3 crucial days, with planned shifts in order to be able to effectively manage peak moments. Prior to the event, specific training (1-2 day crash course) is conducted for all staff, focusing on: crowd and queue management, effective communication under stress, refresh of HACCP standards and safety (how to avoid cuts/burns at speed, etc.). Resources: additional staff, external or internal trainer. Estimated Cost: €2,500 (extra staff compensation, training: €500 per HACCP consultant; overtime internal staff: ~€900).

- **Simplified menu and prep cooking** - Strength: medium-high in preventing slowdowns and ensuring consistent quality. During national gathering the use of a reduced menu with semi-ready dishes or very high speed preparations will ensure high speed. Moreover, the kitchen will adopt prep cooking techniques and keep cold dishes already ready to be served. This translates to smaller waiting times for customers and stress over the chefs. Resources: menu planning, prep cooking organization, more fridges or stocking options for semi-ready preparations. Estimated Cost: €300 (purchase extra raw materials for prep, possible rental of an additional pit fridge for 1 week).

- **Additional stocks and supplier differentiation** - strength: high in decreasing the probability of stockout and supply chain dependence during the event. A buffer stock is put into place with +20-30% of normal stock for critical ingredients. Long term stocks are pre-ordered with tactical advantage, while for fresh product dedicated fridges or spaces are allocated. Moreover, other suppliers are identified in the same area to activate in case of an emergency. Resources: extra stocking space, pre-event understanding with different potential suppliers with last minute ingredients or raw materials availability. Estimated cost: €1,500 (extra stock purchase, some of which will have to be used anyway; 3-day refrigerated van rental: €300; potential unsold food waste factored into budget).

- **Extra-ordinary maintenance and equipment backup** - strength: average in preventing major failures, but essential as “insurance.” Prior to the event, have an extraordinary inspection/maintenance performed on all key equipment. Moreover, install or have ready to use backup equipment where possible (additional grill, CO2 additional cylinder for beer tapper, emergency lighting lamps). Estimated Cost: €600 (maintenance €400, additional equipment €200).

- **Hygiene and Safety prevention measures in the field** - Strength: medium, acts on reducing the likelihood of accidents. Includes specific briefings with staff on how to keep clean and safe: extra quick cleaning shifts in the hall, positioning of clearly visible signs all around, first aid kits extra packed, and all kind of safety equipment. Resources: Purchase of signs, shifts rearrangements and cleaning micro-pauses. Estimated Cost: €200

5.4.2 Detective strategies (Monitoring and early warning)

- **Everyday control Dashboard (KPIs blackboard)** – **Strength:** Detect negative trends before they degenerate by implementing a simple handmade dashboard, basically a board where, regularly, the manager writes down some key elements: numbers of tables served, estimated average of waiting time, remaining stocks. This acts as a situational "dashboard": if the waiting time is too long or there are too many incidents, that information is visible to everyone and they are able to act.

Resources: boards or papers ready to be used and a timer. **Costs**: negligible

- **"Sentinel" indicators and alert thresholds** – **Strength:** High in giving the immediate alert. Those indicators are able to trigger corrective measures. For example there is the SLA service: 80% of clients are supposed to be served in 15 minutes, if this KPI decreases under the target, the alert will be activated. Resources: Definition of metrics and training of staff to monitor them; warning devices. Costs: around 150€

- **Cross-checks and flash inspections** – **Strength:** It detects quality and security problems in real time. The manager has to periodically check brief inspections, like checking the bathroom or the kitchen, and they ask the personnel for feedback. This allows us to find eventual problems before they actually occur. Resources: time management and, eventually, a checklist. Cost: nothing.
- **Immediate Feedback from customers** – **Strength:** It detects reputational problems and live satisfaction. The manager ask a few of the regulars to give a sincere feedback on how it went or we check social media to catch immediate discomfort and act on it.. Resources: a social media staff or someone who's able to use a smartphone; a brief questionnaire. Costs: zero to hundred
- **Health monitoring of personnel** – **Strength:** useful for safety. A registry with staff conditions is held to check signs of breakdown and, at the same time, the personnel is encouraged to signal any type of injury, even minimal ones, to be able to treat them before they get worse. Resources: open-mindedness and quick signals, water battles and fans. Costs: negligible.

(The detective strategies described above work in synergy: for example, the KPI board and the sentinel indicators provide quantified data, while the controls of the manager and qualitative feedback complete the picture. In a small restaurant, Many of these measures are informal, but formalising them even in part helps to keep one's guard up during the event)

5.4.3 Reactive Strategies (Pre-Planned emergencies responses)

- **Specific emergencies plans** - strength: high in limiting the impact of realized risks. Having structured procedures is necessary so that everyone understands and

knows exactly what to do and how to react. Pre-planned plans require assigned roles (who makes decisions, who communicates, who performs technical actions) and action checklist. Resources: planning these plans in advance, briefing with all the staff before the event to inform and share procedures. Estimated Cost: 0€, (just time)

- **Backup capacity and redundancy - Strength:** average in ensuring continuity despite failures. Some examples may include: additional POS, should there be connection problems, additional lightning systems in case of a blackout, extra CO2 cylinder to be able to use additional cooking fires in case. Resources: additional backup equipment. Estimated Cost: €800

- **Outside support arrangements** - strength: medium-high in reacting to catastrophic inside problems. For example: establish before the event an agreement with a neighboring restaurant that in case of emergency (such as the kitchen becomes unusable due to a major breakdown), dishes could be prepared by them (limiting the menu) and brought to customers, or conversely temporarily divert surplus customers to that other establishment with a small incentive, or such other last minute agreement with other restaurants in the same area. Resources: local network, instant communication when needed. Estimated Cost: variable (potential extra costs to be able to secure such agreements).

- **Reservation Staff and role escalation** - strength: high in managing improvised loss of personnel or temporary overloadings. Having 1-2 additional resources “on call” is essential: if anyone of main staff gets injured or doesn’t fully hold up the rhythms, backup can be of use and ready to work. Define an escalation hierarchy in advance: for example, if the dining manager is overwhelmed, the owner should intervene directly in the dining room; if the kitchen can't cope with filling orders, reduce the menu by removing the slowest dishes; if the general level of chaos rises, as a last resort temporarily suspend inputs until the backlog is cleared. Resources: reserve staff, network, role assignment. Estimated cost: small stand by cost for reserve personnel (e.g. 50€ per person to be available “on call” those days).

- **Crisis communication management** - strength: medium -high in containing reputational damages when something goes wrong. It requires guiding lines on how to effectively communicate to the customers and to the general public when something is wrong. For example, if there's a long waiting time in delivery of some dishes, promptly apologise to the customer and maybe reassure them that there will be a discount at the end of its meal. Being able to communicate effectively is essential and it is the key to pass your genuine feelings of the moment you are living together with the customer. Resource: public communication abilities, pre-prepared messages or lines to know by heart for different scenarios. Estimated cost: €0 (just preparation)

- **Specific Insurance agreements** - strength: medium (it doesn't prevent events but it mitigates the economic impact). Verifying and in case extending existing insurance policies is proper due diligence, together with checking for other different policies (such as fire, third party liability for customer damage, temporary employee accident insurance, perishable goods insurance). This way, if the worst were to happen, the economic damage is limited. Resources: insurance broker consulting appointment. Estimated cost: increase premium of €300 for temporary extensions of guarantees.

Every strategy is left to be evaluated in terms of cost-benefits. For example, the investment in extra staff and temporary layout (with high potential costs) is justified by the big decrease of the service failure risk due to operational crisis and is also justified by potential increase in sales that may occur. Other strategies with lower costs (training, checklist, mutual agreement) have great cost/benefit ratio and are implemented with priority. It is important to underline that mitigation strategies must be combined within themselves: no single actionable measure alone is enough to mitigate an important risk, but a coherent mix of preventive - detective - reactive will ensure a secure environment.

5.5 Conclusions

The analysis conducted in these chapters aim to ensure that the local family owned restaurant may face the "Alpini's 2025 national gathering" not as a chaotic and risky event,

but as an opportunity managed with professionalism and long-term vision. Through a structured Risk Management approach, based on ISO 31000 principles and declined to the reality of a small restaurant business, it was possible to translate the results of the preliminary analytical and planning phase (as-is and to-be) into a real operational risk mitigation plan.

The consistency between identified critical issues, assessed risks, mitigation actions, and performance indicators was the common thread; for every critical issue emerged it has been defined a practical risk and for every risk some specific measure have been discussed, thought, and put into motion. This comprehensive approach assures that nothing is left to chance in critical and crucial moments during the event.

In particular, the creation of a P-I matrix allowed management to focus on the few truly critical threats (red zone) that could affect key objectives: the safety of people, continuity of service, and the reputation of the restaurant. The strategies deployed significantly reduced the likelihood and impact of such adverse events.

It’s important to notice how the adoption of risk management practices in such a micro business has brought organizational benefits intrinsically: staff is more aware and better trained, even cross trained, internal communications are better and the business has strengthened its bond with local community (supplier, other entrepreneurs, municipality) thanks to the synergies developed. Such intangible benefits have enhanced the company's adaptability even beyond the specific event, acting as a catalyst for management growth.

Naturally no plan is immune to unforeseen events: the truth is that there will always be the need for flexibility and resilience leadership. Still, having a solid foundation allows one to improvise in a controlled manner, always having the goals of safety and customer service as a reference. The 2025 Alpini’s national gathering, properly managed, can become a competitive advantage for the restaurant: a test that certifies its reliability even in extreme situations. The methodology and solutions outlined can be reused and refined for future events or simply to raise daily standards, in a virtuous cycle of continuous improvement. In the end true success will be measured not only by the economic results of the event, but also by the awareness that everything was anticipated and could have been promptly faced while still being able to deliver an exceptional service.

References

Management 2025. (2025). 2025 Restaurant Outlook: A Recipe for Success with Risk Management. Modern Restaurant Management. Retrieved from https://modernrestaurantmanagement.com/2025-restaurant-outlook-risk-management

Mthiyane, S., et al. (2022). *A framework for risk management in small medium enterprises in developing countries*.

Acebes, J., et al. (2024). *Beyond probability-impact matrices in project risk management: A quantitative methodology for risk prioritisation*. Humanities and Social Sciences Communications.

Enterprise Risk Management vs. Operational Risk Management. (https://www.6clicks.com/resources/blog/enterprise-risk-management-vs.-operational-risk-management)

How to calculate your business risk using a risk assessment matrix. (https://www.wolterskluwer.com/en-gb/expert-insights/how-to-calculate-your-business-risk-using-a-risk-assessment-matrix).

Tang, Y., & Luu, T. (2025). *Operational risk management in the restaurant industry: A case study of the largest restaurant chain in Vietnam.* Dordrecht, 196-203

Riepl, D., et al. (2024). *Risk management during the COVID-19 crisis: Insights from an exploratory case study of medium-sized enterprises*. Journal of Management Control, 109-135

Chapter 6

Sales Analysis: Alpini Weekend vs Regular Weekends

6.1 Data Cleaning and Preparation

The provided datasets were merged and cleaned to ensure consistency. Specifically:

- **Macro-categories**: Each product was mapped to a main macro-category (Appetizers, First Courses, Second Courses, Burgers, Pizzas, Beverages, Desserts, Coffee & Co). The special *Alpini* event items were treated as a stand-alone category (Alpini).

- **Uniform Date Formats**: Dates were converted to the *dd/mm/yyyy* format (e.g., *08/05/2025*) and the correct day of the week was associated (e.g., **Thursday**). All timestamps are aligned to the *Europe/Rome* time zone.

- **Deduplication**: Duplicate records, where present, were removed.

- **Removal of Monetary Fields**: All revenue- or price-related fields were dropped to focus the analysis solely on the **number of orders**. This was an explicit request in order to preserve the restaurant's confidential financial report privacy considerations.

- **Useful-Field Filtering**: The final table contains only the following columns: *Category, Sub-product (specific item name), Date, Day of the week, No. Orders (quantity ordered).*

6.2 Total Annual Orders by Category and Day of the Week

The table below reports the **annual total number of orders** for each macro-category, broken down by day of the week. This allows us to identify the typical weekly sales pattern in every category.

Category	Day of the Week	No. Orders (year)
Appetizers	Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday	782, 1040, 1300, 1651, 2695, 4810
First Courses	Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday	521, 780, 1040, 1376, 2166, 4274, 3218
Second Courses	Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday	416, 624, 780, 1099, 1623, 3725, 2673
Burgers	Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday	262, 416, 520, 868, 1670, 3290, 2200
Pizzas	Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday	418, 624, 780, 1433, 3278, 5958, 4880
Beverages	Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday	2100, 2600, 3120, 3986, 6673, 11013, 8793
Desserts	Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday	260, 416, 520, 658, 1077, 2125, 1603
Coffee & Co.	Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday	1044,1560, 2080, 2615, 3675, 7950, 6336
Alpini	Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday	247, 0, 0, 180, 313, 513, 447

Table 6.1: Total annual orders by category and day of the week

Interpretation: The annual aggregation shows, for example, that **Saturday** is by far the strongest day, followed by **Sunday**. *Beverages* and *Pizzas* record the highest volumes, for drinks and food respectively particularly at the weekend. Conversely, categories such as

Desserts and *Second Courses* show lower volumes, with more moderate peaks over the weekend. The special **Alpini** category appears only on the event days (*Thursday 8 – Monday 12 May*), with orders concentrated on Saturday and Sunday.

6.3 Comparison: Regular Weekends vs Alpini Weekend (8–12 May)

The following table compares the **average orders of a typical weekend** (combined Saturday + Sunday average) with the **total orders** recorded during the *Alpini* event weekend (*8 – 12 May*, including the weekdays involved):

Category	Average Orders – Regular Weekends	Orders – Alpini Weekend (8–12 May)
Appetizers	160	778
First Courses	140	590
Second Courses	120	458
Burgers	100	640
Pizzas	200	1,024
Beverages	360	2,500
Desserts	70	266
Coffee & Co	270	710

Alpini	0	1,700

Table 6.2: Average order comparison between regular weekends and Alpini's weekend

Note: "Average Orders – Regular Weekends" refers to the mean only of combined Saturday and Sunday orders under normal conditions (no special events), calculated on an annual basis. "Alpini Weekend" refers to the total orders placed during the Alpini event from **8 to 12 May,** overseeing a 4 days period.

6.4 Commentary and Key Insights

The **Alpini Gathering** had a remarkable impact on sales, generating an order volume roughly **six times greater** than that of a typical weekend. In particular, *Beverages* showed the sharpest jump, rising from an average of ~360 weekend orders to about **2,500** orders during the event. Fast-service items such as *Burgers* and *Pizzas* also grew strongly, suggesting that event attendees preferred quick, easy-to-eat food.

Traditional restaurant categories (*Appetizers, First Courses, Second Courses*) experienced more moderate increases, indicating that many visitors avoided full meals in favor of informal options. Notably, the **Alpini-branded** products, introduced specifically for the event, generated **1,700 orders** in five days, accounting for roughly **67 %** of total orders during the Alpini weekend. This additional contribution, absent on regular weekends, shows how a dedicated offering can capture specific demand and further boost overall volume.

In summary, the Alpini weekend delivered a significant boost to sales across all categories, with peaks especially in beverages and easily consumable food. The analysis confirms the importance of such events for the business and highlights which categories benefit most from the extraordinary customer flow.

References

OpenAI. *ChatGPT* (Version o3) [Large language model]. OpenAI. https://chat.openai.com/

“The entire data analysis was produced with the assistance of ChatGPT. All figures are derived from the restaurant’s confidential financial report, which is not shared in this paper to respect privacy considerations.”

Appendix A

CSV File regarding Vicenza first analyzed restaurants (Reference 3.2)

Ristoranti_Vicenza___prima_bozza

Nome	Indirizzo	Telefono	Orari	Rating	N. recensioni	Zona (🟢/🟡/⚪)
Il Ceppo – Il Bistrot del Bacalà	Corso Palladio 196	+39 0444 544414	Mar-Dom 08:00-19:45 (lun chiuso)	4.4	1 803	🟢
Ristorante Angolo Palladio	Piazzetta Palladio 12	+39 0444 327790	Chiuso giov mattina – altri giorni pranzo & cena	4.2	3 566	🟢
Trattoria Ponte delle Bele	Contrà Ponte delle Bele 5	+39 0444 320647	Dom-lun chiuso; mar-sab pranzo & cena	4.0	590	🟢
Evì – Enoteca Veneta	Corso Antonio Fogazzaro 25	+39 0444 1803152	Lun-Mar 18-23:30; Mer-Dom 11-15 & 18-23:30	4.5	846	🟢
FuoriModena	Contrà San Gaetano Thiene 8	+39 0444 330994	Mar-Ven 19:30-23; Sab-Dom anche 12:30-14 | lun chiuso	4.3	403	🟢
Righetti Self Service	Piazza Duomo 3	+39 0444 543135	Tutti i giorni 12-15 & 19:30-23:30	4.0	3 782	🟢
Osteria Il Cursore	Strada Pozzetto 10	+39 0444 323504	Orari n/d	4.4	83	⚪
Zushi Japanese Restaurant	Piazzale Fraccon 2	+39 0444 543765	Consultare sito (pranzo & cena)	4.0	1 120	⚪
Ai Sette Santi	Piazzale della Vittoria 7	+39 0444 235470	Lun 18-23; Mar-Sab 10-15 & 18-23; Dom 9-15 & 18-23	4.2	2 105	⚪
Il Molo	Contrà Pedemuro San Biagio 48	+39 328 808 7598	Mar-Sab cena; dom pranzo & cena	4.5	1 236	🟢
Antico Guelfo	Contrà Pedemuro San Biagio 92	+39 0444 547897	Lun-Dom 12-14:30 & 19-22 (mar & dom sera chiuso)	4.4	1 033	🟢
Comfort Food	Corso SS. Felice e Fortunato 255	+39 342 141 7983	Tutti i giorni 12:30-15 & 19:30-23:30	4.5	234	🟡
Pizzeria-Ristorante X Giugno	Viale Dieci Giugno 25	+39 0444 543361	Lun-Mar-Gio-Dom 12-15 & 18:30-00; mer chiuso	4.5	398	⚪
Taj Mahal Indian Restaurant	Contrà Sant'Ambrogio 33	+39 0444 028970	Mar-Dom 18:30-22:30 (+ sab/dom 12-14); lun chiuso	4.4	61	🟡
Pane Pizza e…	Corso Palladio 177	+39 0444 525718	Orari n/d	4.5	1 084	🟢
Ristorante Da Biasio	Viale Dieci Giugno 152	+39 0444 323363	Lun-Dom 12-14:30 & 19-22 (mar & dom sera chiuso)	4.5	661	⚪
Trattoria Alla Baracca	Strada Casale 640	+39 392 719 5680	Mer-Ven 19:30-23; Sab-Dom 12-14:30 & 19:30-23	4.5	240	⚪
Locanda Veneta	Via Battaglione Valtellina 138	+39 0444 962395	Lun & Mer-Sab 12-14 & 19-22; mar chiuso	4.4	390	⚪
Bierstube Treff	Viale Verona 93	+39 0444 563064	Lun 12-15 | Mar-Gio 12-15, 18-24 | Ven 12-15, 18-02 | Sab 18-02 | Dom 12-15, 18-24	4.5	120	🟡
Ristorante Cinese Gui Lin	Viale Verona 28	+39 0444 560726	Mar-Sab 10:30-15 & 17:30-23; Dom 10:30-15 & 17:30-22; lun chiuso	4.1	13	🟡
Shi's Vicenza	Viale Mazzini 66	+39 0444 542845	Lun-Gio 12-14:30 & 18:30-22:30; Ven-Sab fino 23:00; Dom 22:30	4.6	10	🟡
Il Covo del Ribelle	Viale della Pace 307	+39 0444 303888	Tutti i giorni 19-02 (dom 24)	4.5	4 406	⚪
Al Paradiso da Tranquilli	Contrà Pescherie Vecchie 11	+39 0444 322320	Mar-Dom 12-15 & 18:30-00; lun chiuso	3.5	710	🟢
Restaurant Julien	Contrà Jacopo Cabianca 13	+39 0444 326168	Orari n/d	4.3	1 212	🟢

Illustration A.1: CSV File representing first 25 analysed Vicenza’s Restaurant

Qualitative interviews transcribed by selected restaurants (reference to 3.4)

Note on methodology

All transcripts follow the semi-structured outline articulated in blocks A-E of this paper (Limits, Requirements, Validation, Reorganisation, Lessons Learned) and are consistent with the methodological framework of Chapter 3.

The interviews were conducted in April 2025, approximately ten months after the 2024 Alpini National Assembly held in Vicenza.

Below you could find the dialogue between the Interviewer (I) and the restaurant's employee or owner or manager who has responded (R) in italian (later translated in english for the purpose of this thesis)

A.1 Restaurant "Al Ceppo" – 80 available seats (in case of need up to 130 people can be accommodated), bistro-gastronomy

A.1.1 Warm-up

I1 Può raccontarmi in breve la storia di Al Ceppo e quale ruolo ricopre lei?

("Can you briefly tell me the history of Al Ceppo and what role you play?")

R1 Al Ceppo nasce come gastronomia nel 1992, poi nel 2015 abbiamo ampliato con un bistrot da 80 coperti interni. Io sono chef-proprietaria e gestisco anche gli acquisti.

("Al Ceppo started life as a delicatessen in 1992. Then, in 2015, we expanded to include an 80-seat bistro. As chef-owner, I am also responsible for purchasing").

A.1.2 Identifying Initial Limits

I2 Quali segnali le hanno fatto intuire che l'assetto ordinario non sarebbe bastato per l'Adunata?

("What signs made you realise that the ordinary set-up would not be good enough for the National Gathering")?

R2 Quando il Comune ha diffuso le stime, si parlava di 400.000 presenze in tre giorni. Già a febbraio ricevevamo richieste gruppi da 30-40 persone: con 80 coperti non potevamo accettarli. Abbiamo fatto un'analisi dei tempi di rotazione tavolo ed è emerso che il nostro throughput massimo era 95 coperti/ora, insufficiente.

("The municipality released the estimates, they were talking about 400,000 admissions in three days. Already in February we were receiving requests for groups of 30-40 people: with 80 places available we could not accept them. We did an analysis of table rotation times and it turned out that our maximum throughput was 95 place settings per hour, which was not good enough").

I3 Come avete misurato i colli di bottiglia specifici?

("how did you measure specific bottlenecks?")

R3 Abbiamo cronometrato il flusso "ordine-piatto in tavola" in un sabato pieno: 22 min medi. Il limite principale era la zona plating + pass, piccola e congestionata.

("We timed the 'order-to-table' flow on a busy Saturday: 22 min average. The main limitation was the plating + pass area, which was small and congested").

A.1.3 Identification of requirements

I4 Quali KPI o requisiti avete fissato per riprogettare il processo?

("What KPIs or requirements have you set to redesign the process?")

R4 Tre KPI: a) tempo piatto ≤ 14 min, b) turnover tavoli ≥ 2,0 per servizio, c) 0 stock-out gastronomia. Requisiti operativi: estendere la sala all'esterno (+50 coperti), creare linea di servizio "street-food" per piatti ready-to-eat e raddoppiare postazione pass.

("Three KPIs: a) plate time ≤ 14 min, b) table turnover ≥ 2.0 per service, c) 0 deli stock-out. Operational requirements: extend the room outdoors (+50 covers), create a 'street-food' service line for ready-to-eat dishes, and double the pass station.")

A.1.4 Requirements Validation

I5 Avete testato queste soluzioni prima dell'evento?

("Did you test these solutions before the event?")

R5 Sì, il 30 aprile abbiamo organizzato un pranzo solidale con 120 ospiti dell'Associazione Alpini locale. Abbiamo monitorato i KPI via tablet: tempo medio 15′20″ - non ancora nei 14 min. Abbiamo quindi ridotto il menu da 18 a 12 referenze veloci e ripetuto il test: 13′45″ di media, obiettivo raggiunto.

("Yes, on 30 April we organised a solidarity lunch with 120 guests of the local Alpine Association. We monitored the KPIs via tablet: average time 15′20″ - not yet in the 14 min. We then reduced the menu from 18 to 12 fast food items and repeated the test: average 13′45″, target achieved.")

A.1.5 Process reorganisation

I6 Durante l'Adunata quali cambi pratici avete introdotto?

(" What practical changes did you introduce during the National Gathering?")

R6

- **Layout:** montato un gazebo 6 × 12 m con banchi inox e lampade a infrarossi.
- **Personale:** +6 temp (3 sala, 2 cucina, 1 lavaggio) su turni sovrapposti 10-16 / 16-23.
- **Menu:** 8 piatti express (polenta e sopressa, baccalà mantecato), 4 insalate pronte.
- **Tecnologia:** KDS touch esterno collegato a stampante comande in cucina interna.

("Layout: set up a 6 × 12 m gazebo with stainless steel benches and infrared lamps. Staff: +6 temps (3 lounge, 2 kitchen, 1 washroom) on overlapping shifts 10-16 / 16-23. Menu: 8 express dishes (polenta e sopressa, baccalà mantecato), 4 ready-made salads. Technology: external KDS touch connected to order printer in the kitchen.")

I7 Reazioni di clienti e staff?

("How did staff and clients reacted?")

R7 Clienti soddisfatti: voto Google da 4,4 a 4,6. Il team inizialmente spaesato col gazebo, ma dopo il primo turno il flusso è diventato automatico.

(“Satisfied customers: Google rating from 4.4 to 4.6. The team was initially bewildered with the gazebo, but after the first round the flow became automatic.”)

A.1.6 Lessons Learned

I8 Cosa rifarebbe uguale e cosa cambierebbe?

(“What would you do the same and what would you change?”)

R8 Ripeterei la riduzione menu: 80 % delle vendite su 5 piatti. Cambierei invece il sistema bibite: una sola spillatrice esterna era collo di bottiglia; ne servono due. Inoltre, manterremo il format “street-food” d’estate ogni venerdì.

(“ I would repeat the menu reduction: 80 % of sales on 5 plates. I would change the drinks system instead: one outside stapler was bottleneck; we need two. In addition, we would maintain the ‘street-food’ format during the summer every Friday.”)

A.2 Bar Borsa – 120 +available seats, Historical place in Piazza dei Signori

A.2.1 Warm-up

I1 Ci descriva Bar Borsa e il suo ruolo.

(“Could you describe us in a few words Bar Borsa and your role in it”) ?

R1 Siamo un bar-ristorante con 120 coperti, cocktail bar famoso per l’aperitivo. Io coordino operations e HR.

(“We are both a cocktail bar famous for its aperitifs and a restaurant with 120 available seats, i am the responsible for the operations and the human resources”)

A.2.2 Identifying Initial Limits

I2 Quali segnali le hanno fatto intuire che l'assetto ordinario non sarebbe bastato per l'Adunata?

(" What signs made you realise that the ordinary set-up would not be sufficient for the National Gathering")?

R2 I primi segnali sono stati le file al banco: tempo attesa punta 9-10 min, inaccettabile. Secondo segnale: il divieto del vetro in piazza che ci costringeva a stimare 3000 bicchieri compostabili/ora, rivelando criticità logistiche sui rifiuti.

("The first signs were the queues at the counter: peak waiting time of 9-10 minutes, unacceptable. Second signal: the glass ban in the square, which forced us to estimate 3000 compostable glasses/hour, revealing critical waste logistics.")

A.2.3 Identification of Requirements

I3 Quali KPI o requisiti avete fissato per riprogettare il processo?

(" What KPIs or requirements have you set to redesign the process?")

R3 1) Servire una birra < 45 s; 2) smaltire i rifiuti usa-e-getta ogni 30′; 3) garantire crowd-control in piazza con 2 addetti steward. Operativamente: installare 2 spillatrici mobili, menu "evento" ridotto a 5 cocktail + birra/vino.

(" 1)To serve a beer under 45 seconds of time; 2) Dispose of disposable waste every 30′; 3) Ensure crowd-control in the square with 2 stewards. Operationally: install 2 mobile tapping machines, 'event' menu reduced to 5 cocktails + beer/wine. ")

A.2.4 Validation of requirements

I4 Come avete verificato l'efficacia?

("How have you verified effectiveness?")

R4 Venerdì sera pre-evento abbiamo fatto soft-opening con 800 clienti: tempo media birra 52 s. Aggiunta seconda cassa mobile → sabato 41 s, target centrato. Ogni ora pesavamo i sacchi rifiuti: < 25 kg target; restavamo sui 22.

(“Friday evening pre-event we did soft-opening with 800 customers: the average beer time was 52 seconds. Adding second mobile case → Saturday 41 s, target hit. Every hour we weighed waste bags: < 25 kg target; we stayed on 22 kg.”)

A.2.5 Process Reorganisation

I5 Cambi di processo concreti?

(“Any concrete change about processes”) ?

R5

- **Zonizzazione:** fascia esterna “take-away only”, interno servizio al tavolo.
- **Personale:** 4 banconieri dedicati “birra-line” + 2 cashiers; 2 runner solo per rifiuti.
- **Tecnologia:** POS handheld RFID per velocizzare incassi contanti/badge.

(“Zoning:outside ‘take-away only’, inside table service. Personnel: 4 dedicated ‘beer-line’ counters + 2 cashiers; 2 runners for waste only. Technology: RFID handheld POS to speed up cash/badge collection.”)

A.2.6 Lessons Learned

I6 Le principali lezioni apprese?

(“What were the most important lessons learned”) ?

R6 Semplificare il bar set: 80 % ordini erano birra o spritz, i cocktail complessi creavano code. In futuro useremo token ricaricabili per eliminare i contanti. Inoltre, crowd-control anticipato con transenne mobili ha evitato intasamenti.

(“Simplify the bar set: 80 % orders were beer or spritz, complex cocktails created queues. In future we will use rechargeable tokens to eliminate cash. Also, early crowd-control with mobile barriers avoided congestion.”)

A.3 Osteria Il Cursore – 45 available seats, typical family-run restaurant

A.3.1 Warm-up

I1 Come nasce l'Osteria Il Cursore?

("How The Osteria Il Cursore was born") ?

R1 Mio nonno la fondò nel 1968. 45 coperti interni, menù vicentino tradizionale. Io gestisco cucina e sala con mio marito.

("My grandfather founded it in 1968. 45 available place inside, traditional menu of Vicenza. I run the kitchen and the dining room with my husband.")

A.3.2 Identification of Initial Limits

I2 Quali segnali le hanno fatto intuire che l'assetto ordinario non sarebbe bastato per l'Adunata?

("IWhat signs made you realise that the ordinary set-up would not be enough for the National Gathering") ?

R2 Il primo segnale è arrivato quando a marzo abbiamo ricevuto 120 prenotazioni in un solo weekend, il triplo del solito. A quel punto lo spazio cucina (due fuochi, un forno) era chiaramente insufficiente. In più, non avendo area d'attesa, vedevamo gruppi sostare in strada già nei sabati precedenti.

(" The first sign came when in March we received 120 bookings in a single weekend, three times as many as usual. At that point the kitchen space (two burners, one oven) was clearly insufficient. In addition, as there was no waiting area, we were already seeing groups lingering in the street on previous Saturdays.")

A.3.3 Identification of Requirements

I3 Quali requisiti avete stabilito?

(" What requirements have you established?")

R3 Servizio completo ≤ 45 min; portate massimo 6 (3 piatti unici, 1 dessert, 2 bevande). Requisito qualità: mantenere piatti fatti a mano. Altro requisito: prenotazioni obbligatorie a turni 12:00 / 13:00 / 14:00, 19:00 / 20:15.

(“Full service ≤ 45 min; maximum 6 courses (3 main courses, 1 dessert, 2 drinks). Quality requirement: maintain home-made dishes. Other requirements: compulsory reservations in shifts 12:00 / 13:00 / 14:00, 19:00 / 20:15.”)

A.3.4 Validazione dei requirements

I4 Avete testato?

(“Have you tried it?)

R4 Weekend precedente abbiamo invitato 50 amici Alpini: tempo tavolo 47 min. Abbiamo pre-cottura bigoli e brasato in sous-vide → nuovo test 42 min, KPI OK.

(“The previous weekend we invited 50 Alpines: table time 47 min. We pre-cooked bigoli and braised in sous-vide → new test 42 min, KPI OK.”)

A.3.5 Process Reorganisation

I5 Modifiche pratiche?

(“Practical changes”)?

R5

- **Menu fisso:** Gnocchi con fioretta, baccalà alla vicentina, polenta e funghi; tiramisù.
- **Prep station esterna:** pentolone a gas sotto tenda per polenta.
- **Turni:** extra 2 camerieri studenti Alpini; mio marito solo cassa e prenotazioni.
- **Tavolate comuni:** 2 lunghe per gruppi → 100 % posti sempre occupati.

(“Set menu: gnocchi with fioretta, Vicenza-style cod, polenta and mushrooms; tiramisù. Outdoor prep station: gas-fired pot under a tent for polenta. Shifts: extra 2 waiters, Alpini students; my husband only cashier and reservations. Common tables: 2 long ones for groups → 100 % seats always occupied.”)

A.3.6 Lessons Learned

I6 Cosa avete imparato?

(“What did you learn”)?

R6 Clienti accettano menu fisso se comunicato in anticipo. Continueremo a proporre “pranzo alpino” la domenica. Inoltre, turno prenotato riduce stress: manterremo due slot pranzo anche post-evento.

(“If communicated in advance, customers will accept fixed menus. We will continue to offer the 'Alpine Lunch' on Sundays. In addition, having a booked shift reduces stress, and we will maintain two lunch slots post-event.”).

A.4 Restaurant Al Fiume – 90 available seats, fine cuisine with panoramic terrace

A.4.1 Warm-up

I1 Breve presentazione del locale?

(“Could you introduce us the restaurant”)?

R1 Aperto nel 2010, 90 coperti interni + terrazza 30. Cucina contemporanea, degustazione 6-8 portate. Io sono executive chef dal 2018.

(“We opened in 2010, 90 indoor seats + terrace 30 seats outdoor. Contemporary cuisine, tasting of 6-8 courses. I have been executive chef since 2018.”)

A.4.2 Identifying Initial Limits

I2 Quali segnali le hanno fatto intuire che l’assetto ordinario non sarebbe bastato per l’Adunata?

(“ What signs made you realise that the ordinary set-up would not be enoughfor the National Gathering”) ?

R2 Le prime avvisaglie sono emerse dai nostri test di servizio: con il menu degustazione standard i tempi di passaggio piatto superavano i 25 minuti, mentre l’obiettivo per eventi di massa era 15. In magazzino avevamo spazio refrigerato per 400 porzioni, ma le

pre-prenotazioni superavano già le 1200. Inoltre la brigata fissa di 8 persone copriva a malapena lo standard; in caso di picco sarebbe mancato un 30 % di manodopera su griglia e pasticceria. Questi limiti logistici, di flusso e di personale ci hanno spinto a rivedere completamente il setup.

(“ The first signals emerged from our service tests: with the standard tasting menu, plate changeover times exceeded 25 minutes, while the target for mass events was 15. In the warehouse we had refrigerated space for 400 portions, but pre-bookings already exceeded 1200. In addition, the fixed brigade of eight people barely covered the standard; in the event of a peak there would have been a 30% shortage of manpower on the grill and pastry. These logistical, flow and personnel constraints prompted us to completely revise the setup.”)

A.4.3 Identification of Requirements

I3 Requisiti operativi fissati?

(“Have you settled Operational requirements ”) ?

R3 Ridurre tempo corso principale a ≤ 20 min; mantenere punteggio recensioni > 4,5. Requisito di logistica: stoccaggio a +30 % materie prime da giovedì sera; menu ridotto “Speciale Alpini” 3 portate.

(“ Reduce main course time to ≤ 20 min; maintain review score > 4.5. Logistics requirement: storage at +30 % raw materials from Thursday evening; reduced menu ‘Alpini Special’ 3 courses.”)

A.4.4 Validation of Requirements

I4 Come avete testato la proposta?

(“ How did you tested the proposal?”)

R4 Tasting interno con staff: abbiamo servito 40 coperti in 55 min complessivi, cronometro alla mano. Feedback positivi. Abbiamo poi invitato un gruppo di food-blogger il mercoledì: nessuna recensione negativa.

(“ In-house tasting with staff: we served 40 covers in a total of 55 min, stopwatch in hand. Positive feedback. We then invited a group of food bloggers on Wednesday: no negative reviews.”)

A.4.5 Process Reorganisation

I5 Cambi effettivi?

(“Any important changes”)?

R5

- **Menu ridotto:** battuta di manzo, risotto all’Amarone (pre-cotto 80 %), guancia brasata sous-vide; dolce in jar.
- **Brigata divisa in linee:** una per risotto, una per rigenerazione carni, pass dedicato.
- **Servizio:** mise-en-place semplificata, tovagliette di carta kraft; lista di vini pregiate ridotta a 6 etichette.

(“Reduced menu: beef battuta, risotto all'Amarone (pre-cooked 80 %), sous-vide braised cheek; dessert served through a jar.
Brigade divided into lines: one for risotto, one for meat regeneration, dedicated pass.
Service: simplified mise-en-place, kraft paper placemats; fine wine list reduced to 6 labels.”)

A.4.6 Lessons Learned

I6 Apprendimenti?

(“What did you learn”) ?

R6 Possiamo gestire volumi maggiori se standardizziamo alcune preparazioni senza intaccare qualità percepita. Valuteremo un format gastronomico estivo con menu corto e prezzi accessibili.

(“We can handle larger volumes if we standardise certain preparations without affecting the quality that we perceive. We will evaluate a bistronomic summer format with a short menu and affordable prices in the future.”)

A.5 Restaurant Ai Sette Santi – 150 available seats, Historical restaurant outside the centre of the city

A.5.1 Warm-up

I1 Ci presenti la Trattoria

(“Could you introduce us to the restaurant”) ?

R1 Fondata nel 1954 vicino al Santuario di Monte Berico, 150 coperti e grande giardino. Specializzati in piatti alpini classici. Ho gestito 4 Adunate in città diverse.

(“Founded in 1954 near the Sanctuary of Monte Berico, 150 available seats and a giant and large garden. Specialised in classic Alpine dishes. Managed 4 National Gathering in different cities.”)

A.5.2 Identifying Initial Limits

I2 Quali segnali le hanno fatto intuire che l’assetto ordinario non sarebbe bastato per l’Adunata?

(“ What signals made you realise that the ordinary set-up would not be enough for the National Gathering?”)

R2 Il nostro “stress test” interno di febbraio ha dimostrato che la cucina poteva sfornare 180 pasti/turno, mentre le proiezioni dell’Adunata parlavano di 350-400 ospiti/ora. I fornelli tradizionali a gas richiedevano 12 minuti per cuocere la polenta, generando colli di bottiglia già con 200 coperti. Inoltre il parcheggio pullman a 300 metri creava attese e assembramenti non gestibili con l’attuale staff di 10 persone. Questi indicatori – capacità di output, tecnologia di cottura e gestione flussi esterni – hanno evidenziato che l’assetto ordinario era inadeguato.

(“Our internal ‘stress test’ in February showed us that the kitchen could churn out 180 meals/shift, while the National Gathering projections spoke of 350-400 guests/hour. Traditional gas cookers took 12 minutes to cook polenta, generating bottlenecks already with 200 guests. In addition, the coach park 300 metres away created waits and crowds that could not be managed with the current staff of 10. These indicators - output capacity, cooking technology and external flow management - showed that the ordinary set-up was inadequate.”)

A.5.3 Identification of Requirements

I3 Requisiti posti in risposta?

(“ Requirements placed in response?”)

R3 1) Coordinare arrivi via bus navetta ogni 30 min; 2) creare linea self-service pranzo (capienza 200 coperti/h); 3) scorta materie prime per 5000 pasti in 3 giorni; 4) mantenere prezzo fisso 18 € “menù Alpino”.

(“ 1) co-ordinate arrivals by shuttle bus every 30 minutes; 2) create a self-service lunch line (capacity 200 places/hour); 3) stock raw materials for 5000 meals in 3 days; 4) maintain fixed price 18 € ‘Alpine menu’. “)

A.5.4 Validation of Requirements

I4 Validazione piani?

(“Plan Validation?”)

R4 Esperienza storica era base. Ma abbiamo monitorato arrivi navetta venerdì: ~380 persone/ora, sotto stima massima 400. KPI ok. Sabato mattina abbiamo incrementato pentole da 60 l per minestrone militare: servivamo 250 porzioni/h, validazione sul campo.

(“ Historical experience was basic. But we monitored shuttle arrivals on Friday: ~380 people/hour, under estimated maximum 400. KPI OK. Saturday morning we increased 60 l pots for military soup: we served 250 portions/hour, field validation.”)

A.5.5 Process Reorganisation

I5 Modifiche pratiche?

(“Practical changes?”)

R5

- **Self-service tenso-struttura 200 m²:** tre linee vassoi.
- **Cucina esterna:** due fornelletti paellera a gas per polenta morbida continua.

- **Personale:** +12 volontari ANA al servizio pasti; brigata cucina raddoppiata a 14.
- **Sistema token** per pagamenti rapidi; 4 casse mobili.

Self-service tenso-structure 200 m²: three tray lines. Outdoor kitchen: two gas paella cookers for continuous soft polenta. Staff: +12 ANA volunteers at meal service; kitchen brigade doubled to 14. Token system for quick payment; 4 mobile cash desks.

A.5.6 Lessons Learned

I6 Cosa portate a casa?

(“What have you learned”)

R6 La navetta dedicata è stata cruciale: replicheremo accordo con pullman per futuri raduni. Useremo il modulo self-service per sagre estive; ridurremo invece le varianti del menù fisso (tre secondi erano troppi, due bastano).

(“The dedicated shuttle was crucial: we will replicate the coach agreement for future gatherings. We will use the self-service module for summer festivals; we will reduce the fixed menu variants (three seconds was too much, two is enough time“).

Appendix B

KPI Report – Alpini's 2025 National Gathering (reference to 4.4)

Restaurant, Friday–Sunday

Traffic Light Legend

- 🟢 OK = within target threshold
- 🟡 Attention = in yellow band (±20% from threshold)
- 🔴 Critical = significantly beyond threshold

B.1 Friday — Lunch (250 covers)

KPI	Simulated Value	Target	Status	Operational Note
Entrance Wait Time (min)	3.2	≤ 5	🟢	Staggered arrivals, no visible queue
Order → Service Time (min)	12.4	≤ 15	🟢	KDS fluid; hot line 75% saturation
Payment Queue (people)	2	≤ 4	🟢	Mobile POS used at 54% of tables
Customer Satisfaction (1–5)	4.6	≥ 4	🟢	Positive comments on speed and courtesy
Kitchen Throughput (dishes/h)	235	≥ 240	🟡	Slight underperformance: dessert prep station underutilized
Beverage Volume (L/h)	68	≥ 75	🟡	Slow start at the tap station

Table B.1: KPIs for Friday - Lunch

Insight: Almost all thresholds are green; advisable to anticipate beverage load by opening the second tap 15 minutes before doors open.

B.2 Friday — Dinner (350 covers)

KPI	Value	Target	Status	Operational Note
Entrance Wait Time	4.7 min	≤ 5	🟢	Managed two small parallel queues
Order → Service Time	14.8 min	≤ 15	🟢	20:25 peak mitigated by reduced “speed” menu
Payment Queue	3 ppl	≤ 4	🟢	Table POS used 71%
Customer Satisfaction	4.3	≥ 4	🟢	Some complaints about noise
Kitchen Throughput	255 dishes/h	≥ 240	🟢	Pizza oven at 92% cycle
Beverage Volume	78 L/h	≥ 75	🟢	Excellent beer/cocktail mix

Table B.2: KPIs for Friday - Dinner

Insight: Solid performance; maintain reduced menu after 9:00 PM to stabilize oven cycle.

B.3 Saturday — Lunch (450 covers)

KPI	Value	Target	Status	Operational Note
Entrance Wait Time	6.1 min	≤ 5	🔴	Single entry point: consider an additional marshal

Order → Service Time	16.9 min	≤ 15	🔴	Grill line congestion 12:45–13:15
Payment Queue	5 ppl	≤ 4	🟡	Cash queue; QR-pay not promoted enough
Customer Satisfaction	3.9	≥ 4	🟡	Drop due to waiting times
Kitchen Throughput	268 dishes/h	≥ 240	🟢	Improved performance thanks to prep lunch-box station
Beverage Volume	85 L/h	≥ 75	🟢	Canned drink sales +18%

Table B.3: KPIs for Saturday - Lunch

Insight: Main bottleneck: entrance. Suggested opening “reserved” corridor + distribute complimentary water to mitigate perceived stress.

B.4 Saturday — Dinner (550 covers)

KPI	Value	Target	Status	Operational Note
Entrance Wait Time	9.8 min	≤ 5	🔴	Exterior queue up to 35 m
Order → Service Time	18.7 min	≤ 15	🔴	Grill + oven saturated; expediter overwhelmed
Payment Queue	6 ppl	≤ 4	🔴	External cash POS suspended due to malfunction
Customer Satisfaction	3.4	≥ 4	🔴	Complaints about plate temperature

Kitchen Throughput	297 dishes/h	≥ 240	🟢	High value but not absorbed by dining room
Beverage Volume	94 L/h	≥ 75	🟢	Beer spike 8:30–9:00 PM

Table B.4: KPIs for Saturday - Dinner

Key Insight: Multiple saturation event. Recommended countermeasures:

1. Activate ultra-reduced menu (top 6 items) when KDS backlog > 25 tickets
2. Move 1 grill staff to mobile cashier to reduce payment queue
3. Assign runner staff for water/bread to maintain service perception

---

B.5 Sunday — Lunch (550 covers)

KPI	Value	Target	Status	Operational Note
Entrance Wait Time	5.4 min	≤ 5	🟡	Improvement vs Saturday, but still borderline
Order → Service Time	15.6 min	≤ 15	🟡	Grill tight on mains: consider pre-grilling
Payment Queue	4 ppl	≤ 4	🟢	External POS restored
Customer Satisfaction	4.1	≥ 4	🟢	“Free dessert” incentive for waiting tables
Kitchen Throughput	282 dishes/h	≥ 240	🟢	Efficient 4+4 pizza batch setup
Beverage Volume	88 L/h	≥ 75	🟢	Family pack soft-drinks appreciated

Table B.5: KPIs for Sunday - Lunch

Insight: Micro-optimizations of entrance layout and cashier returned KPIs to yellow/green; maintain 30' briefing to balance hot lines.

B.6 Sunday — Dinner (250 covers)

KPI	Value	Target	Status	Operational Note
Entrance Wait Time	2.9 min	≤ 5	🟢	Smooth flow, zero queue
Order → Service Time	11.8 min	≤ 15	🟢	Relaxed staff, kitchen at 60% load
Payment Queue	1 ppl	≤ 4	🟢	Table-side payment service
Customer Satisfaction	4.7	≥ 4	🟢	Excellent comments on staff attentiveness
Kitchen Throughput	210 dishes/h	≥ 240	🟡	Low volumes: pizzeria line closed half an hour early
Beverage Volume	61 L/h	≥ 75	🟡	Reduced consumption; promotions not needed

Table B.6: KPIs for Sunday - Dinner

Insight: Last shift calm; perfect opportunity for a debrief and staff feedback collection.

General Bibliography

- Bakker R.M., DeFillippi R.J., Schwab A., & Sydow J. (2016) *Temporary Organizing: Promises, Processes, and Problems*.
- Freight (2024) *The State of Dynamic Pricing for Restaurants in 2024, and How to Navigate*.
- Government of Canada (2024) *Crowd Management – Events*.
- Hillson D., & Grimaldi A. (2017) *Managing Project Risks Using a Cross Risk Breakdown Matrix*.
- Kimes S.E., Barrash D.I., & Alexander J. (2021) *Developing a Restaurant Revenue-Management Strategy*.
- Lundin R.A., & Söderholm A. (1995) *A Theory of the Temporary Organization*.
- MRM – Modern Restaurant Management (2025) *The Urge to Surge: What Surge Pricing Could Mean for Your Restaurant*.
- Piercy N., & Rich N. (2015) *High Quality and Low Cost: The Lean Service Centre*.
Principles of Commercial Kitchen Design (2019).
- Rajani R.L., Heggde G.S., Kumar R., & Bangwal D. (2022) *Demand Management Approaches in Services Sector and Influence on Company Performance*.
- Rutherford Silvers J., & O'Toole J. (2014) *Risk Management for Events*.
- Teece D.J. (2018) *Explicating Dynamic Capabilities: The Nature and Microfoundations of (Sustainable) Enterprise Performance*.
- Wagner A. (2023) *Temporary Organizing – The New Art of Working*.
- Weaven S. (2020) *Surviving an Economic Downturn: Dynamic Capabilities of SMEs*

- Arnosti, I. (2022). *Why are waits so long at high utilization?* Journal of Service Operations, 48(2), 115-130.
- Caballero, A., Gómez, J., & Torres, M. (2020). *Discrete-event modelling for operational management of restaurants.* International Journal of Hospitality Management, 87, 102-119.
- Chally, R. (2023). *The strain of success: How the labor shortage is affecting restaurants.* Hospitality Review, 41(3), 57-72.

➢ De Vries, J., Janssen, M., & Vermeulen, P. (2024). *Worth the wait? How restaurant waiting time influences customer behaviour and revenue.* Service Industries Journal, 44(1-2), 87-105.
➢ Hwang, J., Kimes, S. E., & Noone, B. (2018). *Joint demand and capacity management in a restaurant system.* Journal of Service Management, 29(4), 619-642.
➢ Kambli, P., Smith, K., & Brown, L. (2021). *Improving campus dining operations using capacity and queue management: A simulation-based case study.* Journal of Foodservice Business Research, 24(6), 543-562.
➢ Kimes, S. E., Wirtz, J., & Susskind, A. (2021). *Developing a restaurant revenue-management strategy.* Cornell Hospitality Quarterly, 62(3), 231-246.
➢ McKinsey & Company. (2023). *A recipe for restaurant revenue and sales growth.* McKinsey Global Institute Report.
➢ Nurkamilia, S., Rahman, D., & Yudhistira, B. (2022). *Facility layout planning optimisation in a family restaurant using systematic layout planning and simulation.* International Journal of Industrial Engineering, 29(1), 45-61.
➢ Pannell, D. (2020). *Little law: Mastering queue management for optimal efficiency.* LeanScape Press.
Potter, A., Mason, R., & Lalwani, C. (2019). *On the versatility of Little's law in operations management: A review and classification using vignette methodology.* International Journal of Operations & Production Management, 39(2), 226-247.
➢ Roy, S., Mukherjee, A., & Singh, R. (2024). *Restaurant analytics: Emerging practice and research opportunities.* Journal of Hospitality and Tourism Technology, 15(1), 1-23.

➢ Merriam, S. B., & Tisdell, E. J. (2015). *Qualitative Research: A Guide to Design and Implementation*. Jossey-Bass.
➢ Creswell, J. W. (2013). *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*. Sage Publications.
➢ Kallio, H., Pietilä, A.-M., Johnson, M., & Kangasniemi, M. (2016). “Systematic methodological review: Developing a framework for a qualitative semi-structured interview guide”. *Journal of Advanced Nursing*, 72(12), 2954–2965.

- Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2015). “Purposeful Sampling for Qualitative Data Collection and Analysis in Mixed Method Implementation Research”. *Administration and Policy in Mental Health and Mental Health Services Research*, 42, 533–544.
- Robinson, O. C. (2014). “Sampling in Interview-Based Qualitative Research: A Theoretical and Practical Guide”. *Qualitative Research in Psychology*, 11(1), 25–41.

- Deloitte (2023) *Future of Restaurants and Food Service: Thriving amid Disruption*.
- Dewi, R. et al. (2019) *Service Blueprinting to Enhance Restaurant’s Service Process*.
- Gladysz, B. et al. (2021) *Lean Management Approach to Reduce Waste in HoReCa*.
- Hermida, Á. & Arúz, C. (2020) *Menu Engineering: A Benchmark Methodology*.
- Hwang, J. et al. (2018) *Joint Demand and Capacity Management in a Restaurant System*.
- Tanizaki, K. et al. (2023) *Demand Forecasting in Restaurants Using Machine Learning*.

- Management 2025. (2025). 2025 Restaurant Outlook: A Recipe for Success with Risk Management. Modern Restaurant Management. Retrieved from https://modernrestaurantmanagement.com/2025-restaurant-outlook-risk-management
- Mthiyane, S., et al. (2022). *A framework for risk management in small medium enterprises in developing countries*.
- Acebes, J., et al. (2024). *Beyond probability-impact matrices in project risk management: A quantitative methodology for risk prioritisation*. Humanities and Social Sciences Communications.
- Enterprise Risk Management vs. Operational Risk Management. (https://www.6clicks.com/resources/blog/enterprise-risk-management-vs.-operational-risk-management)

➢ How to calculate your business risk using a risk assessment matrix. (https://www.wolterskluwer.com/en-gb/expert-insights/how-to-calculate-your-business-risk-using-a-risk-assessment-matrix).
➢ Tang, Y., & Luu, T. (2025). *Operational risk management in the restaurant industry: A case study of the largest restaurant chain in Vietnam.* Dordrecht, 196-203
➢ Riepl, D., et al. (2024). *Risk management during the COVID-19 crisis: Insights from an exploratory case study of medium-sized enterprises*. Journal of Management Control, 109-135

➢ OpenAI. *ChatGPT* (Version o3) [Large language model]. OpenAI. https://chat.openai.com/

Affidavit

ESCP Business School

I, the undersigned, do hereby state that I have not plagiarised the paper enclosed and that I am the only author of all sentences within this text. Any sentence included which was written by another author was placed within quotation marks, with explicit indication of its source. I am aware that by contravening the stated ESCP Business School rules on plagiarism, I break the recognised academic principles and I expose myself to sanctions upon which the disciplinary committee will decide.

I also confirm this work has not previously been submitted during studies prior to ESCP Business School. If this work has been written during studies conducted in parallel to my time at ESCP Business School, I must state it.

I accept full responsibility for the content of this paper.

Niccolò Maglioli
..... (Signature)

Niccolò Maglioli
..... (Print name)

03/06/2025
..... (Day/month/year)