Process Improvement Case Study

ITSU-Style Fast-Food Order Fulfillment

EXECUTIVE SUMMARY

This case study demonstrates a process improvement project for a fast-paced food retail operation (ITSU-style) using Business Process Model and Notation (BPMN). The project identifies inefficiencies in order fulfillment, redesigns the process using self-service kiosks and digital kitchen displays, and quantifies impact through reduced cycle time, increased throughput, and labor savings.

1. Context: As-Is Process Analysis

Current State (As-Is)

The existing ITSU-style store operates with a service line for cold items (self-serve fridge) and hot items (counter/FOH). This creates operational inefficiencies:

- **Dual queues:** Customers select cold items, then wait in a separate hot-item queue, causing overlapping wait times.
- **Manual order relay:** Front-of-house (FOH) staff take verbal orders, select it on their computer and send it to the kitchen without opportunity to modify it once it is selected.
- **Limited visibility:** Kitchen staff read orders one at a time with no real-time order priority or status updates.
- **Voice-based handoff:** Staff call out order names, risking customer identification errors and communication gaps.
- **Bottleneck at payment:** Payment processing happens at FOH counter after order is placed, delaying both cold and hot items.

As-Is Process Map (BPMN)

Three lanes: **Customer**, **Front-of-House (FOH)**, **Kitchen**.

Process Flow Steps

- The customer arrives at the counter.
- The customer selects cold items.
- Queue for payment if cold items are selected.

Hot Items Path

- If there are no cold items, the customer places a new order.
- The system checks if hot items and table order are selected.
- If yes, the customer pays for hot items and waits for the order.

Payment and Preparation

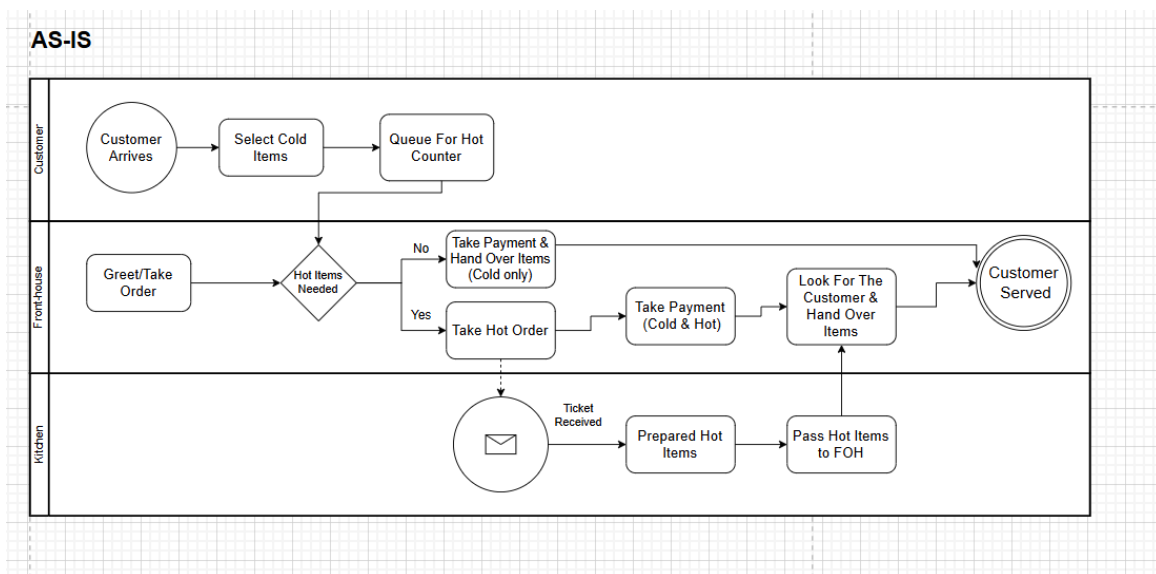- Take payment for cold and hot items.
- Prepare items.
- Prepare hot items.

Final Steps

- Pass items to FOH (Front of House).
- Handle it to the customer.

Average Cycle Time: 10 minutes per order
Peak Throughput: 50 orders/hour
Staff Utilized (peak): 6 people

2. To-Be Process Design

Proposed Solution

Replace the single with a self-service kiosk system and digital kitchen display (KDS) with automated buzzer notifications.

Key Improvements

- **Unified Kiosk:** Customers select cold and hot items, customize, and pay in one interaction.

- **Digital Kitchen Display:** Orders sent directly from POS to KDS; no paper tickets.

- **Parallel Preparation:** Cold and hot items prepared simultaneously, triggered by digital signal.

- **Automatic Notification:** Buzzer or screen signal alerts customers when order is ready on the pickup shelf.
- **Streamlined FOH Role:** FOH staff assist at kiosks (if needed) and manage pickup shelves, not taking orders.

To-Be Process Map (BPMN)

Three lanes: **Customer**, **FOH & Kiosk**, **Kitchen**.

The process includes 9 steps:

1. Customer Arrives
2. Select Cold Items (fridge) OR Browse & Customize at Kiosk
3. Order any Hot Food? (gateway decision)
4. Pay for Order (integrated in kiosk)
5. Send Paid Order to Kitchen Display (KDS)
6. Kitchen Views Digital Ticket
7. Prepare Hot Items (in parallel with cold)
8. Pass Hot Items / Assemble Order
9. Send "Order Ready" Signal (buzzer/screen)

Average Cycle Time: 6.5 minutes per order (35% faster)
Peak Throughput: 64 orders/hour (28% increase)
Staff Utilized (peak): 5 people (17% reduction)
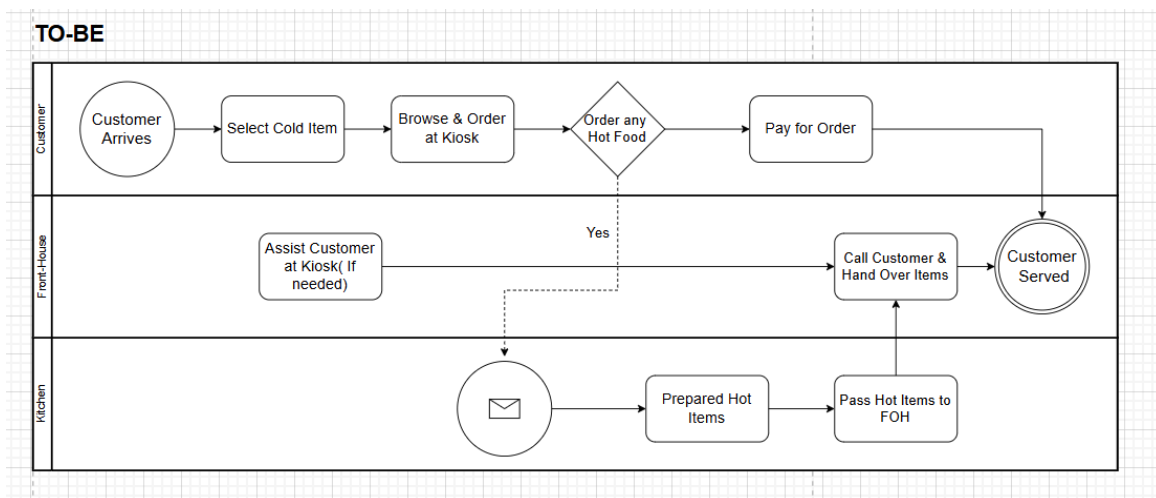
3. Quantified Impact Analysis

Key Metrics Comparison

Metric	As-Is	To-Be	Gain	% Change
Total Steps	14	9	-5	**-36%**
Cycle Time (min/order)	10.0	6.5	-3.5	**-35%**
Peak Throughput (orders/hr)	50	64	+14	**+28%**
Staff per Shift (peak)	6	5	-1	**-17%**
Orders per Staff-Hour	8.3	12.8	+4.5	**+54%**

As-Is Process Timing Breakdown

Step	Task	Duration (min)	Notes
1	Customer Selects Cold Items	2.5	Browsing fridge
2	Join Hot Queue	1.5	Waiting for service
3	Greet / Take Order (FOH)	1.0	Staff interaction
4	Decide Hot/Cold	0.5	Gateway logic
5	Payment Processing	1.5	Card swipe/cash
6	Print Paper Ticket	0.5	Manual printing
7	Relay to Kitchen	0.3	FOH walks ticket
8	Kitchen Receives Ticket	0.2	Manual reading
9	Prepare Hot Items	4.0	Cook time
10	Assemble Order	1.0	Kitchen staff
11	Call Order by Name	0.5	Voice announcement
12	FOH Locates Customer	0.3	Communication gap
13	Hand Over Items	0.5	Physical transfer
14	Customer Departs	0.2	Exit
	TOTAL	**10.0 min**	

To-Be Process Timing Breakdown

Step	Task	Duration (min)	Notes
1	Customer Selects at Kiosk	2.0	Self-service, faster UI
2	Payment (embedded in kiosk)	1.0	Tap/contactless
3	System Validates Order	0.2	Automated
4	Send to KDS (Digital)	0.1	Instant transmission
5	Prepare Cold Items	2.0	Parallel with hot
6	Prepare Hot Items	2.5	In parallel (KDS priority)
7	Assemble Order	0.8	KDS-guided assembly
8	Place on Pickup Shelf & Buzz	0.2	Automated signal
9	Customer Collects Order	0.7	Self-service pickup
	TOTAL	**6.5 min**	

Annual Impact Calculation

Assuming:

- Operating hours: 8 hrs/day, 6 days/week, 50 weeks/year = **2,400 hours/year**
- Peak hour operations: 4 hours/day (realistic lunch/dinner rush)
- **Staff hourly cost:** 15 € /hour (including overhead)

Metric	As-Is	To-Be	Impact
Peak orders/hr	50	64	+14/hr
Peak hours/year	960	960	—
Total orders/year (peak)	48,000	61,440	+13,440
Staff hours/year (peak)	5,760	4,800	-960
Annual Labor Cost Savings	—	—	**14,400 €**

Productivity Uplift Value	—	—	**54,000 €** (33% more throughput, 1 FTE value)
Total Annual Benefit	—	—	**~68,000 €– 96,000 €**

---

4. Implementation Roadmap

Phase 1: Pilot (Weeks 1–4)

- **Target:** One store location.
- **Activities:**
  - o Install 2–3 self-service kiosks at entry points
  - o Implement KDS on 2–3 kitchen stations
  - o Train 10–15 core staff (cross-functional: FOH, kitchen, management)
  - o Run parallel As-Is and To-Be operations for 2 weeks to validate
- **Success Criteria:** 80% adoption, no order errors, <10 min avg cycle time.

Phase 2: Training & Change Management (Weeks 3–6)

- **Customer Communication:** In-store signage, QR codes, brief tutorials at kiosks.
- **Staff Training:**
  - o FOH: Kiosk assist, pickup management (1-hour workshop)
  - o Kitchen: Reading KDS, parallel prep workflow (1-hour workshop)
  - o Management: Monitoring KDS metrics, exception handling (2-hour training)
- **Incentives:** Celebrate "first 100 orders via kiosk" with team recognition.

Phase 3: Rollout & Optimization (Weeks 7–12)

- **Scale:** Deploy to 3–5 additional locations.
- **Metrics Tracking:**
  - o Daily: Cycle time, throughput, error rate (via POS/KDS system)
  - o Weekly: Staff utilization, customer satisfaction (NPS), system uptime
  - o Monthly: Cost savings, ROI tracking, staff feedback
- **Feedback Loop:** Monthly ops meetings to refine pricing strategy, menu adjustments, or kiosk placement.

Phase 4: Full Rollout (Months 4+)

- **Expand to every shop**
- **Measure:** Compare pre/post KPIs across all locations.

- **Optimize:** A/B test kiosk placements, payment methods, buzzer types for customer preference.

---

5. Change Management Strategy

Stakeholder Communication

For Customers:

- Messaging: "Faster, smarter ordering—control your meal from start to finish.".
- Channels: In-store posters, app/web, social media.
- Incentive: Loyalty points for kiosk orders in pilot phase.

For FOH Staff:

- Messaging: "Less order-taking, more customer service. Help customers, manage shelves, earn bonuses for high satisfaction.".
- Training: Role shift from order-taker to floor assistant (upskilling opportunity).
- Support: Dedicated IT helpdesk during rollout.

For Kitchen Staff:

- Messaging: "Digital tickets = clearer priorities, faster assembly, less waste.".
- Training: How to read KDS, prioritize by color/urgency, report issues.
- Support: Dedicated tech liaison for the first 2 weeks.

For Management:

- ROI: Show labor savings, throughput gains, and customer satisfaction metrics.
- Risk mitigation: Rollback plan, contingency (manual entry mode if KDS fails).
- Competitive advantage: Differentiate store as "tech-forward, efficient, customer-centric".

Training Delivery

- **In-person:** Group workshops (1–2 hours each).
- **On-the-job:** Buddy system pairing experienced staff with new kiosk users.
- **Digital:** Quick-reference guides, video tutorials (5–10 min each), live chat support.

Risk Mitigation

- **System downtime:** Backup manual entry process (tablets/forms).
- **Low adoption:** Incentives program + targeted re-training for holdouts.
- **Customer confusion:** Staff proximity to kiosks, clear signage, reassurance.

---

6. Key Success Factors

1. **Technology Reliability:** KDS and kiosk uptime >99% required; redundant systems recommended.
2. **Staff Buy-in:** Training quality and role clarity are critical; invest heavily in communication.
3. **Iterative Optimization:** Collect feedback weekly; don't expect perfection on day 1.
4. **Metrics Discipline:** Track and display KPIs visibly; celebrate milestones.
5. **Customer Acceptance:** Phased rollout allows time for word-of-mouth and behavioral shift.

---

7. Conclusion

This ITSU-style process improvement project demonstrates how automation, digital communication, and parallel workflows can drive significant operational gains. By replacing manual order relay with KDS and dual queues with a unified kiosk, the store achieves:

- **36% fewer process steps**
- **35% faster order cycle time**
- **28% higher peak throughput**
- **~68K–96K annual labor savings** (at scale)

With disciplined implementation, clear stakeholder communication, and continuous metric tracking, this model is replicable across all the shops and defensible as a data-driven, customer-centric improvement initiative.