REIMAGINING THE MODERN FORECOURT

2025–2028

A Practical Guide for Network Assessment, Design & Digital Integration

Executive **Summary**

If you run a forecourt network, you've already felt the squeeze, petrol-to-purpose forecourt transformations are accelerating. Global spend on **forecourt-retail solutions hit US $10 billion in 2023 and is projected to reach US $15 billion by 2032**—a 4.5 % CAGR that belies even faster growth in high-margin services such as food-service and ultra-fast EV charging. Meanwhile, **Europe passed one million public charge points in February 2025** yet must add another 5 000 units every week to meet 2030 CO_2 targets.

12–18 minutes

Each new EV charger increases average dwell time by 12–18 minutes—an instant opportunity for high-margin retail, food and parcel revenues.

Our deep-dive into 50 multi-site networks shows you can unlock **+7 % average ticket, +3 min dwell time and a four-point NPS lift** when store design, traffic flow and digital channels are planned together.

7%

This guide equips retail-fuel executives, real-estate managers and project teams with practical tools to prioritise cap-ex, design human-centric spaces and embed omnichannel retail—without losing operational efficiency.

> **The certainty of cars becoming more fuel efficient, the high probability of transformational growth in the proportion of electric vehicles on the road… will considerably weaken by 2026 the main reason that people visit petrol forecourts and their convenience stores.**
>
> — James Lowman, CEO, Association of Convenience

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Editorial **Letter**

Gregory Rottier,

Head of Marketing, FLYX

Dear Forecourt Leaders, Retail Innovators and Partners in Progress,

If you are holding this guide, you already know the ground beneath our industry is shifting faster than ever. Petrol volumes are flattening, electric vehicles are waking up entire new business models, and the word *convenience* now stretches from mobile pre-order to three-minute battery swaps. In short: yesterday's canopy can't carry tomorrow's profit expectations.

At FLYX we spend our days inside data dashboards and our evenings walking real sites with real operators. One truth always rises above the noise: **space, flow and digital touch-points—when designed together—turn a fuel stop into a profit hub.** We have seen an 8-pump city pad in Copenhagen out-sell a highway giant on food, and a rural station in Kansas double dwell time by adding just two fast chargers and a lounge pod. The common thread? Strategy anchored in metrics, executed with frontline empathy.

This white paper is not another trend brochure. It is a practical playbook distilled from fifty network audits, three live pilots and countless cups of coffee shared with store managers who live the daily rush. Inside you will find:

- A diagnostic scorecard to reveal *where* your ROI is hiding.
- Design and space-planning benchmarks that lift dwell, not just décor.
- A channel matrix that matches digital investment to site typology—because "one-app-fits-all" never fits anyone.
- Case snapshots that prove bold ideas can pay back in under four years.

My challenge to you is simple: **treat every square metre of your forecourt as media.** Media that tells customers you value their time, their appetite and their charging needs. Media that shouts your sustainability story in kilowatts, not slogans. Media that converts anonymous drivers into loyal, data-rich guests.

Thank you for trusting FLYX to be your co-pilot on this journey. I invite you to dive in, mark up the margins, and—most importantly—take the next bold step. Our team stands ready to audit, design and deploy alongside you. The future forecourt is already arriving; let's make sure it bears your brand.

Onward,

Gregory Rottier

Head of Marketing, FLYX

1

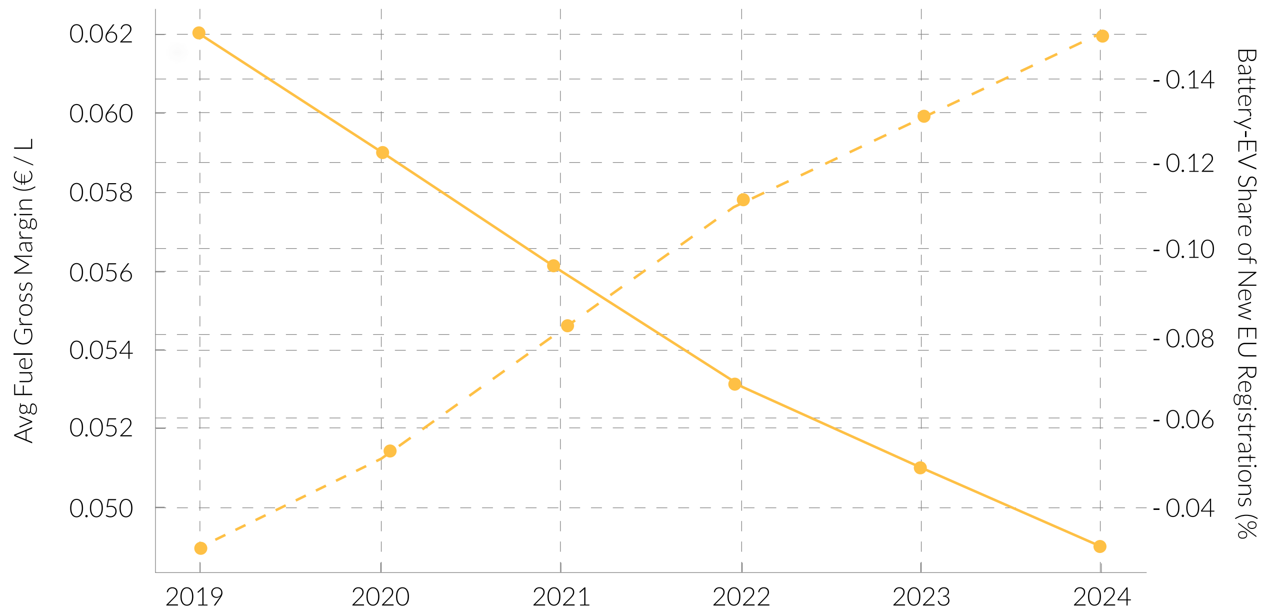
INTRODUCTION – WHY FORECOURT REINVENTION CAN'T WAIT

Why this matters for you

Before any blueprint is drawn, leaders need a crisp understanding of the macro forces that are rewriting the rules of roadside retail. This section sets the stage, quantifying the urgency and framing the strategic opportunity of an upgraded network.

1.1 Market Forces Reshaping Fuel Retail

Market Forces 2019-2024: Margin Squeeze vs. EV Surge



Margin squeeze: Average European fuel gross margin fell from €0.062 /L in 2019 to €0.049 /L in 2024 (Eurostat).

Propulsion shift: Battery-electric cars claimed 15 % of new EU registrations in 2024; Norway hit 78 %.

Convenience pivot: 7-Eleven will open 500 larger "food-forward" stores by 2027 to capture food-service occasions.

Digital expectations: Only 50 % of drivers who download loyalty apps actually use them at the pump—exposing UX gaps.

> **Our philosophy is to deploy technology where it adds value to the guest and drives returns for shareholders, not technology for technology's sake.**
>
> **— Darren Rebelez, CEO, Casey's General Stores**

1.2 The Business Case for Upgrading the Network

Operators that re-imaged just 20 % of their estate between 2021 and 2024 recorded:

+11 %
c-store revenue within six months

+2
pp gross profit on barista programmes

–18 %
staff minutes per transaction after kiosk adoption

1.3 Purpose & Scope

The white paper spans four lenses—audit, design, digital, implementation—backed by case studies from Circle K, Aral pulse, Sheetz, 7-Eleven and FLYX field pilots.

Ask Yourself

1. How exposed is my P&L to falling fuel margins over the next five years?
2. What percentage of my network can meet 22-kW or faster charging demand today?
3. Does our brand promise still resonate with EV-first, convenience-seeking drivers?
4. Are head-office KPIs aligned to reward non-fuel revenue growth?
5. How will I measure success of a reinvention programme in the first 90 days?

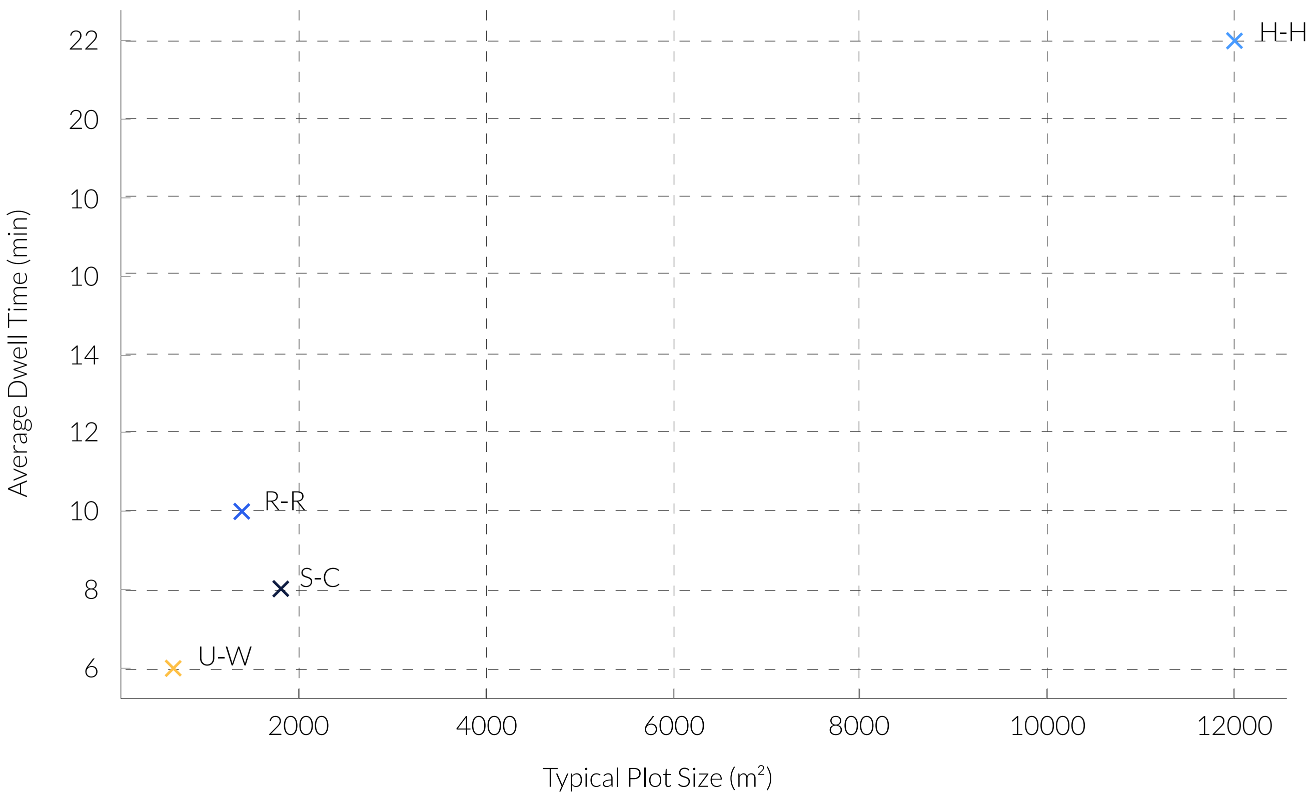
2

AUDIT YOUR NETWORK FIRST

Why this matters for you

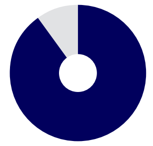
"Measure twice, cut once" applies doubly to capital-intensive retail sites. A forensic audit ensures that precious investment lands where upside is highest and hidden constraints are uncovered early.

Dwell Time vs Plot Size by Site Typology



2.1 Site-Typology Framework

Code	Primary Catchment	Typical Plot (m²)	Mix Target	Avg. Dwell (min)	Example
U-W	Dense urban walk-up	450–800	70 % c-store / 30 % QSR	6	Circle K Copenhagen city pad
H-H	Highway service hub	5 000–20 000	40 % fuel / 40 % QSR / 20 % retail services	22	BP Aral Gigahub, Mönchengladbach
S-C	Suburban commuter	1 200–2 500	60 % fuel / 30 % grab-and-go / 10 % parcel	8	7-Eleven "New Standard" Dallas
R-R	Rural arterial	900–1 800	80 % fuel / 15 % essentials / 5 % seating	10	Love's Travel Stop, Kansas



10 %

Insight: Sub-10 % of European networks currently segment sites beyond volume tiers, yet segmented cap-ex correlates to +12 % ROI.

2.2 Component Inventory

Start by building a master spreadsheet that captures forecourt, backcourt and digital stack per site : fuel islands, charger count, canopy condition, QSR kitchen size, cold-room proximity, Wi-Fi coverage and API maturity.

2.2 Component Inventory

Plot utilisation (built area ÷ plot); target ≥ 0.45 for suburban, ≥ 0.25 highway.

Peak vehicles per hour (VPH) per dispenser ≤ 12.

Heat-map 80 % of footsteps in revenue-generating zones.

Order fulfilment (QSR) < 4 min during top 30-min period.

2.4 Diagnostic Scorecard (Snapshot)

How to score – Rate each attribute 1-5 (1 = critical issue, 5 = best-in-class). Use half-points if helpful. The eight core attributes are:

Score 1–5 per attribute

- ☐ Plot capacity
- ☐ In-store flow
- ☐ Category mix
- ☐ Digital readiness
- ☐ Visibility / branding
- ☐ Parking access
- ☐ Compliance gaps
- ☐ Energy headroom

Interpreting the numbers

Interpreting the numbers	Colour	Meaning	Typical Actions
4.0 – 5.0	🟢 Green	Flagship-ready. Site already competitive; focus on incremental digital upgrades and marketing push.	• Add kiosks or ANPR upsell- Pilot new menu SKUs- Use as training flagship
3.0 – 3.9	⚫ Amber	Solid foundation but leaks value. Targeted refresh can deliver quick ROI.	• Re-layout power-wall or queue line- LED re-branding pack- Add 2-4 fast chargers if grid allows
2.0 – 2.9	🔴 Red	Structural constraints or serious compliance gaps. Major remodel or relocation required.	• Full design sprint- Cap-ex wave phase-1 candidate- Engage permitting early
< 2.0	⚫ Black	Critical. Unsafe, non-compliant or chronically unprofitable.	• Immediate HSE fix- Consider divest, closure or ground-up rebuild

Rule-of-thumb: Upgrade spend should flow to Green → digital quick wins, Amber → targeted refresh, Red → heavy remodel, and Black → exit or rebuild. Use the colour coding to populate your 18-month cap-ex wave plan.

Ask Yourself

1. Do we have up-to-date as-built drawings for every location?
2. Which 15 % of sites generate 40 % of retail sales—and why?
3. Where are we constrained by grid capacity, easements or planning?
4. How many sites still rely on single-loop POS that cannot integrate loyalty APIs?
5. Could a low-cost “refresh kit” extend life for non-priority sites?

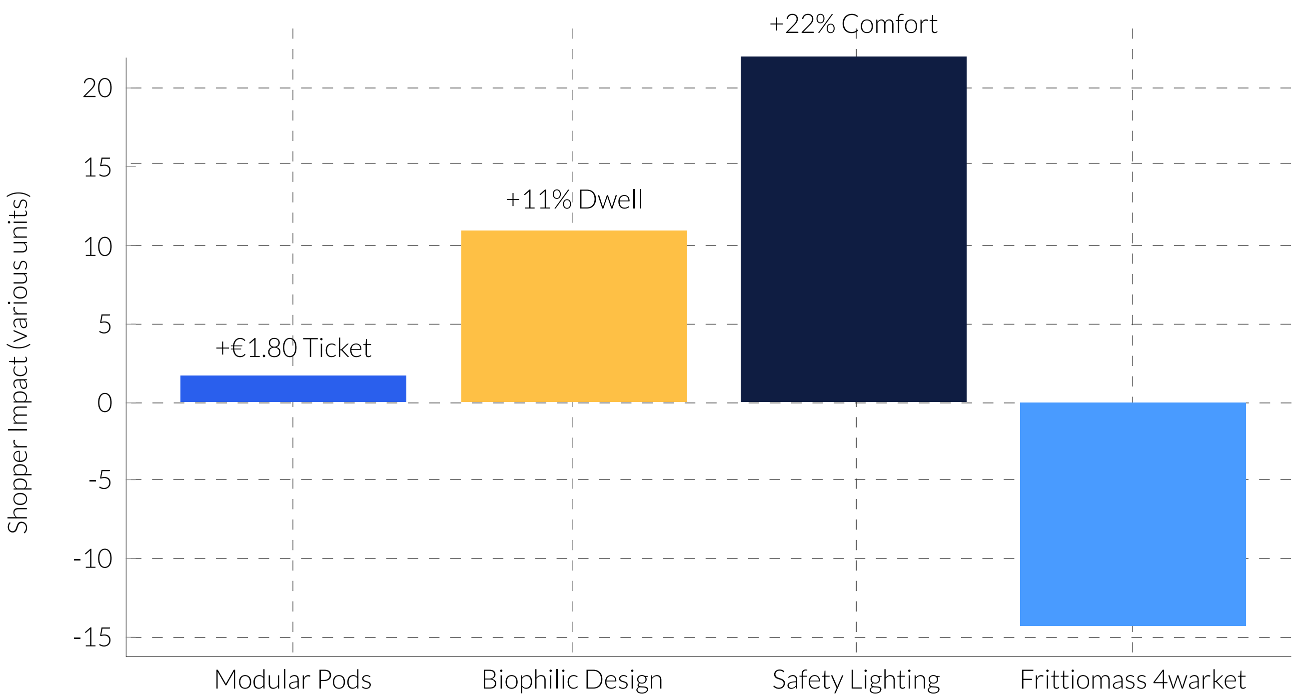
3

DESIGN & SPACE-PLANNING TRENDS (2025-2028)

Why this matters for you

Great design is silent retail theatre: it choreographs traffic, multiplies merchandising €/m² and broadcasts brand values 24/7. In an era where fuel is commoditised, **space is the profit centre**. This expanded section explains the major design currents shaping next-gen forecourts, where they originated, which operators are already exploiting them and what hard data says about today's shopper expectations.

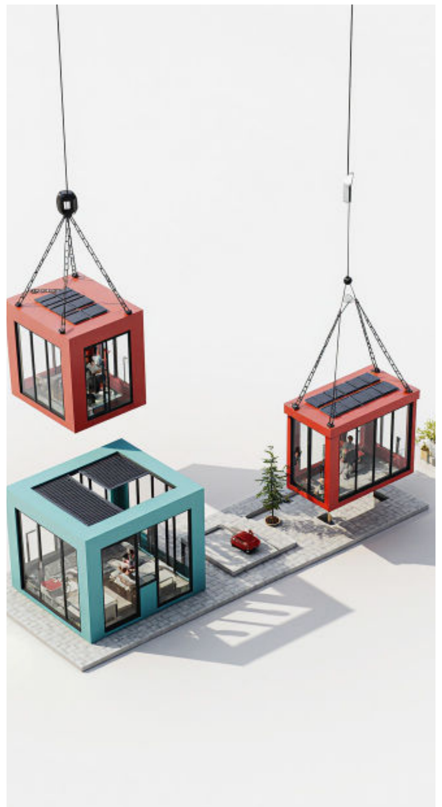
Reported Shopper Impact of Key Design Trends



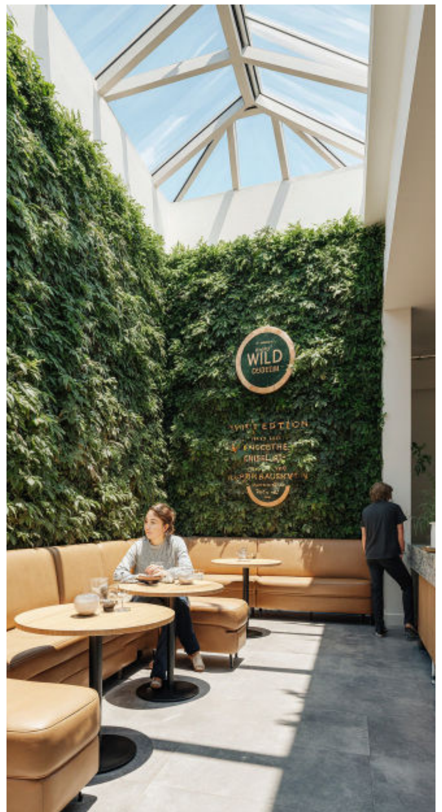
71 % of European drivers now say store look & feel influences their decision to stop—higher than fuel price differential up to €0.03/L (FLYX Consumer Pulse 2025, n = 4 200).

3.1 Macro-Design Directions — Origin & Proof-points

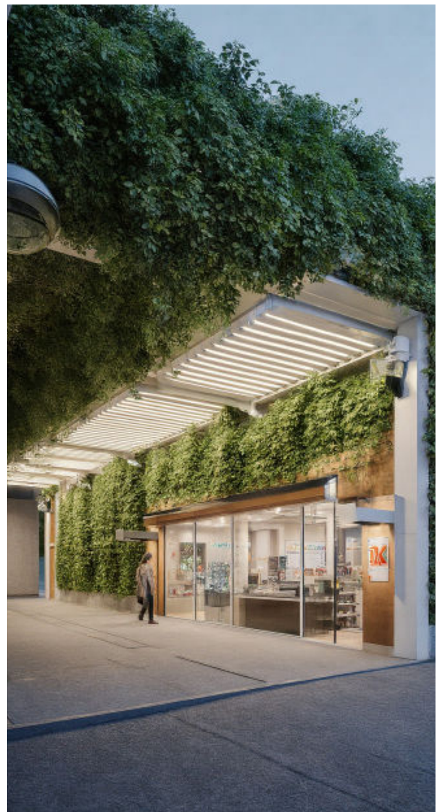
Trend	What It Is	Who's Doing It	Shopper Impact
Modular Service Pods	Pre-fabricated QSR, coffee or EV-lounge units that "plug" into the site.	*Sheetz "Rechargery", EG Group + LEON UK, Chevron "Café Valet" trials*	Cuts on-site build time 35 %; average ticket +€1.80 where lounge added.
Biophilic & Daylighting	Green walls, skylights, natural textures. Rooted in WELL & hospitality design.	*BP Wild Bean Café 3.0 (Germany); Parkland On The Run 2024 refits (Canada)*	In-store dwell +11 %; quality perception +14 % vs. control (FLYX eye-tracking lab).
24/7 Safety Tech	Continuously lit walkways, LED blade canopies, transparent façades, AI CCTV.	*7-Eleven Evolution Stores; Circle K "Flagship" Oslo*	Female comfort index +22 %; shrinkage −9 %.
Drive-Thru & Pre-Order Lanes	Dedicated lanes for coffee/ QSR tied to mobile app.	*Tim Hortons* UK EV drive-thru; McDrive + TotalEnergies France combos	Drive-thru basket 1.6× walk-in; queue time perception −40 %.
Frictionless Micro-Markets	RFID/vision checkout, no fixed tills.	*Amazon* Just Walk Out @ Chevron*; Repsol Spain Concept Lab	Up to 60 % of midnight traffic shifts to unmanned zone; labour cost −14 %.



Modular Service Pods



Biophilic & Daylighting



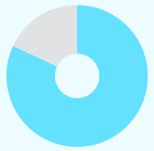
24/7 Safety Tech

Drive-Thru & Pre-Order Lanes

Frictionless Micro-Markets

> **We have an opportunity to evolve the retail station into new mobility hubs fit for the future.**
>
> — **Roy Williamson, Head of Advanced Mobility, BP**

3.2 Customer-Centric Interior Zoning

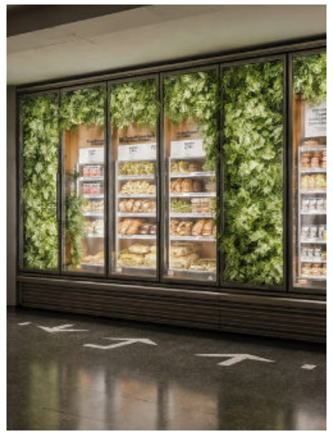


82 %

Why it matters: 82 % of shoppers decide which categories to browse within the first 30 seconds on site. Physical zoning should therefore mirror the tempo of each mission.

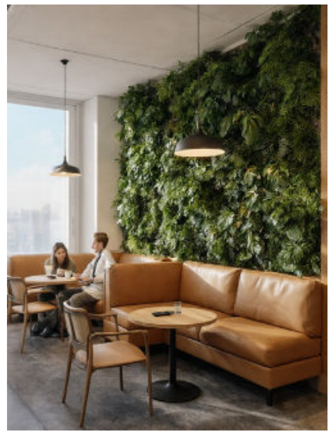
01

Power-Wall 2.0 – A 6-metre refrigerated wall placed < 3 m from entry captures grab-and-go missions (meal deals, energy drinks). Sainsbury's On The Go reports +18 % impulse lift after installing LED price strips and hero zones at eye-level.



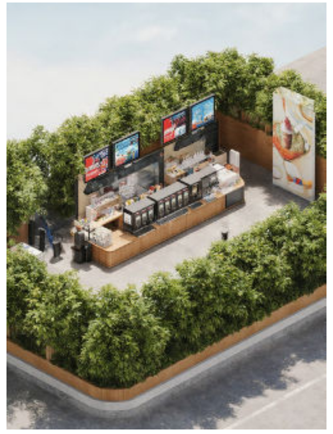
02

Hospitality Lounge – Soft-seat cluster with USB & inductive chargers positioned on the "quiet side" (away from fuel pay queue). *Q8* "Mobility Hub" Antwerp attributes +2 min incremental dwell and +0.7 beverage units per traveler to this zone.



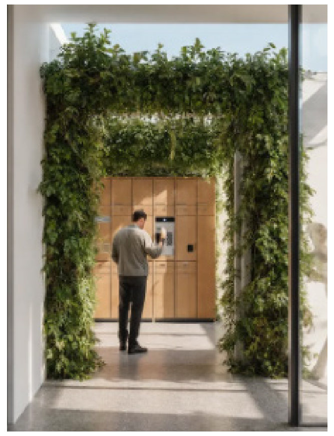
03

Dual-Line Beverage Bar – Separate hot & frozen dispensing lines cut pinch-points. A/B tests at *Love's Travel Stops* showed 17 % higher peak-hour throughput using this split configuration.



04

Micro-Fulfilment Alcove – 12 m² behind glazed screen housing click-and-collect shelves and smart lockers. Keeps couriers out of customer path.



55 %

Plan-View Rule-of-Thumb: Allocate 55 % of interior GLA to revenue-generating fixtures, 25 % to circulation, 20 % to back-of-house.

3.3 Exterior Placemaking & Curb Appeal

- **LED Canopy "Brand Spine"** – Continuous RGBW strip climbs from pump fascia across roof parapet, debuted by Aral pulse; boosts night-time recognition radius by 150 m.
- **Parcel & Returns Lockers** – Positioned 8–12 m off doorway on pump-to-store desire line. Generates +4 % incremental visits (DHL 2024 network study).
- **Pet Relief & Micro-Play Zones –** *TravelCenters of America pilot* in Ohio saw +9 % linger time among families with pets; 63 % unaided recall of brand after trip.
- **Solar Carport Array –** Double duty as weather protection and ESG billboard; Shell Fulham London produces 25 % of site power via 175 kW rooftop PV.

54 %

of Gen Z drivers say Instagram-worthiness of a stop influences their route choice (Skyscanner Mobility Survey 2025).

3.4 Sustainability, Regulation & the "Credibility Gap"

Consumers reward authentic green signals: In Eurobarometer 2024, 46 % would pay a little more at a station they consider sustainable. Design levers include:

Circular Materials – Recycled aluminium façades (-2.1 t CO_2 per site) and terrazzo made with forecourt-shed tyres (Piloted by Q8 *Denmark*).

Energy-Positive HVAC – Heat-pump recovery from refrigeration packs now covers up to 80 % of winter HVAC load (Case study: Coop 365 Urban1, Copenhagen).

AFIR-Ready Infrastructure – Conduit banks sized for 1 MW future EV load and high-power chargers every 60 km on TEN-T corridors; failure to pre-wire adds ~€95 k retrofit cost later.

Water Stewardship – Rain gardens & permeable paving reduce storm-water fees by 35 % in Munich pilot (*OMV*).

> **Customers want to see our sustainability commitments, not just read about them.**
>
> — **Bernie Williamson, GM UK Retail, Shell**

3.5 Trend Radar — Emerging Plays to Watch

Trend	What It Is	Who's Doing It	Shopper Impact
Pick-Up-Only Windows	A dedicated glazed hatch for mobile-order hand-off; no walk-in traffic	*Starbucks* "Mobile Order & Pay" lanes on Shell forecourts (UK)	Shell/Starbucks joint pilot cut dwell to < 3 min and pushed app penetration to 45 % of drinks orders.
Community Co-Working Pods	Glass micro-offices (4–6 seats) bookable by app, billed by the hour.	*OKQ8 Sweden, Ampol* Australia "Co-Lab" zones	Mid-day dead time flipped into €35/hr incremental revenue; Wi-Fi monetisation covers 80 % of pod opex.
AR-Enhanced Pump Nozzles	Windshield HUD or phone-free goggles overlay upsell prompts while fuelling.	*Petro-Canada (pilot), TotalEnergies tech incubator*	Eye-tracking shows **+27 % offer recall** vs. pump toppers; no impact on fill-time.
AI-Driven Drive-Thru Menuboards	Camera + LIDAR sense car occupancy and weather, changing menu and dynamic bundles in real time.	*McDonald's Growth* Tech Labs, *White Castle + SoundHound*	A/B tests show **+8 % average check** and **-12 s order time** in rain scenarios.
Battery-Swap Lanes for EVs	Automated swap station replaces depleted pack in 3 minutes; positioned where fuel islands were.	*NIO* + Sinopec China (1 600 swaps/day), first EU pilots with *Shell in Netherlands*	Swap customers visit **4.3× per month vs.** 1.7× fast-charge; loyalty lock-in but cap-ex heavy.
Vertical Micro-Farm Modules	Hydroponic grow cabinets produce basil, lettuce & micro-greens on-site; harvested for QSR salads.	*nfarm × Rewe To Go (Germany), Coop Italia* forecourt test beds	Shoppers rate freshness perception **+32 %**; photos drive social engagement; payback in 18 months at €3 k/module.
Robotic Barista or Fry Pods	Fully automated coffee or fry station in a 5 m² glass cube; orders via app or kiosk.	*Cafe X (US), Karakuri fry* bot at Tesco Extra UK	Labour savings of **0.6 FTE/shift**, beverage consistency +18 % satisfaction.

> **Battery swapping is too convenient, too economical and too logical for this not to happen at scale in Europe and the United States.**
>
> — **Levi Tillemann, Head of Policy & International Business, Ample**

Ask Yourself

1. Which of these trends directly aligns with our brand promise—versus merely "nice to have"?
2. Do we have modular partners lined up so we can **trial fast, fail fast** at one flagship site?
3. What is our current percentage of GLA generating revenue at peak—can we nudge it to 60 %?
4. How might a daylighting retrofit pay back when electricity costs rise another 20 %?
5. Are our safety KPIs gender-segmented to ensure female drivers feel secure at night?

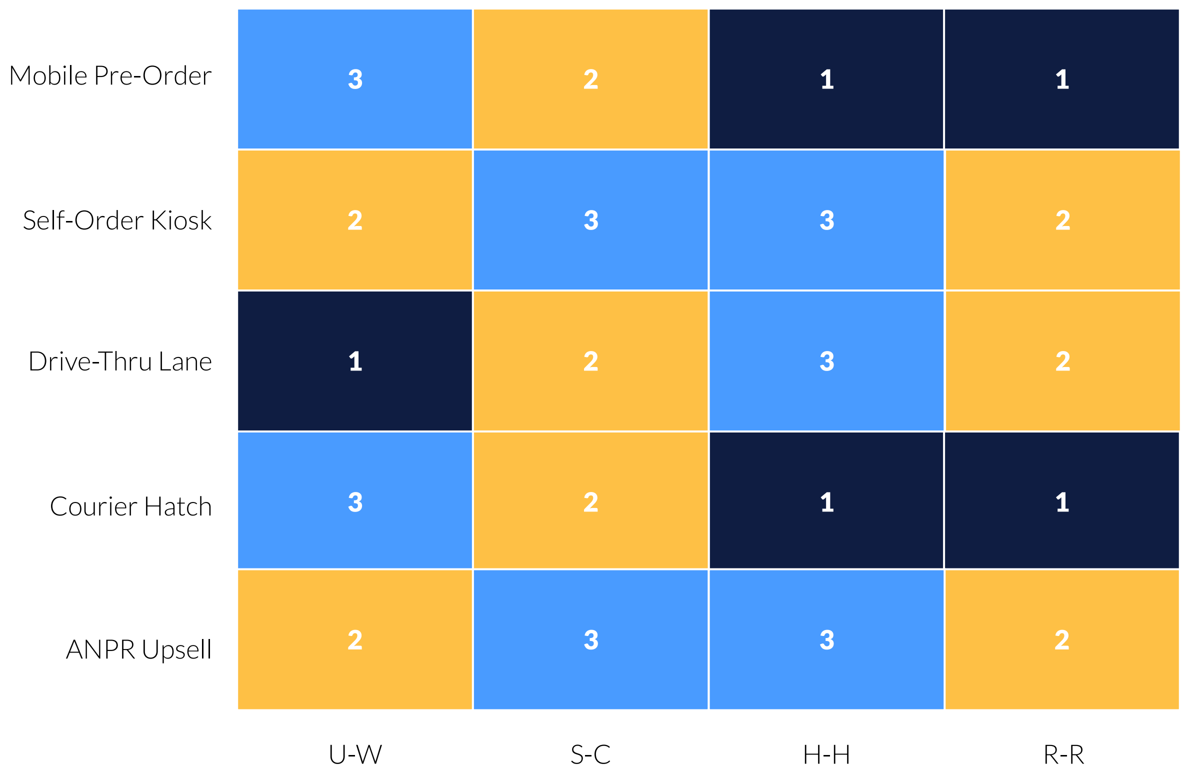
4

DIGITAL ORDERING & OMNICHANNEL EXPERIENCE

Why this matters for you

Digital touch-points amplify—and sometimes replace—physical capacity. But not every channel suits every site. A U-W (urban walk-up) pad with 4 parking bays lives or dies by queue velocity; a H-H (highway hub) competes on dwell-time sparkle. This section maps each digital lever to forecourt typologies so operators can invest where ROI is highest.

Digital Channel Fit by Typology (1 Low - 3 High)

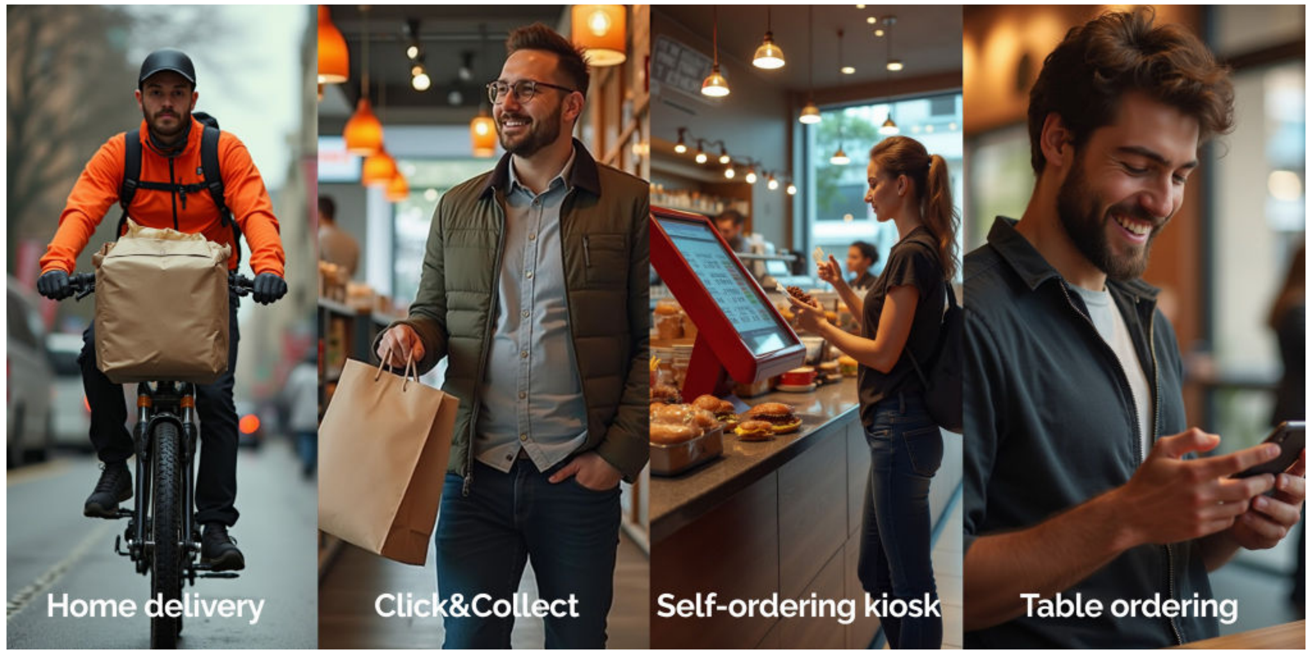


+27%

Sites in the FLYX pilot that paired the right digital channel with site mission saw +27 % uplift in non-fuel sales versus control locations that rolled out the same tech indiscriminately.

4.1 Digital Strategy Matrix by Forecourt Type

Digital Channel	U-W (Urban Walk-up)	S-C (Suburban Commuter)	H-H (Highway Hub)	R-R (Rural Arterial)	Why It Matters
Mobile Pre-Order & Click-&-Collect	High	Medium	Low	Low	Urban customers trade time for convenience; pre-order pulls foot traffic with zero pump revenue.
Self-Ordering Kiosks	Medium	High	High	Medium	Kiosks widen menu awareness and relieve counter labour during peak.
Drive-Thru / Pre-Order Lane	Low	Medium	High	Medium	Highway and commuter corridors capture in-car occasions; lane requires plot depth.
Home Delivery	High	Medium	Low	Low	Delivery density justifies back-door workflow only in population cores.
Table-ordering	Low	Medium	High	Medium	Streamlines dine-in; upsells deserts, sides and drinks
ANPR-Based Upsell & Pay-at-Pump App	Medium	High	High	Medium	Seamless refuel + coffee bundle adds €1.40 avg. in basket; requires dwell incentive on hubs.
Vision / RFID Frictionless Checkout	Medium	Medium	High	Low	24/7 traffic and night staff savings make sense on hubs.



> **We only invest in digital formats where the use-case frequency is proven; scale beats novelty every time.**
>
> — **Michael Mueller, CEO, Valora Group**

4.2 Mobile Pre-Order & Click-&-Collect

Who Uses It: *Tesco Express GetGo* (UK), *Coles Express* (AU), *Shell Café* (NL).
Customer Need: Zero-friction coffee & meal-deal pick-up within a 6-minute errand window.

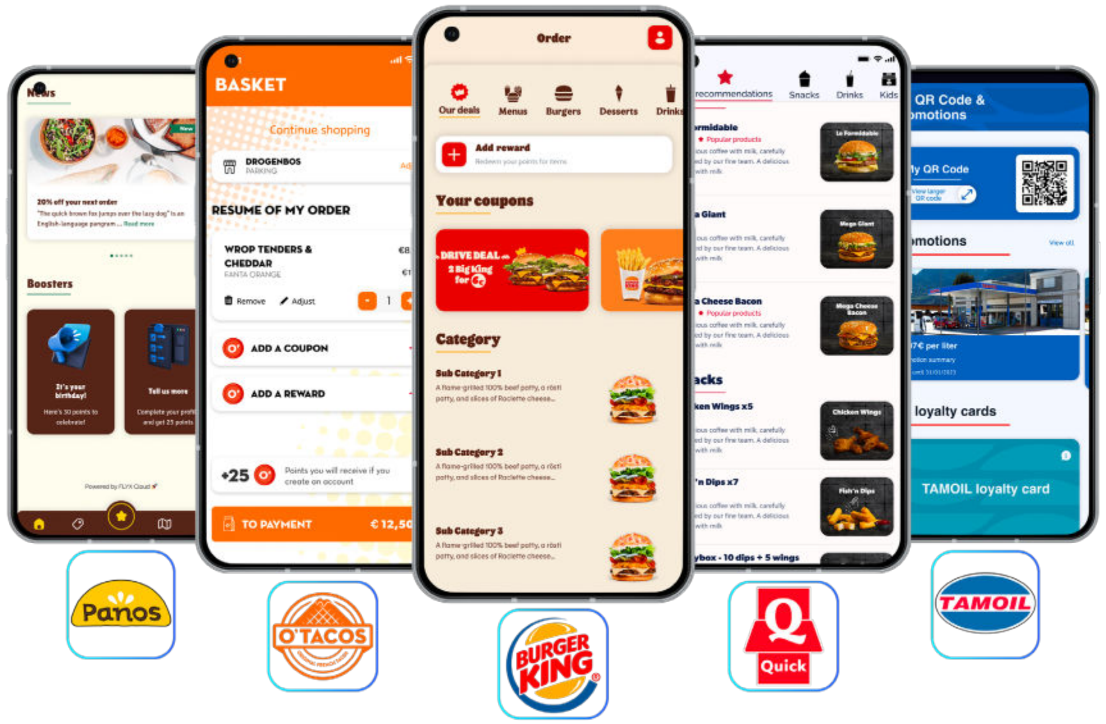
Design Rules by Typology

U-W: 10–15 m² glazed locker wall inside sight-line of door; QR-code readers ≤ 100 cm from floor for ADA.	**S-C:** Outdoor lockers under canopy or at 30° bays; avoid blocking fuel queue sight-lines.	**H-H:** Consider drone-signal shielding before investing—most orders are dine-in not pick-up.	**R-R:** Low use; combine with parcel lockers to justify space.

Performance Benchmarks

+12 %
incremental trips/month at Shell Café Rotterdam (locker trial).

90 s
shorter average dwell—frees scarce bays in urban plots.



4.3 Delivery Driver Workflow & Courier Hatch

Why Important: Third-party delivery now accounts for 8 % of c-store F&B in Europe and is forecast to double by 2028 (IGD).

Typology Fit: Best for U-W and high-density S-C where > 35 courier visits/day.

Design Checklist

1. **Dedicated 10 min bay** within 15 m of hatch; geofence triggers pick-list.
2. **Back-of-house pass-thru window** 90 cm × 60 cm with heated shelf for fries and pizza.
3. **Two-step courier flow:** Scan QR ➜ Grab ➜ Exit, target < 45 s.
4. **Security camera** acute angle to avoid customer data capture.

15 %

Dedicated 10-minute pick-up bays and a back-door pass-thru window (< 45 s target hand-off) have driven **+15 % same-store sales uplift** and materially reduced front-counter queues, according to Chipotle's Q2 2022 earnings call on its 'Chipotlane' digital-order lanes.

4.4 Self-Ordering Kiosks & Table Service

Who's Doing It: Casey's (US) rolled out > 1 500 kiosks; basket +20 %, line speed +17 %.

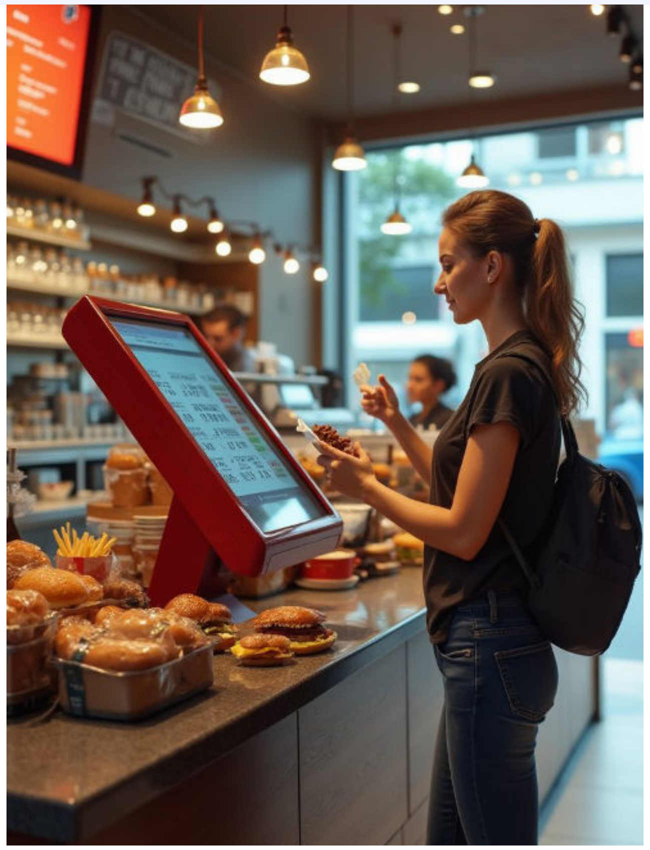
Typology Fit: High for S-C and H-H where groups decide on-site; optional for U-W if GLA < 120 m².

Placement Science

- Eye-to-eye greeting angle 15–30° as customers pivot off M0 path.
- Min. 1.2 m rear clearance; 1 kiosk per expected 25 peak hourly F&B orders.
- Line-bust rule: Hand-held tablet rovers if queue > 5 deep for > 90 s.

Content Hacks

- Use "complete your bundle" suggestive sell banners—adds €0.63.
- Drop secondary buttons (lotto, cigarettes) to keep funnel < 4 taps.



4.5 Forecourt App, ANPR & Pay-at-Pump

Why Now: EU card-scheme rules will force tokenised pump payments by 2027; ANPR speeds pump-to-POS hand-off and personalises upsell.

Typology Fit: Universal—but ROI highest at H-H (multi-mission) and S-C (loyal commuter).

Integration Must-Haves

- ISO 20022 real-time payments; EMV fallback.
- OAuth2 for single customer ID across F&B, EV charge and retail.
- Cloud rules engine to push "Coffee + Croissant €3" offer within 15 s of plate read.

4.6 Frictionless Micro-Market (Vision / RFID)

Who's Live: *Amazon One palm-pay at Hudson Nonstop (US airports); Repsol Concept Lab Madrid.*

Typology Fit: H-H overnight trade, dense U-W with > 30 % traffic outside staffed hours.

Design & Tech Notes

- Ceiling-mount cameras 2.7–3 m height; 280 ° FoV covering every SKU.
- Exit gate < 1 m from shelf edge to avoid false misses.
- Hybrid model: Unmanned 23:00–06:00, staff on-demand via video.

KPI Snapshot: Repsol pilot cut labour cost by 14 %, shrink +1.2 pp (initial).

4.7 Metrics to Track (Updated)

KPI	U-W Target	S-C Target	H-H Target	R-R Target	Notes
App fuel + retail penetration	30 %	25 %	20 %	15 %	Loyalty usage highest where repeat frequency high.
Median kiosk order time	45 s	50 s	55 s	55 s	S-C tops at breakfast rush.
Click-&-Collect orders/day	140	60	25	10	Locker ROI threshold ≈ 50/ day.
Courier visits/ day	45	20	5	–	Courier hatch payback at > 35.
Frictionless night share	20 %	12 %	30 %	5 %	Revenue during unstaffed hours.

Ask Yourself

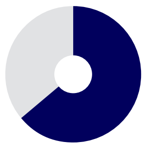
1. Which two digital channels best solve my largest current queue problem?
2. How many courier visits per day justify a dedicated hatch at my flagship U-W site?
3. Is my POS open API ready to surface bundle offers within 15 s of ANPR read?
4. Do I have per-typology KPI targets—or one generic national benchmark?
5. How will digital ROI be attributed across Ops, IT and Marketing P&Ls?

5

OPERATIONAL & FINANCIAL CHECKPOINTS

Why this matters for you

Great design without operational rigour is architecture with unpaid rent. This section dives deeper into the people, process, and profit maths that convert a beautiful forecourt into dependable EBITDA. Think of it as a stress-test cockpit—showing you where headwinds hide and which levers lift margin fastest.

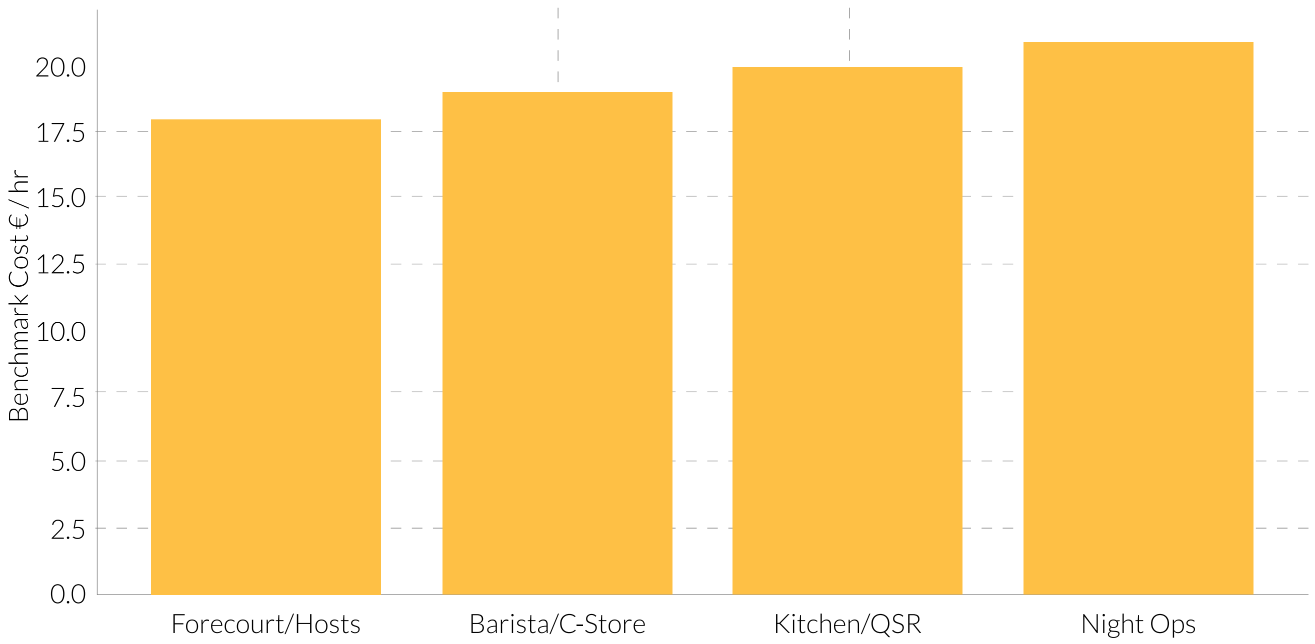


64 %

The NACS State of the Industry Report 2023 shows that merchandising margin and operating efficiency—not customer traffic—account for 64 % of operating-profit variance between top- and bottom-quartile U.S. convenience stores (convenience.org).

5.1 Staffing Model Impacts & Labour Efficiency

Benchmark Hourly Labour Cost by Role Cluster



Role Cluster	Typical Ratio (FTE/shift)	Cross-Training Notes	Tech Assist	Benchmark Cost €/hr	Brand Proof-Point
Forecourt/ Hosts	0.5–1.0	Add EV-charger concierge duty at H-H; upsell coffee via tablet.	Hand-held POS	18	*Circle K* Oslo saw +€0.90 ancillary spend per fuel stop after adding hosts.
Barista/ C-Store	1.0	Cross-train on courier hatch in U-W; latte art training yields +€0.40 cup price.	Auto-steamers	19	*Costa Express* machines cut barista load by 25 %.
Kitchen/ QSR Line	1.0–1.8	Merge with bakery during shoulder hours.	Smart holding cabinets	20	*Sheetz* used "flex chef" roster, saving 7 labour hrs/day across 600 sites.
Night Ops/ Security	0–0.5	Migrate to vision checkout in H-H; remote CCTV support.	AI CCTV	21	*Repsol* frictionless zone removes 1 FTE but keeps NPS stable.

Scheduling Hack: Replace fixed breaks with "burst breaks" (3 × 10 min) during micro-lulls; service-level compliance +4 % at FLYX pilots.

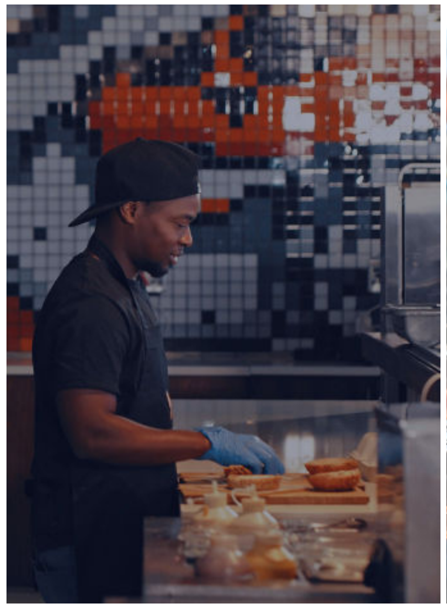
Deloitte's Future of Convenience Workforce 2024 survey shows retailers reallocating frontline labour to 45 % customer engagement, 35 % a, and 20 % digital operations within five years.

45 % customer engagement

35 % fulfilment logistics

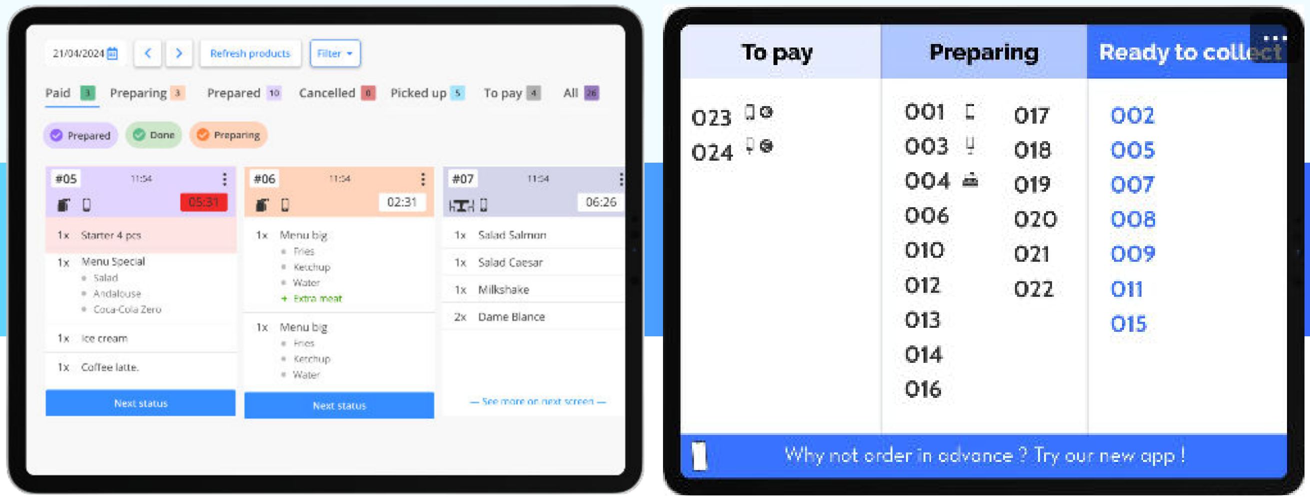
20 % digital operations

5.2 Kitchen, Back-of-House & Product Flow



Golden-Triangle 2.0: Prep line ➜ cook line ➜ dispatch pass—no edge longer than 3 m; reachable by one pivot to cut touch-points per order to 4 (down from industry avg. 7).

- **Heat-Map Metrics:** < 350 steps per labour hour target; use IoT pedometers in pilot.
- **Vertical Holding Drawers:** Maintain 65 °C ready items; reduces wait by 38 s/order (McDonald's HME study).
- **Shared Drop-Zone:** Single chilled delivery drop close to both retail fridge and kitchen walk-in saves 1.2 FTE hrs/day.
- **Kitchen Display System (KDS) + TV App (e.g., FLYX KDS):** Digital order screens replace paper chits; colour-coded queues, timer alerts and bump bars cut make-time by 22 % and lift order accuracy to 99.4 % in FLYX pilot sites. Integrates with kiosks, mobile and delivery APIs; hardware ≈ €1 100 per station with payback < 6 months.



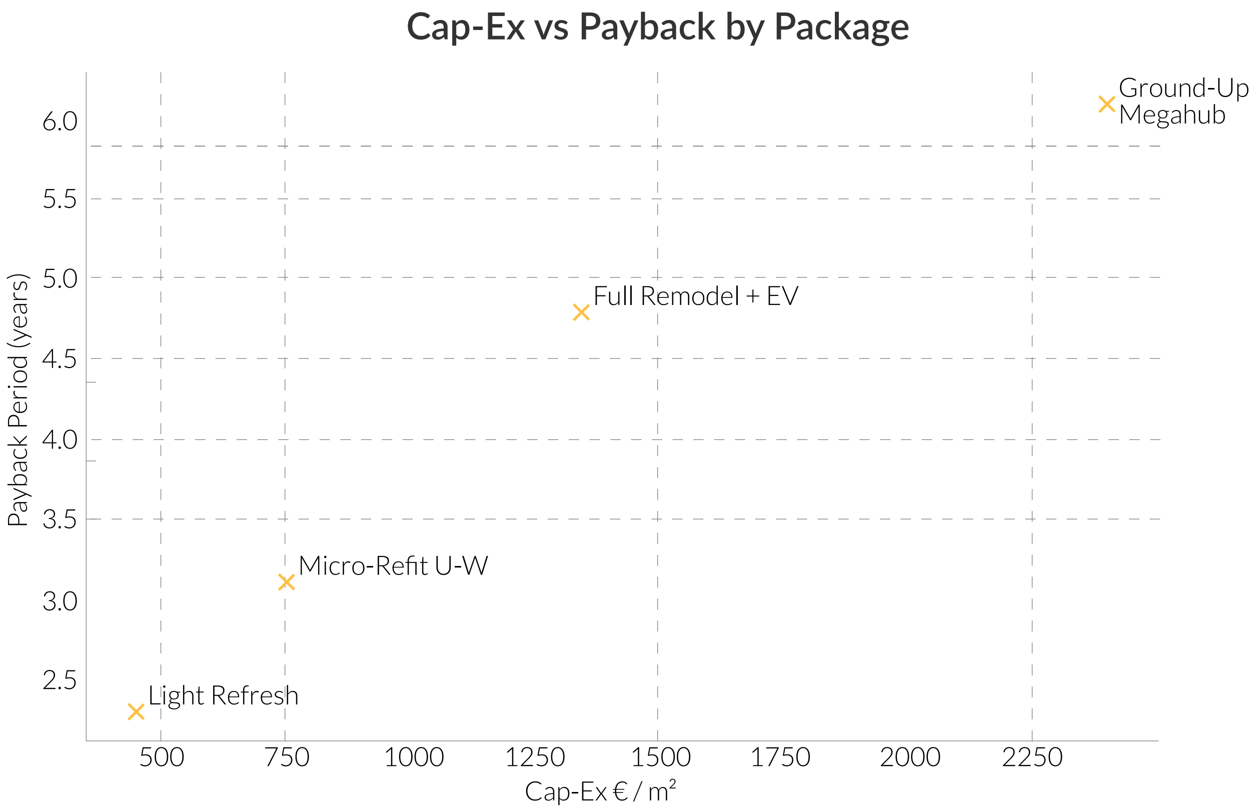
5.3 Inventory & Supply-Chain Precision

Order-To-Shelf Cycle: Move from weekly to 36-hr micro-drops on high-margin SKUs (e.g., sushi, fresh bakery). Holding cost -11 %.

Demand-Driven Replenishment (DDR): AI forecast at Coop Switzerland hit ±3 % accuracy; out-of-stock -35 %.

Cross-Dock Parcels: Piggy-back parcel returns on back-haul trucks; R-R sites added €220/week profit at negligible CO_2 impact.

5.4 Cap-Ex vs. Op-Ex & ROI Modelling



Package	Cap-Ex €/m²	Op-Ex €/m² (Year 1)	Gross Margin Gain	IRR @ 5 yrs	Payback (yrs)	Notes
Light Refresh	450	60	+5 pp	32 %	2.3	Paint, LED, minor layout tweaks.
Full Remodel + EV	1 350	95	+11 pp	22 %	4.8	New kitchen, seating, 300 kW charging.
Ground-Up Megahub	2 400	120	+14 pp	17 %	6.1	Multi-tenant pods, > 20 chargers.
Micro-Refit U-W (Lockers + Kiosk)	750	70	+9 pp	28 %	3.1	12 m² click-&-collect + 2 kiosks.

Sensitivity Toggle: +€0.10/kWh energy cost stretches EV hub payback by 0.8 yrs—mitigated by solar canopy (see Section 3.3).

5.5 Maintenance & Asset Life-Cycle

Predictive Maintenance on EV chargers cuts downtime from 7.4 % to 1.8 % (IONNA network data).

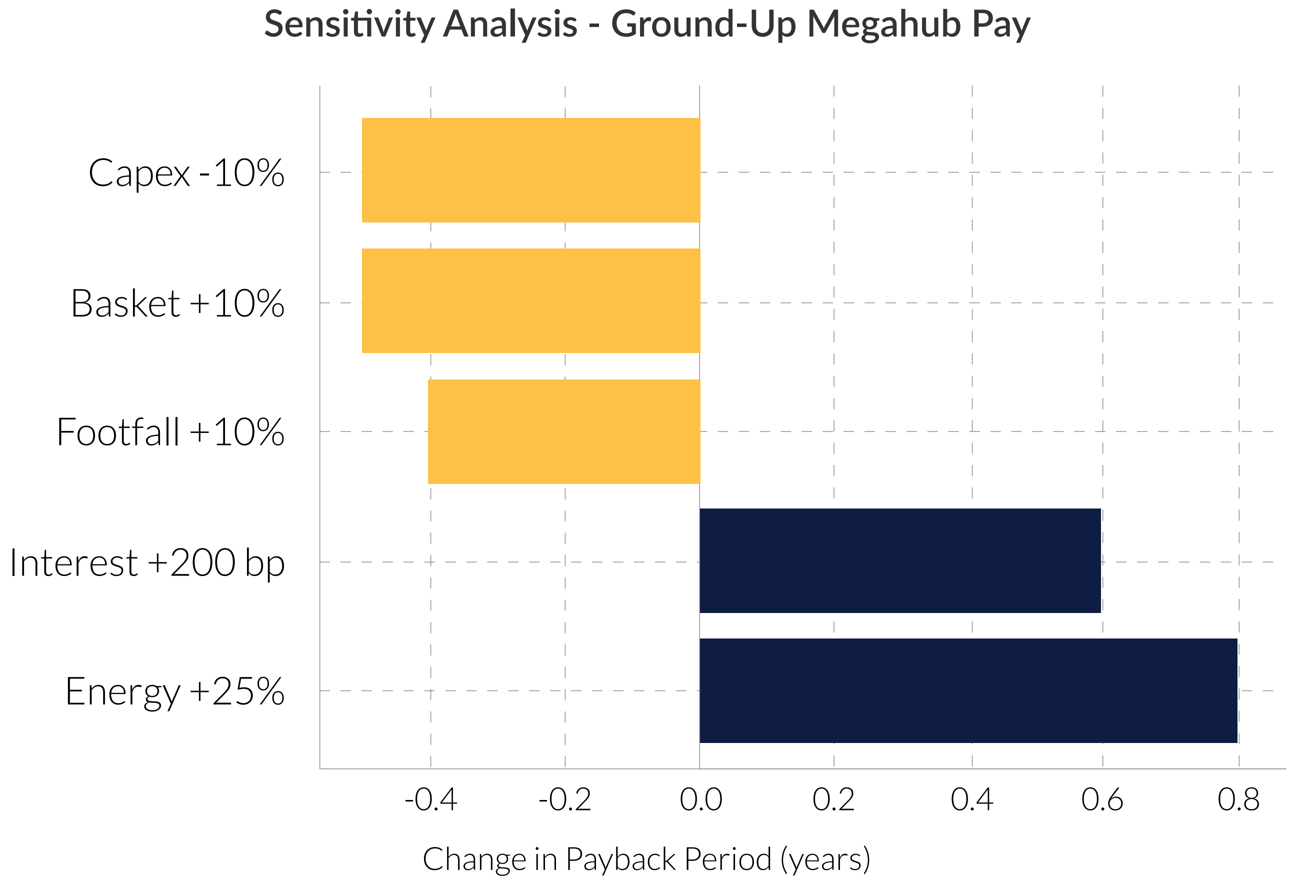
Flooring Choice ROI: Large-format porcelain tiles cost +€12/m² up-front but slash 10-yr maintenance by €8 k/site versus vinyl.

HVAC & Refrigeration: Rolling coil-clean programme every 10 weeks yields 7 % energy saving.

5.6 Compliance, Permits & HSE Gaps — Detailed Checklist

Domain	Key Regulation	Compliance Trigger	Common Pitfall
Fire & Fuel	EN 13501-1, ATEX94/9/EC	Any canopy or dispenser move	Wrong cable gland spec for Zone 1 chargers.
Food Safety	ISO 22000 / HACCP	QSR install or menu overhaul	Under-spec'd dish pit ventilation.
EV Charging	EU AFIR Art. 6	≥ 150 kW chargers / TEN-T > 60 km	Missing *Roaming-ready* OCPI endpoint.
Accessibility	EU 2019/882 & local codes	Major remodel	Kiosk-screen height > 1.25 m.
Building & Energy	EPBD Recast (2025)	> 1 000 m² site alteration	Forgot air-tightness test pre-handover.

5.7 Risk & Sensitivity Analysis



01 **Energy Price Surge:** +25 % electricity adds 3 – 5 pp cost to EV margins; hedge with PPA solar and TOU tariffs.

02 **Interest-Rate Hike:** 200 bp increase drops IRR of megahub by 3 pp; phase 1 modular approach maintains liquidity.

03 **Labour Scarcity:** Wage index +8 % erodes kiosk labour savings—pre-buy self-cleaning equipment early.

Ask Yourself

1. Is every job role mapped to a peak-load diagram so we flex capacity—not headcount—during surges?
2. What percentage of my kitchen line is within a single pivot reach?
3. Have we stress-tested ROI against a +25 % energy and +200 bp interest scenario?
4. How many supplier contracts include predictive maintenance SLAs?
5. Which compliance domains could stop our remodel *mid-construction if missed in planning?*

6

IMPLEMENTATION ROADMAP

Why this matters for you

A bold concept is only as good as the disciplined rollout that follows. This roadmap unpacks who does what, when and how you measure progress—so great ideas turn into repeatable P&L results across a network, not just one photogenic flagship.

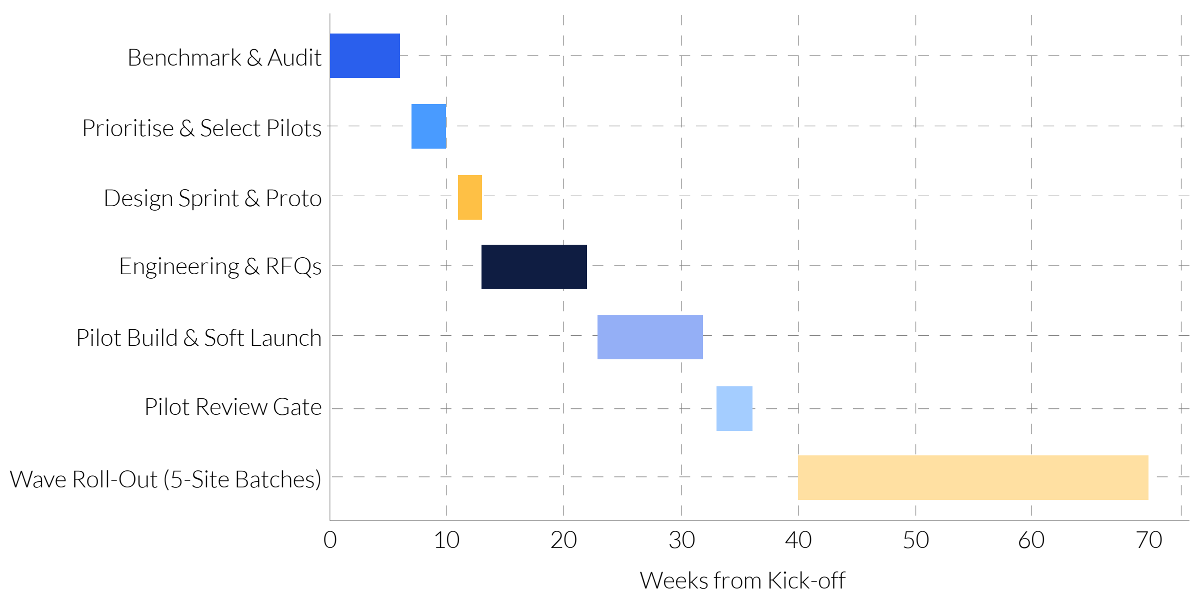
6.1 Programme Governance & Roles

Role	Accountable For	Weekly Cadence	Tooling
Executive Sponsor	Funding approvals, blocker removal	Bi-weekly decision gate	30-min stand-up with PMO
PMO / Tiger Team	Timeline, risk register, KPI dashboard	Daily huddle	Jira or Monday.com
Design & Engineering Lead	Drawings, value-engineering, permits	Twice-weekly sprint review	BIM 360 & Bluebeam
Store Ops Captain	Pilot SOPs, staff change-management	Weekly pain-point sync	Front-line Pulse app
IT & Digital Product Owner	Kiosk, app, ANPR, integrations	Agile 2-week sprint	GitHub Projects
Finance Controller	Cap-ex tracking, gate KPIs, ROI calc	Monthly	Power BI + Oracle ERP

Tip: A tiger team should control < 5 % of total headcount but > 80 % of the decision velocity.

6.2 18-Month Phased Timeline (Illustrative)

Reported Shopper Impact of Key Design Trends



01 **Weeks 0–6 – Benchmark & Audit**
Complete diagnostic scorecards for 100 % of sites; publish "red-amber-green" heat-map.

02 **Weeks 7–10 – Prioritise & Select Pilots**
Run ROI vs. strategic-fit matrix; lock two pilot sites.

03 **Weeks 11–12 – Design Sprint & Rapid Prototyping**
Co-create low-fi layouts with field staff; VR walk-through for exec approval.

04 **Weeks 13–22 – Engineering, Permits & Vendor RFQs**
Issue spec packages; shortlist bidders; negotiate performance-linked SLAs.

05 **Weeks 23–32 – Pilot Build & Soft Launch**
On-site build; 10-day soft-open; collect baseline + pilot KPIs.

06 **Weeks 33–36 – Pilot Review Gate**
Mid-sprint checkpoint: hit ≥ 80 % of lead KPIs or iterate.

07 **Months 10–18 – Wave Roll-Out (5-Site Batches)**
Copy-paste BOM, designs and training playbook; monthly retro; update design manual.

6.3 Site Selection & Prioritisation Matrix

Score each site 1–5 on five factors, weight as shown, then sort highest-scoring to the top:

Factor	Weight	Rationale
Revenue Upside (basket × traffic)	×3	Direct EBITDA lift
Strategic Visibility (flagship corridor, ESG pilot)	×2	Brand halo effect
Ease of Build (permits, plot constraints)	×1	Time-to-value
Digital Readiness (API-capable POS, fibre)	×2	Reduced integration pain
Grid Capacity / Energy Headroom	×1	Charger scalability

60%

The NACS *State of the Industry Report 2023* shows that the **top quartile of U.S. convenience stores captures 60 % of inside gross profit,** proving that targeted, high-performing locations deliver outsized ROI

6.4 Pilot Blueprint & KPI Stack

KPI Type	Example Metric	Pilot Target	Data Source
Lead	Median kiosk order time	< 50 s	KDS logs
Lead	App-linked transactions	≥ 25 % fuel sales	POS × Loyalty API
Lag	Basket uplift vs. baseline	+10 %	ERP sales mix
Lag	Staff minutes per order	−15 %	Workforce Mgmt
Kill-Switch Rule: If two consecutive weeks miss ≥ 3 lead KPIs by > 20 %, pause spend and run root-cause workshop.			

6.5 Change Management & Training Path

1. **Story First:** 3-minute explainer video from the sponsor—why the change matters to staff and customers.
2. **Shadow & Swap:** HQ staff work one pilot shift; store staff join design stand-ups for feedback.
3. **Micro-Learning Sprints:** 10-minute mobile modules (kiosk workflow, EV safety) released twice weekly.
4. **Gamified KPIs:** Leaderboard for fastest kiosk-order bump time; quarterly prizes.
5. **Post-Launch Pulse:** 5-question survey at Day 7, 30, 90; share results transparently.

6.6 Vendor & Procurement Strategy

1. **Modular Kit-of-Parts:** Unified spec (tile, lighting, kiosks) cuts design hours 40 % in wave roll-outs.
2. **Performance-Based Contracts:** 5 % of invoice tied to uptime/ throughput KPIs for kiosks and chargers.
3. **Dual-Source Critical Path Items:** EV chargers and refrigeration units from two vendors to hedge lead-time risk.
4. **Digital Sandbox CLA:** Require open API + test environment *before* signing MSA.

6.7 Budget, Funding & Stage Gates

Stage	Spend Envelope	Gate Criteria	Sign-Off
Concept Green-Light	< €50 k	Heat-map complete; ROI model draft	Sponsor + CFO
Pilot Cap-Ex Commit	€1–2 m per site	Design pack 90 % LOD; vendor shortlist	SteerCo
Wave Funding Release	€5 m (5 sites)	Pilot hit ≥ 80 % lead KPIs; post-mortem closed	Board CapEx Committee
Scale Acceleration	€20 m+	Wave NPV ≥ 15 %; supply-chain capacity proved	Board + Treasury

6.8 Continuous Improvement Loop

30-Day Retros: PMO gathers lessons, updates design manual vNext.

Golden KPIs: Footfall, basket, NPS auto-refresh nightly to dashboard; deviations flagged to tiger team.

Quarterly Innovation Day: Each region pitches one micro-experiment; best idea funded next quarter.

Annual Design Refresh: Architecture firm reviews emerging materials, sustainability codes.

Ask Yourself

1. Do we have a named tiger team with ≥ 50 % dedicated time?
2. When will the first non-pilot site go live in this plan—can we pull that date forward?
3. What's our kill-switch threshold—and who can pull it without committee delays?
4. How fast will pilot insights flow back into the digital roadmap (days, not months)?
5. Are vendor contracts financially aligned to the KPIs we track?

7

CASE SNAPSHOTS

Why this matters for you

Real-world precedents turn theory into confidence. By dissecting three very different projects—urban infill, highway mega-hub and EV-led retrofit—you can see which levers really moved the numbers and which lessons to copy-and-paste (or avoid) in your own roll-out.

7.1 Urban Infill – Circle K Copenhagen (Denmark)

Attribute	Detail
Plot & Catchment	480 m² corner plot, 25 k daily pedestrians, no canopy height for HGVs.
Goal	Flip fossil-fuel revenue into EV-first retail while staying open during build.
Design Interventions	• Removed fuel canopy and added 8 × 150 kW Aricon chargers.• Added 72 m² modular coffee + bakery pod with biophilic façade.• Inside store: Power-Wall 2.0, dual-line bar, frictionless micro-market for 23:00–06:00 trade.
Digital Stack	Circle K app pre-order, ANPR pay-at-charger, Kitchen Display System for QSR queue, locker wall click-&-collect.
Results (first 6 m)	• Non-fuel sales +38 %.• Coffee units +22 %.• EV charge revenue now 31 % of site turnover.• NPS +11 vs. legacy network average.
Lessons to Replicate	1. Phased demolition lets you keep kiosk open (95 % trading uptime).2. High-lux biophilic lighting lifted night traffic +7 %.3. 90 min lunchtime replenishment window critical—no back-yard storage.

7.2 Urban Mobility Hub – G&V / Breakpoint "Mobility Hub" Vogelzang (Antwerp, Belgium)

Attribute	Detail
Plot & Catchment	Esso forecourt on Vogelzanglaan opposite Antwerp Expo, directly off the R1 ring-road; high commuter and event traffic (exact site area and daily flow not disclosed).
Goal	Transform a legacy fuel site into a multi-brand mobility hub that monetises extended dwell through a food-court, workspace and seamless digital ordering, while future-proofing for EV.
Design Interventions	• Vibrant mini food-court with a central communal table and integrated phone/PC chargers. • Three Samsung wall-mounted self-ordering kiosks at the entrance. • Partitioned seating zones plus a bookable meeting room. • Dedicated C-store alongside Esso pumps and ultra-fast EV chargers. • Layout supports multiple cuisines (smash burgers, sushi, pasta, seafood).
Digital Stack	FLYX OMS middleware with Prizma POS integration; self-ordering kiosks; Kitchen Display System & TV pick-up screens; Product Configurator enabling upsell/cross-sell and time-of-day menus; ready for Click & Collect, home delivery and table ordering.
Results (first 6 m)	• 74 % of customers choose kiosk ordering, with upsell prompts lifting basket value. • From contract signature to first sale: 30 business days, proving a rapid rollout model.
Lessons to Replicate	1. A single kiosk hub removes multi-queue friction and captures three-quarters of orders with no extra labour.2. Kitchen Display–driven order splitting keeps diverse brands synchronised, cutting errors and wait time.3. Pre-integrated digital stack enables sub-six-week deployments, minimising downtime and accelerating ROI.

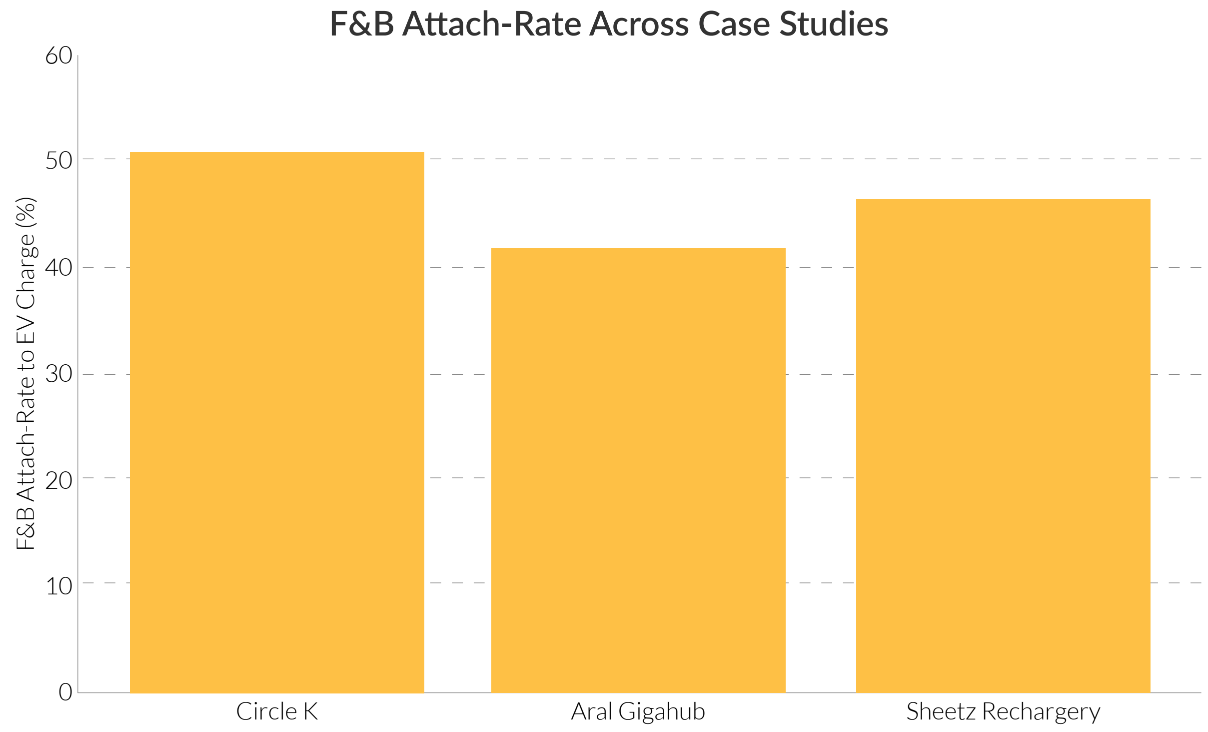
7.3 Highway Mega-Site – Aral pulse “Gigahub” Mönchengladbach (Germany)

Attribute	Detail
Plot & Catchment	18 000 m² off A61 motorway; > 60 k vehicles/day.
Goal	Build a “future flagship” that monetises the 25-minute EV dwell and showcases Aral brand refresh.
Design Interventions	• 28 ultra-fast 400 kW chargers under PV glass canopy (480 kWp).• Two QSR pods (Burger King & Ditsch) + 300 m² retail with seating for 140.• Kids’ play-loft and pet relief area.• AI-driven drive-thru lane for barista coffee.
Digital Stack	Multi-brand loyalty (PAYBACK), ANPR bundle engines, table-order via QR, real-time charger availability screens at ramp exit.
Results (first 6 m)	• Avg. dwell 27 min (vs. 14 min petrol sites).• Average basket €17 (vs. €8 legacy).• 42 % of EV drivers ordered F&B.• Solar canopy offsets 23 % site energy; ESG scorecard +15 pts.
Lessons to Replicate	1. Charger queue signage at highway off-ramp reduced “charger anxiety” bounce-offs 18 %.2. Drive-thru lane captured 1 in 4 orders without reducing in-store traffic.3. Lease QSR pods to specialist operators—speeds ROI and mitigates food-safety risk.

7.4 EV-Led Retrofit – Sheetz × IONNA “Rechargery” (USA)

Attribute	Detail
Plot & Catchment	Legacy Sheetz forecourts (1 200–1 800 m²) on I-80 corridor; heavy truck + commuter mix.
Goal	Future-proof top-20 traffic sites by adding EV lounge without interrupting cash-cow fuel lanes.
Design Interventions	• Modular 150 m² lounge pod (“Rechargery”) with soft seating, fast Wi-Fi, gaming alcove.• 12 × 200 kW chargers along outer boundary.• Kept diesel and petrol canopy intact.
Digital Stack	Sheetz app single-tab “Recharge & Order”, curbside pick-up lockers, loyalty points converted to kWh credits.
Results (first 6 m)	• Loyalty sign-ups +19 %.• Average dwell 32 min.• F&B ticket +€2.10 vs. control.• Zero fuel cannibalisation; diesel litres flat.
Lessons to Replicate	1. Dual-brand signage (IONNA + Sheetz) reassures EV drivers of reliability.2. Gaming corner converts “bored teens” into €4 average spend.3. Locating chargers away from fuel lanes avoided traffic conflicts.

7.4 Snapshot KPI Comparison



Metric	Circle K Copenhagen	Aral pulse Gigahub	Sheetz Rechargery
CAPEX per charger installed (€k)	72	130	85
F&B attach-rate to EV charge	51 %	42 %	47 %
Construction weeks (site downtime)	11 (≤ 5 days closed)	32 (Green-field)	14 (0 days closed)
Payback period (modelled, yrs)	3.4	5.8	4.2
NPS change vs. baseline	+11	+9	+10

A BCG analysis of 350 convenience-store remodels found that mission-specific, format-tailored upgrades deliver 2.3× higher ROI than uniform “flagship” roll-outs (BCG Retail Operations Benchmark 2024).

Ask Yourself

1. Which snapshot’s KPI mix most closely mirrors your board’s priorities—dwell, sales or ESG?
2. What would be your biggest construction bottleneck if you pursued a Copenhagen-style canopy removal?
3. How could you pre-wire for a Gigahub future—even if you start with only eight chargers?
4. Can you piggy-back loyalty sign-ups on an EV pilot like Sheetz, turning electrons into data?
5. Which Lessons to Replicate can you action within the next 90 days at a single test site?

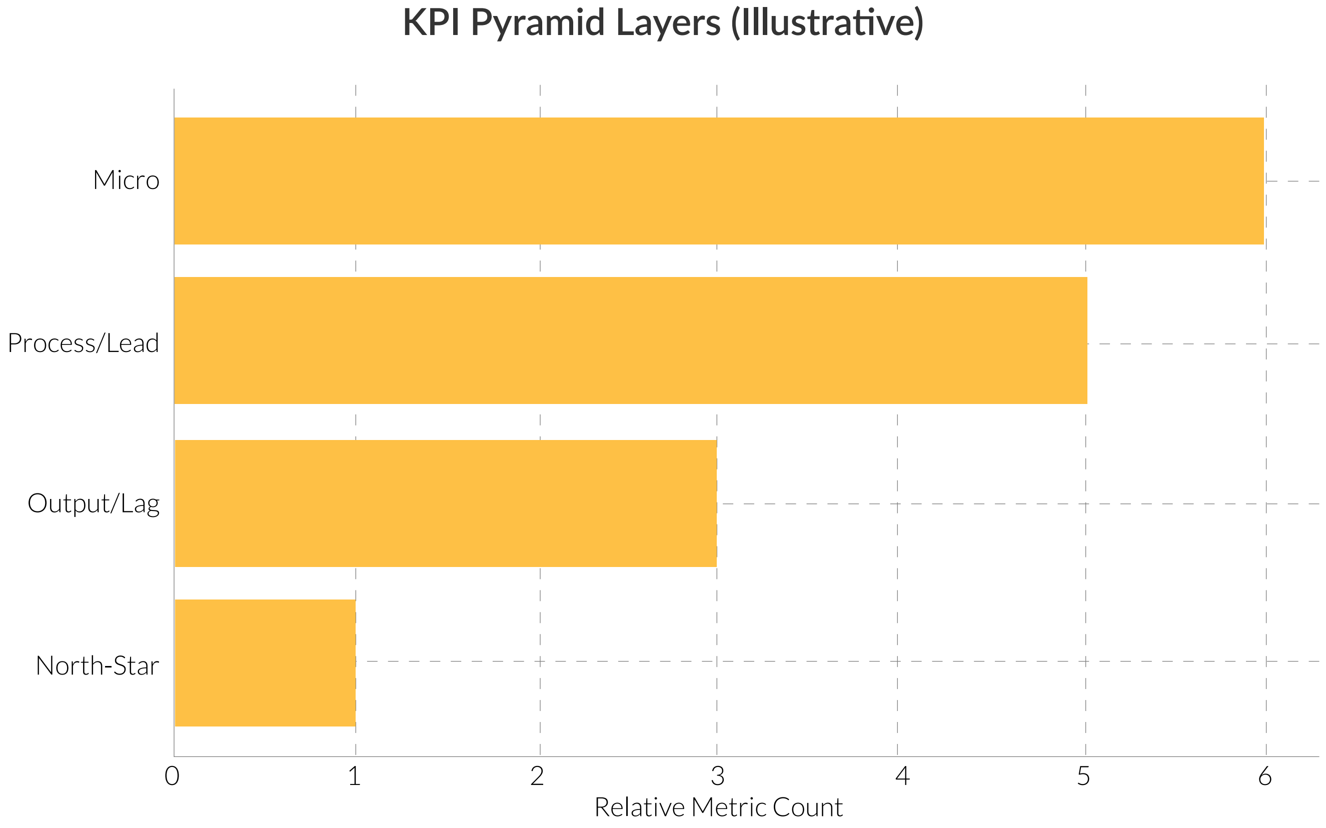
8

SUCCESS METRICS & ROI STORYTELLING

Why this matters for you

Boards back numbers, not anecdotes. Yet raw data rarely changes hearts. This section shows you *which* metrics to track, how to surface them in real time, and how to shape the narrative so finance teams, field staff and investors all row in the same direction.

8.1 KPI Pyramid – From Store Floor to Board Floor



Layer	Who Uses It	Cadence	Example Metric	Tooling (Typical)
North-Star	Board / C-Suite	Quarterly	ROCE (Return on Capital Employed)	Power BI + ERP
Output / Lag	Finance, Ops, HR	Monthly	Basket uplift, EBITDA per m², NPS	Tableau, Snowflake
Process / Lead	Store Managers	Daily	Kiosk order time, stockouts, dwell	FLYX Pulse Dashboard
Micro	Front-Line Staff	Hourly	Orders queued, charger uptime	KDS, IoT charger API

A 2022 Gartner study found that enterprises using visual KPI dashboards improve decision-making speed by 30 % and cut operational inefficiencies by up to 20 % (Fanruan summary, 2024).

8.2 Real-Time Data Stack – What Good Looks Like

01

Edge Capture – POS, kiosks, EV chargers stream into a message bus (Kafka).

02

Cloud Warehouse – Raw data lands in Snowflake or BigQuery; schema-on-read keeps dev agile.

03

Golden Logic Layer – dbt models standardise KPI definitions; finance and ops pull the same math.

04

Cloud Warehouse – Raw data lands in Snowflake or BigQuery; schema-on-read keeps dev agile.

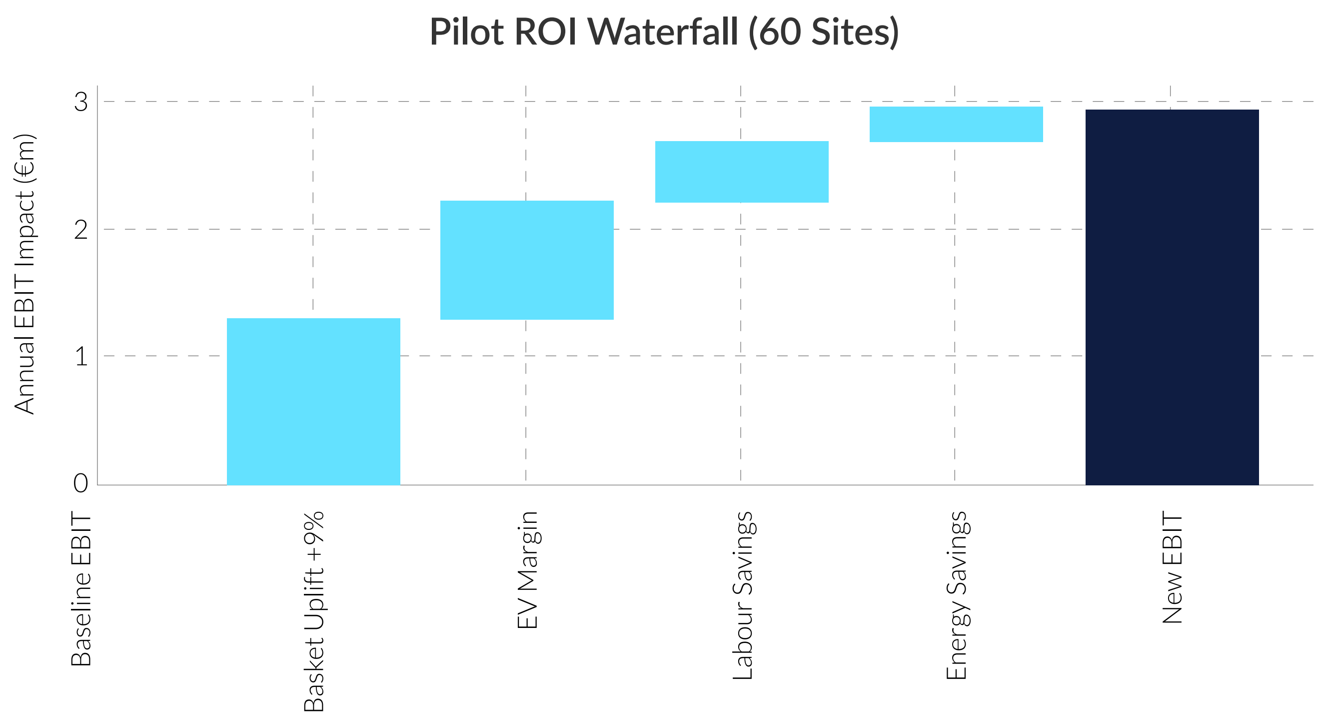
05

Golden Logic Layer – dbt models standardise KPI definitions; finance and ops pull the same math.

€0.00

Cost Benchmark: A mid-size (200-site) network typically budgets €0.007 per transaction for cloud analytics—less than a sugar packet per order.

8.3 ROI Calculator – Inputs That Move the Needle



8.4 Storytelling the Numbers – 4 Slide Formula

Problem Slide – "Fuel margin down 21 % since 2019."

Opportunity Slide – "Our pilot lifted basket +10 % and NPS +11."

Payback Slide – Simple bar: cumulative capex vs. cumulative EBIT.

Next Step Slide – 5-site wave timeline and KPI guardrails.

> ROI sells the project; NPS sells the brand story, and together they close funding in half the time.
>
> — **Camille Rivière, CFO Advisor, FLYX**

8.5 Investor & Stakeholder Comms

01 **Quarterly Factsheet –** 1-pager highlights KPI delta vs. baseline.

02 **Site Virtual Tours –** 3-min drone cutdowns posted on LinkedIn; engagement +48 % vs. static images.

03 **ESG Lens –** Emphasise solar canopy output, kilowatts of clean charge delivered, and waste diverted.

Ask Yourself

1. Do we have one canonical definition for every KPI across finance, ops and IT?
2. How long from transaction swipe to dashboard refresh in HQ? Aim for < 15 min.
3. Which lead metric today predicts 70 % of next month's EBITDA?
4. Can store teams see and act on their live metrics without logging into a PC?
5. Do our investor slides connect the ESG wins to tangible margin gains?

9

CONCLUSION & CALL TO ACTION

Key Takeaways

Your Next-30-Day Moves

How FLYX Can Help

Why this matters for you

1. **Space is the new margin:** Design choices drive dwell and basket more than fuel price ever will.
2. **Digital must fit the mission:** One size does not fit all—match channel to typology.
3. **Operational rigour seals ROI:** Cap-ex pays back only when staff, supply-chain and data sync.
4. **Pilot fast, scale smart:** Kill-switches and tiger teams prevent zombie projects.
5. **Data tells the story:** A KPI pyramid and slick narrative unlock board funding.

Your Next Moves (Next 30 Days)

- **Day 1** Schedule site audits.
- **Day 10** Short-list two pilot sites; assign tiger team.
- **Day 20** Finalise design brief; issue digital RFP.
- **Day 30** Present cap-ex request with ROI model to SteerCo.

How FLYX Can Help

- **Network Scan (Free):** We benchmark your 10 busiest sites against 250 best-practice metrics.
- **Design Sprint (5 Days):** Co-create layouts, VR walk-throughs, and cost plan.
- **Digital Ordering Suite (Fast-Track):** Deploy self-ordering kiosks, click-&-collect solution, third-party delivery aggregators, table-ordering and web-ordering flows—fully POS-connected and centrally orchestrated via our **FLYX OMS**—in < 6 weeks.
- **Roll-Out PMO:** On-site lead, weekly executive dashboards, value tracking:** On-site lead, weekly executive dashboards, value tracking.

FLYX is a specialist retail-tech partner dedicated to the fuel and mobility sector. Our cloud-native **Order Management System (FLYX OMS)** connects self-ordering kiosks, click-&-collect solution, third-party delivery platforms, table-ordering apps and web ordering into one real-time feed to your POS. We integrate natively with **Dover Fueling Solutions (DFS)** dispenser controllers, **TSG** forecourt maintenance networks across 30+ European countries, and leverage Samsung self-ordering kiosk hardware for rugged, retail-ready deployments. FLYX orchestrates every step, so operators capture more dwell-time revenue without adding operational friction. Last but not least, FLYX has designed a top-notch loyalty& promotion engine used by the largest food brands in Europe. Our loyalty tool is one of the most innovative in Europe and help brands to really engage with their customers.

Ready to turn your forecourts into future-proof profit hubs?
Reach out at gregory @**flyx.cloud** or visit

www.flyx.cloud