

PRACTITIONER ARTICLE

Management Practice

Beyond the Styrofoam Tray: A Practical Sustainability Roadmap for Union Supermarket, a Family-Owned Grocer in Providence

Más allá de la bandeja de poliestireno: una hoja de ruta práctica de sostenibilidad para Union Supermarket, un supermercado familiar de Providence

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RESUMEN

Union Supermarket Providence es un negocio familiar de Providence (Rhode Island, Estados Unidos) que reúne carnicería, pequeño supermercado y restaurante. Este artículo presenta el plan de responsabilidad social corporativa elaborado para la empresa con referencia a los estándares GRI. El diagnóstico identifica cuatro puntos críticos: la dependencia de envases de un solo uso (film plástico y bandejas de poliestireno en la carnicería), una gestión de residuos sin compostaje ni medición de volúmenes, con un coste de 3.773 dólares al mes, un elevado consumo energético en refrigeración e iluminación y una cadena de suministro cárnica intensiva en emisiones. El plan propone cinco iniciativas priorizadas en un calendario de cuatro meses: donación de alimentos, una sección de fruta y verdura «imperfecta», aplicaciones de excedentes como Too Good To Go, compostaje de residuos preconsumo y una herramienta de seguimiento del desperdicio; a medio y largo plazo, envases sostenibles, eficiencia energética y paneles solares. Sus estimaciones, que son proyecciones y no resultados, incluyen desviar del vertedero entre el 25 % y el 40 % del desperdicio alimentario, reducir el consumo energético entre un 20 % y un 30 %, ahorrar entre 15.000 y 20.000 dólares anuales en electricidad con un retorno de dos a tres años y evitar entre 15 y 20 toneladas de CO₂ equivalente al año. La principal lección para los directivos de pequeños comercios de alimentación es que la medición debe preceder a la ambición: sin datos de referencia, ni los objetivos ni el retorno de la inversión pueden verificarse.

Palabras clave: responsabilidad social corporativa; desperdicio alimentario; distribución alimentaria; empresa familiar; envases sostenibles; eficiencia energética

Keywords: corporate social responsibility; food waste; grocery retail; family business; sustainable packaging; energy efficiency

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LICENCE

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Executive summary

Union Supermarket Providence is a family-owned business in Providence, Rhode Island, that operates a meat market, a mini grocery store and a restaurant. This article presents the corporate social responsibility (CSR) plan developed for the company with reference to the Global Reporting Initiative (GRI) Standards. The diagnosis identifies four pressure points: heavy reliance on single-use packaging (plastic wrap and Styrofoam trays in the meat department); a waste system with no composting and no measurement of volumes, at a cost of \$3,773 per month; high energy demand from refrigeration and lighting; and an emissions-intensive meat supply chain. The plan proposes five prioritised initiatives on a four-month timetable — a food donation programme, a "Wonky Produce" section, participation in surplus-food apps such as Too Good To Go, pre-consumer composting and a food waste tracking tool — followed by sustainable packaging, energy efficiency upgrades and rooftop solar in the medium to long term. The plan's estimates, which are projections rather than results, include diverting 25–40% of food waste from landfill, cutting energy consumption by 20–30%, saving \$15,000–20,000 a year on electricity with a two-to-three-year payback, and avoiding 15–20 tonnes of CO₂ equivalent annually. The central lesson for managers of small food retailers is that measurement must precede ambition: without baseline data, neither targets nor return on investment can be verified.

Frases clave para citar / Key Quotes for Citation

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Key Quotes / Frases clave:

- **Measure before you promise / Medir antes de prometer:**

"Union Supermarket, a family-owned grocer in Providence, Rhode Island, was paying \$3,773 a month for waste disposal with no data on the volume, weight or frequency of its waste: for small food retailers, measurement must precede ambition." — Cepeda (2026), *Conscious Management Journal*, 4(1).

«Union Supermarket, un supermercado familiar de Providence (Rhode Island), pagaba 3.773 dólares al mes por la retirada de residuos sin datos sobre su volumen, peso o frecuencia: en el pequeño comercio de alimentación, la medición debe preceder a la ambición.»

- **Sell, donate, compost / Jerarquía: vender, donar, compostar:**

"The CSR plan for Union Supermarket proposes a food waste cascade (sell surplus through markdowns, imperfect-produce sales and apps such as Too Good To Go, then donate, and only then compost), projected to divert 25–40% of the store's food waste from landfill." — Cepeda (2026), *Conscious Management Journal*, 4(1).

«Union Supermarket propone una cascada frente al desperdicio alimentario (vender excedentes con rebajas, fruta «imperfecta» y aplicaciones como Too Good To Go; después donar; solo entonces compostar) y estima desviar del vertedero entre el 25 % y el 40 %.»

- **Energy efficiency as financial anchor / La eficiencia energética como ancla:**

"In the Union Supermarket plan, LED lighting and efficient refrigeration offer the strongest business case, with projected electricity savings of \$15,000–20,000 a year and a two-to-three-year payback, ahead of longer-payback rooftop solar." — Cepeda (2026), *Conscious Management Journal*, 4(1).

«En el plan de Union Supermarket, la iluminación LED y la refrigeración eficiente son el mejor caso de negocio, con un ahorro estimado de entre 15.000 y 20.000 dólares anuales en electricidad y un retorno de dos a tres años, antes que los paneles solares.»

Context and organisation

Union Supermarket Providence is a family-owned business located in Providence, Rhode Island, in the United States. It combines three formats under one roof: a meat market, a mini grocery store and a restaurant. As the analysis below shows, the meat department is central to its environmental footprint.

The company's CSR plan was prompted by a shift in the market. Consumer demand for sustainable products and environmentally responsible practices is growing, and the business recognised the need to reduce its carbon footprint and to adopt responsible sourcing, waste reduction and energy efficiency. The plan was framed with reference to the GRI Standards, with the aim of offering an open evaluation of the supermarket's economic, environmental and social performance, mapping its current procedures for waste disposal, energy use, purchasing and employee welfare, and identifying areas for improvement. Its stated purpose is twofold: to align operations with industry practice and regulatory requirements so that the business remains viable in the long run, and to build stronger relationships with employees, customers and the wider community.

The work was carried out in two phases. Phase 1 examined the existing operations across four areas — packaging, procurement, waste management and energy use — to establish where the supermarket stands today. Phase 2 identified and analysed sustainable alternatives, estimated their environmental, economic and social impacts, assessed their feasibility, assigned them to priority tiers and translated the highest-priority options into a month-by-month implementation plan.

Supply base

The supermarket's sourcing mixes local and regional suppliers with national and international vendors. Fruit and vegetables come largely from the New England Produce Center in Boston, Massachusetts, and from individual suppliers such as New England Banana Co. Everyday groceries — dry goods, canned, dairy and frozen products — are supplied mainly by two large distributors, Krasdale and Goya. Meat and seafood are purchased from Nebraskaland, which in turn sources from producers such as IBP, National and Swift. Other perishable lines mentioned in the plan include baked goods from Dominicana Bakery and milk from Tropicana.

The plan's assessment of this supply base is mixed. Regional sourcing of produce reduces transport emissions, although more could be bought from certified sustainable or organic growers. The large grocery distributors bring the convenience of extensive networks but also high transport and packaging emissions. The meat chain, despite its relatively short last leg, is energy-intensive at every stage, from production through refrigerated transport to in-store refrigeration.

Challenge or opportunity

The Phase 1 diagnosis revealed a business whose environmental impacts are concentrated in a handful of everyday routines. Each one is also a cost centre, which is why the plan frames sustainability as both a responsibility and a commercial opportunity.

Packaging: the single-use problem at the meat counter

The most visible issue is the dependence on single-use packaging. Bulk meat deliveries are unpacked, cut and repackaged in-store on Styrofoam trays wrapped in plastic film. The practice is standard in the meat trade, but neither material is biodegradable and both add substantially to landfill waste. Elsewhere in the store, produce arrives in cardboard boxes, and canned, dry and dairy goods come in a mix of glass, paper and cardboard. Although these materials are preferable to plastic, they require significant energy to produce and ship, and mixed-material packs are hard to separate and therefore hard to recycle. Drawing on Asim et al. (2022), the plan identifies eliminating single-use plastics in the meat department as the first improvement area, followed by reducing mixed-material packaging, recycling it more efficiently and encouraging customers to return packaging to the store.

Waste: paying without measuring

Waste management is the second, and arguably most strategic, weakness. Waste is collected by a trash and recycling hauler that offers no composting service. Expired, unsold or spoiled goods that cannot be returned to suppliers — for example fruit from New England Banana Co., baked goods from Dominicana Bakery and milk from Tropicana — are logged on a "Wasted Merchandise" list and thrown away with general trash. Short-life products are marked down, but most discarded food still ends up in landfill. Since organic waste is a key target for composting initiatives (Murray Svidroňová & Mikušová Meričková, 2022), the absence of any composting route is a significant gap.

The critical finding is managerial rather than technical: the supermarket pays \$3,773 a month for waste disposal but has no data on the volume, weight or frequency of the waste it produces, and the hauler provides no such analytics. Without measurement, the business cannot size the problem, prioritise interventions or prove their effect. The plan nevertheless presents an indicative breakdown of waste generation — plastic 40%, cardboard 30%, organic waste 20% and other materials 10% — which should be read as an estimate rather than a measured baseline.

Energy: refrigeration and lighting

Refrigeration and lighting are identified as the main sources of energy-related greenhouse gas emissions. The plan's energy chart attributes roughly half of current consumption to refrigeration, around 40% to lighting and the remaining 10% to other uses. Because meat must be kept chilled continuously, refrigeration is both the largest load and the largest saving opportunity.

The meat life cycle

A preliminary life cycle analysis of meat products shows how impacts accumulate across the value chain:

- **Origin and processing.** Meat is processed and packed by the distributor before reaching the store, consuming energy at each step.
- **Transport.** Movement in refrigerated containers and trucks is identified as one of the most significant contributors to the supermarket's carbon footprint, because it combines distance with energy-intensive cooling.
- **Packaging.** Styrofoam trays and cling film add raw-material impacts and non-biodegradable waste.
- **Storage and display.** Constant refrigeration is a major share of the store's energy demand and a prime area for efficiency gains.
- **End of life.** Customer food waste and mixed-material packaging typically end up in landfill and are difficult to recycle.

The plan concludes that the meat category's environmental footprint is widely recognised and that offering more plant-based or sustainably raised alternatives may be in the supermarket's interest.

The opportunity

Taken together, these findings define a clear opportunity. The same routines that generate waste and emissions also generate avoidable cost, lost revenue from unsold food and missed goodwill in the community. For a small family business, the challenge is to address them with limited capital and staff time — which is why prioritisation and sequencing are at the heart of the proposal.

Proposal and intervention

Phase 2 developed a portfolio of alternatives grouped into food waste reduction, sustainable sourcing and packaging, energy and water efficiency, and improved waste sorting and recycling. Each option was assessed for feasibility, impact, cost and expected payback.

Food waste reduction

- **Food donation.** Food that is close to expiry or cosmetically imperfect, but safe, would be donated to local food banks and shelters. Working with established organisations helps ensure efficient distribution (D'Adamo et al., 2023) and positions the store as a responsible member of the community.
- **"Wonky Produce" sales.** Irregular-looking fruit and vegetables, which are usually discarded or sold at a loss, would be offered at reduced prices to budget-conscious shoppers. A complementary "cut-and-sell" approach would turn imperfect produce into diced or prepared vegetables (Ceryes et al., 2021), widening access to convenient, low-cost food (de Hooge, 2022).
- **Surplus-food apps.** Platforms such as Too Good To Go allow retailers to sell surplus food at a discount, creating an extra income stream from items that would otherwise be wasted (Vo-Thanh et al., 2021) and potentially increasing foot traffic.
- **Employee training.** Training in handling, storage and inventory management would improve stock rotation and reduce spoilage and overstocking.
- **Pre-consumer composting.** An on-site composting programme for preparation scraps and damaged items would divert organic waste from landfill and produce compost for landscaping or local community gardens.

Sourcing, packaging and resource efficiency

- **Eco-friendly packaging.** Biodegradable, compostable or recyclable alternatives — above all for high-volume categories such as meat and produce — together with options for customers to bring their own bags and containers.
- **Sustainable sourcing.** Greater use of local, certified organic and fair-trade products and of suppliers with stronger sustainability credentials (Potter et al., 2022), and a gradual shift towards smaller suppliers committed to lower emissions and greener packaging (Butt, 2025).
- **Energy efficiency.** Full replacement of lighting with LEDs, energy-efficient refrigeration and smart thermostats.
- **Renewable energy.** Rooftop solar panels and, as a complement, the purchase of green energy credits.
- **Water conservation.** Low-flow fixtures in restrooms and the kitchen, water-saving cleaning practices and potential rainwater harvesting.
- **Recycling and sorting.** Clearly labelled in-store recycling stations for staff and customers, and cardboard balers to make recycling easier and cheaper while reducing contamination of the waste stream (Suzuki & Tabata, 2024).

Prioritisation in three tiers

Rather than pursuing everything at once, the plan ranks initiatives by cost, operational disruption, staff training needs and the speed and nature of their return (Table 1). Tier 1 covers low-cost, quick-win measures; Tier 2 covers strategic investments with slower or less direct returns; and Tier 3 covers longer-term innovations requiring significant capital and planning.

Table 1. Feasibility and prioritisation of the main initiatives

Initiative	Investment and operational change	Expected return	Tier
Food donation programme	Minimal outlay; mainly staff time for sorting, preparing and delivering	Indirect: brand image, tax incentives, community relationships	1
"Wonky Produce" section	Insignificant; minor layout and labelling changes, regular sorting and repricing	Moderate but tangible: sales of items that would otherwise earn nothing	1
Surplus-food apps (e.g., Too Good To Go)	Low; staff training and customer awareness campaigns	Disposal savings and customer engagement; slower returns	2

Initiative	Investment and operational change	Expected return	Tier
Sustainable packaging	Higher material costs; supplier coordination	Long-term: lower disposal costs, loyalty of eco-conscious customers	2
LED lighting and efficient refrigeration	High upfront cost, partly offset by grants and tax credits; routine monitoring	Payback typically within 2–3 years	2
Rooftop solar	High upfront cost	Payback over 5–7 years	2–3*
Pre-consumer composting	Low to moderate; new work practices and staff retraining	Lower disposal costs; compost donated to the community	2*

*The plan places renewable energy and commercial composting partnerships in Tier 3 in its initial prioritisation, but later classifies energy upgrades (including solar) and in-store composting as Tier 2.

The plan also identifies simple short-term actions — upgrading recycling labels and piloting Wonky Produce sales — that can deliver visible effects quickly, while energy-efficient refrigeration is the archetypal medium-term measure.

Implementation roadmap

The prioritised initiatives are translated into a four-month implementation plan with step-by-step actions, named responsibilities and resource requirements (Table 2).

Table 2. Implementation plan for the priority initiatives

Initiative	Start	Completion	Lead responsibility	Key resources
Food donation programme	Month 1	Month 2, then ongoing with periodic evaluation	General manager (partnerships); inventory manager (tracking); staff (sorting and packing)	Training on donation protocols and food safety; transport; sorting and storage area
"Wonky Produce" sales	Month 1	Month 2, then quarterly review of inventory and pricing	Produce manager; marketing team; staff	Dedicated display; signage; pricing software
Surplus-food app	Month 2	Month 3, then continuous evaluation	Supermarket manager; inventory manager; staff	App subscription; employee training; marketing support
Food waste tracker tool	Month 2	Month 3, then continuous data collection	Supermarket manager; IT team; inventory manager; staff	Tracking tool (e.g., LeanPath); training; data analysis software
Pre-consumer composting	Month 3	Month 4, then monthly checks and maintenance	Supermarket manager; waste management team; staff	Composting bins; training materials; transport for compost

Several design features of the roadmap are worth highlighting for practitioners:

- **Formal partnerships before donations.** The donation programme begins by identifying partners — the Rhode Island Community Food Bank is given as an example — and formalising agreements with food safety protocols in place, before setting up a dedicated sorting area, training staff to identify eligible items and fixing a regular weekly or fortnightly collection schedule.
- **Visible, explained discounts.** The Wonky Produce section combines a dedicated display, signage that explains the programme, a staff routine for setting aside eligible produce (bruised or odd-shaped items) and promotion in-store and on social media, with success tracked through sales and customer response.
- **Integration into daily routines.** For the surplus-food app, the emphasis is on registration, staff training, a mechanism for identifying surplus items each day and regular adjustment of listings to demand.

- **Measurement as infrastructure.** The food waste tracker is meant to record the quantity, type and cause of waste in real time, feed weekly or monthly reports showing trends and improvement areas, and inform inventory management, ordering and waste reduction strategy. It directly addresses the data gap identified in Phase 1.
- **Closing the organic loop.** Composting starts with a well-located station that does not disrupt store operations, suitable bins, staff training on separating organic waste, an emptying and cleaning schedule, and agreements with local farms or community gardens to take the compost.

The longer-term recommendations complete the picture: replacing Styrofoam trays and plastic wrap at the meat counter with biodegradable, compostable or recyclable alternatives; working with suppliers to reduce plastic in everyday products; introducing a bring-your-own-container scheme for bulk goods and produce, supported by clear signage and educational materials; replacing old bulbs and energy-hungry refrigeration; and evaluating rooftop solar.

Expected results and impact

The plan quantifies the expected effects of its proposals across the three dimensions of the triple bottom line. All of the figures below are projections made by the plan, often based on assumptions or typical ranges, and none has yet been realised or measured. They should be read as targets to be tested once the tracking tool is in place.

Table 3. Projected impacts of the plan (estimates, not results)

Dimension	Indicator	Projected value
Environmental	Food waste diverted from landfill through donation, Wonky Produce and surplus apps	25–40%
Environmental	GHG emissions avoided (assuming 50 t of food waste per year)	15–20 t CO ₂ e per year
Environmental	Reduction in plastic waste through packaging substitution	30–40%
Environmental	Reduction in total energy consumption (LEDs, smart thermostats, efficient refrigeration)	20–30%
Environmental	Share of electricity supplied by rooftop solar	Up to 30–40%
Environmental	Clean electricity generated by solar	100,000–150,000 kWh per year
Environmental	Waste diverted from landfill through better sorting and recycling	60–70%
Environmental	Organic waste diverted through on-site composting	20–30%
Economic	Electricity cost savings	\$15,000–20,000 per year
Economic	Payback on energy efficiency investment	2–3 years
Economic	Payback on solar investment	5–7 years
Economic	Savings on disposal fees from composting and recycling equipment	\$5,000–10,000 per year
Economic	Additional revenue from imperfect produce sales	5–10% of annual revenue
Social	Share of surplus stock redirected to food banks and shelters	10–20%, enough to support hundreds of low-income families in the Providence region

Environmental impact

Food waste reduction is the plan's environmental centrepiece because organic waste in landfill generates methane, a potent greenhouse gas. By combining donations, Wonky Produce sales and services such as Too Good To Go, the plan expects a medium-sized store like Union Supermarket to divert 25–40% of its food waste from landfill. Assuming annual food waste of around 50 tonnes, this would avoid roughly 15–20 tonnes of CO₂ equivalent per year.

Replacing plastic wrap and Styrofoam trays with biodegradable or recyclable alternatives is projected to cut plastic waste by about 30–40%. In energy, the shift to LED lighting, smart thermostats and efficient refrigeration is expected to reduce overall consumption by 20–30% (Thanasoulas & Molinari, 2025); the plan's energy chart projects the largest absolute reduction in refrigeration, followed by lighting. Rooftop solar could provide up to 30–40% of the store's electricity — some 100,000–150,000 kWh per year — reducing reliance on fossil-fuel-based grid power. Finally, better waste segregation and recycling could divert 60–70% of total waste from landfill, with on-site composting diverting a further 20–30% of organic waste, in line with local sustainability objectives.

Economic impact

The plan acknowledges that eco-friendly solutions can be costly upfront, but argues that they deliver cost savings, new revenue and long-term financial benefits. LED lighting consumes up to 75% less power than conventional bulbs, and new refrigeration units can save up to 25–30% of their energy use. Together, these retrofits are projected to reduce electricity costs by \$15,000–20,000 a year, with an estimated payback of two to three years — attractive for a small business, especially if grants and tax credits reduce the initial outlay. Solar has a longer payback of five to seven years.

Food waste programmes are presented as business opportunities in their own right. Selling cosmetically imperfect produce at a discount could attract price- and environmentally conscious customers and generate an additional 5–10% of annual revenue, while surplus-food apps turn would-be waste into sales. Upgrading waste handling with composting and recycling equipment could save \$5,000–10,000 a year in disposal fees — a meaningful share of the current \$3,773 monthly bill. On the sourcing side, local, organic and fair-trade products can strengthen the brand and, because greener products typically command higher prices, support margin gains.

Social impact

Redirecting just 10–20% of surplus stock to food banks and shelters could support hundreds of low-income families in the Providence region, strengthening food security, public trust and local goodwill. Involving employees in waste reduction, food handling and energy conservation is expected to raise morale and job satisfaction, give staff a sense of purpose and build skills that support their long-term career development (Al-Sabi et al., 2024; Esposito et al., 2021). Externally, customers tend to be loyal to companies they perceive as ethical and environmentally conscious; the plan anticipates a virtuous cycle linking community participation, employee engagement and customer satisfaction (Feng et al., 2022), reinforced by repeat business and word of mouth.

Lessons and recommendations for managers

The Union Supermarket plan offers a template that is relevant well beyond one store in Rhode Island. Many independent grocers, butchers and food service businesses share its profile: family ownership, thin margins, limited data and a growing expectation from customers that they act responsibly. The following recommendations distil what managers can take from it.

- **Measure before you promise.** The single most important finding is that the business was paying \$3,773 a month for waste disposal without knowing how much, or what kind of, waste it generated. Every

subsequent projection in the plan rests on assumptions. Managers should treat a waste tracking tool — recording quantity, type and cause — as the foundation of any sustainability programme and should, where possible, require haulers to report weights and volumes. Without a baseline, neither targets nor return on investment can be verified, and sustainability claims become difficult to defend.

- **Start with quick wins that pay for themselves.** Food donation and "imperfect produce" sections require almost no capital, can be launched within one to two months and generate visible results — goodwill, tax incentives and sales of items that would otherwise earn nothing. Sequencing low-cost initiatives first builds internal confidence and creates momentum, and potentially funds, for heavier investments later.
- **Follow the food waste hierarchy: sell, donate, compost.** The plan's food waste measures form a logical cascade. Surplus should first be sold (through markdowns, Wonky Produce and surplus apps), then donated to food banks and shelters, and only then composted. Managers who design these channels as a coherent system — with clear daily routines for identifying eligible items — will maximise both revenue recovery and landfill diversion.
- **Target the hotspot in your core category.** For a meat-led business, the Styrofoam tray and cling film are the most visible symbols of unsustainability, and refrigeration is the largest energy load. Concentrating packaging substitution and refrigeration upgrades on the core category delivers the greatest environmental return and the clearest message to customers. Other retailers should identify the equivalent hotspot in their own flagship category.
- **Make energy efficiency the financial anchor.** LED lighting and efficient refrigeration are the plan's strongest business case, with a projected payback of two to three years. Managers should prioritise these retrofits, actively seek grants and tax credits to reduce the initial outlay, and treat longer-payback projects such as rooftop solar as a second step once efficiency gains are secured.
- **Assign owners, deadlines and resources to every initiative.** The roadmap names a responsible person for each action (general manager, inventory manager, produce manager, marketing team, IT team and staff), specifies resources and sets start and completion months with ongoing reviews. This discipline turns aspirations into operations. Smaller businesses in particular should avoid sustainability programmes without a named owner.
- **Bring employees and customers inside the programme.** Training is a recurring requirement across all initiatives, and engaged staff are expected to be more motivated and productive. Customers, in turn, need clear signage, explanations of discounted "imperfect" produce and invitations to recycle or bring their own containers. Communicating openly about what the business is doing — and, once the tracker is in place, what it has achieved — is what converts operational changes into loyalty and reputation.

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