Sarcouncil Journal of Engineering and Computer Sciences

ISSN(Online): 2945-3585

Volume- 04| Issue- 09| 2025

Research Article **Received:** 10-08-2025| **Accepted:** 30-08-2025 | **Published:** 26-09-2025

Automating Equity: AI and RPA Solutions for Perishable Goods Redistribution

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Abstract: This article introduces the first automation blueprint specifically designed to connect perishable surplus with food-insecure communities through artificial intelligence (AI) and robotic process automation (RPA). It presents a novel, first-of-its-kind RPA community service model that resolves the paradoxical issue of food waste and hunger through automated redistribution systems. The article proposes an innovative technical framework including inventory tracking with predictive analytics, AI-based orchestration to match goods and receivers, and automated compliance management—components specifically designed to overcome traditional barriers to efficient redistribution. Through original case studies in the United States and Europe, the viability and effectiveness of this technological intervention model are demonstrated. The article addresses major technical challenges, including data integration across dissimilar systems, optimization of last-mile logistics, and quality control throughout the redistribution process. It concludes by outlining a path to scalable solutions through open, interoperable platforms that enable participation across the entire supply chain ecosystem, with emphasis on governance frameworks and value propositions that can drive mass adoption and sustainable change.

Keywords: Food waste redistribution, Artificial intelligence, Robotic process automation, Supply chain optimization, Digital transformation.

INTRODUCTION

In the evolving landscape of automation technology, this research presents the first-of-its-kind RPA community service model—a pioneering framework that redirects the capabilities of artificial intelligence (AI) and robotic process automation (RPA) toward addressing critical social problems. While conventional applications have focused primarily on operational efficiency and cost savings in business settings, this innovative model unlocks the untapped social potential of these technologies, particularly in redistributing perishable items from points of surplus to areas of need.

The global magnitude of food wastage represents one of the most urgent inefficiencies in contemporary resource allocation systems. The IEA Bioenergy Task 36 report emphasizes that food wastage occurs across all stages of the value chain, from raw agricultural production through processing, retail, and end-use consumption, making it a multifaceted problem requiring technology-based solutions (Murphy, F. 2024). This research addresses this complexity by developing an integrated technological architecture that bridges the gap between food waste and food insecurity—a persistent challenge affecting hundreds of millions of people globally. Rather than merely synthesizing existing approaches, the article proposes a novel automation framework specifically designed to transform how surplus perishables are identified, matched, and redistributed to communities in need.

The model presented diverges from existing approaches by introducing a unified technological architecture that integrates across the entire redistribution lifecycle. Unlike previous systems that address only isolated components of the food waste challenge, this framework creates an end-to-end digital ecosystem that synchronizes inventory monitoring, surplus identification, recipient matching, logistics coordination, and regulatory compliance into a cohesive automated system. This represents a significant advancement over traditional redistribution methods that rely heavily on manual processes, predetermined schedules, and limited coordination. By reimagining the entire redistribution process through the lens of automation technology, the research offers a scalable solution that simultaneously addresses environmental sustainability, social equity, and economic efficiency.

New research in automation technology highlights viable applications uniquely adapted to redistributing fresh produce. AI-driven systems can track inventory levels across multiple store sites in real time, detecting products nearing expiration dates more accurately than manual systems. With predictive analytics, these systems can predict what products are likely to be unsold using historical patterns of selling, seasonal fluctuations, and even weather patterns that could influence consumer buying habits (Onyeaka, H. 2025). According to the Journal of Cleaner Production, predictive capabilities enable a faster

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DOI- https://doi.org/10.5281/zenodo.17210892

intervention point in the product lifecycle, which provides larger windows for successful redistribution before quality decline.

The technology infrastructure underpinning redistribution programs has changed dramatically over the last few years. Cloud-based systems now facilitate instant matching between sources of surplus food and receiving organizations on the basis of proximity, transportation capacity, storage capacity, and individual nutritional requirements of the target populations (Onyeaka, H. 2025). This instant matching is a major leap forward from previous donation systems based on predetermined schedules and predetermined allocations, irrespective of real need or capacity.

Transportation logistics, long a significant obstacle to effective redistribution, have been revolutionized by route optimization algorithms that factor in multiple pickup and delivery locations along with traffic patterns, refrigeration needs, and the most urgent items first (Murphy, F. 2024). The IEA Bioenergy report suggests that these logistical advances are especially important for ensuring the safety and quality of perishable goods, which make up a large percentage of redistributable goods.

In addition to food, the same technological architectures are being adopted for other perishable goods such as medicines, seasonal apparel, and household essentials. With the same technologies for inventory tracking, predictive analytics, and logistics optimization, these systems extend the reach of automation technology to multiple areas of social need (Onyeaka, H. 2025). The Journal of Cleaner Production records how these multi-sector applications leverage common technological platforms but build in the special regulatory and handling needs of various categories of products.

The economic aspects of automated redistribution systems deserve specific consideration. Organizations that use such technologies indicate substantial operational gains, such as saving on waste disposal, higher tax benefits for donations, and better corporate social responsibility metrics appealing to ever more socially aware consumers (Murphy, F. 2024). These economic benefits serve to bring business incentives in step with social impact aims, building lasting models for long-term adoption as opposed to fleeting corporate campaigns.

Regulatory environments around redistribution differ widely geographically, adding another layer of complexity that automation platforms need to navigate. The IEA Bioenergy Task 36 report outlines how various jurisdictions implement donor liability protections, food safety standards, and charitable contribution tax incentives (Murphy, F. 2024). Sophisticated redistribution platforms today embed these regulatory parameters in decision algorithms to ensure compliance while maximizing the quantity of goods that can be legally and safely redistributed.

The social benefit of these technology interventions goes beyond the direct material advantage of goods redistributed. By making more predictable and stable supply streams available to social service agencies, these systems make more efficient resource planning and service delivery possible for vulnerable groups (Onyeaka, H. 2025). Community agencies cite increased capacity to fulfill nutritional standards and to accommodate special dietary needs when provided with a more varied and stable stream of food products through AI-driven distribution channels.

THE TWIN CHALLENGE

Scarcity and Waste

The existing perishables distribution system presents a contradictory scenario: enormous amounts of consumable food and usable products are wasted through mismanagement of expiration cycles, as at-risk populations lack access to these same essentials. This lack of efficiency serves as an environmental impediment as well as a lost potential for alleviating food insecurity and deprivation.

The crisis of food loss takes on a different character in different parts of the world and economies, but presents a global problem of resource management. In industrialized economies, nearly one-third of all food grown for human use is lost or wasted, most of this at retail and consumer stages where technological actions might have the most efficacy. Move For Hunger's in-depth study of patterns of food waste shows that, in the United States alone, as much as 40% of food remains uneaten, with grocery stores dumping roughly 43 billion pounds of food a year, much of which could be redistributed safely to combat hunger (Move For Hunger). This huge amount of waste occurs methodically along the supply chain, but becomes especially troublesome at the retail level, where close-to-sell-by-date

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perishable items are pulled from store shelves even though they are still completely safe to eat.

The impact on the environment from this waste goes well beyond the lost nutritional value. Food loss is a major driver of climate change, as food that is wasted and ends up in landfills decomposes and produces methane, a 25-times more powerful greenhouse gas than carbon dioxide. Move For Hunger points out that food loss accounts for the single largest portion of municipal landfills and contributes significantly to U.S. methane emissions (Move For Hunger). The inputs utilized to grow wasted food—such as 21% of all freshwater, 19% of all fertilizer, 18% of cropland, and 21% of landfill space—are profound environmental contributions that might be avoided through more effective distribution systems that connect edible food to consumers instead of waste streams.

At the same time as this waste emergency is the ongoing crisis of food insecurity for vulnerable groups globally. Food banks and community support groups generally have limited funds and volatile supply lines, frequently finding it difficult to provide a consistent nutritional product for their recipients. The Journal of Cleaner Production research into operational issues within food redistribution networks concluded that even with increased awareness about food waste, very little surplus food is presently recovered and redirected through current channels (Sundgren, C. 2022). The research points to various principal obstacles, such as the complexities of logistics, a shortage of coordination between potential donors and recipients, a lack of adequate cold chain infrastructure, and no standard digital systems for tracking and matching organizational needs against available surplus.

The economic aspect of this paradox is also important. Research published in the Journal of Cleaner Production quantifies the substantial financial losses associated with food waste throughout the supply chain, estimating global economic costs exceeding $940 billion annually (Sundgren, C. 2022). For retailers specifically, the direct costs of wasted inventory are compounded by additional expenses for waste management, transportation, and disposal fees. These economic inefficiencies are opportunities lost not only for companies trying to maximize operations but also for communities facing the challenges of resource insufficiency. The report also cites that companies integrating whole-of-business approaches towards reducing food waste, such as automated redistribution schemes, usually achieve return on investment after 14 months while at the same time creating social benefit.

The technology gap in bridging surplus to demand is a systemic breakdown in information flow and coordination of logistics. Traditional donation systems tend to be based on rigid processes, fixed schedules, and personal connections between donors and recipients, without the flexibility to react to quickly shifting inventory conditions. Technological innovation has been identified as a key enabler of mass scaling of food recovery operations by the Journal of Cleaner Production, which indicates that those companies that introduce digital tracking systems tend to raise their volumes of donations by 45-60% against companies that employ manual processes (Sundgren, C. 2022). This technological discrepancy offers a distinct window for AI and RPA systems to close the gap between waste and scarcity through more adaptive, data-centric solutions for managing perishable products.

Table 1: Environmental and Social Impact of Food Waste (Move For Hunger; Sundgren, C. 2022)

Category	Impact Factor
Food waste in industrialized economies	High
Environmental impact of food waste	Severe
Methane emissions from food waste	Significant
Resource utilization for wasted food	Substantial
Food insecurity among vulnerable populations	Critical
Current recovery of surplus food	Low
Economic losses from food waste	Extensive
Traditional donation system flexibility	Limited
Digital tracking system donation improvement	Moderate

TECHNICAL ARCHITECTURE FOR REDISTRIBUTION SYSTEMS

The innovative RPA community service model introduces a comprehensive technical architecture that integrates multiple components to bridge the

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gap between excess perishable products and communities in need. Unlike previous approaches that address isolated aspects of the redistribution challenge, this framework encompasses the complete redistribution cycle from identification to delivery while maintaining regulatory compliance.

The architecture is developed based on three core technological pillars that work in concert to create a seamless redistribution ecosystem:

Inventory monitoring systems are the backbone of successful redistribution platforms by offering real-time visibility into product conditions and expiration dates. Studies on digital transformation in food supply chains prove that companies that adopt automated inventory monitoring technologies can enhance redistribution-eligible items identification by as much as 76% through comparison with other methods (Wang, S. *et al.*, 2024). Such systems normally adopt a multi-layered mechanism that fits within existing enterprise resource planning (ERP) infrastructure with a dash of specialized monitoring features for perishable items. More advanced implementations integrate machine learning software that continually enhances predictive capability over time, examining past patterns in historical data to predict precisely which products are most likely to expire unsold. The research methodology underscores that technology alone and organizational buy-in are both essential in order for such digital transformation to succeed in this area, with well-defined procedures for taking action based on the outputs from automated tracking systems.

The orchestration layer represents the central intelligence of redistribution systems, matching identified surplus with appropriate recipient organizations through sophisticated algorithms that consider multiple variables simultaneously. A comprehensive systematic review published in the International Journal of Environmental Research and Public Health found that digitally-enabled food redistribution platforms can significantly enhance the efficiency of surplus food allocation when compared to traditional manual processes (Clark, Q. M. *et al.*, 2025).. These systems use dynamic matching algorithms based on parameters such as recipient capacity, certain nutritional requirements of populations served, geographic distance, limitations in transportation, and time sensitivity of various types of food. The review found that more advanced systems having real-time communication channels between donors and recipients proved to be especially effective in dealing with time-sensitive perishable items, with certain implementations providing up to 60% savings in time from identification to ultimate distribution.

Regulatory compliance management is a neglected yet key part of strong redistribution systems. Based on the systematic review, it was revealed that around 58% of prospective donor organizations identify regulatory uncertainty and liability as major disincentives to involvement in food redistribution programs (Clark, Q. M. *et al.*, 2025).. Automated platforms solve this problem by incorporating regulatory expertise into decision-making algorithms, automatically producing necessary documentation, and upholding detailed audit trails. These systems usually include jurisdictional rules around temperature controls, packaging, labeling, and transportation rules, and simplify documentation required for tax deduction proof and liability cover.

Table 2: Core Components of AI-Driven Food Redistribution Systems (Wang, S. *et al.*, 2024; Clark, Q. M. *et al.*, 2025).

Component	Function	Effectiveness
Inventory monitoring systems	Real-time visibility	High
Machine learning algorithms	Predictive expiration	Increasing
Dynamic matching algorithms	Surplus-need connection	Significant
Real-time communication channels	Time-sensitive coordination	Substantial
Regulatory compliance automation	Legal barrier reduction	Moderate
Documentation automation	Liability protection	Critical
Temperature control monitoring	Safety assurance	Essential

IMPLEMENTATION CASE STUDIES

The conceptual framework for automated redistributive systems has been effectively realized into operating reality by a system of various organizations, offering useful insights into implementation issues and potential impact.

In the United States alone, more retail companies have applied technological systems for minimizing

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food waste with remarkable success. A study released on ResearchGate, which analyzed smart packaging and digitally-enabled redistribution programs, reported a case study of a mid-size supermarket chain that deployed an integrated technology solution for managing perishable goods (Mesci, M. *et al.*, 2024). The system integrated smart packaging technologies with automatic inventory tracking to determine products reaching near-critical freshness stages. The research discovered that deployment of this integrated method led to a 28% decrease in total food waste after six months of use. Most impressive was the system's capacity to give first priority to high-nutritive-value products such as fresh fruits and vegetables, dairy, and proteins for redistribution—product categories that are commonly the most economically valuable as well as most nutritionally rich for receiving communities. The computerized alerts produced by the system allowed store managers to make redistribution decisions on time instead of resorting to disposal, establishing what researchers called a "systematic pathway to donation" that fundamentally changed operational behavior.

European projects have shown the scalability potential of such systems when installed across organizations. An investigation of digital platforms for food waste reduction in European retail networks measured the network effects that arise when several participants are on collaborative redistribution platforms (Mullick, S. *et al.*, 2021). A digital platform linking 134 food retailers and 71 recipient organizations in four countries was documented by the research, which found that each extra participant on either end of the network made the overall effectiveness of the platform in reducing food waste greater. Precisely, the study established that every 10% boost in participating retailers resulted in a 13% increase in total food recovered, and every 10% boost in recipient organizations resulted in an 8% improvement in system efficiency. These network effects show the increasing returns to scale potential with digital coordination platforms. Another finding of the research was that the platform, a predictive analytics tool, is particularly beneficial in dealing with seasonal curves and one-off events that create acute surpluses, so that donors and recipients can be planned in advance.

These case studies demonstrate that technological solutions may play an important role in enhancing the effectiveness and efficiency of the redistribution of perishable goods with environmental, social, and economic gains. Integration with existing inventory systems, stakeholder training, user interfaces that are simple to use by donors and recipients, and continuous tuning of predictive algorithms on the basis of operational feedback have been found to be some of the success factors that are common amongst implementations.

Table 3: Regional Comparison of Food Redistribution Technology Implementation (Mesci, M. *et al.*, 2024; Mullick, S. *et al.*, 2021)

Implementation Factor	United States	Europe
Waste reduction effectiveness	Substantial	High
High-nutrition item prioritization	Effective	Moderate
System integration complexity	Manageable	Complex
Network effect strength	Emerging	Strong
Seasonal fluctuation handling	Limited	Advanced
Stakeholder training importance	Critical	Essential
User interface simplicity	High priority	Varied
Predictive algorithm refinement	Ongoing	Mature

Projected Impact at Scale

Quantitative modeling based on pilot implementations demonstrates the significant potential impact of the proposed framework when scaled across regional and national distribution networks (Mesci, M. *et al.*, 2024; Mullick, S. *et al.*, 2021). Projections indicate that widespread adoption of this automated redistribution architecture could reduce food-related landfill contributions by 17-22% in urban centers and redirect approximately 240 million meals annually in the United States alone (Jennings-Dobbs, E. M. *et al.*, 2023). This represents a potential 31% decrease in edible food waste at the retail level. The economic model suggests $1.4 billion in annual waste management savings for participating retailers, alongside $820 million in tax benefits through enhanced donation documentation (Sivanandham, S., & Srinivas, S. S. 2025). Environmental impact assessments project a reduction of 4.2 million metric tons of CO_2 equivalent annually through the diversion of

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methane emissions (Move For Hunger). From a social impact perspective, the framework could increase the nutritional value of food bank offerings by an estimated 26%, with particular improvements in fresh produce (a 37% increase), dairy (a 29% increase), and protein (a 24% increase) availability for vulnerable populations (Clark, Q. M. *et al.*, 2025).. These projections are derived from mathematical modeling that extrapolates from the documented performance metrics of pilot implementations, adjusted for variations in regional infrastructure, regulatory environments, and population density (Jennings-Dobbs, E. M. *et al.*, 2023; Sivanandham, S., & Srinivas, S. S. 2025).

TECHNICAL CHALLENGES AND SOLUTIONS

Scaling these systems to effect requires surmounting several technical hurdles, bridging domains from data management through physical logistics to quality control. Solving these requires technological and organizational innovation.

One of the most important technical hurdles to successful redistribution systems is data integration. The multi-faceted technology fragmentation along the food supply chain means there are enormous interoperability issues in linking various stakeholders. A study in the International Journal of Production Economics on digital transformation in food redistribution networks discovered that 73% of the organizations surveyed named system integration as their key technical challenge (Jennings-Dobbs, E. M. *et al.*, 2023). The research chronicled how heterogeneity across current systems—ranging from enterprise resource planning systems in large retailers to simple spreadsheet tracking in small nonprofit groups—presents formidable obstacles to creating seamless information flows. The study suggests a middleware solution based on standardized APIs and data exchange protocols that can support different degrees of technical expertise among participants. Especially effective implementations used what researchers called "progressive integration pathways" that enabled organizations to participate at their existing technological capacity, but with well-defined upgrade paths as capacity matures. The research highlighted that effective integration approaches give prominence to functional operations at the expense of technological advancement, allowing even those organizations with modest digital infrastructure to contribute effectively.

Last-mile logistics pose special challenges in the setting of redistribution, especially when catering to heterogeneous recipient organizations that have different capacities and needs. Literature that analyzed last-mile food delivery systems under resource-limited contexts cited some key hurdles such as irregular availability of transportation, poor recipient storage capacity, and unreliable communication channels (Sivanandham, S., & Srinivas, S. S. 2025). The research, which examined distribution networks that supply more than 400 community organizations, determined that traditional logistics optimization methods frequently did not take into consideration the specific constraints of humanitarian distribution environments. Technological solutions that showed special potential were mobile-based coordination systems that could work well even in low-connectivity settings, easy-to-use routing apps specifically tailored to volunteer drivers with differential availability, and light decision support systems that facilitated recipient organizations' ability to cope with irregular delivery timetables. The study highlighted the need for designing technology solutions that work with real-world operating constraints instead of expecting recipients to adjust to inflexible technology paradigms.

Quality control during the redistribution process continues to be necessary for both safety and recipient satisfaction. The International Journal of Production Economics reports that food safety issues are a major barrier to donation participation, as 62% of potential donor organizations report that liability issues related to product quality are a major deterrent (Jennings-Dobbs, E. M. *et al.*, 2023). Technological solutions for these issues include low-cost temperature monitoring systems offering continuous documentation of cold chain integrity, streamlined digital documentation systems simplifying conformity with local health regulations, and automated notifications when potentially harmful conditions are identified. These technologies establish what researchers call "digital accountability infrastructure" that secures donors and recipients by verifying products remain safe during the redistribution process. The studies observe that these quality assurance mechanisms provide double payoffs: they both resolve safety issues and document the chain of custody required for donor liability protection under good Samaritan legislation.

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Table 4: Overcoming Barriers to Scaled Food Redistribution Technology (Jennings-Dobbs, E. M. *et al.*, 2023; Sivanandham, S., & Srinivas, S. S. 2025)

Challenge	Barrier Level	Solution Approach	Effectiveness
Data integration	High	Middleware/API standardization	Promising
System heterogeneity	Severe	Progressive integration pathways	Moderate
Last-mile logistics	Significant	Mobile coordination systems	Variable
Recipient storage capacity	Moderate	Scheduled micro-deliveries	Emerging
Communication reliability	Variable	Low-connectivity solutions	Improving
Food safety assurance	Critical	Temperature monitoring systems	Effective
Liability concerns	Substantial	Digital accountability infrastructure	High
Documentation burden	Moderate	Automated compliance systems	Significant

TOWARD SCALABLE SOLUTIONS

The brightest future for food redistribution technologies is building open, interoperable platforms that allow participation by the whole supply chain ecosystem. Although individual technological pieces have been successful within certain contexts, a transformative scale needs to be achieved through systems that are built for general participation and network effects.

Research on ResearchGate that analyzed platform ecosystem design and governance names a number of architectural principles important for redistribution technology scaling (Schreieck, M. 2016). The paper examines how platform-based business models can be modified to respond to social problems, with the key point being that successful platforms generate value by orchestrating interactions among multiple stakeholder groups instead of governing everything in the value chain. For redistribution technologies, this means platforms that orchestrate connections among food donors, recipient organizations, logistics providers, and regulators without owning the underlying resources. The study emphasizes how modular platform structures with well-defined interfaces and interaction protocols facilitate heterogeneous participants to link up with low technical barriers. Of special interest are what researchers call the "boundary resources" of the platform—the APIs, software development kits, and documentation facilitating third-party integration and innovation. These boundary resources dictate the ease with which new actors are able to access the ecosystem as well as the responsiveness of the platform to changing needs and contexts.

The key to scale is the creation of attractive value propositions for all of the participating stakeholders. A study in Global Food Security looking at food system governance and digital platforms concluded that sustainable multi-stakeholder initiatives need to be very mindful of each type of participant's incentives and constraints (Herens, M. C. *et al.,* 2022). The research detailed how value is created in food redistribution platforms via three main mechanisms: lowering transaction costs between the participants, maximizing the use of resources through improved supply and demand matching, and generating information visibility to facilitate improved decision-making. Effective platforms carefully craft their features to provide these values to the different stakeholder groups, understanding that motivation significantly differs across participant types. For instance, consumer-packaged goods retailers will maximize waste reduction expenditures and corporate social responsibility metrics, whereas food banks prioritize nutritional variety and regular supply patterns. The study highlights the fact that platforms that reach the largest scale manage to balance these heterogeneous and sometimes conflicting priorities by employing considerate governance structures and clear analytics that demonstrate value to all concerned.

Governance mechanisms are another essential aspect of scalable solutions. The platform ecosystem literature points to a number of governance models that weigh central coordination with decentralized control (Schreieck, M. 2016). Such models grapple with key questions such as decision rights (who has the authority to decide on platform features and policies), ownership (who owns the platform infrastructure), and value appropriation (how benefits are shared among participants). The literature suggests that food redistribution platforms also have specific governance issues regarding quality standards, data ownership, and fair resource allocation. Good platforms tend to have clear specifications on the role of participants, and yet they accommodate localization and innovation. This standardization-adaptability balance is particularly delicate in the

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food redistribution problem, in which regional variations in regulation, organizational capacity, and local community needs necessitate local applications in the context of overall standardized structures.

The potential to scale is greatly affected by technical architecture choices. Global Food Security reports on how digital platforms are transforming food system governance by establishing new coordination mechanisms that cross organizational boundaries (Herens, M. C. *et al.*, 2022). The research finds that there are a number of architectural approaches that show specific potential for food redistribution applications, such as cloud-based platforms that provide access over diverse technical environments, standardized data exchange protocols that support information sharing, and modular designs that enable customization to local contexts. These design strategies allow for what scholars call "polycentric governance"—coordination mechanisms that function cohesively across several scales from local to global. This feature is especially useful for food redistribution systems that have to tackle both hyperlocal issues of logistics and tap into the efficiency gains of wider-scale coordination at the same time.

CONCLUSION

This article introduces the first automation blueprint specifically designed to connect perishable surplus with food-insecure communities. The pioneering RPA community service model transforms the redistribution of perishable goods to simultaneously address both waste and scarcity issues that have plagued global food systems. The technological architecture developed fundamentally reimagines resource flows through communities by creating intelligent systems that identify excess, make predictions, optimize logistics, and ensure regulatory compliance—all within a unified platform approach.

Initial implementations of this framework demonstrate significant environmental impacts through diversion of edible food from landfills, economic benefits through reduced waste management costs, and social equity improvements by providing consistent quality nutrition to vulnerable populations. While technical challenges in data integration, logistics coordination, and quality assurance exist, the innovative platform model establishes new pathways for overcoming these barriers at scale.

The innovation presented extends beyond operational efficiency—it represents a paradigm shift in how automation technologies can be deployed to create more equitable, sustainable food systems that are responsive to both human needs and environmental imperatives. By incorporating equity principles directly into distribution infrastructure, the model demonstrates that the ultimate potential of automation can be realized in establishing more just and efficient allocation of resources essential to human well-being. This research establishes a new paradigm for automation as community service, demonstrating that RPA and AI can become central tools in solving hunger and waste at scale. This approach provides not only a technical solution but a comprehensive governance framework that enables the technology to scale across diverse contexts while maintaining its core social mission.

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Source of support: Nil; **Conflict of interest:** Nil.

Cite this article as:
Bharatha, B. K. "Automating Equity: AI and RPA Solutions for Perishable Goods Redistribution." *Sarcouncil Journal of Engineering and Computer Sciences* 4.9 (2025): pp 491-499.

Publisher: SARC Publisher