Automated Locker Systems - A Win-Win Solution for Consumers and Retailers

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Objective: Provide a framework for the application and benefits of autonomous locker systems to assist in fulfilling online orders as part of an integrated & scalable last mile solution.

Introduction

The last mile is the most challenging and complex step in the supply chain and, for many retailers, it has become very costly to perform. The randomised arrival of orders and delivery radii involved has led many retailers to question whether there is a delivery configuration where the shipper's delivery and consumer's receipt can be "decoupled" to provide delivery cost efficiency, customer convenience of "receiving" at a time of their preference, and security.

The goal of this short paper is to explore a solution meeting these types of requirements. We demonstrate how the automated locker system (ALS) has significant practical application for the market growth of e-commerce accommodating diverse range of delivery requirements. Interest in this area has increased significantly over several years as retailers look to utilise increasing automation to reduce costs and provide scalability.

Increasingly, consumers are demanding convenience and control in all elements of their buying needs, particularly with their online experiences. Retailers are looking at many different options to build competitive advantage through developing customer loyalty with each experience. Consumers expect frictionless experiences during ordering activities, they want to pick up in store or at a location best suited to their path of travel, focused on their convenience and control.

It is important to recognise new omni-channel solutions are often at odds with the typical operational evaluation approach (eg. ROI). Growth in online sales has become a key criterion for retailers looking to maintain market share. It takes vision and courage to invest in new last mile solutions with limited data. The paper will look at various fulfillment models, different merchandise categories, diverse population densities served and targets, and current challenges in aligning deliveries to consumer expectations.

Applicability with Different Order Fulfillment Models

Retailers can avail themselves of many models and hybrids for fulfilling online and instore generated orders. The choice is often driven by actual availability of stock, and speed to market demands (e.g. click and collect or home delivery/POCC - point of consumer convenience). At a high level the fulfillment choices fall into five key methods. Retailers often hybrid their approaches to accommodate stock availability challenges. To be in the last mile "asset" consideration set, the ALS must be capable of facilitating these options seamlessly:

DC fulfilment - orders picked at DC and shipped to store for pickup or POCC/home
eFulfillment centres - orders picked and shipped to store for pickup or POCC/home
Store fulfillment - orders picked by store for pickup or POCC/home
Drop-ship fulfillment - supplier picks order and ships direct to POCC/home
3rd-party fulfillment - operation outsourced to provider and shipped to POCC/home

Note: POCC = Point Of Consumer Convenience. POCC is a delivery point under the consumer's control, such as a Canada Post location, gas bar, or dedicated locker array within a building (e.g. Condo), storefront or other location (e.g. Workplace).

All these models share one characteristic, they can all use the ALS to supplement "off site" or "out of hours" consumer collections, whether at Store, or at a regular POCC for a consumer as they go about their daily routines. The ALS does not tie the carrier to a risky "porch

drop" or securing a signature for a home delivery where the carrier has to ensure the customer is there. How? The system allows the retailer to arrange for the order to be "delivered" to the ALS. The same system informs the consumer their order is available for collection at their convenience, thereby disengaging the physical delivery from the time the customer wishes to receive. Furthermore, it allows the retailer (or groups of retailers via a small package carrier), to consolidate various consumers and complete one delivery event, rather than multiple delivery activities, lowering costs. The ALS provides further benefits around loss prevention in the selection of security protocol level in how the consumer has access to their delivery.

Applicability with Different Merchandise Categories

The cool locker system allows temperature controlled storage of consumer orders, however, this creates no imposition on hard goods. As a consequence, a wide range of merchandising categories can be facilitated within the ALS, with only "dimensional constraints" being a factor. For major items (such as appliances, TVs, furniture), home delivery remains the normal customer expectation. Aside from bulky consignments, the following categories can benefit from the ALS: General merchandise (hard goods, soft goods), grocery, pharma, electronics, apparel, footwear, gift vouchers, financial instruments, and legal documents.

Applicability with Different Population Densities

One of the key challenges for retailers is accessing a wide range of population densities cost efficiently, from high density conurbations (Downtown areas), through to remote communities as they look to serve and grow their customer base. In reviewing the five types of geographies, it can be established quickly how the locker system can be a beneficial method of providing cost efficiency in delivery, plus offering consumers flexibility of receipt/pick up and returns:

- ***High-Density Urban Geographies***[1]: A locker that's located as close as possible to the consumer is ideal, such as condo concierge areas, or at an alternative, walkable location (such as convenience stores). This delivery model is a great fit with the need to use consolidated transportation to effect to multiple deliveries at one location with off-hours delivery schedules reducing travel time and costs.
- ***Suburban Geographies***[2]: Enclosed spaces for lockers may be required to ensure security and everyday 24/7 operation.The delivery model provides opportunities for consolidated transportation. Additionally, off-hours delivery schedules provide an efficient option for retailers.
- ***Rural Geographies***[3]: In this scenario the locker model can be located within traditional strip malls or small retail centres. The ALS provides for cost-effective consolidated transportation. Off-hours delivery maximizes delivery volume while reducing costs.
- ***Remote or Isolated Geographies***[4]: Very low population density and limited transportation are significant challenges and require collaboration, facilitated by ALS which provide both consolidated deliveries, as well as security. Additionally, a retailer may consider establishing a kiosk to help remote customers order their requirements and manage returns as part of their service, in one common/accessible location.
- ***Resort***[5](or Seasonal): Seasonal trends can be challenging for retailers as the risk of "misses", or theft are very high. The locker model is available for both commercial and consumer usage. Off-hour deliveries can be made to reduce delivery costs. The ALS provides the ultimate level of convenience for consumers and security for the retailer.

The ALS provides a beneficial option for retailers as they look to execute a low-cost alternative for meeting rapidly growing consumer demand. It also facilitates the developing trend of competing on the web/in store, with cooperating to share operating costs and infrastructure. Alternatively, the lockers can be dedicated to a retailer to establish a localised market

Flexible Configuration Options

ALS are modular to provide scalability and can facilitate opening up a new trading area rather than the investment of a storefront. There are different locker compartment sizes which can be arranged as clusters, set in walls, freestanding, or integrated in an enclosure. The basic approach is delivery and collection from the forward face, temperature zone sensored, with an integrated kiosk for accessing the lockers via PIN. Additional considerations include: different options for delivery and retrieval by customers, temperature sensors for each locker compartment, sensors to confirm receipt/removal of goods, and digital kiosk integration.

Implementation Considerations

ALS implementations should always be designed with the consumer in mind, specifically with their experiences and expectations. The implementation process benefits from user involvement and support from small groups ranging from digital, marketing and operations. After the process for the locker hardware and software implementation project moves through the planning stage, a pilot program is often a key component. If all users participate in the design and implementation of the system, it will serve the business objectives more accurately, better reflect brand priorities and the ways in which work is to be performed. The normal method of capturing and setting out requirements includes:

1. Establish requirements based on volumes, locker compartment types and sizes
2. Determine locker location based on population densities with any specific environmental requirements
3. Technology with API's to provide an easy integration with existing platforms
4. Financial options for locker assets may be part of a fixed capital equipment expenditure (Capex) and schedule for the retailer. A good option is to acquire the locker through financial leasing along with any upfront integration and implementation costs. There is a shared infrastructure option with ongoing monthly expenses as part of a cool-lockers-as-a-service (CLaaS) model which includes the complete solution with the equipment acquisition, implementation, software maintenance and the management platform.

Customer Experience Success

Making the change in thinking necessary for an efficient Last Mile distribution network allows adopting new priorities centered around the customer journey, convenience and efficient last mile innovation. Convenience means increasing consumer choices and flexibility to best meet their wants and needs as increasingly consumers switch from store to online. The fundamental transition is from brand-controlled ways of engagement with consumers to customer-controlled and mobility-driven engagement with the retailer, with consumers driving

the way they want to purchase goods including picking up online purchases when and how they want.

Consumers generally prefer locker delivery as driven by choice, security and flexibility.[7] The fundamental customer value proposition for ALS is the process, from start to finish, is not determined and scheduled by the retailer and delivery methods instead the time and location for pick up is entirely based on the customer's schedule and priorities. This choice for pick up provides for a personalized and more intimate relationship between consumers and retailers as it is defined solely on the consumer's terms**.**

The challenges of returns given the high return rates for online commerce is efficiently facilitated by ALS with its built-in controls for managing reverse logistics, conveniently. Touch/feel performed at the time of the consumer choice, only after securing the products, determines a better process for returning products. Many retailer return processes are complex, requiring extra work for the customer, driven by the retailer's "store" rules and inconsistent with the retailer's preferred experience. With ALS, the consumer controls and schedules the returns themselves – no labelling, calls to CSR, waiting or frustration. The retailer automatically picks up "yesterday's" returns with the same transportation resources used for "today's" delivery.

BIO Chris Westra has a technology leadership background with over 30 years experience which began with Apple. As CEO of OMNION Inc., we partner with retailers to achieve higher performance for omnichannel strategy, digital infrastructure and logistics management systems. We're committed to Quality, Revenue Generation and the Best Customer Experience. Leveraging our expertise and innovation, with a collaborative approach, to improve last mile efficiency and supply chain operations with intelligent locker solutions. Chris can be reached at (250) 857-6102 and chris@omnioninc.com

BIO Gary Newbury specialises in change management and strategic transformation within Retail Value Chains and Last Mile Operations. He is a recognised as a thought leader in "Last Mile Fulfillment", the most complex and challenging element of retail supply chains, along with integration with omnichannel retail strategies. His 30-year experience of retail logistics is notable for rapidly tackling and transforming underperforming distribution networks, alongside leadership within high growth organisations on a national and international basis within B2C channels, on a Project, Consulting or Interim C level executive basis. Gary can be reached at (905) 926 7434 and gary.newbury@supplychainspecialists.com

End Notes

1. Definition (Wikipedia): Urban density is a term used in urban planning and urban design to refer to the number of people inhabiting a given urbanized area. Research related to urban density occurs across diverse areas, including economics, health, innovation, psychology and geography as well as sustainability. For our purposes, there are public (shopping centres) and private (condo) locations, one has general public access during normal business hours, determined by transportation arteries, typically urban transit systems with foot traffic, bus and car. Condo and multi-family dwellings offer the clear advantage of proximity that provides ease of use.
2. Definition (Wikipedia): A suburb is a residential area or a mixed use area, either existing as part of a city or urban area or as a separate residential community within commuting distance of a city. Medium density commercial locations predominantly accessed by cars with intermittent public

transportation for both private and public access and defined by single family dwellings with shopping/commercial clusters.

3. Definition (Wikipedia): In general, a rural area or countryside is a geographic area located outside towns and cities. Typical rural areas have a lower population density and small settlements. Agricultural areas are commonly rural, as are other types of areas such as forests.
4. Definition (Wikipedia): A remote and isolated community is one that either is a long distance from highly populated settlements or lacks transportation links that are typical in more populated areas. The definition of what is "remote" or "isolated" varies substantially between regions of the world. Defining and identifying remote and isolated communities is often done by governments so that special considerations can be made to provide services to these difficult-to-reach places. Very low density defined by isolated commercial areas, covering protected areas for natural applications (parks and resources), limited transportation with small clusters of population.
5. Definition: subset of urban density containing mixed use infrastructure for both short- and long-occupancy.
6. *Outside In: The Power of Putting Customers at the Centre of Your Business*, 2012 Harley Manning, Kerry Bodine, Josh Bernoff, Brilliance Audio, Inc.
7. "Consumers in all three countries [France, UK, Netherlands] are more open to give couriers access to an unmanned locker: 88 percent in France, followed by 64 percent in the UK and 53 percent in the Netherlands. The unmanned locker is clearly the preferred delivery method of the three methods the respondents had to think about." A. Parcel couriers granted temporary access to customer homes by giving them a one-time access code (important for both loss prevention and temperature control); B. Conventional package delivery to the home requires someone to be home and available or delivery to secondary locations (eg post office) becomes the default, except in the case of perishable goods which is not an option; C. Package delivery to the trunk (or back seat) of your car (requiring controlled access to reduce risk of organised crime); and D. Unmanned lockers, that is, no labour required at the physical locker locations whether located in a controlled secure area or stand alone. E-Commerce News, About Logisitics: https://ecommercenews.eu/french-consumers-open-new-delivery-methods/
8. Key location criteria for pilot project may Include:
    - 100-500+ of square feet, inside or outside, that capitalizes on existing real estate providing growth by monetizing non-revenue generating space that's already owned
    - Potential for 24 Hour Site since 24/7 availability is a key part of the value proposition
    - High Density Office and Residential
    - Large Daytime Population (workplaces, schools and universities, factories, etc.)
    - Near both Day and Late Night Activity (bars/restaurants/sporting facilities/amusement parks)
    - Easy Access Location from Major Arteries
    - Ability to Promote on Locker and near property via Signage on Lot
    - Near Major Public Transportation Hub or Stops
9. https://www.josuevelazquezmartinez.com/sustainable-logistics: Companies could potentially save between 3 to 20 tons of CO_2 (equivalent to performing their distribution with 5 - 10 vehicles less) by making better logistics decisions (truck assignment, replenishment strategies, etc.). Automated lockers can significantly impact on CO_2 and waste reduction.
10. Modern omnichannel performance needs to include KPI's for fulfillment while at the same time re-inventing the last mile experience. See "Retail's New Engagement Equation: 7 KPI's to Measure Modern Store Performance" calls for re-inventing the store experience https://www.aptos.com/assets/retails-new-engagement-equation/