

Amazonia Delivery Services



Disclaimer and Acknowledgements: Professor Robert Hickey, School of Policy Studies, Queen's University, wrote this case with advice from Vic Pakalnis, President and CEO of MIRARCO, and Nina Mankovitz, General Manager OHS, Canada Post. The case is fictitious and is intended as a case for classroom study and analysis. It is not intended to illustrate either effective or ineffective management practices.

Amazonia Delivery Services

Amazonia Delivery Services (ADS) provides contract delivery services for the on-line retail giant Amazon. Based in Vancouver, the company is planning to expand operations to four key urban markets: Calgary, Toronto, Montreal, and Halifax. The expansion opportunity could make ADS a significant player in the parcel and small package delivery industry, growing beyond its captured contractor status with Amazon to broader market diversification. The initiative carries significant risk if the change process is not managed well and operations growth results in service failures. If ADS fails to meet the rapid response delivery targets at the right price point, Amazon may decide to bring logistics back into its in-house, collaborative warehouse and delivery network.

Corporate and industry background

ADS is the pioneer in “virtual logistics operations” - connecting the thousands of Amazon’s vendors and customers without the delay and structural cost of the traditional warehouse-based storage and delivery system. In Amazon’s traditional operations, vendors would send large quantities of their retail products to large storage facilities. When an on-line customer placed an order, Amazon would package and ship the product from its warehouse operations through a third party shipping company. ADS developed a real-time logistics management system which allowed Amazon to by-pass the warehousing stage of product storage and delivery – connecting vendors directly to customers in dense urban areas through a network of “logistics engineers.” Founders Melodie Muldoon and Pradeep Amundir described these “logistics engineers” as “putting bicycle messengers into smart vehicles.”

The logistics software has allowed the company to use a mapping and routing algorithm to create hyper-efficient pick-up and delivery routes between vendors and on-line customers. The software essentially creates time and space blocks to move products from a store or vendor residence to a customer. The system has significantly reduced costs, but the business model also has significant limitations as it can only connect vendors and customers within a limited urban region. Incremental volume growth has occurred under this business model, but market expansion requires quantum leaps not marginal additions.

Competitive advantages

The primary competitive advantage of ADS is its point-to-point delivery system. As shown in Figure 1, the traditional Amazon logistics system requires massive warehouse storage capacity and an army of warehouse workers to select, package, and label products for delivery.

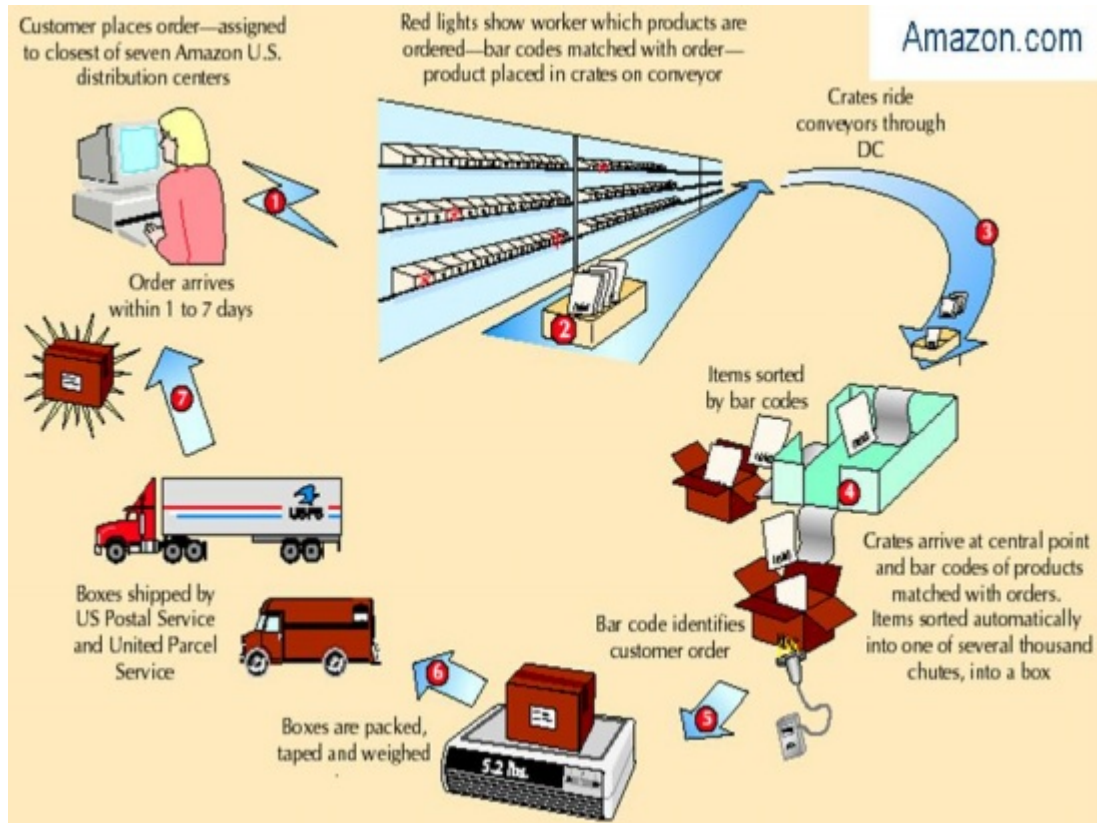
Figure 1: Amazon warehouse



Packages are then shipped through a variety of major companies such as Purolator Courier, Federal Express, and United Parcel Service. For Amazon, the costs associated with the bricks and mortar storage space and the labour costs associated with the number of warehouse workers needed to collect and package orders are substantial. While the company has found centralization provides some economies of scale needed to create greater efficiencies, there are delays and operational limitations. Most on-line customers place single item orders, or if they order multiple items, the same third-party vendor tends to be the primary source in the product supply chain.

Figure 2 shows the supply chain and delivery network in traditional Amazon services. On-line orders are directed to one of seven fulfillment centres located across North America. Product is stored in massive warehouses and workers select materials based on individual orders. A series of conveyor belts moves the orders through packaging and labelling stations. Amazon has experimented with collaborative warehousing strategies and allowing individual vendors to manage their own logistics and customer fulfillment delivery operations. Service failures by a small number of vendors have created significant costs to the Amazon brand, driving customers and potential customers from on-line ordering back into bricks and mortar stores. The ADS business model has effectively addressed these service failures while still providing a rapid response and lower costs logistics model for all stakeholders.

Figure 2: Traditional product flow



Rapid response capabilities

Modelled after the “just-in-time” efficiency revolution in the manufacturing sector, ADS developed a logistics algorithm that allowed it to create a viable “just-in-time” pick-up and delivery system for Amazon’s virtual retail marketplace in dense urban areas.

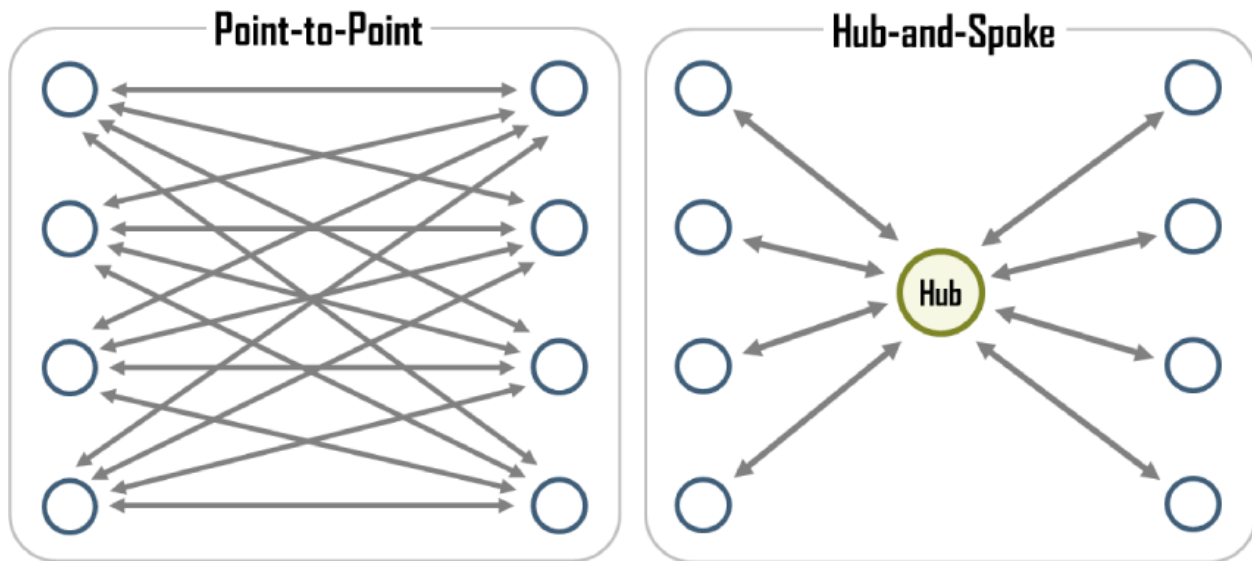
For Amazon’s network of vendors, the “just-in-time” pick-up and delivery business model significantly reduced costs associated with idle product languishing in large warehouse storage facilities. The rapid response capabilities of ADS resulted in a leaner and more efficient retail product supply chain.

	Traditional warehouse model	Just-in-time delivery
On-line order to delivery	3 – 5 business days	90% in 24 hours
Cost per package	\$8 per package average	\$6 per package average

The rapid response time, measured by the “order to delivery” performance indicator is the primary competitive advantage provided by ADS. While reduced overall cost is important too, rapid response capabilities would still be a competitive advantage even if it were associated

with a higher cost structure. Since the point-to-point delivery method has also resulted in a lower cost structure, it is a win-win situation for Amazon and ADS. Figure 3 shows the difference between a point-to-point system compared to the traditional hub and spoke system.

Figure 3: Point-to-point versus hub-and-spoke



Organizational leadership

The organization has grown rapidly over the past five years,

Melodie Muldoon, CEO

Ms. Muldoon started ADS when she teamed up with Pradeep Muldoon at university to create a personalized product delivery service. “It started as ‘Hey, this would be a cool app to handle on-line orders,’ to a business model that has garnered financial support and recognition from the largest on-line retailer.” After a year running the company on a part-time basis, managing a staff of 12 delivery drivers, Ms. Muldoon won a contract with Amazon on a limited pilot project basis. The results were impressive, but Amazon did not think that they would be sustainable or be scaled beyond a small niche. “We have a chance to break out of our boutique position in Vancouver to become a real player in Canada and who knows, our business model could take us anywhere.”

Despite the growth potential, Ms. Muldoon is still cautious about the growth strategy. “I am not sure that we want to be the Walmart of third party logistics services; we are not the appropriate delivery network to fulfill a customer’s order if they are widely dispersed,” explains Ms. Muldoon. “I would rather raise our rates above the traditional network to maintain our



niche as a high value, responsive logistics management company, rather than a high volume shipping company with universal service capacity.”

Pradeep Amundir, Chief technology officer

“My software program connects point A to point B. Pretty simple, but when you have a thousand moving parts in the forms of people and packages, it quickly becomes incredibly complex.” Sending out a single driver to pick up and then deliver a single package may work for bicycle messengers and sensitive documents, but most previous attempts to develop contract delivery service for on-line retailers have failed. “People have tried grocery delivery companies, floral contract delivery services, and pharmaceutical delivery companies – they all failed because they couldn’t make the business model work. We learned from those failures. We learned from successful airline and trucking companies and put together a business model with the right software support to make everything fit together.”

The key to success has been integrating customer management knowledge, ordering information, mapping tools, and traffic patterns with predictive algorithms to achieve the most efficient package delivery density. “The system has limitations. It works with the right population density, but it does not fit rural retail markets,” adds Mr. Amundir. “We could re-create our current model in other urban areas, but the real competitive advantage will be figuring out if we can make the point-to-point business model work in a bigger retail footprint.”

Lisa Carter, Director of HR

“People literally drive our success,” explains Lisa Carter, the Director of Human Resources for the past three years. “Vendors and the on-line customer do not know our executive team, they know our drivers. The drivers make or break our brand.” Ms. Carter was hired shortly after the company experienced significant growing pains and the drivers, called logistics engineers or LEs, decided to unionize. “I think we hit a point where we grew too fast. We launched new services without talking to the drivers about how these initiatives would impact services. Quality broke down and morale plummeted.”

The company is still relatively small with 50 regular, full-time drivers and 30 on-call, part-time casuals. Compensation is a combination of base pay (\$15 per hour) and a revenue sharing program. Drivers earn a commission equal to 10% of the service delivery revenues they generate. On a good day, most drivers can pick-up and deliver about 100 packages. With a \$6 shipping cost per package, that translates to another \$7.50 per hour in earnings. Managing the fleet of smart vehicles has been an issue, especially for the casual staff. At peak times, usually before Christmas and other major holidays, the company has to call-in every casual to work and they use their personal vehicles reimbursed on a mileage basis. The mapping software creates

the most efficient routes and there have been problems with some casuals claiming more miles than indicated by the mapping software. Turnover has been relatively low among the full-time staff, about 5% on a per annum basis. With part-time staff however, the rate is closer to 50%.

	Full-time regular	Part-time casual
Number	50	30
Pay rate	\$15 + 10% revenue sharing	\$15 + 10% revenue sharing
Annual turnover	5%	50%

Patrick Mericle, Operations manager

“Success is our biggest challenge,” explains Patrick Mericle. “Growth is great, but there have been growing pains that we have had to deal with along the way.” Patrick started at the same time as Ms. Carter as part of a significant management shake-up following unionization. Mr. Mericle’s primary concern has been to make sure that the growth of package volume does not outstrip the capacity of the company to meet its rapid response performance targets. “Every time someone clicks that confirm order button, our clock starts ticking and we have 24 hours to fulfill that customer’s order.”

“Only customers who request delivery to an address in the ADS service footprint have the option for our delivery service, but we capture about 95% of that potential market. We can’t just sit on this market share because someone else will come along and copy us on a larger scale. We have to grow our footprint.” Figure 4 displays the current service zone for ADS in the Vancouver area.

Figure 4: ADS Service Area



“Product loss is the ultimate service failure,” continues the operations manager Patrick Mericle. “Whether it gets lost somewhere in the system or an employee tries to blank the order out of the system and keep the product themselves, we have unhappy vendors and unhappy customers.”

Stan “Lucky” Dubé, Union steward

Lucky has seen a lot of former bicycle messengers come to ADS expecting the free spirit culture of ‘delivery cowboys.’ “They leave because they cannot turn chaos into efficient order. They like the chaos of zipping through traffic focused on one document and one destination. We manage dozens of documents and dozens of destinations at the same time.” Lucky led the unionization effort after seeing a friend suffer a bad traffic accident. “The culture at the time pushed everyone to work fast, but we really have to work smart.” Health and safety are still a major concern for Lucky, but he works well with Ms. Carter and Mr. Mericle.

“Lisa is management, but she is OK,” explains Lucky. “She really listens to us whereas I am not sure that Melodie and Pradeep think about anything but what will make Amazon happy. Pat is always looking at time to delivery numbers not what it takes to get those numbers.” Common problems include concerns around favouritism and who gets the most lucrative zones. “In some areas you could get a 50 parcel pick-up at just one stop and turn in 200 delivery completions in a day. Some days in West Vancouver, 50 completed deliveries is a good day and that makes a big difference in your paycheque.” The union agreed to rotate zone assignments to make sure no one felt stuck in a bad area.

“I am worried about this talk about expanding to new cities and going for higher volumes,” comments Lucky. “I mean are we gonna start driving UPS trucks soon? We can barely keep up with the volume now. The connection points are the real concern. I have heard that drivers are going to have to sort packages coming from other cities before we get out onto our routes. If I have to sort packages rather than make deliveries, I am losing money, not to mention what moving all those extra boxes will do to my back.”

Health and safety concerns

The union steward has been raising a variety of health and safety concerns in the Joint Health and Safety Committee (JHSC) meetings.

Field delivery workload

“Start the day with an empty trunk – end the day with an empty trunk.” The sign is prominently displayed at ADS headquarters. Any package which sits in a delivery van overnight is considered a service failure. “Some drivers are starting to work 10 or 12 hour days,” complains Lucky. “As the volume creeps up, they are not adding enough full-time drivers to keep up with the work.” Expanding the workforce has been a concern. “We need the right number of the right people,” explains Ms. Carter, the Director of HR. “Volumes fluctuate and we can’t pay people to wait for customers – that’s why we have a pool of part-time casuals. With revenue sharing everybody loses when there is not enough work because we are paying wages for no work and no work means the drivers lose the revenue too.”

“Yeah, I keep hearing that but I have been tracking the number of times in a month people have had to work over 12 hours in a day for the past year,” adds Lucky

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
>12	124	102	98	120	94	101	93	89	156	212	368	400

“We are going to start bringing our extra packages to Pat and let him deliver until midnight every night. This is crazy and it will only get worse if we expand to new cities. Tired drivers have more accidents.”

Vehicle capacity and driving safety

Related to workload has been the issue of physical vehicle space. The smart van brand which ADS has carefully nurtured for its delivery fleet is proving to be a limitation and safety issue. “I have seen LEs driving with packages on their laps and tied to the roof of the smart van,” said Lucky at the recent JHSC meeting. “If the software can figure out a complex web of point-to-

point delivery connections, why can't it predict the carrying capacity of our delivery vehicles. Vehicle accidents are a problem. "Driver safety is our number one priority," explains Ms. Carter. "In the past three years, we have reduced the incidence of vehicle accidents through extensive defensive driving training. We need safe drivers and full delivery vans."

Moving belts and falling boxes

"I have heard bad things about these micro-sorters," commented Lucky to Ms. Carter during a JHSC break. "You are gonna have drivers losing money running a fast moving sorting machine in some isolated storage garage. I saw them (management) testing one out. They took the safety guards off to more easily reach the packages and parcels. A driver will lose their arm in the first month with these things, just you watch..."

New technology options

"Business strategy, technology, and capital investment all need to be aligned," states CEO Melodie Muldoon. "We need the right technological fit for our business strategy and we need the right strategy to leverage the competitive advantage of our technology." A key question is whether and how to connect each urban centre's point-to-point network to a larger inter-regional footprint. "If we can't figure this out, we will be limited to local economies," explains Ms. Muldoon. "In today's global economy, we have to connect the local to the global if we want to survive."

Volume-focused market growth

In the first technological option, making the quantum leap to a national player in third party logistics would require investment into high volume, package sortation equipment. Figure 5 shows the kind of high volume package sortation equipment used to automatically distribute packages to specific delivery zones. The advantage of this type of system would allow ADS to increase volume by 500% from inter-regional package flow. The capital costs are substantial, about \$1 million per unit, and each urban hub would need one. Operationally, this would combine a sortation hub centre into each region's point-to-point network. New warehouse positions would be needed to work the increased volume.

Figure 5: High volume package sorter



Micro-sortation network

Technology option #2 retains more of the decentralized, point-to-point framework for inter-regional network connections. Instead of one large sortation warehouse, each urban market would have a flexible array of micro-processing centres that could be treated like any other vendor in the logistics network. Figure 6 shows the small scale sortation equipment that could fit inside a regular garage. These units are relatively cheap (about \$25,000 each) and can be moved to fit the best point location in the existing network of vendors. These sortation machines could be managed by the existing pool of drivers as part of their normal pick-up and delivery routines.

Figure 6: Micro-sortation centre



“Handling sufficient volumes in a point-to-point delivery network is the key to leveraging the low-cost structure of our operations,” emphasizes the operations manager. “This system



provides the best of both worlds. We retain our point-to-point network structure and grow our footprint in the most efficient way possible.”

Mobile app logistics integration

The third option is to connect with the vendors on the front end of pick-ups, but integrate with a traditional hub and spoke operator for inter-regional transportation and delivery. “We create value by quickly connecting vendors with their on-line customers,” says CTO Amundir.

“Melodie wants to go big, but I would rather stick with our proven business model. Our niche is point-to-point customer fulfillment – we can’t compete on the scale with FedEx or UPS.

Instead, we should leverage our vendor network and make it easier for them to connect with the global logistics carriers.”

Mr. Amundir has promoted the creation of a customer loyalty app which would allow established customers to piggy-back outbound packages and parcels with their ADS pick-ups. ADS would find the most efficient express service carrier to deliver packages outside of the ADS service footprint. “We could use the app to pass along savings to our regular customers. This will enhance customer loyalty even if it does not increase our volume and revenue.”

Strategic recommendations

Consider the facts of the case, the people involved, and the broader issues facing ADS. Prepare a brief presentation for the ADS executives and potential private investors. Address the following two points:

1. Assess the technological options.
2. Briefly outline a strategic plan to manage the change process from planning to implementation.