

1) Case: Amazon and delivery drones

In 2013, CEO Jeff Bezos announced Amazon was testing delivering packages using unmanned drones. While drones have not yet been approved for commercial use, U.S. government agencies like the Federal Aviation Administration (FAA) have started considering special rules and regulations governing their use. In Canada, the federal government agency, Transport Canada, would have to do the same. This futuristic endeavour by Amazon may not be approved for another five years, but it could potentially change how packages are delivered in the future, not just for Amazon, but for all businesses.

The goal for Amazon is to deliver goods to customers, the same day they are ordered, in 30 minutes or less. Certainly, drones have the potential to eliminate time delays due to traffic as well as shipping costs such as postal or courier charges. While some observers have doubted the feasibility of this idea, others say it is only a matter of time before this technology is used for all kinds of purposes. Like the internet, drones were also first used in the military; however, once applied to commercial use, they could have wide and significant implications on business and our future way of life.

A large number of delivery trucks and personnel could be reduced or eliminated altogether; however, an increase in jobs in designing, repairing and operating the drones could take effect. Technical jobs in robotics, computer engineering and math would be needed. According to Amazon, the company has already hired PhDs in math and science to create complex algorithms to deal with error correction, route optimization, sequencing, failure response and so on. Overall, Amazon hopes to increase efficiency, reduce costs and increase sales with this premium delivery service.

While it appears to be a new initiative, many companies including UPS and FedEx have already considered the idea, but are waiting for government approval before changing their business model and structure.

Indeed, if same day delivery becomes the norm (that is, goods delivered in 30 minutes or less), customers can easily come to demand this type of speedy service from other online retailers, or just shop at those who can provide it. Certainly, this may increase the ease of online shopping if you get goods faster than if you had to go to the mall, wait in line, buy them, and drive back home.

Will this revolutionize the delivery industry? Quite possibly. Bezo estimates that 80% of Amazon's packages are light enough for a drone to deliver. The remaining 20% will still require delivery trucks and people to carry heavier packages. Can this futuristic idea become a reality? A lot depends on the government, and of course, a lot depends on the consumer. If consumers want their books, pizzas and other goods delivered by drones, businesses will certainly try to find a way to meet their needs.

Sources:

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How can delivery drones for commercial use (i.e. a technological force) influence all the other **external** and **internal** forces, such as political, economic, societal, competitive, global, labour (workers), leadership (management philosophy), structure and strategy?

Answer:

External Forces	
Political	a) Laws and regulations • The introduction of new technology would require government to rethink laws and regulations over the affected industries and areas. For example, Amazon wants government approval from the Federal Aviation Administration (FAA) to use robotic drones to deliver packages to customers. In Canada, Transport Canada would need to approve delivery drones for commercial use. The government therefore has to think of how these robotic drones will be regulated. How will they remain safe when flying in the air, so they do not crash and injure civilians or cause property damage. Similarly, will they interfere with airplanes, birds, and other wildlife? How will they be monitored so the privacy of others are not infringed upon? Laws that may need to be reviewed and amended include: ○ aviation law ○ privacy law ○ safety law ○ criminal law (for potential damage of drones by individuals) ○ property law (for potential damage to property by drones)

	b) Unemployment insurance/social assistance • If this technology is replacing workers (eg. delivery men), there could be higher unemployment insurance or social assistance pay outs (from more unemployed individuals); as a result, there could be higher costs for government. This may create or increase an annual budget deficit or increase its ongoing debt if government cannot afford to make these payments. • Creating new jobs to oversee drones (eg. computer and robotic engineers) may result in less unemployed individuals, increase consumer spending and result in less unemployment insurance or social assistance pay outs. c) Taxes • If this new technology creates efficiencies for companies and reduces costs, companies may have higher net profits; therefore, higher corporate tax revenues will be collected by the government. Higher corporate tax revenues can help reduce budget deficits and potentially pay down the debt. Alternatively, governments may have additional funds to spend on community programs and services. • If new technologies replaces too many workers and too many workers are unemployed, governments may receive less personal income tax revenue. This could result in a budget deficit or increase the overall government debt. Similarly, governments may have less funds to spend on community programs and services. d) Post office • The Post office (a department of the government) may suffer a reduction in revenues from parcel delivery since Amazon may be using less of this slower service in the future.
Economic	a) Job creation • New technology can be beneficial for the economy by encouraging spending, creating jobs, and increasing profits; however, if the technology replaces too many workers it can also reduce jobs and reduce spending. b) GDP • New technology may help business be more competitive, by reducing business costs and therefore, increasing profits. More profits can contribute to an increase of the country's gross domestic product (GDP). c) Contribution to service economy and knowledge economy

	• Drones are an example of how the economy is changing to a more service and knowledge economy. For instance, manual labour (e.g. delivery) is being replaced by high tech jobs.
Societal	a) Change in consumer tastes and expectations • New technology can change societal expectations and influence consumer tastes. One example is with smartphones. Consumers now expect their cellphones to be smartphones, with access to email, the internet, GPS capabilities and so on. Another example is with fast-food burgers. If you go to order a burger and fries from a fast-food restaurant, you expect to receive your meal in minutes. If you had to wait 30 minutes, you may not return to the same establishment. • Similarly, delivery drones are expected to speed up the time of delivery to same-day delivery, or in 30 minutes or less. Therefore, instead of waiting for your goods for 3 to 4 weeks, in the future, you may expect your goods to be delivered the same day or otherwise you will shop where you can get your goods sooner. Certainly, consumers may want to shop online more often if it is easier, more cost efficient and more convenient to get their goods. For example, a consumer can save time driving to a physical store; save gasoline costs; save time waiting in line, etc. b) New concerns over ethics and privacy • Consumer concerns over privacy and the ethical use of drones may increase (since drones have been used by the military in some countries). This may cause some interest groups to lobby government to make laws and regulations over drones more stringent.
Competitive	a) New industry created • New technology can change how businesses compete. While the delivery industry is a broad industry that encompasses delivery by air, water and land, if approved by the government, drone delivery may be the birth of a new specialized delivery service. (i.e. the introduction phase of the industry growth model). b) Potential increase in online shopping • Faster delivery by drones versus over forms of delivery may increase the ease of online shopping and getting goods. • It is possible online shopping sales may increase and retail store sales may go down if consumers can get goods inexpensively and conveniently delivered to their door. • Alternatively, if consumers do not want this form of delivery due to privacy concerns, online shopping sales could go down (if it is the only delivery option).

	b) Potential increase in other innovative and value-added activities • New technology can also help reduce business costs and therefore, allow more profits to be spent on more value-added, innovative activities.
Global	a) Political • Delivery drones may not be allowed to cross country borders due to restrictions of other country's and their laws. This may affect global competition. b) Economic • How drones may affect the global economy is too early at this stage. Government regulation over this industry will be an important factor in determining how drones may be used for commercial use and how they may contribute to the economy. c) Societal • Individuals in different countries may have different views about the use of drones (especially since drones have been used in the military) and may have concerns over their safety and privacy. d) Competitive • New technology can be licensed to other companies in other countries. • If profitable, companies in other countries may also try to use drones for commercial purposes.
Internal Forces	
Labour	• New technology can replace labour (e.g. delivery workers), but create technical jobs such as robotic drone operators or computer engineers. • For example, Amazon has already hired PhDs in math and science to understand this approach to package delivery, such as sequencing, route optimization, error correction, etc.
Leadership (Management philosophy)	• Managers will need to manage this new technology and ensure it meets business' needs: to reduce cost, increase profitability and, of course, to satisfy customer needs and expectations. • This may require a more behavioural school type of management approach for managers and workers to think creatively. On the other hand, managing the drones may require jobs to be more specialized and standardized.
Structure	• The introduction of drones may or may not affect the structure of a business. • If there is a significant reduction in personnel, the

	organizational structure may become more flat.
Strategy	- Technology can cause a company to take a different strategy or complement an already existing one. a) Product differentiation - Drones can allow a company to take on a differentiation strategy. Here, the technology which will allow delivery in 30 minutes is a service enhancement and differentiator from other competitors. b) Cost leadership - On the other hand, the company may also try to have a cost leadership strategy by keeping costs low. How can costs be kept low? The elimination (or significant reduction) of costs for delivery trucks, gas, and other maintenance, plus related labour costs, plus postage or courier shipping charges, must occur and be replaced with the lower cost of drones and drone maintenance.