



/08 LAST MILE LOGISTICS WITH UPCYCLES

# HOW CAN WE REDUCE CONGESTION WHILE MAINTAINING LIVABLE NEIGHBORHOODS?

# THE CHALLENGE: THE NEED TO FIND INNOVATIVE AND EFFECTIVE DELIVERY SOLUTIONS ARE MORE PRESSING THAN EVER.

Last-mile delivery services are undergoing significant disruption in light of the explosion of e-commerce around the world. This trend has dramatically shifted market share from the B2B to the B2C segment, the latter making up more than 50% of the market in many countries. Considering the last mile's large share in the total cost of parcel delivery (often reaching or even exceeding 50%) makes it a key process for those seeking to gain a competitive advantage. Furthermore, with the rise of same-day or instant delivery, that is expected to grow to 20 to 25% of X2C (some form of goods delivered to consumers) volume, the need to find innovative and effective delivery solutions are more pressing than ever. According to a McKinsey & Company report,<sup>1</sup> three consumer delivery models are likely to dominate the last mile in the future: autonomous ground vehicles with parcel

lockers, drones, and bike couriers. AVs and drones will be characterized by a high degree of automation and asset intensity, while bike couriers are expected to take on a smaller market share through its reliance on human bicyclists. Another problem that last-mile delivery is facing however is the ever increasing issue of road congestion that has increased exponentially in parallel to the massive urbanization trend we have witnessed around the world. With 99% of last-mile delivery currently done by trucks, congestion costs of truck traffic in American cities (in terms of hours and gas wasted) has been estimated to be as high as \$28 billion each year. Finding a more effective, sustainable and environmentally friendly solution is thus absolutely key to service a booming e-commerce industry and the billions of packages delivered each day in cities around the world.





# LAST MILE'S SHARE IN THE TOTAL COST OF DELIVERY MAKES IT A KEY PROCESS FOR THOSE SEEKING TO GAIN A COMPETITIVE ADVANTAGE.<sup>2</sup>

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**\$28b**

Congestion cost of truck traffic in American cities each year in terms of hours and gas wasted

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**19.2m**

Amount of boxes shipped by FedEx and UPS combined each day in 2010<sup>3</sup>

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**15%**

Yearly growth rate of online retail sales in the U.S. since the beginning of the decade

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**5.1b**

Number of packages delivered by USPS in 2015

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**99%**

of last-mile deliveries are currently done by trucks

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**>50%**

of total delivery costs go to last-mile delivery

# THE SOLUTION.



## WHAT.

Upcycles develops transportation equipment for on-demand and neighborhood-scale deliveries in cities. Its human-electric cargo tricycles move like a bicycle with the cargo capacity of a car, and have the ability to deliver a quarter ton of goods 20 miles on a single charge.

## HOW.

They operate on city roads, bike lanes, and sidewalks, making them the fastest, most reliable and cleanest way to move goods from point A to point B. The company's first generation, zero-emissions fleet is already in use across New York City.



**HEADQUARTERS**  
Brooklyn, NY.  
Founded in 2017.



**FOUNDERS**  
Nick Wong  
Daniel Wendleck



**TAGS**  
Mobility  
Shipping  
Logistics



**LINKS**  
[upcycles.com](http://upcycles.com)  
[info@upcycles.biz](mailto:info@upcycles.biz)

# A CONVERSATION WITH UPCYCLES

## What inspired you to start Upcycles?

Moving bulky things throughout NYC, like water and soil and wanting to use bikes to do it pushed us to come up with an innovative solution. We were also driven by our interest in hacking technology and infrastructure to improve cities.

## What is your main mission?

Upcycle's mission is to boost human-labor to create healthier life and work in cities. We want to establish the trike as a platform for urban life and work and we've started by developing tools for next-generation urban-logistics.

## How did being part of the URBAN-X ecosystem help you to grow and develop your initial idea/product and deal with the roadblocks you have faced so far?

URBAN-X brought us potential partnerships that went beyond developing personal relationships. The accelerator's team of experts in residence also helped us foster mentorship relationships that will extend beyond the program, support and guidance, especially well-needed functions of communications, marketing and business methods. Finally, the program built community support that extends into the Greenpoint neighborhood through URBAN-X and A/D/O outreach.

## What's next for Upcycles?

We are currently using our two trikes to build a local delivery service operated by an independent bike messenger who we're partnered with. The question is: can a single operator create a meaningful business using one of our trikes. We are using this for product-market validation, while doing basic development and refinement to trikes, servicing, and sales. The next major steps will then be to work with bike messenger fleets, and then delivery platforms to reach a larger market and geographical area.



**“OUR HUMANISTIC STANCE STRONGLY RESONATES WITH OUR AUDIENCE AND WE WILL FOREVER HOLD IT AT THE CORE OF OUR BRAND.”**

—Nick Wong, Co-Founder of Upcycles

## What are the main risks you are facing in the future and how can they be mitigated?

Some of the question we are asking ourselves right now are the following: in a hot and shifting market, are we building the right product at the right time? Can we sell consistently? How can we scale-up effectively? How can we deal with regulatory risks? How can we fend off copycats and competition (from e-bikes to AVs)?

In-depth market research, proximity and strong collaboration with end users, validated learning methodology, credibility and the development of marketing

systems/assets are permitting us to mitigate market risks. Awesome servicing, internal testing, careful selection and training of early users fend off product risks. Aware, active and connected to city transportation policy as well as strong brand positioning and leadership in the next-gen professional urban deliveries segment will significantly help us deal with regulatory and competitive risks.

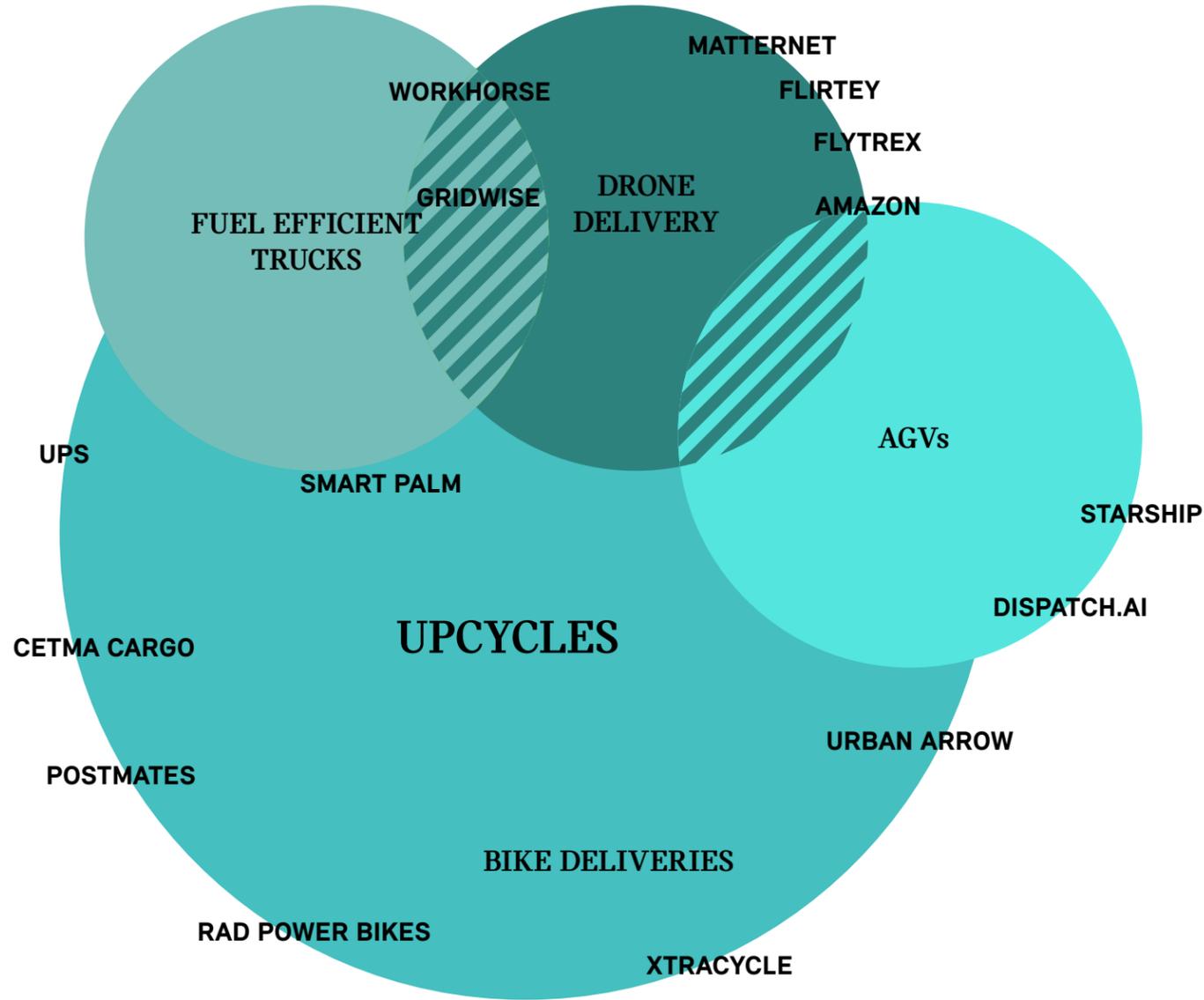
**While a lot of innovators in the deliveries market seem to be focusing on drones and autonomous vehicles, you are clearly putting humanity back into technology - why did you decide to do so and what is Upcycle's advantage over its more tech-focused competitors?**

Good question. This was an existential question for us and we spent a lot of time researching, debating, and planning for this during the URBAN-X program.

We started developing our trikes before self-driving cars dominated popular attention and it's just one of the many trends that we see ourselves playing into (growth in bike infrastructure, electrification, etc). We've always taken a more critical view of how cities, people, and technology inter-operate. And many of the real problems in cities can't be solved just through tech. In the context of autonomous ground vehicles ("AGVs"), we are decidedly human-centered because we believe it leads to a more pragmatic, incremental approach to deployment of self-driving technology on city streets. Our trikes can be a "bridge-technology."

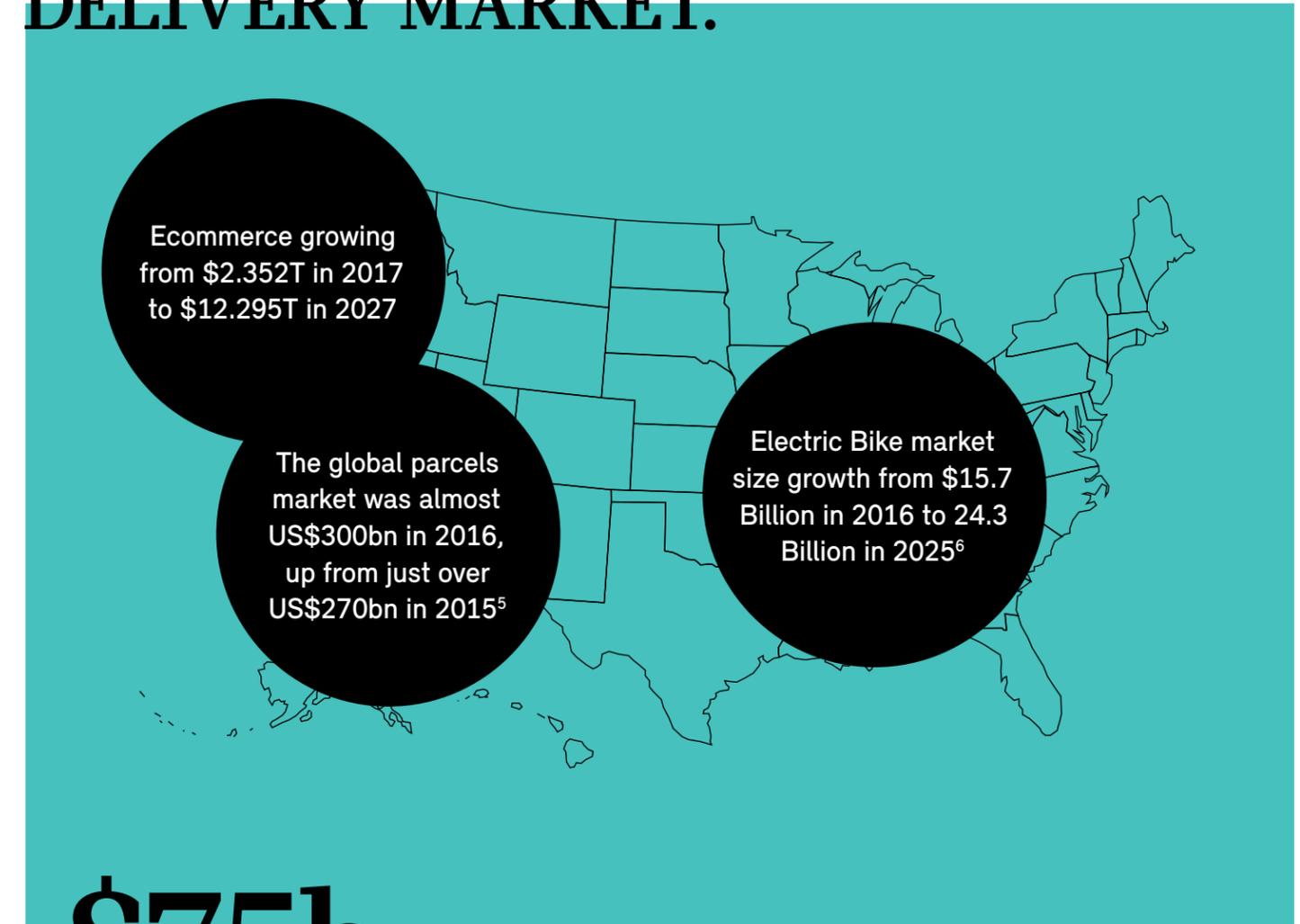
As self-driving tech becomes more accessible and commoditized, we can be in a unique position to adapt it into our system. We are certainly interested and curious about the possibilities for novel human-machine interaction design that combine automation tech with a deep understanding of human-centered design.

# COMPETITIVE LANDSCAPE.



With an e-commerce market expected to grow to \$12.295 trillion by 2027, Upcycles' new mode of parcel delivery will be particularly interesting for a growing number of key delivery markets such as food delivery services (Blue Apron), food delivery platforms (Seamless, Instacart), same day/instant delivery (Amazon, Postmates), local commerce and specialty logistics. In contrast to the companies investing in AV technology and drones, Upcycles is placing the human at the center of the last-mile delivery process, making it more efficient, environmentally friendly and cost-effective.<sup>4</sup>

# LAST-MILE DELIVERY MARKET.



# INVESTMENT LANDSCAPE.

	STARSHIP	DISPATCH.AI	MATTERNET
HQ	London	San Francisco, CA	Menlo Park, CA
WEBSITE	starship.xyz	dispatch.ai	mttr.net
EMPLOYEES	51-100	1-11	101-250
FIRST FUNDING/ FOUNDING DATE	Founded 7/1/14	Founded June 2015	Founded March 2011
VC-BACKED	yes	yes	yes
TOTAL FUNDING	\$17.2M+	\$2M+ in 3 Rounds	\$12.98M in 4 rounds
# INVESTORS	9	4	13
LAST ROUND	\$17.2M Seed 1/12/17	\$2M Seed on 4/6/16	\$9.48M Seed on August 5, 2016
INVESTORS	Daimler, Matrix Partners, Shasta Ventures	Andreessen Horowitz, Precursor Ventures, SOSV, Hax Accelerator	Andreessen Horowitz, Winklevoss Capital, UpHonest Capital, MVI (MENA Venture Investments), Daimler, Comet Labs,

# KEY PLAYERS TO WATCH.

## STARSHIP.

### COMPANY PROFILE.

Starship was started by Skype co-founders Ahti Heinla and Janus Friis in 2014. The company's six-wheeled autonomous delivery vehicles are essentially "coolers on wheels", keeping contents hot or cold, as well as safe and secure, while bringing them the last mile of their journey to a customer's doorstep.

The drones have been tested in both Europe and North America on public streets and face much less scrutiny among policy-makers than Amazon's air prime airborne drones for examples.<sup>7</sup>

### LESSONS TO BE LEARNED.

Starship raised \$17.2 through its seed round led by Daimler. Although Starship is one of the most successful Automated Ground Vehicles startups out there, its largest barrier is AGV regulation and resistance from some city governments that see AGV as more burdensome than effective.

## MATTERNET.

### COMPANY PROFILE.

Matternet was founded in 2012 in Menlo Park, California. The company builds airborne drone and intelligent control software, integrated into a complete solution for automated aerial logistics. Their products will enable companies and organizations to build and operate drone logistics networks for transporting goods on demand, through the air at high speed. Their proprietary cloud system guides their drones along secure routes in approved airspace at low altitude.

### LESSONS TO BE LEARNED.

Matternet just announced a partnership with Mercedes-Benz to integrate vans and drones. Their partnership opens up new doors for drone delivery. However, certain issues such as high public scrutiny, high regulatory barriers and the small weight the drones can carry (only up to 2kg) are all barriers the company faces before it can expand.<sup>78</sup>

\*\*Crunchbase. 2017. Crunchbase. [ONLINE] Available at: <https://www.crunchbase.com> [Accessed 14 August 2017].

\*\*AngelList. 2017. AngelList - Where the world meets startups. [ONLINE] Available at: <https://angel.co>. [Accessed 14 August 2017].

# FOOD FOR THOUGHT.



## MARKET INSIGHT.

The last-mile delivery market is being highly disrupted by new transportation technologies such as AGVs and drones but also by the rise of electric vehicles such as bike couriers that provide efficient replacements to polluting and congestion-prone vans. While drone and AGV companies attract considerable capital and investments, they still face large regulatory barriers and public scrutiny and will therefore only become a reality in the further future.



## OPPORTUNITY.

The barriers faced by AGVs and drone companies leave a considerable time-lag in which new modes of transportation such as electric carrier bikes that could start replacing delivery vans that are being increasingly targeted by congestion and pollution-curbing regulations.



## WHY REVMAX?

Upcycle's electric cargo tricycles' large cargo capacity, long reach, agility and zero-emissions are the cleanest and fastest delivery method on the market. Through its human-centric approach to last-mile delivery, Upcycles provides an efficient, enjoyable and environmentally-friendly solution to the delivery-related issues we are confronting in cities around the world.

# APPENDIX & REFERENCES.

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## IMAGE CREDITS.

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