



Takeoff

ROBOTIC MICRO-WAREHOUSES:
THE ANSWER TO GROCERY FULFILLMENT WOES



OVERVIEW

Takeoff Technologies

Takeoff builds automated micro-fulfillment centers inside pre-existing grocery stores for faster, more efficient e-grocery deliveries

FOUNDED

2016

HEADQTR.

Cambridge, MA

FUNDING

\$46M

ROUND

Series B

COFOUNDER - CHAIRMAN & CEO

José Vicente Aguerrevere



- ✓ Previously founded a Venezuelan grocery store chain
- ✓ Entrepreneur in residence at Harvard Business School

COFOUNDER - PRESIDENT

Max Pedro

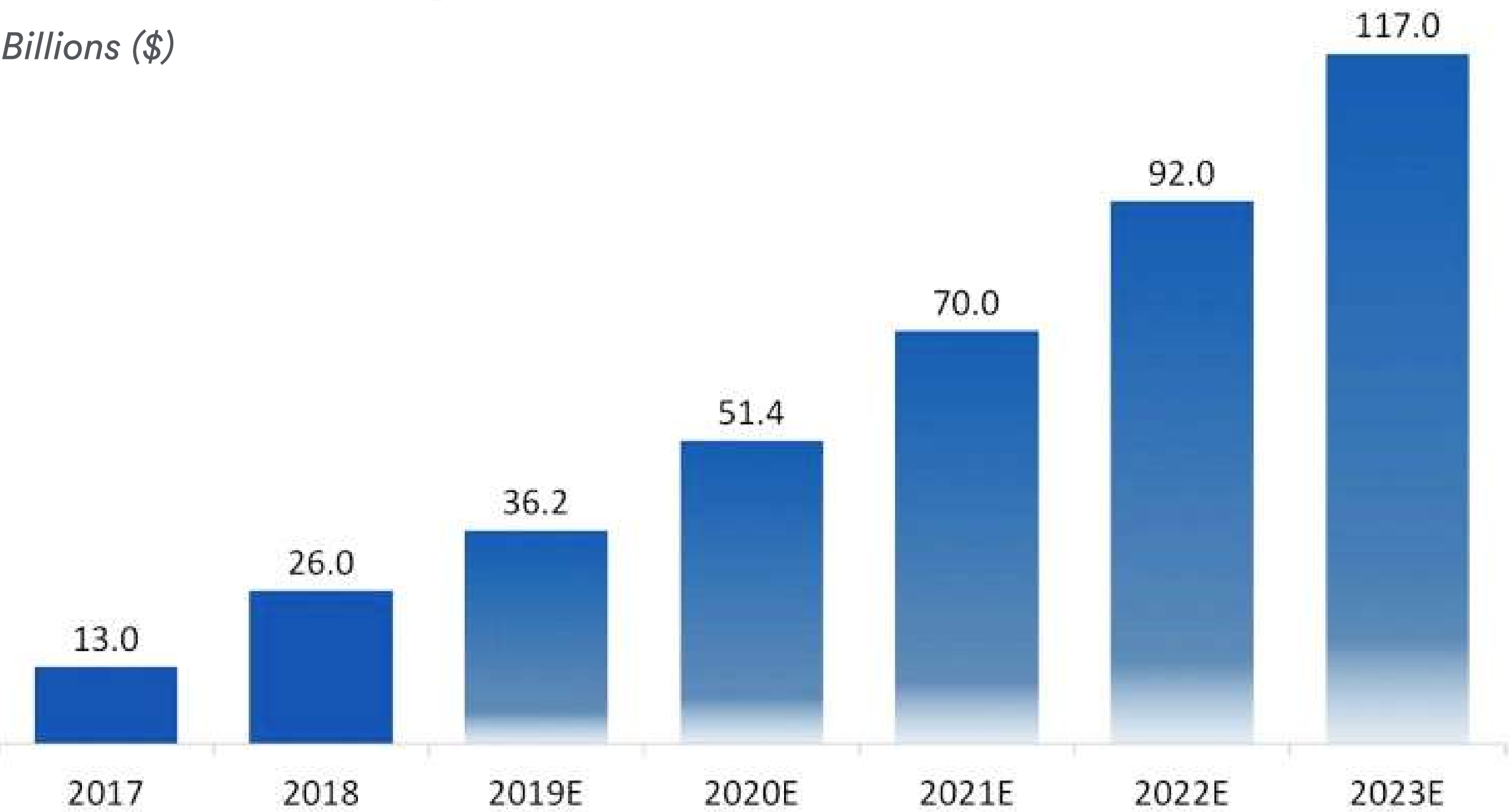


- ✓ Former Vice President International Financial Services at Walmart
- ✓ Former Senior Engagement Manager at McKinsey & Co.

MARKET SIZING

Online Grocery Market

Billions (\$)



Business Insider Intelligence

QUICK NUMBERS

33%

CAGR for the online grocery market over the next 5 years

17%

Online grocery's share of the total grocery market by 2023

THE CHALLENGE

**For years, grocery retailers have
struggled to find a profitable
e-grocery business model**



cost of picking products



cost of last-mile delivery

CURRENT SOLUTIONS

1. Human shoppers at local grocery stores



Customers order their
groceries online



Human shoppers pick
out items at local store



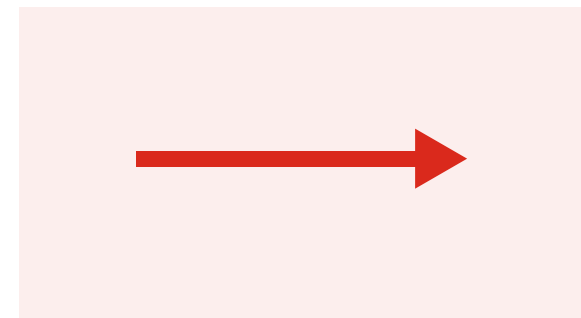
Groceries ready for
delivery or pickup

CURRENT SOLUTIONS

1. Human shoppers at local grocery stores



Customers order their groceries online



Human shoppers pick out items at local store



Groceries ready for delivery or pickup

CURRENT SOLUTIONS

2. Automated fulfillment at remote warehouses



Customers order their
groceries online



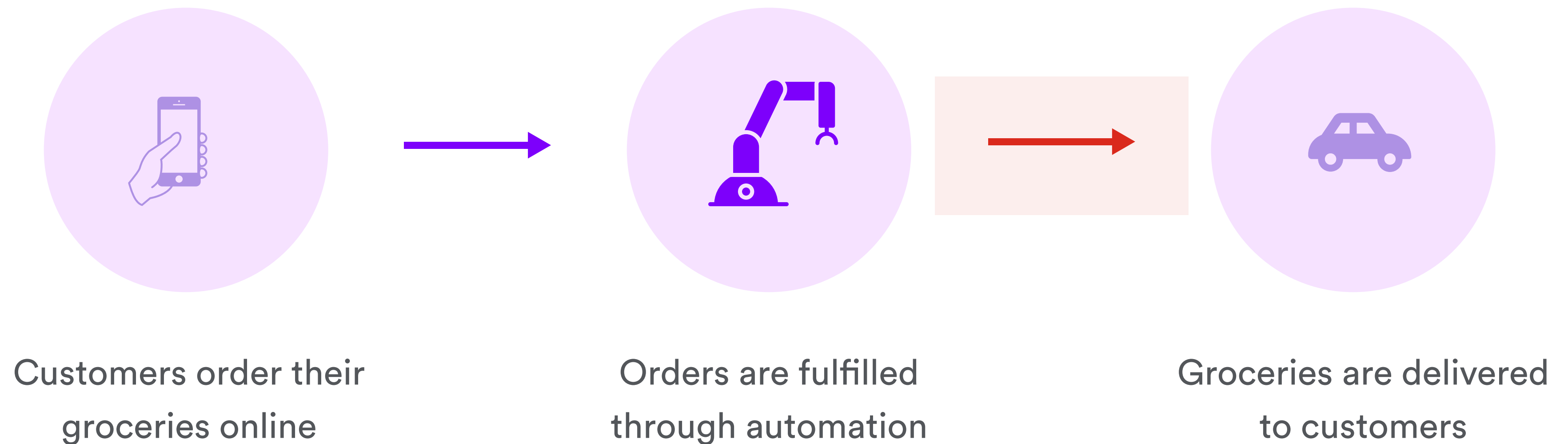
Orders are fulfilled
through automation



Groceries are delivered
to customers

CURRENT SOLUTIONS

2. Automated fulfillment at remote warehouses



THE FULFILLMENT
CONUNDRUM

OFF-SITE WAREHOUSE

IN-STORE SHOPPERS

AUTOMATION
(low picking cost)

 YES

NO

PROXIMITY
(low delivery cost)

NO

 YES

A blue-tinted photograph of an industrial facility. In the center, a large, white, rectangular object, possibly a container or a piece of machinery, is positioned on a set of tracks or a conveyor system. The background shows various industrial structures, including pipes and metal frameworks, under a clear sky. The overall scene conveys a sense of automation and industrial scale.

TAKEOFF'S SOLUTION

Automation + Proximity

AUTOMATION

Saves Packing Time, 10x

Instead of having the picker roaming the aisles, the items come to the picker.

- Roaming the aisles, an associate picks an item every 60 seconds
- With takeoff, an item comes to the picker every 6 seconds
- The system churns out 1 order every 1-2 mins.
- And can reach customers in 1-2 hrs



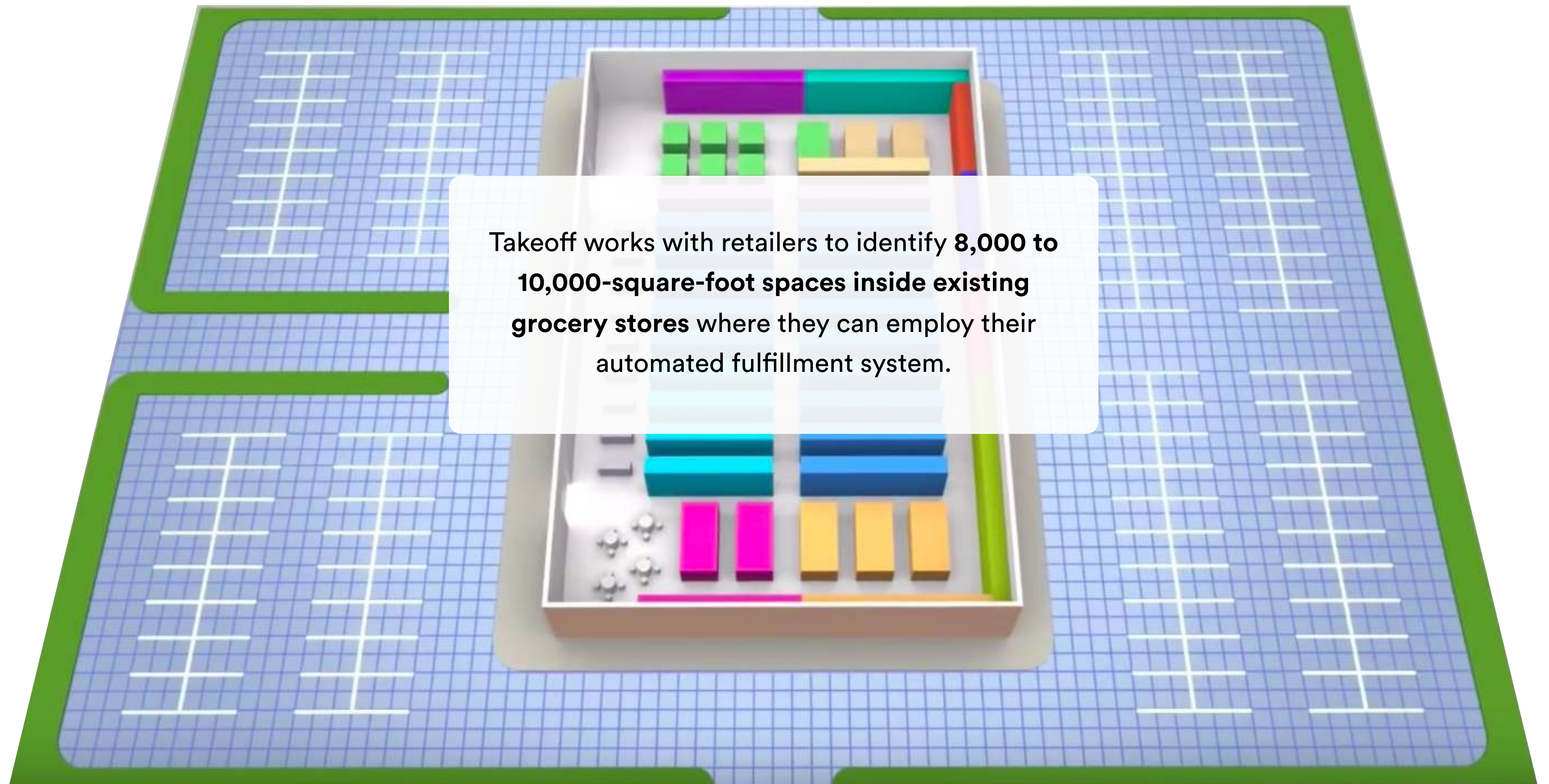


LOCALIZATION + MINIFICATION

Saves Space, 8x

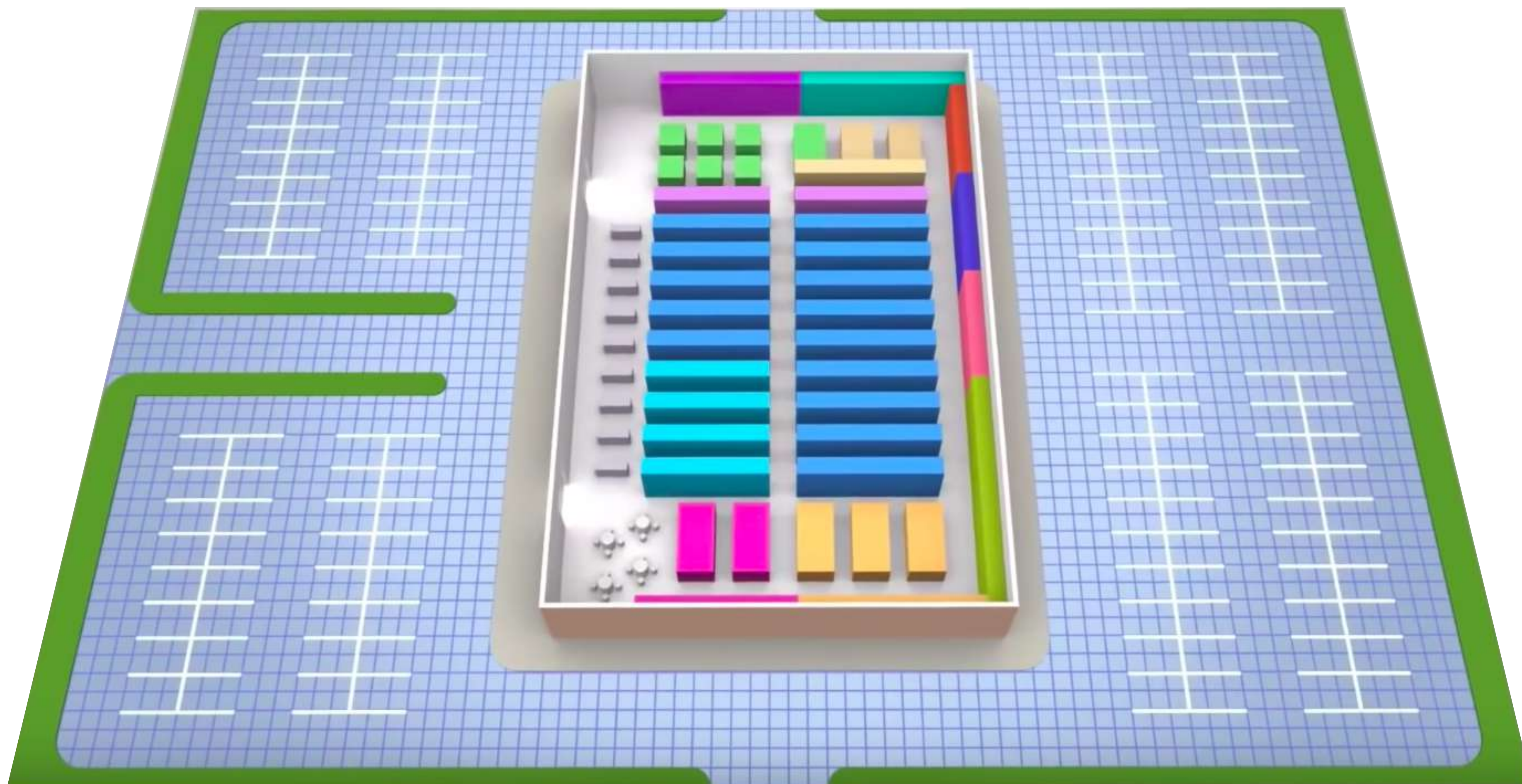
1/8 the size of a supermarket

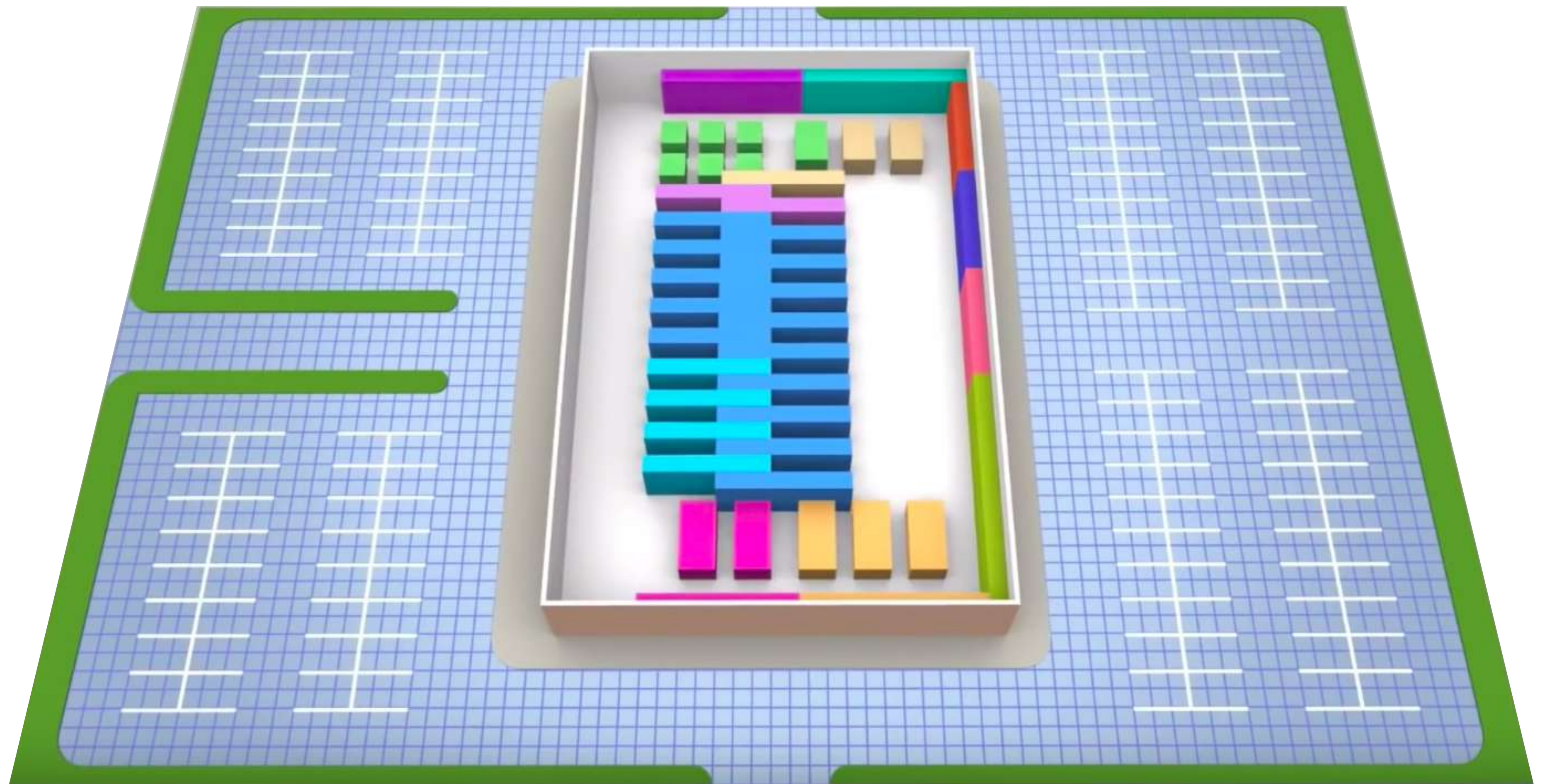
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- *Drives down real estate costs dramatically.*
 - *Energy costs and payroll costs are also reduced.*
 - *Smaller space means higher speed access to the products in customer orders and allows them to work in small neighborhood facilities in both urban and residential areas.*

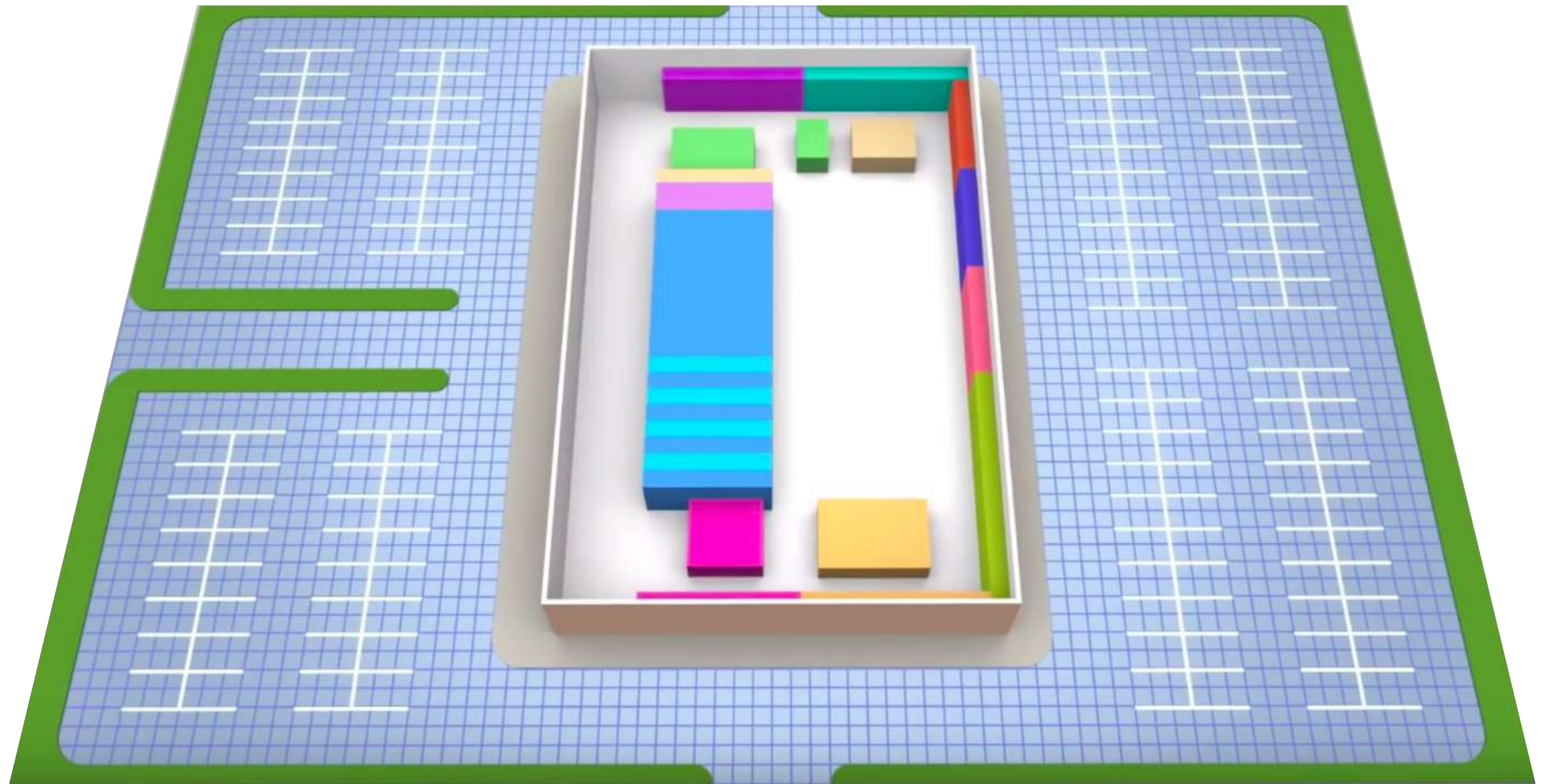


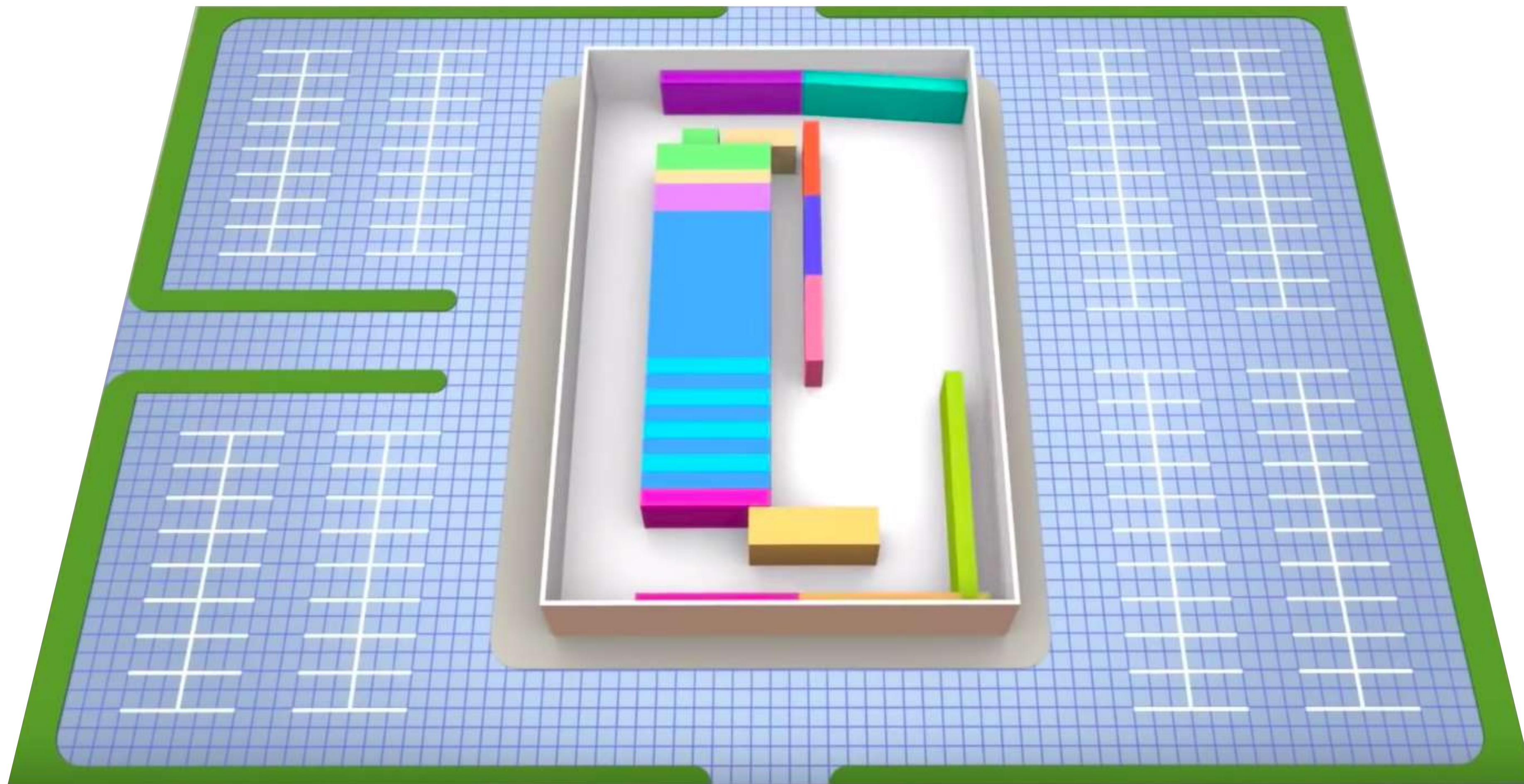
Takeoff works with retailers to identify **8,000 to 10,000-square-foot spaces inside existing grocery stores** where they can employ their automated fulfillment system.

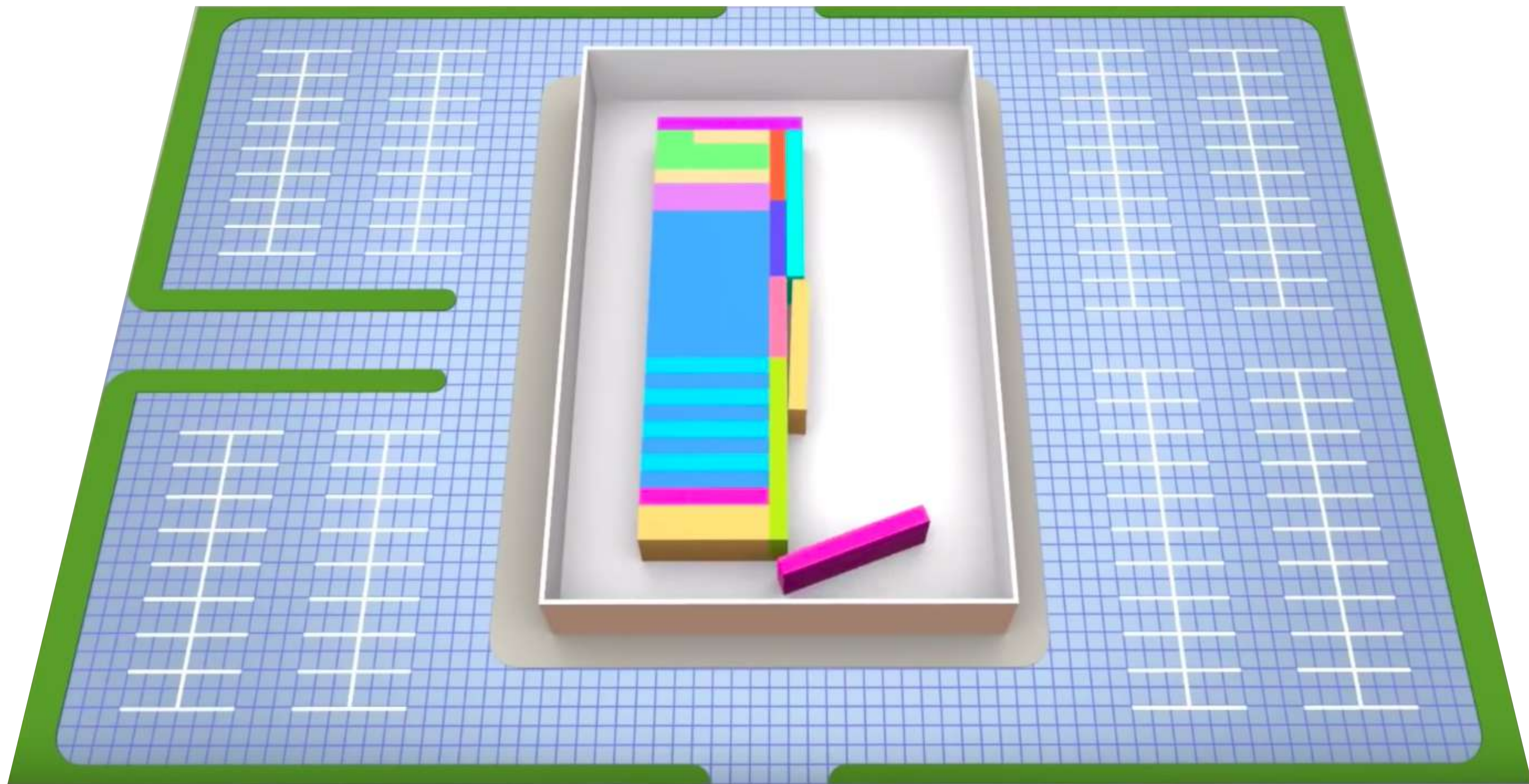
Source: Takeoff

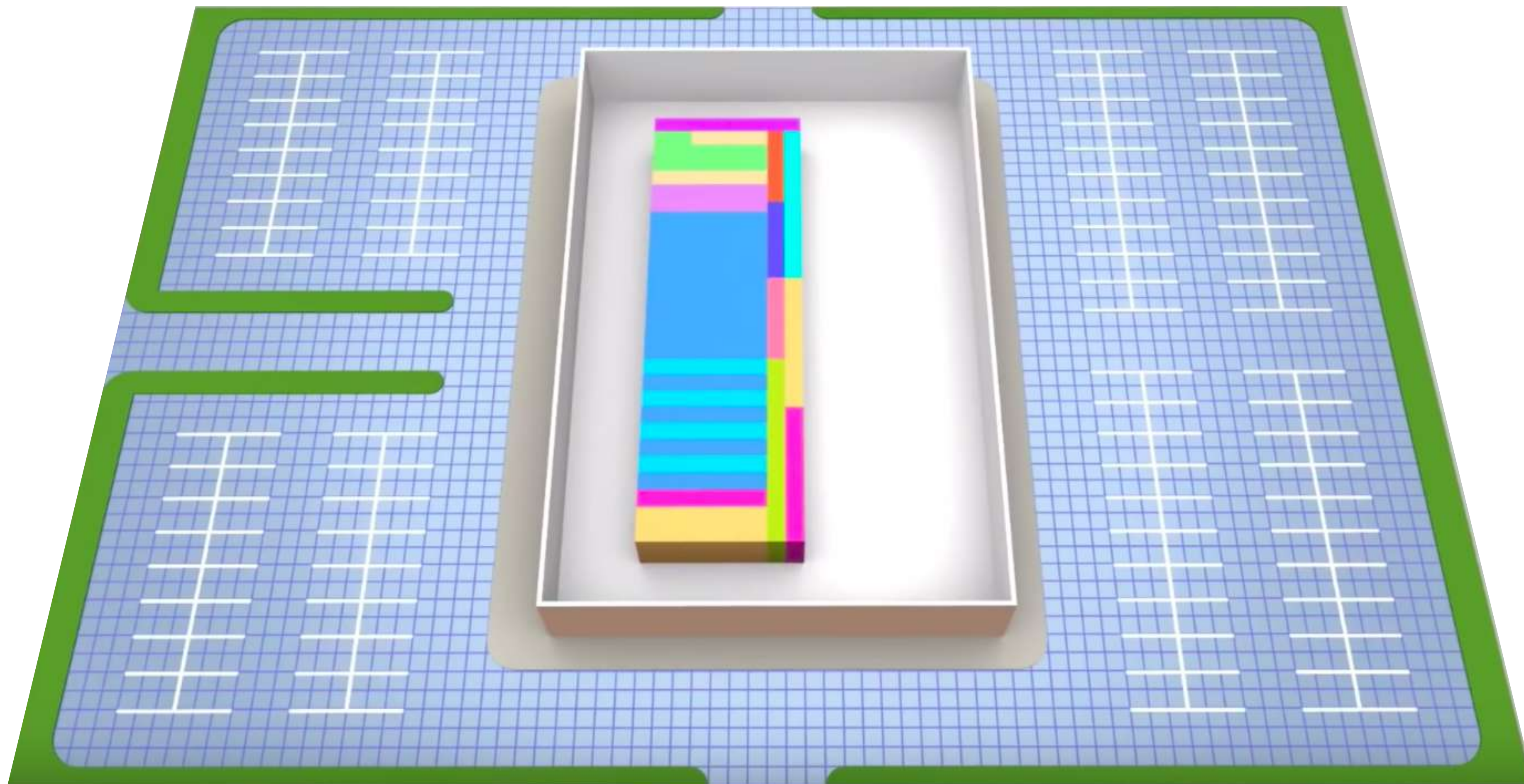


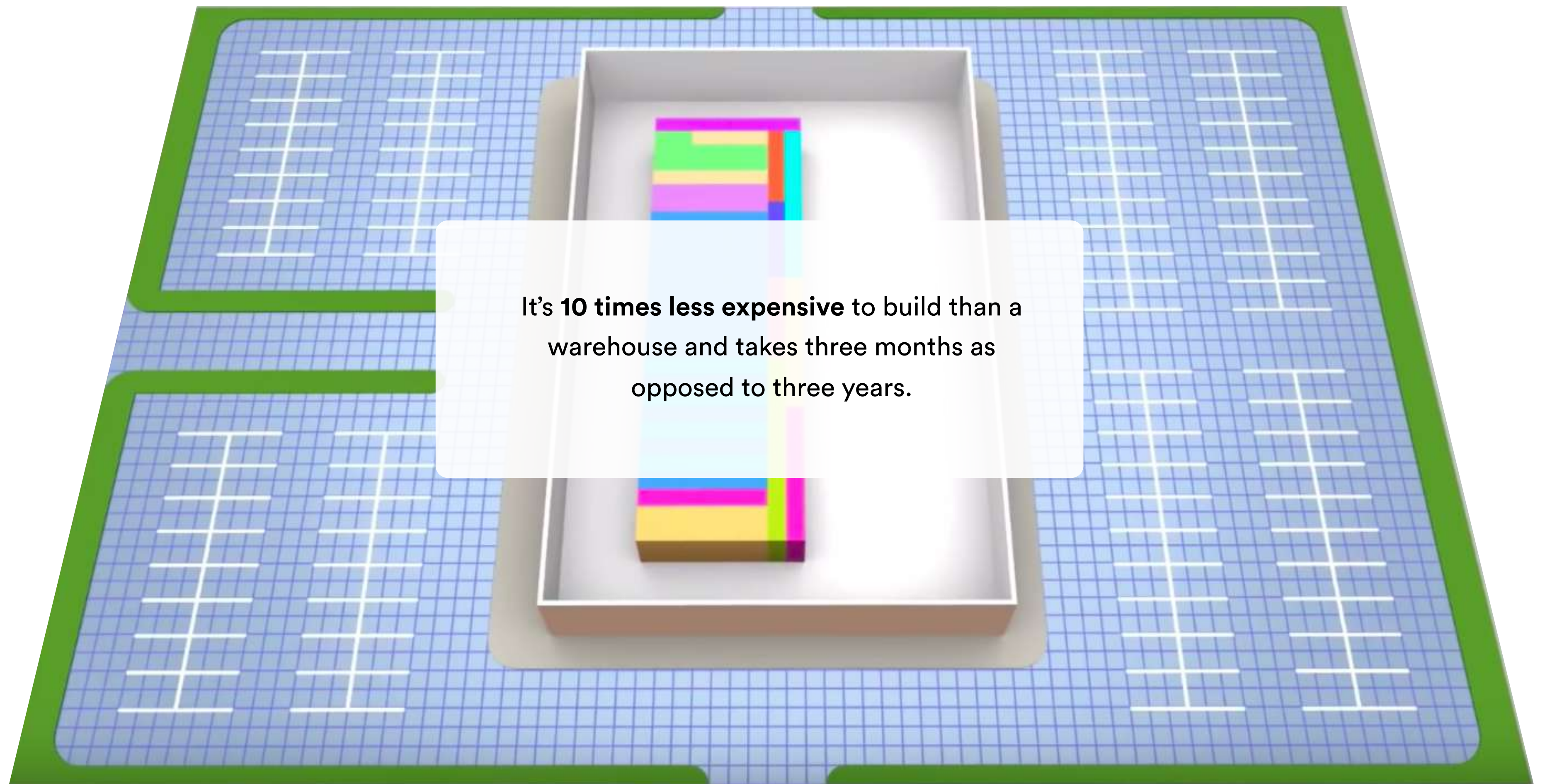




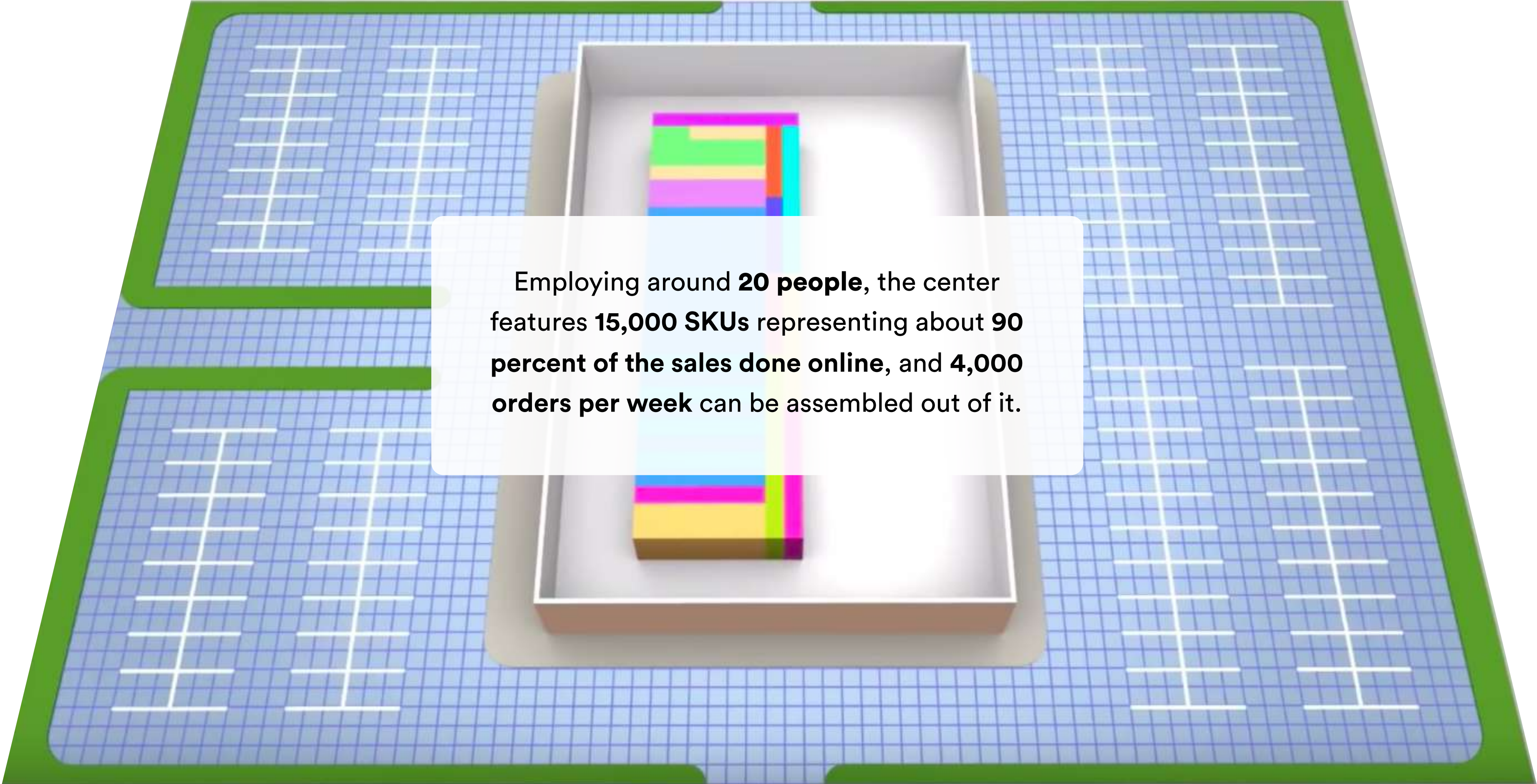








It's **10 times less expensive** to build than a warehouse and takes three months as opposed to three years.



Employing around **20 people**, the center features **15,000 SKUs** representing about **90 percent of the sales done online**, and **4,000 orders per week** can be assembled out of it.

LOGISTICS & EFFICIENCY

Automated picking

Extra layer of AI to ensure right picking method of the right product

Multiple temperature zones allow the handling of different kinds of articles including fresh produce, fresh meat, packaged goods, delicatessen and health & beauty, etc.

Leverages in-store supply chain

Use the same trucks that deliver the goods to the supermarket



IMPLEMENTATION



October, 2018

Sedano's

14 locations across Miami



November 2018

Albertson's

Locations unspecified



January, 2019

Stop & Shop

Locations across Connecticut

VALUATION

Revenue Analysis + Comps

Takeoff currently operates in 14 locations, in which they process 3,500 orders per week in each location. Their business model relies on a commission rate, which we estimated to be 8% based on industry standards.

# of Locations	14
# of Grocery Orders/week	3,500
Weeks since October 2018	30
Average Basket Size	\$72.00

Total Gross Merchandise Value	\$105,840,000.00
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Commission Rate	8%
Total Revenue	\$8,467,200.00

Exit	Cost	Revenue	Multiple
Target acquires Shipt	\$550,000,000	\$120,000,000	4.58x
Grubhub acquires Eat24	\$287,500,000	\$50,400,000	5.7x
Amazon acquires Whole Foods	\$13,700,000,000	\$15,700,000,000	0.87x
		Average Multiple	3.7x

VALUATION

Best/Worst Cases

	BEST				
	2018A	2019E	2020E	2021E	2022E
Revenues	\$8,467,200	\$13,124,160	\$19,686,240.00	\$26,576,424.00	\$31,891,708.80
% Growth y/y	55%	50%	35%	20%	15%
Exit Multiple	3.7	3.7	3.7	3.7	3.7
Enterprise Value	\$31,328,640	\$48,559,392	\$72,839,088	\$98,332,769	\$117,999,323
	BASE				
	2018A	2019E	2020E	2021E	2022E
Revenues	\$8,467,200	\$11,854,080.00	\$15,410,304	\$18,492,365	\$20,341,601
% Growth y/y	40%	30%	20%	10%	5%
Exit Multiple	3.7	3.7	3.7	3.7	3.7
Enterprise Value	\$31,328,640	\$43,860,096	\$57,018,125	\$68,421,750	\$75,263,925
	WORST				
	2018A	2019E	2020E	2021E	2022E
Revenues	\$8,467,200	\$11,007,360	\$13,208,832	\$15,190,157	\$16,709,172
% Growth y/y	30%	20%	15%	10%	5%
Exit Multiple	3.7	3.7	3.7	3.7	3.7
Enterprise Value	\$31,328,640	\$40,727,232	\$48,872,678	\$56,203,580	\$61,823,938

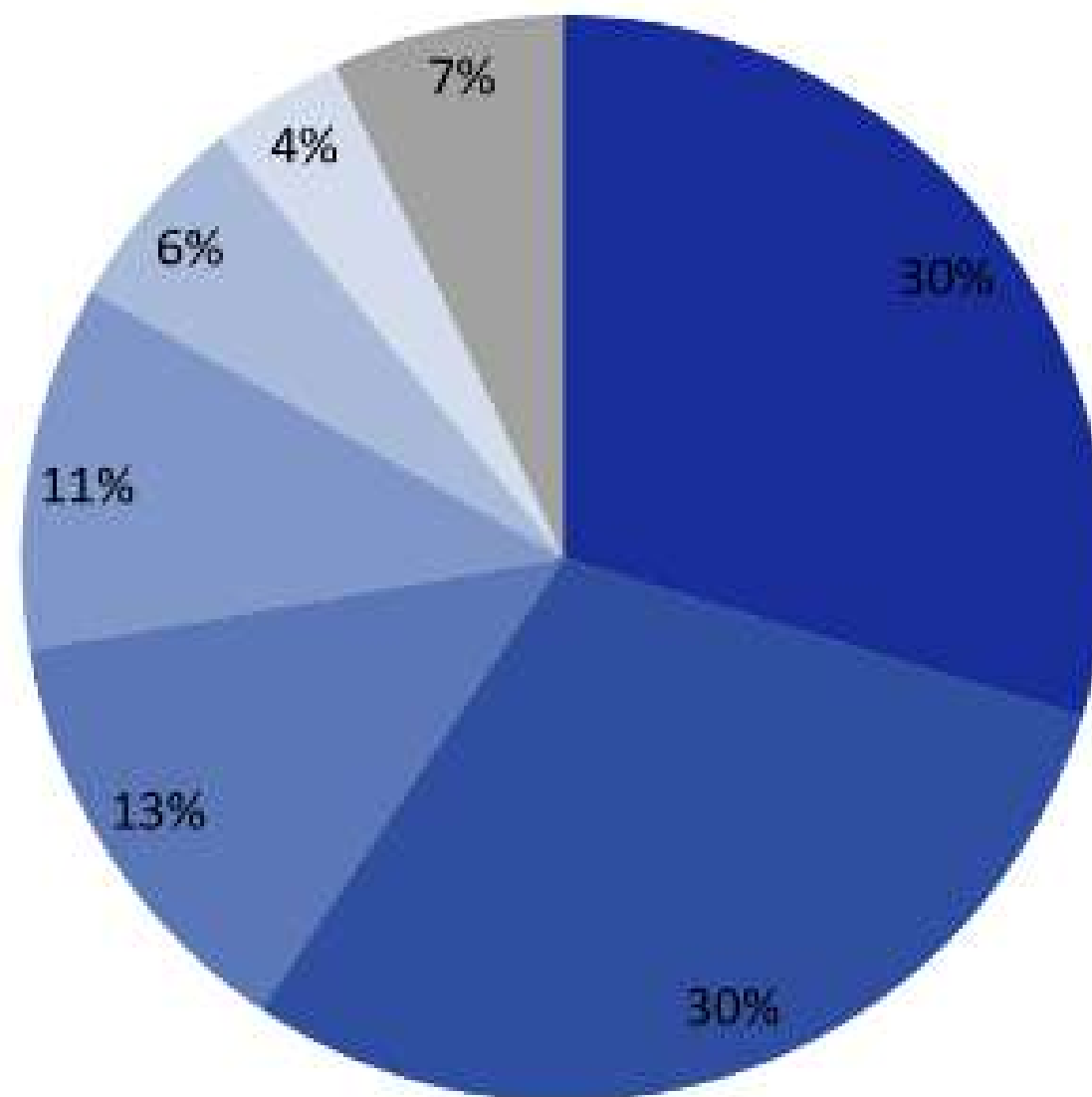
COMPETITION	Founded	Funding	Fulfillment Method
TakeOff	2016 Cambridge, MA	\$35.9M Series B	Robotic, microfulfillment
Shipt <i>ac. Target</i>	2014 Birmingham	\$65M Series B	Shoppers at local stores
Instacart	2012 San Francisco	\$1.9B Series F	Shoppers at local stores
Peapod	1989 Skokie (IL)	\$73M Post-IPO equity	Shoppers in warehouses, warerooms
FreshDirect	1998 Long Island City	\$280M Private equity	Shoppers in warehouses + robotics

COMPETITION	Founded	Funding	Fulfillment Method
TakeOff	2016 Cambridge, MA	\$35.9M Series B	Robotic, microfulfillment
AmazonGo	2014 Seattle, WA	N/A N/A	Cashierless grocery store
Farmstead	2016 San Mateo	\$7.1M Series A	AI grocery delivery from microhubs
Standard Cognition	1989 Skokie (IL)	\$50.6M Series A	Autonomous checkout
Commonsense Robotics	2016 Tel Aviv	\$26M Series A	Robotic, micro-warehouse

ECOSYSTEM

Online Grocery Market Share

■ Amazon ■ All other supermarkets ■ Mass merchants
■ Online delivery platforms ■ Warehouse clubs ■ Meal kit providers
■ Other



Business Insider



Leaning on its e-commerce and fulfillment capabilities to offer a variety of online grocery services,



Using its strong brick-and-mortar footprint to its advantage



Working with third parties such as Instacart to provide their services.

EXIT OPPORTUNITIES

Merger / Acquisition



Acquired by a market leader in the grocery store arena

e.g. Amazon (grocery store initiatives include Amazon Go and acquisition of Whole Foods)



Synergies with Amazon

Takeoff provides automated services, which Amazon has not yet explored

Initial Public Offering



Market leader domination

Though Takeoff will be able to take over a significant % of market share, they are unable to overtake giants, such as Amazon

LARGER RISKS

Scaling: Integration Challenges

The more complicated the system or process, the greater the effort to define, implement, and ensure automation works correctly.

Product Suite Limitations

Standardized goods are easy to automate, but fresh and custom goods, such as cut meat, can only be found in human-run grocery stores.

SMALLER RISKS

 **Natural Disasters**

 **Equipmt. Malfunctions**

 **Cultural Acceptance**

FUTURE IMPLICATIONS



Brick & Mortar

Grocery stores aren't going to go away anytime soon, but will continuously be augmented with technology like Takeoff's.



Smart Cities

The saved space enabled by Takeoff goes hand in hand with enabling smart cities and people-oriented infrastructure



Going Global

Takeoff has plans to go global, expanding to countries in Europe, the Middle East, and Asia



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