



# 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**

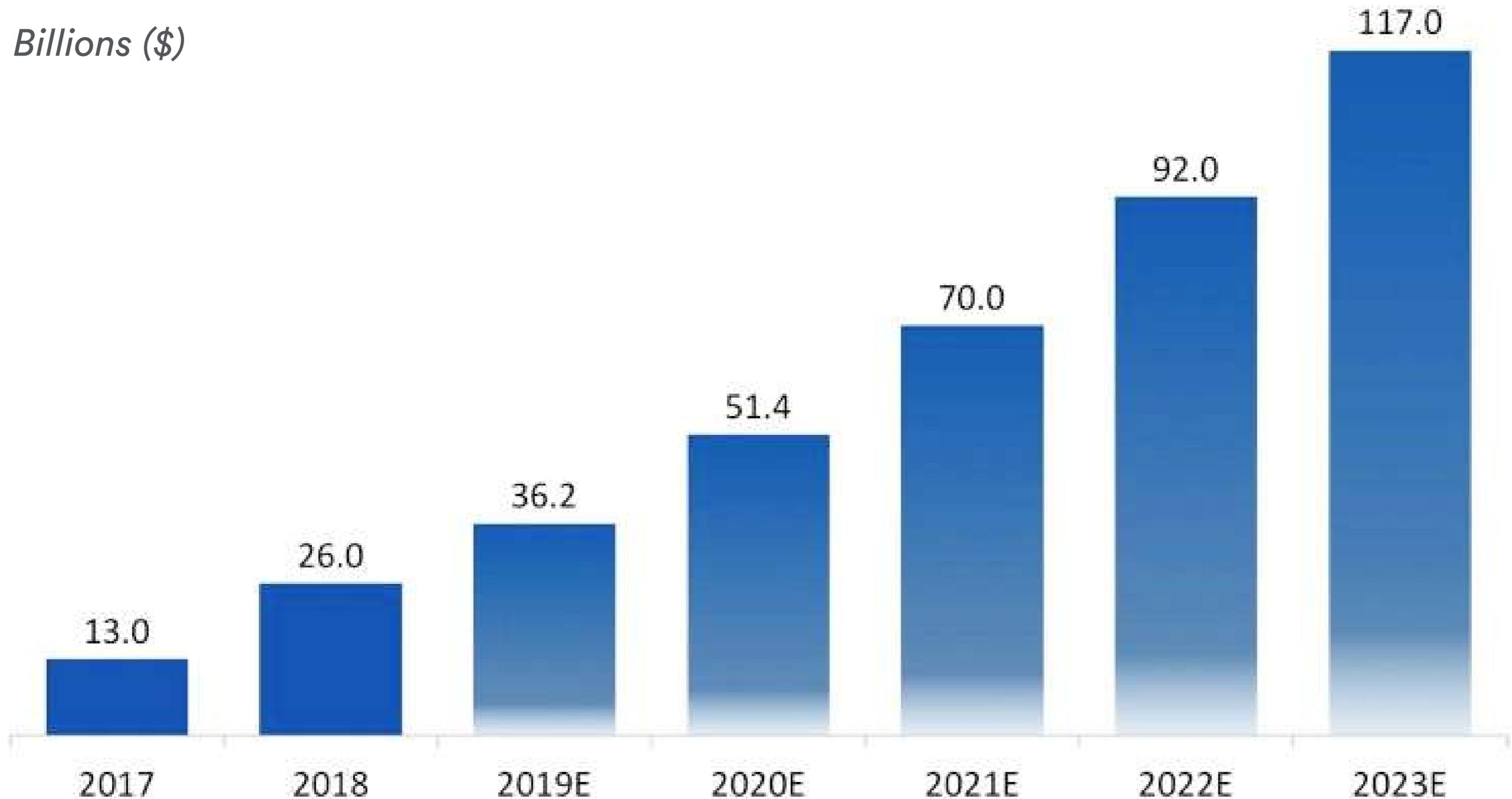


- ✓ Former Vice President International Financial Services at Walmart
- ✓ Former Senior Engagement Manager at McKinsey & Co.

## MARKET SIZING

# Online Grocery Market

Billions (\$)



## 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

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Orders are fulfilled through automation

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## THE FULFILLMENT CONUNDRUM

**AUTOMATION**  
(low picking cost)

**PROXIMITY**  
(low delivery cost)

OFF-SITE WAREHOUSE

IN-STORE SHOPPERS

YES

NO

NO

YES

A blurred background image of a factory or industrial setting, showing conveyor belts and machinery in motion.

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*



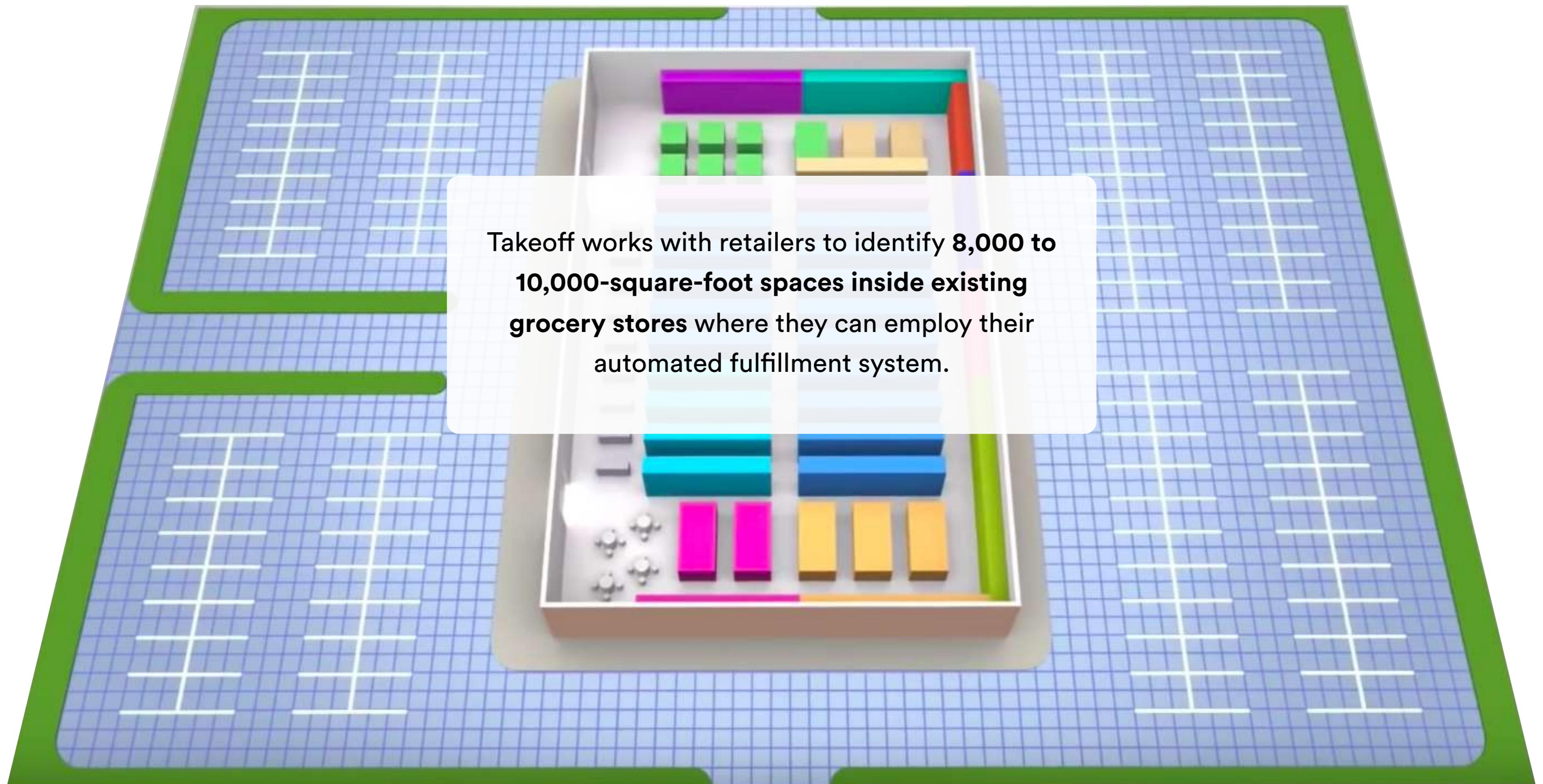


## LOCALIZATION + MINIFICATION

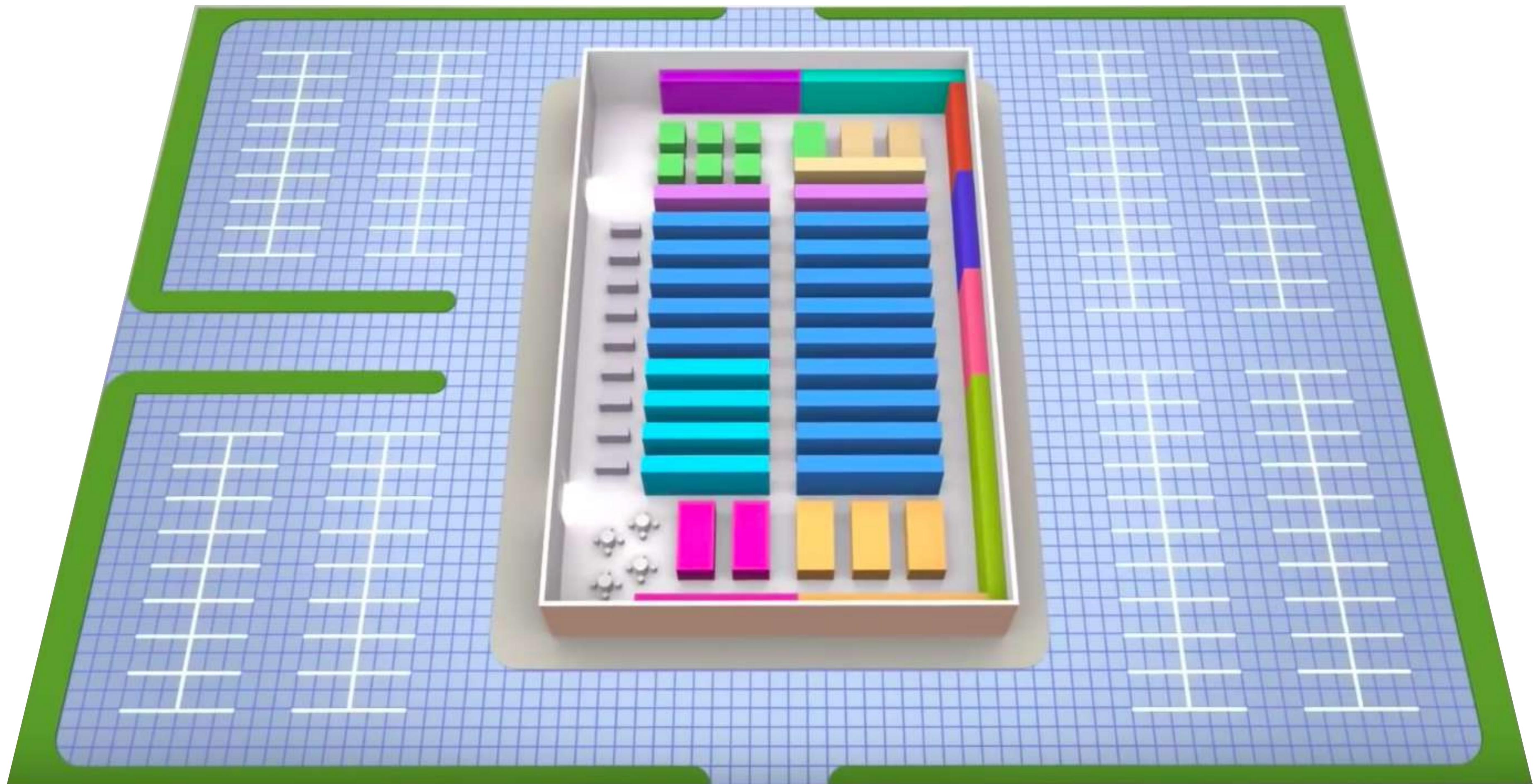
### Saves Space, 8x

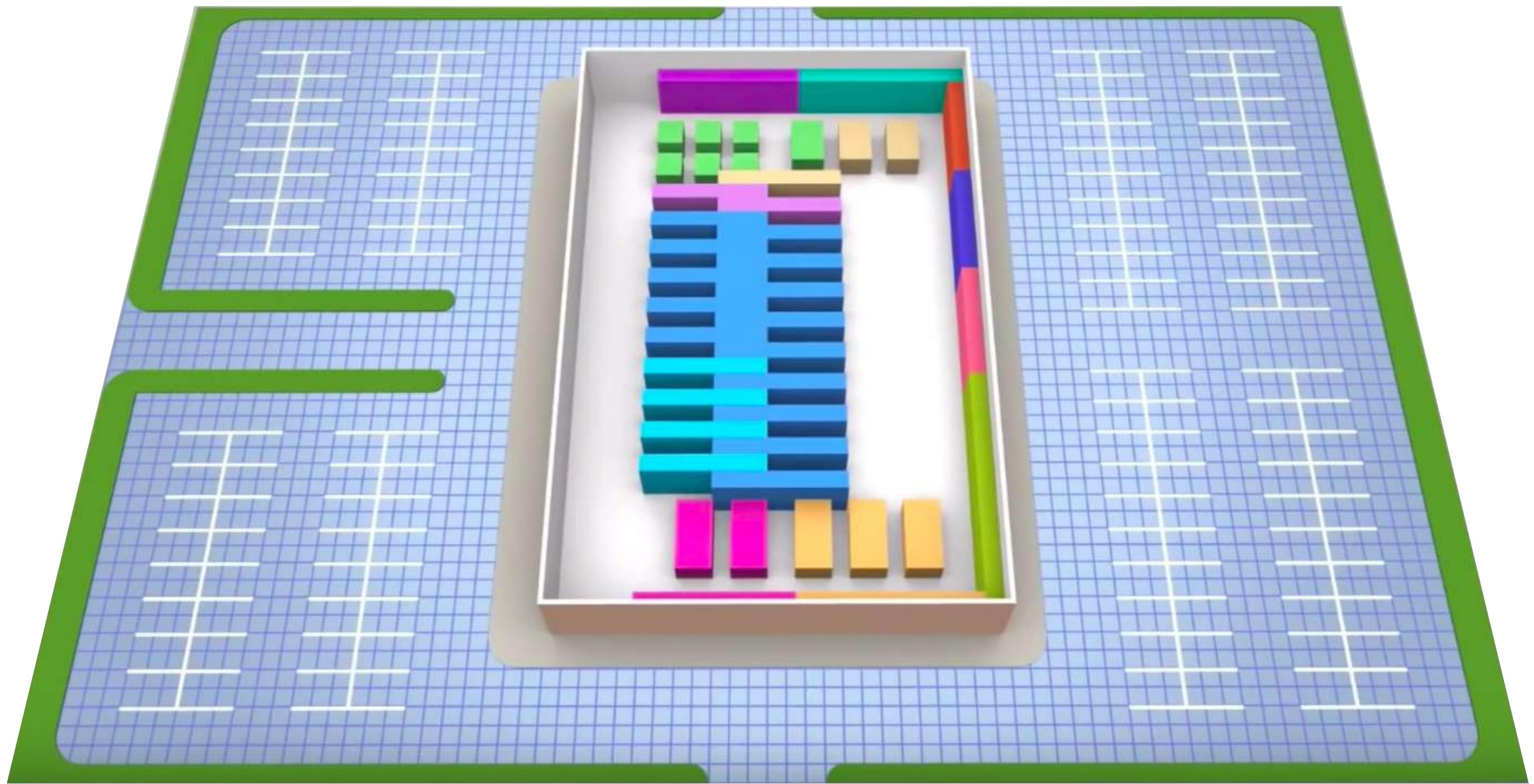
1/8 the size of a supermarket

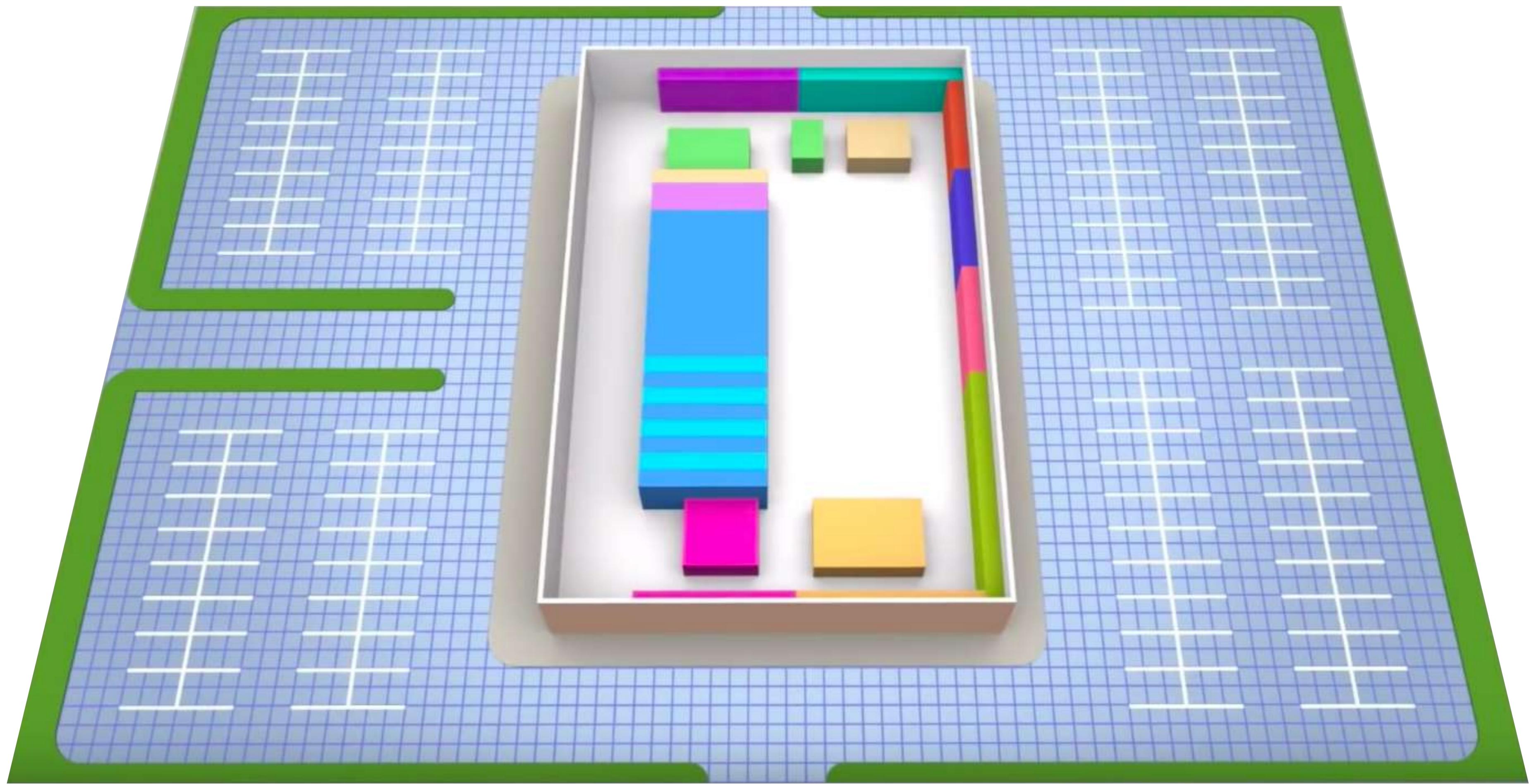
- *Drives down real estate costs dramatically.*
- *Energy costs and payroll costs are also reduced.*
- *Smaller space means higher speed access to the products in customer orders and allows them to work in small neighborhood facilities in both urban and residential areas.*

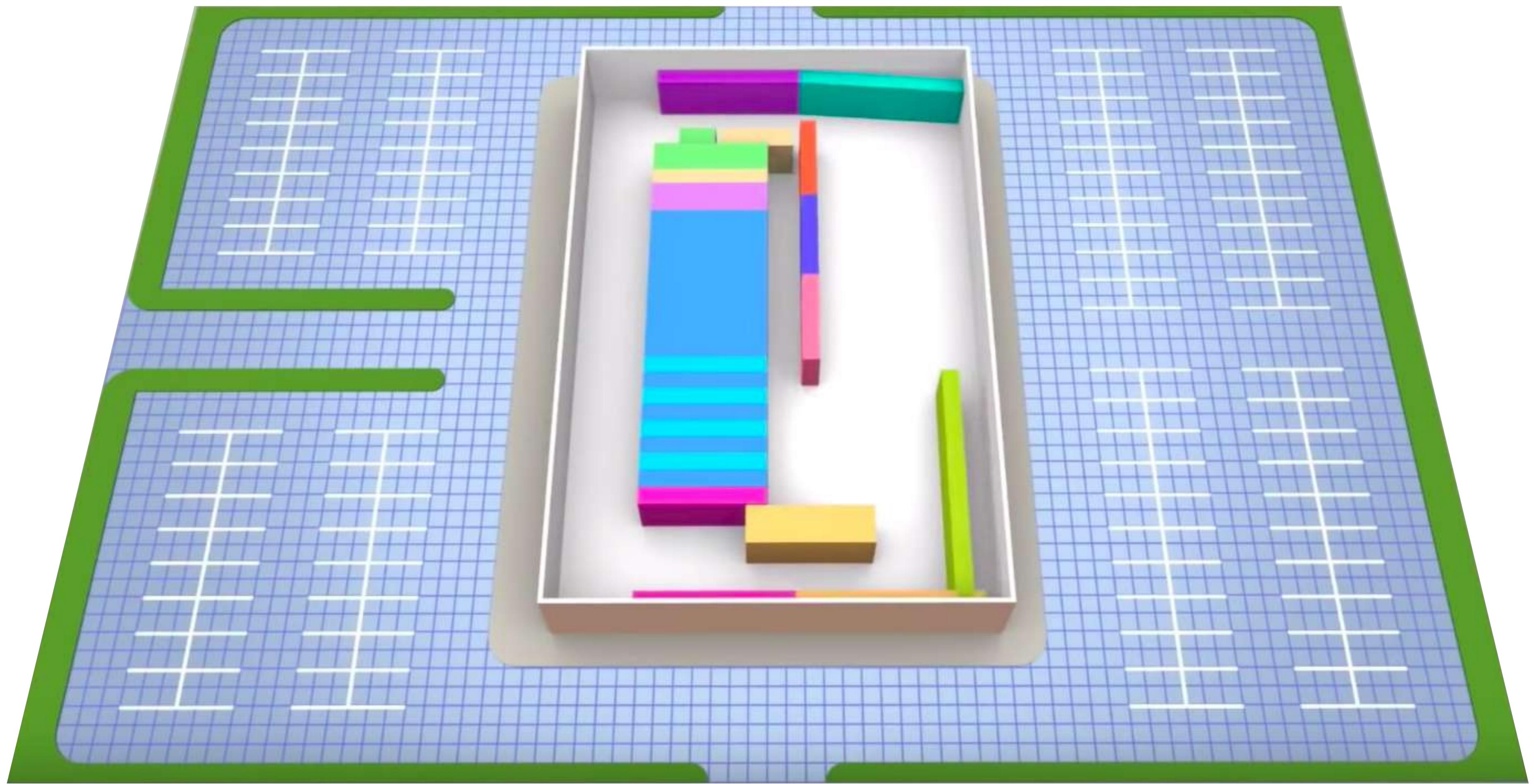


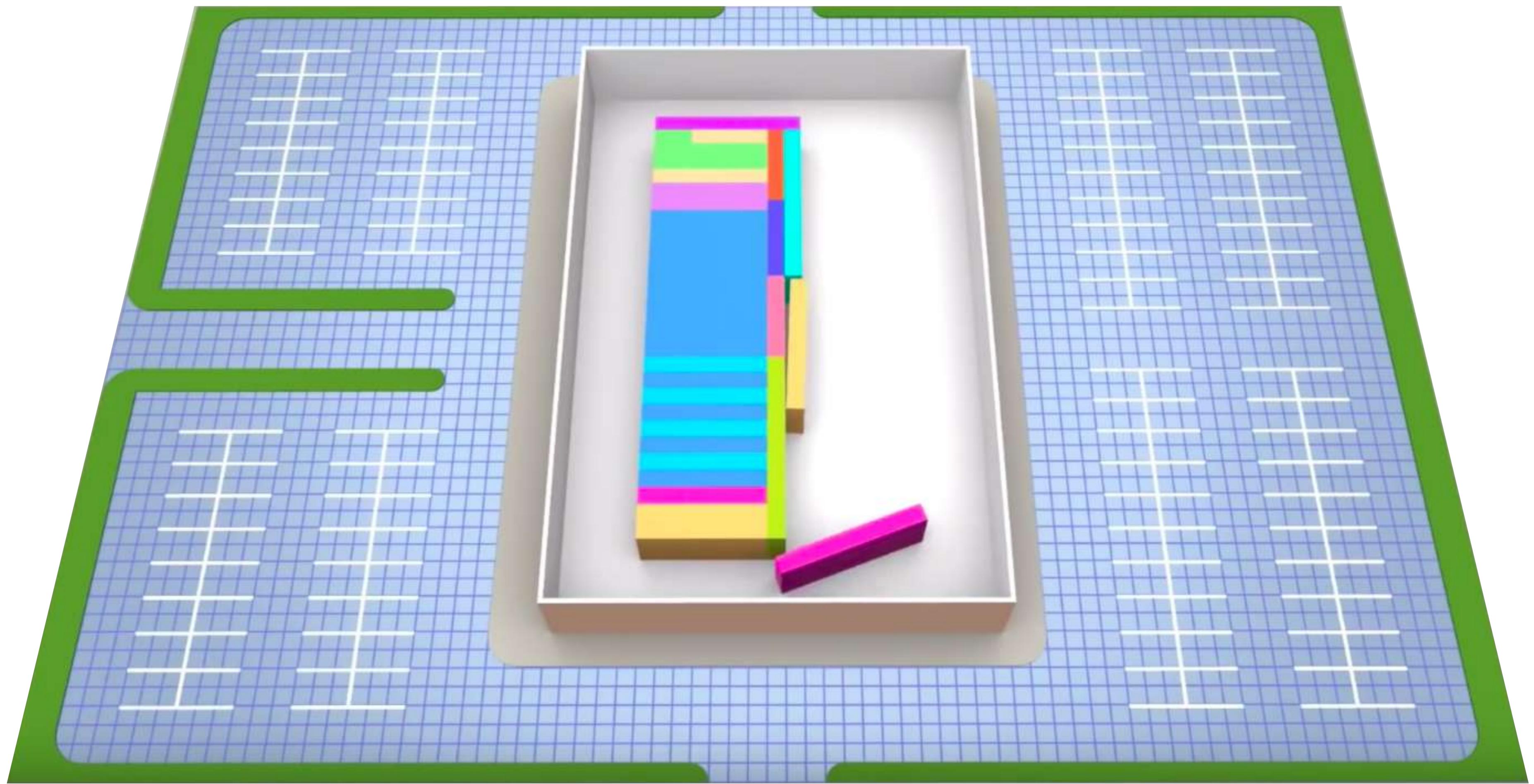
Takeoff works with retailers to identify **8,000 to 10,000-square-foot spaces inside existing grocery stores** where they can employ their automated fulfillment system.

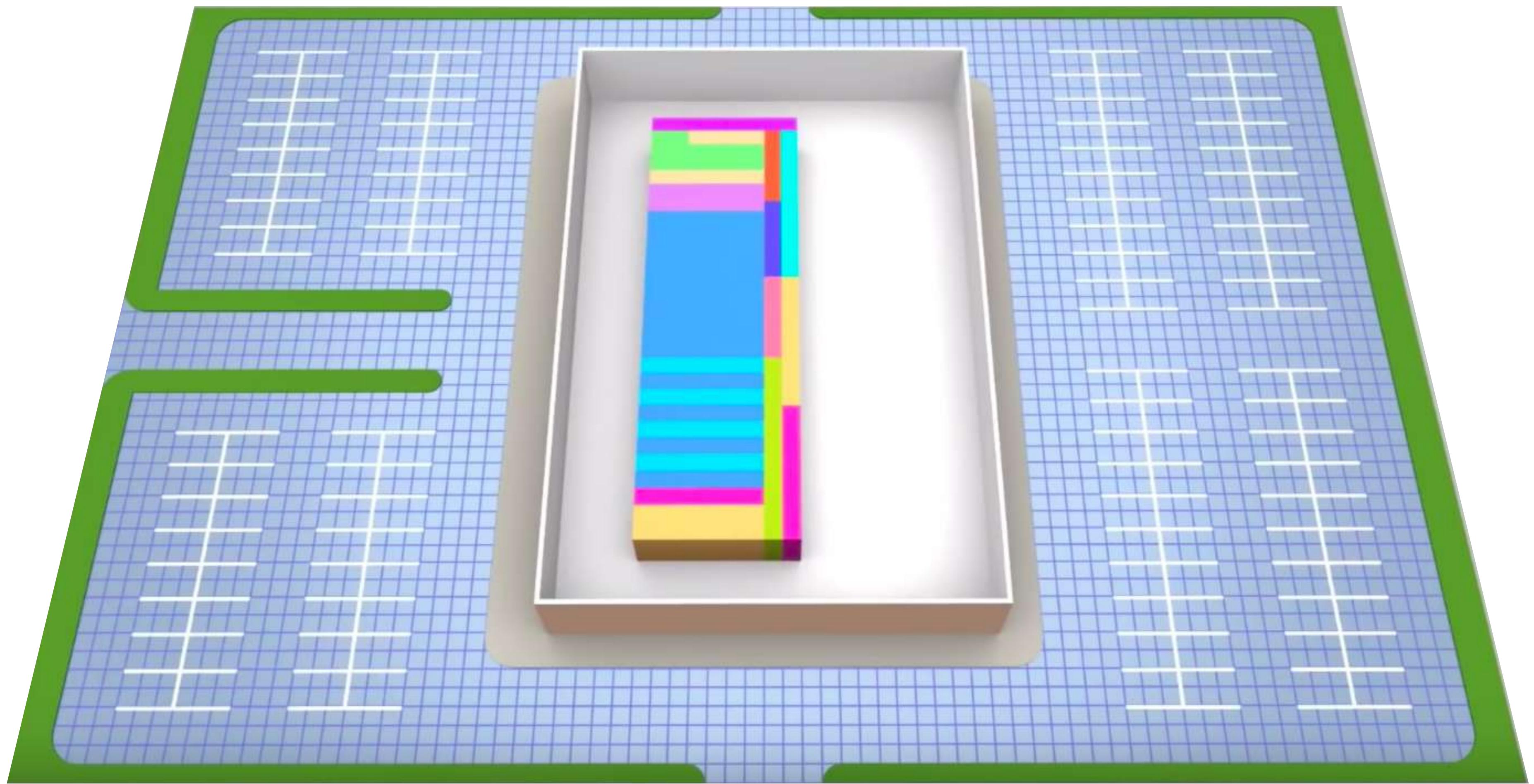


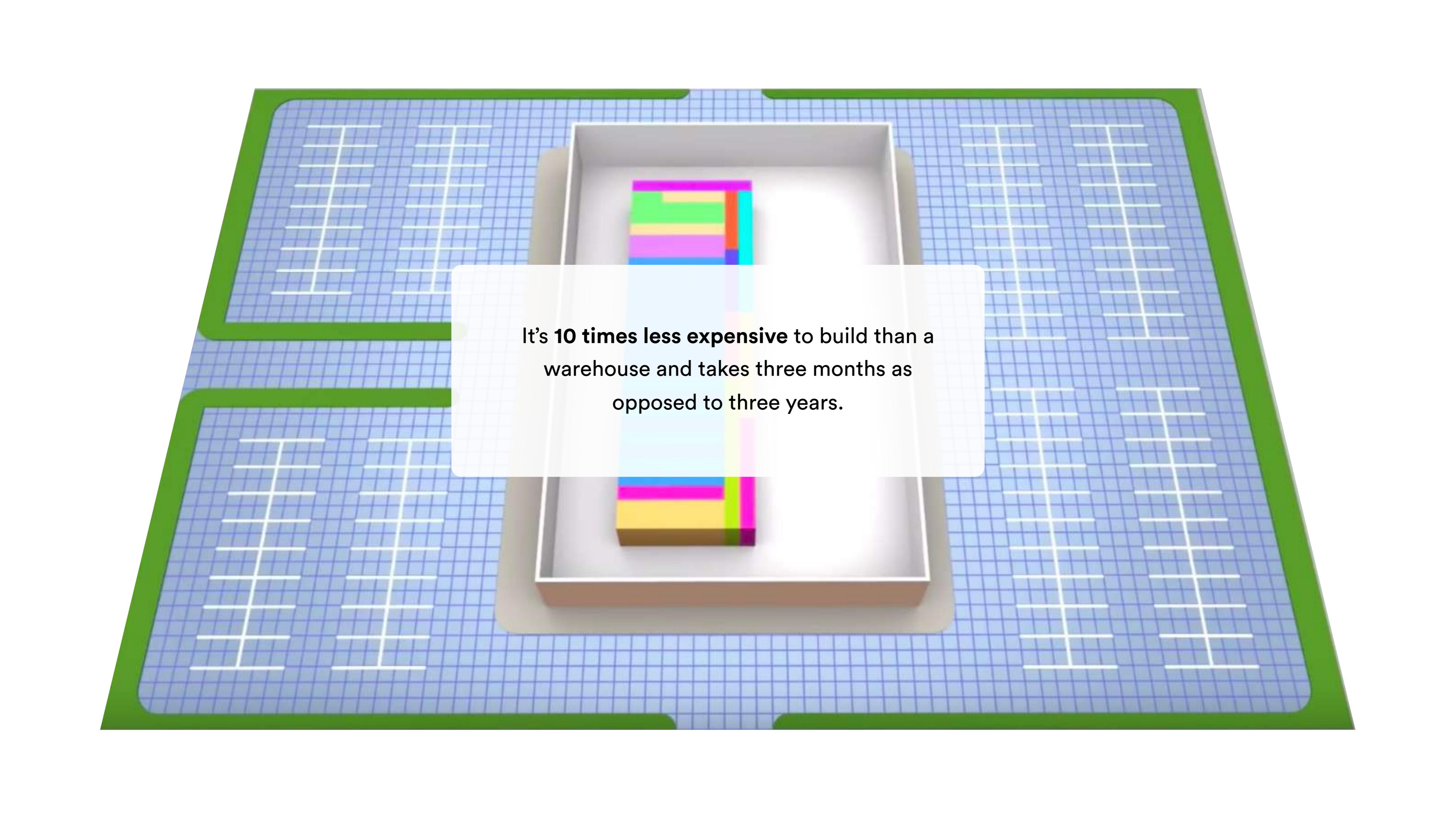




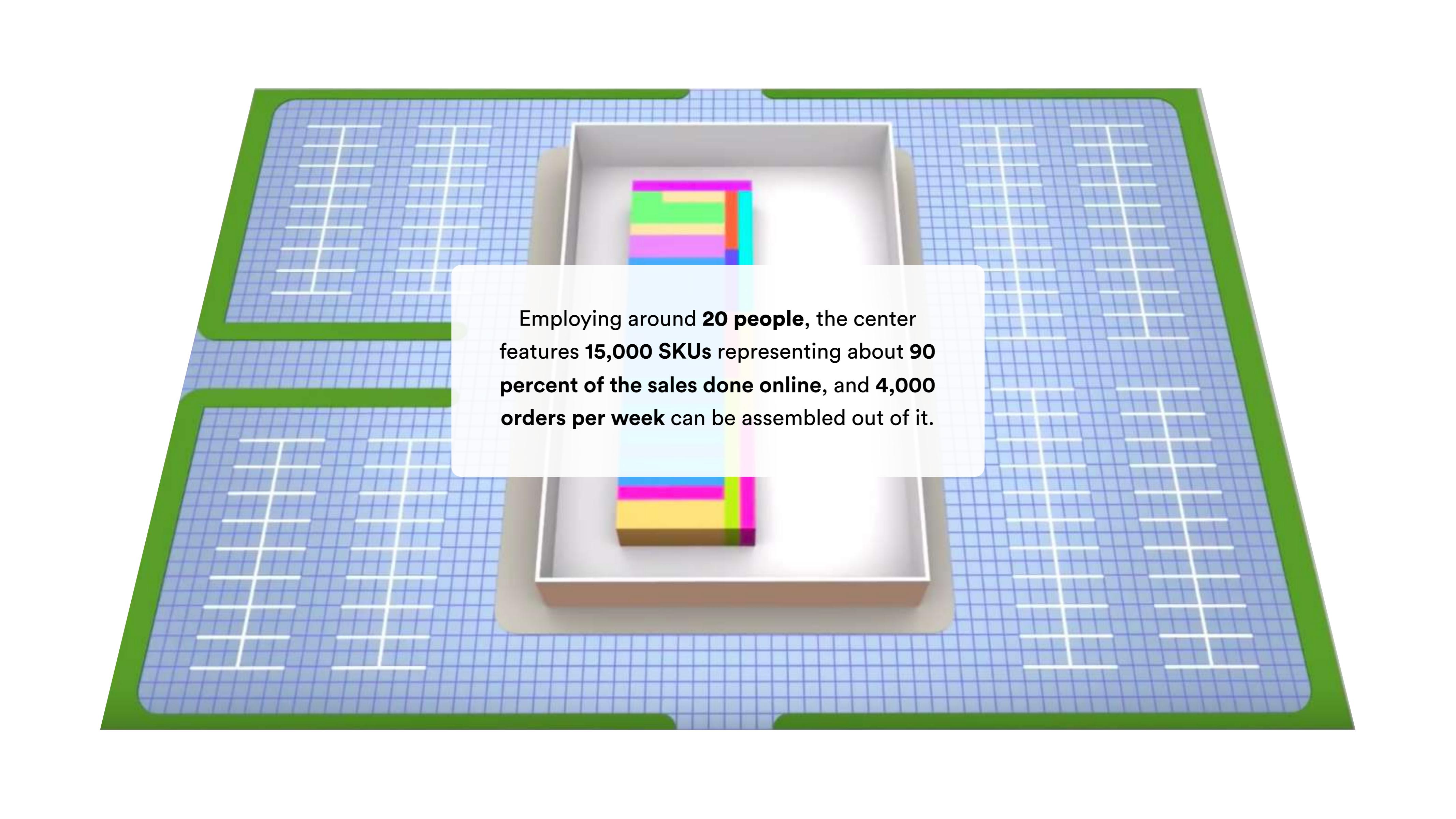








It's **10 times less expensive** to build than a warehouse and takes three months as opposed to three years.



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
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

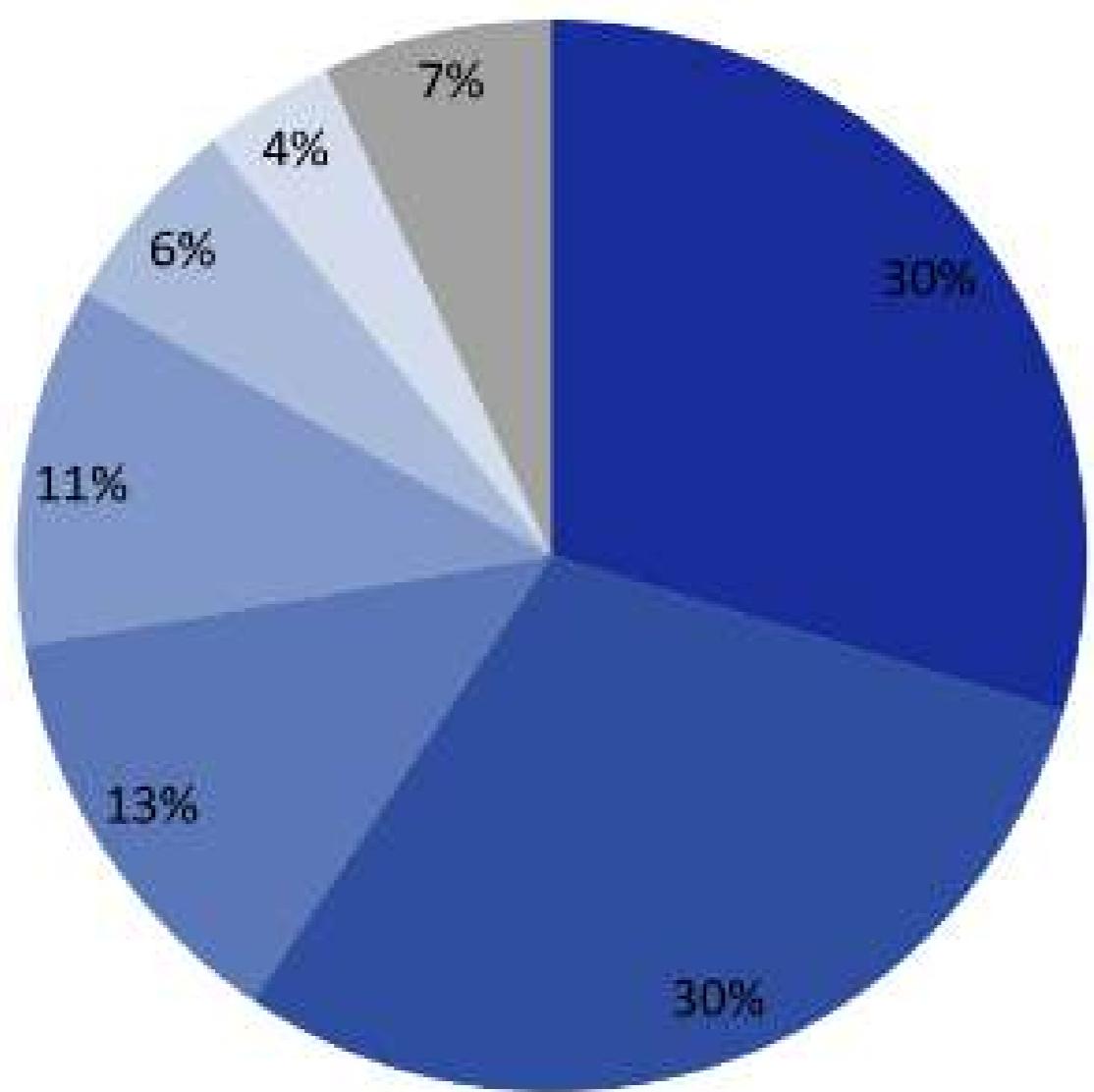
COMPETITION	Founded	Funding	Fulfillment Method
<b>TakeOff</b>	<b>2016</b>	<b>\$35.9M</b>	Robotic, microfulfillment
	Cambridge, MA	Series B	
<b>Shipt</b> <i>ac. Target</i>	<b>2014</b>	<b>\$65M</b>	Shoppers at local stores
	Birmingham	Series B	
<b>Instacart</b>	<b>2012</b>	<b>\$1.9B</b>	Shoppers at local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

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

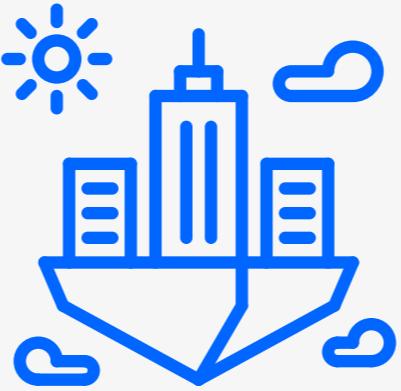
### ✖ Cultural Acceptance

## 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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