

OCTOBER 2019



# Transforming Recycling Through A.I. + Robotics

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Presented by Jon Gertsmeier – National Sales Director

 **AMP**  
ROBOTICS™

The U.S. recycling rate is around **34.5%**.

The U.S. throws away **\$11.4 billion** worth of recyclable containers and packaging every year.



# INDUSTRY CHALLENGES



Tough decisions between high operational and capital costs



Challenging material quality, resale value, and loss to landfill



Chronic labor shortages, injury risk, and high turnover





OUR MISSION:  
Transform the economics of recycling  
using A.I.+ Robotics





Raw materials



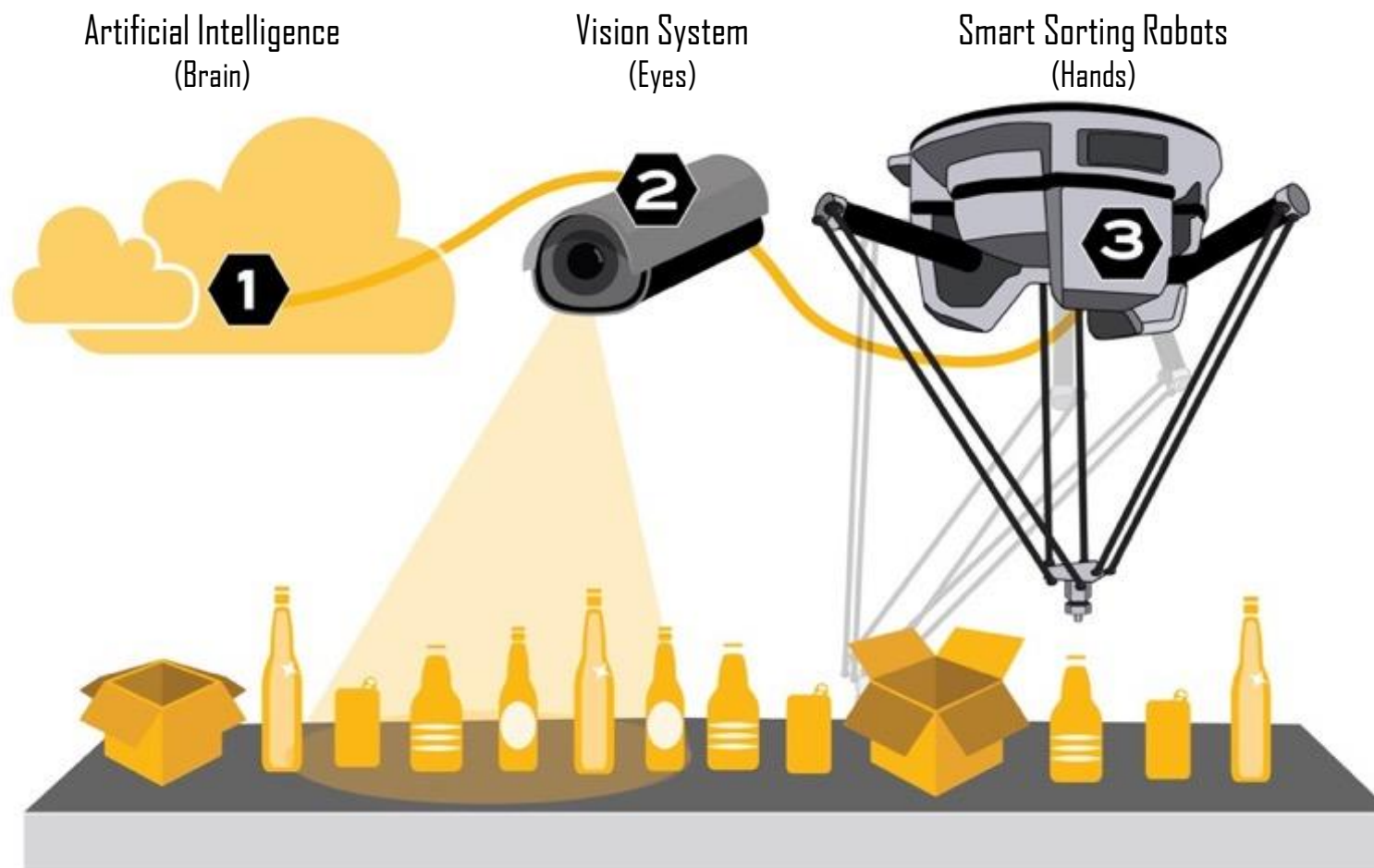
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Residual waste



# AMP CORTEX™ HAS 3 COMPONENTS





# A.I. DRIVES THE PLATFORM

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- Machine learning distinguishes features like a human
- Continuously learns as neural network expands
- Handles complex piled, non-singulated mixed waste







## VISION SYSTEM SEES THE MATERIAL STREAM

- Detects what to sort and pick
- Identifies unique material properties – color, texture, shape, size, etc.
- Can recognize down to the 'brand'
- Captures all waste stream data for insights, measurement and optimization

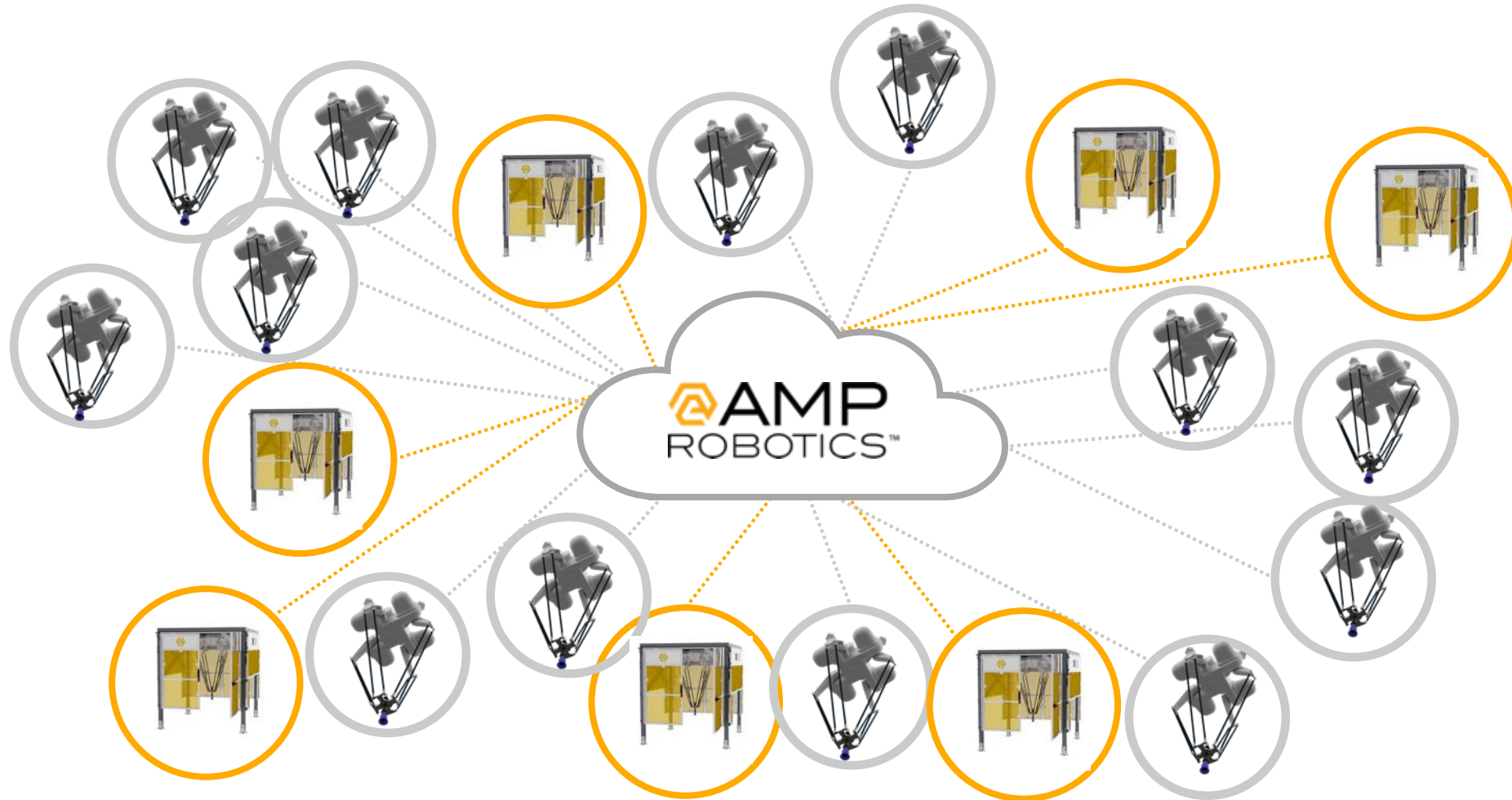


AMP Neuron™ drives the robotic system



# MAXIMIZING NETWORKED INTELLIGENCE

THE POWER OF COLLECTIVE KNOWLEDGE





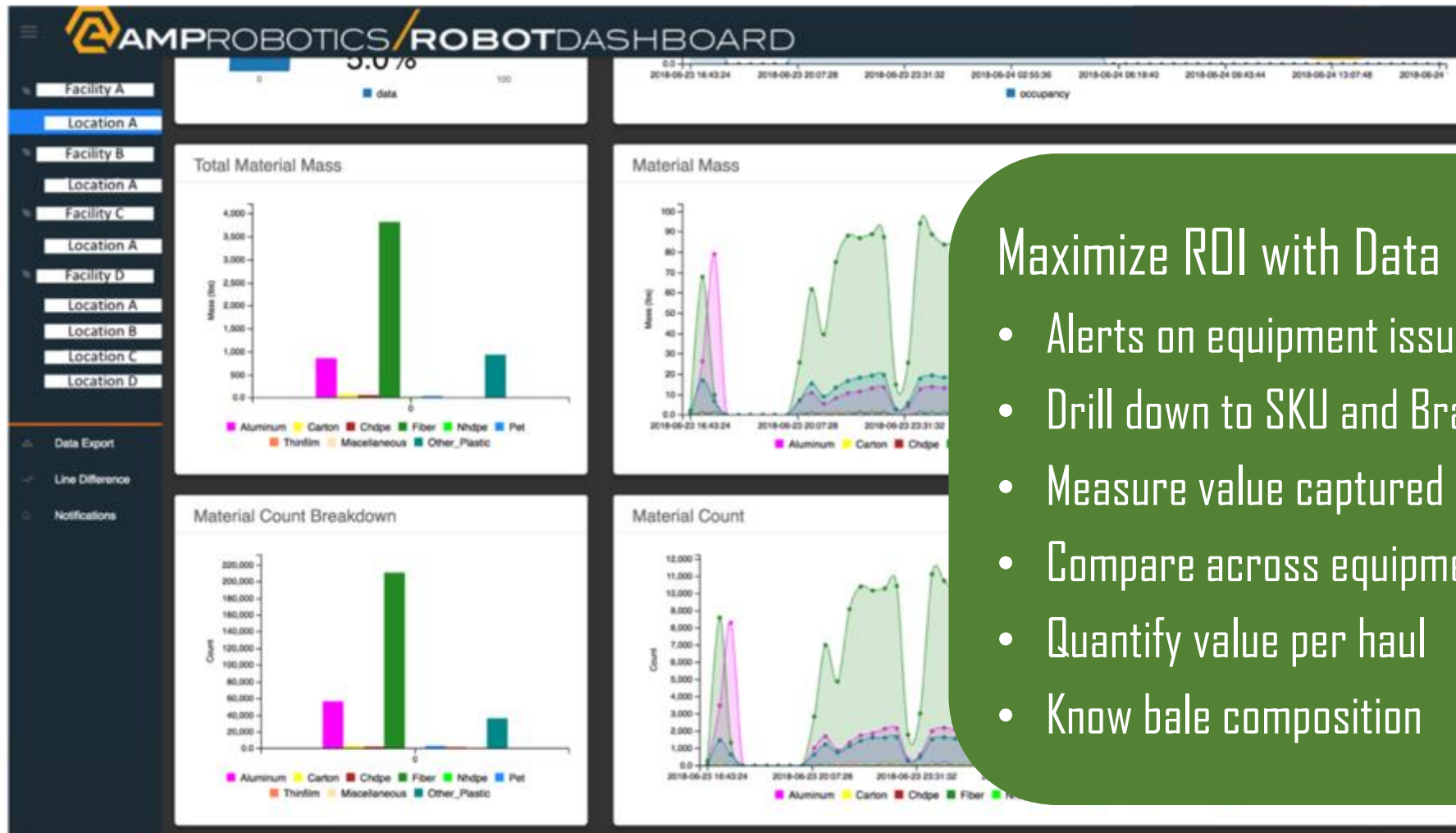


## ROBOTS EXECUTE WITH SPEED AND PRECISION

- High-speed picking twice as fast as humanly possible
- Sustainable, accurate, and consistent
- Precision prevents contamination
- Ideal for “dull, dirty, and dangerous”



# DIGITIZING THE WASTE STREAM



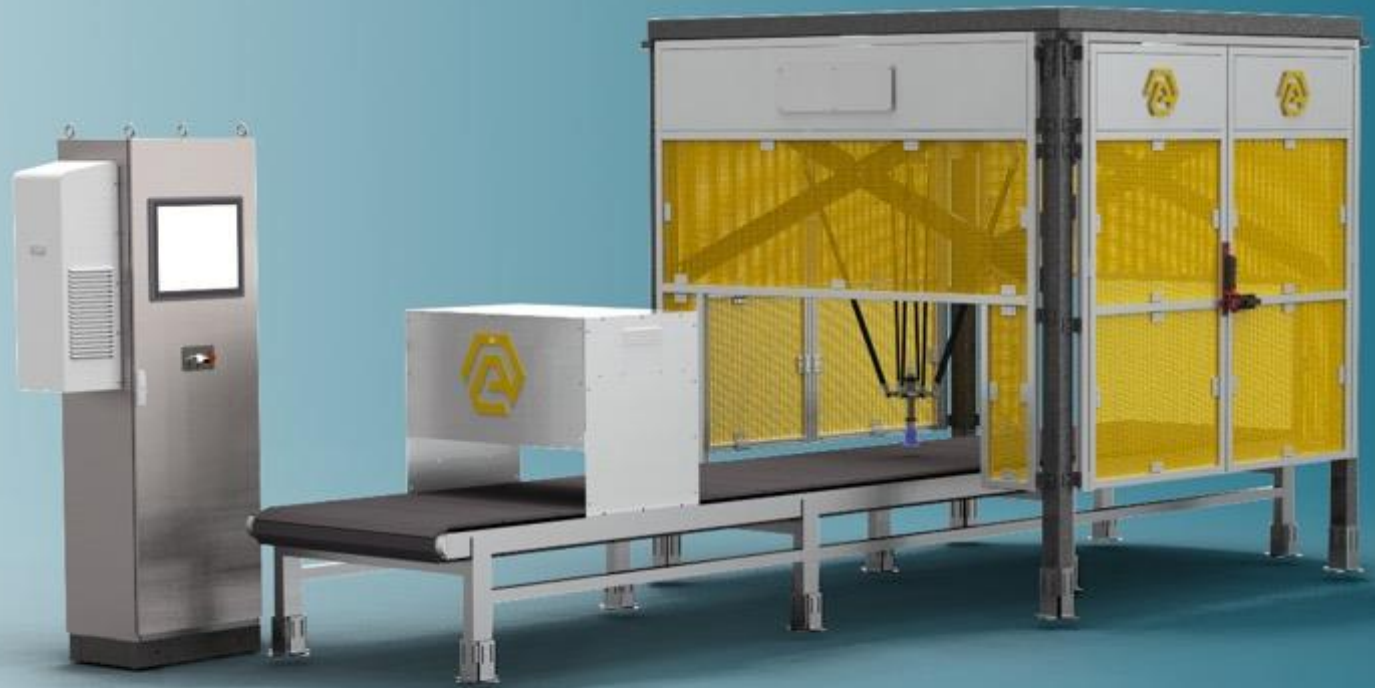
## Maximize ROI with Data

- Alerts on equipment issues/hazards
- Drill down to SKU and Brand-level
- Measure value captured and lost
- Compare across equipment
- Quantify value per haul
- Know bale composition

# DESIGNED FOR SCALE

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- No retrofit
- Easy installation on existing lines
- Quickly installs over a weekend



## AMP Robotics Announces Largest Deployment of AI Guided Robots for the Recycling Industry



AMP's install of 14 robots at SSR in Florida is the largest application of AI-guided robots for recycling in the world.



# AMP EDUCATING THE PUBLIC

## THE WALL STREET JOURNAL.

ARTIFICIAL INTELLIGENCE

### Recycling Centers Roll Out AI-Trained Robots

Sorting plastics, glass and paper is one job people are unlikely to mind losing to AI

By John Murawski

July 5, 2019 5:30 am ET

Recycling facilities are deploying artificial-intelligence-guided robots, which can sort streams of waste more quickly and accurately than human workers.

## FASTCOMPANY

04.04.19 | WORLD CHANGING IDEAS

### All the ways recycling is broken—and how to fix them

**CNBC** SIGN IN PRO WATCHLIST MAKE IT 7  
MARKETS BUSINESS INVESTING TECH POLITICS CNBC TV USA INTL

## America is drowning in garbage. Now robots are being put on duty to help solve the recycling crisis

PUBLISHED SAT, JUL 27 2019-9:00 AM EDT | UPDATED SAT, JUL 27 2019-9:42 AM EDT

### Artificial intelligence and robots are helping to transform the recycling industry

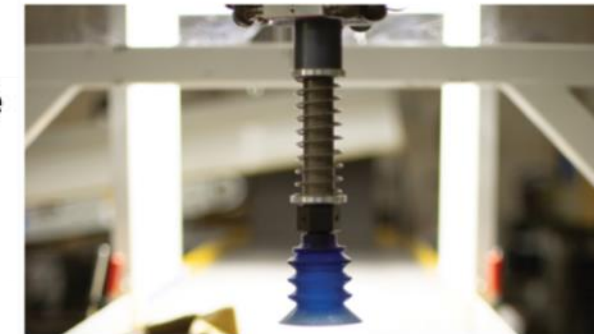
Posted: 2:05 PM, Sep 04, 2019 Updated: 6:13 PM, Sep 04, 2019

By: Elizabeth Ruiz



## waste...today

Waste Today / April 2019



### Technology trailblazers

Inside AMP Robotics' mission to bring robotic technology and AI learning systems to the waste and recycling industry.

79° Tampa News Channel 8 on your side

NEWS VIDEO WEATHER TRAFFIC 8 ON YOUR SIDE SPORTS SEND IT COMMUNITY

NEWS

### Florida's first recycling robot unveiled in Sarasota



# CARTON COUNCIL PARTNERSHIP

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- Key to first AMP Cortex pilot in 2016
- Partnered to advance carton recycling and its infrastructure
- Cartons have some of the most valuable fiber in the recycling stream
- Recycled into paper products and green building materials
- Partnership has deployed AMP Cortex to several facilities to date





# Thank You

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