



A Virtual Conference presented by AIM & RAIN
9 - 10 December 2020



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Platinum



Gold



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SIMPLYRFID



Higher sustainability enabled by RFID systems and sustainable tags

Tyler Chaffo, Manager, Global Sustainability
Intelligent Labels, Avery Dennison

December 2020



smartrac
an Avery Dennison company

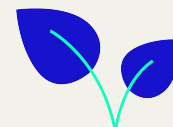
About us



Extensive industry
experience



Global
R&D capabilities



Sustainable
innovation



Commitment to our
broad customer and
channel base



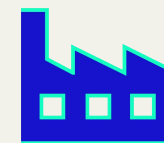
1750+ patents and
applications worldwide



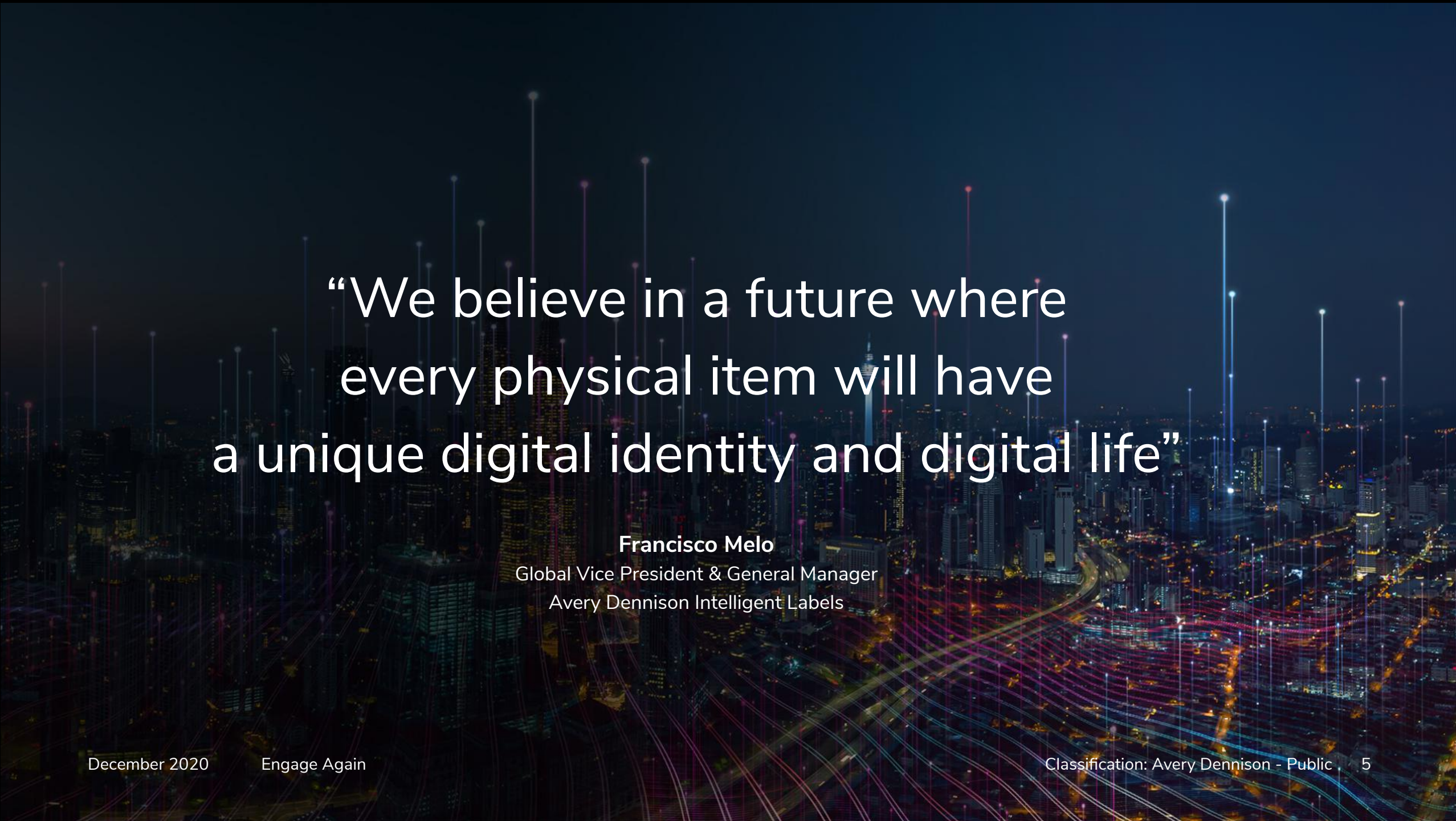
Industry first ARC
certification for quality



12B+ global capacity



7 manufacturing sites

An aerial night view of a city skyline, likely Hong Kong, with numerous skyscrapers illuminated. Overlaid on the city is a complex network of glowing lines in blue, purple, and red, representing a digital or data network. The lines connect various points across the city, creating a sense of connectivity and data flow.

“We believe in a future where
every physical item will have
a unique digital identity and digital life”

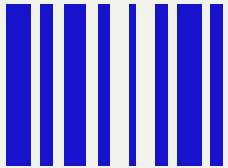
Francisco Melo

Global Vice President & General Manager
Avery Dennison Intelligent Labels

Our progressive family

We describe our technology solutions as a progressive family; flexible, adaptive, ever expanding...

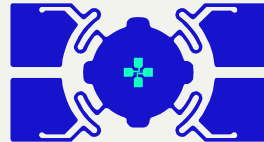
Intelligent Labels



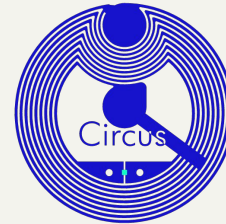
Bar code



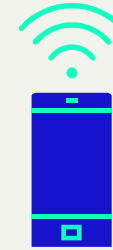
QR code



UHF / RAIN RFID



NFC / HF



Printed electronics



Passive bluetooth

A progressive family, that will continue to progress...

The supply chain revolution

COVID-19 puts enormous pressure on supply chains.

The simple principle of 'supply and demand' is back in focus, for everyone, raising some questions:

- Where do products come from?
- What goes into them? Are they sustainable?
- What guarantees that certain products will be on the shelf? If not, what are the alternatives?
- How do we authenticate and enable transparency of products?

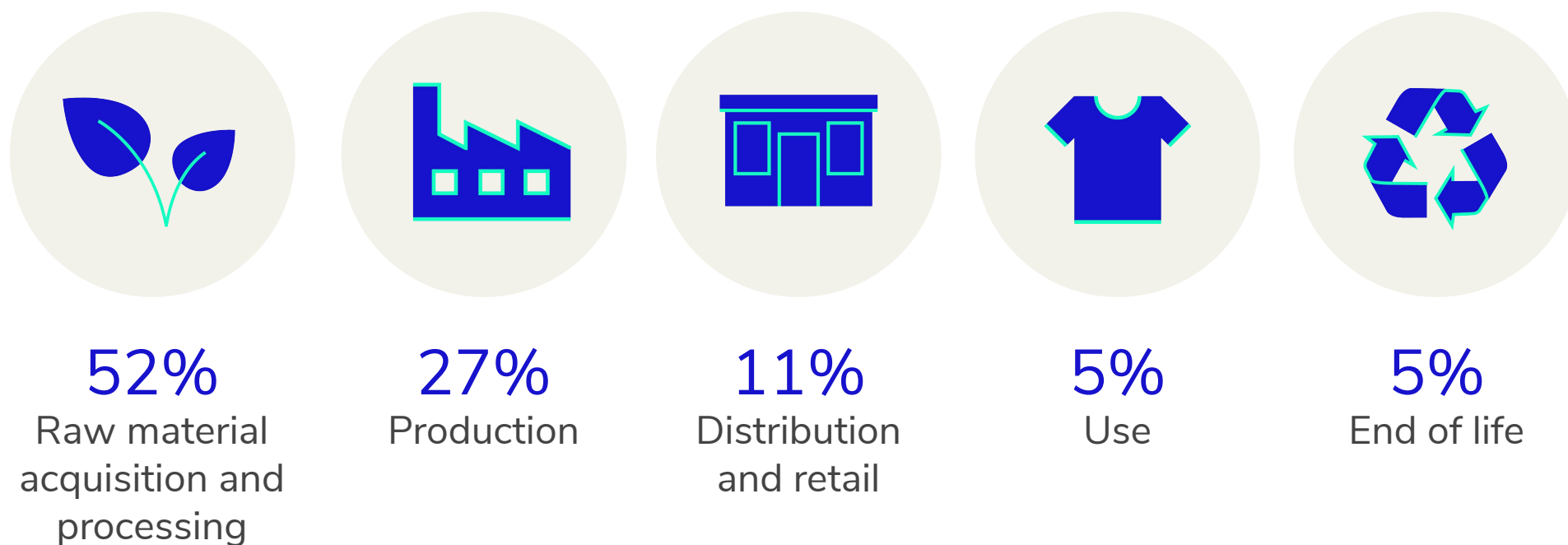




83%

of global c-suite and leadership roles believe
that supply chains and associated
technologies can assist businesses with
their sustainability objectives

An example of GHG emissions across a product's life cycle



Align our sustainable products with our values and goals



Manufacturing Excellence

- Reduced H₂O, energy and GHG
- Industry certifications and alignment with sustainable partners
- Roadmap for ISO 14001 certification



Material Selection

- Increased use of materials that enable recyclability while reducing carbon footprint.
- Replacement of PET for paper



Reduced Waste

- We recycle all of our aluminum waste
- Currently 75% of all aluminum produced is still in use.
- Additional waste is recycled or sent as waste-to-energy.

2020–2025:

3 Sustainability Goals

1

Deliver innovations that
advance the circular economy

Source 100%
certified paper,
of which at least
70% will be FSC
certified

2

Reduce environmental impact
in operations and supply chain

3% absolute
reduction in
GHG emissions,
YOY

3

Be a force for good,
adding value for all our
stakeholders

95% landfill free
with >= 75% of
waste reused,
repurposed or
recycled

Our inlays have one of the lowest carbon footprints

Through the use of materials and manufacturing methods mentioned we've found that our inlays have up to a 90% lower carbon footprint compared to benchmarks on the market.

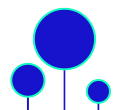
For 2 billion inlays this innovation represents a substantial savings equivalent to:



20,308 passenger cars driven for one year



CO2 emissions from 10,577,248 gallons of gasoline consumed



A forest nearly 10x the size of Manhattan

RFID Journal, Image Source: Temptalia , EPA.gov



The waste dilemma

Since 1950, only 9% of the world's plastic waste has been recycled

Regulation

- China will ban plastic bags by 2022 and a 30% reduction in single-use items

Impact

- About 13% of the US's solid waste is burned for energy, while over half ends up in the landfill while only a $\frac{1}{3}$ is recycled or composted
- Food waste is the single largest component going into municipal landfills, where it emits methane, helping to make landfills the 3rd largest source of methane in the US. (EPA)
- For every \$1 million in revenue the largest publicly traded companies in the U.S> generate 7.81 metric tons of waste (much avoidable)

Value

- 3-5x more energy can be saved through reuse, recycling and composting than incineration

Forbes, BBC, GreenBiz, Fast Company

Landfills Are The Mines Of The Future

There are greater concentrations of precious metals in our e-waste than there are in the ground. And it's a lot cheaper and cleaner to get things out of e-waste than starting a giant mining operation. Where would you rather get the materials for your next gadget?



Landfill mining: is this the next big thing in recycling?



40%

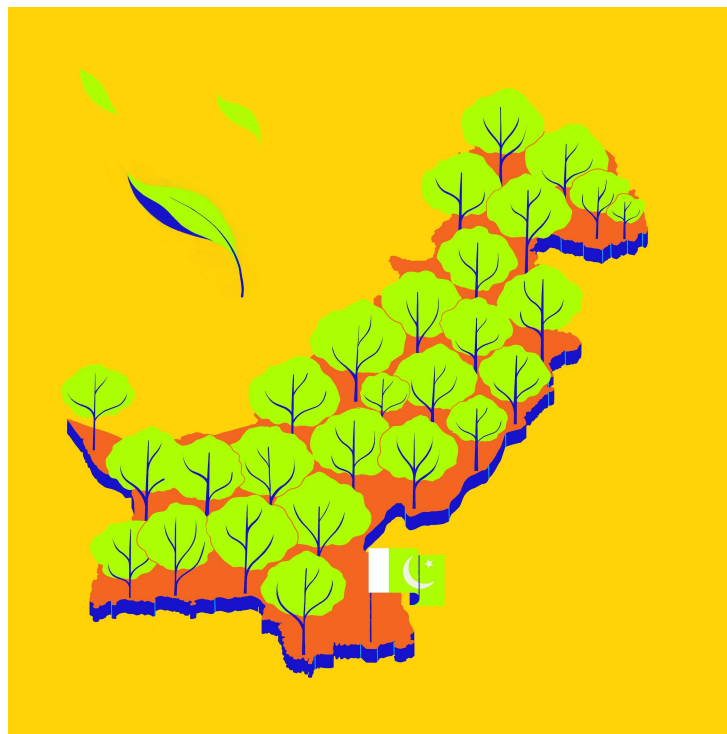
of food waste is caused
at the supply chain level

Food and Agriculture Organization 2019

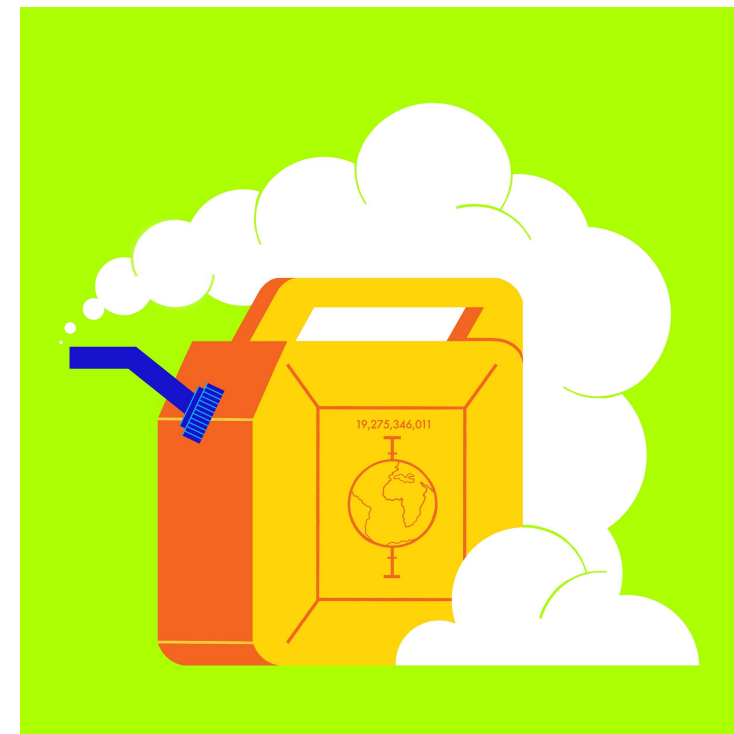
Food waste in the US alone is equivalent to



37,000,000 passenger cars
driven for one year



A forest nearly the size of Pakistan or
2.5x the size of California



CO2 emissions from 19,275,346,011
gallons of gasoline consumed

Enabling greater transparency and sustainability

Global food waste is unacceptably high, at around a third of total production globally – **40%** of that occurring in the supply chain. By offering visibility into inventories, RFID enables companies to avoid overproduction and reduce waste.

- Improve visibility of “use by” dates
- Create alerts for date-expired and short-life products
- Automation of mark-down process through RAIN RFID tag scanning linked to label printer
- Reduce net food waste in store
- Improve availability and sales
- More efficient handling of recalls

*Source: Based on customer pilots



20%

Food waste reduction*



50%

Labor cost reduction*

Expiry date is written to the microchip and can be read by the radio scanner





Beauty pollution is worse than ever,
with the global industry creating
120 billion units of packaging every year

Zero Waste Europe

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Supply chain visibility: Sustainability

The annual impact of manufacturing **an excess of only 5%** of a single shade of a popular lipstick equals:

CO₂ emissions of
223 cars
driven for one year

This requires
a forest nearly
**twice the size
of Central Park**
to sequester¹



Sources: ⁽¹⁾Avery Dennison Image: Temptalia

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Engage Again

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A large, sprawling pile of discarded clothing and textile waste, including various colored fabrics, shirts, and pants, under a clear sky.

The textile industry produces more carbon emissions than the airline and maritime industries combined. And approximately 20% of water pollution across the globe is the result of wastewater from the production and finishing of textiles. Less than 1% of materials used to make clothing are currently recycled to make new clothing.

Quartz

Item level visibility reduces waste and enables circularity

By rightsizing inventory RFID can reduce waste while increasing sales

Stock reduction of

2–13%

for 60% of the retailers

Enabling garment circularity, helps to reduce the **15 million tons** of garment waste in the US

Sources: GS1 Textile Exchange

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Thank you

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Presentations will be available on-line soon. You will receive an email with a link when they are available.