



SORTERA
A L L O Y S

Vision & Strategy

May 1, 2022



At-a-Glance

BACKGROUND

- Founded in 2020
- Recycle mixed-waste metals using patented A.I. technology
- High-purity recycled feedstock is sold and used by automotive, housing, and construction industries
- Based in Fort Wayne, Indiana
- Targeting the **\$10 BILLION** North American Aluminum Market

At-a-Glance

WHY SORTERA?

- Fully-automated sorting process produces low-cost, high-quality metal alloys for manufacturing industry;
- Recycling domestic alloys decreases reliance on imported metals;
- **20X LOWER** energy use compared to virgin alloy production leads to reduction in green-house gas emissions;
- Reduced waste of recyclable alloys that end up in landfills due to insufficient sorting;
- Increased domestic manufacturing and supply chains reduces procurement time and increases inventory flexibility; and
- Up-graded scrap sortation provides a lower cost domestic manufacturing environment minimizing supply-chain delays and increasing recycled content in aluminum products.



Our History

2014

Department of Energy ARPA-E program request for technology to improve sorting of alloy materials for recycling

2014

UHV Technologies ARPA-E submission demonstrates >95% sorting accuracy in double-blind test

2015

DOE selects UHV Technologies for continued development of XRF sorting technology with \$2.5M grant, **bringing total grants from DOE to UHV to \$5.5M**

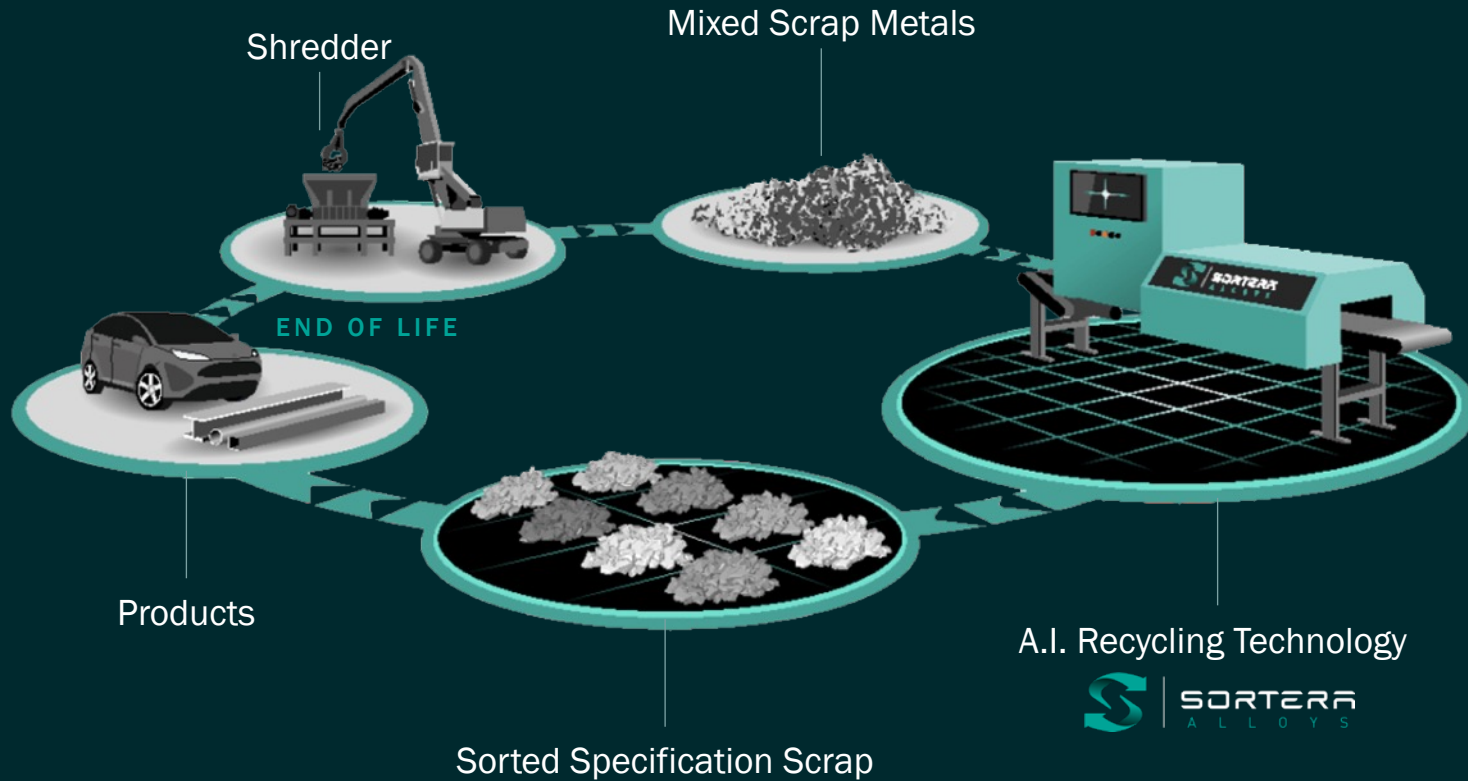
2017

UHV Technologies files core patents for XRF sorting technology

2020

Sortera Alloys spins out of UHV Technologies to scale and bring to market XRF and AI sorting technologies

Our Vision



To enable nearly 100% reuse of waste recovered from end-of-life products

Substantial amounts of recyclable materials are sent directly to landfills every year due to a lack of sorting infrastructure

Increased recycling of end-of-life products reduces manufacturers' reliance on imported raw material and increases domestic job opportunities

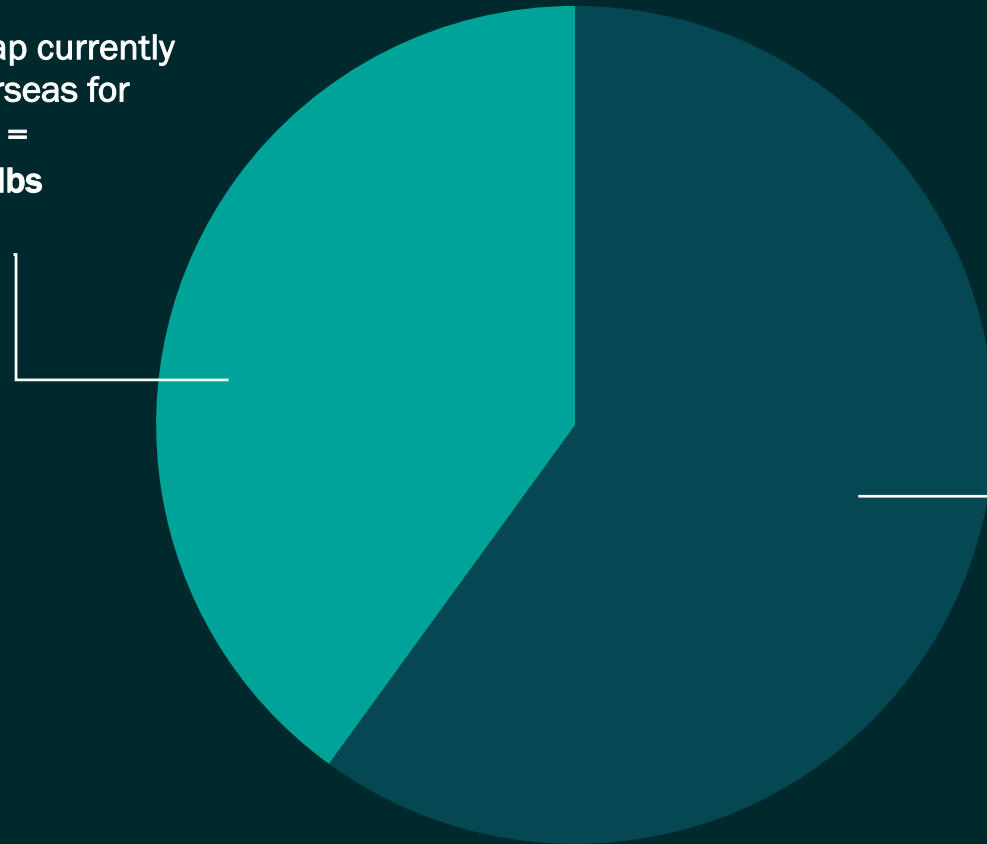
Use of recycled aluminum saves roughly 95% of energy compared to use of virgin raw materials

The Market Opportunity

- Sortera's initial market focus is aluminum due to immediate market opportunity, ability to scale, and ESG priorities for manufacturers to increase use of recycled alloys;
- End of Life Aluminum Market which is valued at \$10 Billion and could reduce GHG by over 14.5 MMT of Carbon when upgraded by Sortera's sorting technology;
- Aluminum is the fastest growing scrap metal produced by the automotive industry; and
- Future market opportunities for Sortera's sorting technology represent >\$2 trillion in market size - steel, plastics, municipal solid waste, energy crops, and bio-mass.

Total domestic mixed alloy scrap market =
roughly 10 Billion lbs

Alloy scrap currently sent overseas for recycling =
4 billion lbs



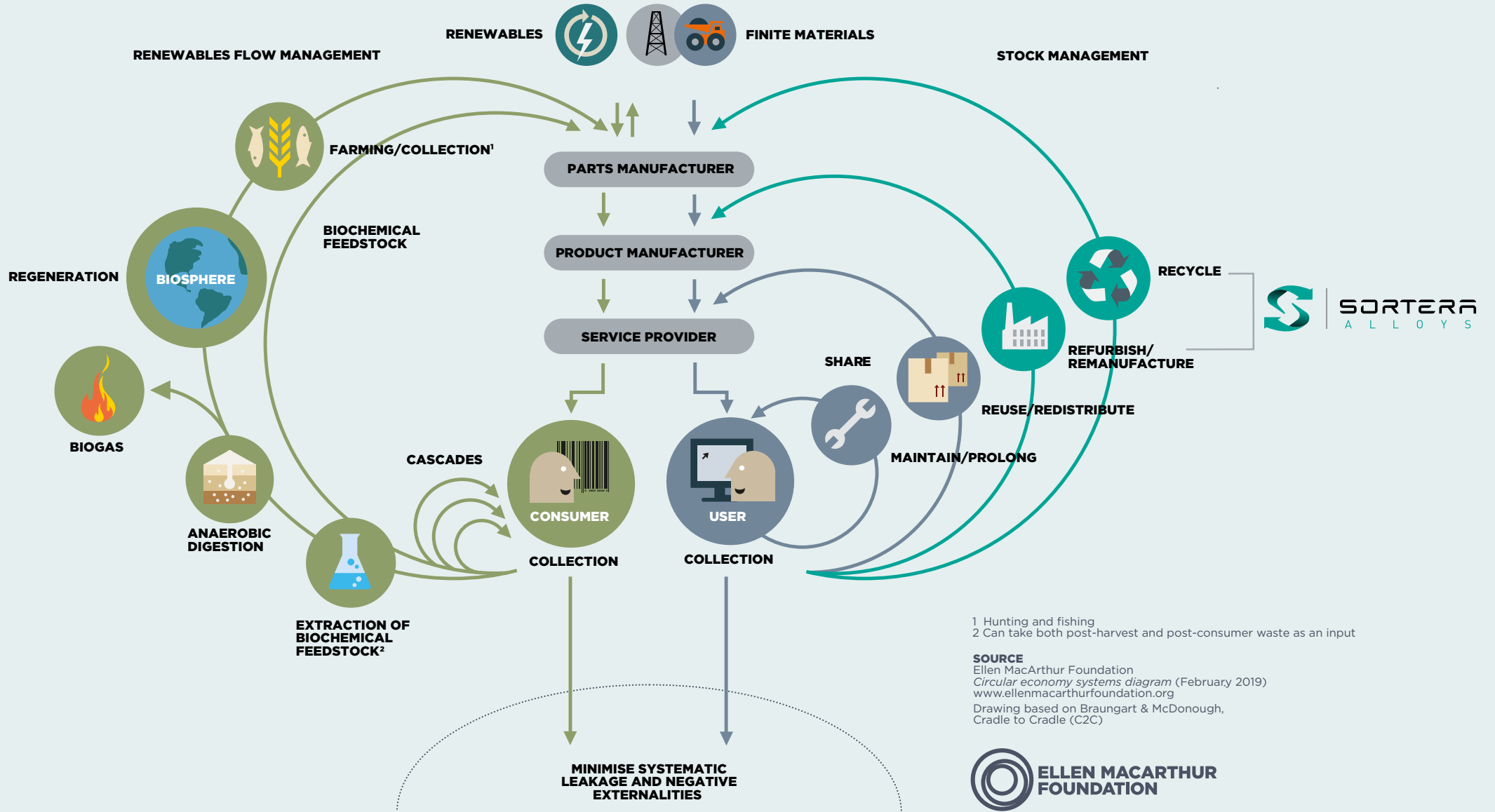
Alloy scrap currently recycled domestically =
5-6 billion lbs



The Environmental Impact

- The growing understanding of the need for a circular economy is driving interest and demand for increased recycling capabilities of many materials, including aluminum;
- The aluminum industry accounts for 1% of the global GHGs;
- Recycling aluminum saves 95% of energy & GHGs compared to aluminum manufactured from virgin material; and
- Sortera Scrap Saves ~8.1 Tons of CO₂ for Every Ton of Scrap.

Our Role in the Circular Economy



1 Hunting and fishing
2 Can take both post-harvest and post-consumer waste as an input

SOURCE
Ellen MacArthur Foundation
Circular economy systems diagram (February 2019)
www.ellenmacarthurfoundation.org
Drawing based on Braungart & McDonough,
Cradle to Cradle (C2C)

How Our Technology Works

- Sortera utilizes various combinations of x-ray fluorescence (XRF), laser induced breakdown spectroscopy (LIBS), and A.I. software to identify and sort recyclables;
- Sortera builds and owns its own hardware and software and has over 30 critical patents related to its proprietary technology; and
- Enabling the largest aluminum scrap volume globally into a circular economy for all aluminum product uses.

Phase 1: Product Sorting

Sortera currently processes Twitch with A.I. to create 3 end of life aluminum packages.

- Cast
- Sheet
- Extrusion

Phase 2: XRF Technology

Identifies the heavy metal content in an item.

Zn, Fe, Mn, Cu, Cr, and Ti are identified with a high degree of accuracy.

- In-line **patented** sorting allows **differentiating** and **sorting** multiple items/alloys in one pass; and
- Low-cost sorting due to in-line design and placing the detector closer to the scrap which reduces the frequency needed to detect the make-up.

Sortera's Proprietary A.I. Technology

STAGE 1:
Unsorted Mixed
Aluminum Alloys
("Twitch")



STAGE 2:
Aluminum sorted by Sortera tech

SHEET ALUMINUM ALLOYS



CAST ALUMINUM ALLOYS



EXTRUDED ALUMINUM ALLOYS

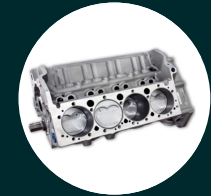


STAGE 3:
New Products

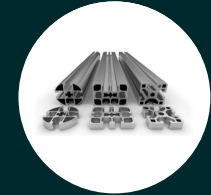
Automotive, Al 5/6XXX



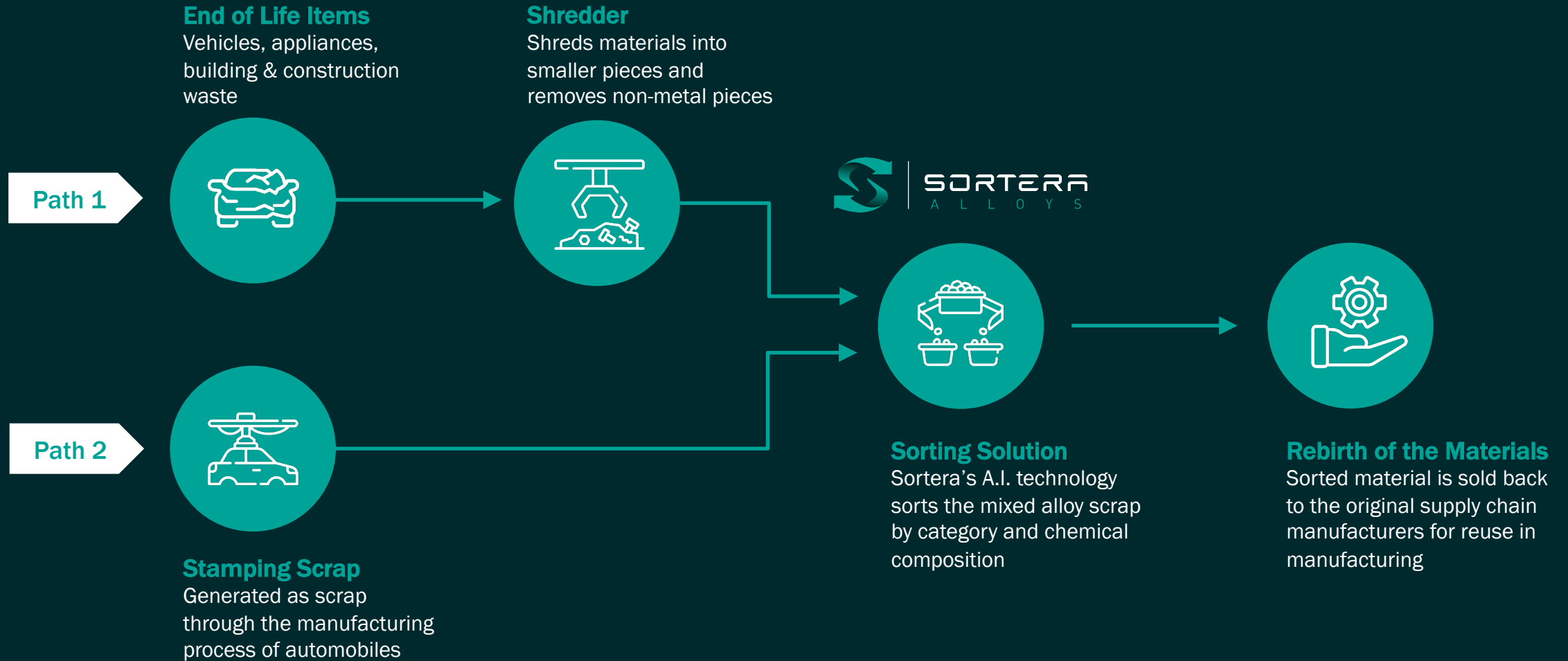
Engines, Al 380



Extrusions, Al 6061



The Economic Value Stream of Recycled Alloy



Our Experienced and Diverse Leadership Team



Michael Siemer
President and CEO

Vast experience with Fortune 500 Companies with a diverse background, MSEE & MBA

- Data Analytics, Automation, and Manufacturing
- Multinational organizations
- Commodity-focused experience
- Corporate strategy



Dr. Nalin Kumar
Co-Founder and CTO

30 years of hi-tech startup experience with 67 US patents

- Launched an IPO and two VC-funded companies
- Expertise in design and manufacturing of equipment & instruments



Manuel Garcia
Co-Founder and Vice President for AI and Data Science

Expertise in artificial intelligence and software

- 15 years of R&D experience with 5 issued patents



Ben Pope
Vice President for Commercialization

Expertise in sales and marketing of non-ferrous scrap

- VP for Sales at Audubon Metals; responsible for \$300M in sales
- Senior Manager at Toyota Tsusho America – Metals Division (2006-2016)



Kelly Kordzik
General Counsel

Expertise in IP, Patents and Corporate legal matters. 30+ years of experience



Frank Gallagher
VP of Accounting and General Administration

More than 20 years of financial experience