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I am excited to share with colleagues from CIERP about my reflections on my winter project. During my two trips, I was able to chat with four companies situated at the core of carbon neutrality and waste management.

My Fletcher education has always centered around environment protection and resource reservation in innovative ways. As a fresh grad, it is not only important to choose the right cause but also the right company with like-minded people to work alongside. That's why I'm grateful that CIERP sponsored my in-field visits and discussions with some candidate companies. The company that I find particularly interesting is called Dr. Regeneration, and in this reflection, I will share my understanding of its mission and how I can contribute to its success.

Company's mission and how it resonates with me

It's unfortunate that the product of rapid industrialization is not only a soaring economy, but also mountains of waste and carbon emissions. At present, more than 20 billion tons of waste are incinerated and landfilled every year in the world alone.

But in fact, bulk waste actually has great recycling value. The founder of Dr. Regeneration started the company with the vision of "There is no real waste, only misplaced resources." It shocks me that the value of international waste trading stands at more than 400 billion USD a year. Known as "urban mining," the waste industry has a potential to do good while doing well.

However, currently only no more than 20% of the world's waste is recycled, and the recycling rate of China's waste is far lower than the international average.

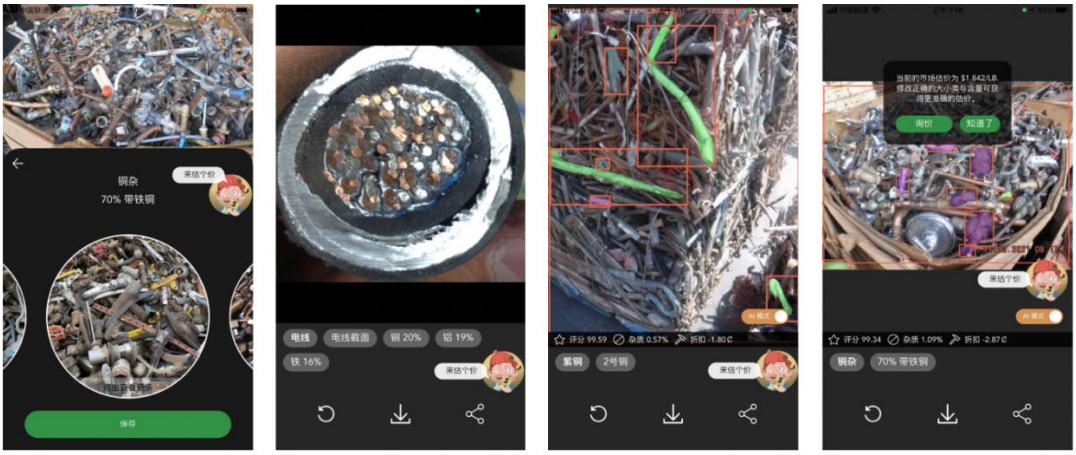
The development constraint is that the waste generally appears in small amounts, with mixed and indeterminate components, and the locations where those wastes are produced are discrete. This has led to the fact that knowledge training in the industry cannot form a unified system, there is no general "textbook" in the industry, and the ability of practitioners of recycling companies with industry experience to identify them varies.

consumer-electronics company using recycled materials

The company's mission is to break the information silos and build the scale of economy. These experts' knowledge should be aggregated in the development of the waste recycling industry, whether in material identification, analysis, or evaluation.

The company provides a simple-to-operate system for waste identification, quality inspection, valuation, and trading. In terms of specific operations, the seller only needs to take or upload a picture of the scrap, and the system can identify the type and composition of the scrap, estimate the value in real time, and automatically match the best buyer to facilitate the scrap transaction.

The company has been collecting and labeling waste data since 2016, and the painstaking accumulation really pays off: the platform has the world's largest waste database and has an accuracy rate of more than 90% for the identification and valuation of hundreds of types of scraps under non-ferrous metal varieties. Below is a preliminary version of their system:



The company is still in its early phase, but I already find great synergy between its mission and my expertise.

What I can contribute as a fresh grad

Once we have identified that the scattered transaction volume of materials, the lack of consistency in the fluctuation of material quality, and the immature market circulation mechanism have become the shackles that restrict the development of the industry to a higher level, I can bring in my specialty in economics and contribute to establishing a standardized system. Additionally, I am passionate about apparel waste recycling, and can help the company expand its coverage from only industrial waste recycling to consumer goods recycling.

If we break down the company's smart system into four steps, they would be 1. Automatic collection of waste sources everywhere; 2. Automatic sorting of a large number of similar wastes; 3. Updating scrap list prices in real time; 4. Automatic matching with the best recycler.

To create economic incentives for factories to post their waste resources to our marketplace, I think we should build a two-layered system with managers in each community organizing the waste collection, so that we can offer peace of mind for individual factories and also leverage the management system as a first-step screening and sorting of wastes.

This brings us to the second step, with a round of preliminary sorting at the "community manager" level, which would be easier in centralized sorting. To better the user experience, we should assign a unique identifier to each batch of scrap automatically for the factories to track their sale; meanwhile, we should create a reward system incentivizing community managers to bring in scrap and waste to our system in a more bulk and organized way.

These are my thoughts about the pre-sales stage. The key is to alleviate stress from factories worrying about selling waste, but not to create too great of an administrative burden for us to collect and sort waste from a centralized standpoint.

The waste sellers won't be willing to cooperate us if we can't give them fair value of their wastes. To make a more accurate valuation of scrap, firstly, any ubiquitous raw material has a price linkage with the bulk futures commodity, and the intrinsic value of the elements in the raw material can correspond to its futures category. Secondly, the value of waste also needs to comprehensively consider the changes in production and transportation costs caused by fluctuations in energy futures. Although individual single transactions seem to be disordered, after analyzing a large number of transaction information, the relative relationship between scrap and futures can be traced.

The last link is that after the customer uploads the scrap information, we need to match it with the best buyer. This is the beauty of a two-sided network effect – we don't merely need to satisfy the need of the sellers, but also have to best serve the buyers, in order for the growth flywheel to actually run. The current matching system is not granular enough, so I think we should build an intelligent system where even the shape, purity, and alignment with buyer's purchasing power can be factored into the matching. Furthermore, the after-sales customer services should be in place to make sure we incorporate bad examples and improve our services accordingly.

Last but not least, the current system in selling industrial waste is very much transferrable to consumer goods. The biggest barrier will be establishing a valuation system for those consumer goods that are not as commoditized. So as a first step, we could expand the range of products accepted in the system to fabrics and textile. They have relatively fixed prices according to the material itself. We could sell them to individual designers, a very underserved contingent in China that often faces difficulties in placing orders with OEMs due to the fact that the quantities requested are too low to make economic sense for the OEM to start a production line. With secondhand fabrics matchmaking, we can make their lives easier.

studio working to manufacture sustainable accessories

These are my ideas about possible way to engage with and contribute to this company. With Chinese government stress the carbon neutrality goal more than ever, I am very optimistic about this company.