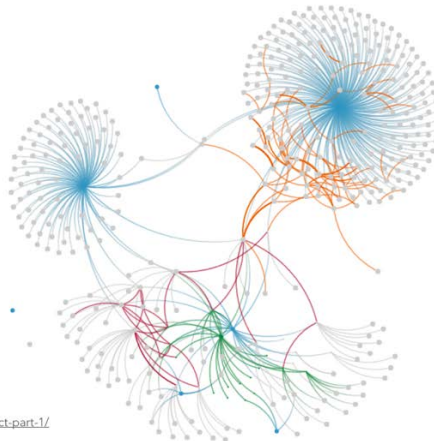


## intentional network

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...a network of people and organizations that are working on the same issue or **vision**, together with **structures** that have been created to mobilize the energy of the organizations.

<http://blog.kumu.io/building-intentional-networks-that-drive-impact-part-1/>



## Circular Economy in Action - The Materials Marketplace

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### ABSTRACT

The **Materials Marketplace** is an award-winning regional and national platform that facilitates company-to-company industrial reuse globally. Through a facilitated and managed cloud-based platform, traditional and non-traditional industrial waste streams are proactively matched with new product and revenue opportunities, ultimately enabling the culture shift to a circular, closed-loop economy. In addition to diverting waste from landfills, these recovery activities generate significant cost savings, energy savings, and create new jobs and business opportunities. Marketplace platforms are currently deployed at the national level in the US, at the state level in Ohio and Tennessee -- with plans for scaling to all 50 states -- and in Turkey, in cooperation with the European Bank for Reconstruction and Development.

The US Business Council for Sustainable Development (US BCSD) developed the Materials Marketplace software platform in 2014 to enable participating companies and staff to easily post materials available or desired, identify reuse opportunities, and exchange underutilized materials. The platform won the 2016 Circularity Digital Disruptor Award at the World Economic Forum Annual Meeting in Davos, Switzerland, setting the stage for scaling and replication to meet the growing demand from communities and businesses for cross-industry collaboration on materials reuse.

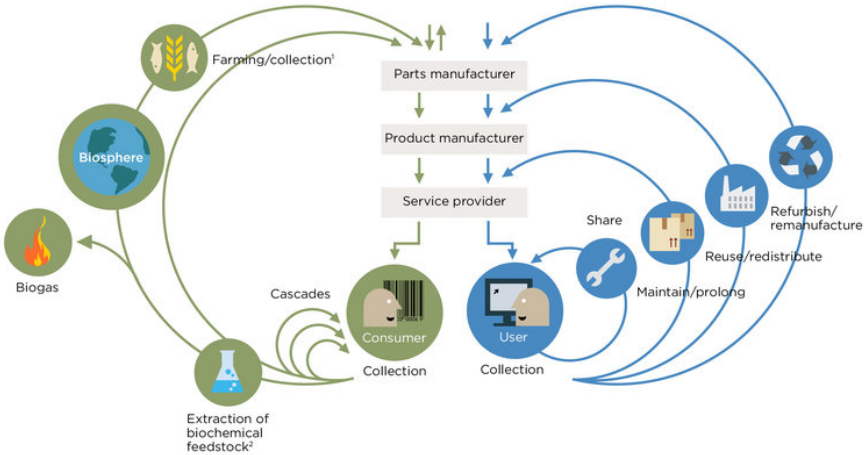
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### AN EXPANDING CLOUD-BASED COMPANY-TO-COMPANY INDUSTRIAL REUSE PLATFORM

The material intensity of the world economy has been increasing for the past decade, driven by a great acceleration that has occurred since the year 2000. Globally, more material per unit of

GDP is now required. Production has shifted from very material-efficient countries to countries that have low material efficiency, resulting in an overall decline in material efficiency<sup>1</sup>. Companies and governments are turning to the idea of a circular economy to help address these challenges.

In a true circular economy, all by-products and products recirculate back into the economy. The intent is to keep resources in productive use for as long as possible by recovering and regenerating new products and materials. One critical component of the circular economy is business-to-business materials reuse, matching wastes and undervalued resources at one facility with the needs of another one. The result is a continuously evolving redesign of systems to establish higher value circular flows of materials.



The US BCSD has a 20-year history of achieving tangible materials reuse results through its Materials Marketplace Platform. The system brings companies together via the Internet cloud to share details of their material flows under a legally and technically secure structure. Often this is the first time companies discuss their waste flows outside of the company walls. It has produced hundreds of unexpected and beneficial cross-company material synergies, offering a practical way to achieve circular economy goals.<sup>2</sup> Through the Marketplace platform, traditional and non-traditional industrial waste streams are matched with new product and revenue opportunities, ultimately enabling the culture shift to a circular, closed-loop economy.

While materials matching has been tried many times before, several key developments have combined to make sustainable materials management an attractive business strategy. These include growing governmental recognition that waste streams hold valuable components that can be reused safely while creating jobs and sound economic growth; and that decades old regulatory structures could be preventing sound reuse opportunities from happening. Regulatory modernization to allow innovative reuse opportunities is on the table in many government capitals around the world. Add to this a recognition by corporate leadership that material reuse can be a new revenue stream as well as a hedge against rising commodity prices and scarcity. Combine regulatory modernization with corporate buy-in, add the increased sophistication of intelligent software and the breadth of solution providers available to help companies find reuse opportunities, and the door to sustainable material management is opening to a new landscape of sustainable growth.

<sup>1</sup> UNEP (2016). Global Material Flows and Resource Productivity. An Assessment Study of the UNEP International Resource Panel.

<sup>2</sup> <http://usbcsd.org/materials/>

## THE UNITED STATES MATERIALS MARKETPLACE

The US Materials Marketplace launched as a pilot project in the summer of 2015 to test the feasibility of a national-scale marketplace. Initial results from this pilot, which ran from June to August 2015, included 23 participating companies, 78 facilities engaged, 150 materials—2.4 million tons total—uploaded to the marketplace, 59 materials being sought, 68 recommended matches and 19 transactions in development, with another 49 possibilities that were still pending action at the close of the pilot.

*June to August 2015*

23

companies

78

locations

2.4

million tons available

59

wishlist materials

68

reuse opportunities ID'ed

19

transactions explored

The US Materials Marketplace pilot project was the culmination of 20 years of materials management efforts in the United States, China, and the United Kingdom by the US BCSD, and was the winner of the World Economic Forum's 2016 global "Circular Economy Digital Disruptor Award." Since then, state-level Materials Marketplace platforms have been established in Ohio and Tennessee, supported by the state environment commissions, and in Turkey, supported by the European Bank for Reconstruction and Development. Scaling to all 50 US states, in Europe and elsewhere are in the pipeline.

As these projects launch and companies upload details of their material flows, materials experts and facilitators are highly involved in identifying "highest and best use" opportunities - from both an economic and environmental perspective - for participants in the project.

- Highest and best use vs standard diversion scenario guidelines are available as reference for the large majority of resource types encountered in the program, with supporting case studies available for most scenarios.
- Using this knowledge base, experts and facilitators are able to provide hands-on advice to companies when valuing their materials and negotiating prices in the transaction stage.

For many resource types, the opportunity exists to not only determine current value for materials streams, but ultimately raise the value of those materials streams through the identification of and connection to better business solutions. In many cases, the nature of these business-to-business relationships can decouple the true value of material streams from external factors like commodity market prices.

Technical and commercial support available is largely determined by the makeup of participants involved in the project. Recruitment strategies are geared towards maintaining a balance

between participants with materials available and participants with technical or commercial capabilities to utilize those materials, but that makeup is ultimately shaped by who's active in a given region.

- The Marketplace team assists companies in exploring new supply chain opportunities based on alternative material use.
- The project team will engage commercial and technical experts with existing business solutions to deal with high-volume, high-value materials streams identified in the marketplace.
- For materials where no business solution or highest and best use case currently exists, the project team can then work with research institutions or entrepreneurs to bring new technology or services to market.

## GOVERNMENT ENGAGEMENT

As interest in Sustainable Materials Management (SMM) grows from both the public and private sectors, and the Materials Marketplace platform has emerged as a leading path to SMM action and scale, a historic Materials Leadership Committee was established by executive level members of the [Environmental Council of the States](#) (ECOS), representing all 50 state environment commissioners, and the US Business Council for Sustainable Development (USBCSD). The initial purpose of this important public-private partnership is to connect the capabilities and interests of business and state leaders to scale creative material reuse across industries and develop policy solutions that support these shared goals.

ECOS Materials Leadership Council members are environment commissioners from the states of Minnesota, Ohio, Tennessee, Oklahoma, Colorado and Louisiana. US BCSD participants are senior representatives from General Motors, Lockheed Martin, Ingersoll Rand, Entergy, and LafargeHolcim.

Increasingly, state and city governments, businesses, entrepreneurs and researchers want to participate in Sustainable Materials Management and the Materials Marketplace because they see the value in:

- Finding material reuse matches that make business sense beyond conventional sourcing;
- Review existing regulations and structures to examine how they help or hurt SMM and the MM;
- Overcoming technical, business and regulatory barriers to material reuse;
- Creating and retaining jobs through reinvigorated US manufacturing and service industries;
- Building relationships externally – creating valuable intentional networks, not limited to “linear” progression up and down the value chain;
- Broadening sustainability participation internally – having a vehicle for reaching out to multiple functions and/or facilities internally with something practical to do about sustainability;
- Taking a leadership role in SMM and the Materials Marketplace – working with other business, government, academic and NGO leaders to help shape materials policies and programs;
- Developing alternative approaches to better align rules and regulations to achieving these objectives.

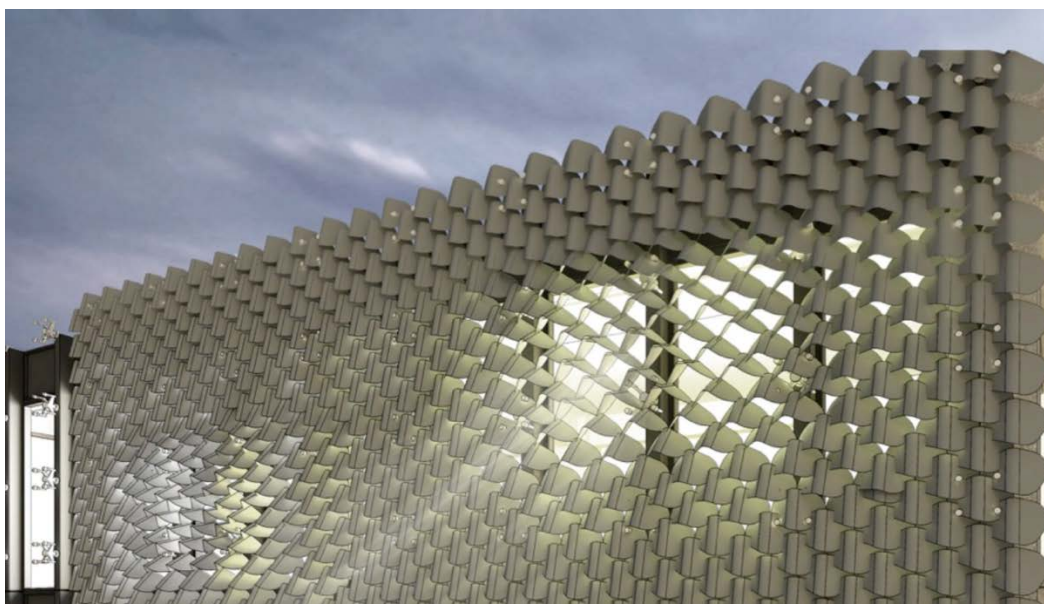
Dialogue and discussion, understanding and innovation are needed. Each side of the SMM ecosystem has an important role to play and must make its interests and capabilities known to the others. Through this steering committee ECOS and the US BCSD will seek solutions that will help accelerate adoption and implementation of sound materials management and establishment of a national Materials Marketplace in the United States.

## EXAMPLES

Material reuse and recycling offer additional carbon reduction strategies by reducing the emissions involved in extracting and transporting virgin raw materials. Measuring these reductions is possible using life cycle methodologies. If the UN Framework on Climate Change were to adopt material reuse as a carbon reduction strategy it would greatly accelerate interest from all sectors in establishing the circular economy/industrial ecology approach.

But moving from rhetoric to reality isn't easy. It requires a change in thinking for those accustomed to a linear path of taking materials, using them to make products, and scrapping whatever is left over. Forms of the circular economy have been kicking around for decades, under varying names, including by-product synergy and industrial symbiosis, typically at the local or regional level. Businesses have more incentive today to squeeze every gram of potential out of the materials they use. The marketplace helps them do that.

One market leader, General Motors, generates thousands of materials it no longer can use. And it is very good at finding new ways to use these flows. A couple years ago GM reported \$1 billion in revenue from material reuse. That's leadership. Through the marketplace, GM is multiplying those options. For instance, thousands of tons of identical steel pieces flow every year from the early stage of auto body formation -- from stamping flat steel into Suburban and Camaro bodies. The window blanks that are cut out and accumulate by the thousands of tons traditionally have gone back to be remelted into new flat steel -- with high costs in energy and money. But through the marketplace GM is working with architects and architectural students designing building skins, fasteners as well as furniture makers and building products companies that had never been involved.



## **Advances in the Matching Process**

The matching process has come a long way from the days when process engineers were literally standing over spreadsheets analyzing how we could pair companies with materials they either needed or wanted to unload. Because the Materials Marketplace is confidential and secure, corporations and entrepreneurs are more confident sharing information about their material flows with city departments and other participants.

The emergence of multi-sided platforms like the Materials Marketplace that easily connect sellers with customers -- like Uber, Amazon and Alibaba do -- allows for low friction connections for the growing number of companies that want to turn their excess materials into valuable resources and become leaders in the circular economy.