Shortening the Supply Chain through Smart Manufacturing

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Background/Objectives. Every day in the United States, roughly 690,000 tons of materials are dumped in landfills, according to the Environmental Protection Agency. The scientific evidence of the negative effects of carbon-based fuels and products on the environment, land, air, and sea, are irrefutable and widely known. Single-use products made from toxic materials have flooded the food and medical supply chains. Additionally, inner city unemployment rates of minorities in many urban cities across America are above 20 percent. Millions of businesses want ethically sourced products and last mile delivery in a single platform. Inefficiencies in the supply chain, particularly material sourcing, and end use recycling, create massive waste and require manufacturing and recapturing processes to be restructured through innovation. Packaging is a $700Bn market which is expected to grow at five percent annually. No easy way currently exists to manufacture and provide last mile distribution locally and small to mid-size entrepreneurs can spend upwards of 6-12 months in the prototyping phase and domestically manufactured products can cost five to 10 times more than foreign sourced competitive products for single use plastic.

Approach/Activities. As a Massachusetts Institute of Technology start-up, ETV is seeking to implement the suggestions of Jonathan Gruber and Simon Johnson as presented in *Jump-Starting America.* The research suggests that 102 locations across the Midwest and Southeastern United States have been largely ignored since World War II but have a massive repository of resources (i.e., talent, spaces, and logistic centers) to forward innovations specifically through manufacturing and advanced technology.

Climate action plans for many cities focus on 90% reduction in GHG emissions by 2050 following the Kyoto Protocol. These plans include reducing waste and pollution, and adaptation principles that require engaging the public, engaging business, and planning for the future. A specific way to accomplish these goals, decrease pollution and shorten the supply chain is to reimagine packaging of all consumer products, making sustainable degradable materials widely available and tracking the distribution of these materials.

Results/Lessons Learned. Development of an IoT platform can: 1) coordinate sourcing and supply of materials to ensure effective provision of eco-friendly and recycled inputs; 2) distribute machine and equipment resources efficiently, and 3) shorten the supply chain by centralizing and coordinating last mile delivery. As noted to the 2018 Harvard Business School Case EcoTech Visions is the first comprehensive model of integrated sourcing, manufacturing, and product delivery in America. The power of connecting logistics with our platform is to drive “smart” manufacturing through a sustainable approach and record the second by second decrease of GHG emissions. “We see global warming not as an inevitability but as an invitation to build, innovate, and effect change, a pathway that awakens creativity, compassion, and genius. This is not a liberal agenda, nor is it a conservative one. This is the human agenda.” - ***Draw Down***, Paul Hawken.