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Developing Industrial Hemp Applications: A Systems Approach

Dr. Ronald Kander, PhD

Dean of the Kanbar College of Design, Engineering & Commerce
Associate Provost for Applied Research

February 11, 2021



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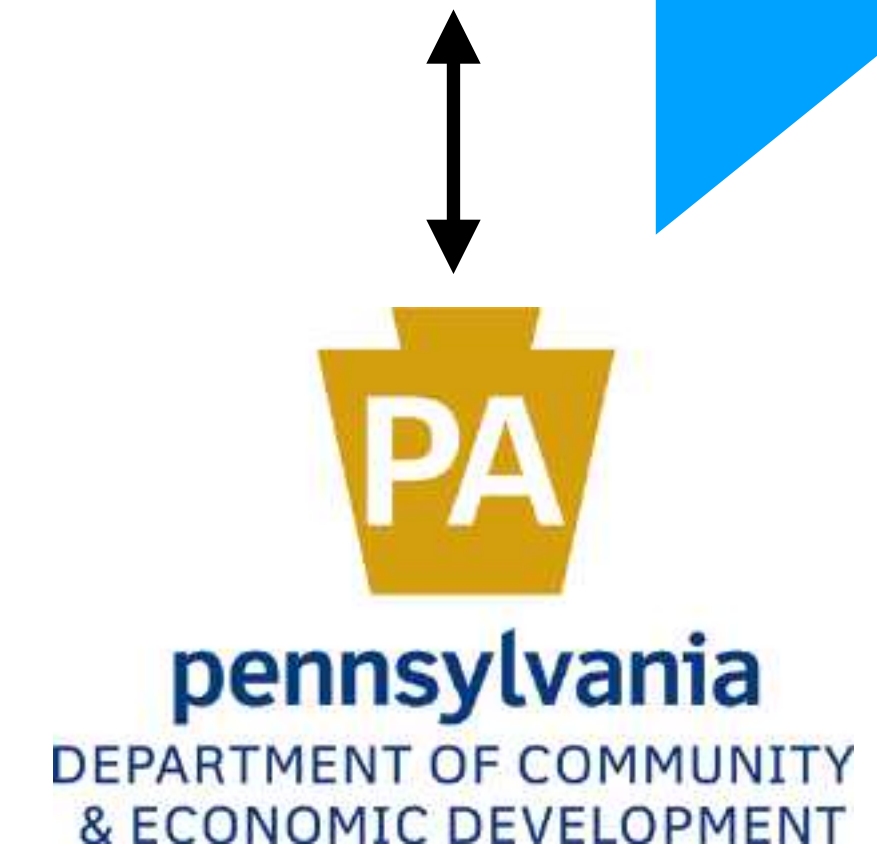
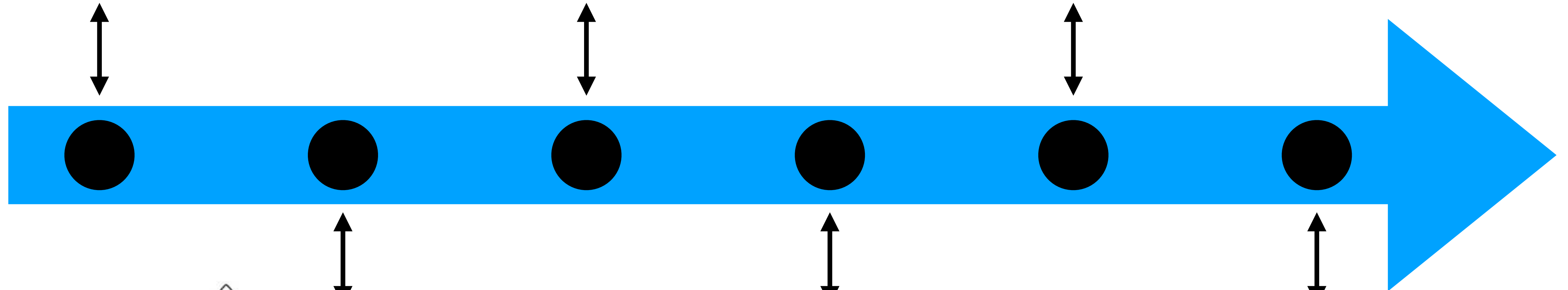
Associate Provost for Applied Research

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Our Hemp Journey (2016-2021)

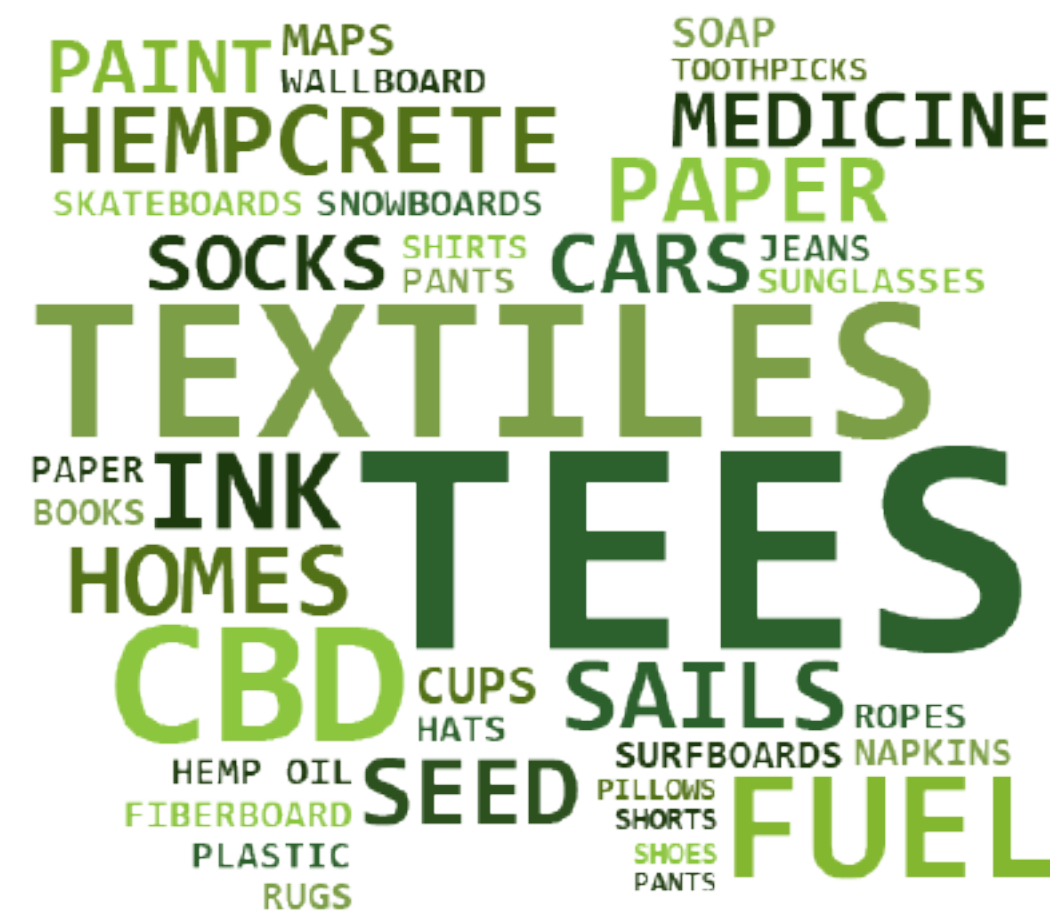
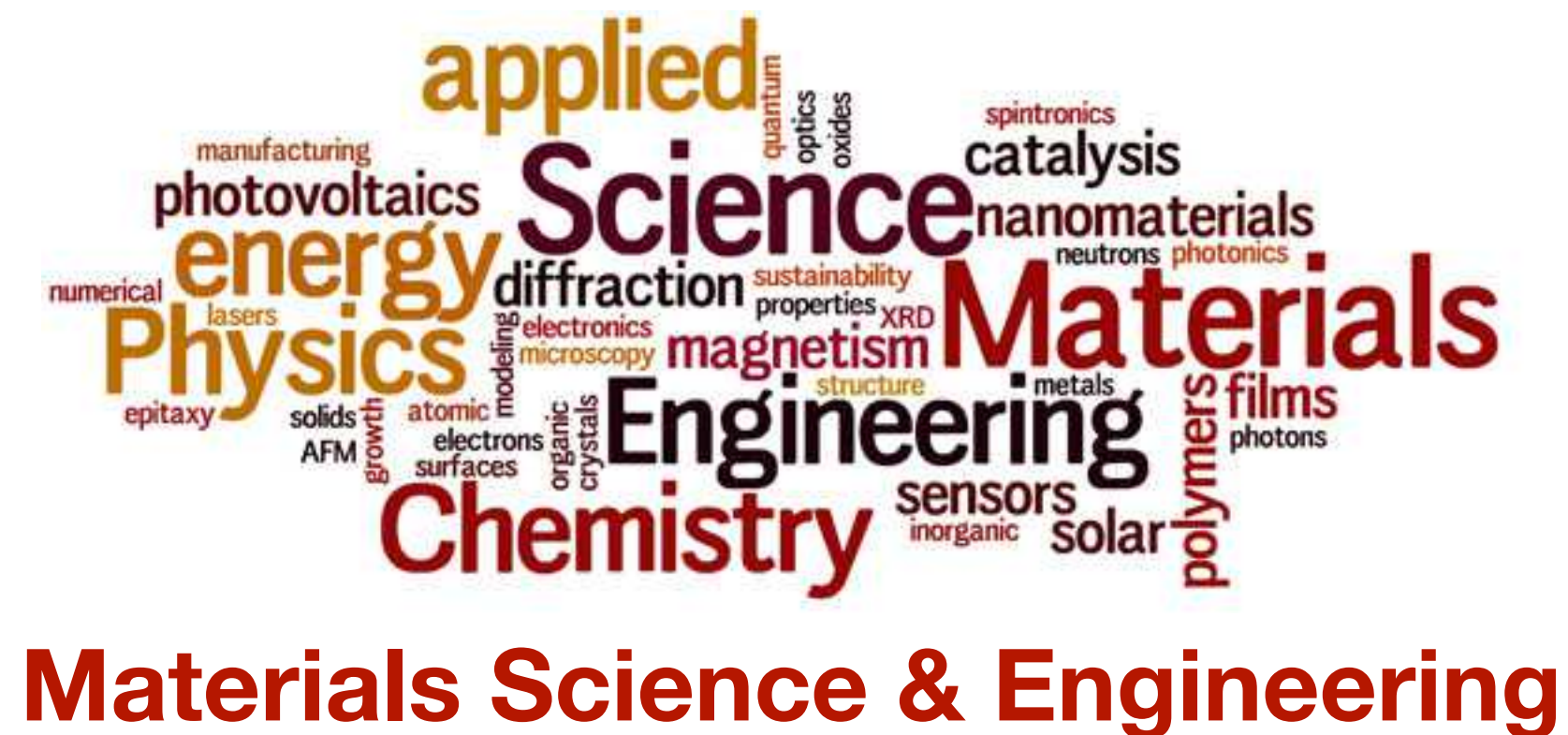
Thomas Jefferson University
THE LAMBERT CENTER FOR THE STUDY
OF MEDICINAL CANNABIS AND HEMP

**ALL
TOGETHER
NOW**
PENNSYLVANIA



“Tripartite” Research Strategy

Systems Modeling

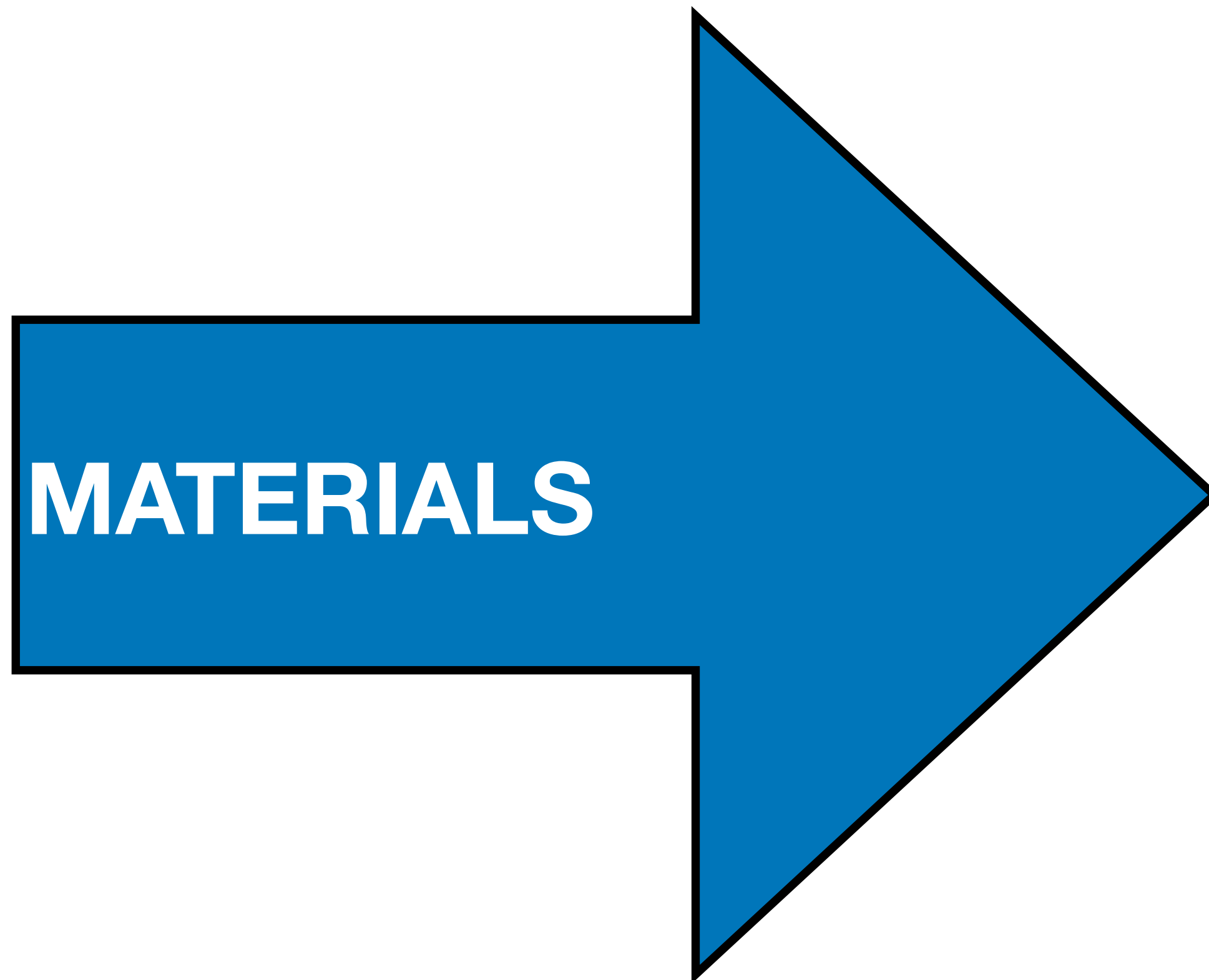


Product Design & Development

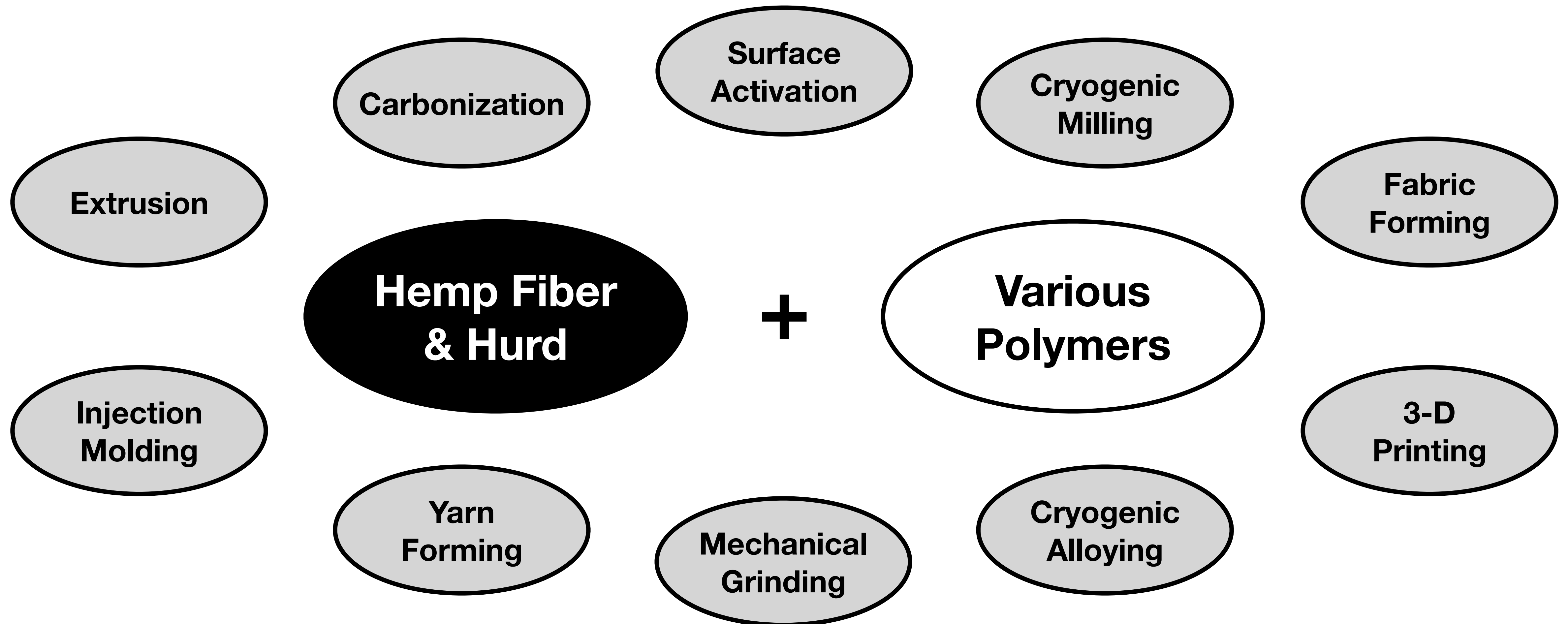


Sustainability & Supply Chain Economics

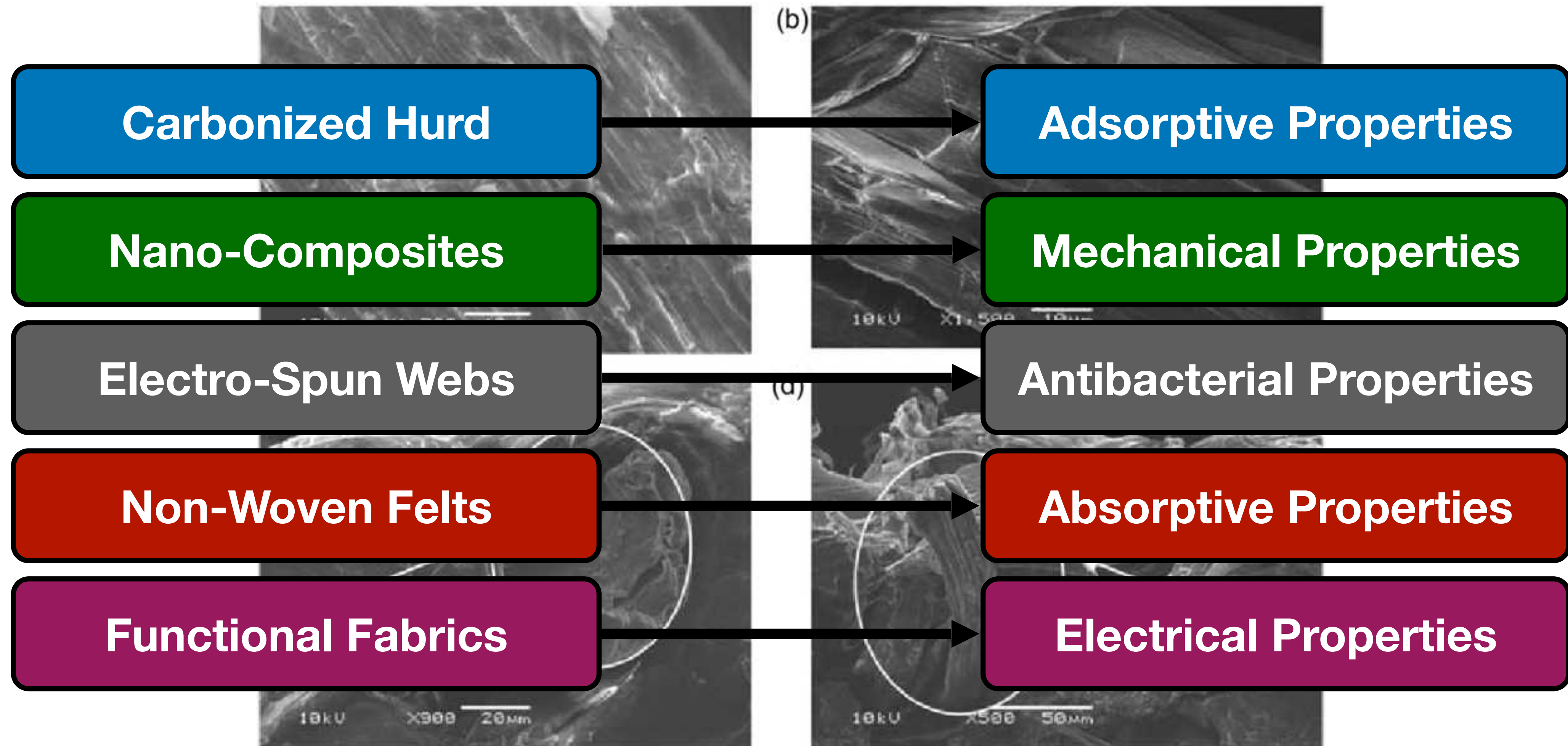
“Tripartite” Research Strategy



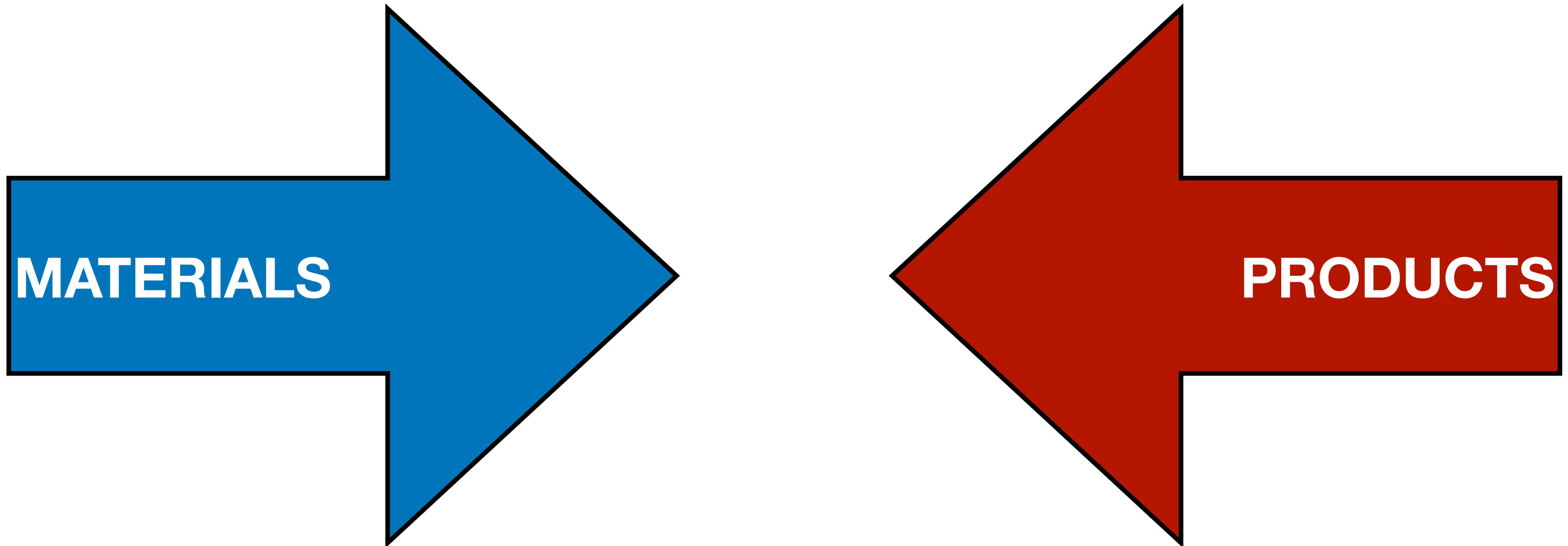
Materials & Processes



Structures & Properties

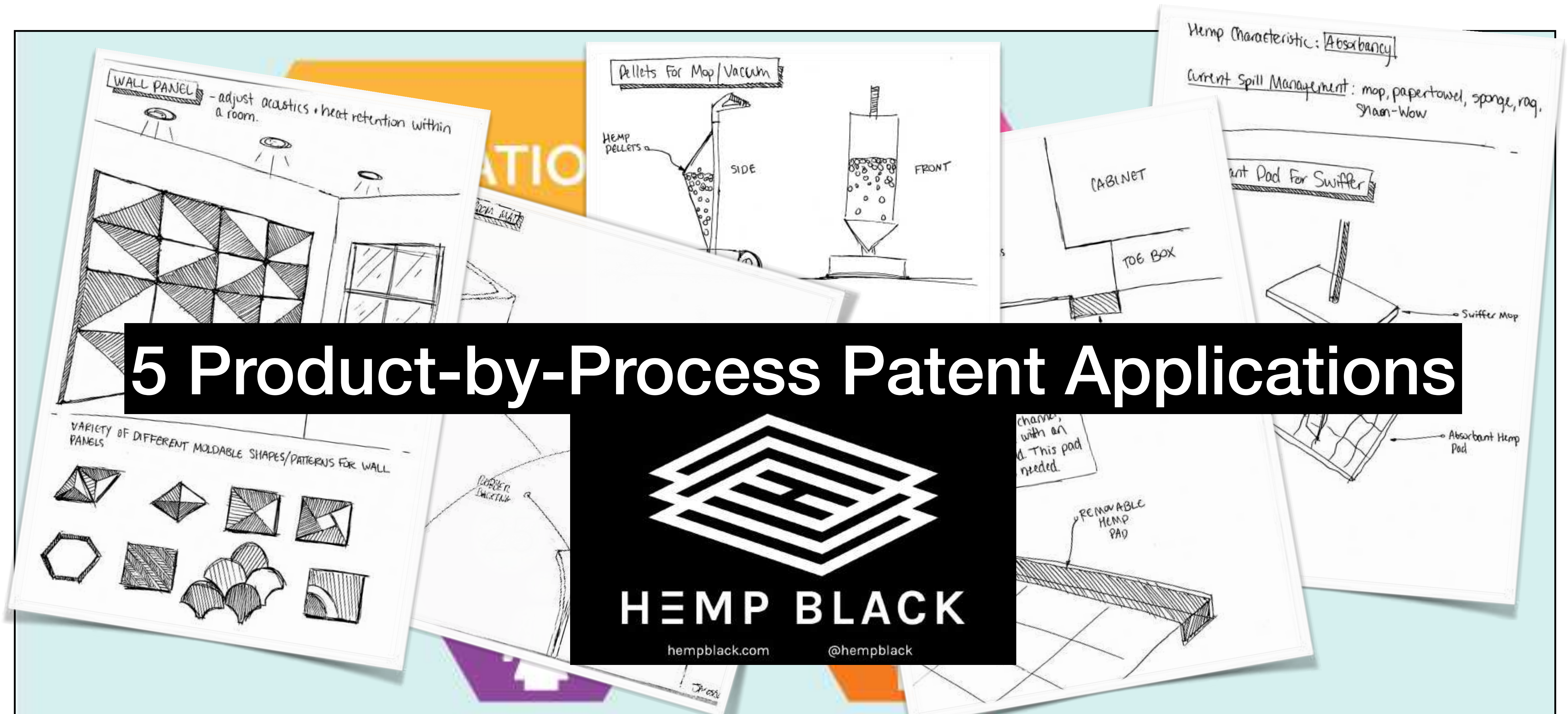


“Tripartite” Research Strategy

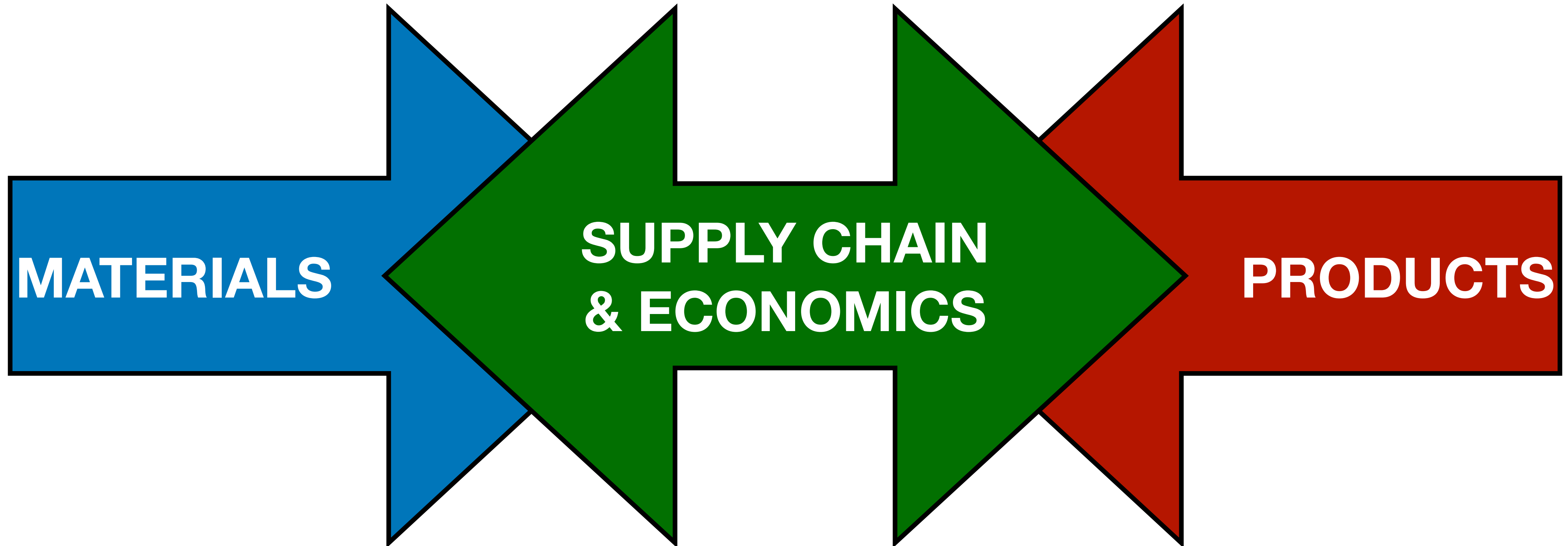


Hemp Product Concepts

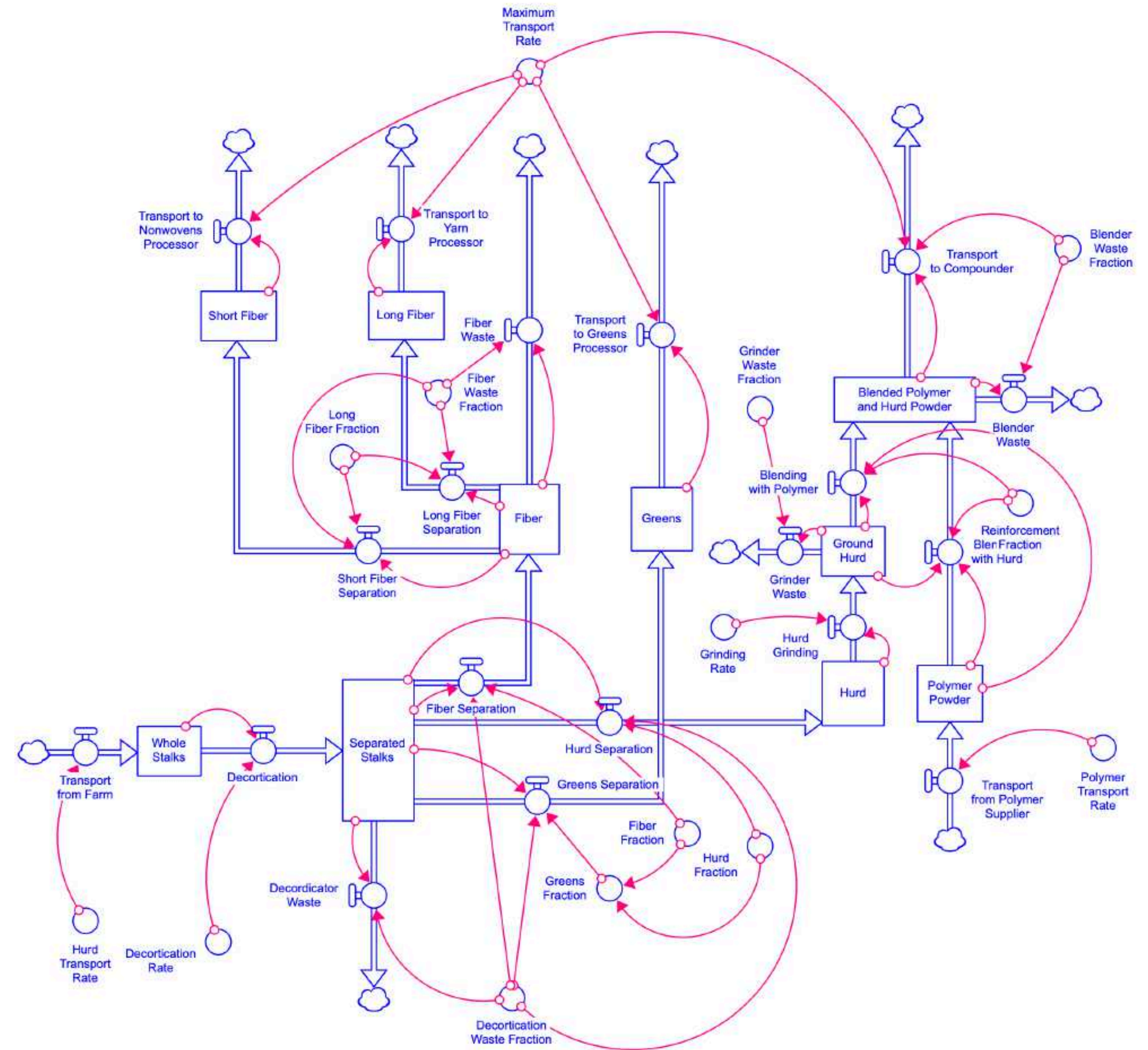
5 Product-by-Process Patent Applications



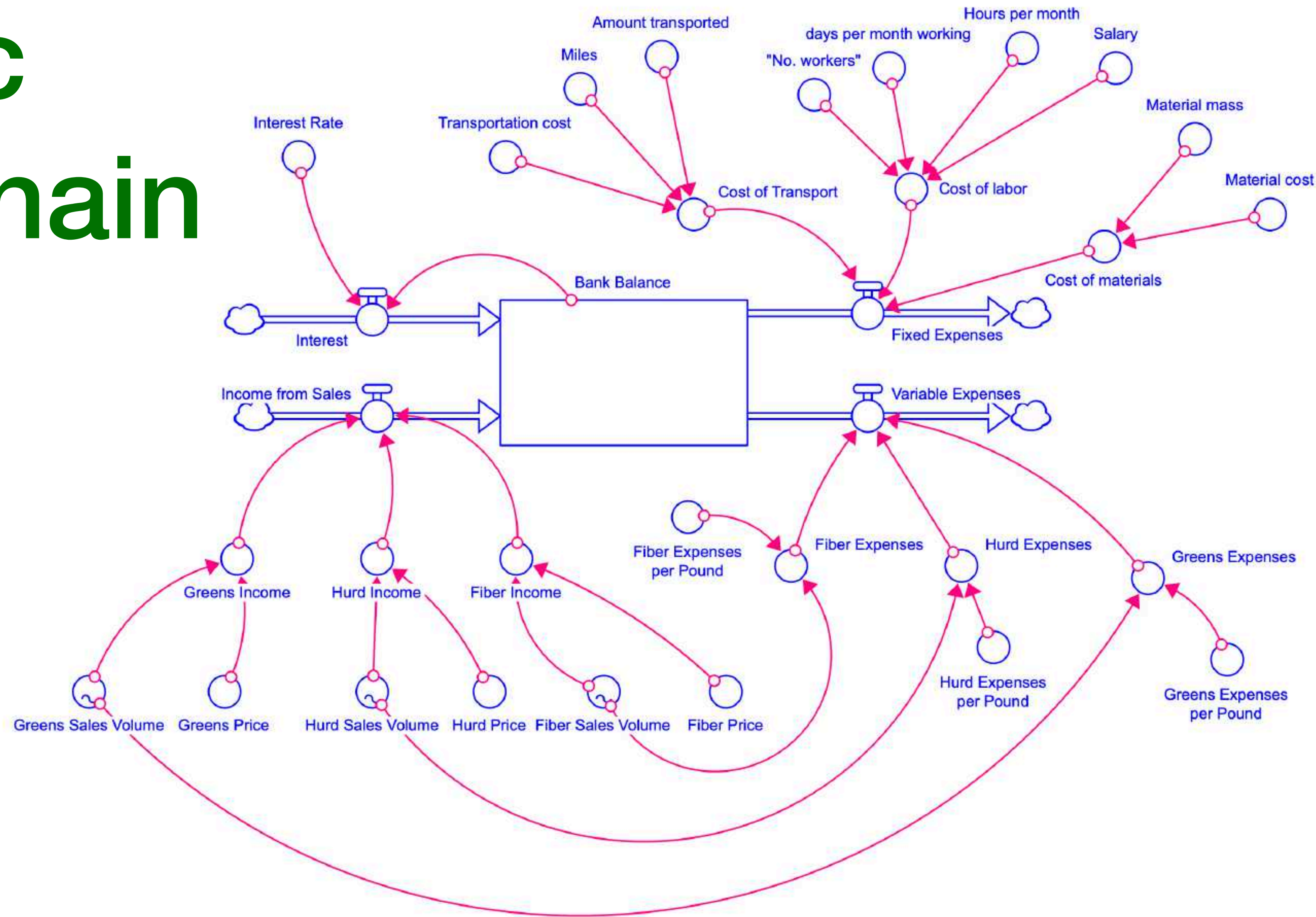
“Tripartite” Research Strategy



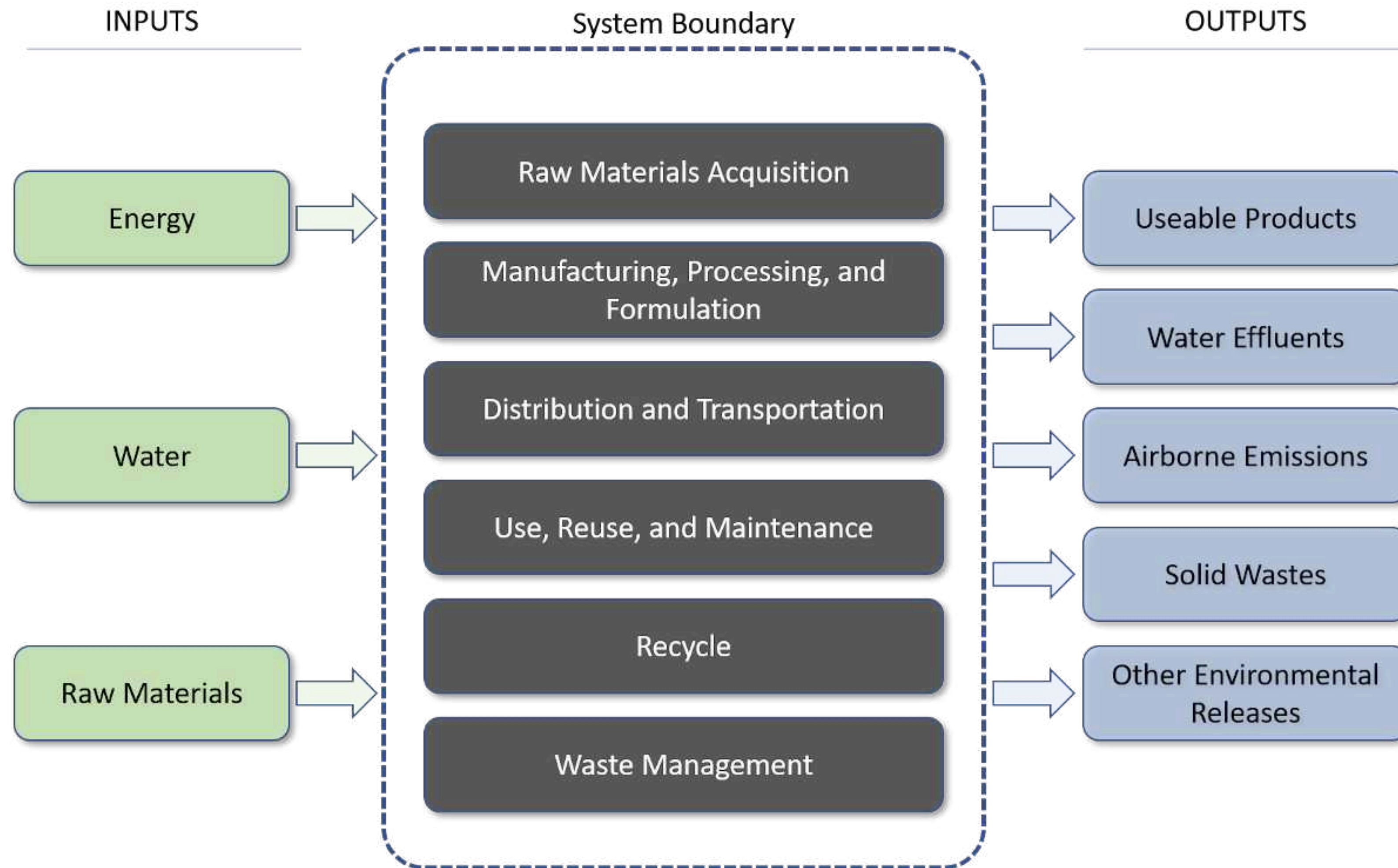
Technical Supply Chain



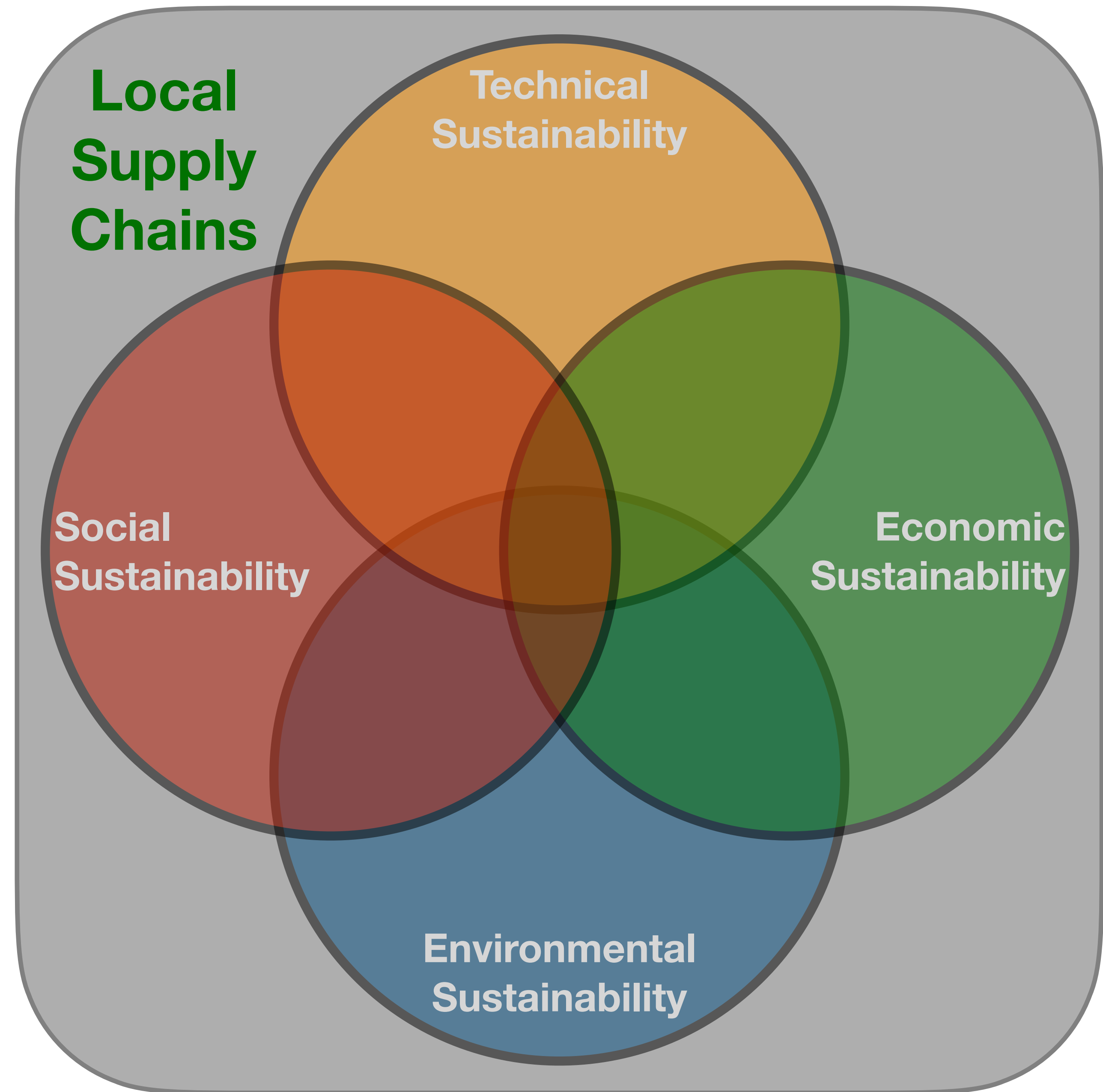
Economic Supply Chain



Life Cycle Assessment (LCA)



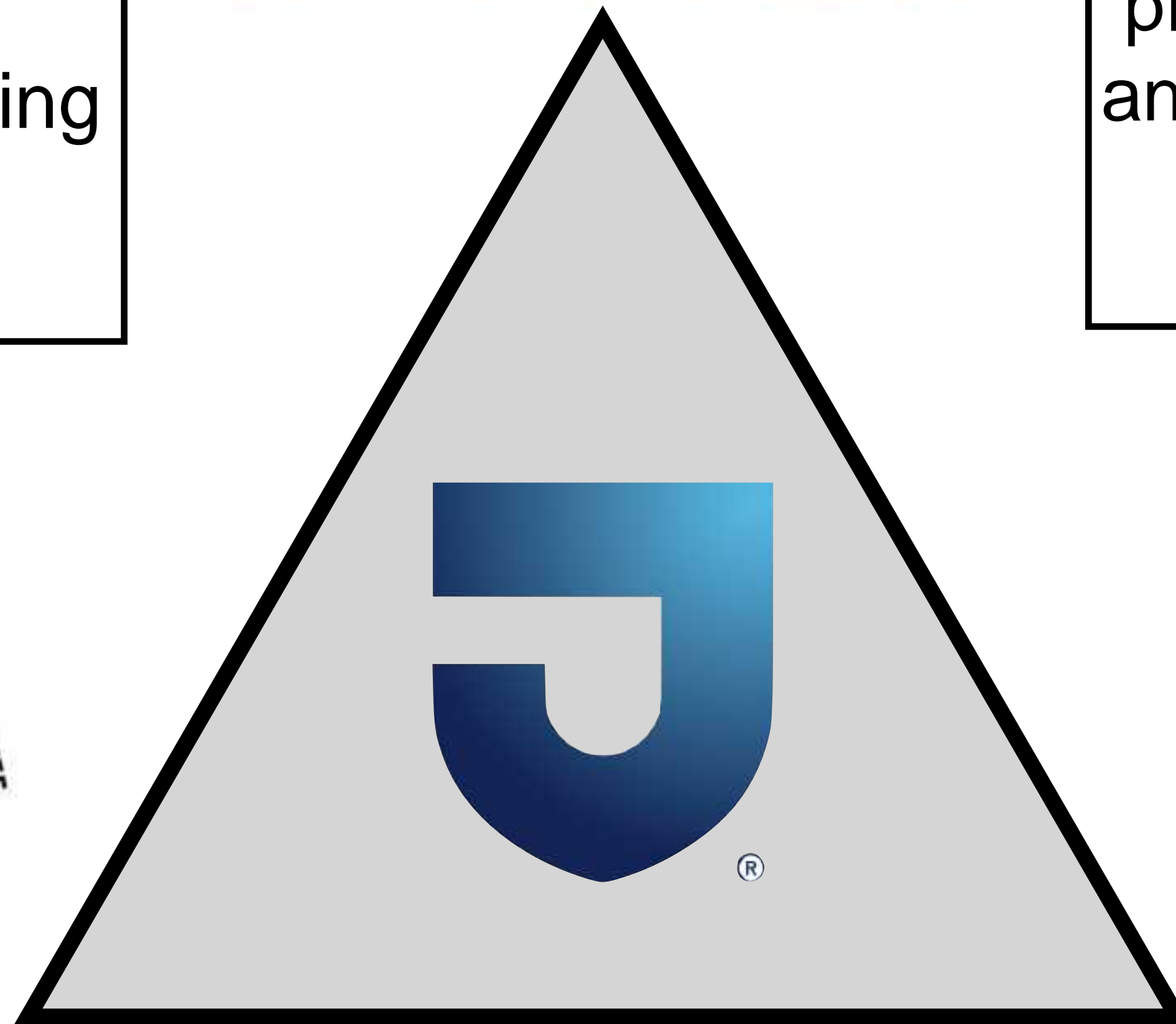
Integrated System of Systems

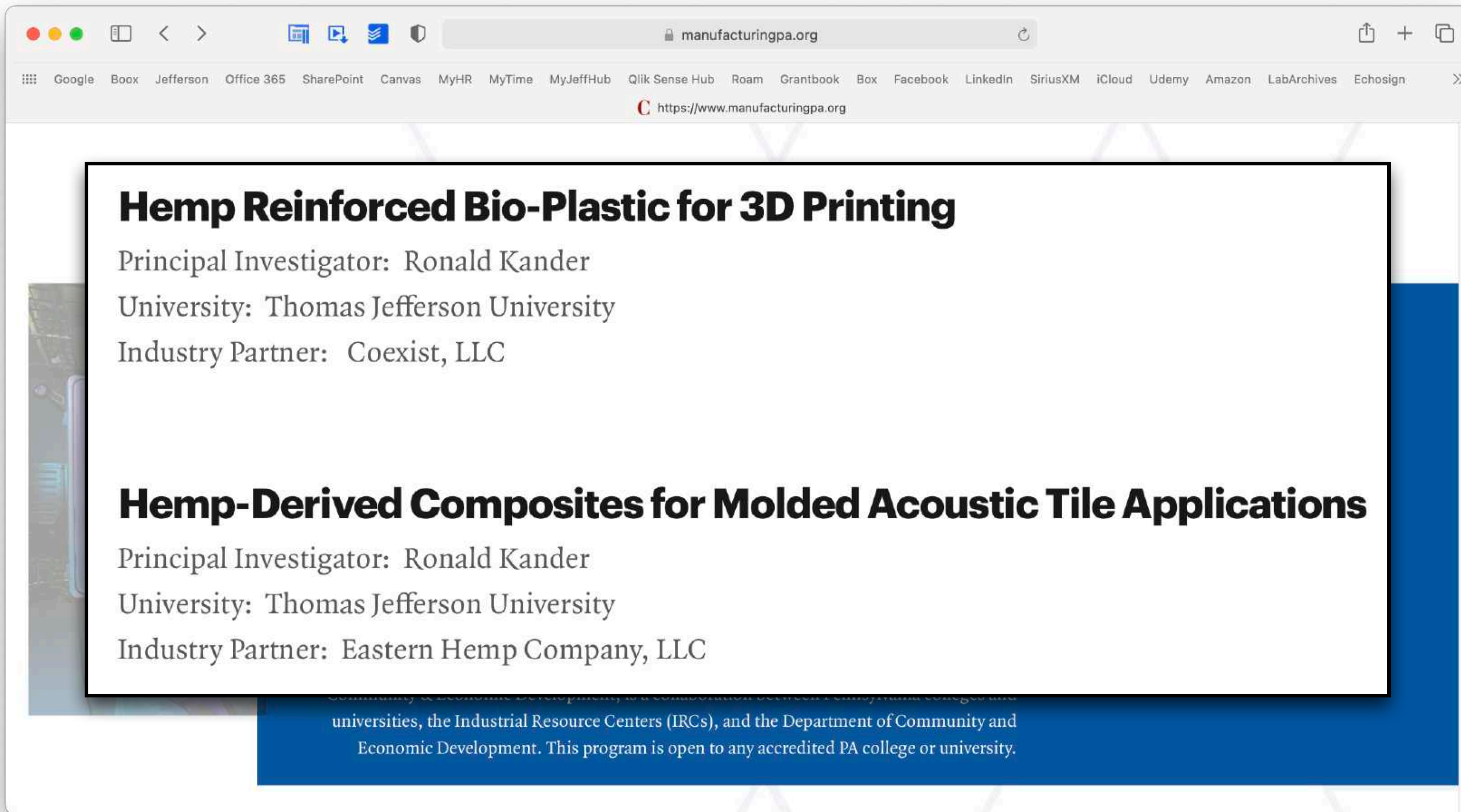


The mission of the PA Hemp Steering Committee is to advance the hemp industry in Pennsylvania and provide counsel and guidance to the PA Department of Agriculture on this emerging opportunity for the Commonwealth.



The mission of the ATN Hemp Coalition is to building a just, sustainable, and locally-based industrial hemp industry in Pennsylvania to bring greater prosperity to our communities and increase local self-reliance in food, fiber, textiles, and building materials.





Hemp Reinforced Bio-Plastic for 3D Printing

Principal Investigator: Ronald Kander

University: Thomas Jefferson University

Industry Partner: Coexist, LLC

Hemp-Derived Composites for Molded Acoustic Tile Applications

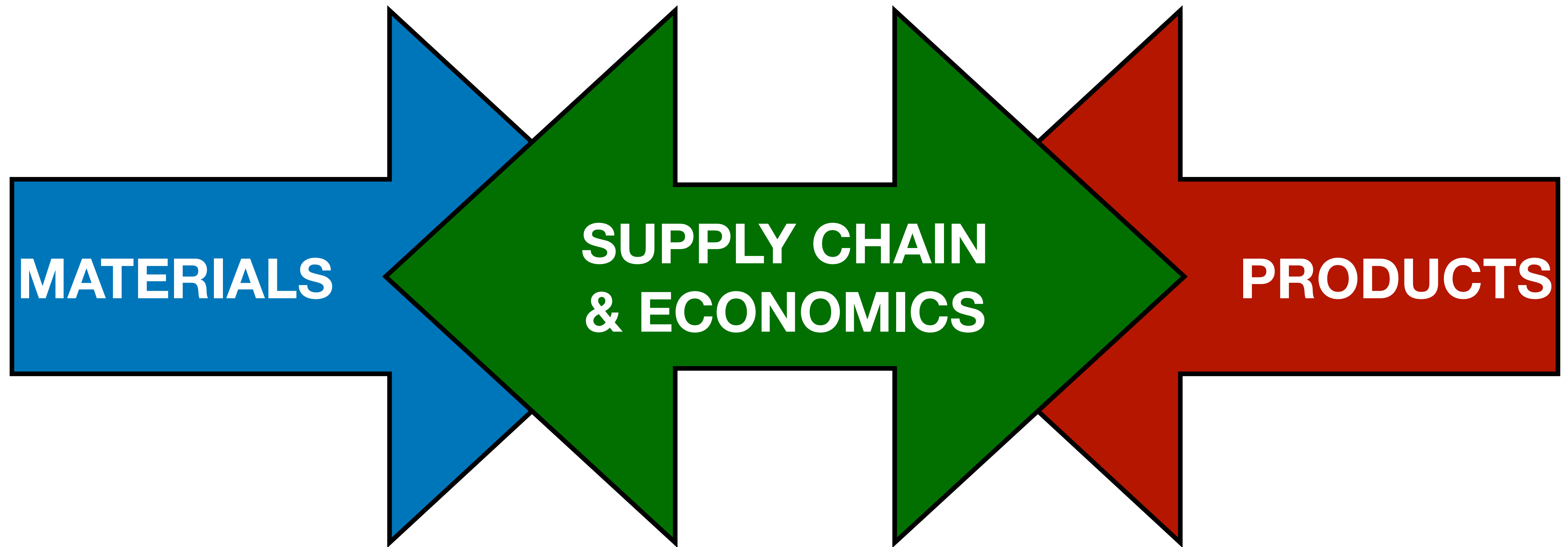
Principal Investigator: Ronald Kander

University: Thomas Jefferson University

Industry Partner: Eastern Hemp Company, LLC

universities, the Industrial Resource Centers (IRCs), and the Department of Community and Economic Development. This program is open to any accredited PA college or university.

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