SUSTAINABLE VALLEY
TECHNOLOGY GROUP

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THE AG TECH OPPORTUNITY:

Oregon already possesses many assets in agricultural technology research and production, including its rich agriculture history, large state land mass, diverse regional climates, value-added food production, viticulture and craft brewing, strong environmental image and food culture and of course, its land grant university and extensions. Oregon is known for roughly 220 unique specialty crops and according to the US Bureau of Economic Analysis, agriculture ranks highest in 2013 for contribution to overall Oregon GDP at 15%, which is 1 in 10 Oregon jobs, and roughly a $5.4 billion production value. Out of Oregon's 36 counties, 25 saw an increase in sales of farm and ranch products. Oregon's 38,000 farms are primarily family-owned and range from small, local producers to larger-scale operations. The average age of an Oregon farm owner is 57.5 years.

Leveraging these assets, the opportunity with an effort like the Natural Resource Transformative Technology Grant Program is to accelerate research and commercialization opportunities in forestry and agricultural innovation and production.

Rural - Innovations in forestry, agriculture and value added processing can lead to a transformation of Oregon's rural micro-economies and in becoming a world leader in the export of technologies that meets the world's challenges in the 21st century and beyond.

Oregon is ahead of the curve in capitalizing on the immense opportunity in leveraging state resources against emerging federal funding opportunities to make Oregon one of the definitive leaders in the space of Wood Products and Ag Tech.

Agricultural Technologies (AgTech)

The convergence of some of the world's most cutting edge industries such as:

- Electric Vehicles (EVs)
- Unmanned Arial Vehicles (UAVs)
- Semiconductors and Micro-electromechanical systems (MEMS) "sensors"
- Robotics and automation
- Global Information Systems (GIS), mapping and tracking technologies
- Big Data/Software and Internet of Things (IoT)
- Indoor/controlled/urban growing environments (Aero- Aqua- and Hydro- ponics)
- Precise and automated nutrient delivery systems
- Value added food products

In the very near future, it is likely that agriculture will be grown year-round with minimal or no soil and recycled water in the harshest climates on earth. This is nothing short of a total technological revolution in agriculture and Oregon has the opportunity to lead the world in the development of these convergent markets. Exporting greater volumes of food crops and value added products but also exportable agricultural technologies.

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THE FOREST PRODUCTS OPPORTUNITY

Forest-based Bioeconomy - The production of renewable biological resources and their conversion into food, feed, bio-based products and bioenergy via innovative and efficient technologies. It is an opportunity that offers great opportunities and solutions to a growing number of major societal, environmental and economic challenges, including climate change mitigation, energy and food security and resource efficiency.

The aim is an industrial bioeconomy, guided by international agendas on mitigating climate change, and safeguarding the environment and natural resources for future generations. The cutting edge innovators are harnessing e.g. information technology and industrial biotechnology to drive natural resource efficiency to a higher level. Public sector financial support and grants can catalyze innovation in this space.

The big opportunity for Oregon is to leap-frog over the carbon intensive industrial growth phase straight into low-carbon bioeconomy which is more knowledge and services oriented. The forest sector could play a strategic role in shifting this development trajectory, and can offer an innovation platform for new livelihoods, entrepreneurship and value chain development.

Main drivers of innovations in the forest sector:

- **Biofuels**
  - Advanced wood energy systems on stream, combined heat and power generation (CHP)
  - New supply chains in harvesting, processing and transporting wood residues
  - Energy wood chips, briquettes and pellets
  - Processed solid wood energy products
  - Liquid biofuels
- **Green building**
  - Wood's carbon sequestration during the growth of trees
  - Lower embodied energy during manufacturing
  - Higher carbon storage into long-life wood structures
  - Wooden houses manufactured more efficiently from pre-fabricated components
  - Marketed with positive health and energy efficiency messages
- **Value chains and competitiveness**
  - Small and medium-sized enterprises (SMEs), feeding forest raw materials and semi-finished wood products into the value chains.
  - In competition for raw material and customers, wood product industries can move to use alternative tree species, improve logistics and production processes, and engineer better marketable products.

Innovation is driven by a continuous process to build enterprise level competitiveness.