

ASCENT Supply Chain Tools

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ASCENT Supply Chain Tool Integration

CONFIGURATION

DESIGN

ANALYSIS

TEAs

CAPEX/OPEX

MSP

LOGISTICS
OPTIMIZATION

FEEDSTOCK
COLLECTION
COSTS

FACILITY COSTS

SD
MODEL

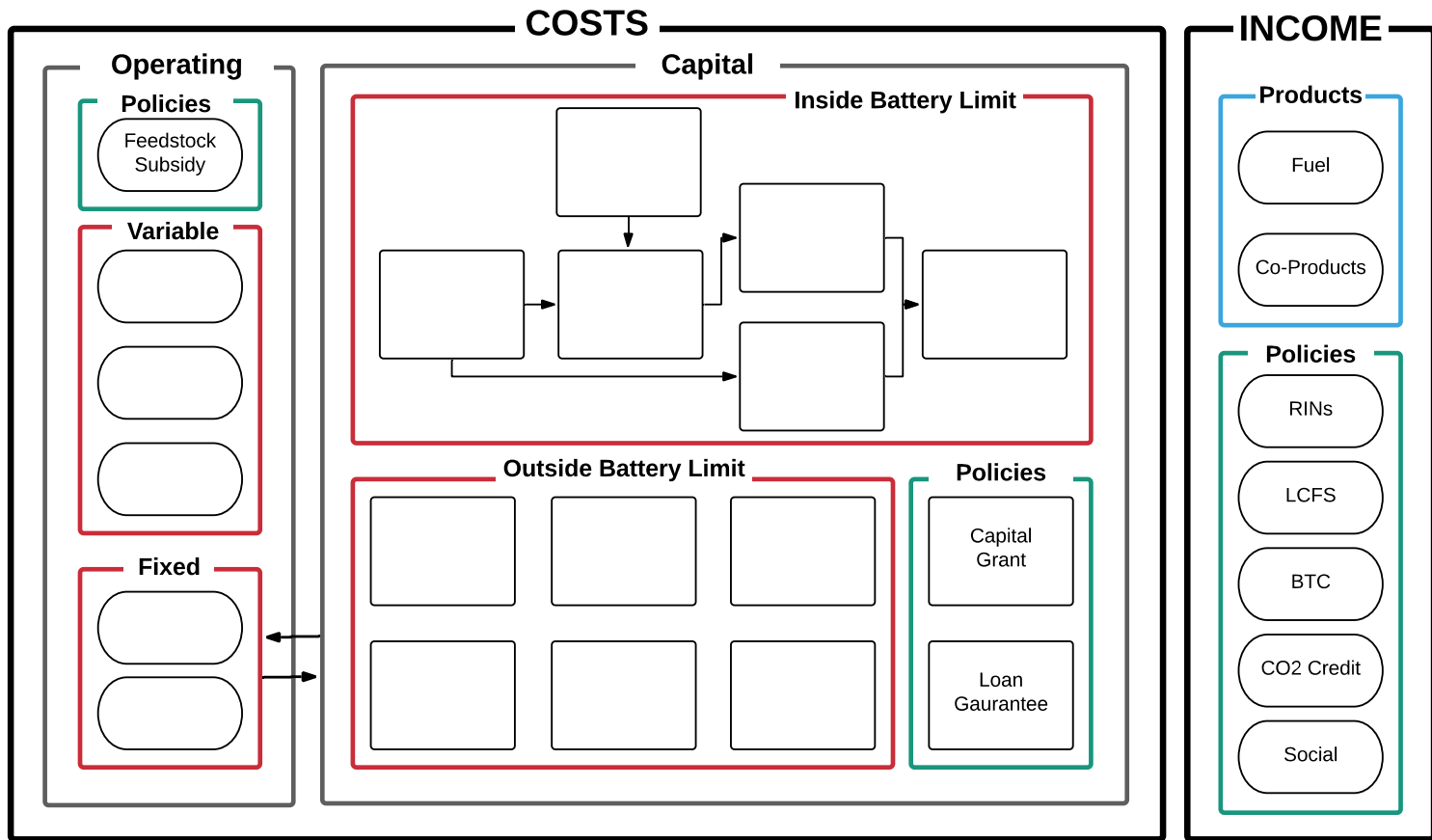
SUPPLY CHAIN
CONFIGURATION

MODEL
SCENARIOS

THROUGHPUT
OVER TIME



Harmonized TEAs



ICAO "Rules of Thumb" → https://www.icao.int/environmental-protection/Pages/SAF_RULESOFTHUMB.aspx
<https://rex.libraries.wsu.edu> → "Techno-economic analysis" + Open access + Model + Dataset



Resource Siting Models

Buffer Layers

Highways



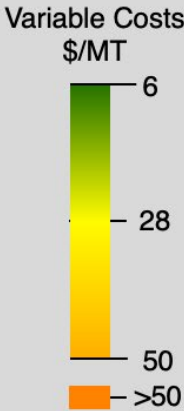
Railways



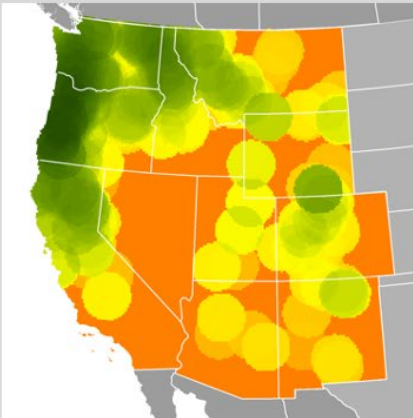
Natural Gas Pipelines



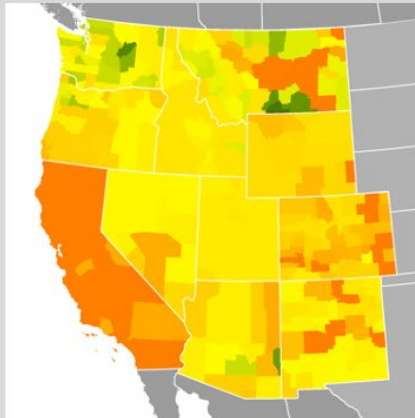
Variable Costs



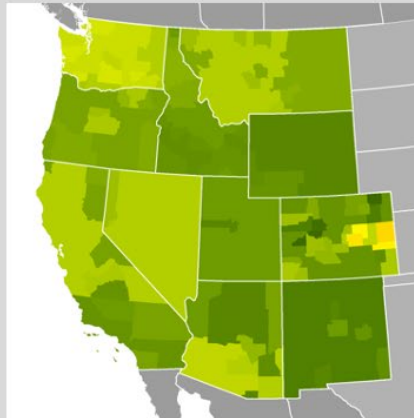
Incoming Feedstock Cost



Electricity Cost



Natural Gas Cost



Optimization

Scenario

Structure:

IBR

Jet Fuel Cost:

5.70 \$/gal

Nodes

▲ Airport

● IBR/Upgrading Refinery

Links

— From Feedstock

— To Airport

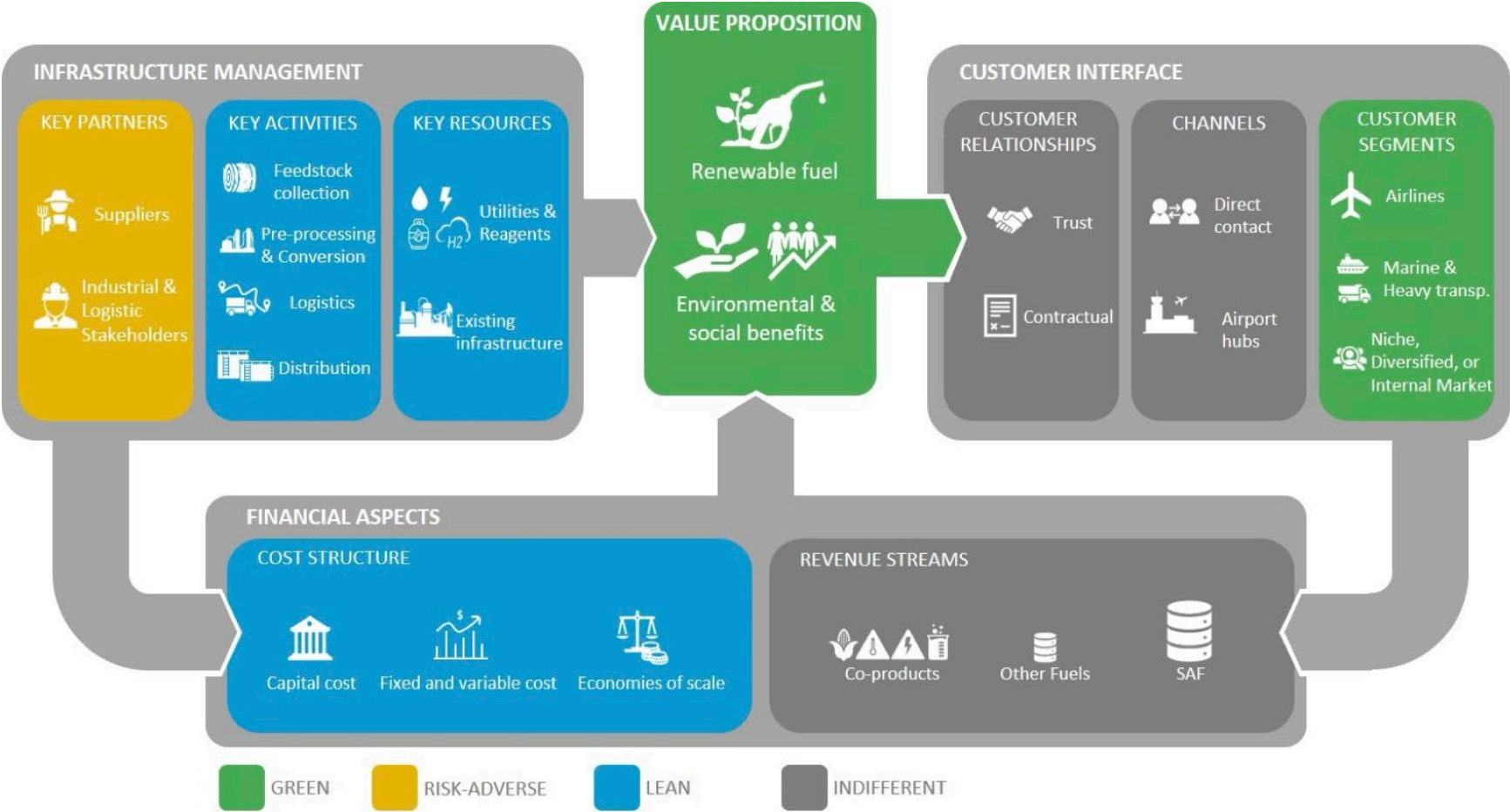


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Publication in progress.

0 200 400 800 Miles



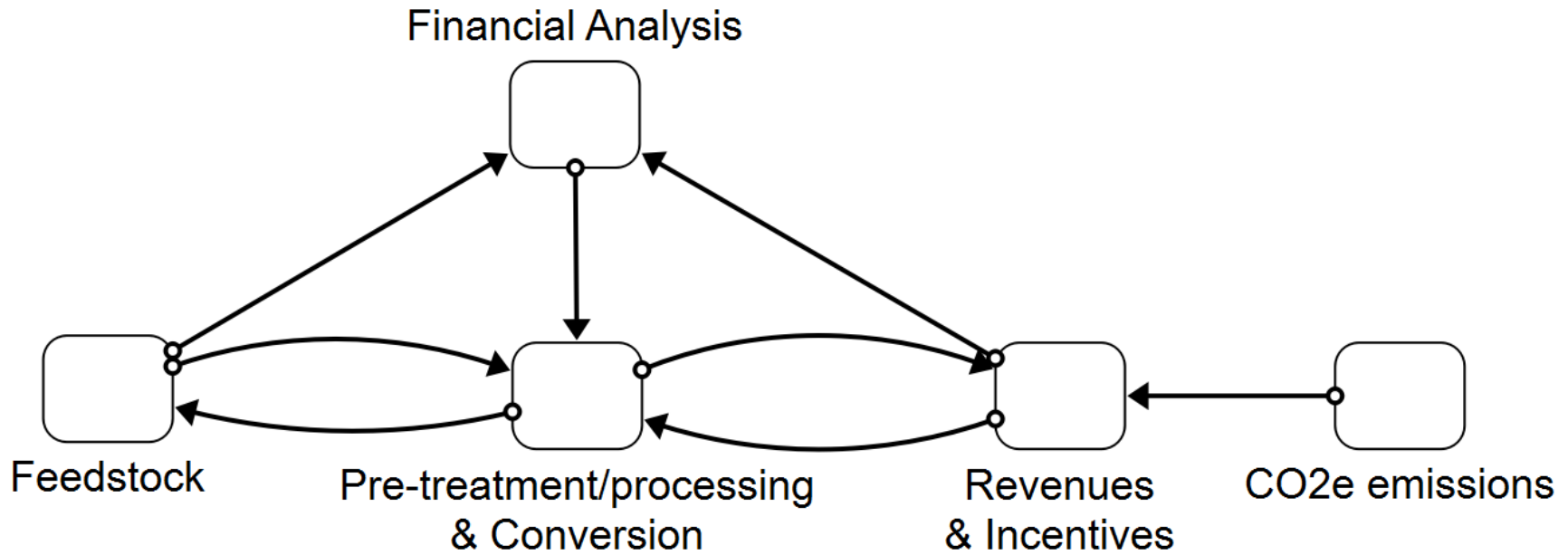
Supply Chain Configuration – Commodity + Services



Martinez-Valencia et al. 2021 - <https://doi.org/10.1016/j.rser.2021.111680>



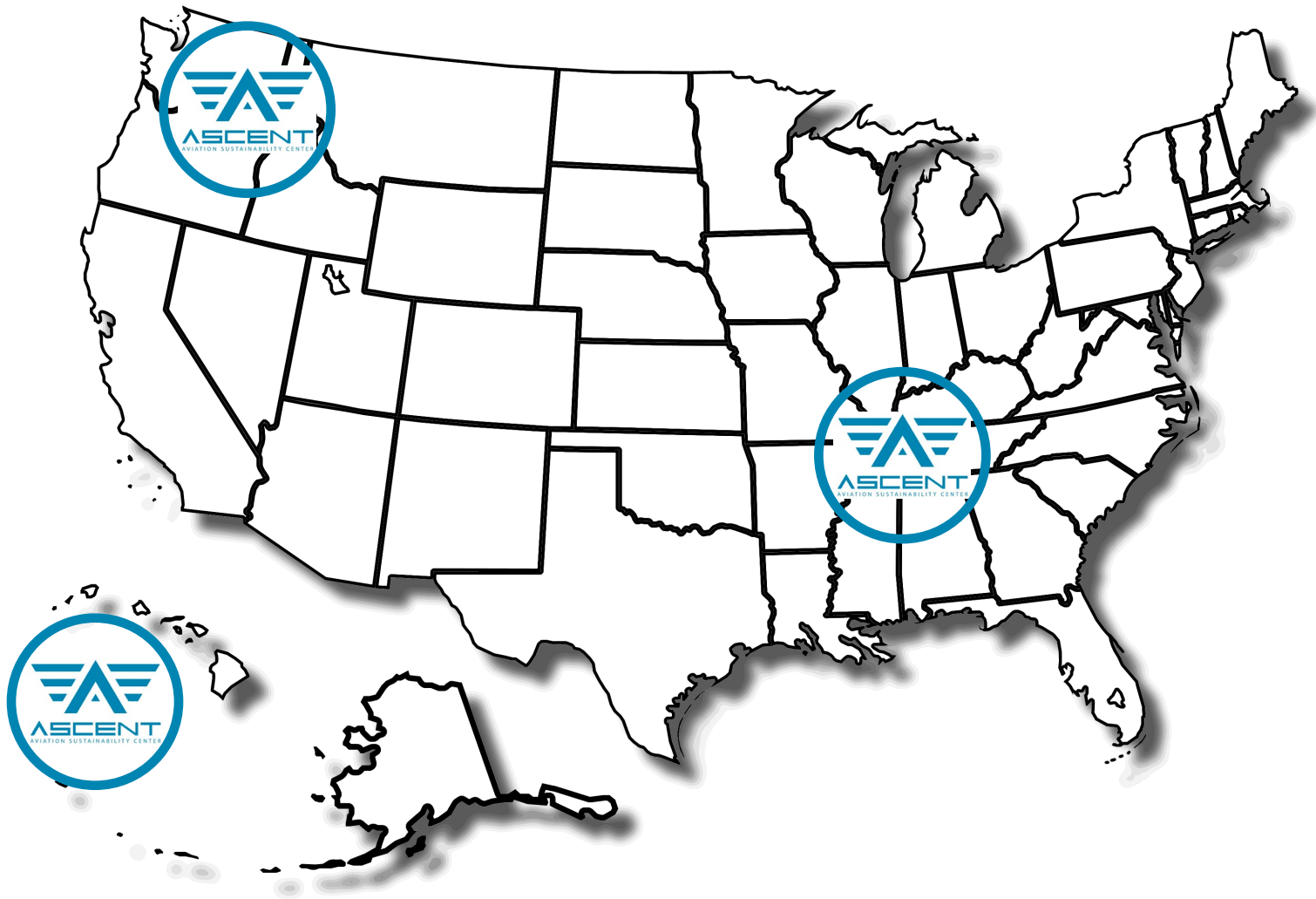
System Dynamics Model



Current Model – Gasification FT of MSW Deterministic and Stochastic

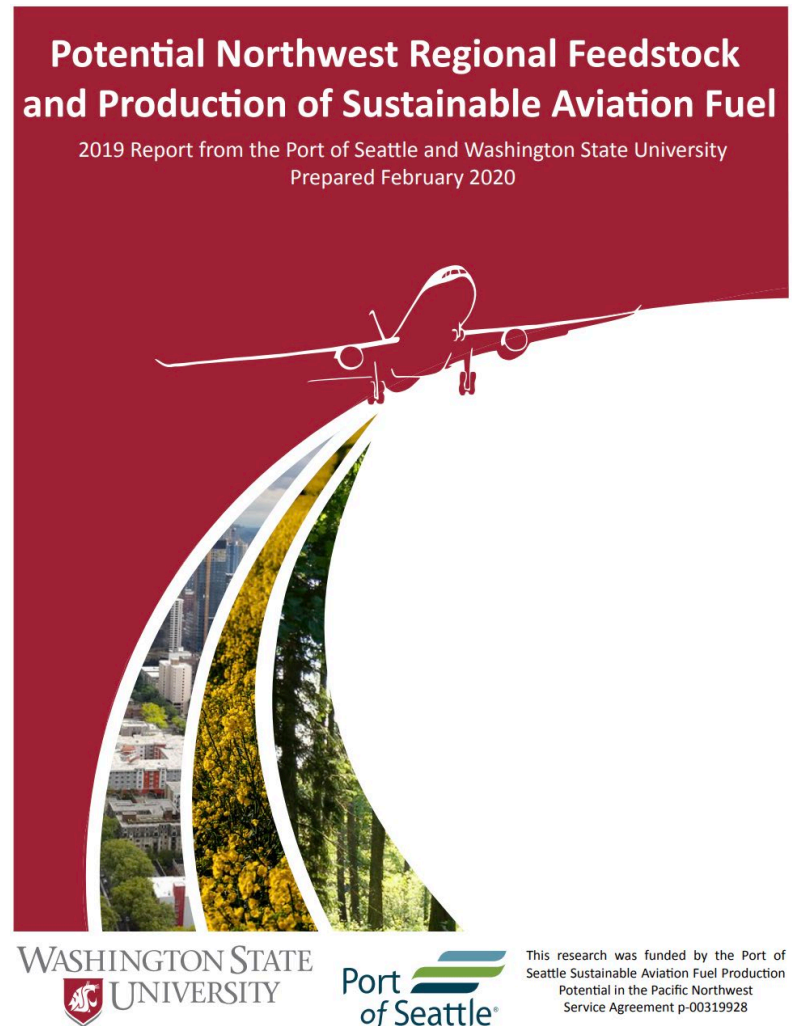


ASCENT Regional Projects



Pacific Northwest Regional Efforts

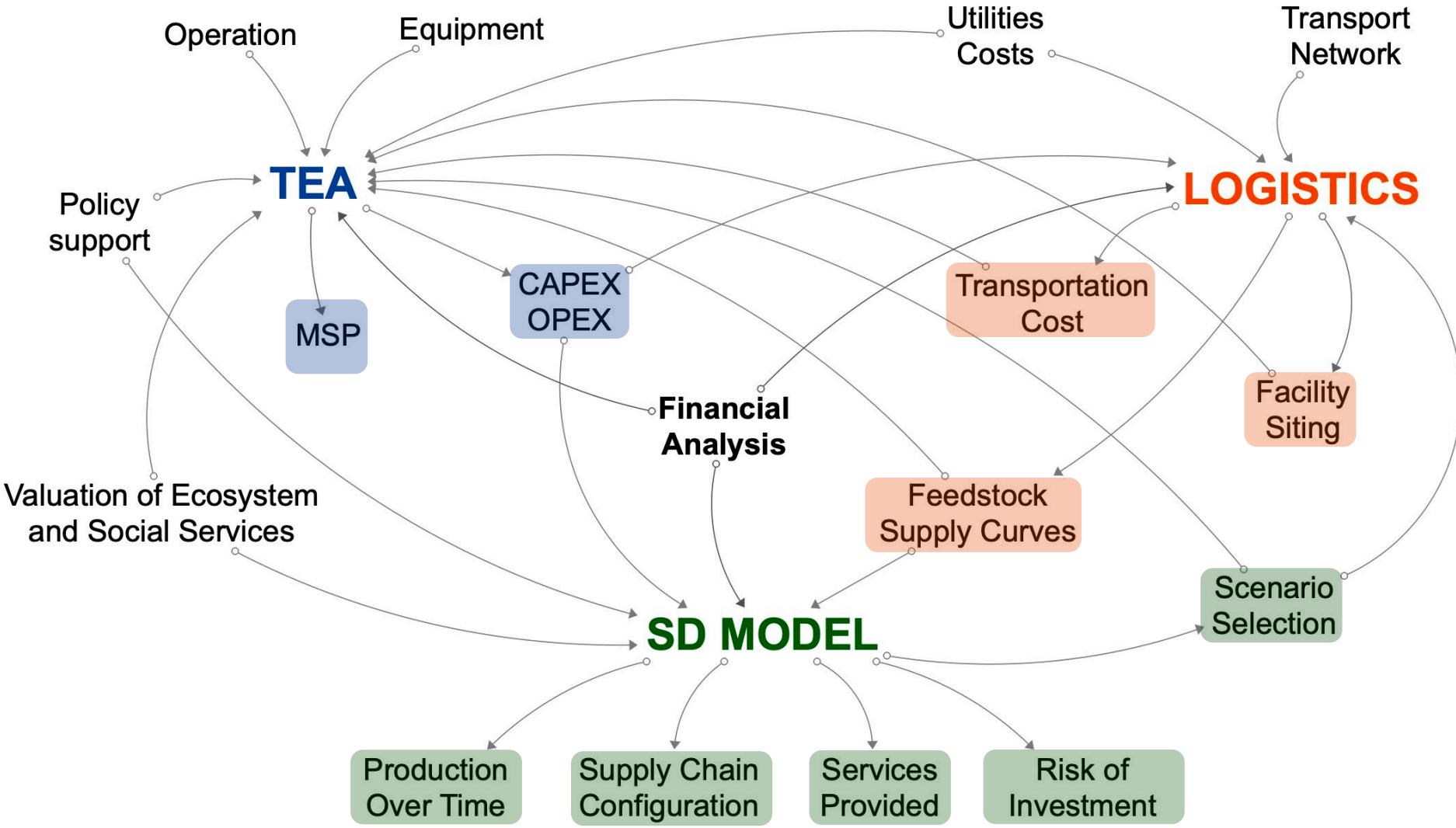
- Washington State Aviation Biofuels Workgroup
 - Since 2015
 - WA Clean Fuels Standard
- Port of Seattle – Regional Assessment
 - ASCENT Supply Chain Tools
 - Lipids/HEFA
 - MSW/GFT
 - Forest Residual/GFT/ATJ



 https://www.portseattle.org/sites/default/files/2020-08/PofSeattleWSU2019updated_appendix.pdf



Supply Chain Model Integration



QUESTIONS

