

IT'S A COMPOSITE WORLD



Moulding solutions for the new world

Developing a Sustainable Future Bioeconomy BIOPRODUCTS

Aerospace



Bio-Materials



Ground Transportation



Civil Infrastructure



CIC Focus



In partnership with Industry, Government and Academia, the CIC develops and commercializes innovative composite technologies for aerospace, ground transportation, bio-materials and civil infrastructure applications that are more cost effective, environmentally friendly, and offer enhanced performance.

Product Design & Analysis • Process Development • Prototyping & Commercialization
Materials Testing • Project Management • Project Resource Assistance

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 **Composites
Innovation Centre**

Moulding solutions for the new world

- Biomaterial Opportunities
- Bioproducts Consortium
 - Technology Development and Transfer
 - Business Development and Assessment
 - Supply Chain Coordination
 - Pilot Scale / Commercial Enterprise Implementation

Opportunities

- Manitoba is one of the largest producers of flax in the world
- Potential to be a major global hemp producer
- Significant advantage over competing marketplaces – enormous potential supply of natural fibres
- Based on shipping and cost, Manitoba most logical location for material processing and further value added manufacturing steps



Flax



Hemp



Potato Starch
Biodegradable Plastic



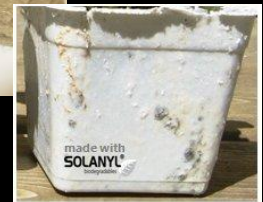
Fibres

- Insulation
- Specialty Paper
- Textiles
- Composite Reinforcements
- **Erosion Control**
- Building Materials
- Furniture



Resins & Foams

- Polylactic Acid
- **Potato Starch**
- Soy
- Canola

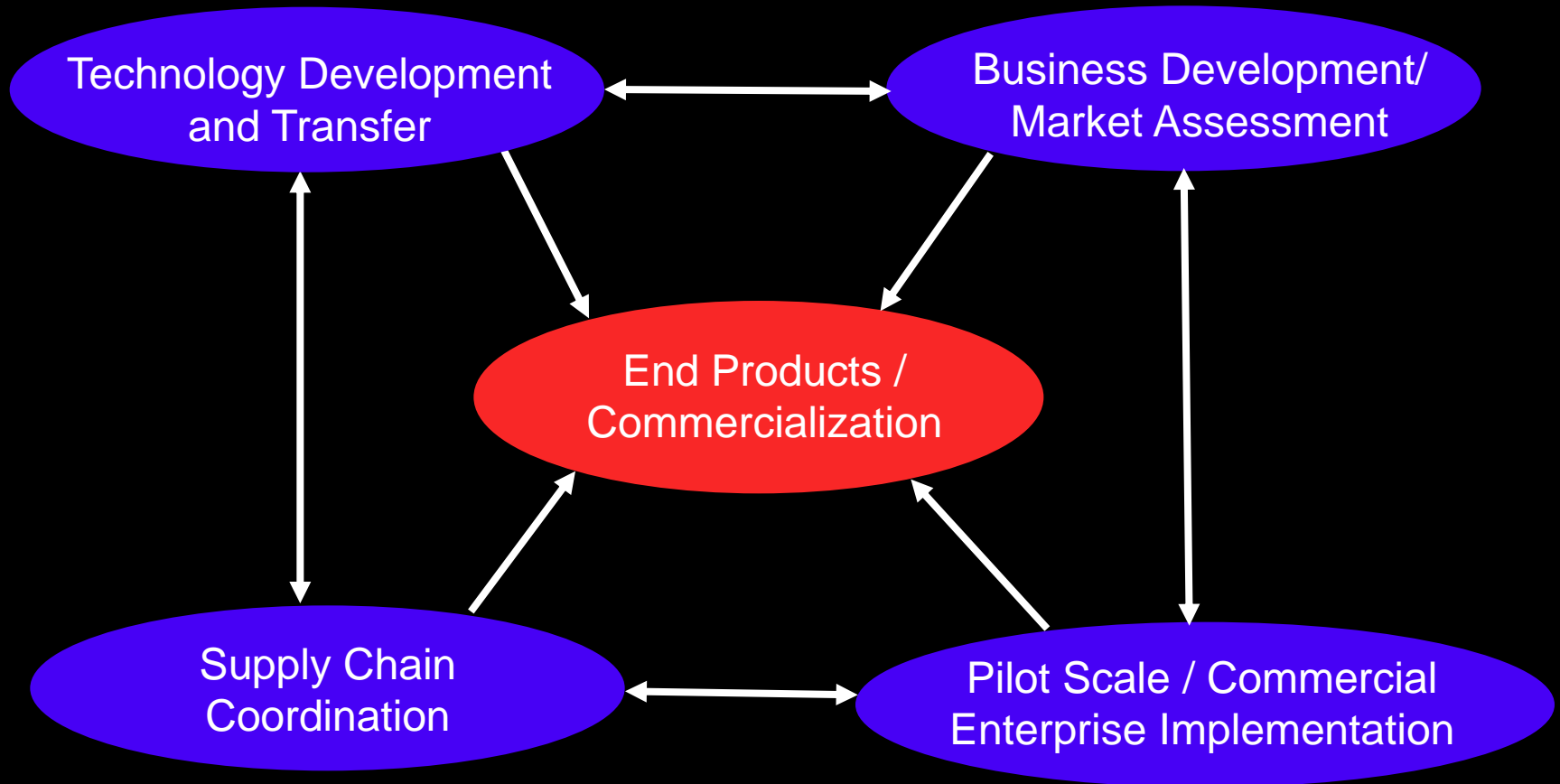


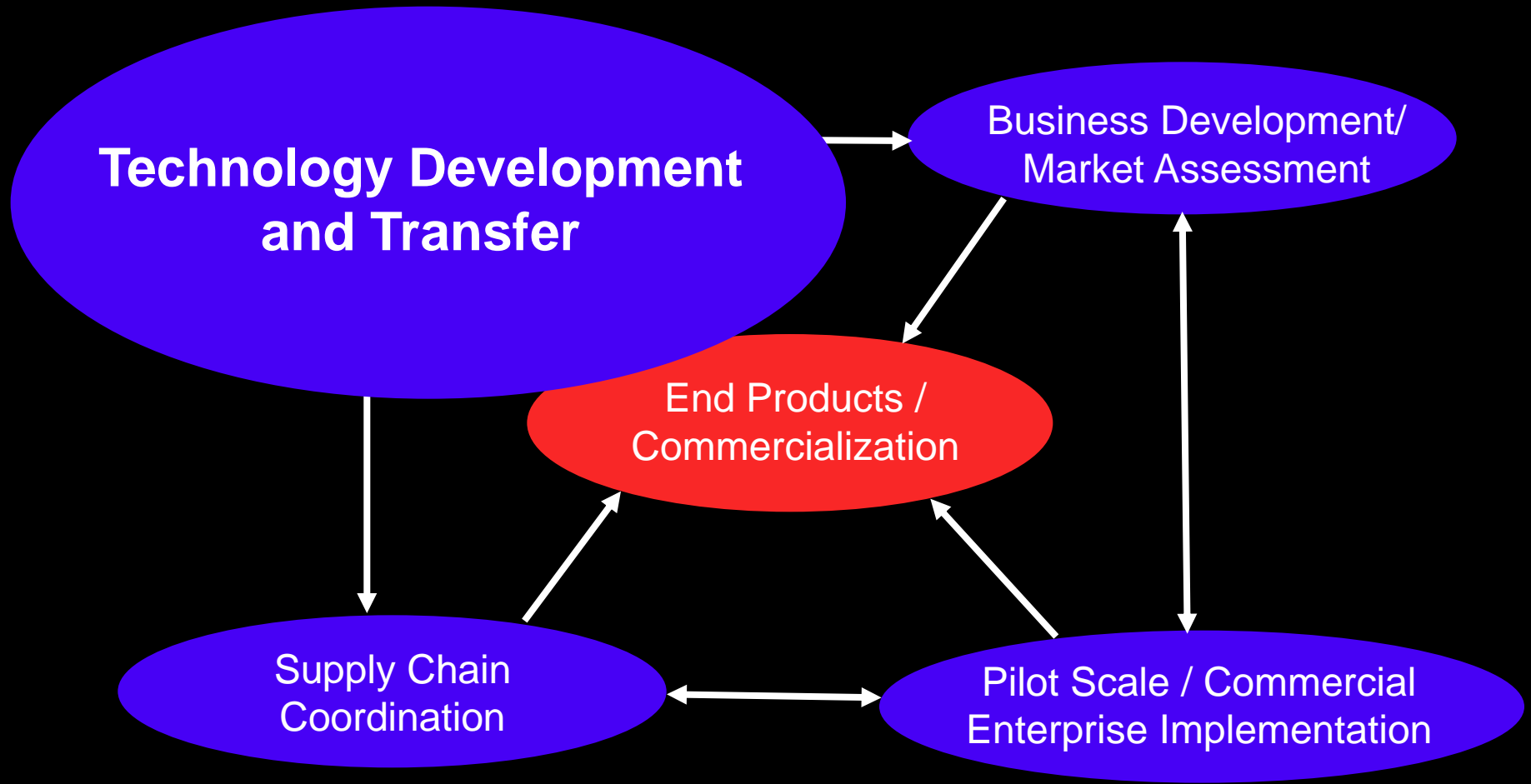
Co-products - short fibres, shive and dust

- **Animal Bedding**
- **Bio-Energy – pellets, logs**
- Building Materials
- Concrete Filler



- To take full commercial advantage a comprehensive strategy is required
- Creation of a Bioproducts Consortium suggested to:
 - Align technology, business, supply chain and implementation efforts to meet a prioritized market demand
 - Coordinate activities in a standardized approach supporting collaborative development, demonstration and commercialization for a defined market segment
 - Capture, share and utilize innovation of Canada's Bioproducts Industry together with international expertise
- Requires the effective integration of organizations / professionals throughout the value chain





Technology Development & Transfer

- Based on prioritized market demand identify critical technology barriers preventing commercialization
- Engage key industry partners to pull technologies
- Define aligned projects to fill these gaps assembling appropriate local, national and international groups



Fibre Board for
Green Building
Products



Natural Fibre
Reinforced Parts



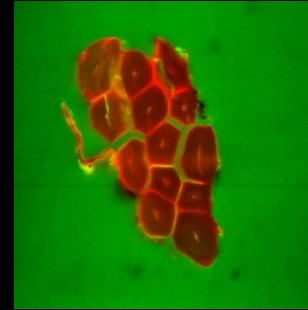
Technology Development & Transfer



Harvesting
Methods



Natural Resins

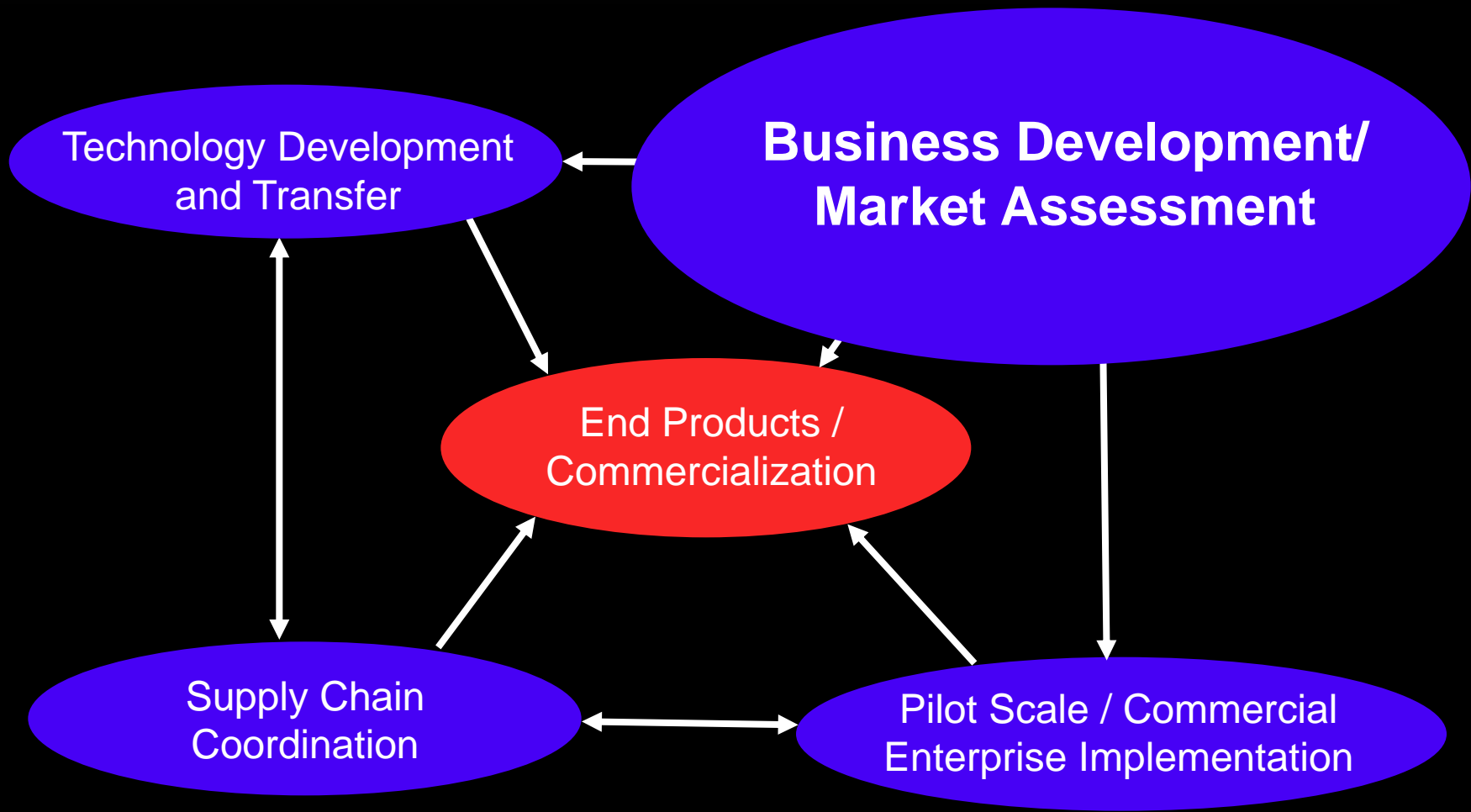


Resin to Fibre
Bonding



Flammability

- Coordinate project planning, funding allocation and execution of projects
- Allocate resources / projects to develop technologies and support their transfer, conduct technical assessments and define pilot scale/commercial enterprise requirements



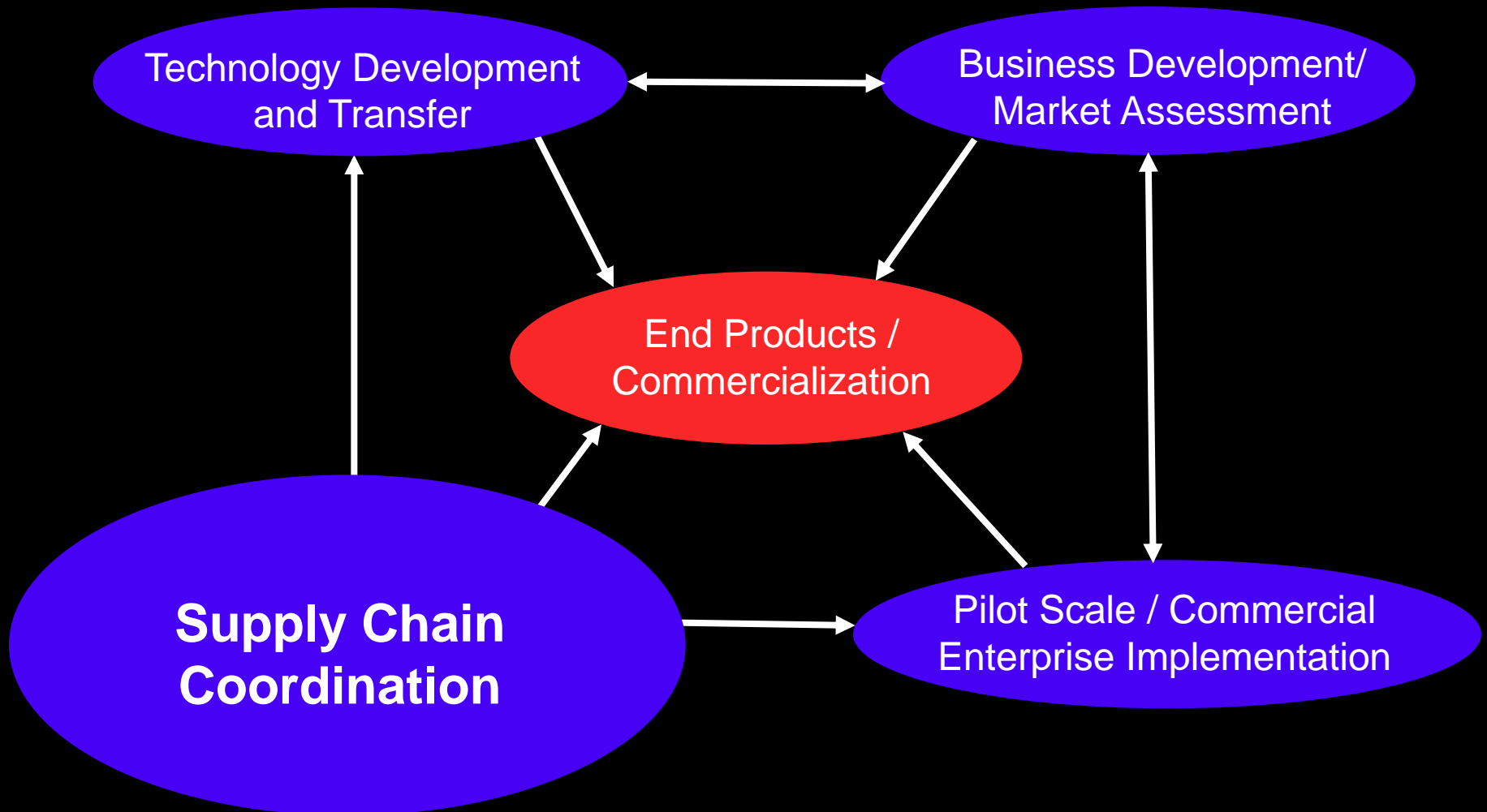
Business Development/Market Assessment

- Market Research:
 - Search and compile Bioproducts information
 - Define business and market 'gaps'
 - Generate macro – marketing recommendations
- Market Strategy and Business Development:
 - Develop a prioritized action plan to define consumer interest
 - Define the approach to stimulate and lead commercialization
- Develop business models and plans that align with the market strategy



Natural
Fibre
Reinforced
Concrete







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Supply Chain Coordination

- Define activities required to fill 'gaps' related to production and logistics between producers, processors, distribution/retailers and consumers

Resin

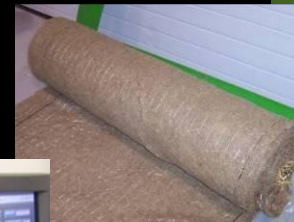
Developers/
Suppliers



OEMs

Composite
Part
Fabricators

Material
Distributors



Mat
Producers

**Example: Composites
Supply Chain**

Test
Facilities

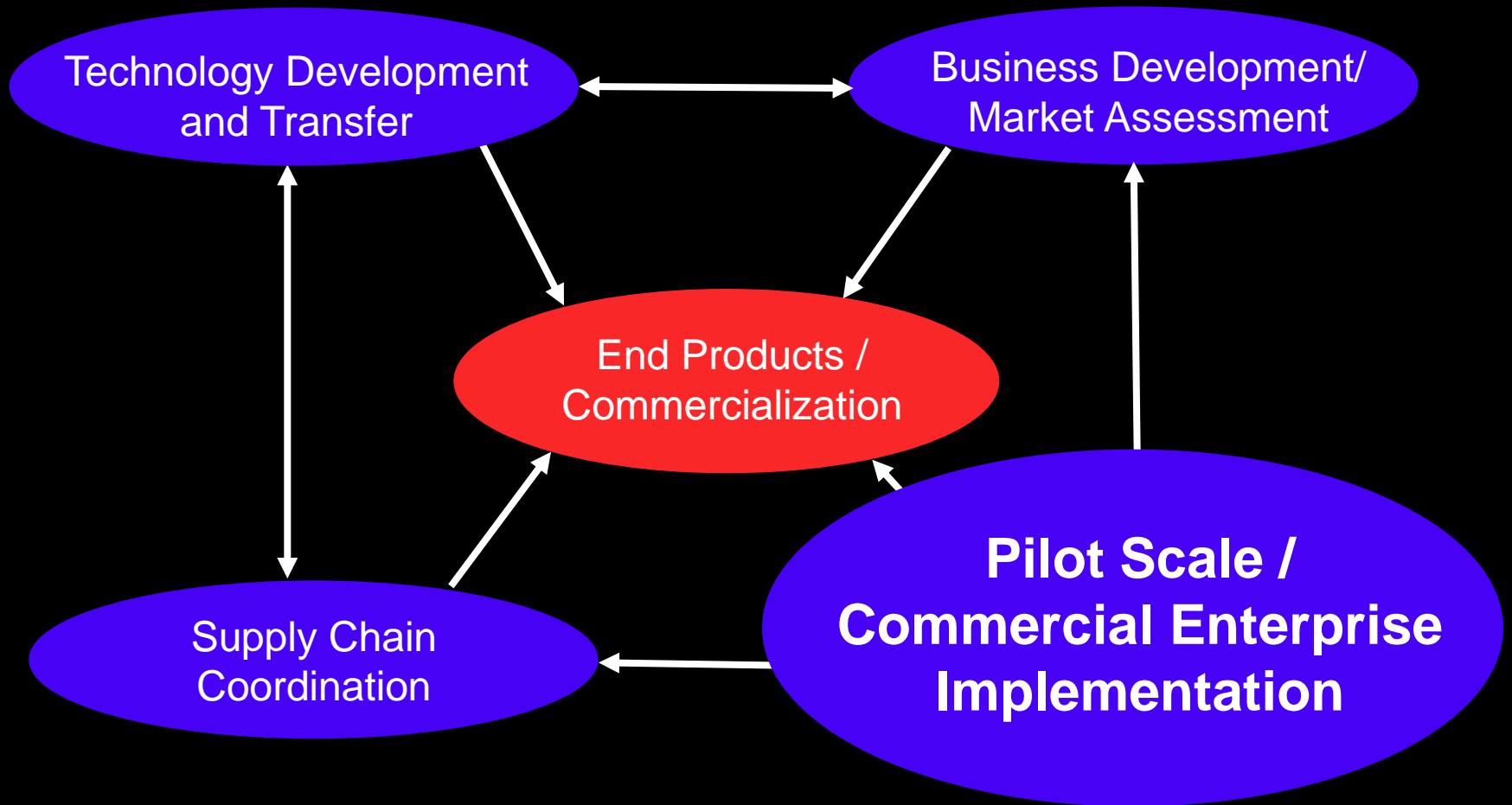


Decorticators



Producers

- Integrate all key elements (links) of the consortium based on a market pull approach



Pilot Scale/Commercial Enterprise Implementation

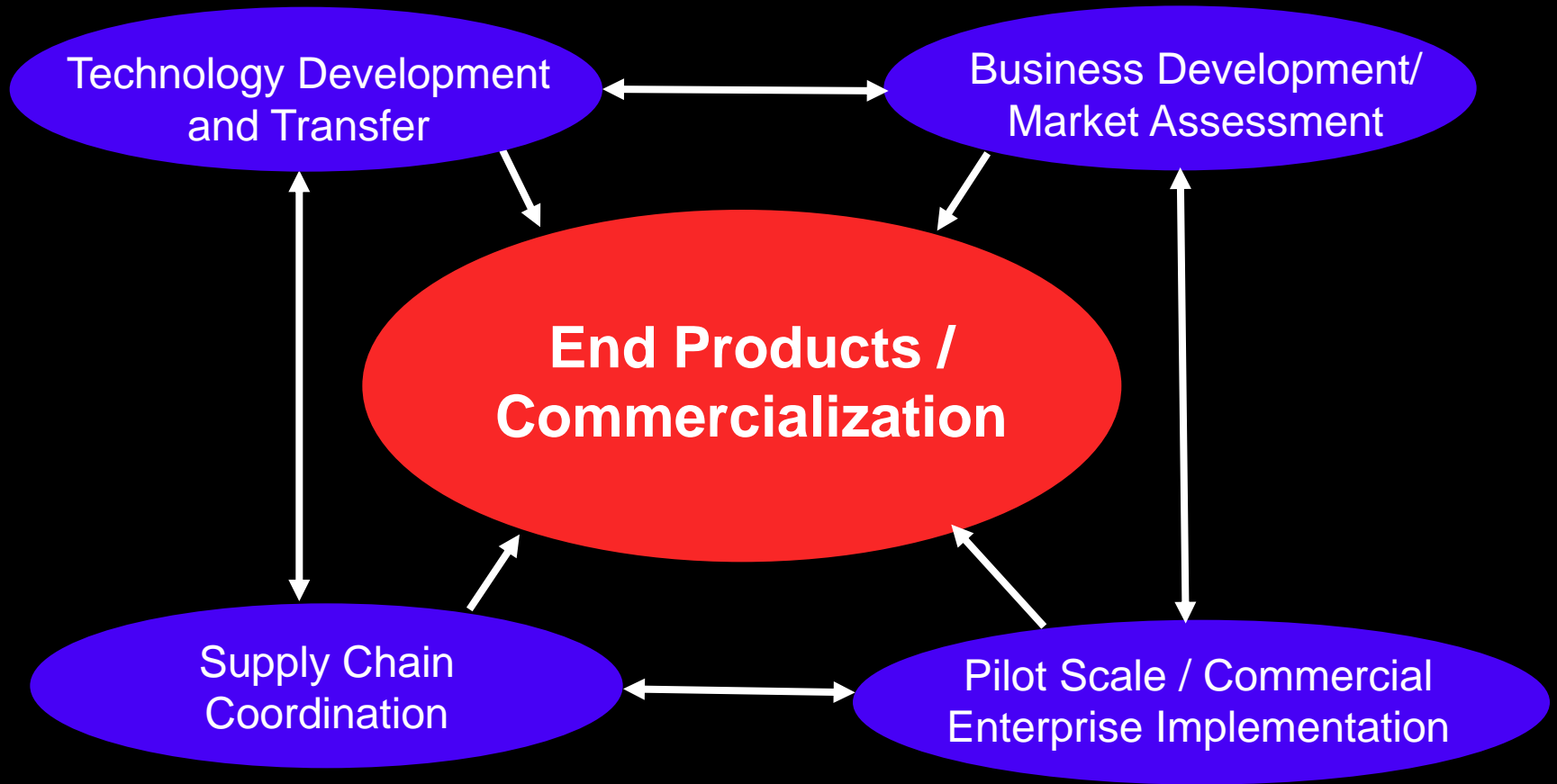
- Business Plan Definition:
 - Align technology, supply chain and market strategies with the final products and scope of the Bioproducts market
 - Define an optimum implementation plan to initiate a pilot scale / commercial entity
 - Develop a funding strategy and define sources
 - Develop interest and select a capable management team
- Deploy the pilot scale / commercial enterprise business plan



Decortication



Mat Manufacture



End Products / Commercialization

- Based on implementation of the Pilot Scale / Commercial Enterprises
 - Ensure commercial feasibility of the selected Bioproduct
 - Develop the most appropriate and comprehensive business plan
- Deploy the business plan and direction collaboratively developed

