

Overview

April 2008

'Complete Conversion of Carbon to Commercial Chemicals'

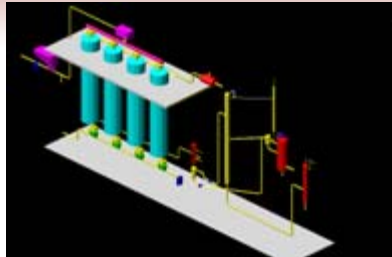


DalinYebo Innovation's "radar screen" is set on the development of bio-based chemical technologies, which meet cleantech and sustainability (TBL) criteria and do not interfere with food and water cycles.

- **DalinYebo (Xhosa) means Wealth Creation**
on the basis of
 - **People and Innovation**
 - **in a Cleantech environment**



C₅: 'Complete Conversion of Carbon to Commercial Chemicals'



- 2001: Company founded
- 2002: 1st round of VC finance
- 2003: First IP transaction (Proserpine Sugar, Australia)
- 2004: Neale-May Gold Medal
- 2005 & 2006: Technology Top 100 Enterprise
- 2005: Proserpine received A\$12m Govt. Grant for SupraYield[®] technology based project
- 2007: Major Transaction with Proserpine benefits SupraYield[®] technology.
- 2007: International Furan Technology becomes a wholly owned DalinYebo Group company
- Group restructured:
 - DalinYebo Innovation
 - International Furan Technology
 - DalinYebo Trading and Development



Multidisciplinary Competence

- Real entrepreneurial experience
- Knowledge of the market
- Leadership skills
- Honesty and Integrity
- Academic foundation
- Professional R&D Management
- Project management and
- Chemical plant operations skills
- Knowledge of working in and with large multinational corporations



There is more to biomass than fuels and energy

Biomass Feedstock



- Trees
- Grasses
- Agricultural Crops
- **Agricultural Residues**
- Animal Wastes
- Municipal Solid Wastes

Conversion Processes



- Enzymatic Fermentation
- Gas/Liquid Fermentation
- **Acid Hydrolysis** / Fermentation
- Gasification
- Combustion (co-generation)

Products

Fuels

- Ethanol
- Renewable Diesel

Power

- Electricity
- Heat

Chemicals

- Plastics
- Solvents
- Chemical Intermediaries
- Phenols
- Adhesives

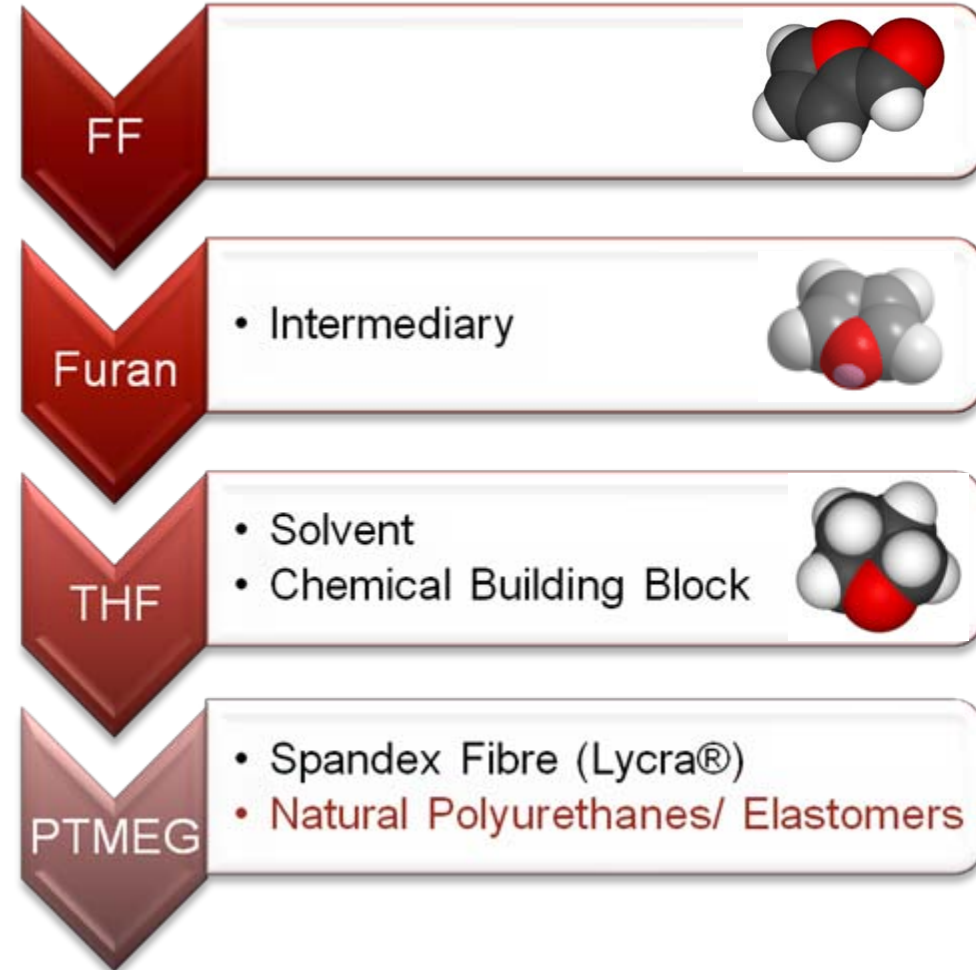
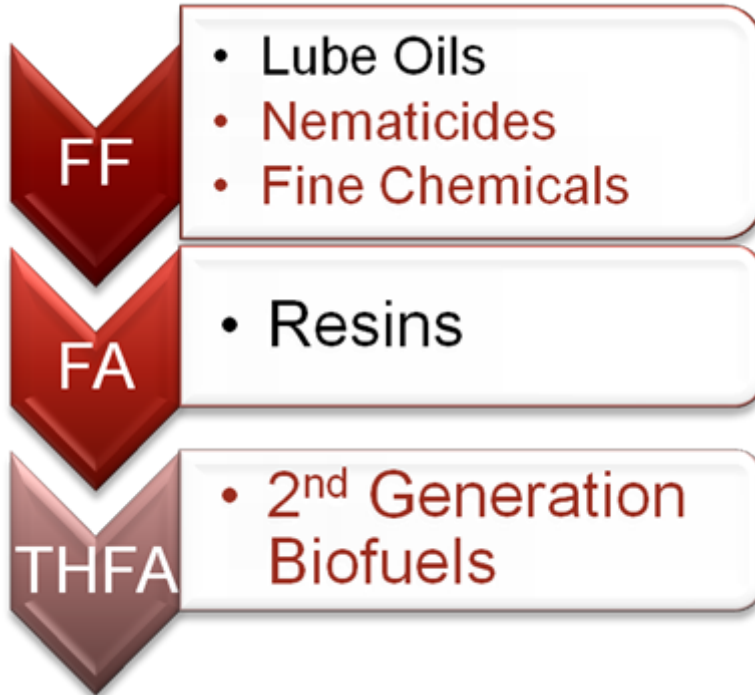
- **Furfural**

- Fatty Acids
- Acetic Acid
- Carbon Black
- Paints
- Dyes, Pigments and Ink
- Detergents
- Other

Food and Feed

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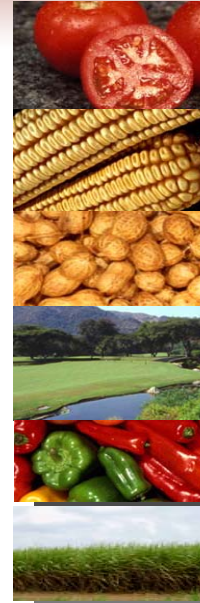
E.g.: Furfural & its many By-products

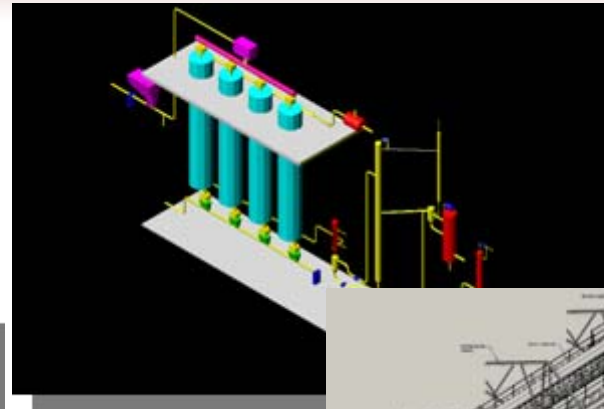


New Applications

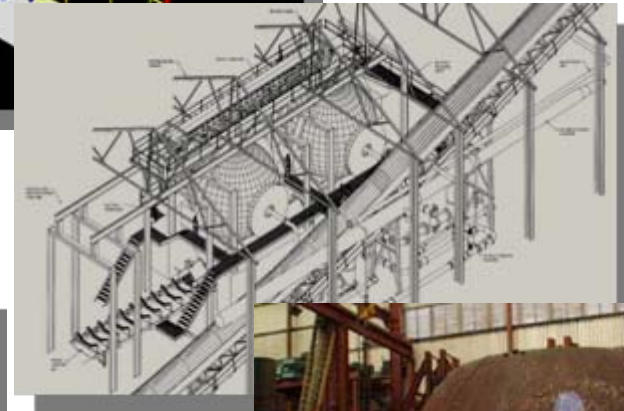
E.g.: Furfural & its many By-products

- PolyTHF
Foundation substance for a variety of bio-plastics
- Nematicides
Effective non-toxic
Agricultural pest control
- And more ...
 - Natural Wood Treatment
 - 2nd Generation Biofuels
 - Biobased plastics





- Conceptual Designs
- Plant/Process Design
- Business Modelling



- Knowledge Production
- Patenting
- Pilot
- Prototypes

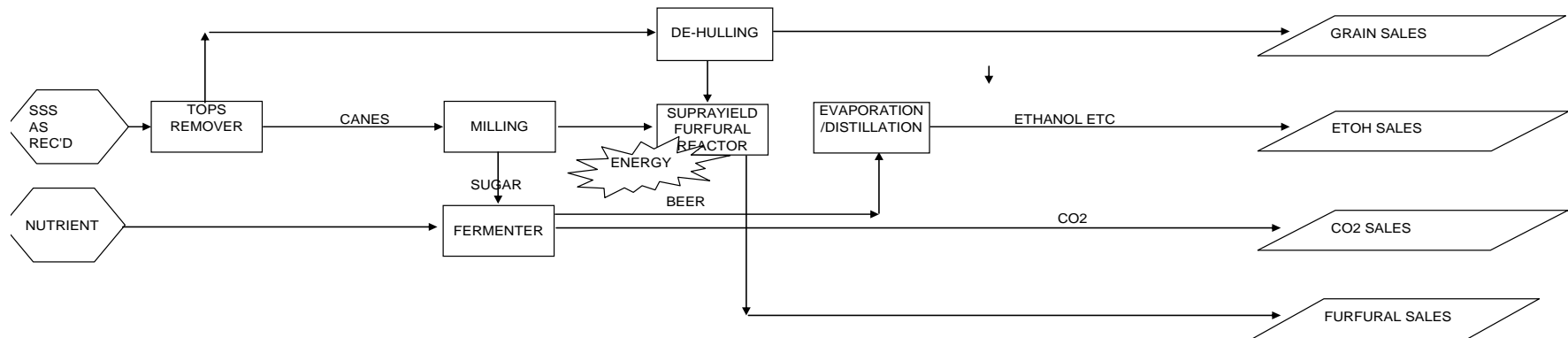


PROCESS CONCEPT #1

FURFURAL, ENERGY AND ETHANOL FROM SSS WITH CONVENTIONAL SUGAR EXTRACTION

APPLICATION #1

PROCESS CONCEPT: FURFURAL, ENERGY AND ETHANOL FROM SSS WITH CONVENTIONAL SUGAR EXTRACTION

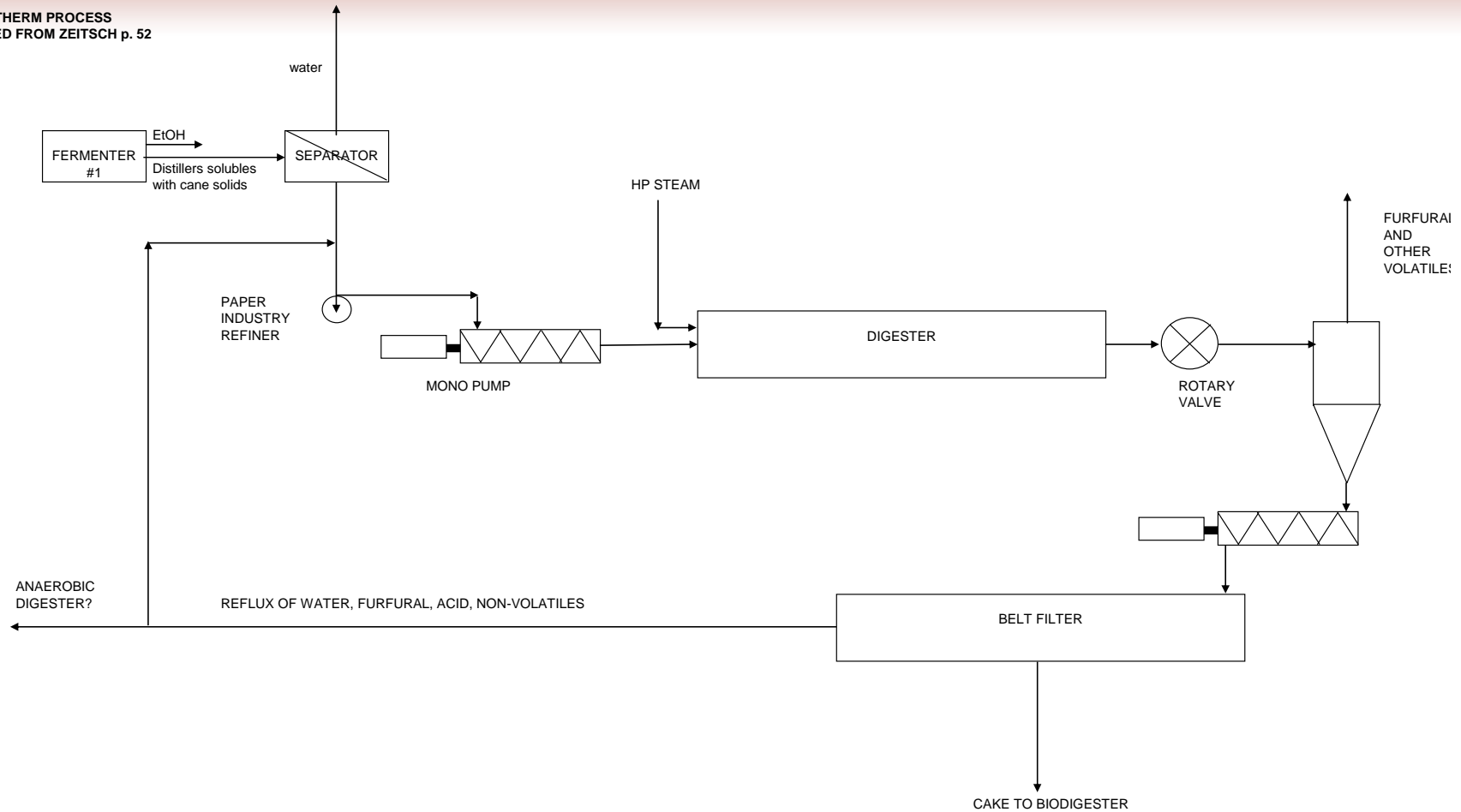


- SELECTION OF OPTIMUM SSS VARIETIES
- USES EXISTING SUPRAYIELD TECHNOLOGY MODIFIED TO ACCEPT SSS
- RESIDUE USED TO PRODUCE ENERGY THROUGH EXISTING TECHNOLOGY [COGENERATION POSSIBLE]
- USES EXISTING FERMENTATION TECHNOLOGY MODIFIED TO ACCEPT SSS SUGARS
- ALTERNATIVE IS TO FEED RESIDUE TO BIODIGESTER [SEE DIRECT PROCESS ROUTE]

PROCESS CONCEPT #3

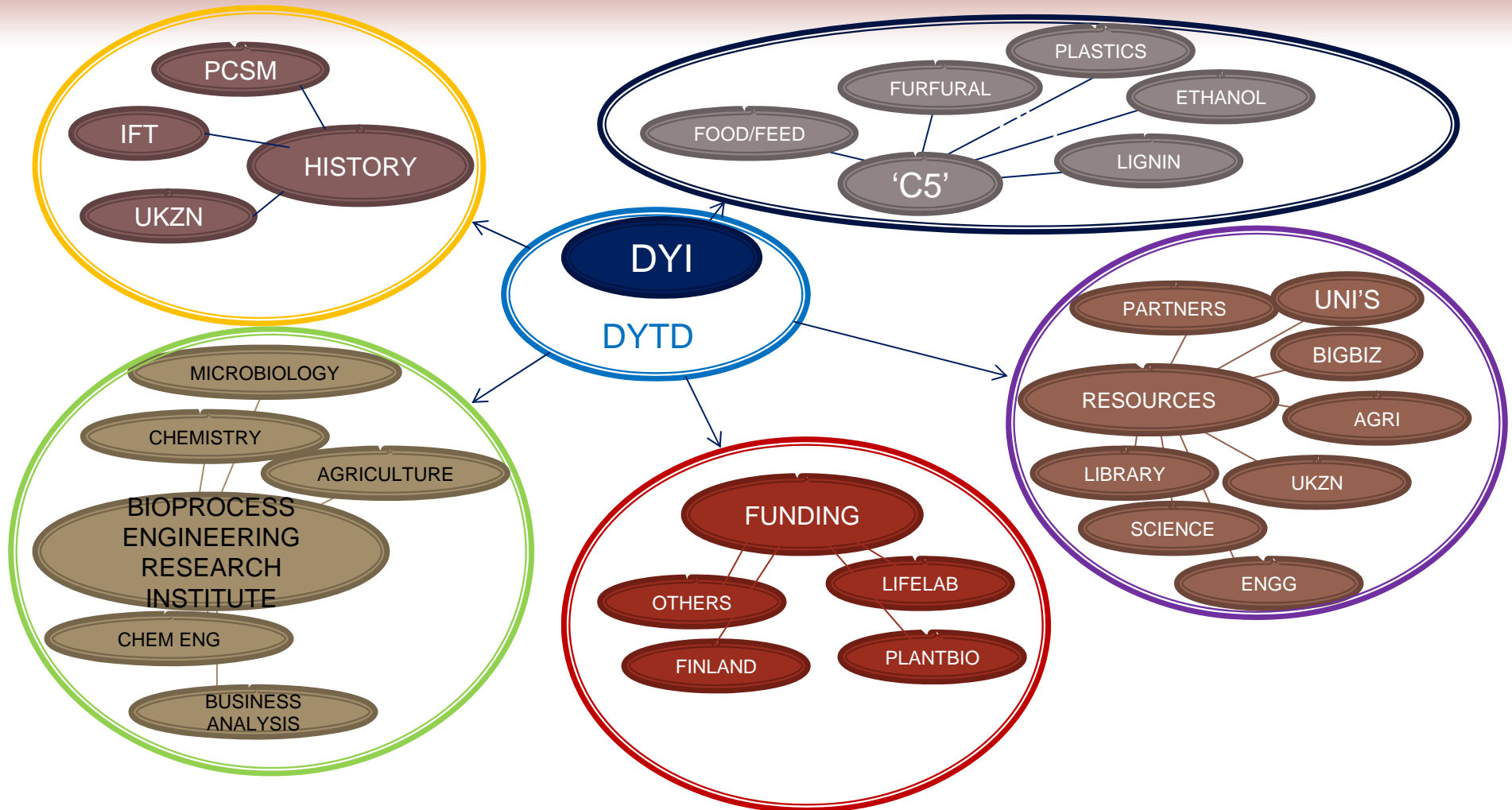
SUPRATHERM PROCESS

SUPRATHERM PROCESS
ADAPTED FROM ZEITSCH p. 52



The bigger picture

DYI – Past, Present and Future



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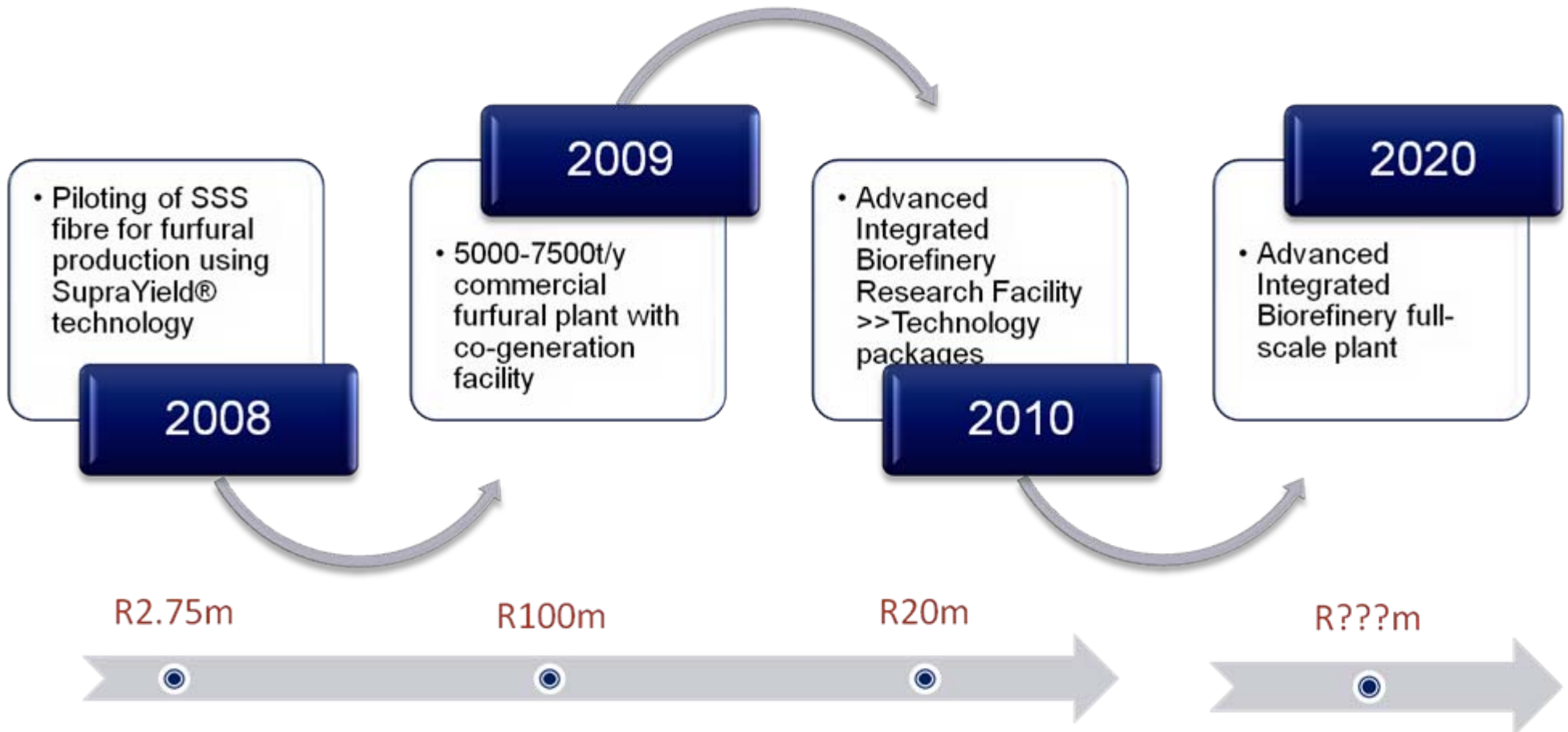


- Required Resources
- Laboratories
- Pilot Plants
- Scientists, Engineers, Business Analysts, Traders
- Unified Facility
- Global Networks

People, Innovations & Products



- Products
- Intellectual Property
- Process Design
- Technology Licences
- Productive Process Plant
- Publications and higher degrees



Thank you

Questions?



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