



# Retail Investor Day

28 March 2022

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# Introduction





# Avantium at a glance: a pioneer in renewable chemistry



## Who we are

A pioneer in the emerging industry of renewable chemistry

## Our mission

Create disruptive technologies to accelerate transition from fossil-based to renewable and circular plastics

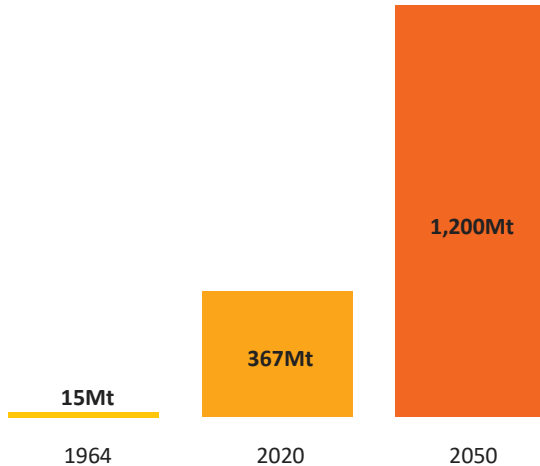
## Our ambition

A fossil-free chemical industry by 2050

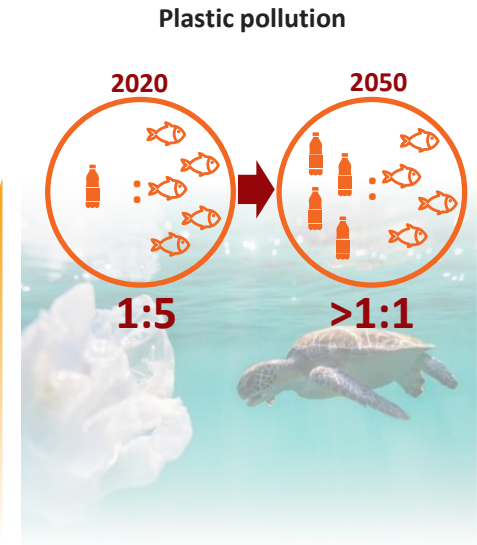
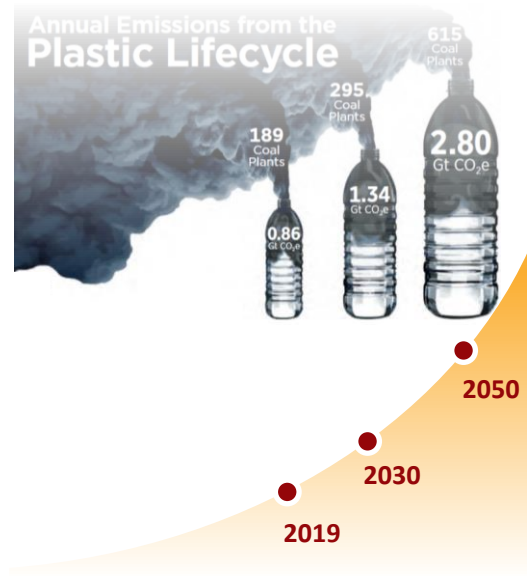


# Increasing worldwide use of plastics causes major environmental challenges

Global plastics production will triple by 2050



Plastic production and waste cause major environmental problems





# Next generation consumers calling for action



85%

of global respondents among millennials feel strongly that companies should help improve the environment

## Governments putting regulatory targets & frameworks in place



“Single-use plastics are now forbidden in the EU when an affordable alternative exists”



“By 2025, all plastic packaging is 100% reusable, recyclable or compostable”

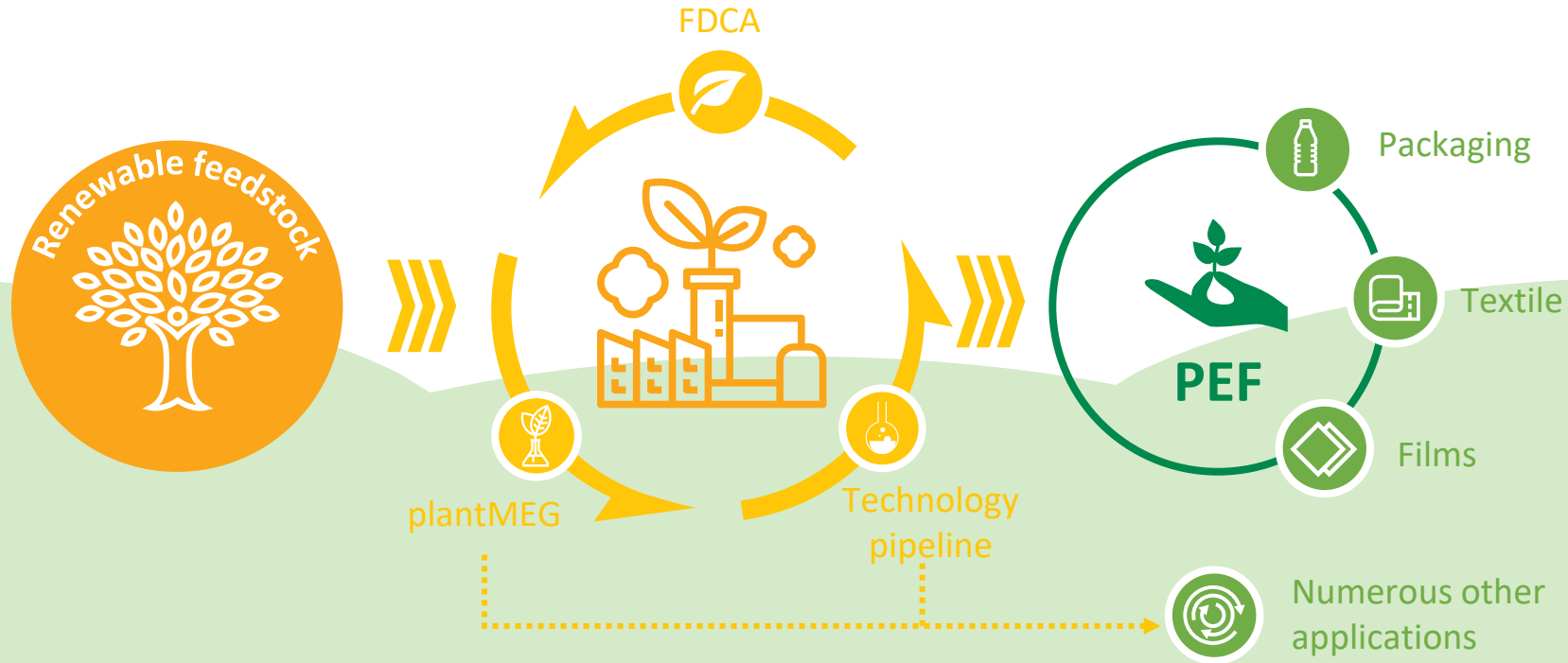
## Companies throughout the value chain are shifting towards sustainable and carbon neutral plastics



“By 2025, all of our plastic packaging will be 100% reusable, recyclable or compostable to help build a circular economy for plastic”

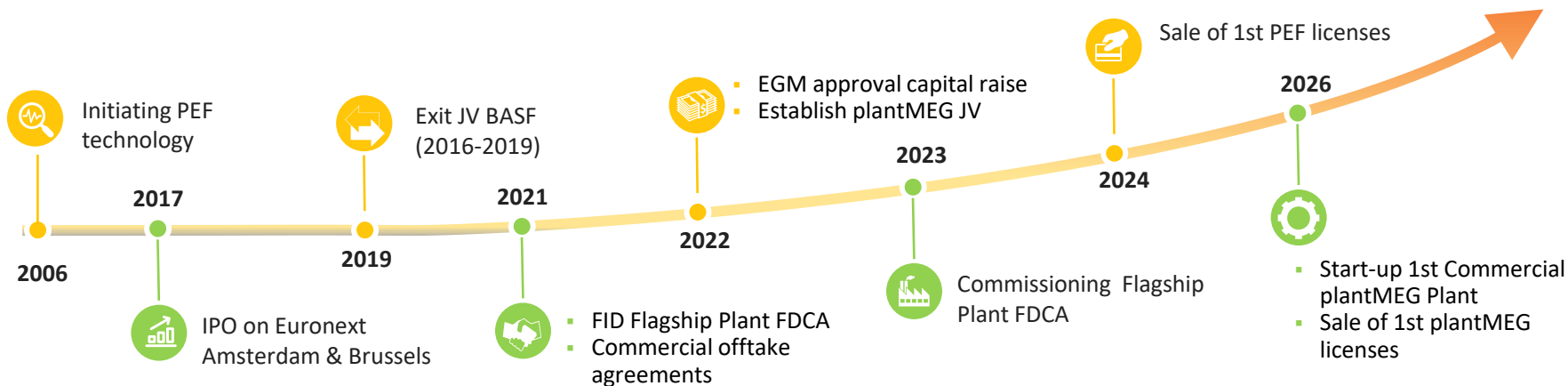


# Avantium offers disruptive technologies for the production of PEF





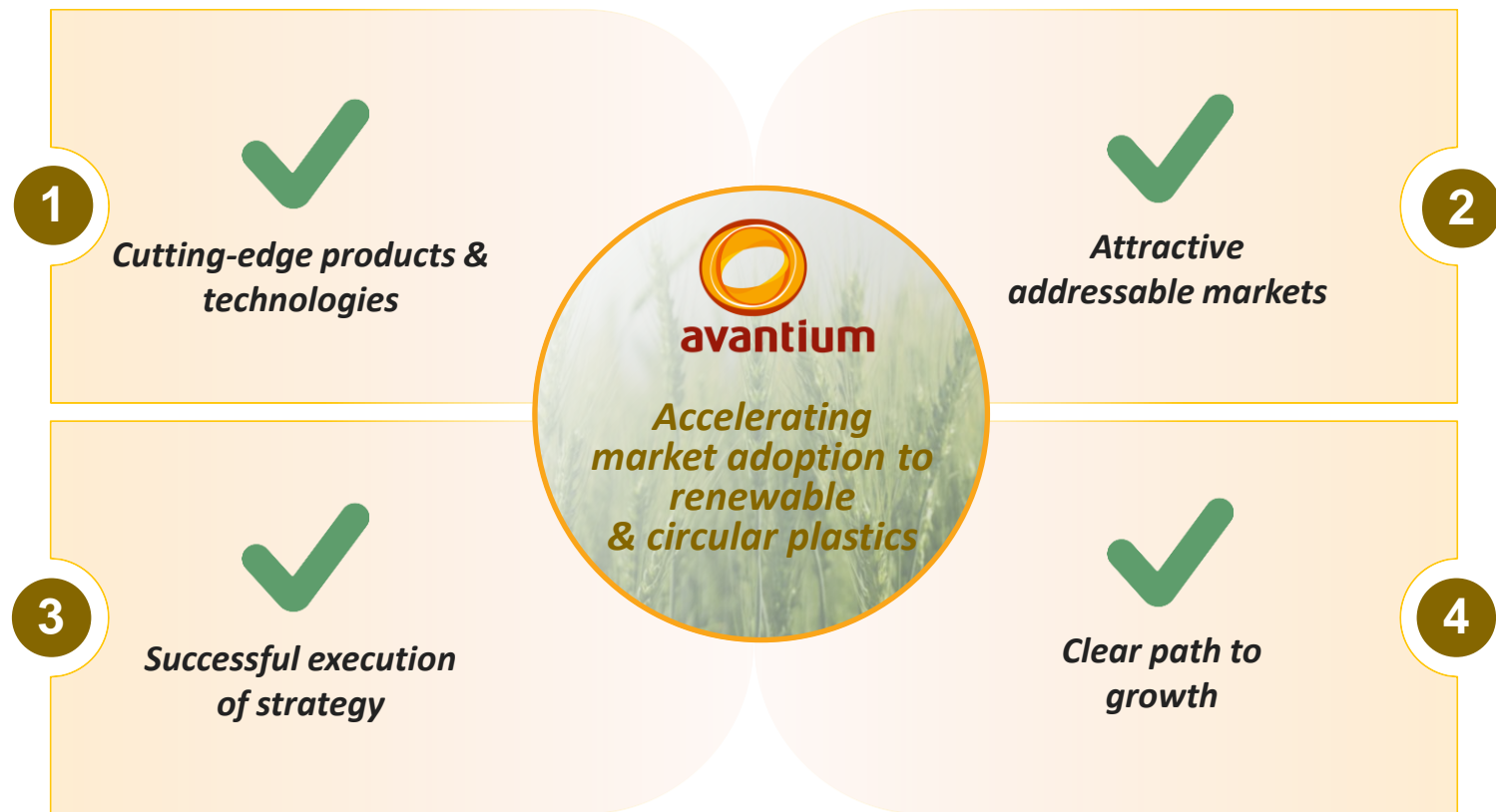
# Avantium's succesful trajectory towards growth



Note: (1) Avantium 2019 results



# Key investment highlights





## Part 1:

### CUTTING-EDGE PRODUCTS & TECHNOLOGIES





# PEF is a 100% plant-based plastic made from FDCA and plantMEG

## Feedstock flexible



Agri crops

### Agri & forestry residue



Forest residues:  
softwood and hardwood chips



Corn stover



Bagasse

## Unique technological platform centered around catalysis process

### Plant-based sugar



### FDCA



### plantMEG



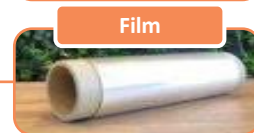
## Broad range of applications

PEF

### Packaging



### Film



### Textile



Furniture



Textile



Automotive



Packaging



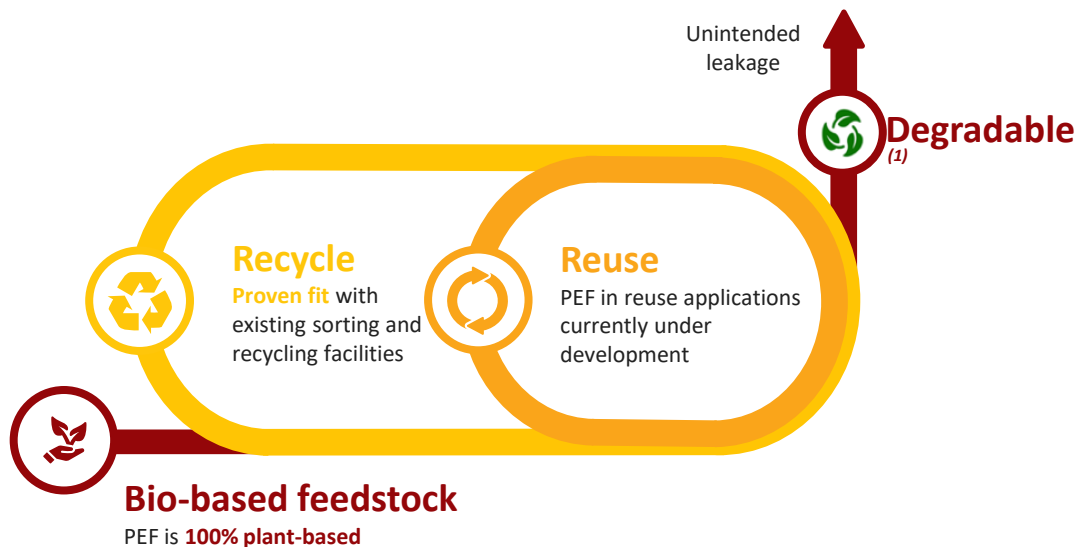
Solvent & Coolants





# Avantium's PEF addresses the need for a circular new plastics economy

PEF solves the challenges of today's conventional plastics



Challenges cannot be solved by recycling only

“ America simply **does not have enough recycled PET** supply or processing capacity to satisfy commitments being made by brand owners to increase recaptured resin content in their bottles. ”

NAPCOR<sup>(2)</sup>

“ We won't recycle or dispose our way out of plastic pollution... Future scenarios focused on collection, recycling, and disposal alone have been shown to fall short, with high ocean leakage and GHG emissions... Upstream innovation offers opportunities to rethink how products can be delivered to users without the need for single-use packaging. ”

The global commitment 2021 Progress Report





## Part 2:

### ATTRACTIVE ADDRESSABLE MARKETS

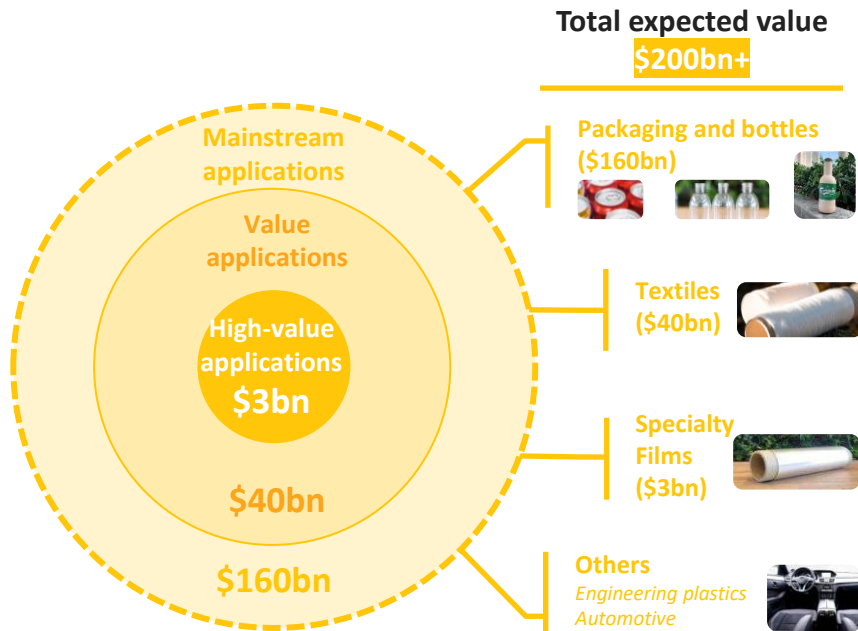




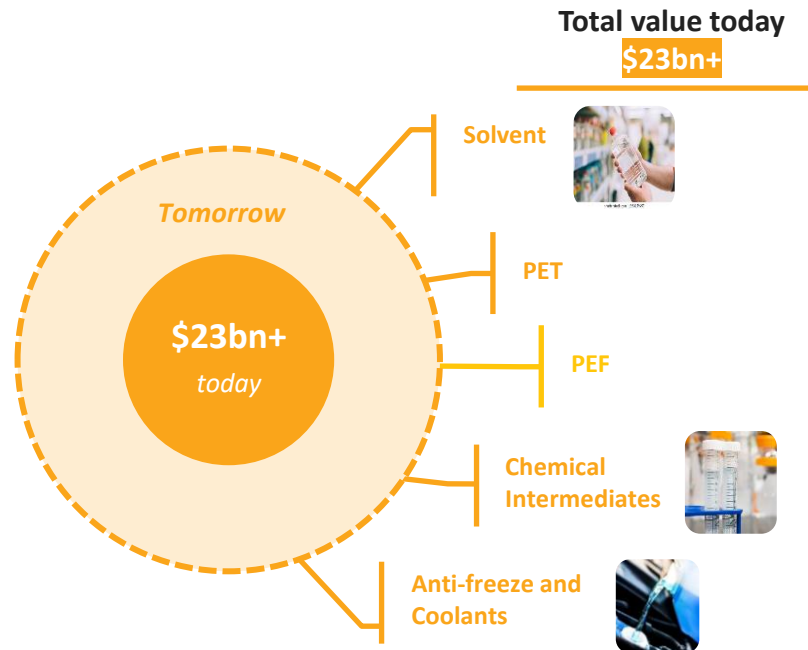


# Avantium targets large and diverse PEF and MEG markets

## PEF addressable market – 100mt+



## MEG addressable market – 35mt+

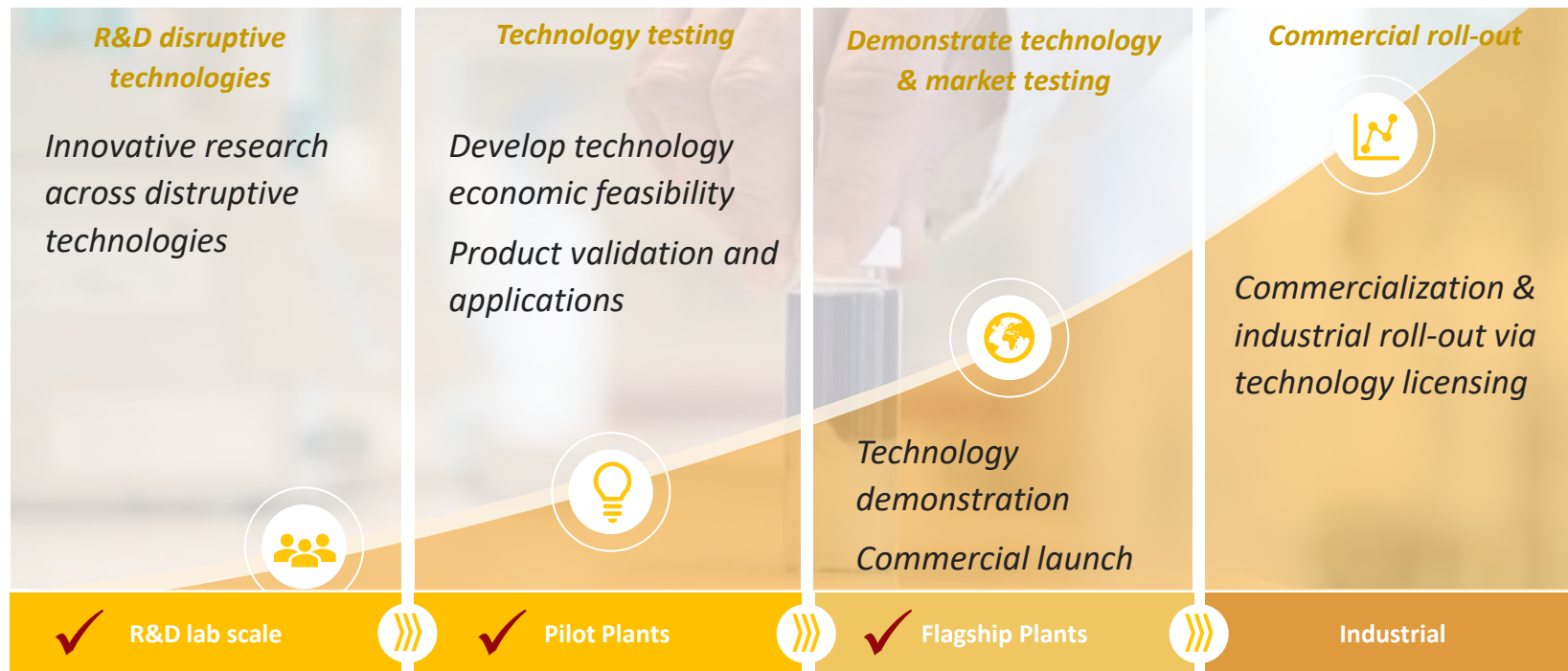


## Part 3:

### SUCCESSFUL EXECUTION OF STRATEGY

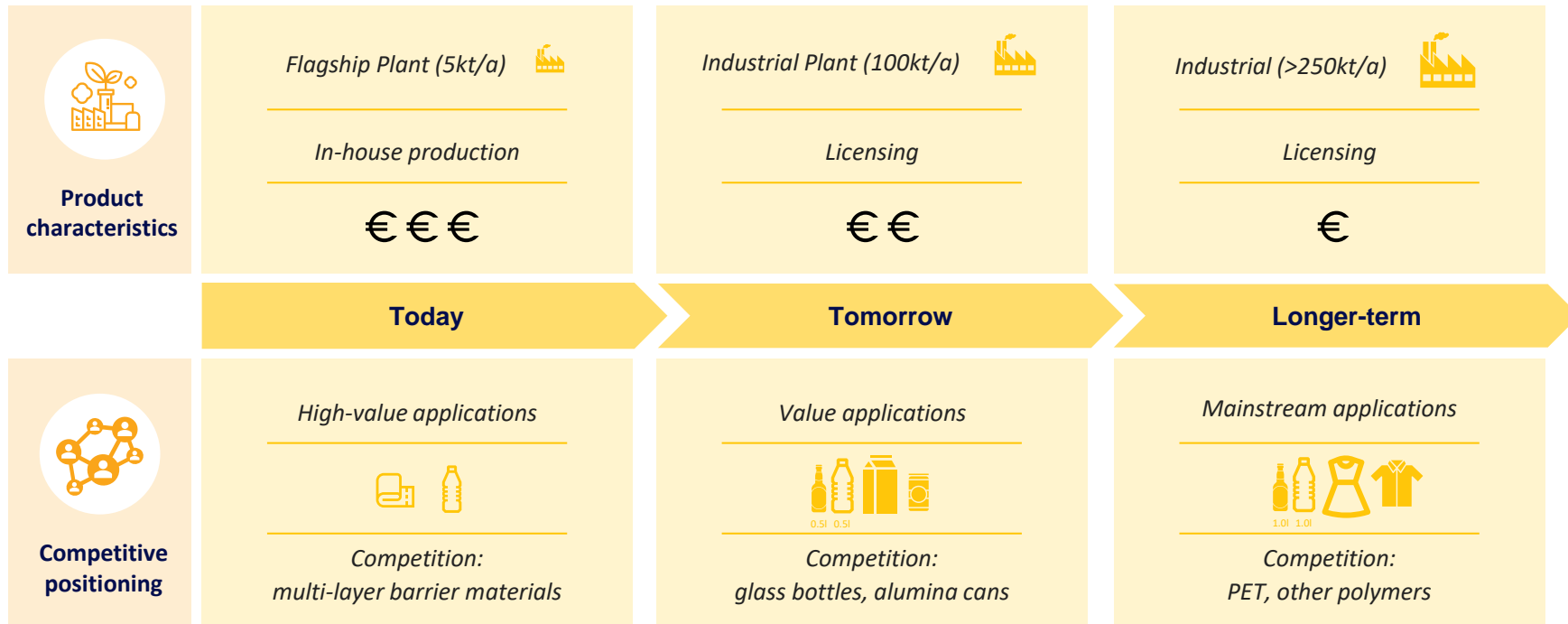


# From technology development to commercialization



**Mission: create & commercialize disruptive technologies & products to accelerate the transition to renewable & circular plastics**

# Avantium has a well-defined and scalable go-to-market strategy for PEF/FDCA



Initial focus on high-value applications with further volume growth to result in cost reduction, leading to a competitive offering across high volume end-markets

## Three Key Conditions to FID are met

Avantium has taken the Final Investment Decision (FID) concerning the construction of the FDCA Flagship Plant as the Key Conditions thereto are now satisfied:



1. PEF market proven by obtaining sufficient offtake commitments



2. Process technology and supply chain ready for scale up



3. €192 million in financing secured

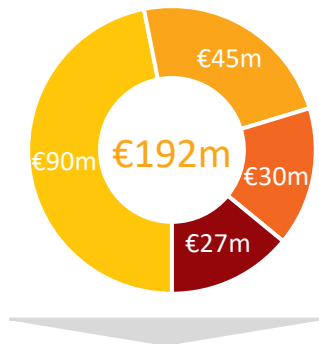


The **positive investment decision** marks a **defining milestone** in the evolution of Avantium and a pivotal moment towards the **commercialisation of Avantium's sustainable plastic PEF**



# FDCA Flagship Plant secured financing breakdown

## Funding sources



## Funding uses



CAPEX: €115m



Running cost (OPEX): €65m



Interest, other: €12m

### Grants (€27m):

- €20m PEFerence grant<sup>(1)</sup>
- €7.5m grant from the National Programme Groningen



### Third Party Equity (€30m):

- €20m equity from Groningen consortium
- €10 million equity from Worley
- Represents 22.6% of Flagship Plant Equity



### Avantium Equity (€45m):

- €45m investment by Avantium (€35m already invested)
- Represents 77.4% of Flagship Plant Equity



### Debt Financing (€90m):

- Each bank has committed €15m
- Invest-NL, government backed Dutch impact investment fund, has committed €30m
- Interest consists of three components: cash interest, accrued interest and warrants



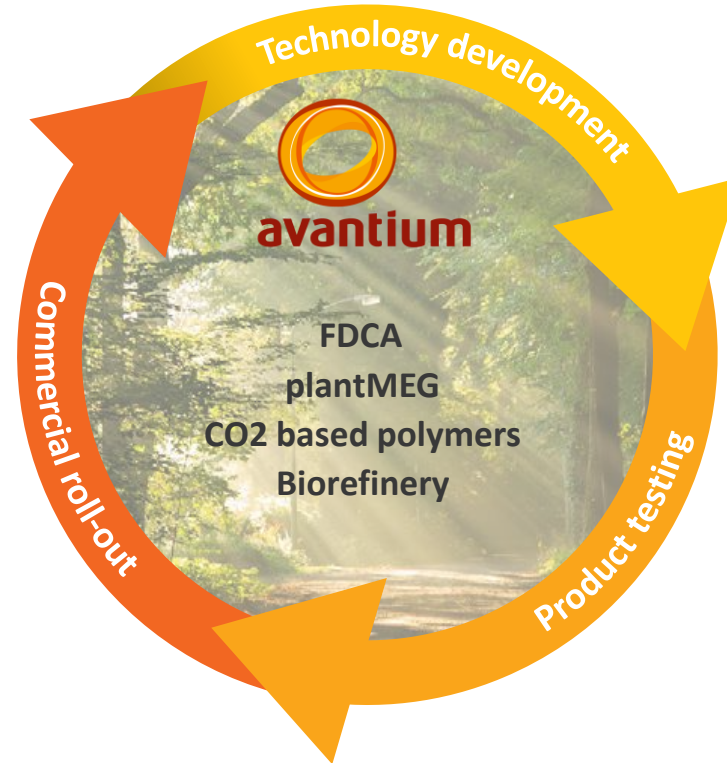
Rabobank

## Part 4:

CLEAR PATH TO GROWTH

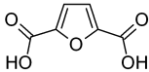
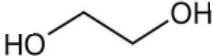




# Avantium tomorrow: further develop & commercialize its innovative technologies





# Avantium tomorrow: Successfully delivering the next biochemicals from disruptive technologies

Today		Tomorrow		
PEF Building blocks		CO2 based polymers	Biorefinery	
Avantium value proposition	<div><div>FDCA</div><div></div><div>Catalytic conversion of plant-based sugars into FDCA</div></div>	<div><div>plantMEG</div><div></div><div>Conversion of sugars into plantMEG</div></div>	<div><div></div><div>Conversion of CO2 into high-value chemicals &amp; polymers</div></div>	<div><div></div><div>Conversion of biomass via a biorefinery into industrial sugars</div></div>
	<ul style="list-style-type: none"><li>✓ 100% renewable &amp; recyclable</li><li>✓ Superior performance</li><li>✓ Feedstock flexibility</li><li>✓ Initially serving value applications then volume</li></ul>	<ul style="list-style-type: none"><li>✓ Improved sustainability credentials</li><li>✓ Market competitive</li><li>✓ Drop-in</li></ul>	<ul style="list-style-type: none"><li>✓ Valorizes waste carbon</li><li>✓ Clean conversion process using renewable energy</li><li>✓ Proprietary electro-chemistry platform for carbon capture and utilization</li></ul>	<ul style="list-style-type: none"><li>✓ Valorizes biomass into valuable feedstock</li><li>✓ Clean and efficient conversion technology</li><li>✓ Significantly lower energy</li></ul>
	Status	Operational Pilot Plant Flagship Plant operational by 2024	Operational Pilot Plant Commercial Plant expected to be operational by 2026	Prepilot units being tested

Avantium's expertise in catalysis processes as development platform of disrupting biochemical technologies

# plantMEG is a key drop-in ingredient for large end-markets

## Avantium value proposition

plantMEG will provide brands with a sustainable & innovative ingredient

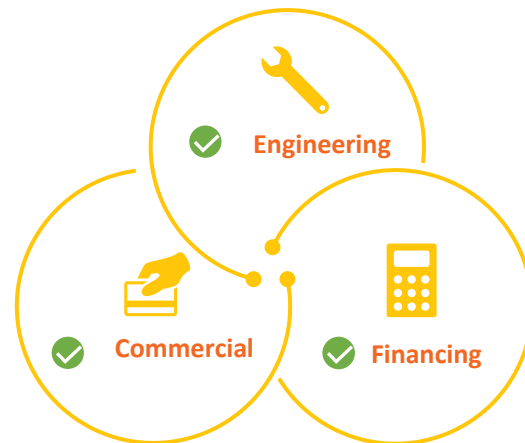




# Construction of its plantMEG Commercial Plant, leveraging on the succesful experience in FDCA

 <p><b>Location</b> Northwestern Europe</p>	 <p><b>Joint venture</b> Jointly owned by Cosun Beet Co &amp; Avantium</p>	 <p><b>Size</b> &gt;100kt per annum (expected)</p>
 <p><b>Applications</b> Wide range: packaging, fibers &amp; other</p>		
 <p><b>Technology</b> plantMEG license sale from Avantium to JV</p>	 <p><b>Feedstock</b> Beet sugar from Cosun Beet Co.</p>	 <p><b>Objective</b> Commercial launch plantMEG</p>

Success of FDCA strategy execution will accelerate plantMEG execution



# Key takeaways

## Key milestones successfully achieved...

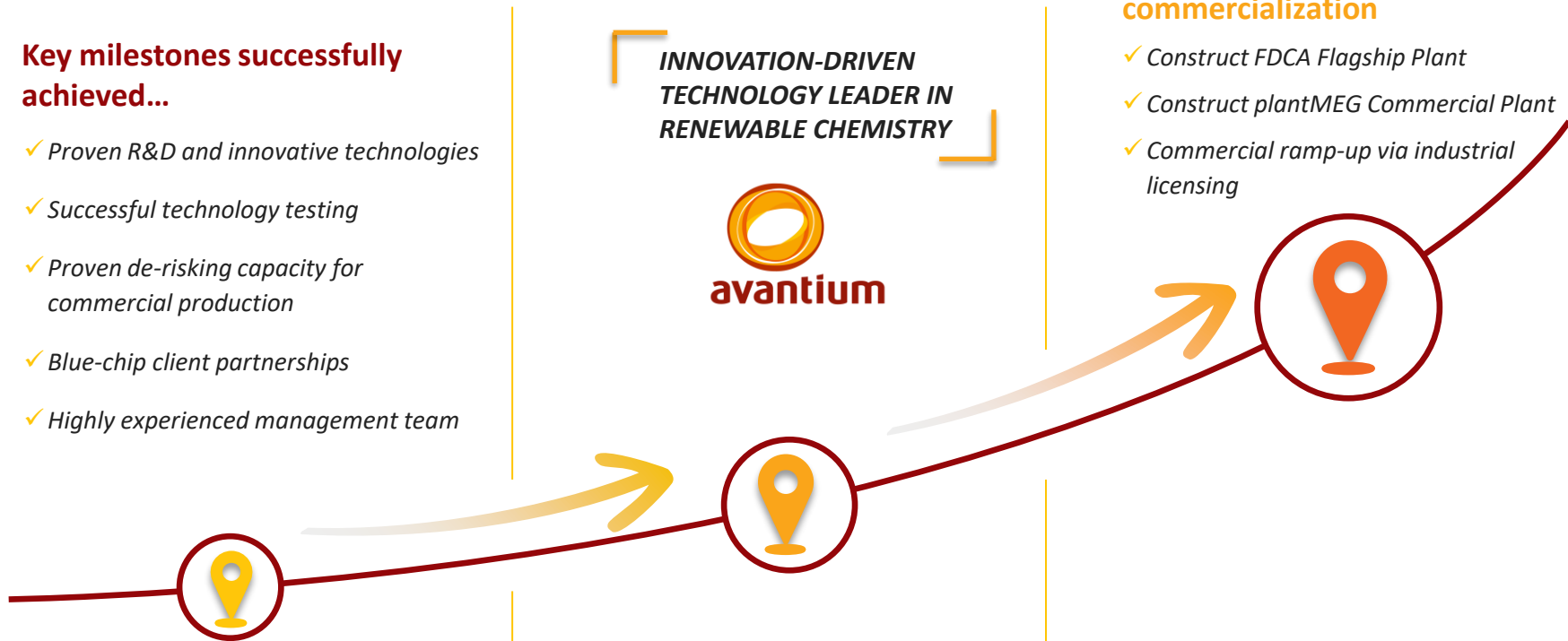
- ✓ Proven R&D and innovative technologies
- ✓ Successful technology testing
- ✓ Proven de-risking capacity for commercial production
- ✓ Blue-chip client partnerships
- ✓ Highly experienced management team

INNOVATION-DRIVEN  
TECHNOLOGY LEADER IN  
RENEWABLE CHEMISTRY

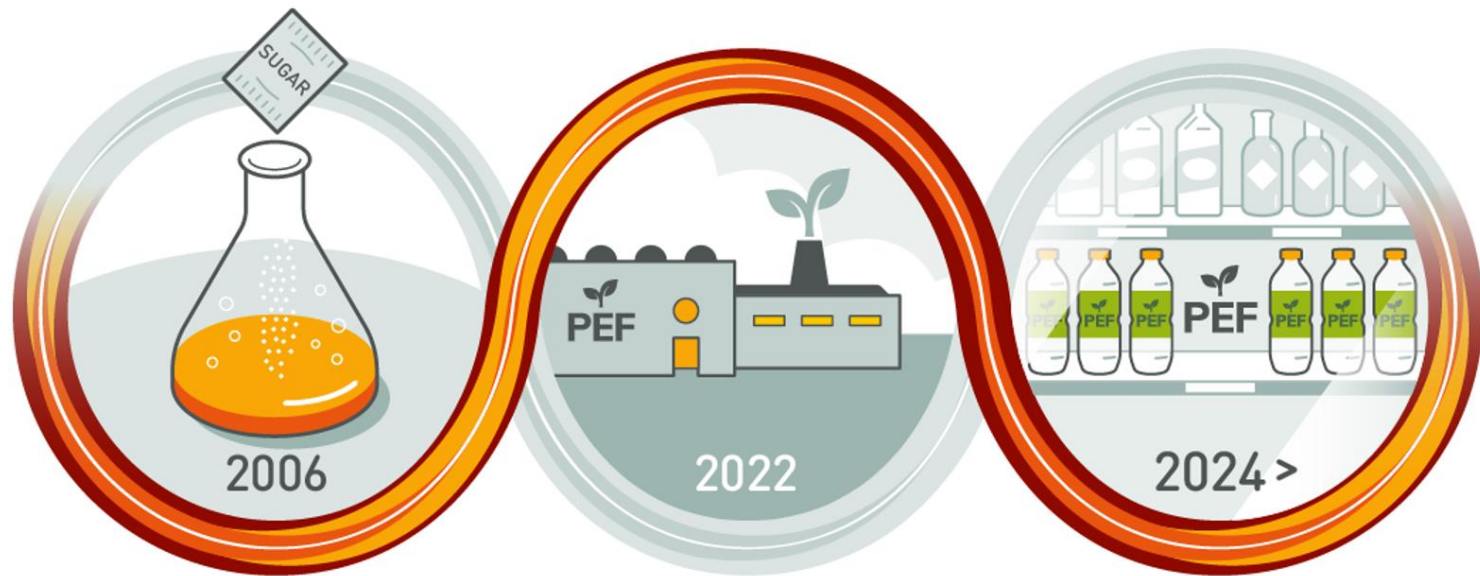


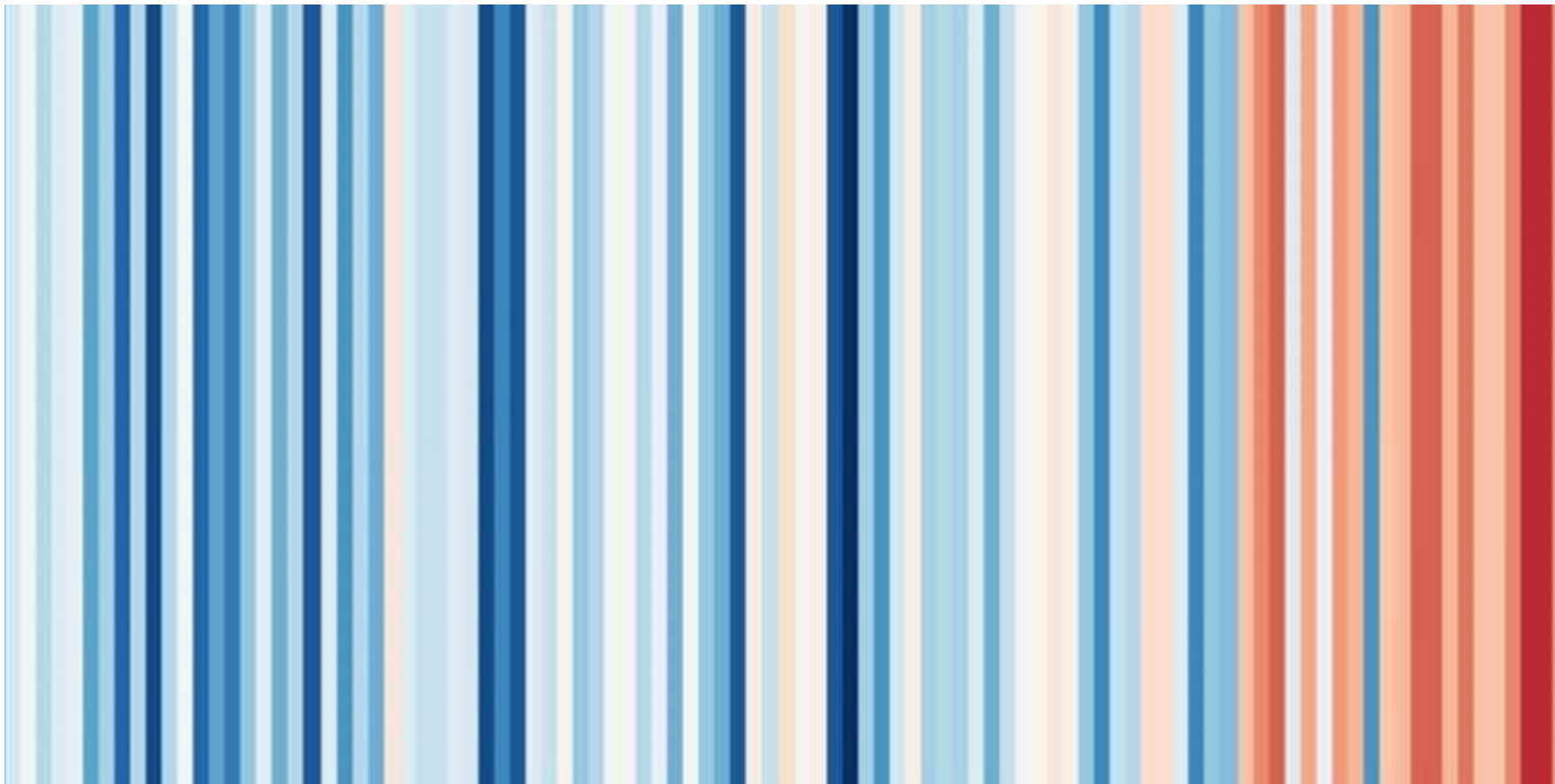
## ...Forming the foundation for commercialization

- ✓ Construct FDCA Flagship Plant
- ✓ Construct plantMEG Commercial Plant
- ✓ Commercial ramp-up via industrial licensing



# Q&A





Global warming stripes by climate scientist Ed Hawkins