

# NOVOZYMES & RENEWABLE CHEMICALS



Per Falholt, CSO & EVP, Novozymes  
Nomura Global Chemical Leaders Conference 2013  
Venice, March 21, 2013

## Safe Harbor Statement



This presentation and its related comments contain forward-looking statements, including financial expectations.

Forward-looking statements are by their very nature associated with risks and uncertainties that may cause actual results to differ materially from expectations.

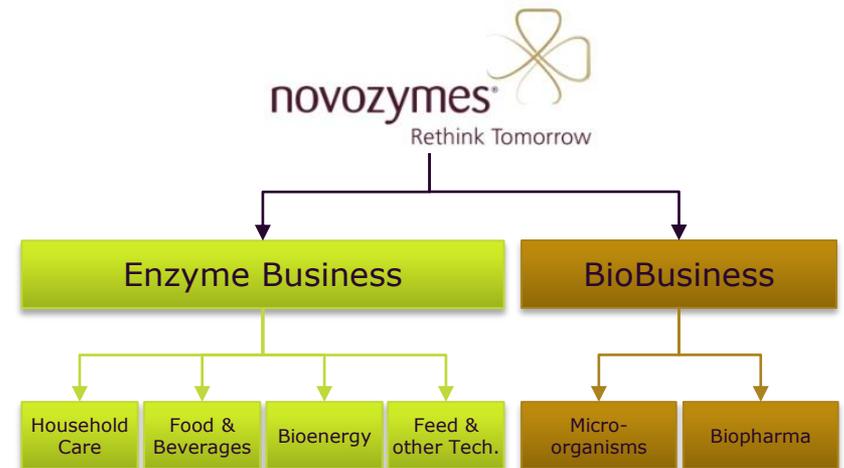
The uncertainties may include unexpected developments in the international currency exchange and securities markets, market-driven price decreases for Novozymes' products and the introduction of competing products in Novozymes' core areas.

# Novozymes – The World Leader in Bioinnovation



- Business consists of two segments: Enzyme Business and BioBusiness
- 2012 sales: DKK 11,234 million
- 2012 EBIT margin: 24.4%
- More than 700 products used in 130 countries in over 40 different industries
- ~ 7,000 granted and pending patents
- + 6,000 employees
- Two share classes; A and B shares
  - A share capital and 11% of B shares (25.5% of O/S; 70.1% of votes) held by Novo A/S, the management company of the Novo Nordisk Foundation

Founded	1925
Listed	2000
Ticker	NZYM B
Exchange	Copenhagen
Market Cap (MDKK)*	~ 52,000



\*A+B shares January, 2012

# Delivering Tomorrow's Solutions Today



## Delivering solutions from nature:

food applications, detergents, pharmaceutical products, the energy sector and countless other applications

## Helping companies become more efficient:

energy efficiency, saving raw materials, reducing waste and replacing chemicals

## This unique approach leads to:

"more with less"  
higher quality, lower costs, better yields and a better environment

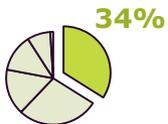
# Uniquely Diversified Group Creates Synergies and New Opportunities

- Unique biotech-focused business with a strong legacy of delivering growth, earnings, and cash flow
- ~ 14% of annual sales invested in R&D
- Global provider of enzymes to all market segments creates global market leader position
- Leveraging competencies across segments accelerates pace of innovation, reduces competition and creates high barriers to entry

## Household Care



- Laundry & Dishwasher detergents



## Food & Beverages



- Baking
- Brewing
- Starch to syrups
- Wine & juice



## Bioenergy



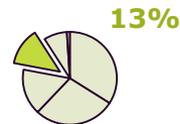
- Corn ethanol
- Cellulosic biofuels



## Feed & other Technical



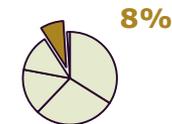
- Animal feed
- Textile
- Leather
- Pulp & Paper



## Micro-organisms



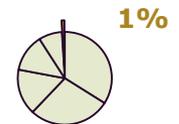
- BioAgriculture
- Wastewater
- Cleaning



## Biopharma



- Drug delivery & formulation
- Medical devices

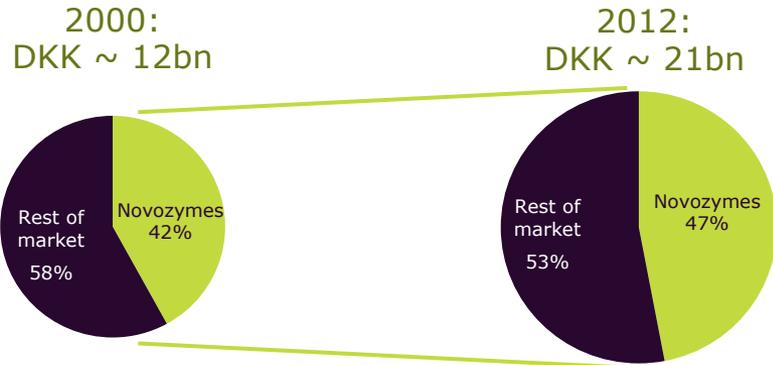


## Enzyme Business

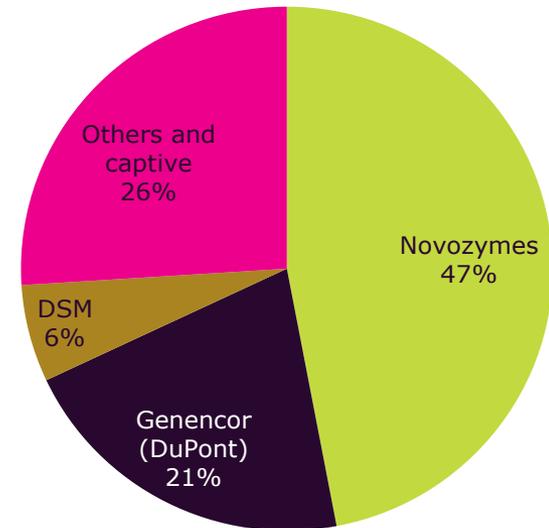
## BioBusiness

# Undisputed Market Leader Expanding Enzyme Application

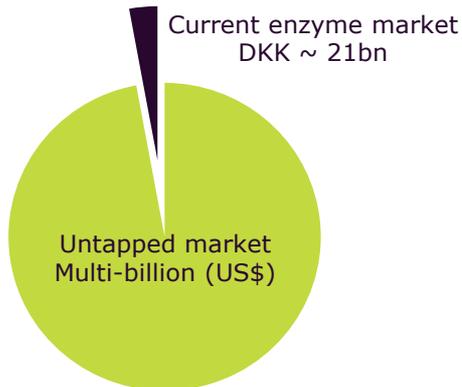
Global enzyme market value:



Global enzyme market value  
2012: DKK ~ 21bn



Market potential\*

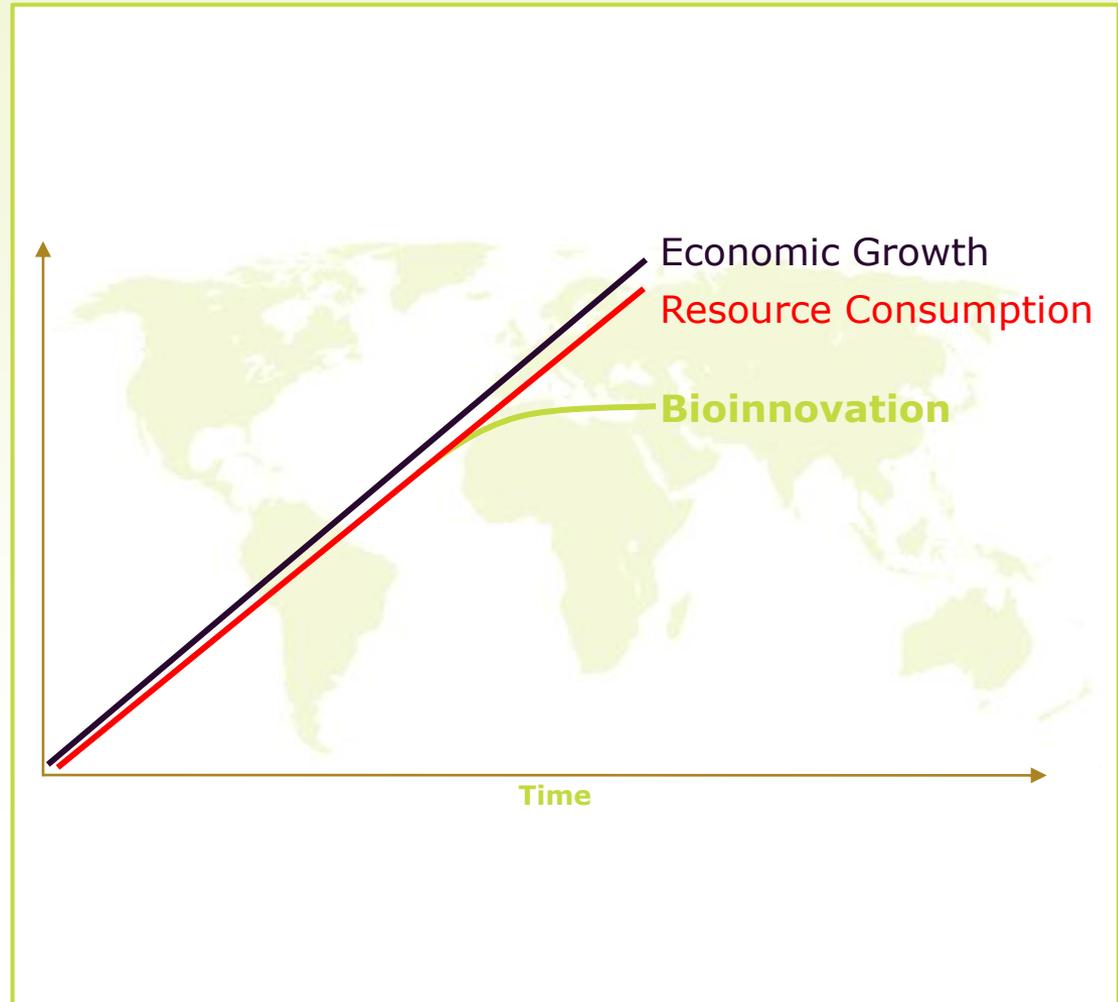


**Rules of competition  
dictated by innovation**

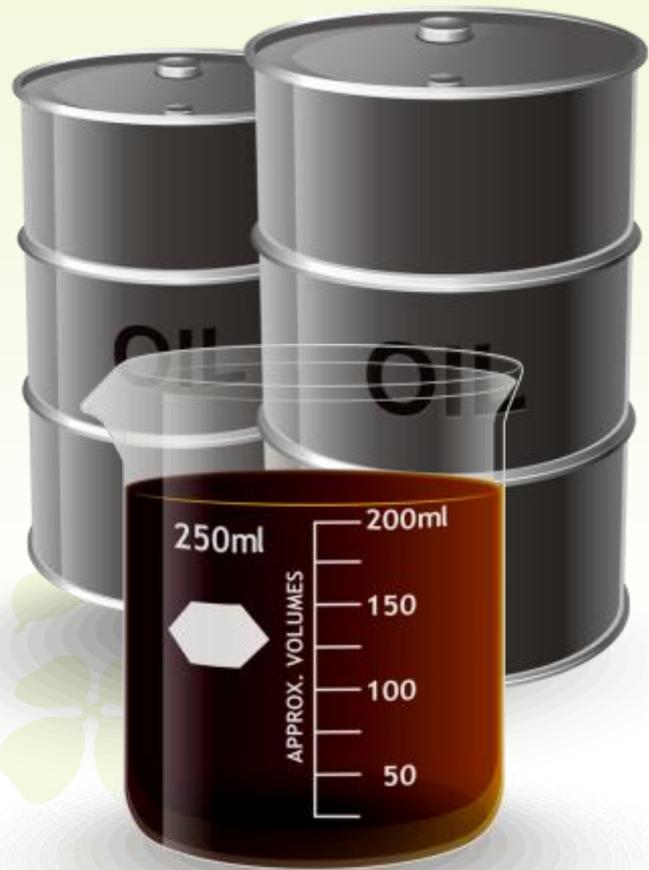
\*Global markets for chemicals, food ingredients, feed additives, etc.

# Enzymes Allow for the Decoupling of Economic Growth from Resource Consumption

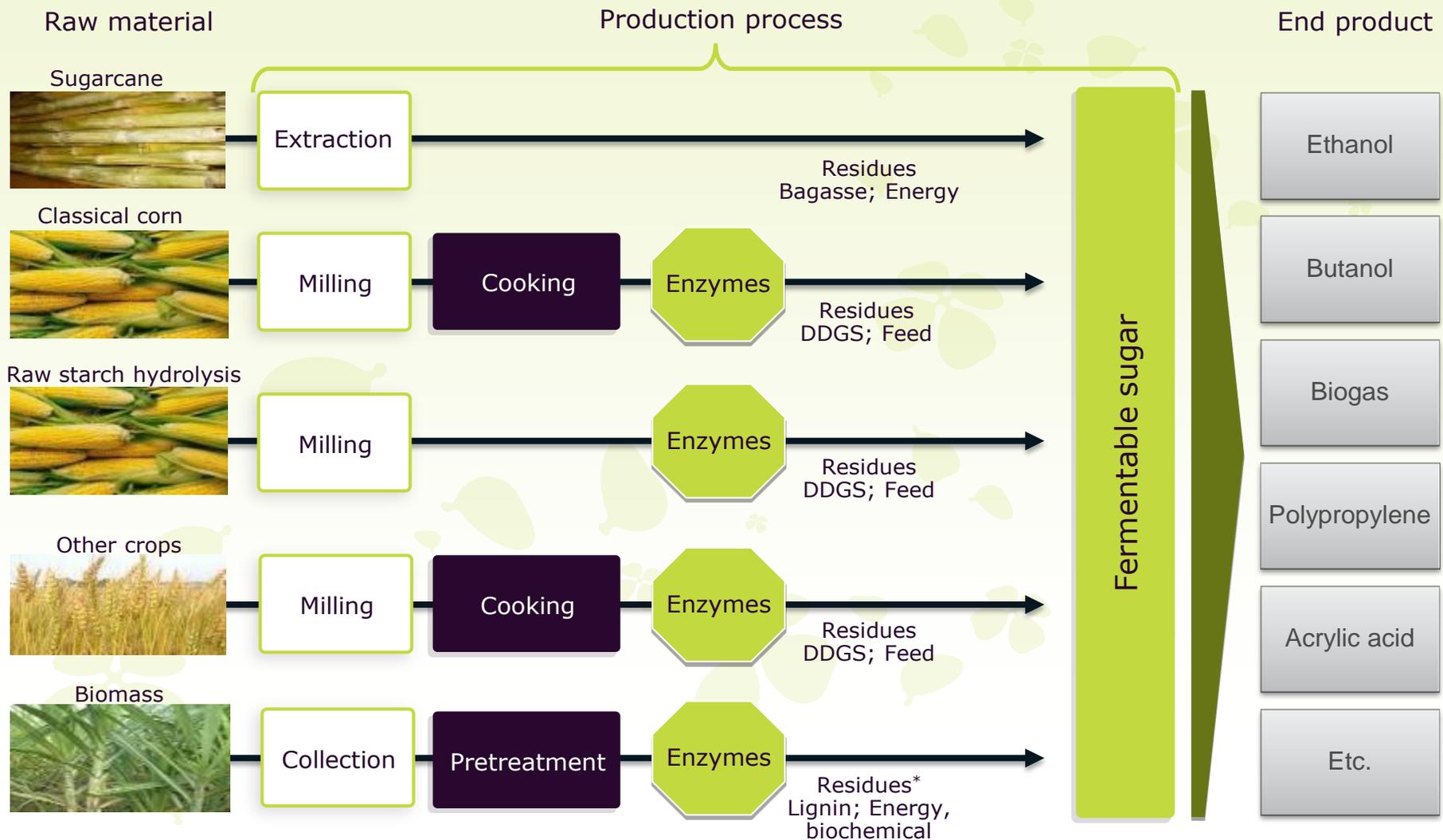
- Enzymes are efficient biological catalysts, with microbial origin
- Utilized in production processes they can increase efficiency, reduce energy consumption, lower raw material input or limit waste streams
- With bioinnovation we can produce *"more with less"* and help decouple economic growth from the consumption of natural resources



# Sugar is the New Oil



# Production of Biofuels and Beyond

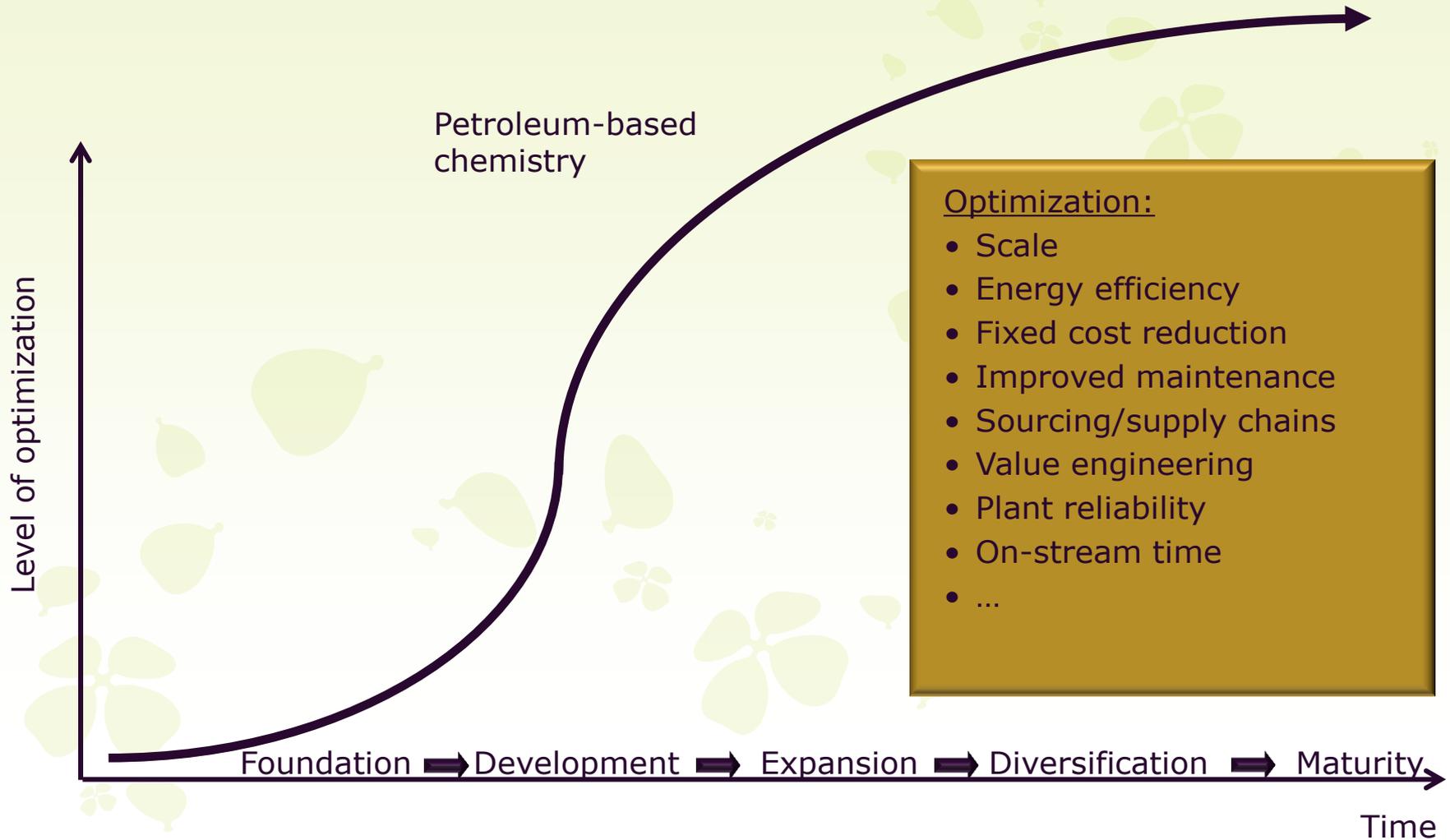


\*In the US Department of Energy Biomass-model the lignin residue is burned to power the production plant

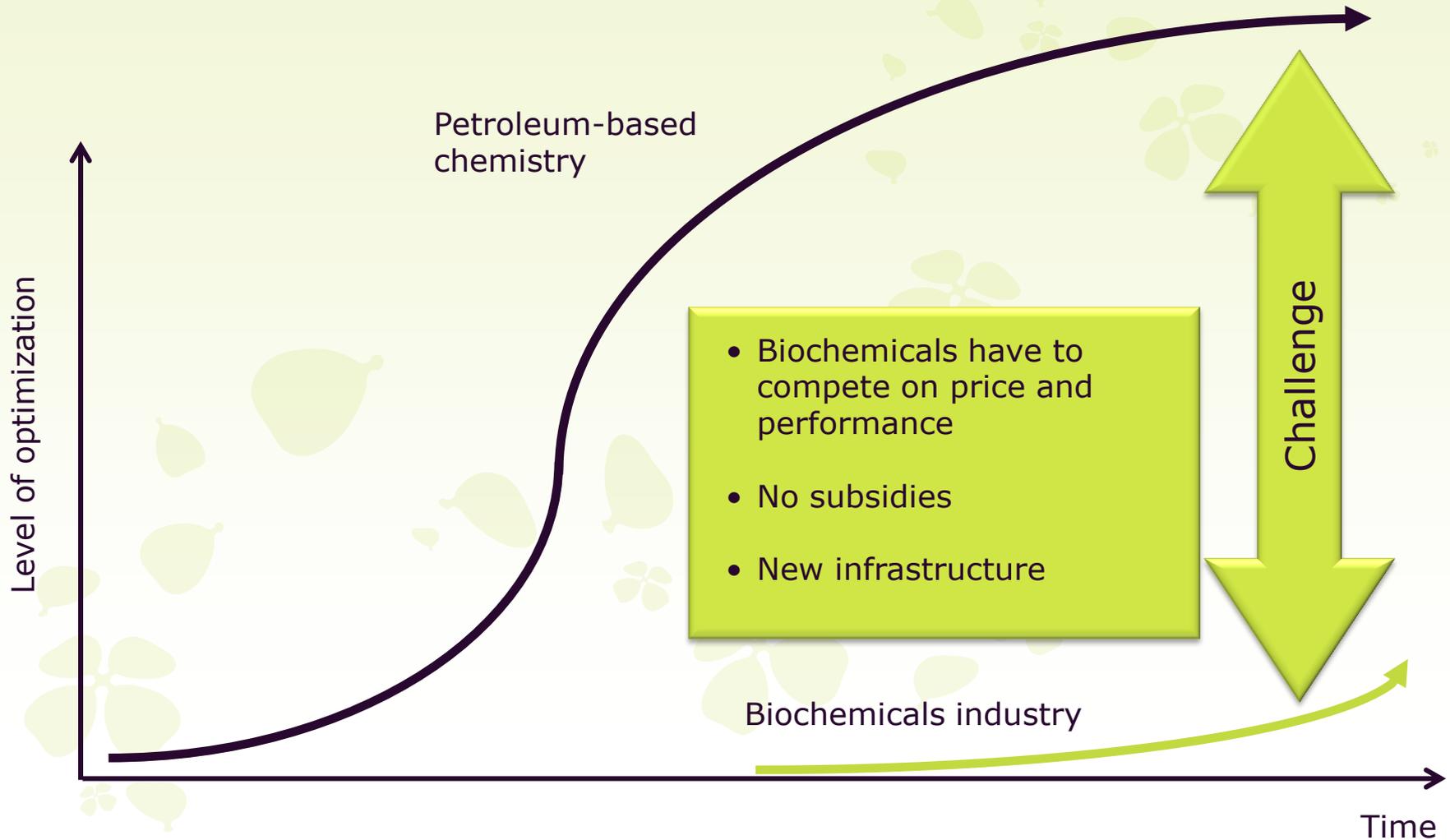
# Developing Enzymes for Advanced Biofuels in Close Co-operation with Global Partners



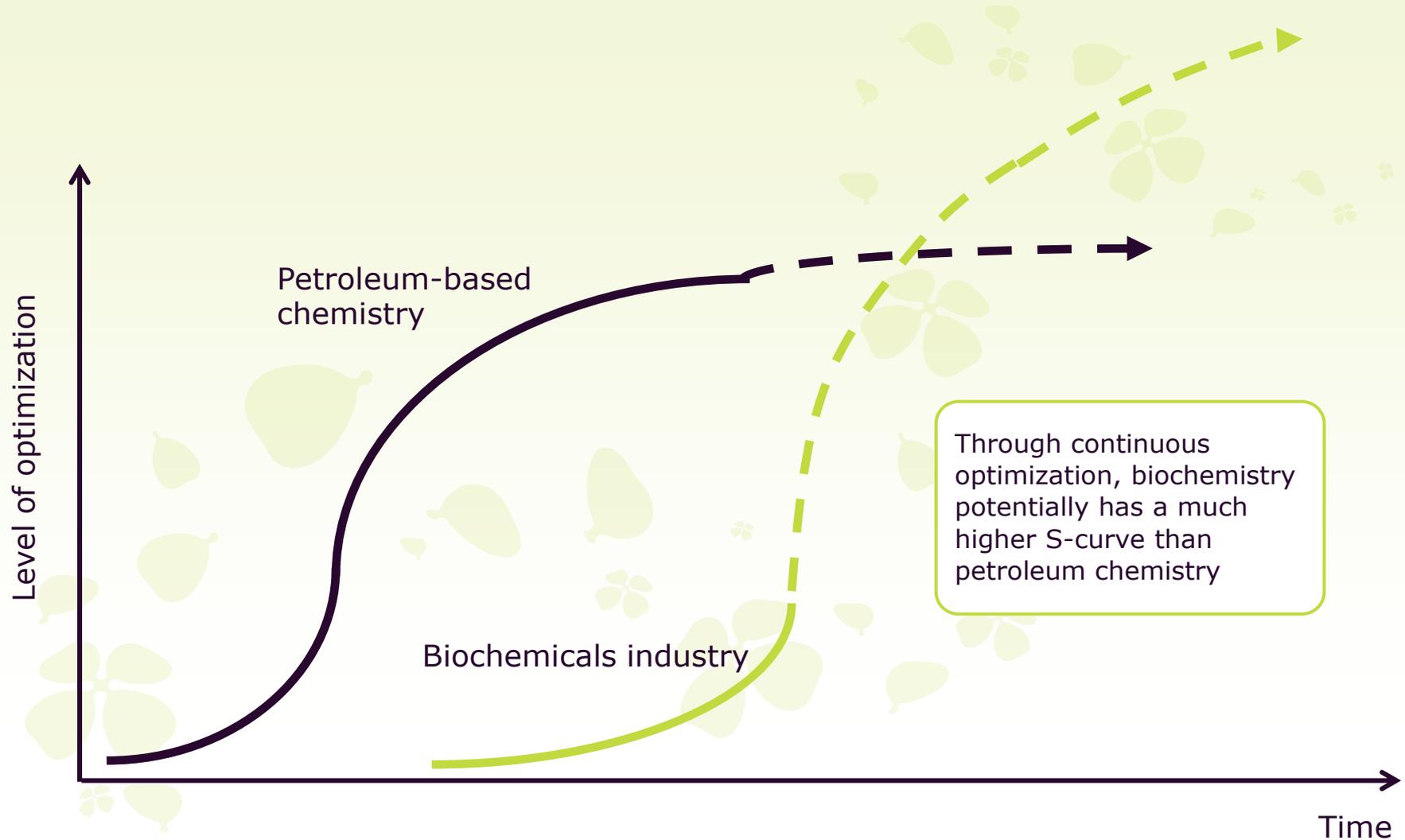
# Traditional Chemicals come from an Optimized Industry



# ...while Biochemicals are in their Infancy...

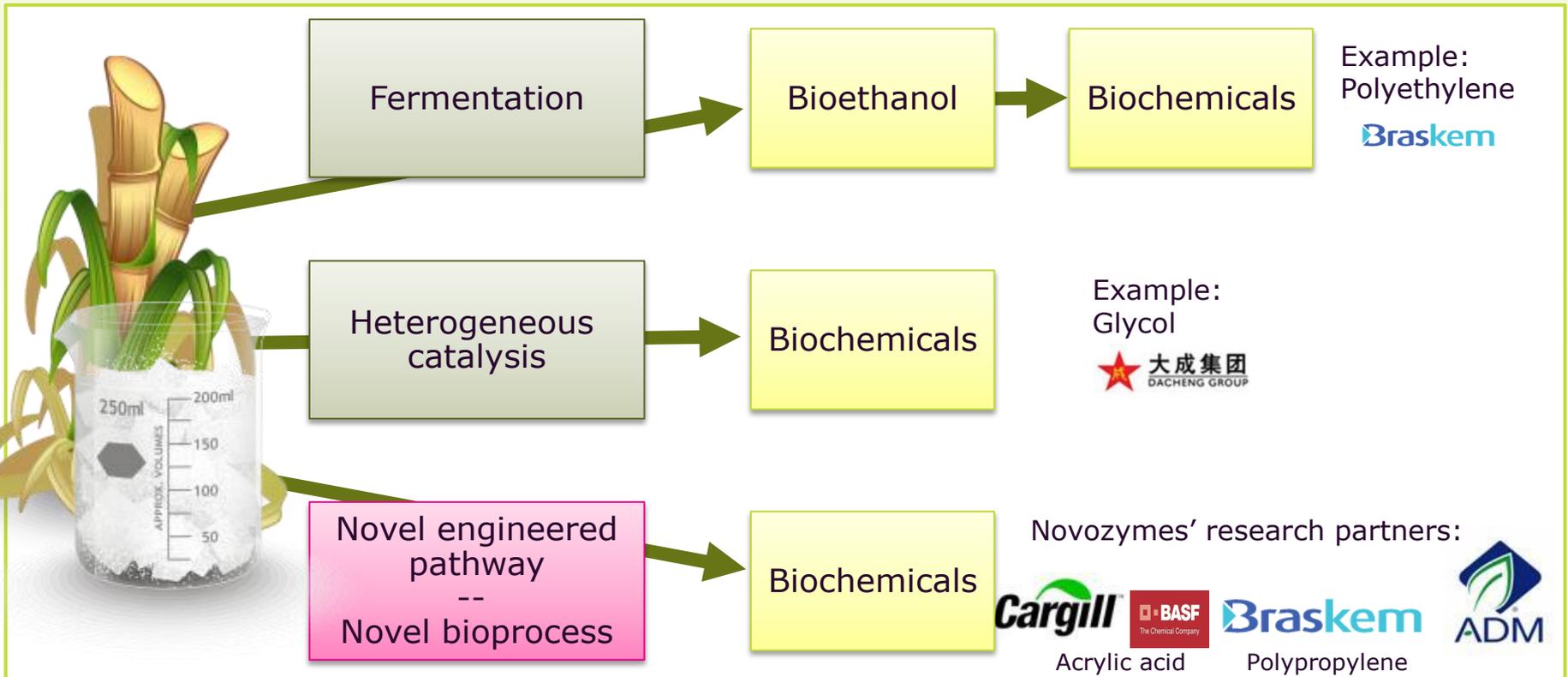


# Biochemistry Allows for a Paradigm Shift



# Ethanol is Just Pioneering Bio-based molecules; The Sugar Platform will be the Basis of a Range of Molecules

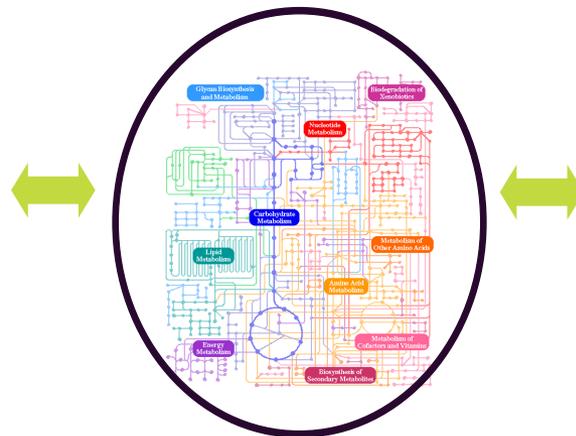
- Biochemicals can be made using different pathways. Some exist today, others are developing
- The vast majority of conversion technologies uses sugar as an intermediate platform



# Novozymes' Biochemicals Business Model

## – Joint Development Programs and Royalties

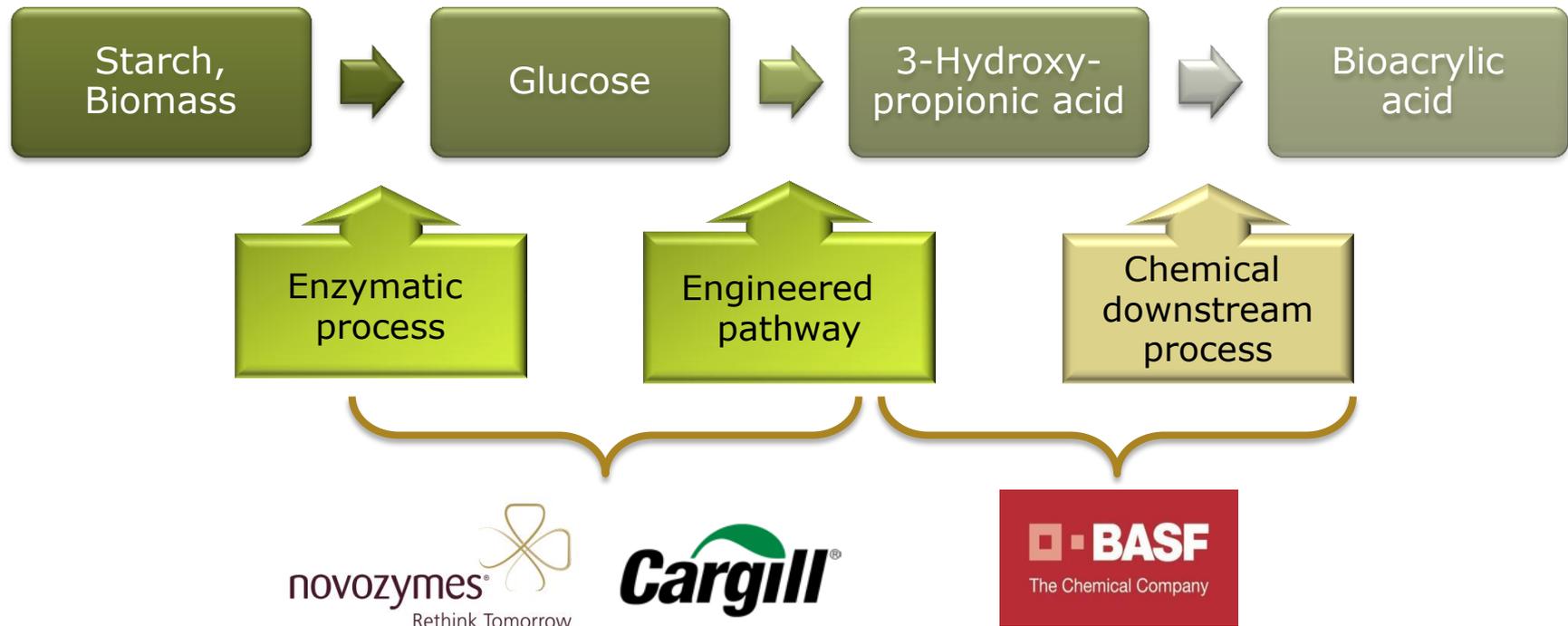
- Novozymes will not become a chemical company, but partner with...
  - Established players  
(chemical industrials that have the application knowhow, supply chain, etc.)
  - New players in the value chains  
(grain processors who own the feedstock of the future)
- License approach, asset light
- Focus on gradual replacement of existing chemicals with large markets
- Participation in expected future growth



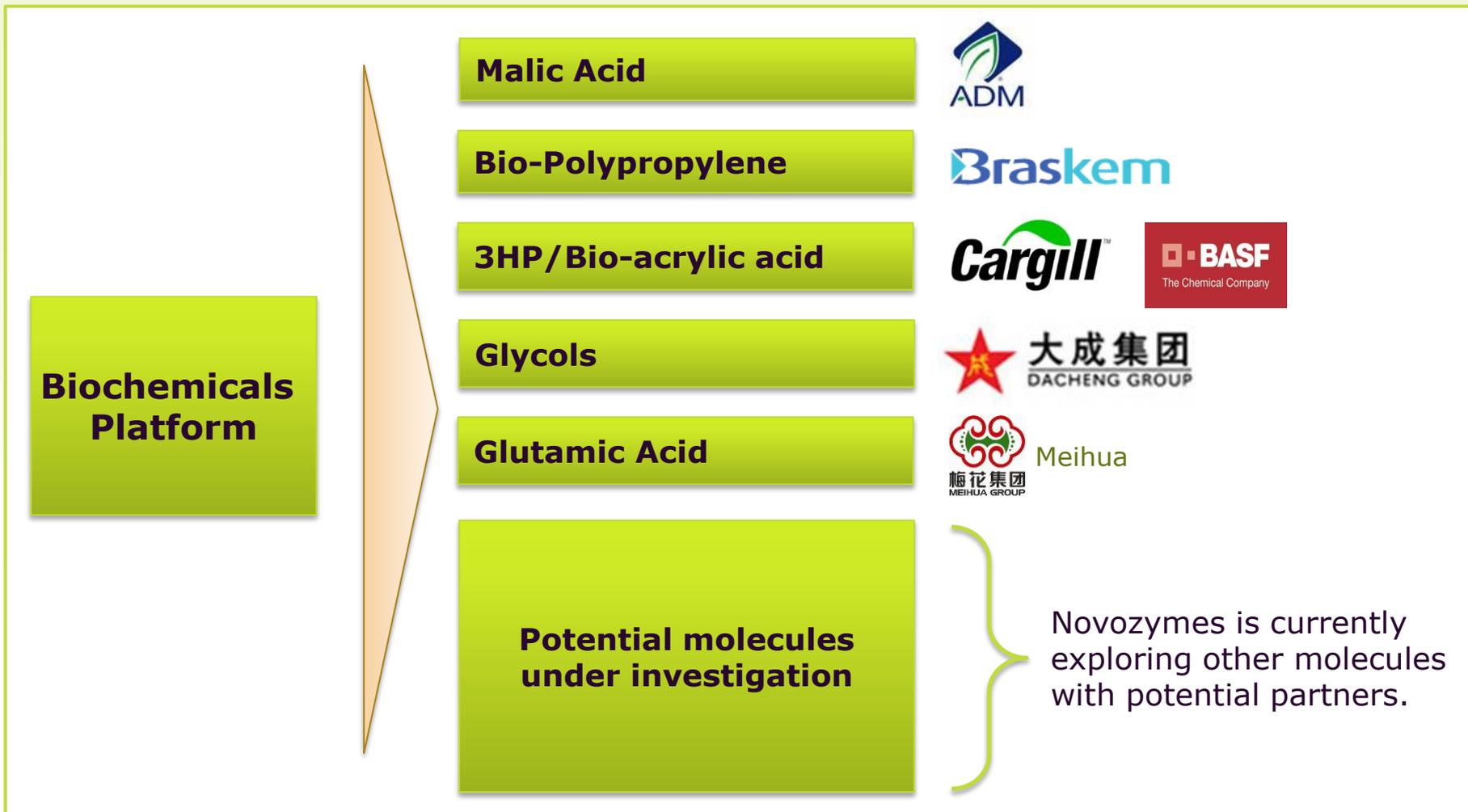
**Enabler via Biosolutions**



# New Fermentation-Enabled Route to Acrylic Acid



# The Pipeline will be Filled with more Candidates





# Q&A

Further investor relations information is available from the company homepage at [www.novozymes.com/investor](http://www.novozymes.com/investor)

novozymes®



Rethink Tomorrow