

Industry Point of View

Global Bioeconomy Summit 2018
Workshop on Education
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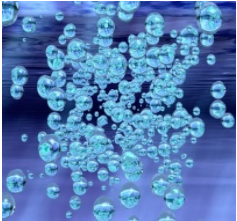


Short Introduction

Company and Products

We are an enzymes company located in Germany and Finland, with legal entities in the USA, Brazil, China and Singapore (size >300 people). We are part of ABF and ABF Ingredients.

We are researching, manufacturing and selling enzymes for a range of commercial applications, including:

Applications and Benefits

FEED	FOOD			TECHNICAL			
	● Baking	● Beverage	● Specialities	● Textiles	● Detergents	● Pulp & Paper	● Biomass Hydrolysis
<ul style="list-style-type: none"> • Phytase • Xylanase • β-glucanase 	<ul style="list-style-type: none"> • Xylanase • Amylase • Protease 	<ul style="list-style-type: none"> • Pectinase 	<ul style="list-style-type: none"> • Protease • Phospholipase • Lyso-Phospholipase 	<ul style="list-style-type: none"> • Cellulase • Amylase • Catalase 	<ul style="list-style-type: none"> • Protease • Cellulase • Mannanase 	<ul style="list-style-type: none"> • Cellulase • Xylanase 	<ul style="list-style-type: none"> • Cellulase • Xylanase • β-glucanase
							
<ul style="list-style-type: none"> • Phosphorous release from phytin • Reduction in feed costs • Increased feed digestibility (FCR) 	<ul style="list-style-type: none"> • Shelf-life extension • Increasing bread volume • Dough management 	<ul style="list-style-type: none"> • Juice- and wine clarification and yield improvement • Wine color release, improved mouthfeel 	<ul style="list-style-type: none"> • Protein hydrolysis • Vegetable-oil processing (degumming) 	<ul style="list-style-type: none"> • Denim treatment • Biofinishing 	<ul style="list-style-type: none"> • Low-temperature washing • Anti-/Depilling • Fibre care • Stain removal 	<ul style="list-style-type: none"> • Improving paper strength and properties • Reducing energy consumption • Improved bleaching efficiency 	<ul style="list-style-type: none"> • Ligno-cellulosic biomass hydrolysis • Biogas applications

Bioeconomy from our point of view

Bioeconomy is characterized by:

- No geographical borders – but regulations, IP and tax systems on country level
- Big scale
- New partnerships
- Knowledge based approaches

As a consequence we deal with a complex set-up of partners:

- Big companies with big targets
- Technology providers
- Engineering companies
- Toll manufacturers and service providers

The interest and the need for such complex consortia is based on the need to

- Be part of a new wave
- Be successful in first run / do it right first time
- Reduce and mitigate the risks involved in such endeavors

Bioeconomy Education

- MBA
- Microbiology
- Molecular Biology (strain construction)
- Enzyme Engineering (enzyme molecule)
- Biotechnology -Fermentation
- Biochemistry – Analytics
- Bioinformatics
- Down stream processing – Separation - Formulation
- Business Analysis
- New Business Development
- Mechanical Engineering
- Health & Safety
- Regulatory & IP
- Quality
- Law (NDA, JDA, licence agreements, agreements for trial phases & production phases, supply agreements)
- Finance & Business Planning

Project Management and Leadership skills required
But no Master in Bioeconomy!

Education for Bioeconomy

What is required?

- Ability to find acceptable ways to compromise without compromising the targets
- Ability to oversee the opportunities/risks of their field beyond the usual application limits
- Ability to negotiate with different cultures (company culture / regional culture)
- Ability to consider the regulatory and IP framework and relevant tax systems (regional aspect)

Consequences for Education:

- Ensure education for excellence in the specific field

Plus

- Training in real life / industrial context to get used to look beyond the limits of expertise (job rotation within / between companies, academia/industry/research institutions)

Plus

- Get support / funding for such exchange



UfIB established a powerful cross-alliance network

- Qualification program for young scientists supported by the German Federal Ministry for Education and Research (BMBF)
- Provides funding and improved structures to promote PhDs/doctorates
- Offers a supplementary program with workshops and summer schools

UfIB has been initiated in the second half of 2017

- First wave of applications (7) are currently under evaluated by experts and the Project Management Organization Jülich (PtJ)
- Topics for the second wave have just been published

Summary

What are current deficiencies – what new approaches are required?

New human resources and institutional capacities needed?

- Project management
- Leadership training
- Cross-cultural / cross-silo-thinking – do not stay in your comfort zone
- Follow your career in different institutions/companies

Synergies at regional/global levels to support the capacity building?

- The regionality is linked to tax systems, IP and Regulatory aspects
 - All the rest can be seen as global
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