From Living Machines to Living Factories:

BioMakeries as integrated urban water reuse and biological manufacturing facilities

The Reason

Living Machines
(Élőgépek)

The Topic

Living Factories
(Élőgyárak)

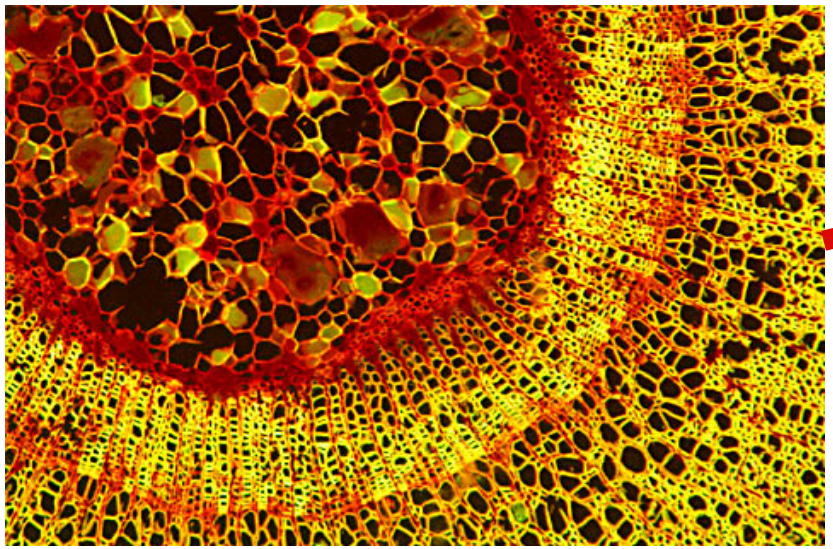
Organica Living Machines are Artificial Ecosystems

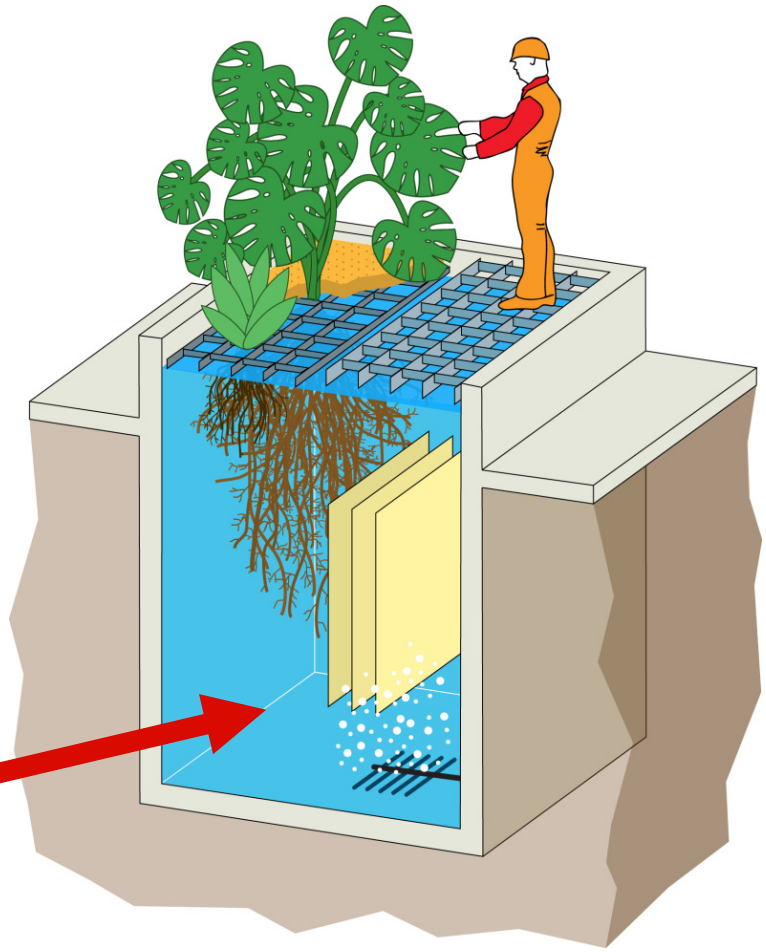
An Organica Sewage Treatment Plant Interior

CELLULAR, BIOFILM-BASED BIOREACTOR MODULES

Each has over 1,000 species living attached to natural plant roots and artificial root nanofibres

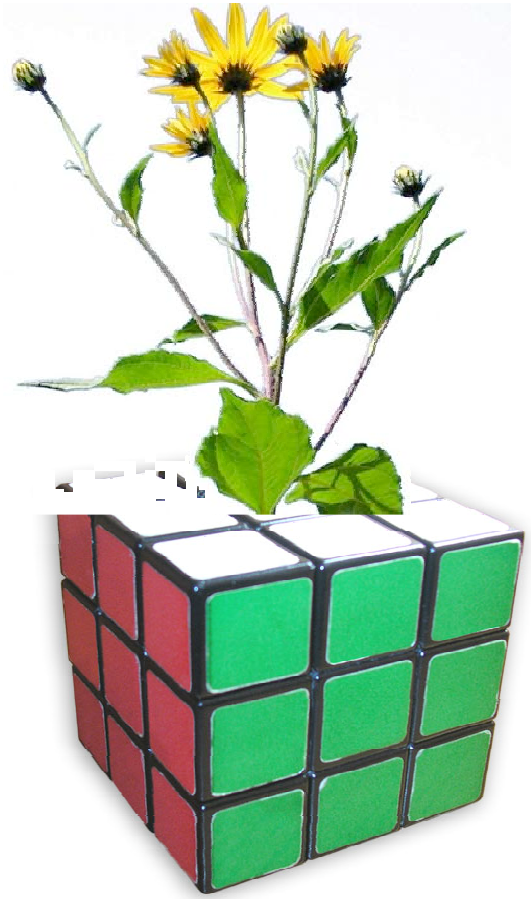
Natural & Artificial Nanostructures

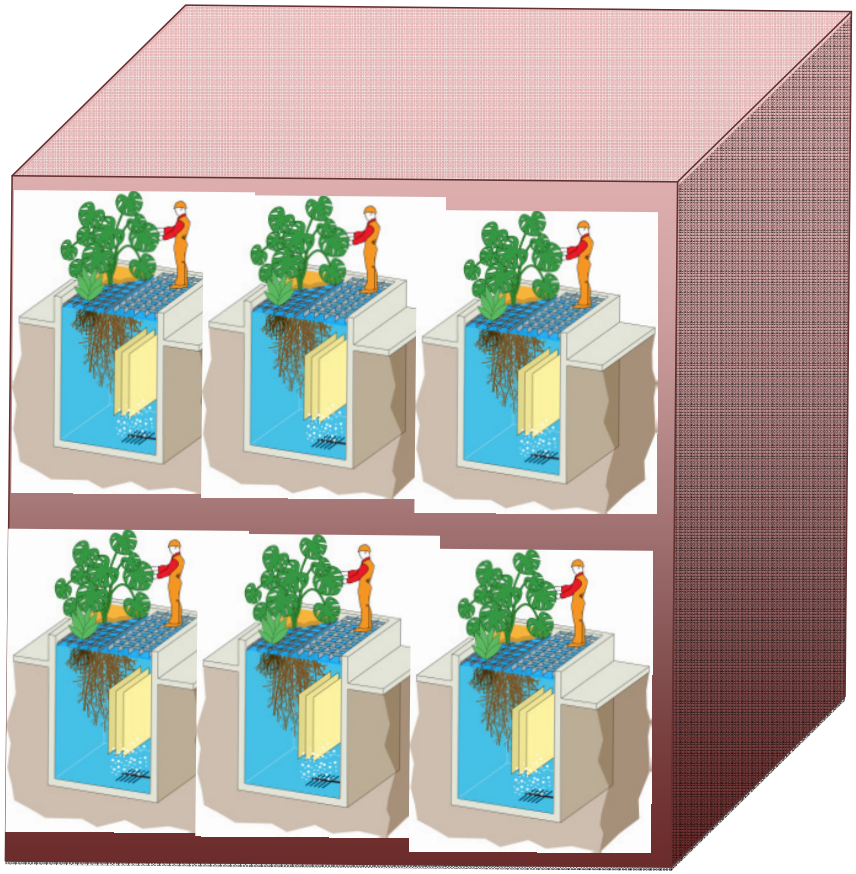




reactor-cells showing wide range of differentiating capabilities

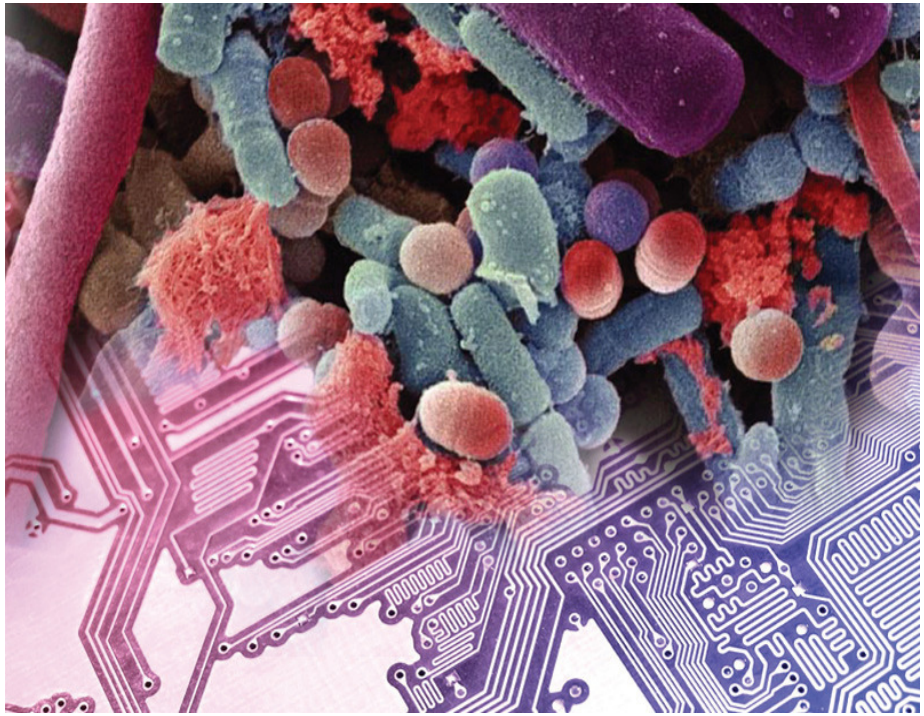
A multi-cellular reactor matrix with intelligence, self-development and self-control





Living Technologies

"Nano-Bio-Info"



translate into:

- Much smaller footprint
- Less investment cost
- Much less energy
- Appearance of a botanical garden

Changing both the Economy and the Perception of Sewage Treatment

Seamless Integration into Urban Residential Environment

Operations in Europe, China, India, USA and South-East Asia

The Sewage Treatment and Water Recycling Facility at the first iPhone Factory in Shenzhen for 35,000 people

Budapest Sewage Works:Technology Upgrade Servicing 500,000 + people in South-Budapest

ENABLING SOCIAL, URBAN AND CULTURAL INTEGRATION

Why to Change to Living Factories ?

BioMakeries are Urban Living Factories to produce water- and bio-products for sale

Urbanized Biorefineries to
Process Urban Feedstocks

from Alice in Wonderland

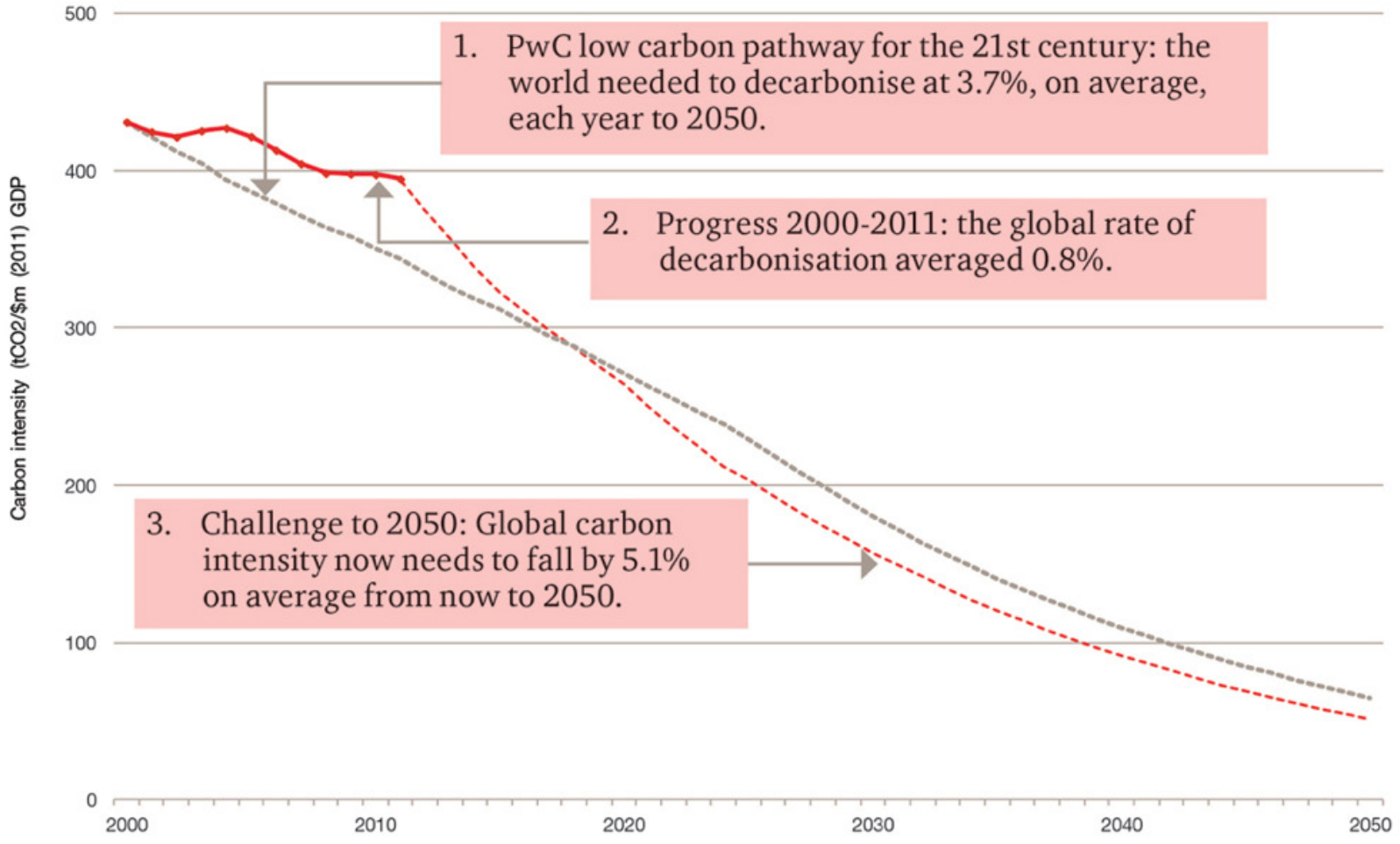
THE RED QUEEN

PARADOX

“ ... it takes all the running you can do to keep in the same place. If you want to get somewhere else, you must run at least twice as fast as that.”

Decarbonisation to keep global warming below 2 C°

Figure 1: PwC's Low Carbon Economy Index – Global*



TO AVOID GLOBAL BURNING

NEED TO:

1. Change from fossil to bio-based and bio-inspired technologies
2. Shift from centralized to distributed network-based infrastructure
3. Shift rural food production to urban and peri-urban areas
4. Closing the loops with recycling urban water, wastes, materials and energy

Massively Change in Technologies & Attitudes

An Inherently Urban Problem all over the World

Cities are responsible for almost 80% of global carbon emission

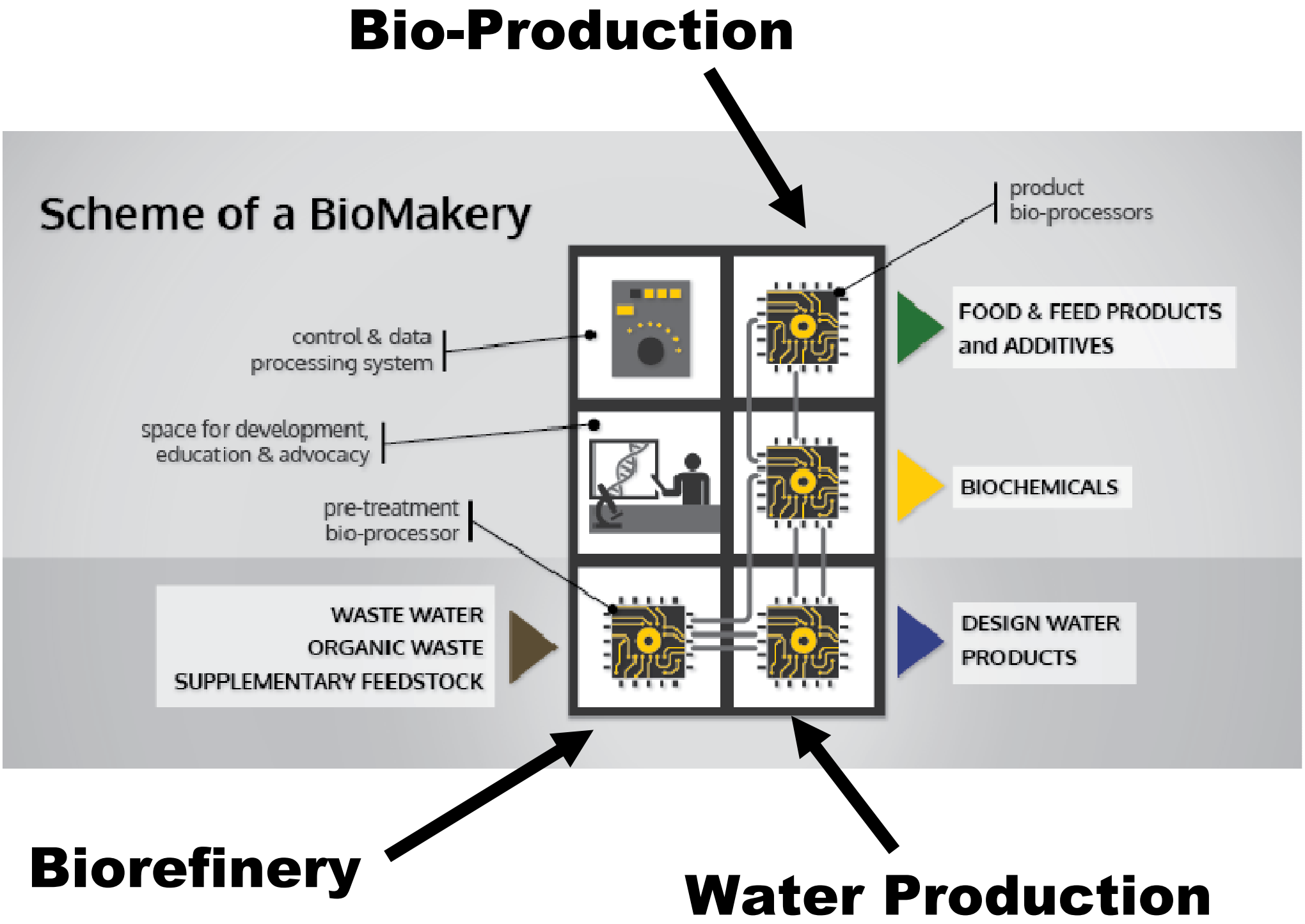
The Urban Metabolic Challenge

Closing the Urban Metabolic Loop:

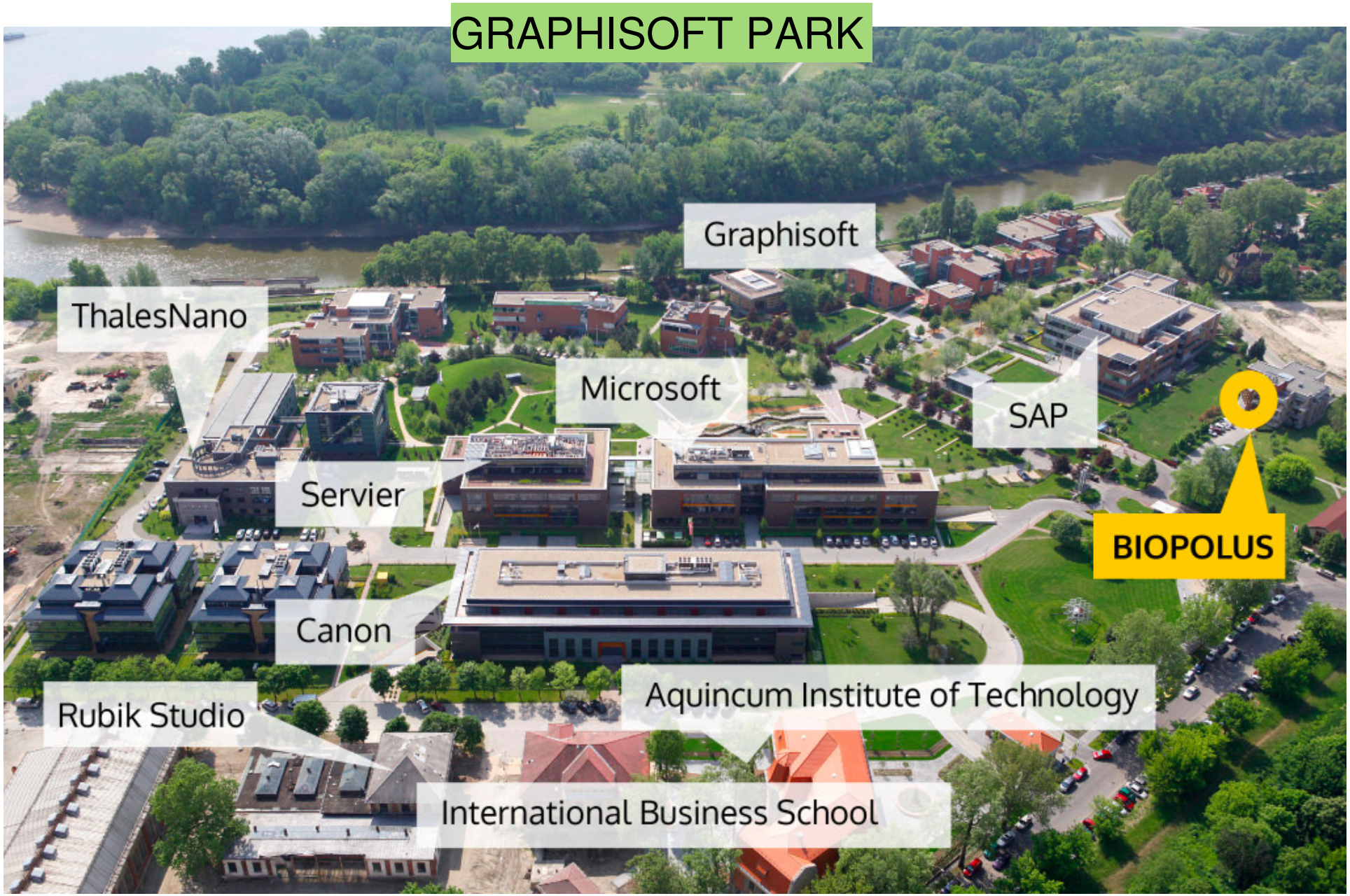
Both a Sustainability AND

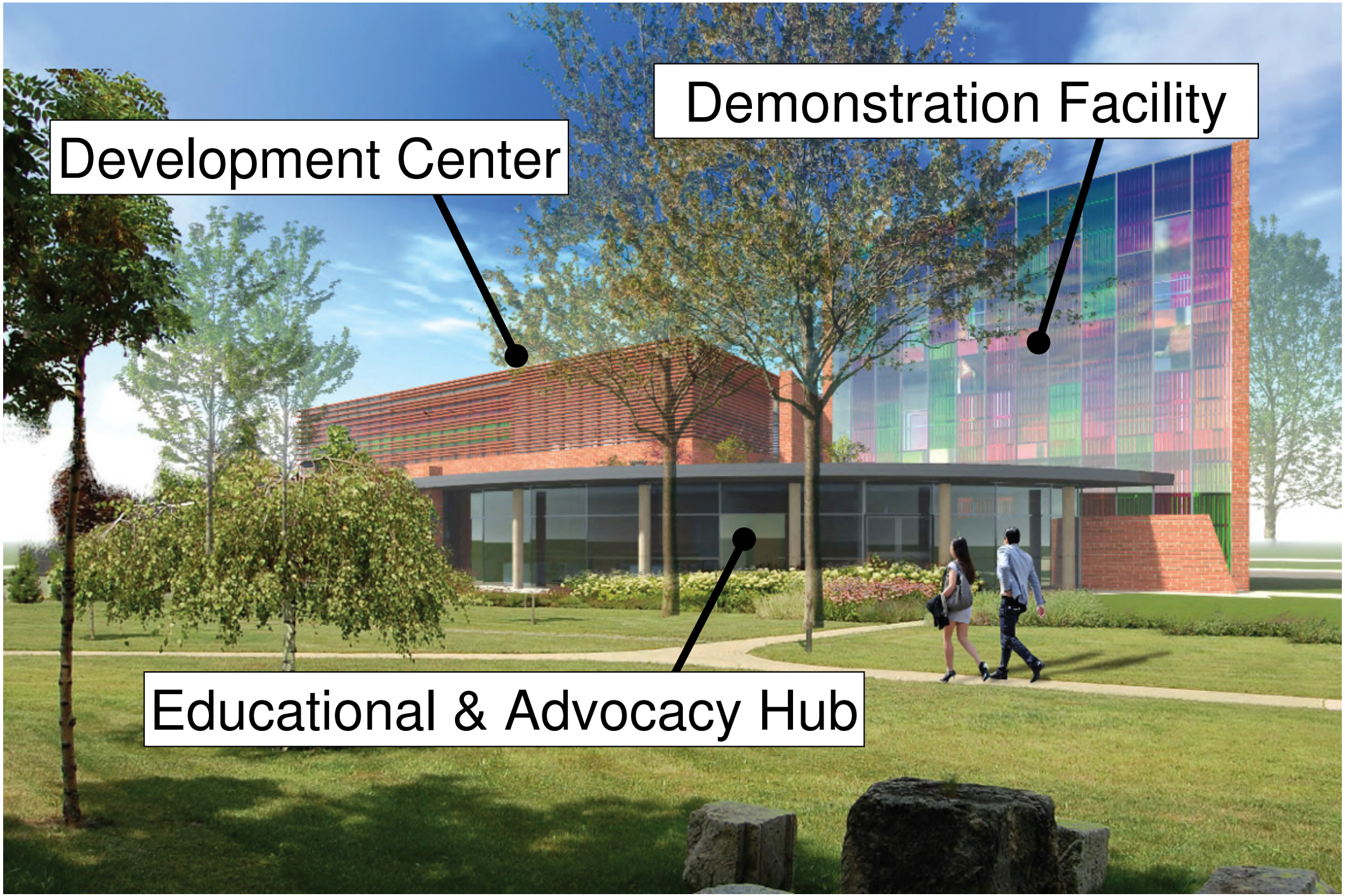
a Security Issue

The EU produces only 20% of its Protein Need


Bio-Production
Scheme of a BioMakery
product
bio-processors
control & data
processing system
space for development,
education & advocacy
pre-treatment
bio-processor
WASTE WATER
ORGANIC WASTE
SUPPLEMENTARY FEEDSTOCK
FOOD & FEED PRODUCTS
and ADDITIVES
BIOCHEMICALS
DESIGN WATER
PRODUCTS
Biorefinery
Water Production

The First Demo BioMakery to be built in 2014




Development Center
Demonstration Facility
Educational & Advocacy Hub

Enabling Disruptive, Exponential and Game-Changing Technologies

Facilitating Social, Cultural and Economic Changes

“...Sustainability is not just introducing new technologies, it is also about changing the attitudes”

BIOPOLUS

The Living Technology Alliance

BIOPOLUS

ÉlőGyárak Szövetsége