

METABUILDING 1st GROW / HARVEST CALL : MEET THE WINNERS !



Unleashing the Innovation Potential of EU Construction SMEs

Construction + Nature-Based Solutions Challenge



- NBS system solutions for renovation
- Digitization of care / maintenance / monitoring for NBS



METABUILDING Project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No. 873964. The sole responsibility for the content of this document lies entirely with the author's view. The European Commission and the European Innovation Council and SME Executive Agency (EISMEA) are not responsible for any use that may be made of the information it contains.

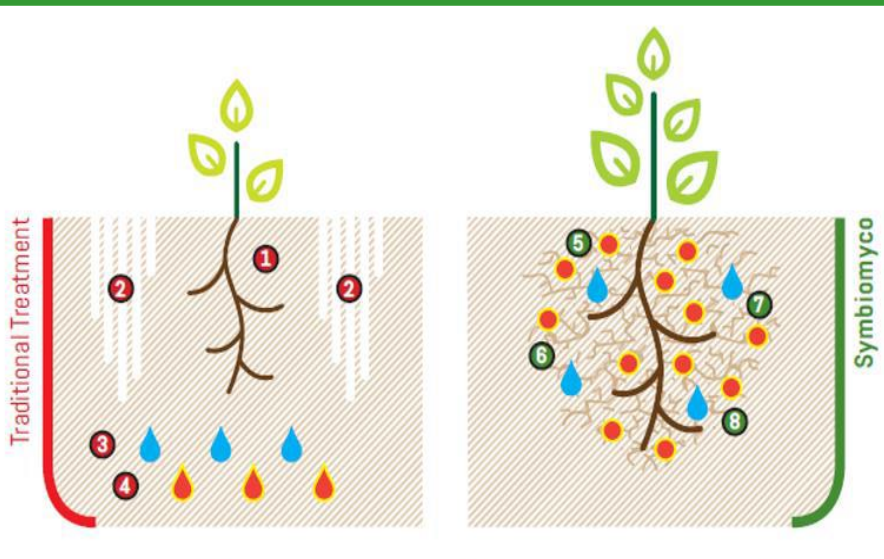
METABUILDING 1st GROW / HARVEST CALL : MEET THE WINNERS !

BioGreenRoof

A modular and scalable Green Roof Design with an Integrated Fertigation System

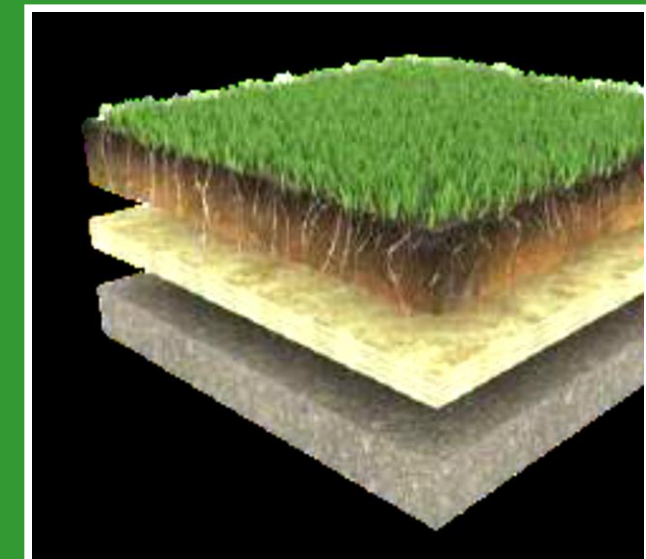
The City of Zagreb will support by giving access to public space to place the installation.

SECTORS INVOLVED : Construction · Digital Industry · Nature-Based Solutions



"This project will increase visibility of a innovative collaborative solution for Digital, NBS and Biotech application in construction sector that can open new markets for the companies involved through connection with private and public stakeholders."

Alessandro Pipolo
Symbiagro · Executive Manager





Symbia&grö:



VESELA
MOTIKA

Strategic **BIM** | |

Are you interested in companies that are developing solutions that aim at supporting the green and digital transition of the construction sector?

Our collaborative innovation project receives funding in the framework of the METABUILDING project funded through the H2020-INNOSUP program directed by the European Innovation Council and SMEs Executive Agency (EISMEA)

Project partners



AgBiotech, Digital Twin and Nature-Based Solutions companies



Symbiagro is an Italian company in green biotechnologies applied to agriculture, our innovative formulations that, when applied to plants and soils, increase agricultural productivity and resistance to external stress, finally restoring fertility in an environmentally friendly and sustainable way.



Strategic BIM is an Italian innovative company, entirely composed by under 35, for assets and buildings' management. We create and update digital twins of existing buildings, supporting buildings' owners reducing building management costs through our Platform usage "Strategic Twin". We allow buildings' owners to manage buildings from anywhere.



Vesela Motika is a Croatian company that provides design, production and implementation of green roofs and walls, turnkey green tech solutions including nature-based solutions, professional and home use indoor vertical gardening systems and fresh vegetable produce (herbs and microgreens) from their indoor vertical farm.

Reducing installation and maintenance cost for Nature-Based Solutions in Construction sector

Challenges: financial barriers ,such as higher installation costs and maintenance cost of NBS lifetime especially in first years after installation, are some of the biggest issues that need to be solved to guarantee the spread of these solution as a standard in construction sector.

Our Solution: we created a combined strategy for construction sector to reduce installation and maintenance cost for NBS in construction sector

Reduce installation and logistic cost

a **modular and scalable green roof module design** integrated with a water management system

Reduce maintenance cost

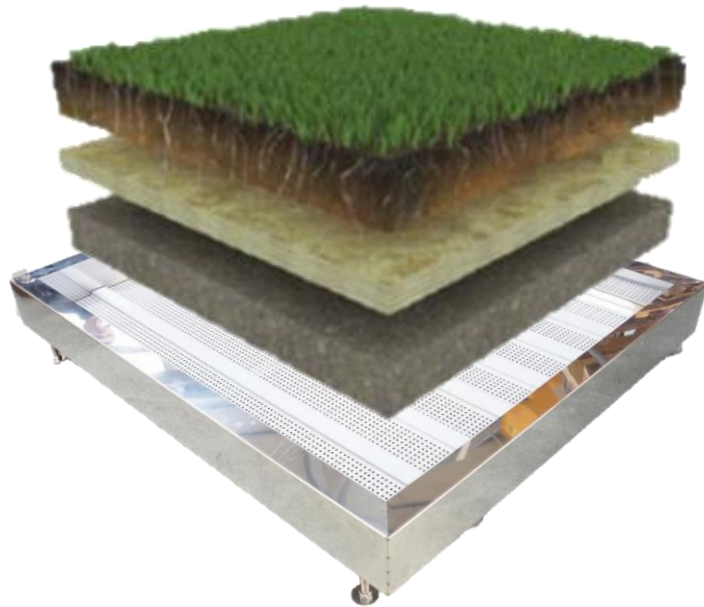
Increase lifespan of plants

a **microbial biostimulants** strategy to increase life of plans

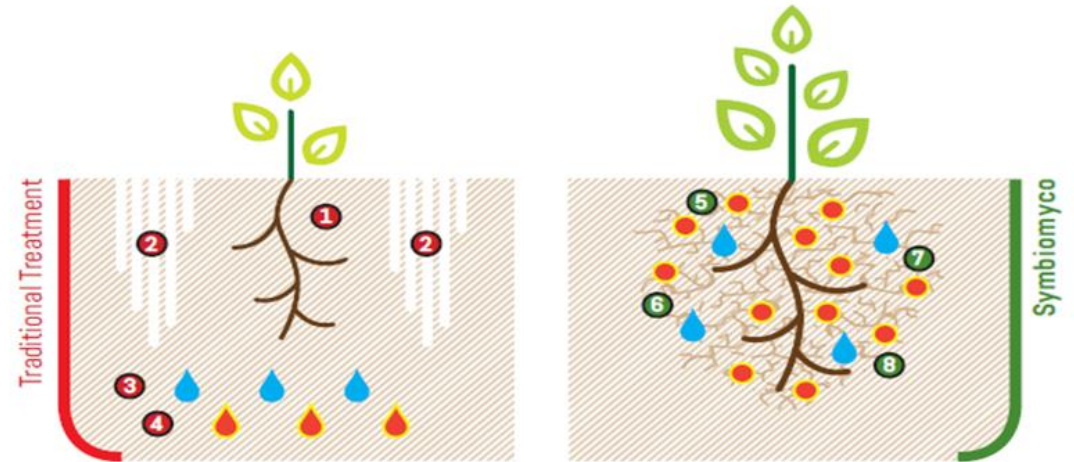
Increase information flow and reduce time for better decision

a real time monitoring system integrated in a **Digital Twin platform**

Module Design and Biostimulant Strategy

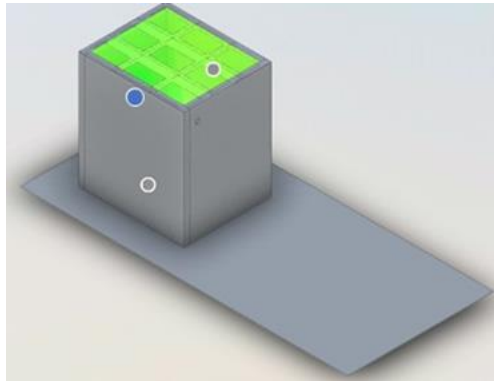


- 1 Stainless steel modules with **balanced weight distribution and standard dimension** for logistic
- 2 Modul **water management system**
- 3 Temperature , humidity and conductivity **integrated sensors** with a control unit



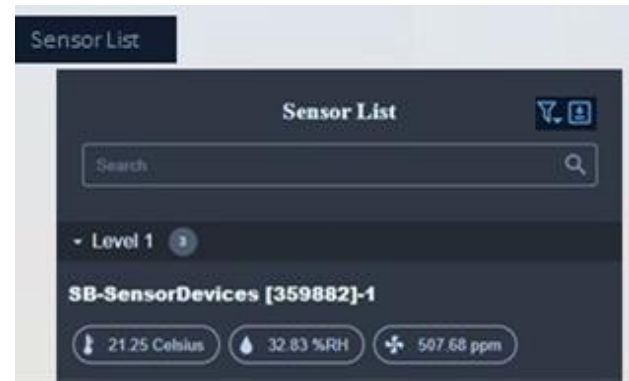
- 4 Selection of most suitable plants
- 5 Treatment with **specific microbial biostimulants** for the species selected
- 6 **Increased root system** developement , **stress resistance** and **water drainage**

Components of the Monitoring System



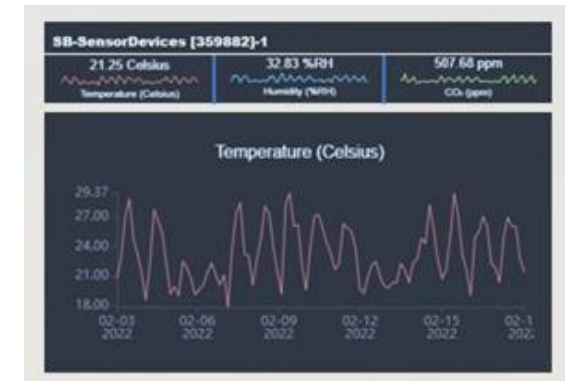
Models for better decisions

Use BIM model to make more **informed decisions**. Especially with **Heatmaps overlaid on surfaces** to display data such as room temperature.



Add sensors to the model

Sensors represent IoT devices on the model and are displayed as two-dimensional icons. The sensors are curated in a list.



Visualize assets over time

Any gathered **data by sensors can be incorporated and visualized on the Digital Twin**. This data can be visualized in **real-time as well as historically**.

Sample Monitoring System User Interface



- 1 Layers, Sensor, Heatmap selector
- 2 Sensor list
- 3 Sensor parameter and interval selector

- 4 Chronos Time Slider
- 5 Sensor data
- 6 Viewer extension tools

NBS in construction sector

Result at the end of the project

- Modular NBS solution that aim to **reduce cost of installation and logistic.**
- Biotech strategy and Digital Twin platform to **increase lifespan of vegetables and reduce cost of monitoring** trough a real time system integrated on each module.

Future developments

- Develop a feasible **distribution model with local partners.**
- Foster the use of our solution to **manage multiple green roofs with the same platform.**
- **Integrate this solution** directly in the construction project of a building.

Collaborative project funded by METABUILDING

METABUILDING enabled us to develop an innovative project and joint forces from very different sector for a common goal, create a sustainable and scalable solution to increase green building development in construction sector

“ We are happy to be METABUILDER due to our passion for innovation and sustainability! ”

If you are interested in our project, please contact us at:

biogreenroof@symbiagro.com



Thank you for your kind attention

Project :

www.metabuilding-project.eu



Platform :

www.metabuilding.com



METABUILDING Project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No. 873964. The European Commission and the European Innovation Council and SME Executive Agency (EISMEA) are not responsible for any use that may be made of the information it contains. The sole responsibility for the content of this document lies entirely with the authors.