



**SKYFARM**  
VERTICAL FARMING  
AREA IS LIMITED. SPACE IS NOT.



DANIEL PODMIRSEG

Wien, 30.09.2019



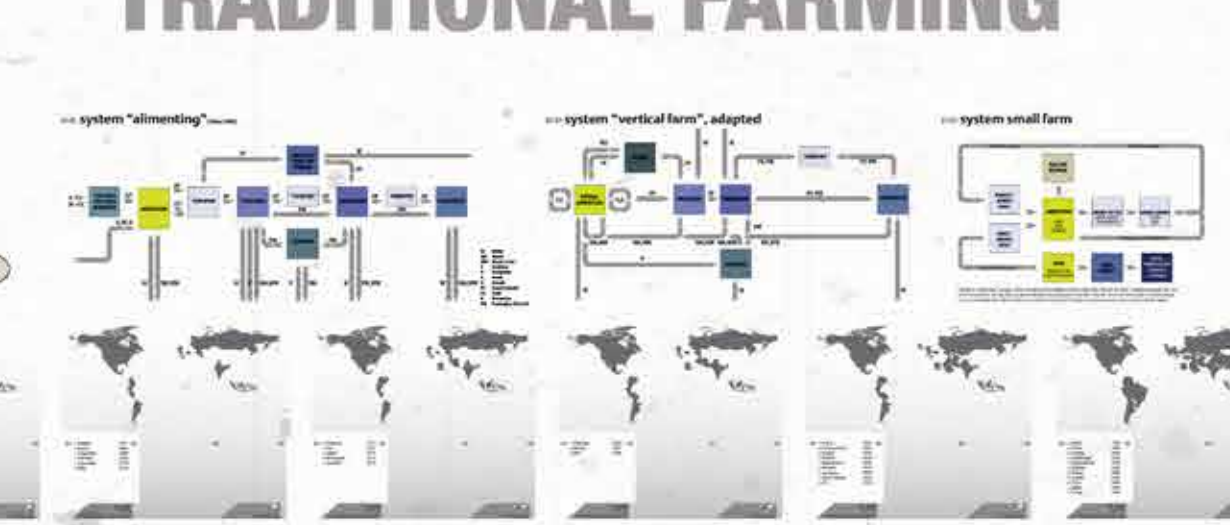
# BETWEEN EUTOPIA AND DYSTOPIA



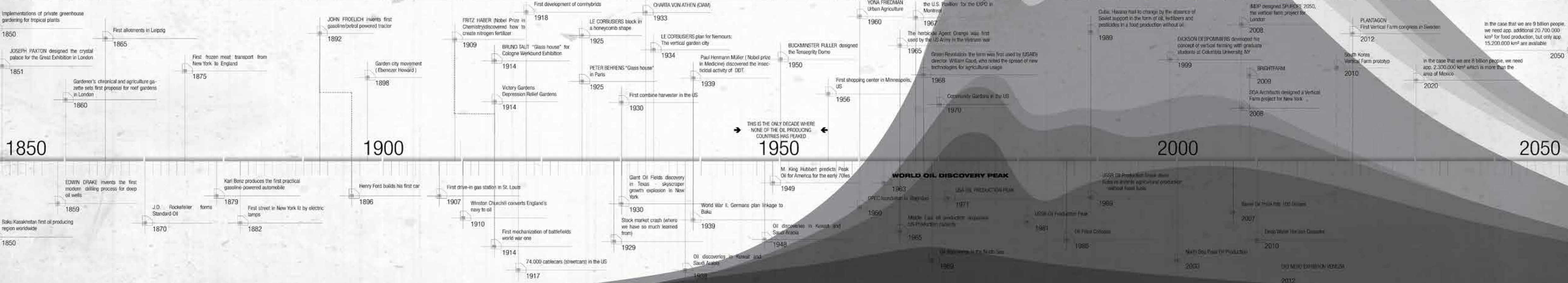
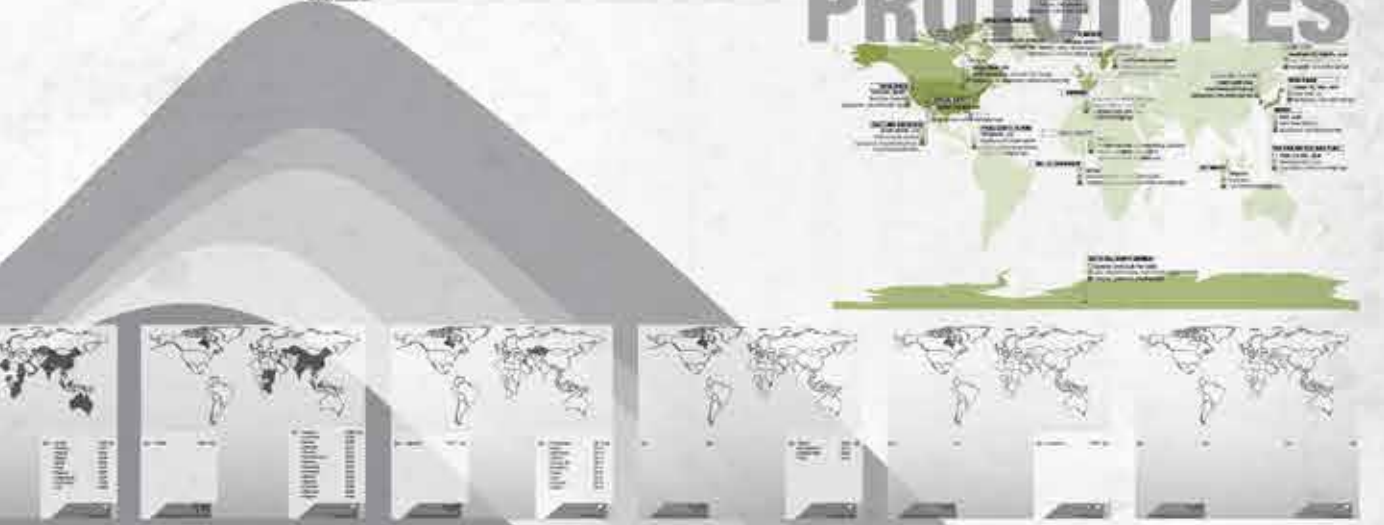
## VERTICAL FARMING WHY VERTICAL?

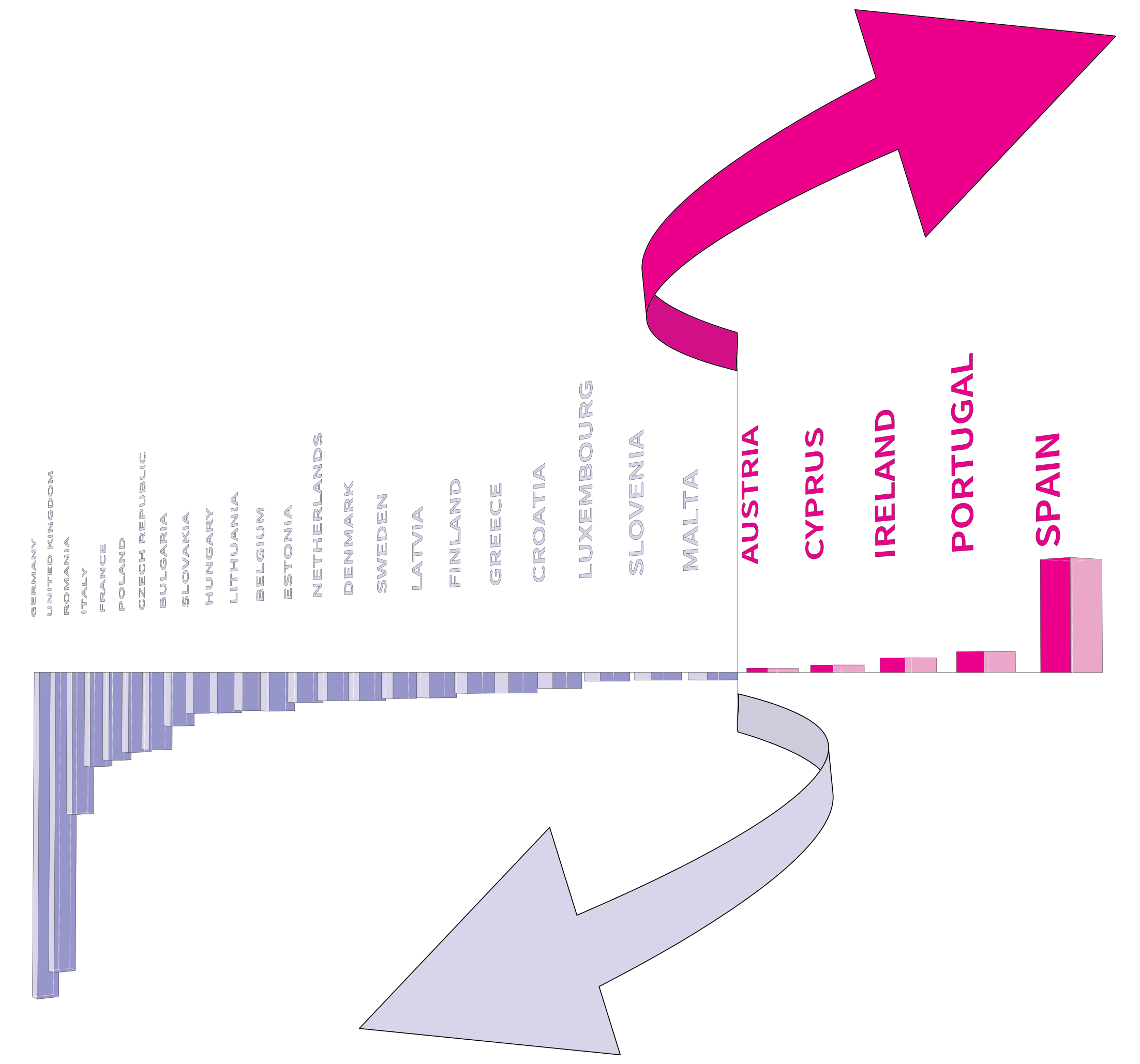
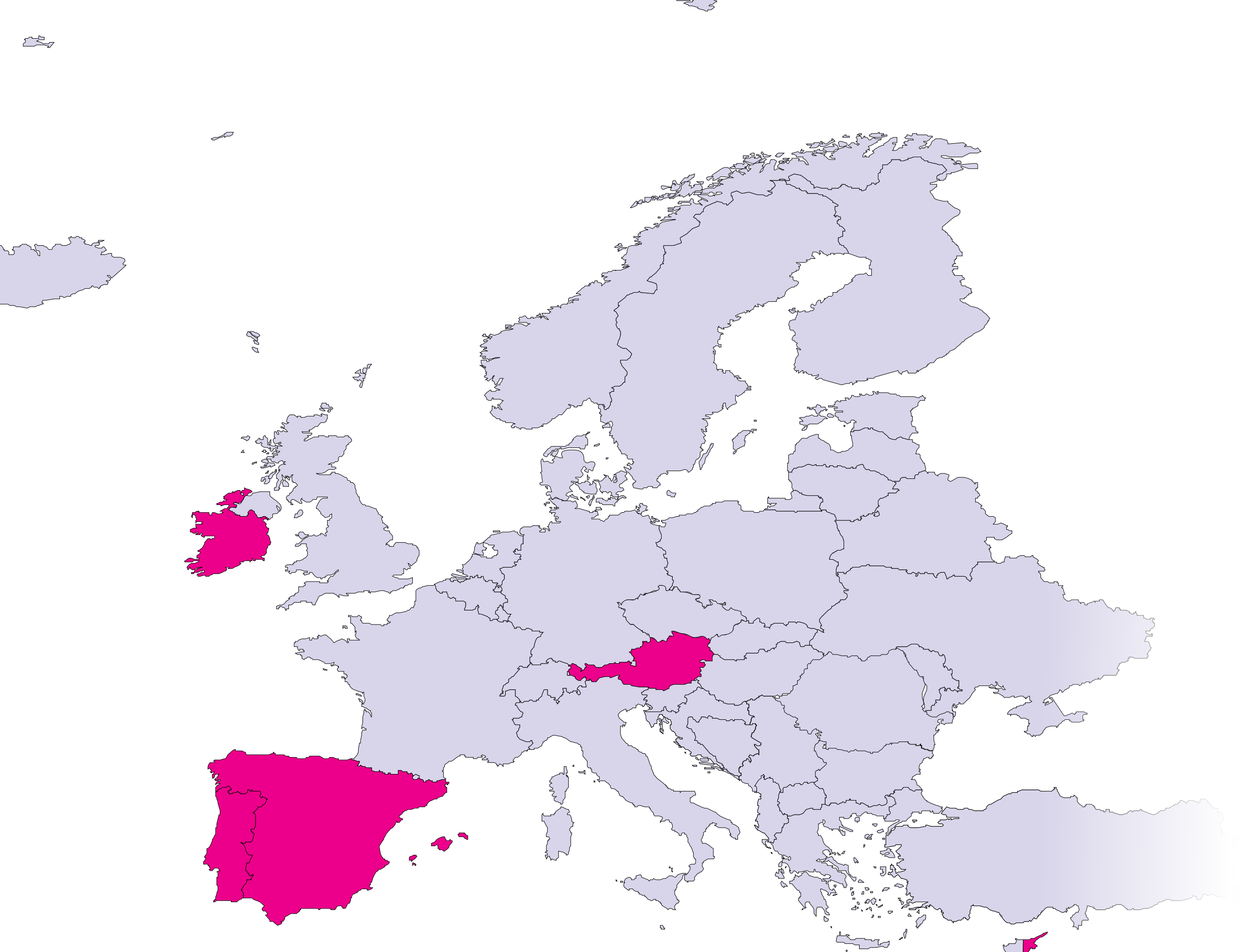


## VERTICAL FARMING FUNCTIONAL SYSTEM BORDERS



## HIGH TECH GREENHOUSES WORLD VERTICAL FARMS

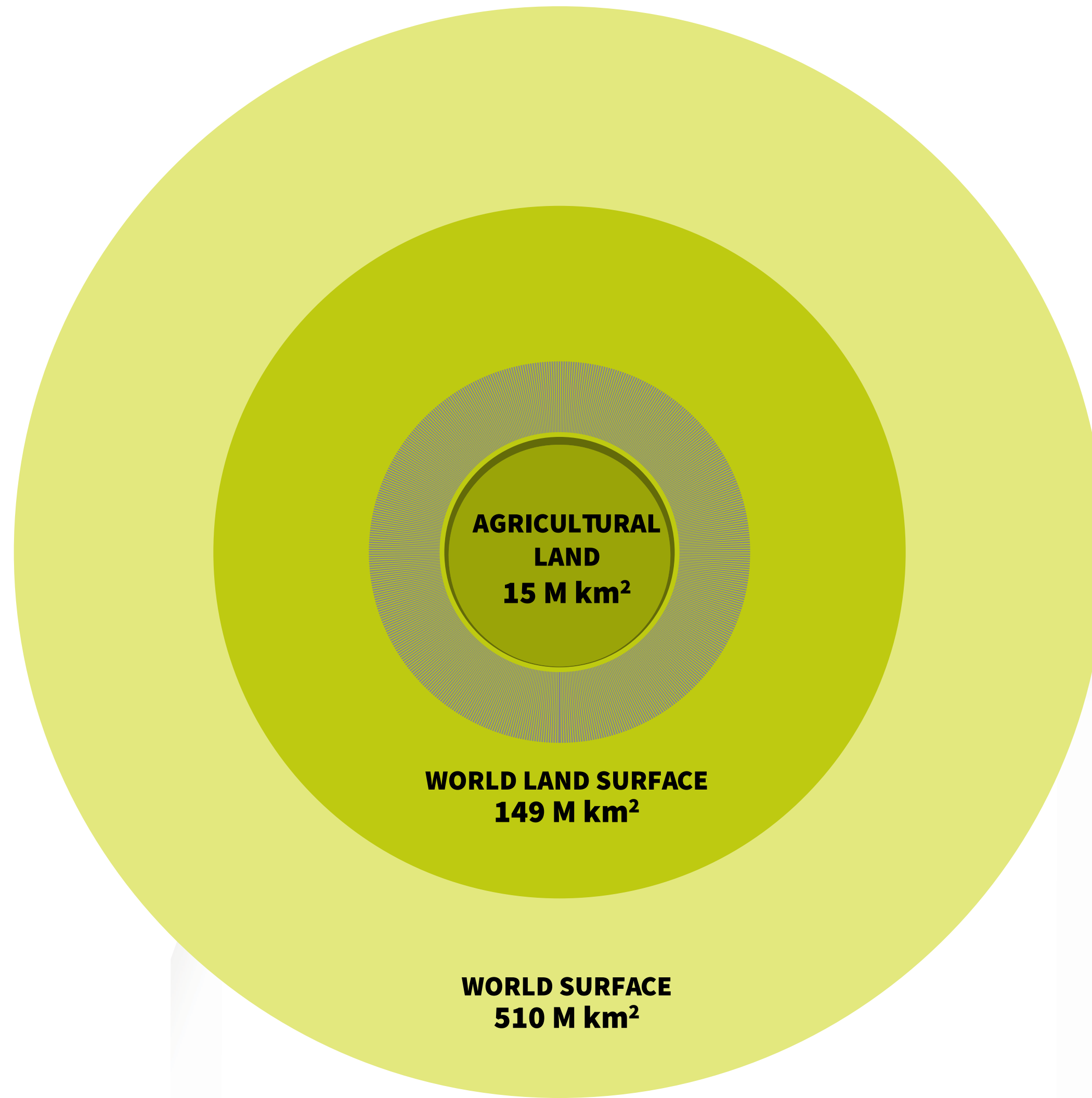
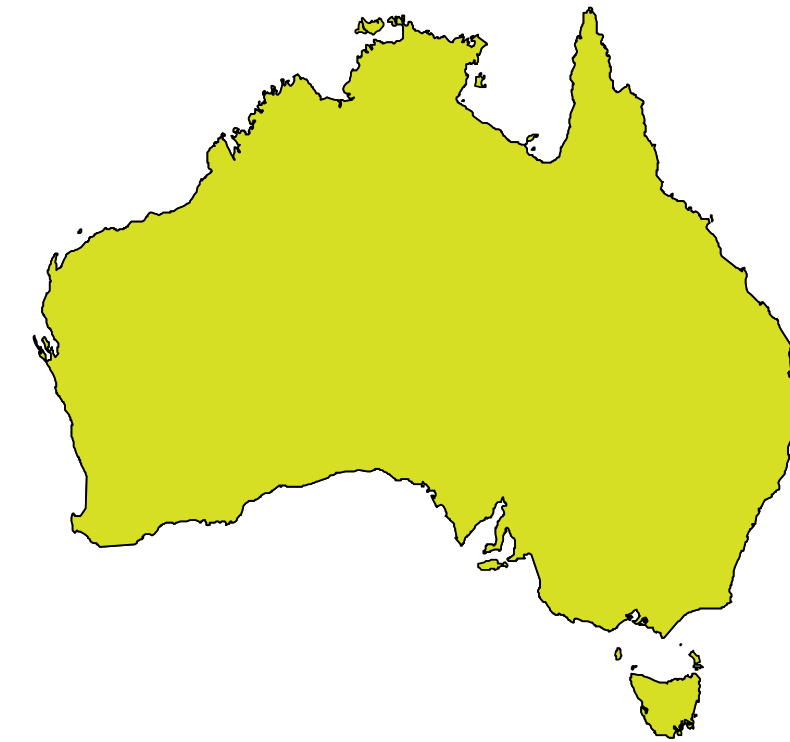


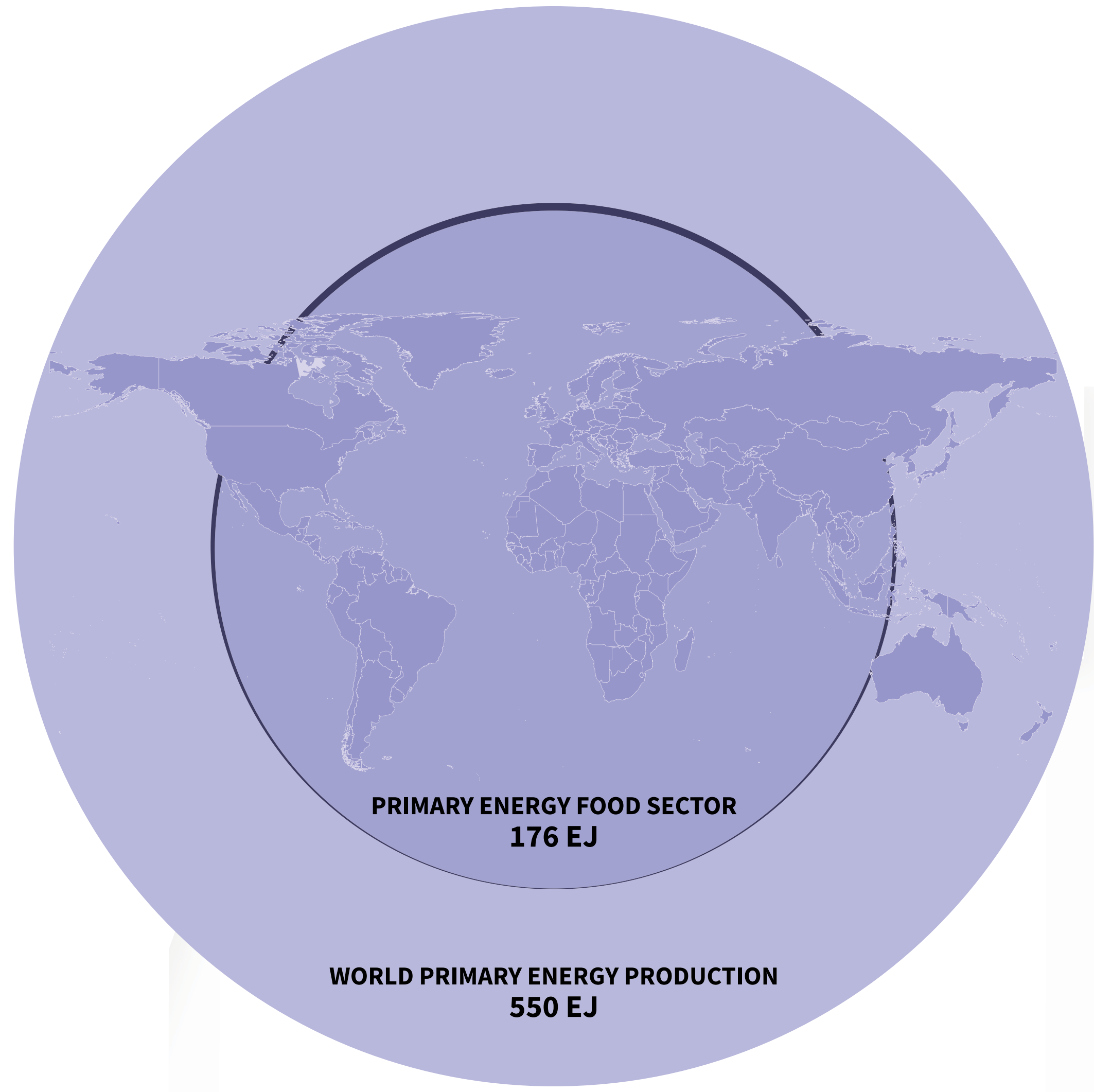


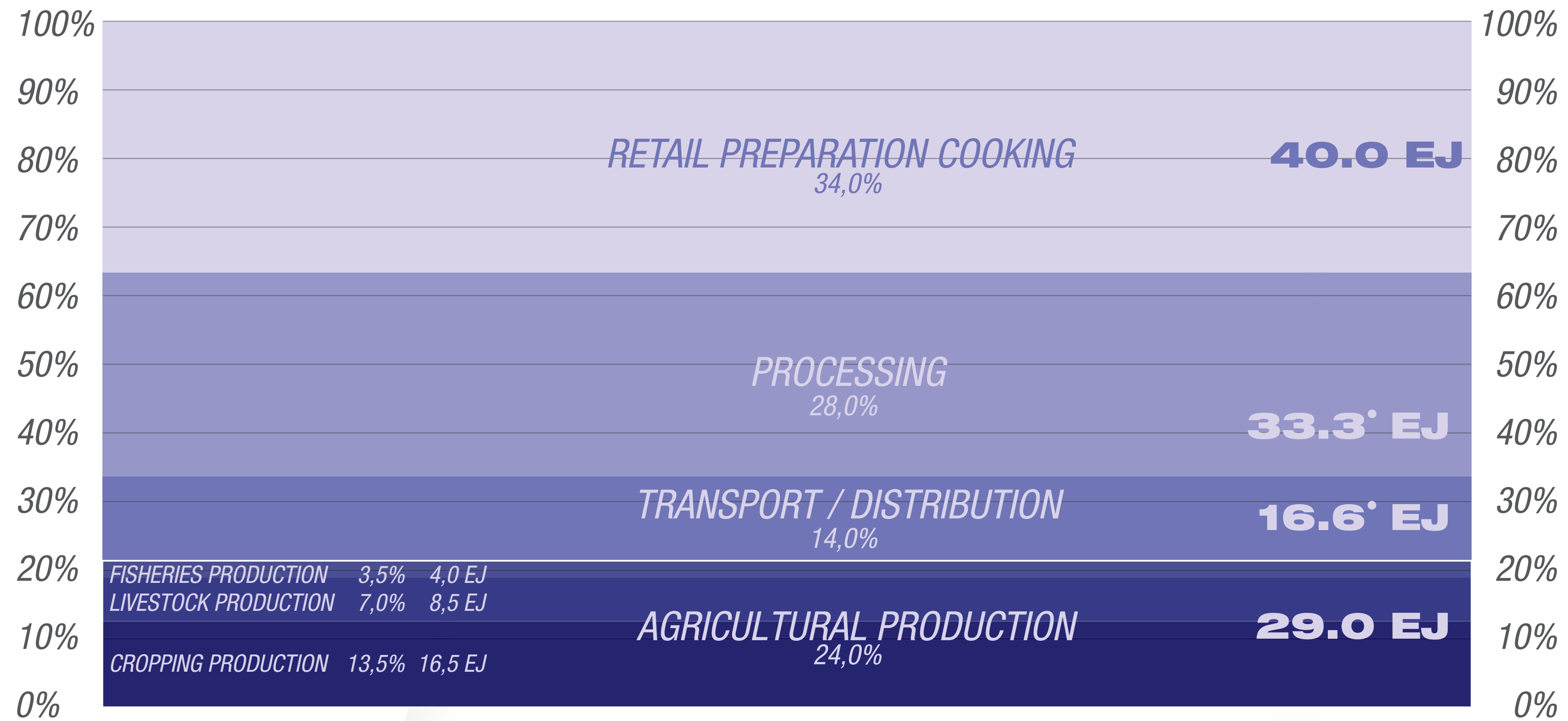
**2015**

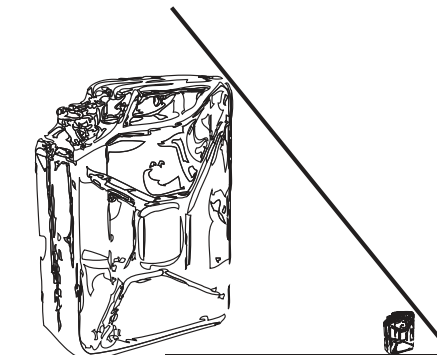
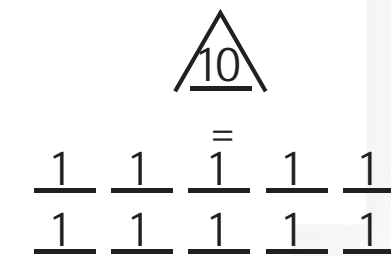
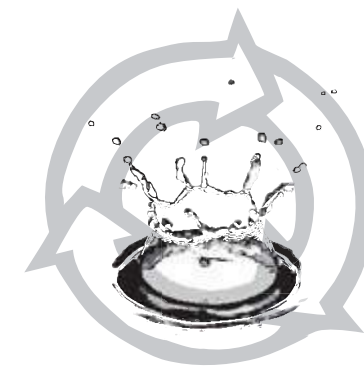
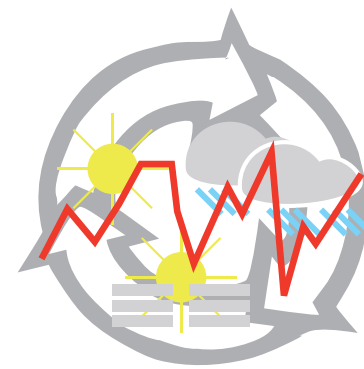


**2075**











up!



up!

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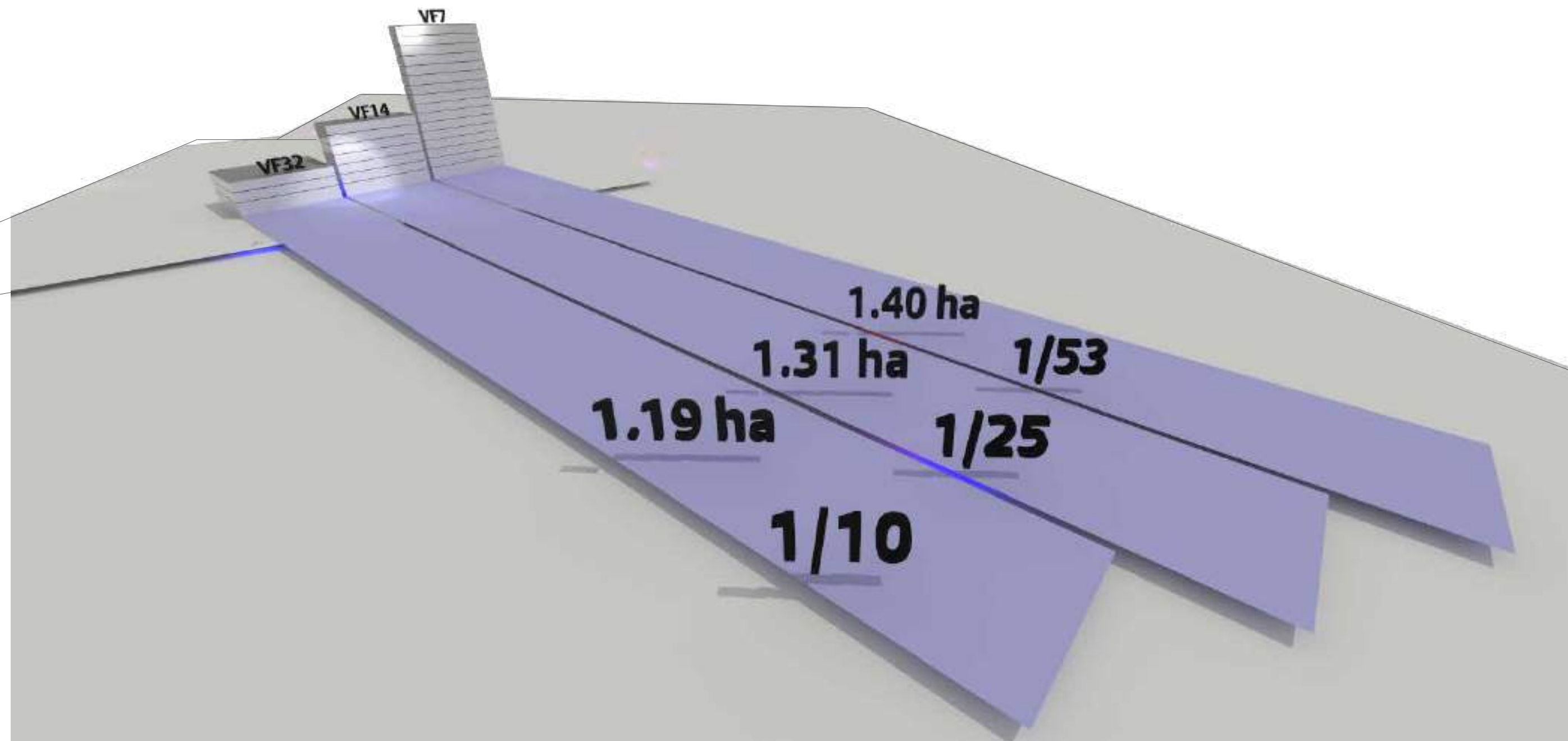
up!

DANIEL PODMIRSEG

up!

DANIEL PODMIRSEG





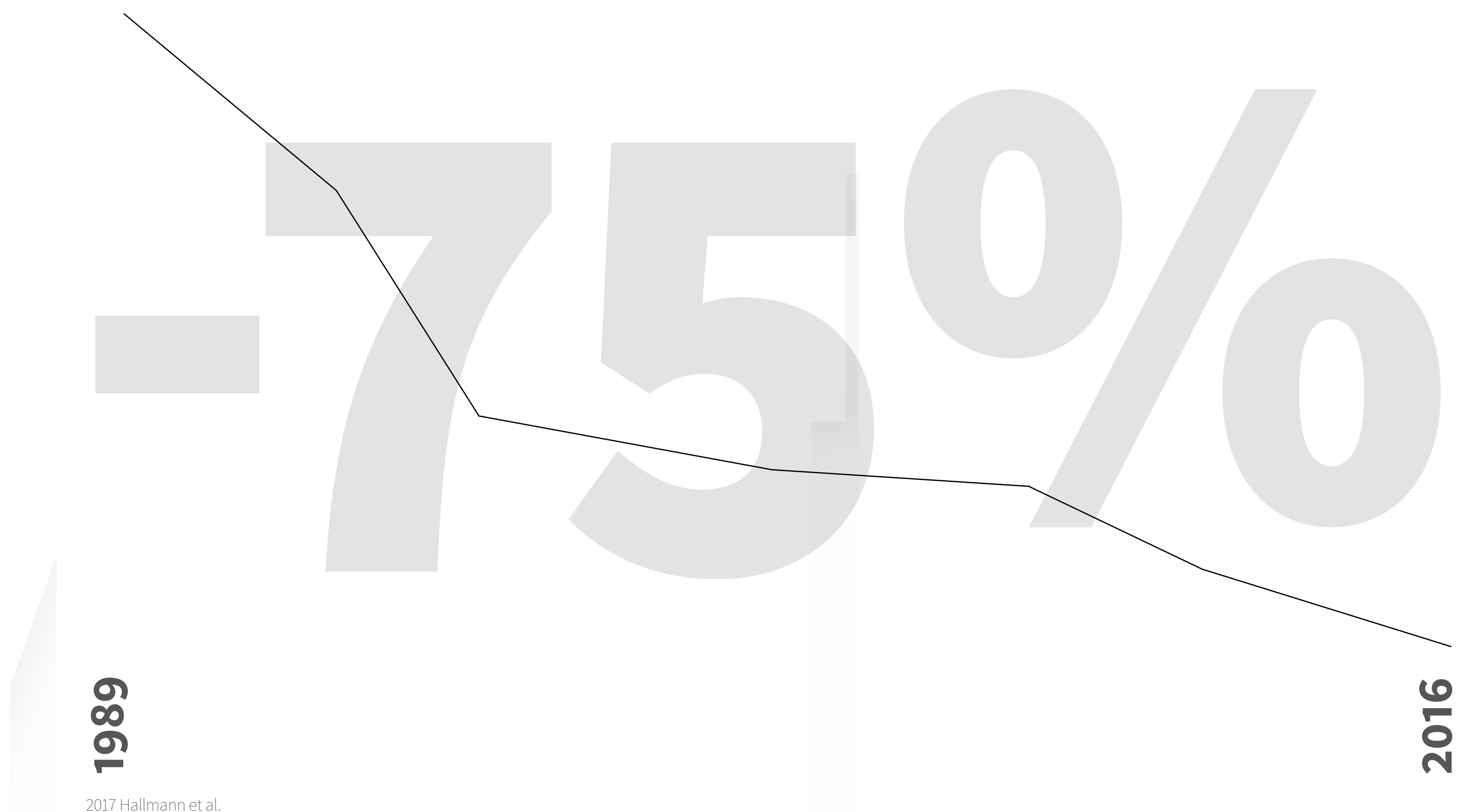


**1989**

2017 Hallmann et al.

**-75%**

**2016**





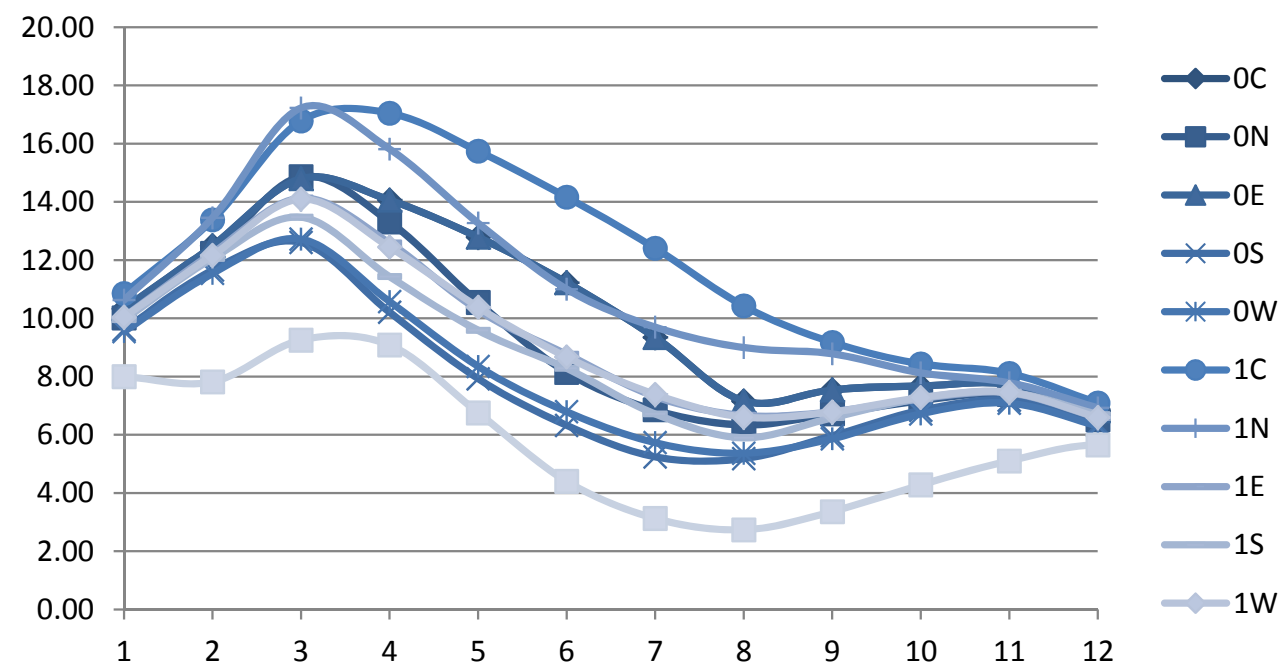
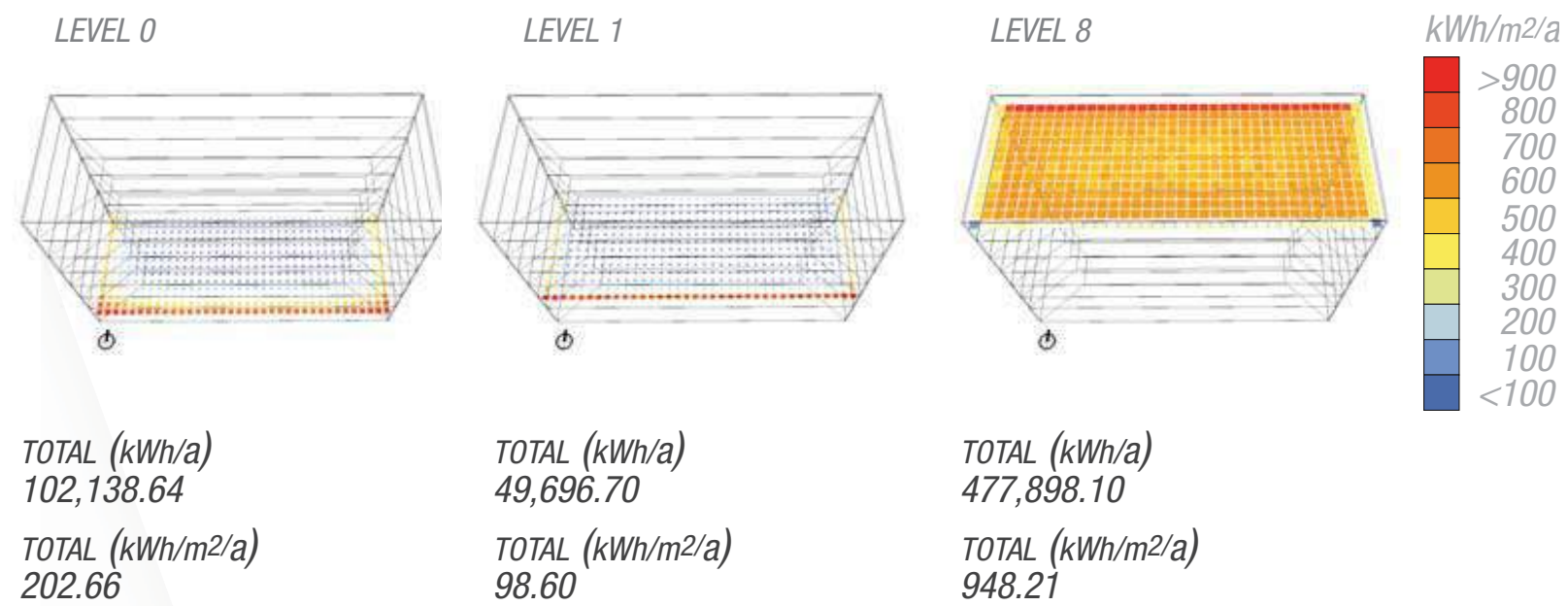
-3000 Mio.

1980

2010

NABU Lars Lachmann

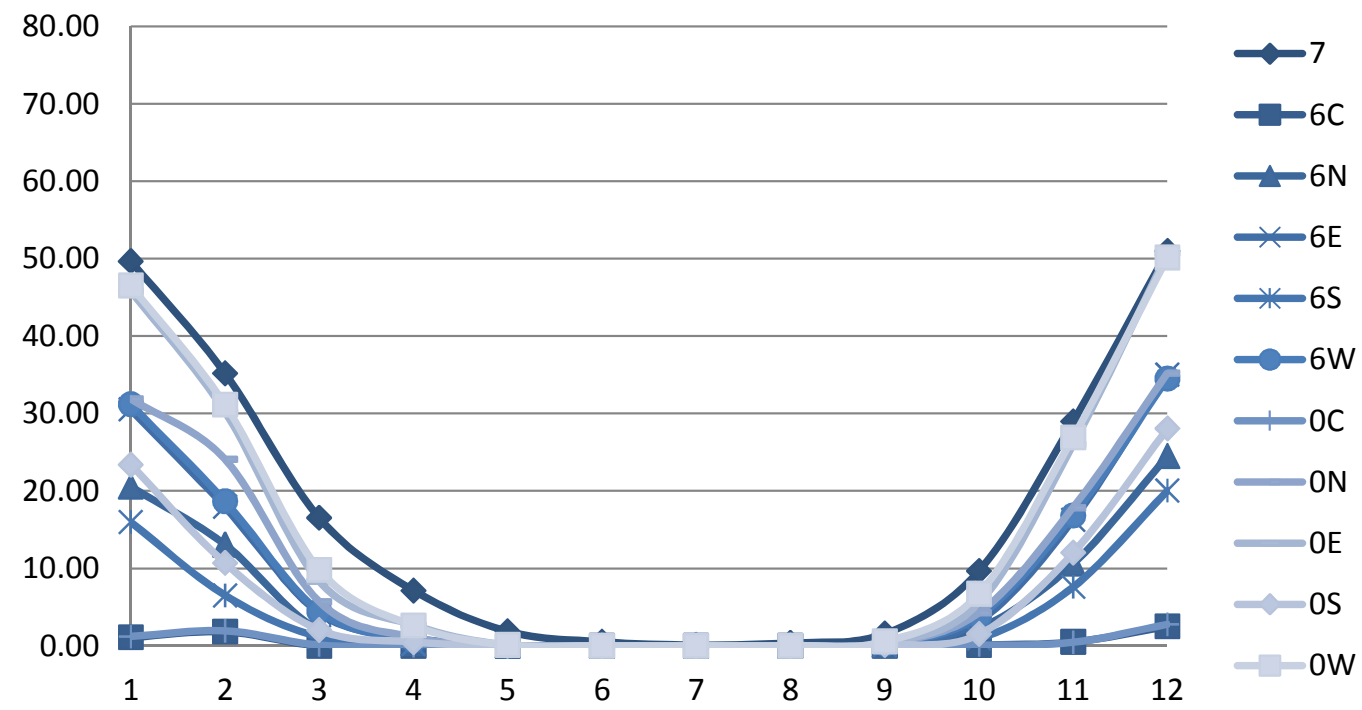
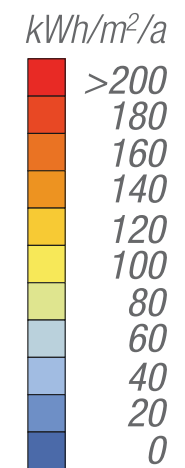
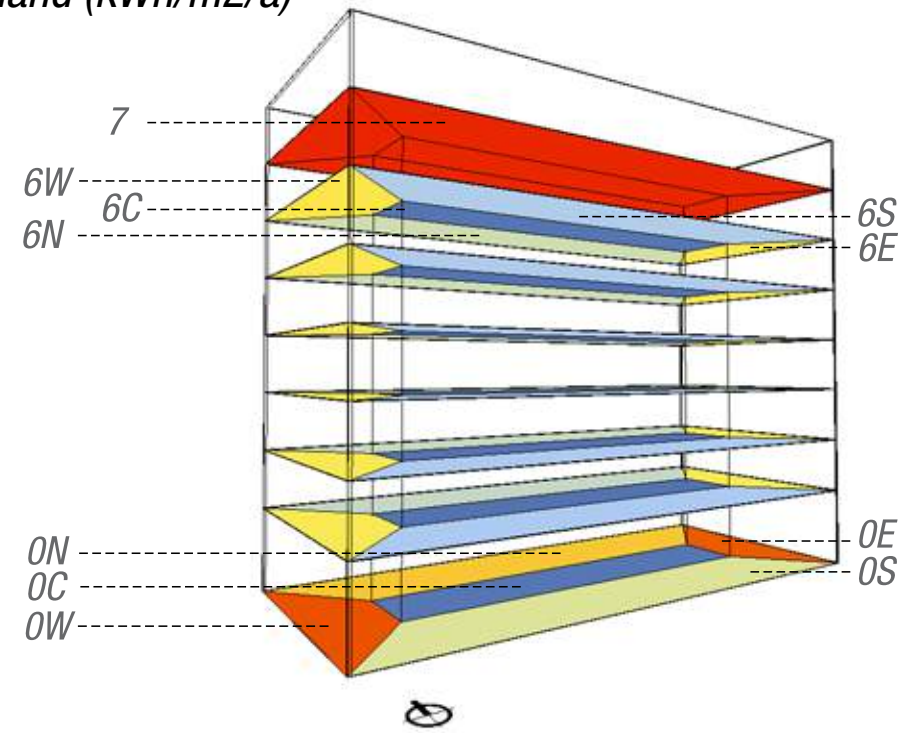
VF 14 - DG - ANNUAL DAYLIGHT AVAILABILITY (kWh/m<sup>2</sup>/a)



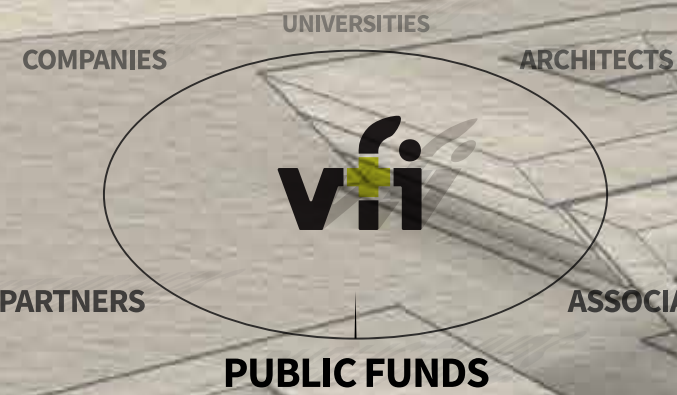
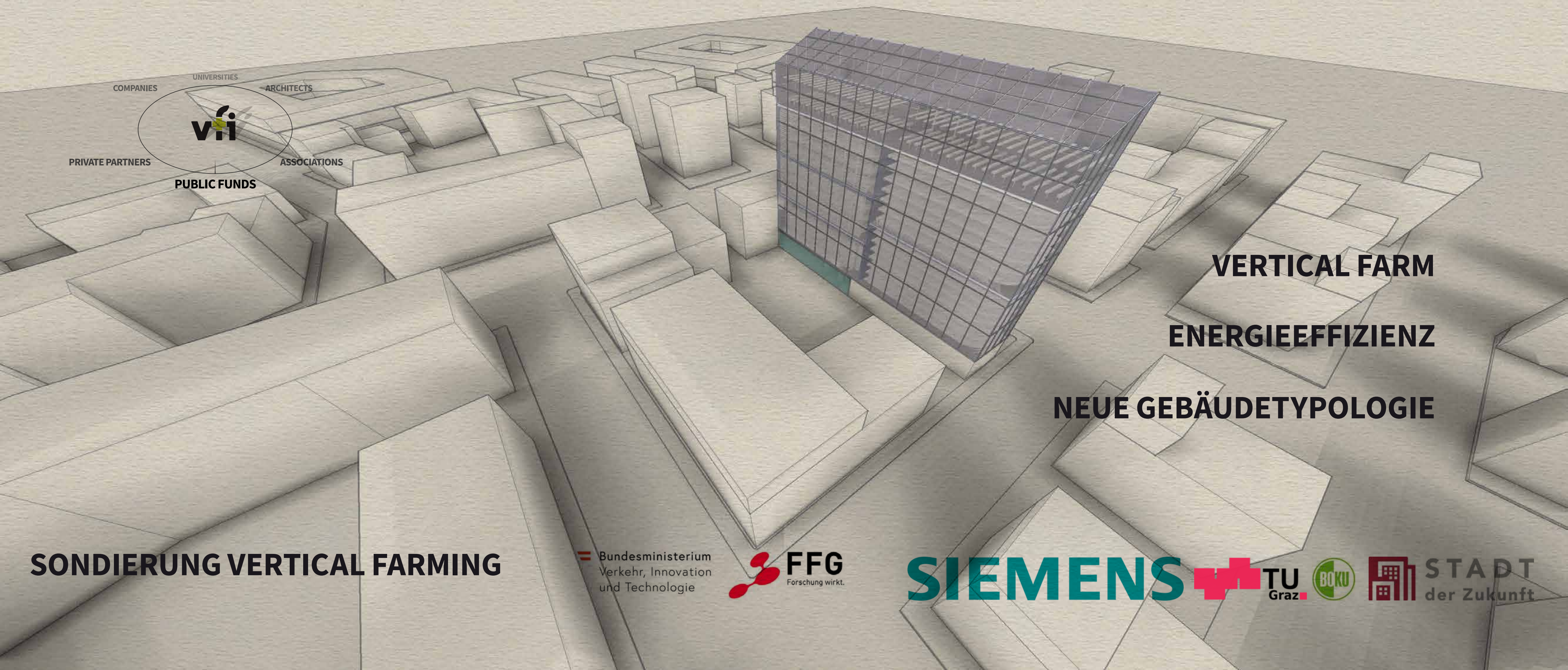
# ENERGY CONSUMPTION

VF 14 - SG - HL Heating Demand (kWh/m2/a)

7	209.43
6C	6.01
6N	73.21
6E	108.27
6S	52.36
6W	110.38
0C	6.50
0N	120.21
0E	169.58
0S	78.20
0W	174.38
<b>Total (kWh/a)</b>	<b>320,719.20</b>
<b>Total (kWh/m2/a)</b>	<b>77.33</b>




# ENERGY CONSUMPTION



**VERTICAL FARM**  
**ENERGIEEFFIZIENZ**  
**NEUE GEBÄUDETYPLOGIE**

**SONDIERUNG VERTICAL FARMING**

 Bundesministerium  
Verkehr, Innovation  
und Technologie

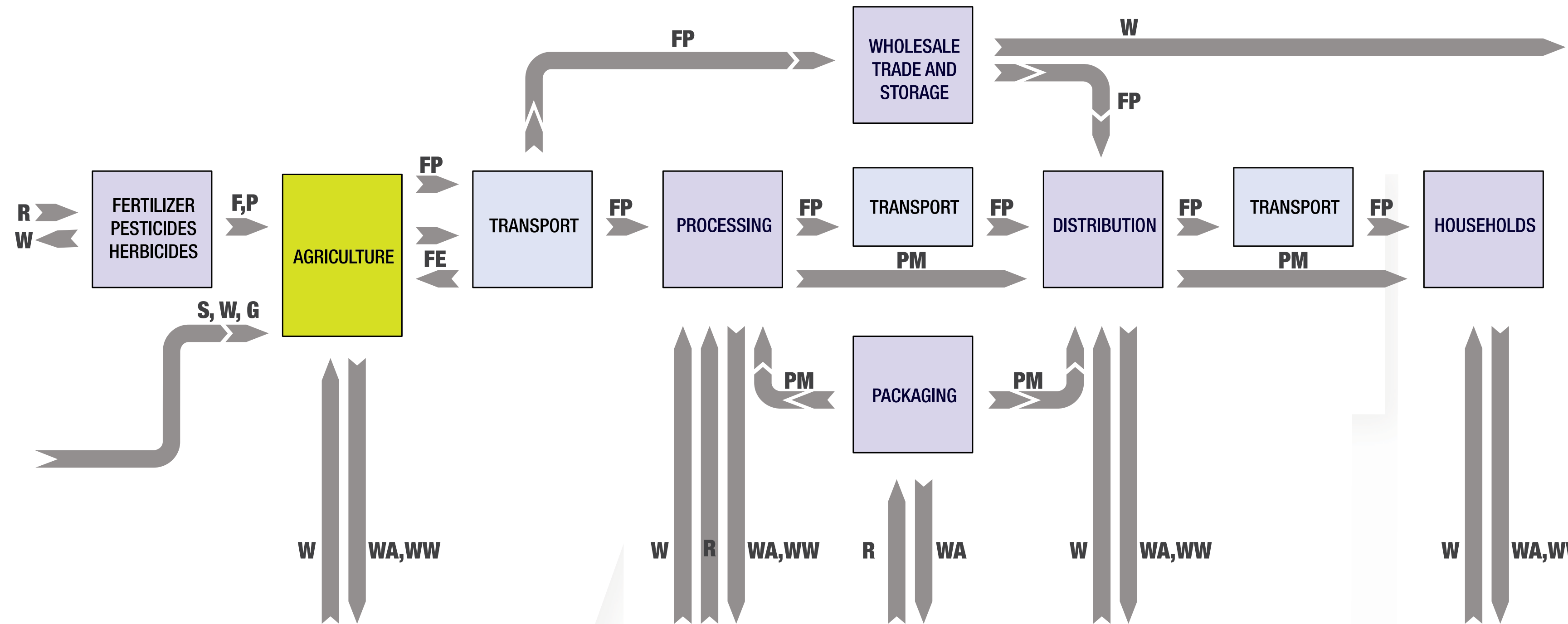
 **FFG**  
Forschung wirkt.

**SIEMENS**

 **TU**  
Graz

 **BOKU**

 **STADT**  
der Zukunft



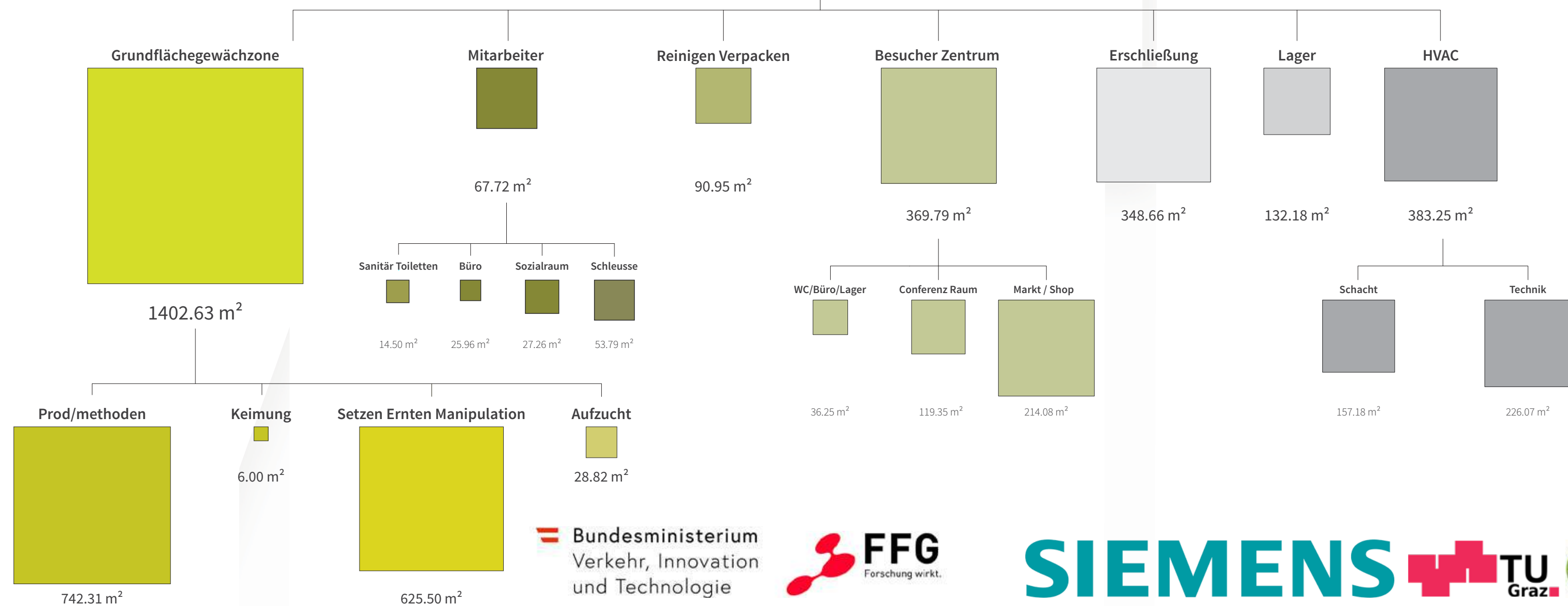
- W** Water
- WA** Waste
- WW** Waste water
- F** Fertilizer
- P** Pesticides
- S** Seeds
- G** Growth
- FP** Food Products
- FE** Feed
- R** Resources
- PM** Packaging Material



# VF # 4

Lebensmittel-  
produktion

2851.40 m<sup>2</sup>



# WOLKENFARM :: DIE VERTIKALE FARM UND DIE SCHULE DER ZUKUNFT



## SONDIERUNG SMART PÖLTEN 2.0





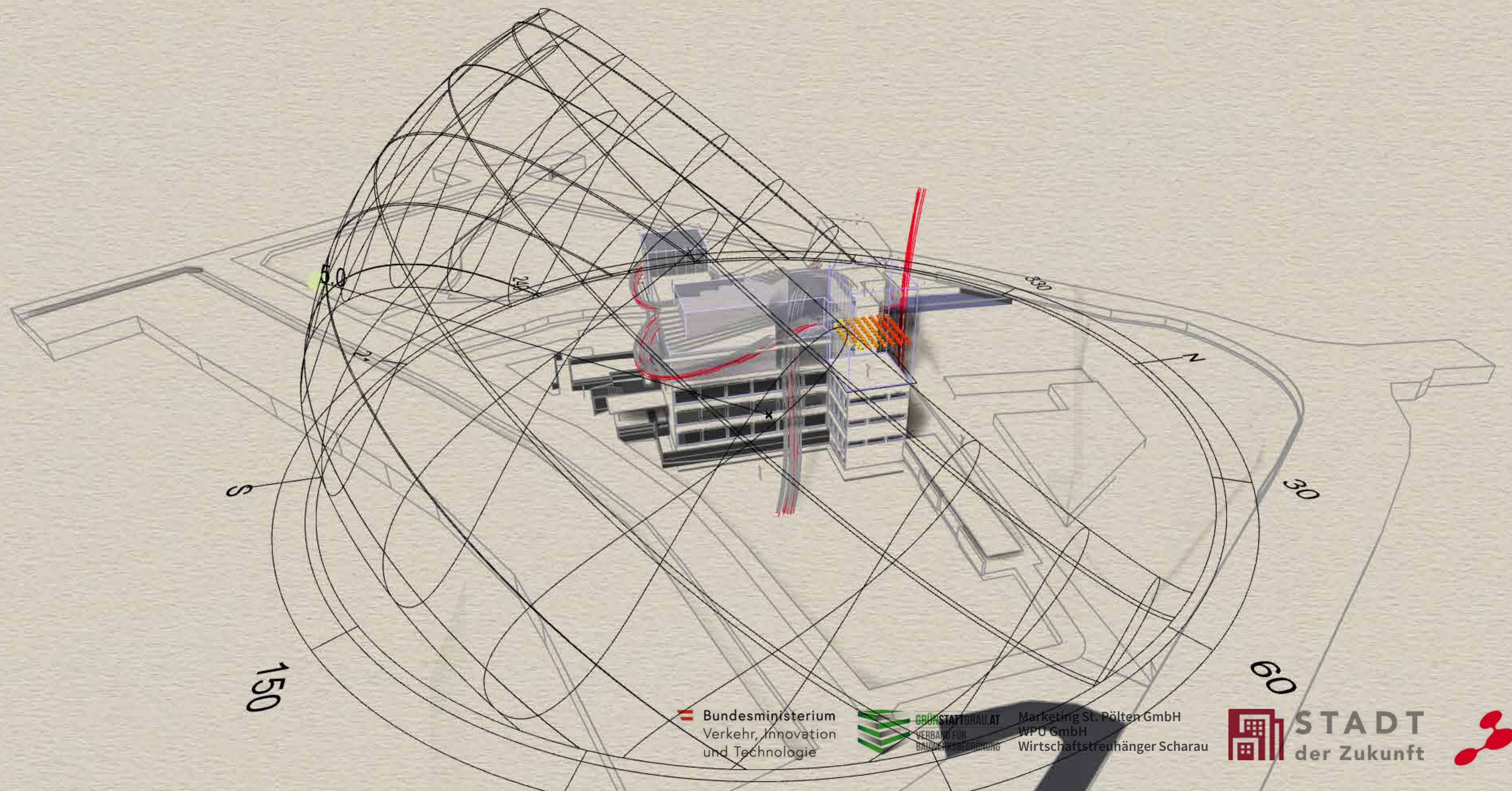
 **Bundesministerium**  
Verkehr, Innovation  
und Technologie


 **GRÜNSTATTGRAU.AT**  
VERBAND FÜR  
BAUWERKSBEGRÜNUNG

Marketing St. Pölten GmbH  
WPU GmbH  
Wirtschaftstreuher Scharau

 **STADT**  
der Zukunft

 **FFG**  
Forschung wirkt.



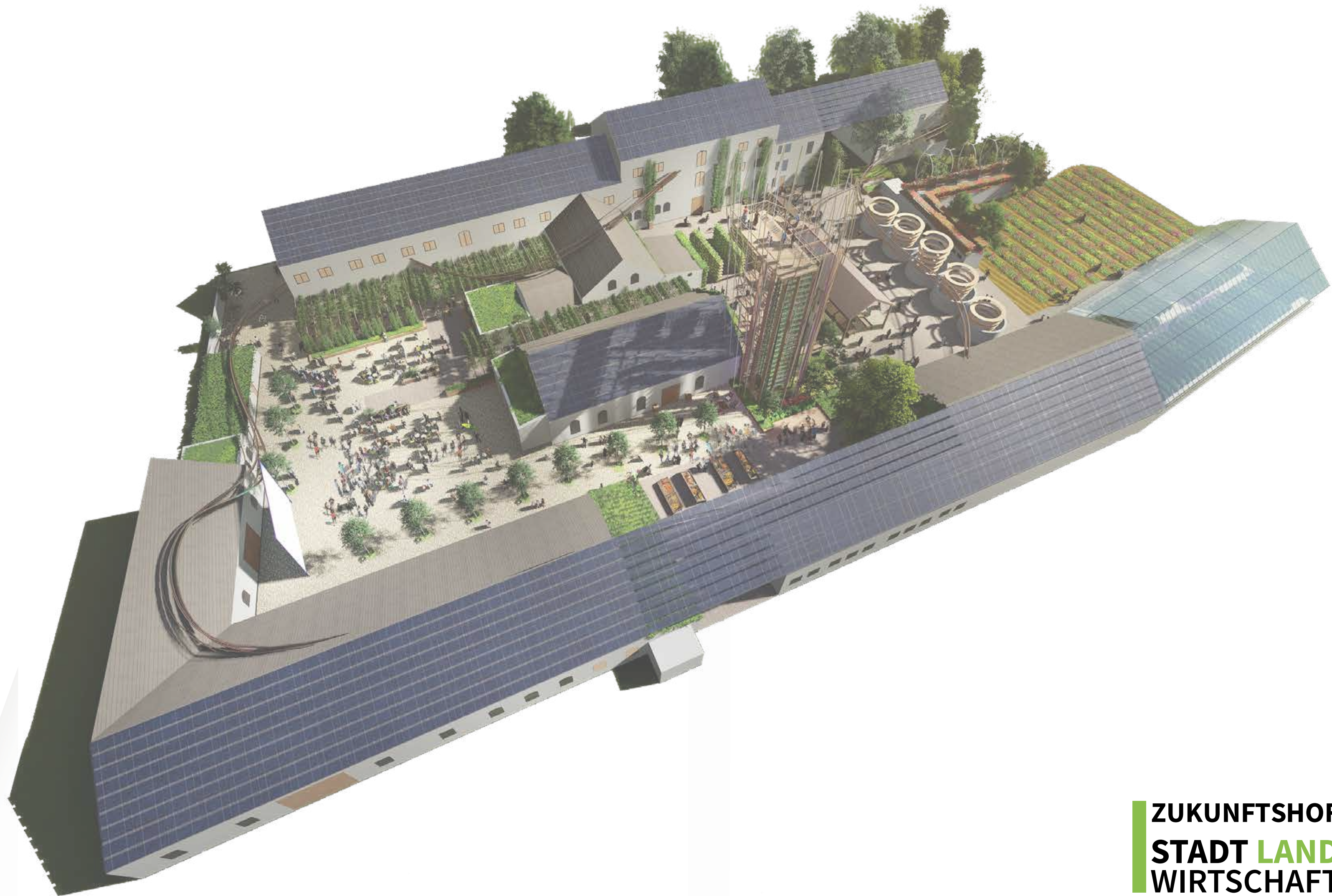

**Bundesministerium**  
 Verkehr, Innovation  
 und Technologie


**GRÜNSTADTGRAU.AT**  
 VERBAND FÜR  
 BAUKONZEPTION

Marketing St. Pölten GmbH  
 WPO GmbH  
 Wirtschaftstreuhand Scharau


**STADT**  
 der Zukunft


**FFG**  
 Forschung wirkt.



**ZUKUNFTSHOF**  
**STADT LAND**  
**WIRTSCHAFT**

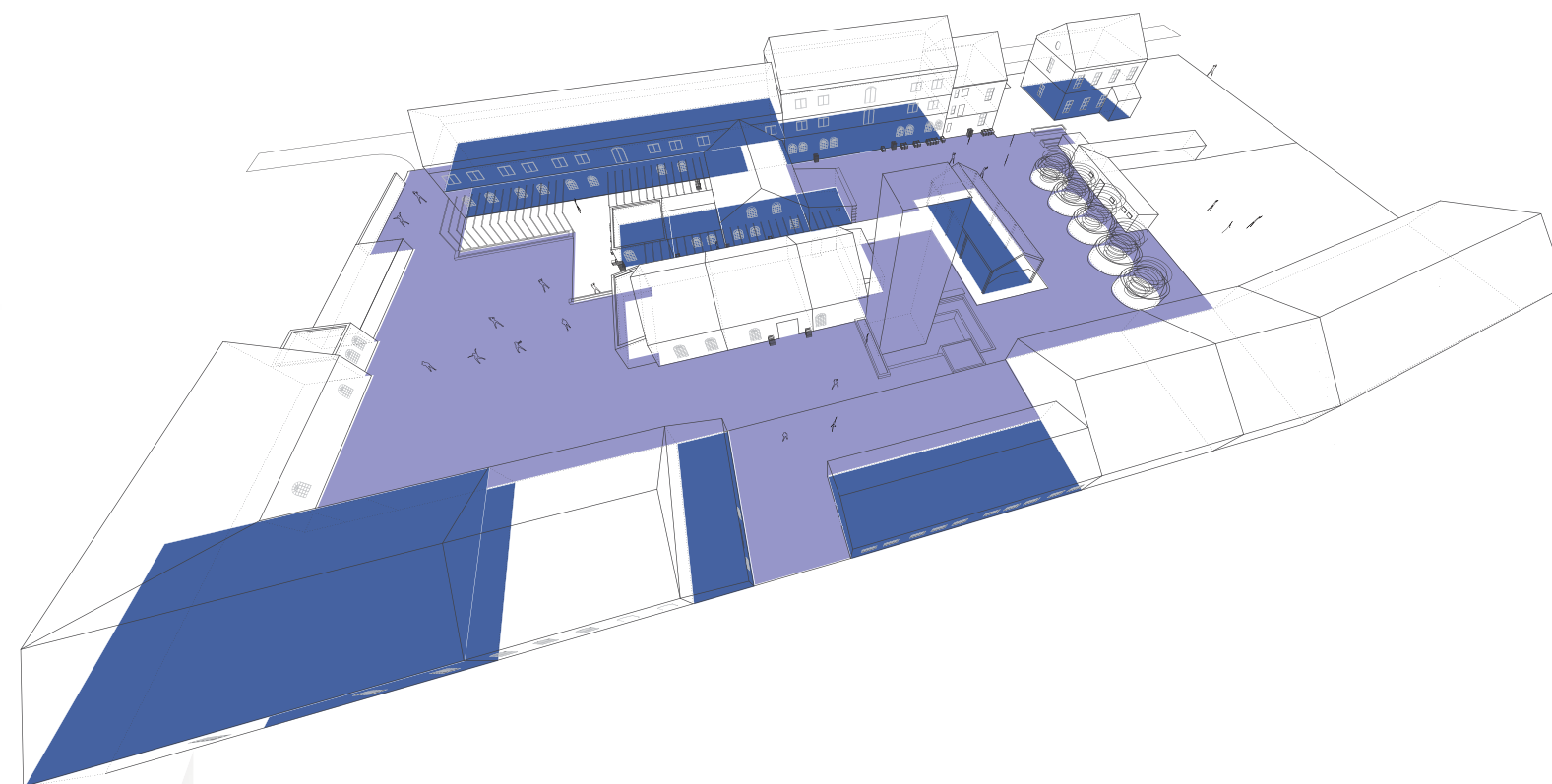


## + LEBENSMITTEL



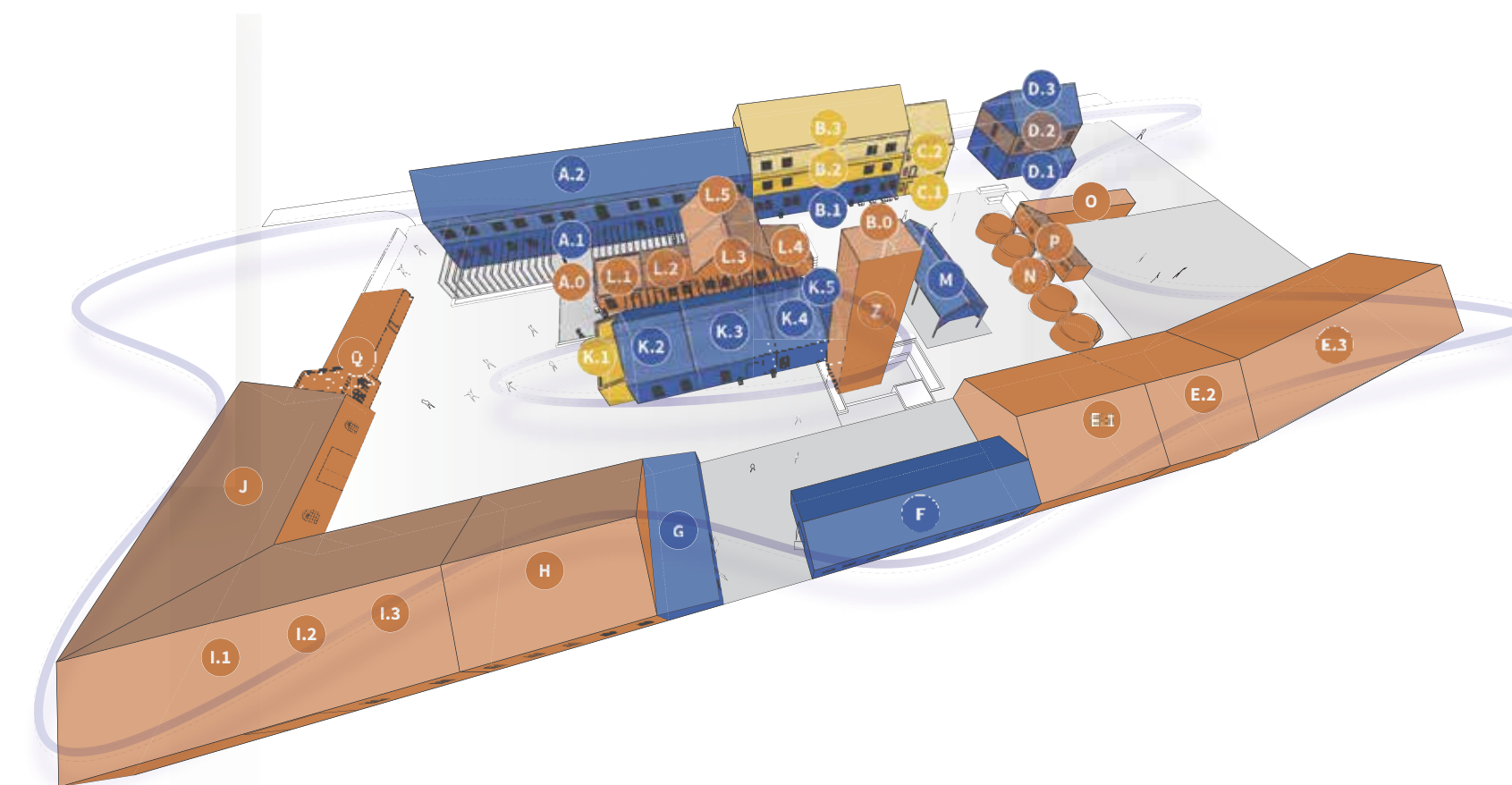
Biolandwirtschaft und Permakultur	<span style="color: #90EE90;">●</span>	1.936 m <sup>2</sup>
Optionale Fläche	<span style="color: #90EE90;">+</span>	1.626 m <sup>2</sup>
Urban farming	<span style="color: #008000;">●</span>	1.099 m <sup>2</sup>
Indoor farming	<span style="color: #32CD32;">●</span>	1.071 m <sup>2</sup>

## + SOZIALES



Konsumfreie Flächen	<span style="color: #6A5ACD;">●</span>	3.033 m <sup>2</sup>
Sozialer Austausch	<span style="color: #4169E1;">●</span>	2.770 m <sup>2</sup>

## + KREISLAUF



PRODUKTION	<span style="color: #8B4513;">●</span>
SOZIALER AUSTAUSCH	<span style="color: #4169E1;">●</span>
VERWALTUNG	<span style="color: #FFD700;">●</span>
WOHNEN	<span style="color: #654321;">●</span>



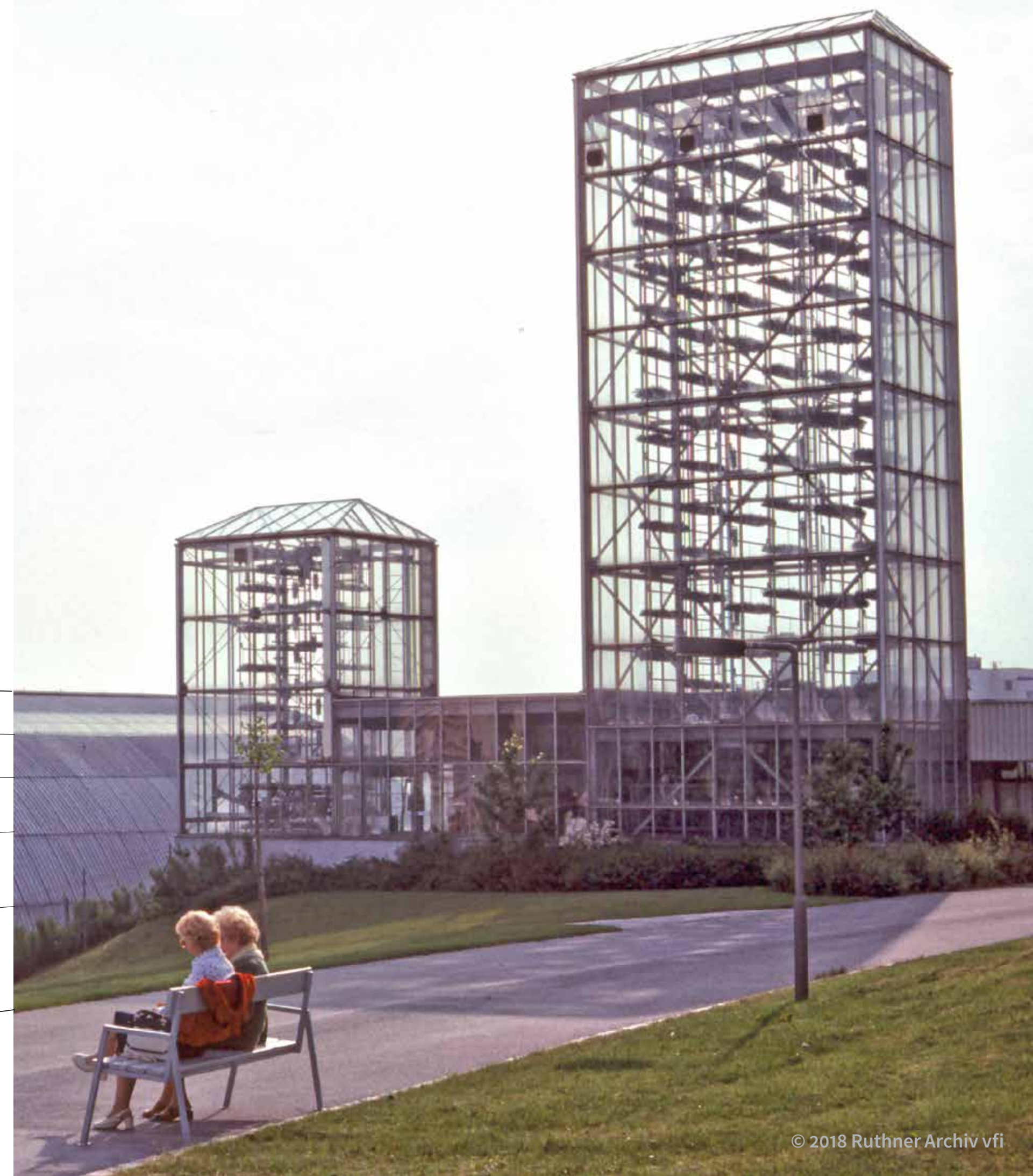
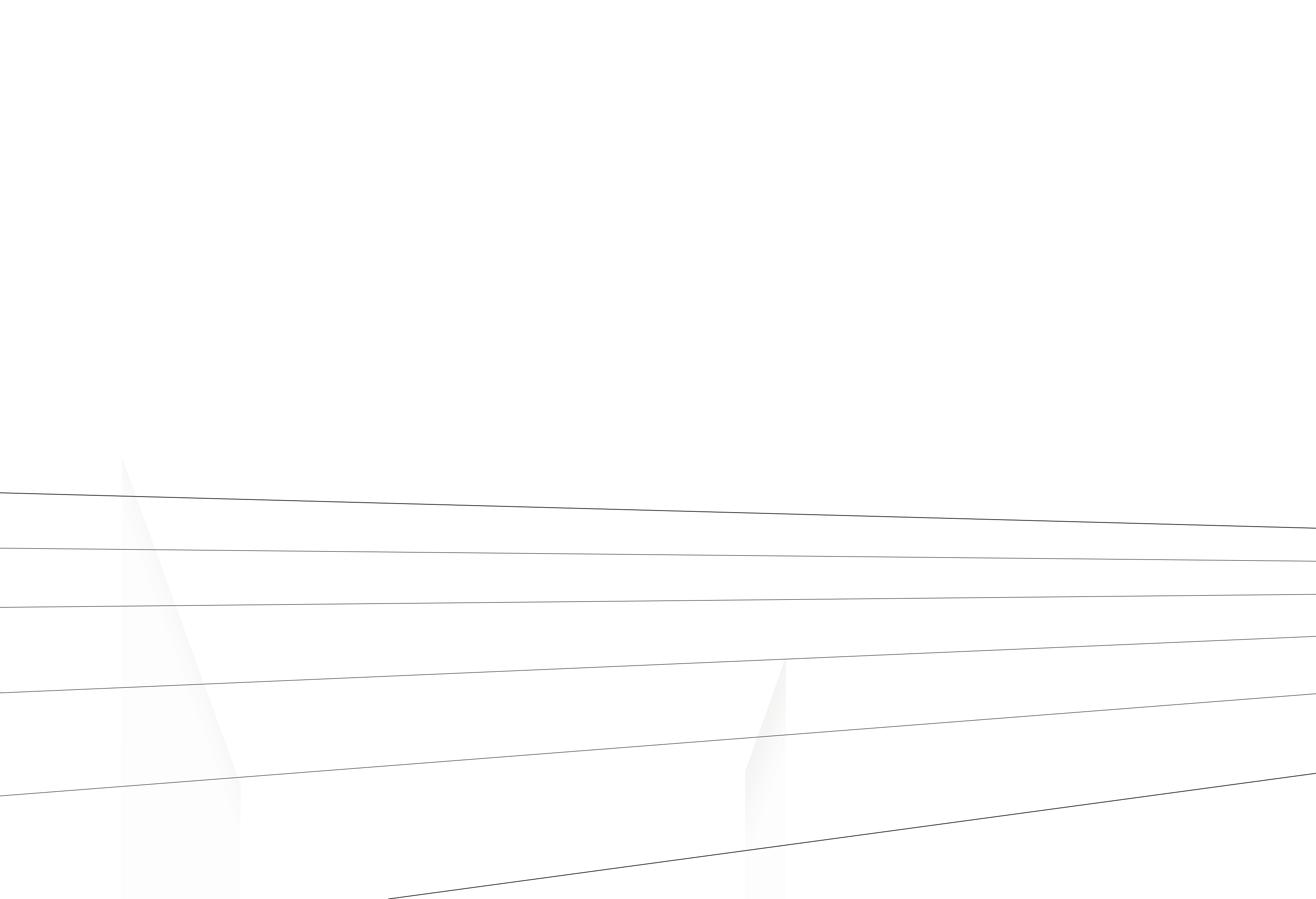




**KONSORTIALPARTNER**

**VERTICAL FARM INSTITUTE, SCHÖBERL & PÖLL BAUPHYSIK, WPU GMBH, SANLIGHT, INSTITUTE OF BUILDING RESEARCH & INNOVATION ZT-GMBH  
WIENER SCHECKENMANUFAKTUR, DIETMAR SCHNELLER-SCHARAU WIRTSCHAFTSTREUHÄNDER**





2019

2020

2021

2022

2023

2024

KLIEN Demo 2019 - 2022

**Ausbauphase:** Gesamtausbau der Glastürme  
**Konsortium:** Betreiberkonsortium beginnt Betrieb

**Forschungsziel:** Schließen von Material- und Energieströme

**Wirtschaftsziel:** Bilden eines Betreiberkonsortiums für die weltweit erste R&D-Vertical Farm

**Bausubstanz:** Revitalisierung EG- und UG-Zone

















- G** Greenhouse - Protofarm  
Gewächshaus mit VF-Tech in Anbau- oder Prod.methode
- VF** Vertical Farm  
gestapeltes Gewächshaus
- VF+** Vertical Farm Plus  
multifunktional erweiterte Produktionseinheit

- Produktionsmethode**  
gestapelt innerhalb eines Geschosses / einer Ebene
- Produktionsmethode**  
gestapelt pro Ebene auf mehreren Geschossenen
- Produktionsmethode**  
Vertical Farm - Fassade
- Produktionsmethode**  
Vertical Farm - Fassade - erweiterter Raum zw. in & out
- Produktionsmethode**  
unterhalb existierendem Programm (Kellergeschoss)
- Produktionsmethode**  
oberhalb existierendem Programm (Dachgeschoss)

- H** Building Systems  
Heating
- V** Building Systems  
Ventilating
- AC** Building Systems  
Air Conditioning

- Lighting Systems**  
Fully Artificial Lit
- Lighting Systems**  
Fully Naturally Lit
- Lighting Systems**  
Combined artificial and natural lighting

- Cultivation Method**  
Hydroponics
- Cultivation Method**  
Aeroponics
- Cultivation Method**  
Aquaponics
- CO<sub>2</sub><sup>+</sup>** Cultivation Method  
Elevated CO<sub>2</sub>-System



