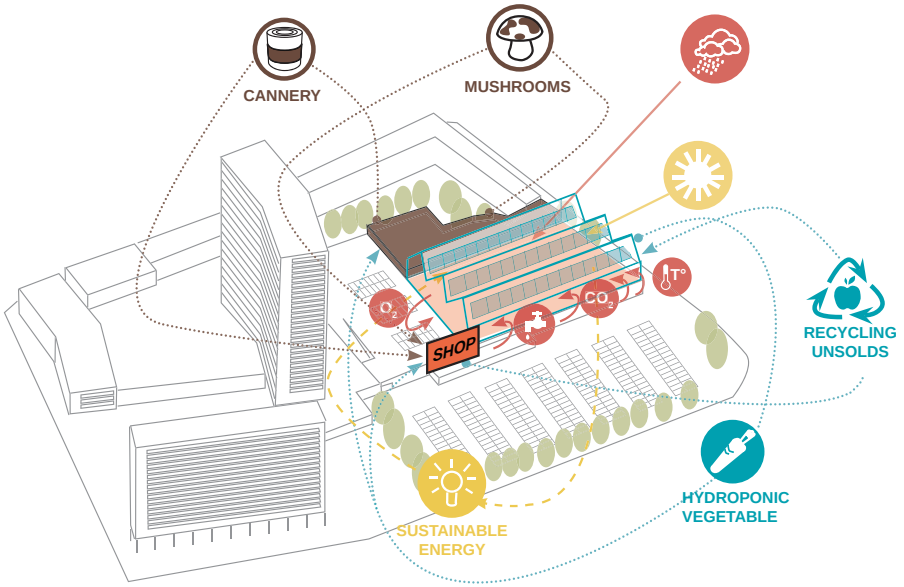
INDOOR FARMING IN RBC // 2014

AND01 Carrefour Anderlecht

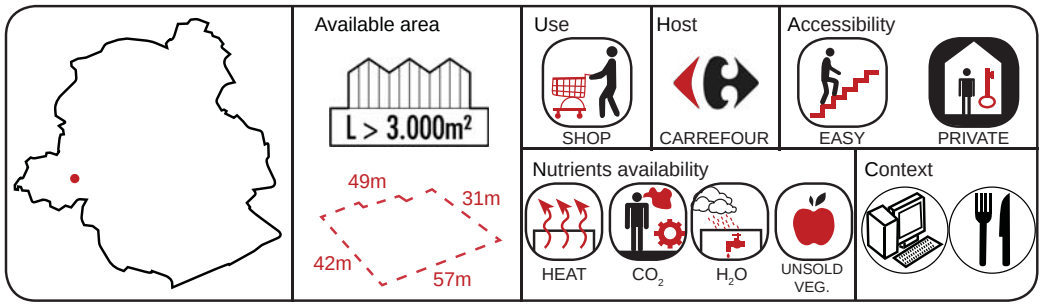
LATERAL THINKING FACTORY

ResilieNtWEB
Innovate for a sustainable business

PROJECT
System-Holistic Diagram



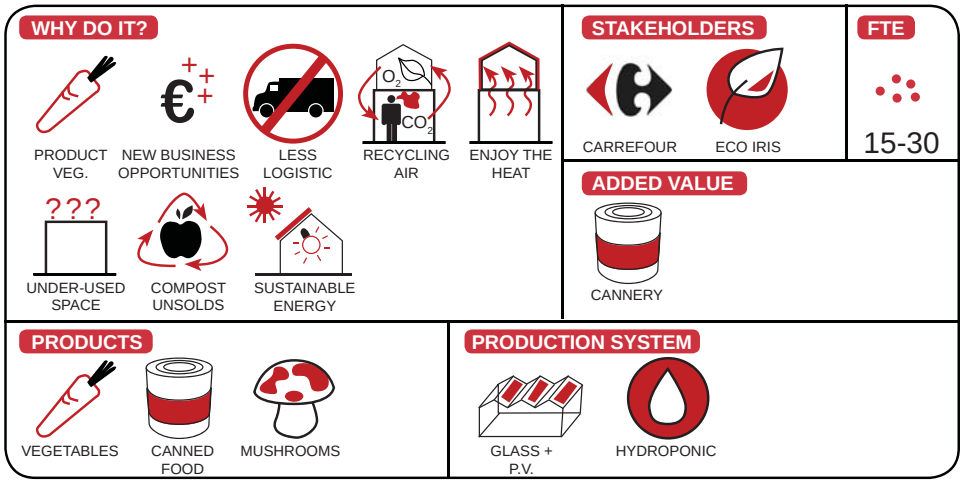
Know what you have



Available area	5.550 m² (0,55Ha), deducing existing parking on rooftop. Take into account the residences towers shadow at the end of the day, to define best area for green-house implementation.
Building use and structure	The project is located on Carrefour Belgium supermarket rooftop. Access is easy through an existing slope for vehicles.
Context	Mainly low density residential district with some green surfaces, towers and prox-imity shops. Primary and secondary schools nearby (less than 500m).
Nutrients availability	Available nutrients are mainly those coming from the supermarket equipment (storage, heat, water and CO2). We can add some unsold fresh food from parallel activities and collect compost from clients.

Know what you want

Offering the best price for your fresh food is our main concern. What could be more obvious than bringing back part of the production closest to the consumer and by the way, improving products quality?
Building a greenhouse on our Carrefour shop rooftop allows us to reach this objective; our strategy include the development of a local cannery and a mushroom farm to offer you varied products throughout the year and seasons. Greenhouse will be powered 100% through renewable energy and by the way, we will improve aesthetics of our facility.

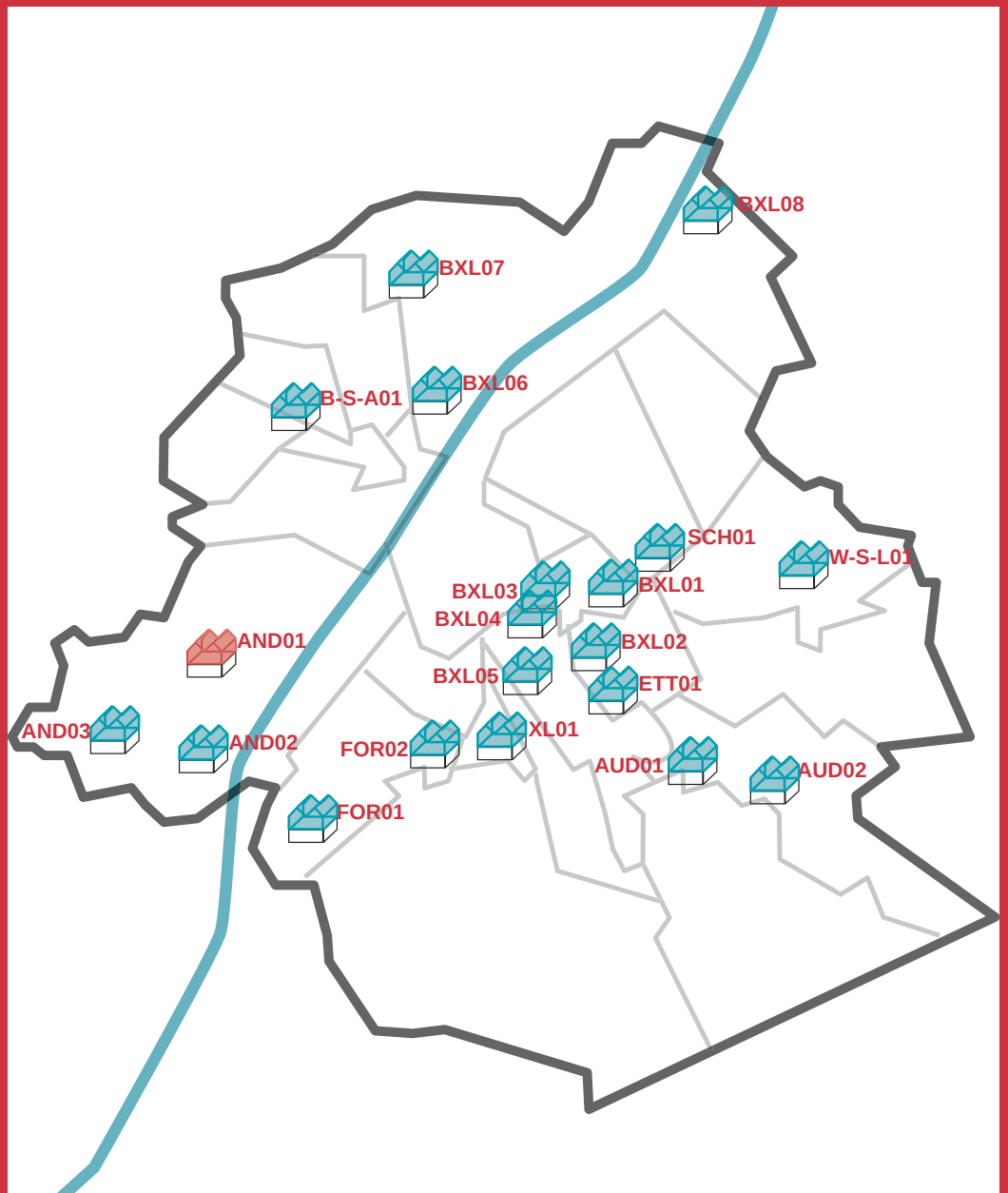


Integrated Indoor Farming Planning

TOOLBOX

01	2	14	1
02	3	15	2
03	0	16	0
04	3	17	1
05	3	18	1
06	1	19	2
07	1	20	0
08	3	21	0
09	2	22	3
10	3	23	2
11	0	24	0
12	2	24	0
13	0	26	3

QUICK WINS



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STEP 6 Identify potential quick wins.

STEP 7 Align expectations with reality

STEP 8 Finallise big features

STEP 9 Roadmap timetable

WIN-WIN SITUATION

LATERAL THINKING FACTORY

ResilieNtWEB
Innovate for a sustainable business

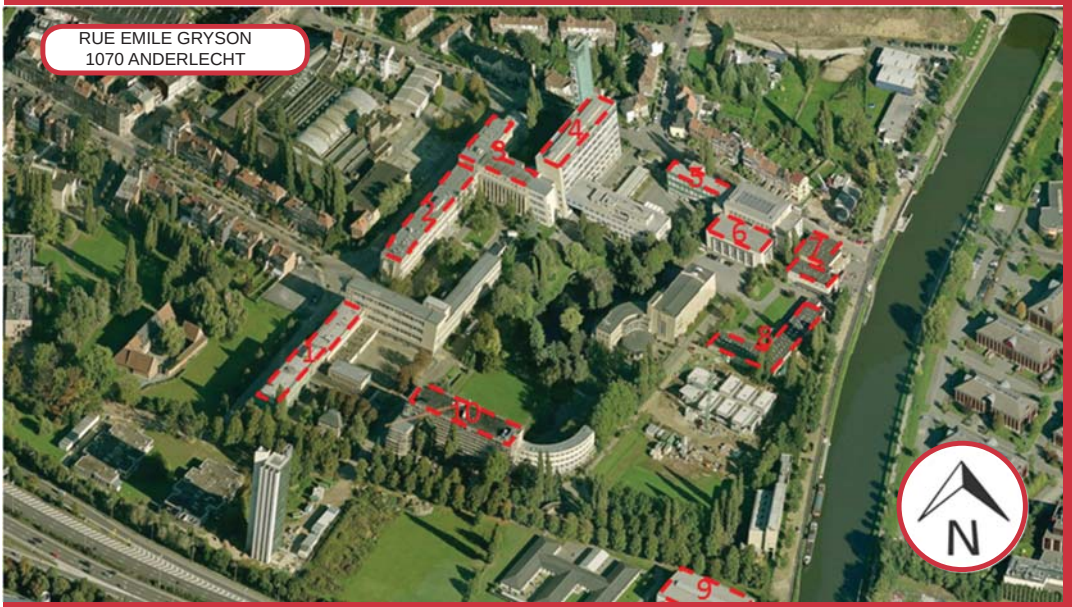
INDOOR FARMING IN RBC // 2014

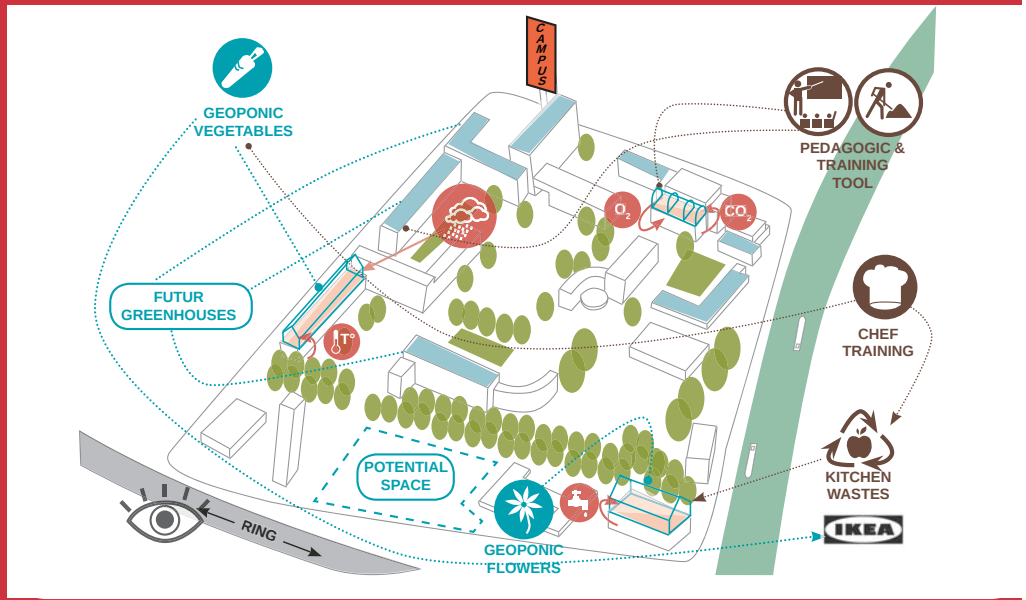
AND02 CERIA

LATERAL THINKING FACTORY

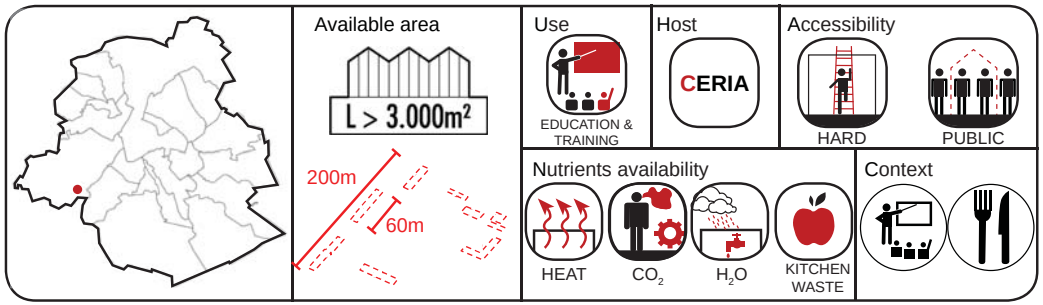
ResilieNtWEB
Innovate for a sustainable business

PROJECT
System-Holistic Diagram





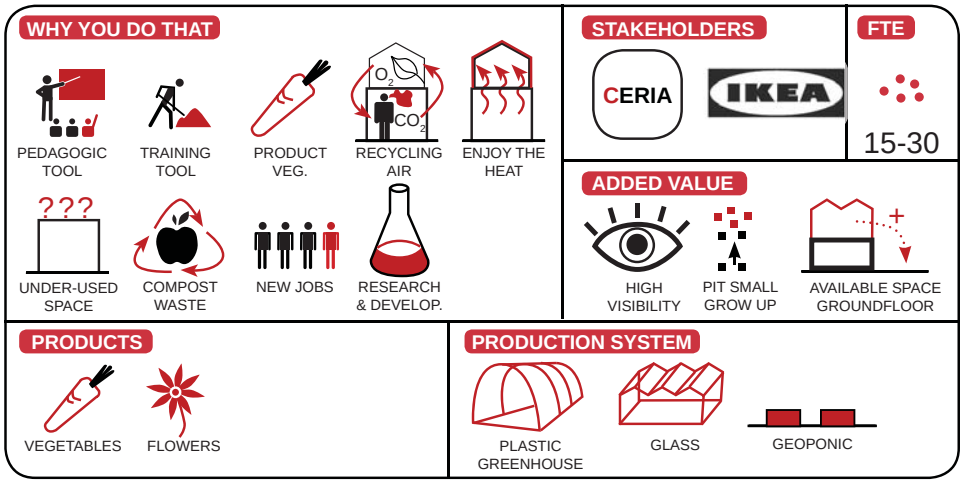
Know what you have



Available area	Approximately 9.000 m² (0,9Ha) of flat roofs distributed on several buildings, with potential to phase implementation regarding projects priorities
Building use and structure	Project is located on CERIA's Campus buildings rooftops in Anderlecht. Synergies, both educational and training, should be possible with several institutes present on this campus. Of which in particular: The Meurice Institute, industrial Engineer in Biochemistry and Chemistry ; the Haulot Institute, Architecture of gardens and landscapes, Dietetics, urban environment Management, Hotel management.
Context	Located at the edge of the speedway and along the Brussels canal, the area is mainly dedicated to housing, offices, equipment of collective interest or public utility. Interesting actors are also IKEA, Coca-Cola Headquarters, as potential buyers of the food production. To notice also the presence of University cafeteria on the campus as a good potential buyer for products.
Nutrients availability	Available nutrients are mainly coming from building waste (heat, water, CO2) and should be relevant as buildings are old and not adapted to actual construction standards. Compost from waste coming from kitchen and classes should be taken in account.

Know what you want

Ceria is a well-known active campus combining several high schools in Brussels (landscape architecture, horticulture, hotel and catering, etc.). By extending our facilities to the construction of greenhouses on Institutes rooftops, our aim is to offer to our students an in situ "best in class" training place. From producing fresh and local food for cooks and catering, develop new training as greenhouse operator or specified landscape architects, to participate to the definition of what should be the best solutions for urban agriculture. In all cases, that will be true teaching. As added value for investment payback, part of the production goes directly to the restaurant of a famous Swedish furniture merchant or other private stakeholders.



Integrated Indoor Farming Planning

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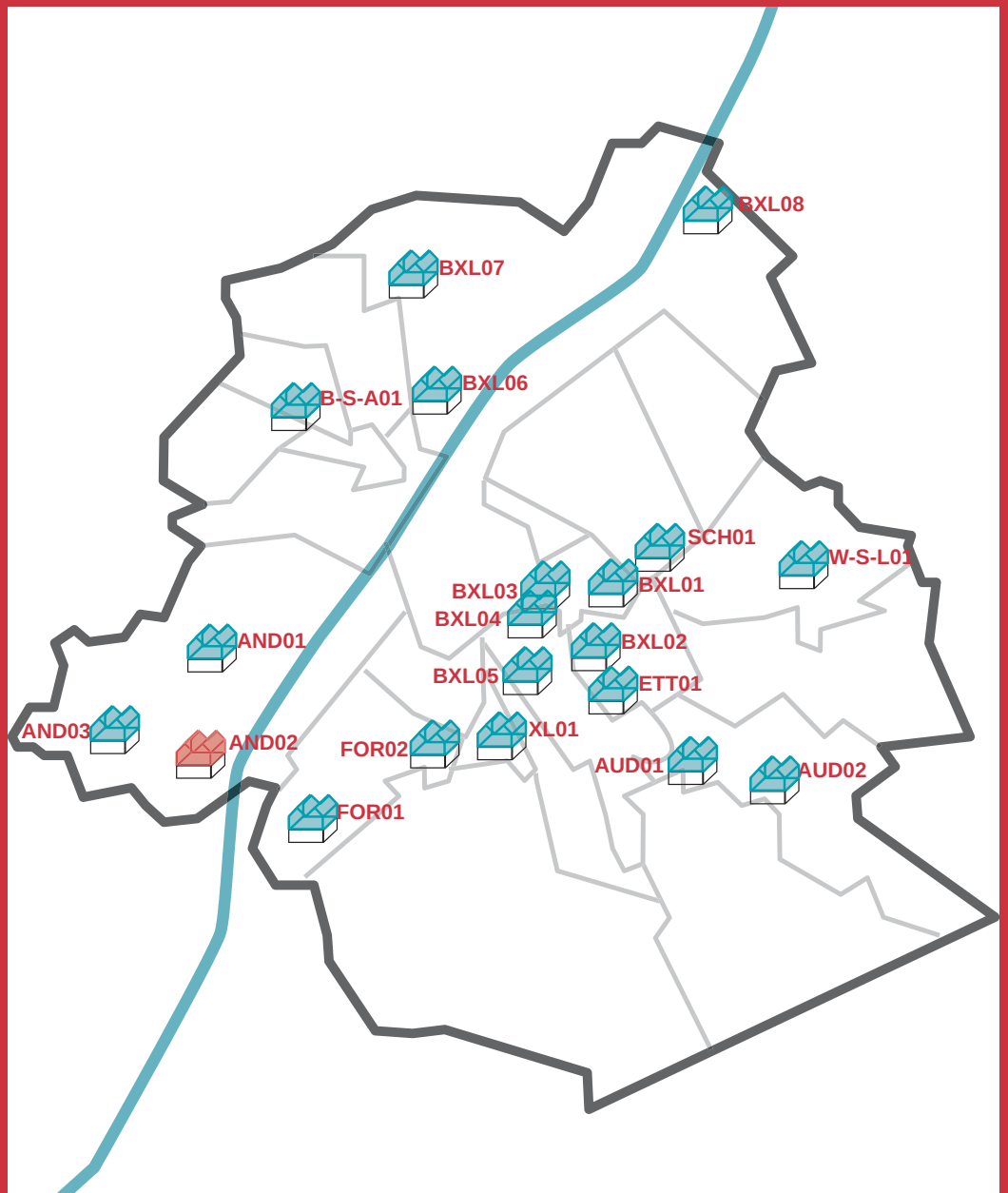
08	2	21	0
09	3	22	3
10	2	23	1
11	0	24	3
12	3	24	3
13	3	26	2

QUICK WINS



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WIN-WIN SITUATION

LATERAL THINKING FACTORY

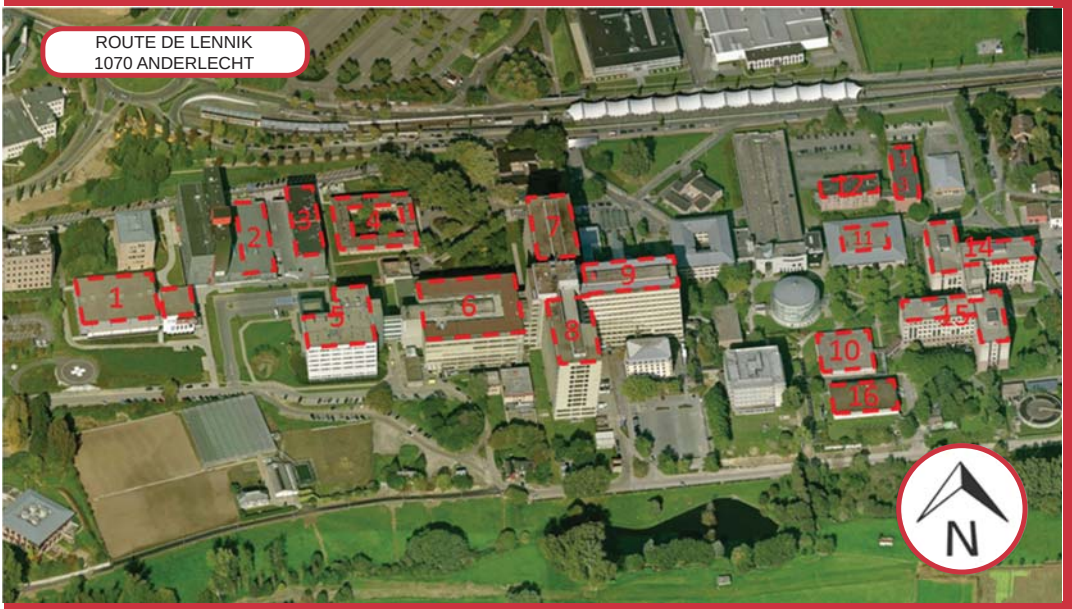
ResilieNtWEB
Innovate for a sustainable business

INDOOR FARMING IN RBC // 2014

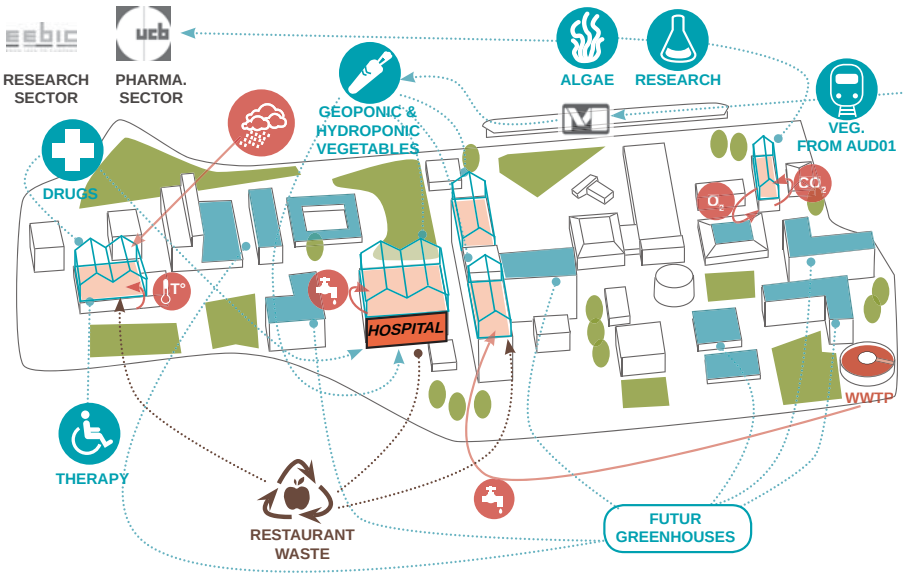
AND03 Campus Erasme

LATERAL THINKING FACTORY

ResilieNtWEB
Innovate for a sustainable business



PROJECT
System-Holistic Diagram



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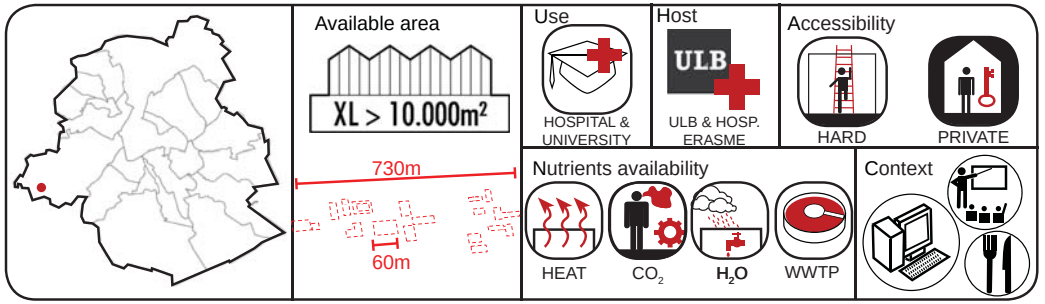
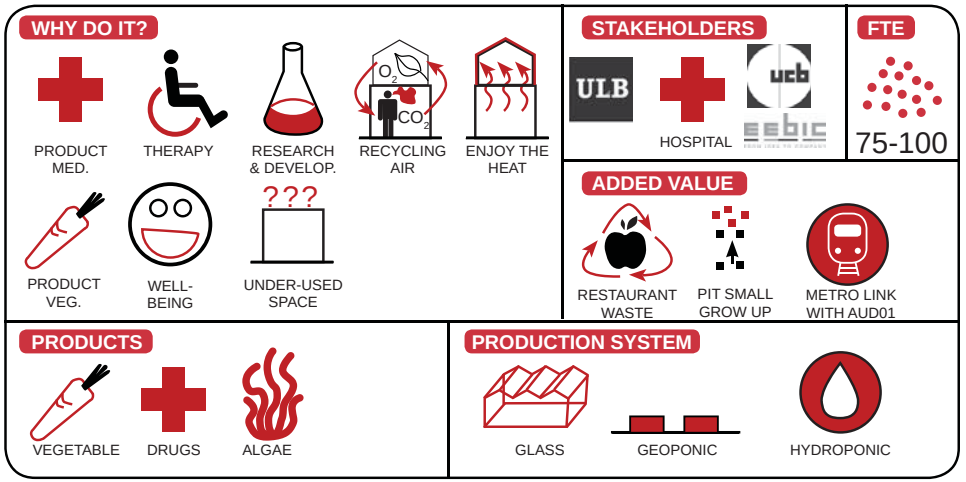


Available area	Approximately 32.000 m² (3,2Ha) of flat roofs distributed on several buildings around the Erasme hospital and ULB area.
Building use and structure	The project is located on Erasme's Campus buildings roofs (Université libre de Bruxelles), including the Hospital - University Clinics of Brussels, University facilities and other offices related.
Context	The area is located in the Region periphery, dedicated to a mixed use program as offices, hospital, University campus, university cafeteria, restaurants, shops and research center. Nearby we can find some companies from the pharmaceutical sector, health recovery and companies accelerator. Site is well accessible from highway and public transport, and drives a lot of people flows due to health industry and education activities.
Nutrients availability	Available resources are in quantity, from hospital management to specific resources of the area: water treatment plant station, heat power station, different buildings waste, shops unsold, etc.

Know what you want

70% of medicines are made by plants extracts. This is what motivates us so far in this project. As we are creating a living campus combining education, health services and companies accelerator, our aim is to add a productive layer on our site and claim for the most advanced campus in Europe. Combining quality food production for our patients and our employees; great spaces of research, of therapy for disabled people, production of drugs (apitherapy, medicinal plants) and of algae for the pharmaceutical and cosmetic sector. In short, a true complementary tool to our activities.



Integrated Indoor Farming Planning

TOOLBOX

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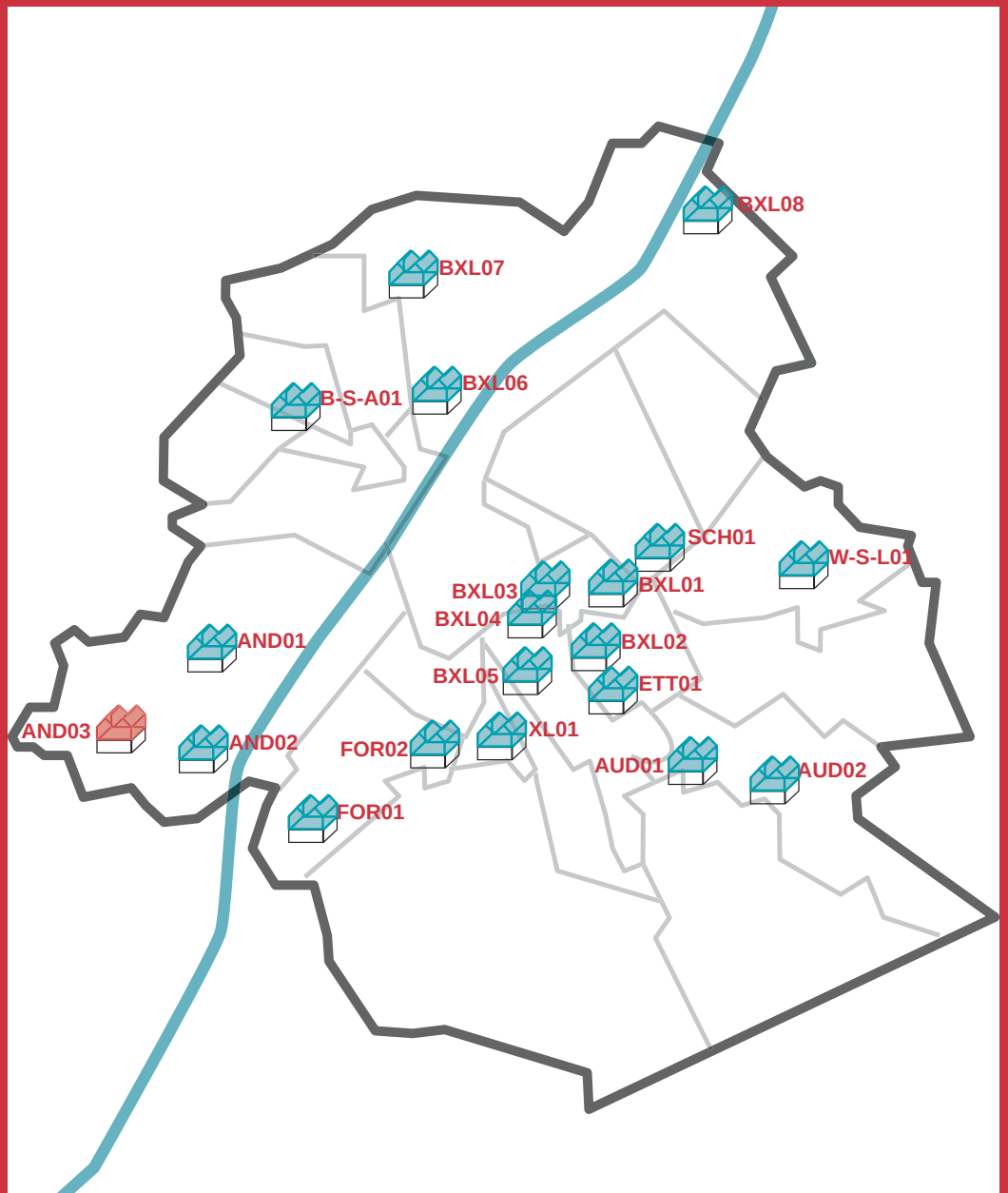
05	1	18	2
06	2	19	3
07	0	20	1
08	2	21	0
09	3	22	2
10	3	23	1
11	1	24	3
12	3	24	1
13	1	26	2

QUICK WINS



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WIN-WIN SITUATION

BRUXELLES ENVIRONNEMENT

LATERAL THINKING FACTORY

ResilieNtWEB
Innovate for a sustainable business

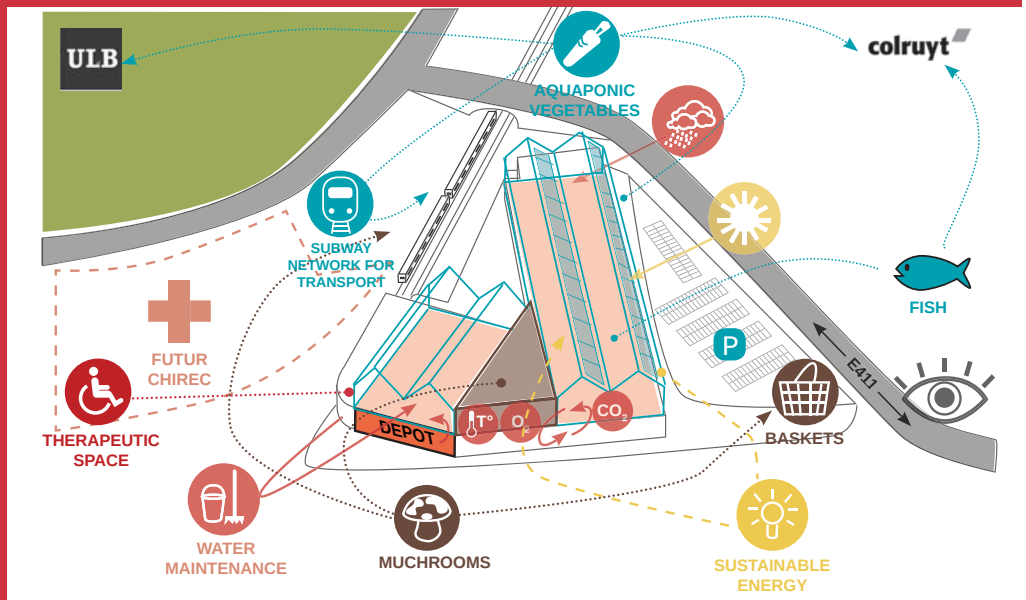
INDOOR FARMING IN RBC // 2014

AUD01 Delta

LATERAL THINKING FACTORY

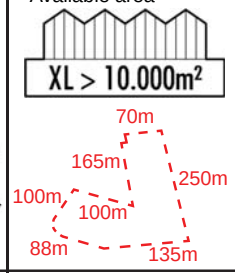
ResilieNtWEB
Innovate for a sustainable business

PROJECT
System-Holistic Diagram



Know what you have

Available area



Use

DEPOT

Host

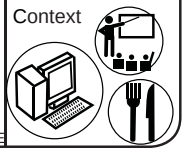
Accessibility

EASY PUBLIC

Nutrients availability

HEAT CO_2 H_2O WATER MAINTENANCE

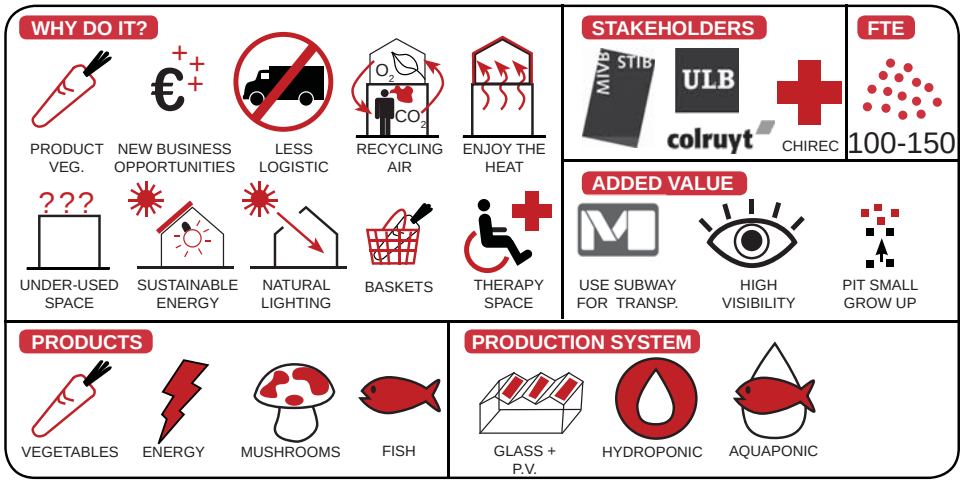
Context



Available area	3,4 Ha (34.000 sqm2) the whole roof area is available. Not currently accessible.
Building use and structure	STIB bus depot, maintenance and cleaning. The rooftop is accessible from adjacent space and new access seems easy to create. Structure has not been studied and needs an in-depth technical survey.
Context	Located in a mixed use neighborhood with offices, housing and production activities. Some restaurants, no retail. High visibility from the E411 Highway. Close to the ULB and VUB sites, European School and the new CHIREC Hospital (in construction).
Nutrients availability	Potential use of heat and water coming from the building behind, explore potential use of the Subway Network for night goods transport ; potential to use nutrients coming from the future hospital (to be defined). Check heat production from electrical transformer.

Know what you want

The Delta bus depot being one of the city, with a beautiful rooftop. STIB wants to start growing vegetables to use all resources from its facility (water, heat and CO2) and improve building's performances by generating added value from waste management. Well located near the E411 highway and the subway, STIB will have different possibilities to move production, by trucks, light transport or subway, depending of where we will deliver. Another nice goal will be to create a therapeutic area with CHIREC to help health recovery through gardening.



Integrated Indoor Farming Planning

TOOLBOX

01	1	14	1
02	3	15	1
03	0	16	2
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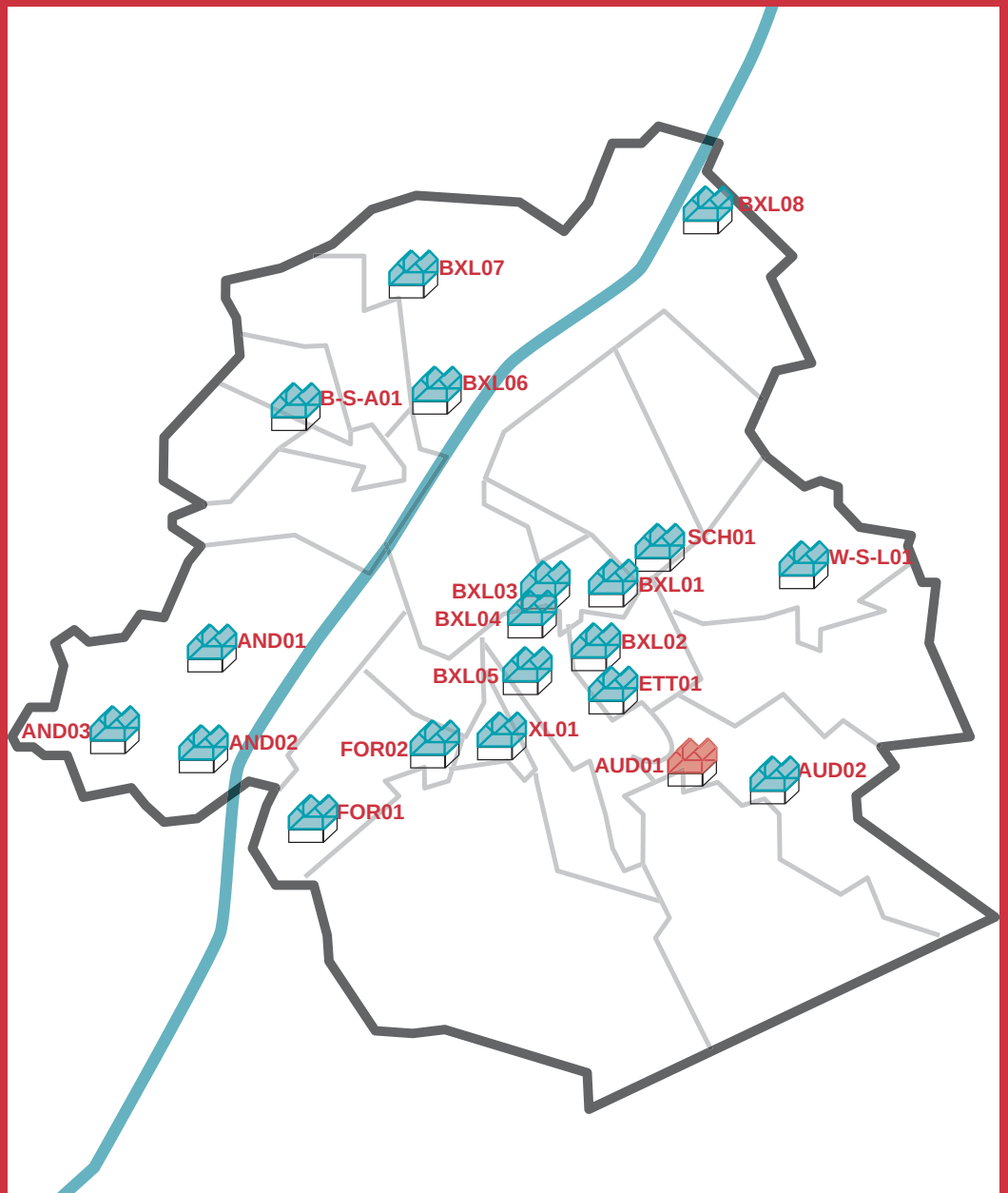
05	3	18	3
06	3	19	3
07	0	20	1
08	0	21	3
09	1	22	2
10	3	23	3
11	2	24	1
12	1	24	0
13	1	26	2

QUICK WINS



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WIN-WIN SITUATION

BRUXELLES ENVIRONNEMENT

LATERAL THINKING FACTORY

ResilieNtWEB
Innovate for a sustainable business

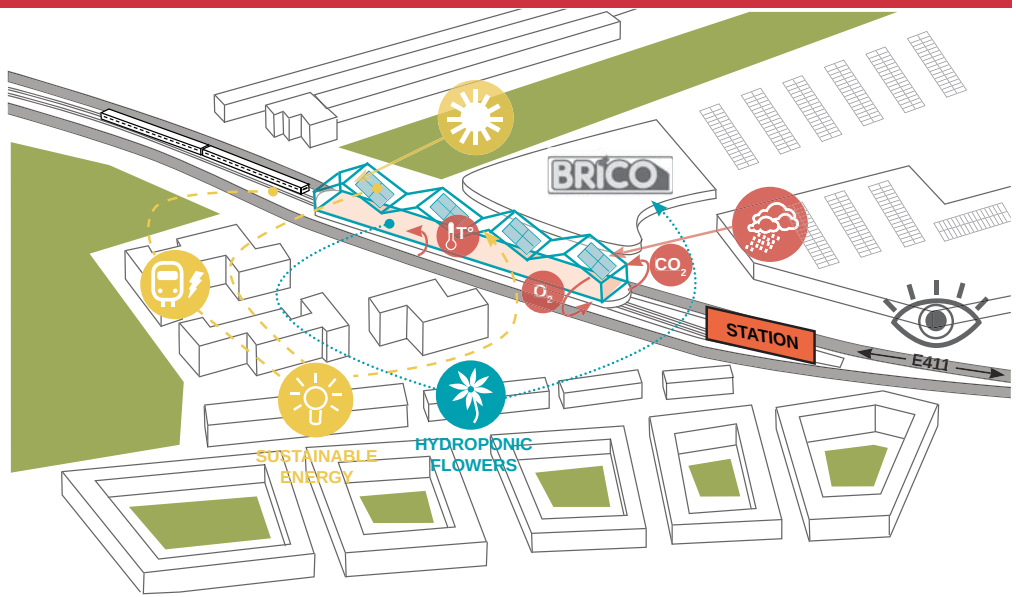
INDOOR FARMING IN RBC // 2014

AUD02 Subway Station Demey

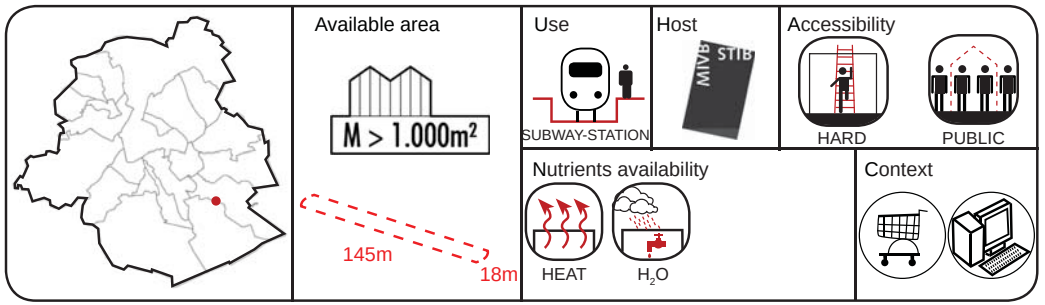
LATERAL THINKING FACTORY

ResilieNtWEB
Innovate for a sustainable business

PROJECT
System-Holistic Diagram



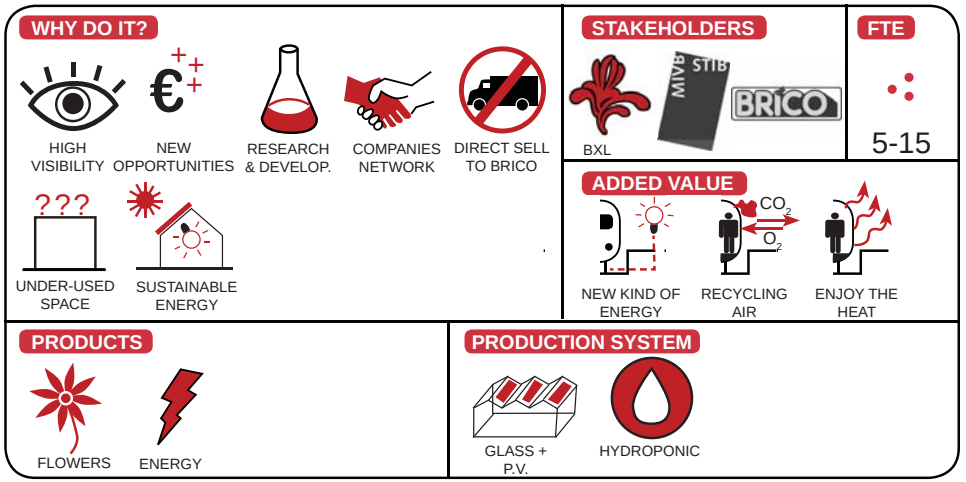
Know what you have



Available area	Approximately 2.600 m² (0.26Ha) rooftops with rectangular shape.
Building use and structure	Demey underground station. Open space on ground level with access from the road for delivery and from the station for employees
Context	Located on one of the city major entrance, near office and housing on one side and supermarket area on the other side. Installation could be iconic due to the high level of traffic in the area.
Nutrients availability	No nutrients available directly but potential to develop new technologies to extract heat and CO2 from the underground metro, as well as produce energy either from PV or wind using metro inertia.

Know what you want

As the Region claimed to be a serious actor in Building Integrated Greenhouses, this site should be a demonstration of the whole know-how developed in-house. Every rooftop can be turned into productive space, being economically viable: this project could be the lantern of this position. As added value, research and development can be done to use underground resources and produce energy following an innovative way.



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12	1	24	0
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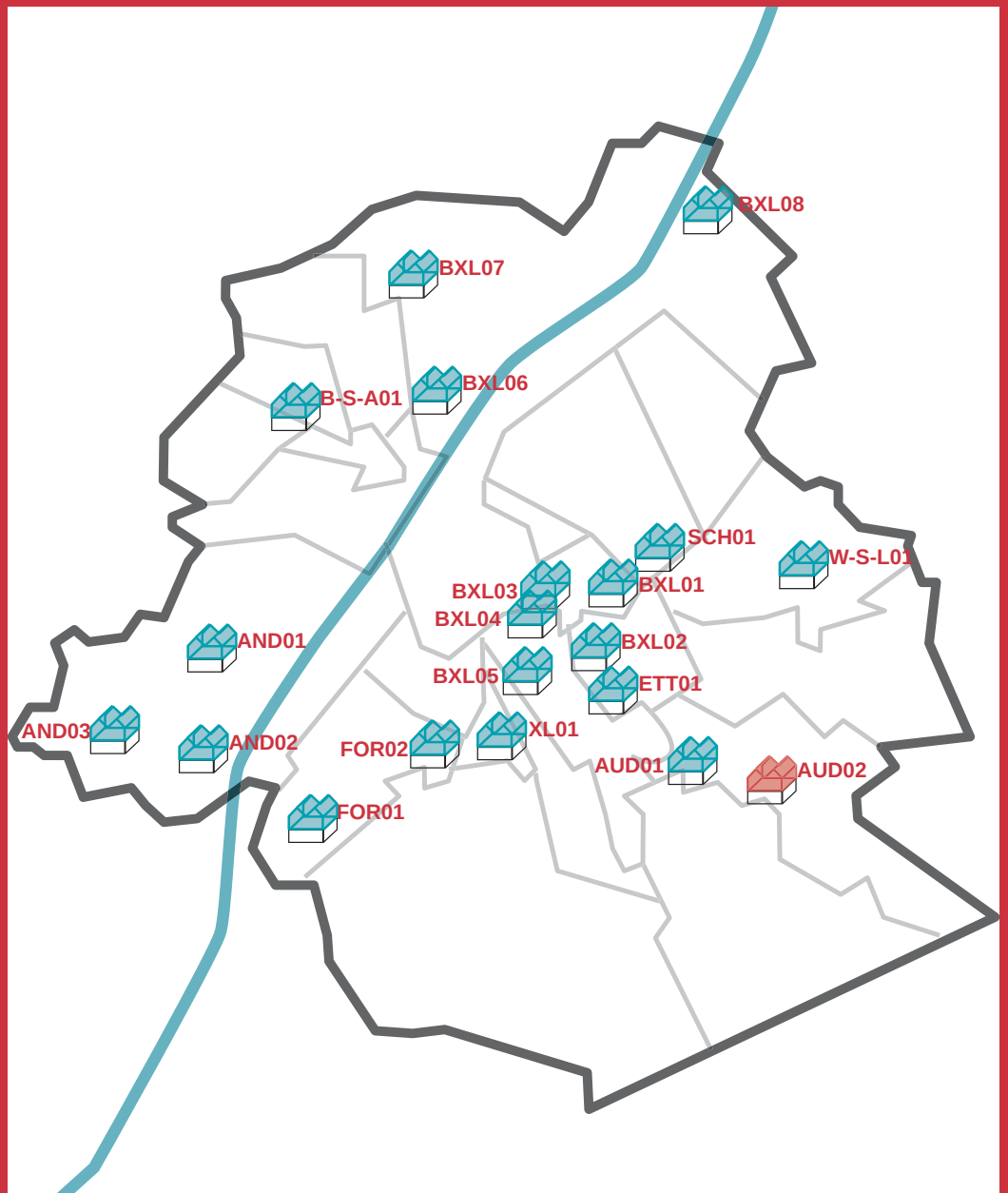

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WIN-WIN SITUATION

BRUXELLES ENVIRONNEMENT · LATERAL THINKING FACTORY · ResilieNtWEB Innovate for a sustainable business

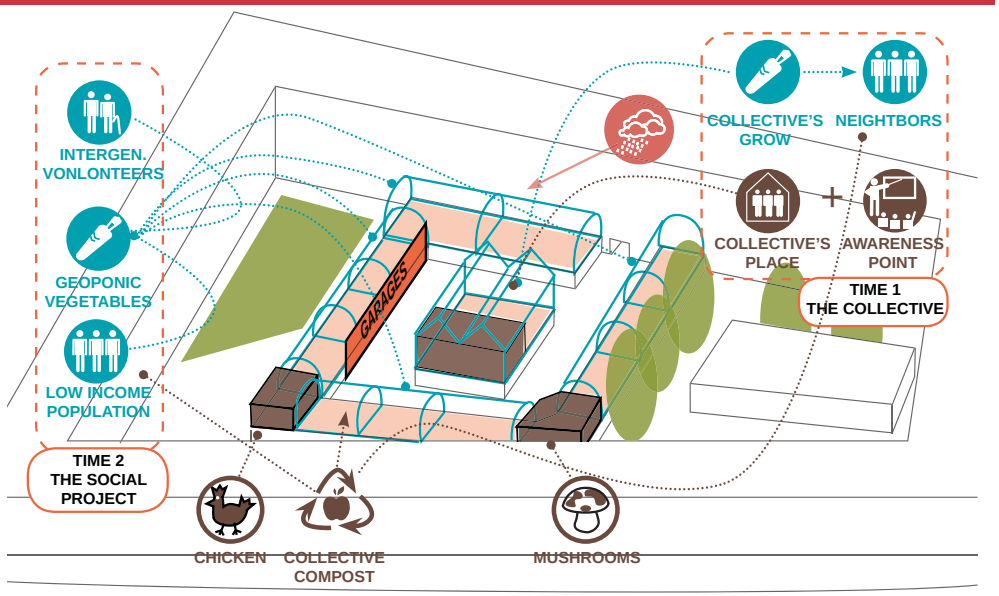
INDOOR FARMING IN RBC // 2014

B-S-A01 Garages

LATERAL THINKING FACTORY

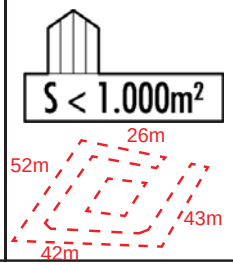
ResilieNtWEB
Innovate for a sustainable business

PROJECT
System-Holistic Diagram



Know what you have

Available area



Use

GARAGES

Host

NEIGHTBORS

Accessibility

EASY

PRIVATE

Nutrients availability

NEIGHTBOR'S KITCHEN WASTES

H_2O

Context

Available area	Approximately 230m2 (0,026Ha) of rectangular rooftop on a parking box in the center, and 853m3 (0,083Ha) on the others roofs.
Building use and structure	Parking boxes with flat roofs inside a residential district. This situation is a common configuration in the Region. Easy access from the street.
Context	Residential area with some retail. The project focuses on social objectives for residents by offering different activities and moving actual roofing roofs by greenhouses activities.
Nutrients availability	No specific nutrients available on this project. Collect kitchen wastes could be an option and rain water too.

Know what you want

Led by the Municipality through a « Contrat de Quartier », this project is developed following two different phases. First in the central area, through the implementation of an eco-socio-cultural space dedicated to the neighbors. This is a collective garden and a meeting place. Second, in the surrounding space, the CPAS promote urban agriculture with the help of elderly people and volunteer to provide fresh food to low incomes families at low prices. This first pilot project can be replicated in others neighborhood after success has been measured.

WHY DO IT?

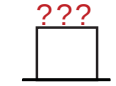
PRODUCT VEG.

SOCIAL

AWARENESS

URBAN HEAT ISLAND

USE RAIN WATER



UNDER-USED SPACE

VIEW ENHANCEMENT

STAKEHOLDERS

NEIGHTBORS

TOWN

CPAS

FTE

0-5

ADDED VALUE

COLLECTIVE COMPOST

INTERGENERATIONAL VOLONTEERS

PRODUCTS

VEGETABLES

MUSHROOMS

CHICKEN

COMPOST

PRODUCTION SYSTEM

PLASTIC GREENHOUSE

GLASS

GEOPONIC

Integrated Indoor Farming Planning

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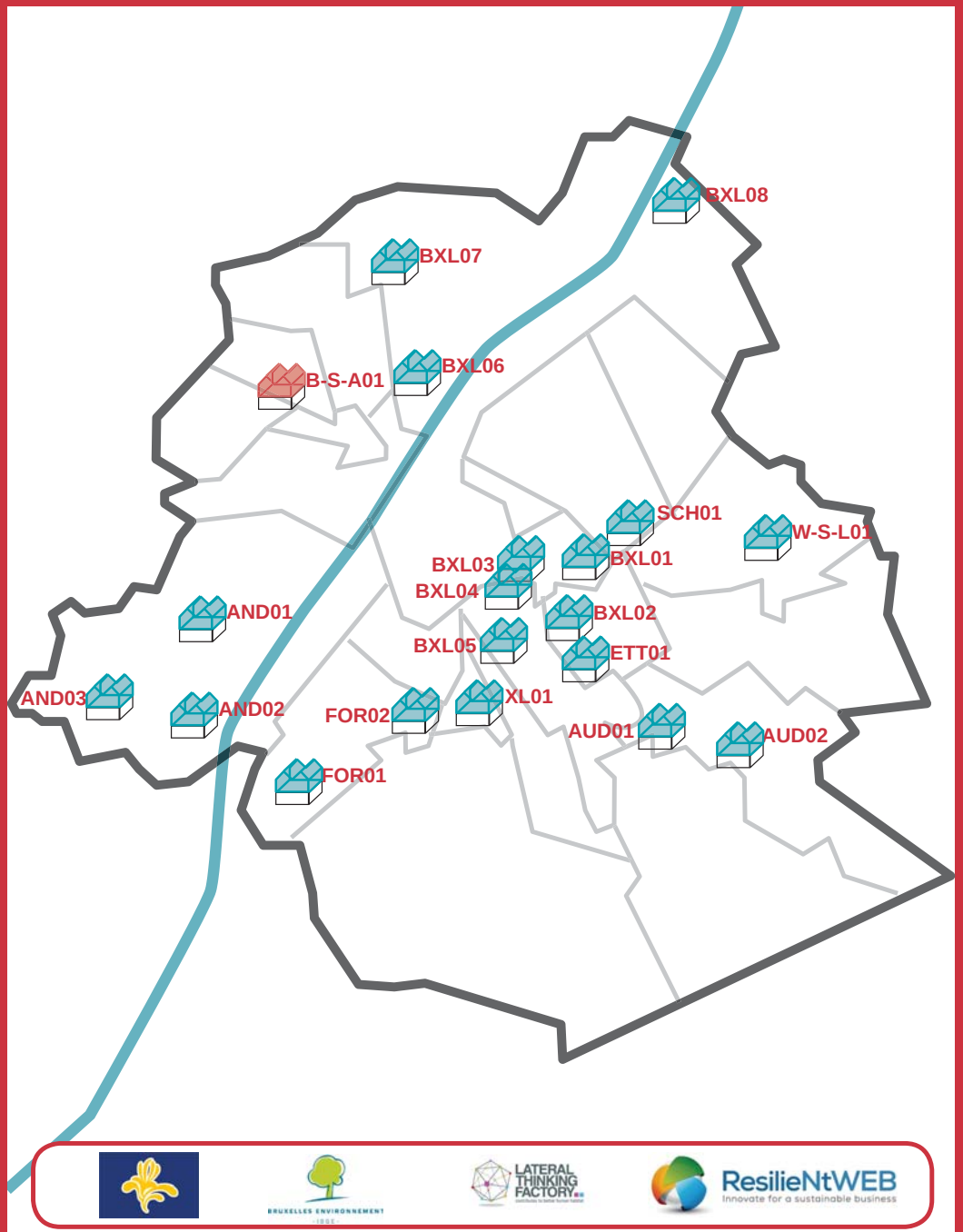
12	3	24	2
13	3	26	1

QUICK WINS



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WIN-WIN SITUATION

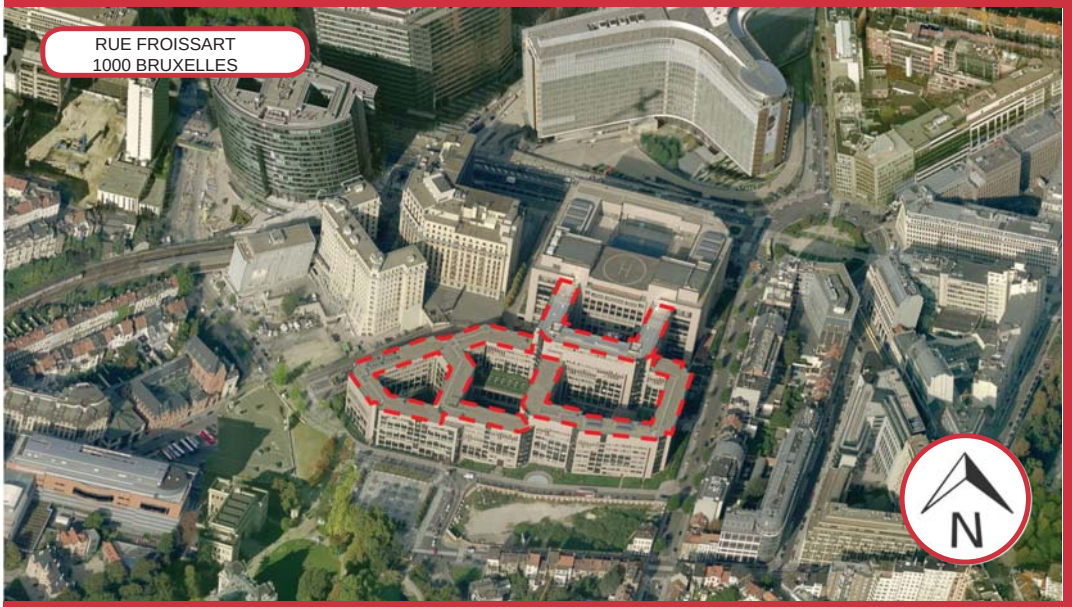
INDOOR FARMING IN RBC // 2014

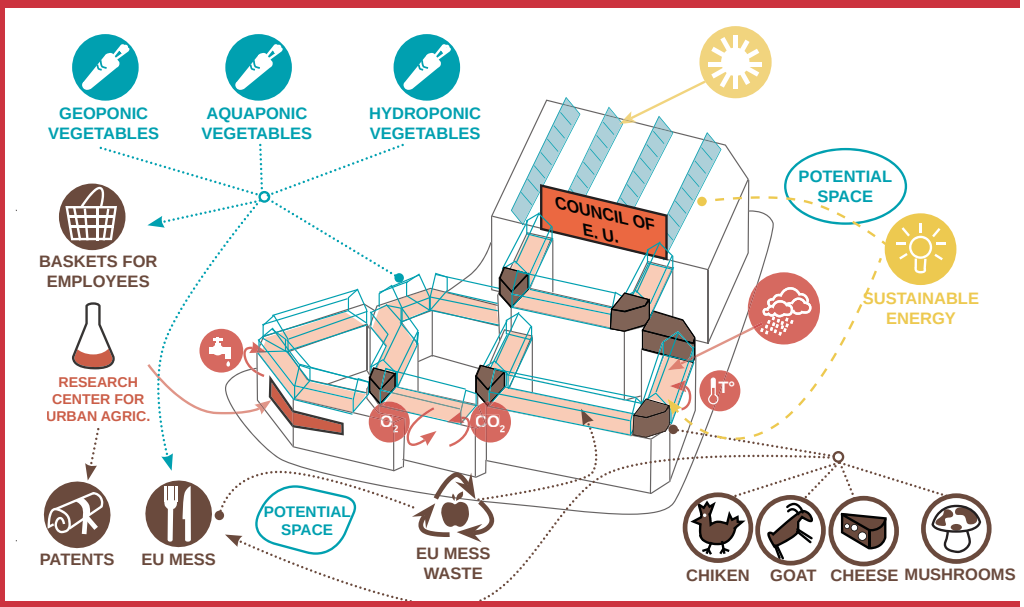
BXL01 Council of the EU

LATERAL THINKING FACTORY

ResilieNtWEB
Innovate for a sustainable business

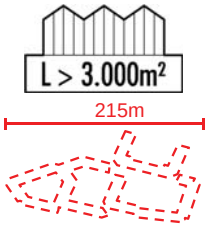
PROJECT
System-Holistic Diagram





Know what you have

Available area



Use

OFFICE

Host

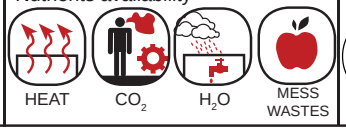
COUNCIL OF THE E.U.

Accessibility

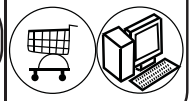
HARD

PUBLIC

Nutrients availability



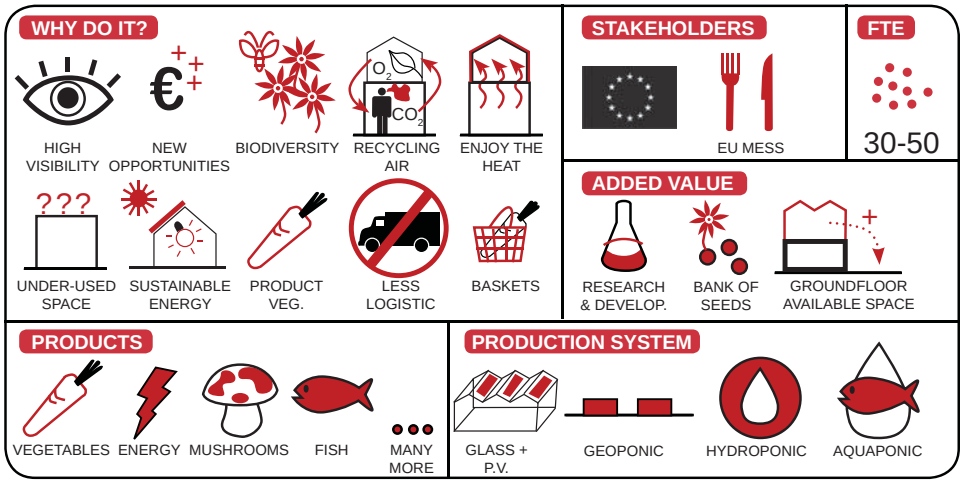
Context



Available area	Approximately 8.800 m² (0,88 Ha) rooftop on several buildings and different levels. The upper side of the building is occupied by PV.
Building use and structure	Council of European Commission building. Mainly offices. Security is a big concern in this building.
Context	Located in the heart of the European District, in front of the Berlaymont and others institutional buildings.
Nutrients availability	This type of office buildings have a high criteria of performances for employees comfort, but low engagement with sustainable development. Thus, there is a lot of waste to be considered as resources for a greenhouse activity.

Know what you want

E.U. pilot project on their own facilities, objectives are clear as defined: show economical and sustainable potential of greenhouses rooftop activities, material continuous loop, productive systems and creative solutions. The entire EU program can meet on this project: LIFE, URBACT, INTERREG, etc. as a combined demonstration of what cities future is. Set up of the EU agency for urban agriculture in the building and showroom for the most advanced technologies developed in the continent. Products will be used for the EU restaurants and for employees baskets.

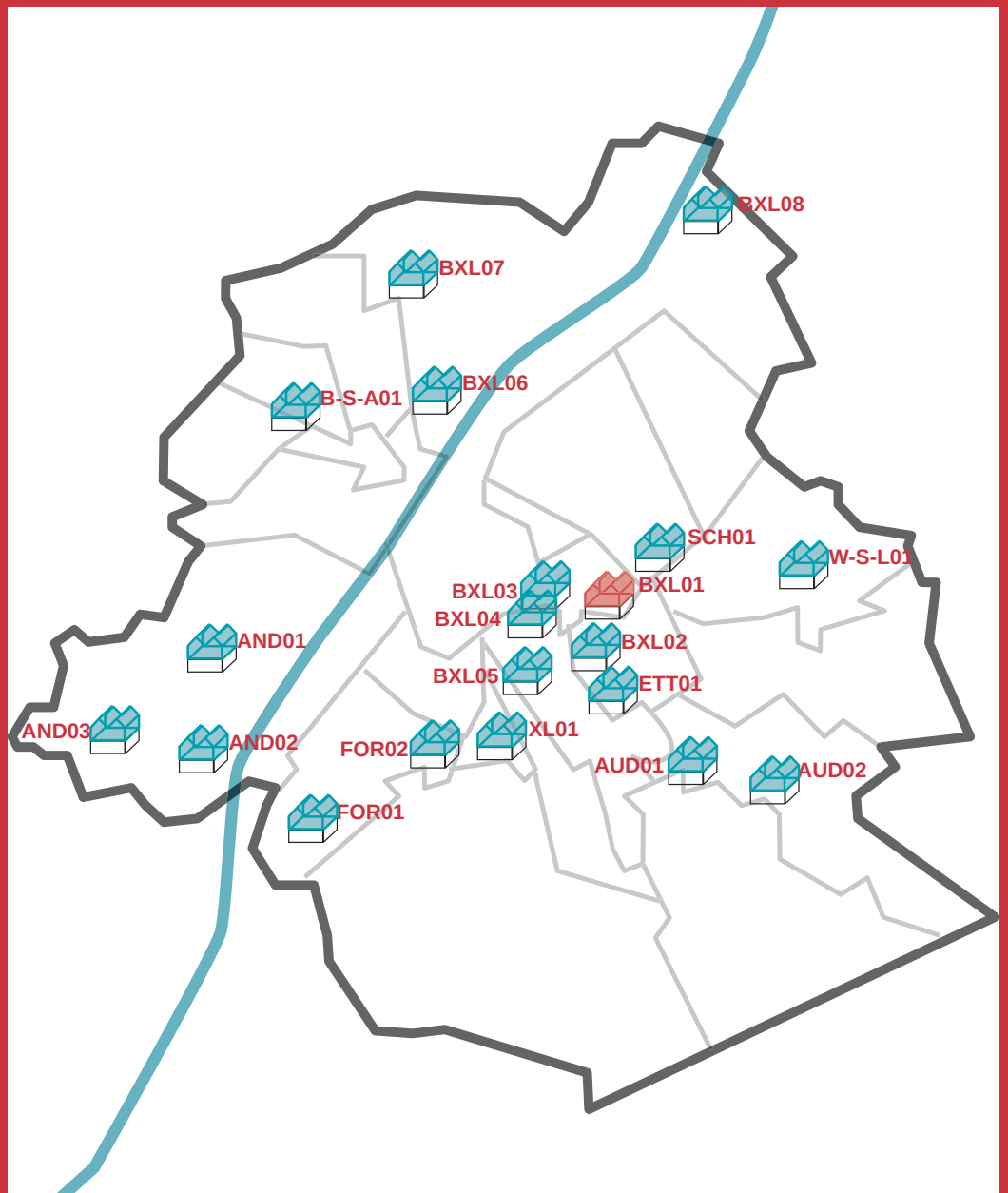


Integrated Indoor Farming Planning

TOOLBOX

01	3	14	2
02	1	15	2
03	3	16	0
04	2	17	2
05	2	18	3
06	1	19	2
07	1	20	0
08	3	21	1
09	3	22	2
10	3	23	2
11	3	24	3
12	2	24	3
13	3	26	2

QUICK WINS



START TO PLAN

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STEP 8 Finallise big features

STEP 9 Roadmap timetable

WIN-WIN SITUATION

LATERAL THINKING FACTORY

ResilieNtWEB
Innovate for a sustainable business

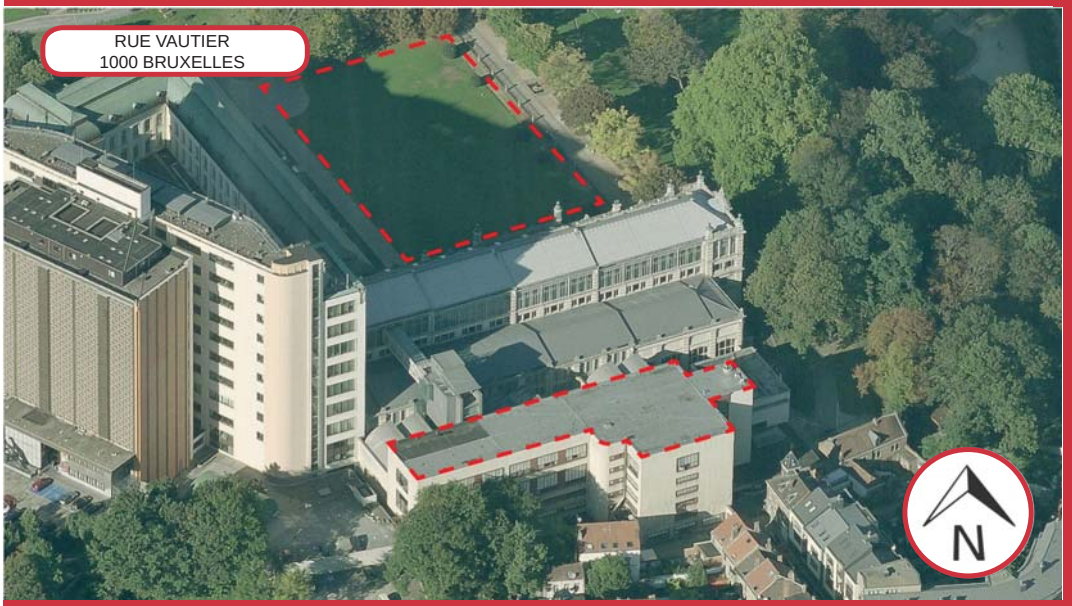
INDOOR FARMING IN RBC // 2014

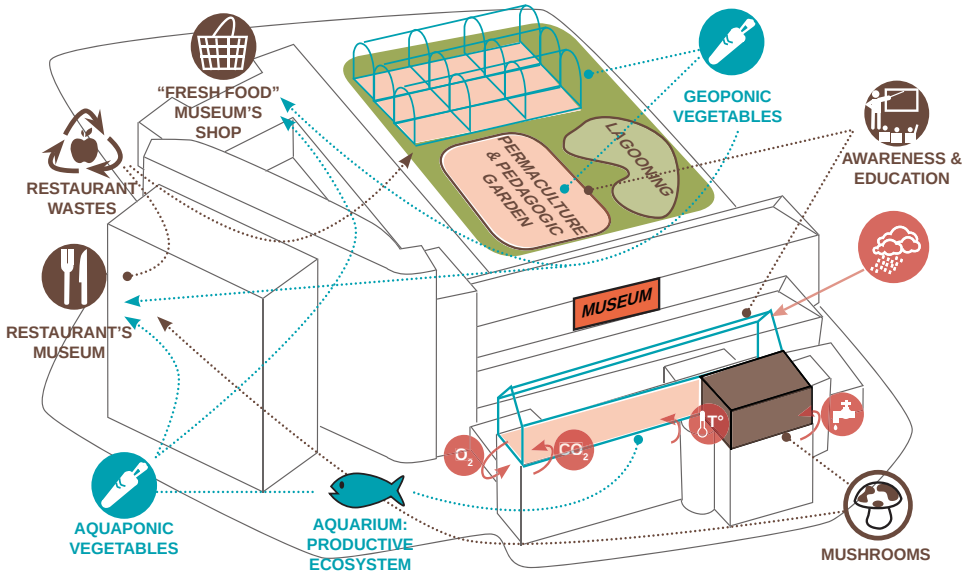
BXL02 Natural Sciences Museum

LATERAL THINKING FACTORY

ResilieNtWEB
Innovate for a sustainable business

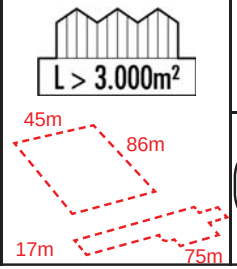
PROJECT
System-Holistic Diagram





Know what you have

Available area



Use

MUSEUM OFFICE

Host

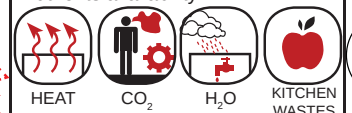
MUSÉE DES SCIENCES NAT.

Accessibility

EASY

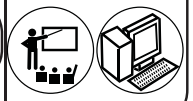
PUBLIC

Nutrients availability



HEAT CO_2 H_2O KITCHEN WASTES

Context

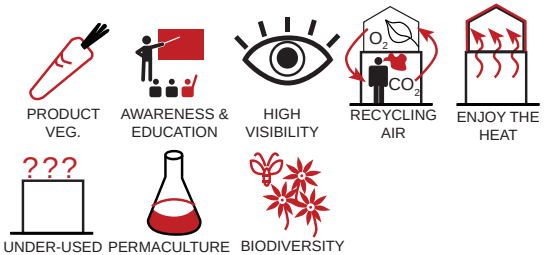


Available area	Approximately 5.270 m² (0.52Ha) rooftop on the Science Museum administrative building, and 3.870m2 on ground floor.
Building use and structure	This building is part of the Museum and is dedicated to administrative usage only. Access is easy, as there are elevator and stairs connected to this roof.
Context	Between dense residential and office area, there is no retail nearby. The whole complex is dedicated to science education through exhibitions, and connected to the Leopold park which is already a good biodiversity environment. There is more than 280.000 visitors per year and some exhibition on urban biodiversity.
Nutrients availability	As this part of the museum is quite old and connected to the others buildings, nutrients as water, heat and CO2 should be accessible.

Know what you want

We present our new living exhibition dedicated to urban farming and productive ecosystems, lined to our permanent exhibition: DiverCity. This is an interactive way of discovering urban food production in our cities.
You will find a greenhouse on our rooftop where vegetable can grow on hydroponic systems (aquatic productive ecosystem); and on ground level, a permaculture garden and others systems providing solutions for urban resilience (water treatment for building grey water, dry toilets, rainwater storage systems, etc.). The production is dedicated to our new Fresh Food Shop and to our restaurant.

WHY DO IT?



PRODUCT VEG. AWARENESS & EDUCATION HIGH VISIBILITY RECYCLING AIR ENJOY THE HEAT UNDER-USED SPACE PERMACULTURE RESEARCH BIODIVERSITY

STAKEHOLDERS

ECO IRIS

FTE

15-30

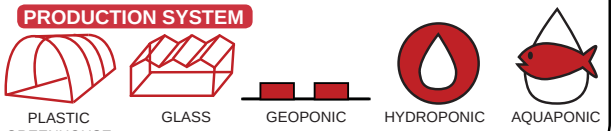
ADDED VALUE

LINK WITH OTHER MUSEUM AREA LIVING MUSEUM LINK WITH UNIVERSITIES

PRODUCTS

VEGETABLES MUSHROOMS FISH

PRODUCTION SYSTEM



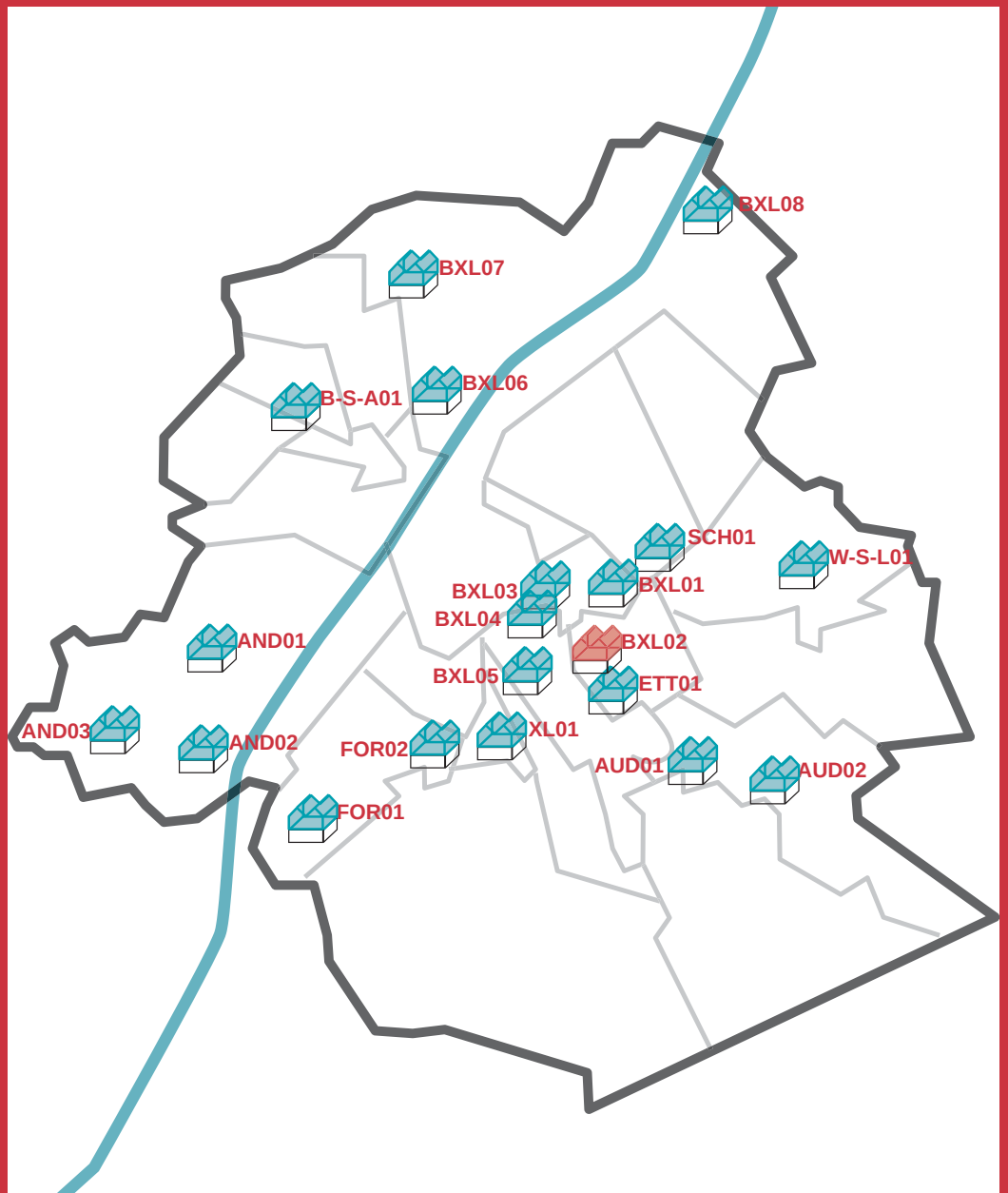
PLASTIC GREENHOUSE GLASS GEOPONIC HYDROPONIC AQUAPONIC

Integrated Indoor Farming Planning

TOOLBOX

01	2	14	2
02	0	15	2
03	3	16	0
04	2	17	2
05	1	18	2
06	1	19	3
07	2	20	0
08	3	21	0
09	3	22	2
10	3	23	2
11	3	24	3
12	3	24	3
13	3	26	1

QUICK WINS



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WIN-WIN SITUATION

LATERAL THINKING FACTORY

ResilieNtWEB
Innovate for a sustainable business

INDOOR FARMING IN RBC // 2014

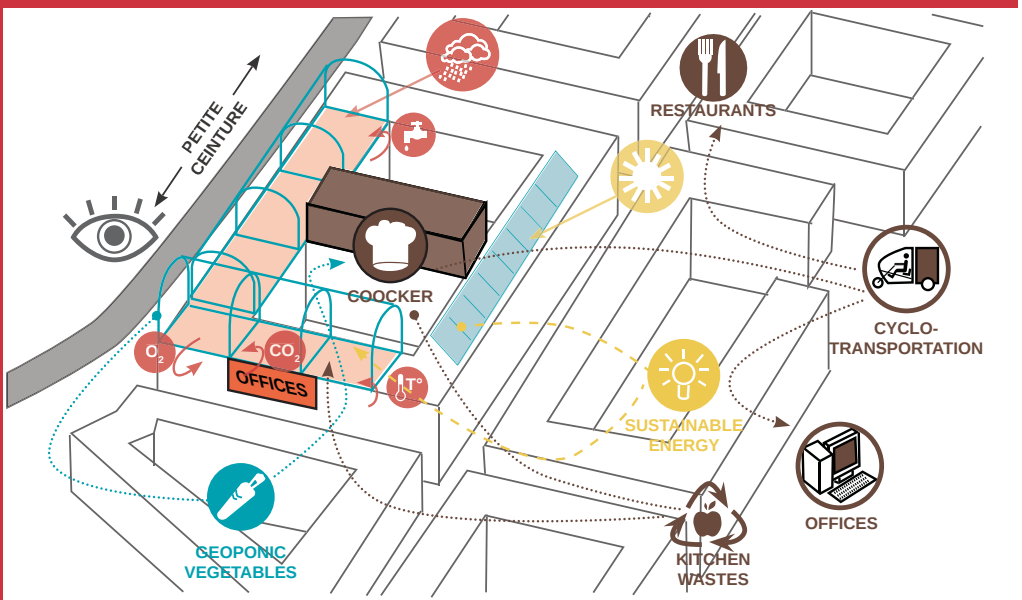
BXL03

Offices - Trône

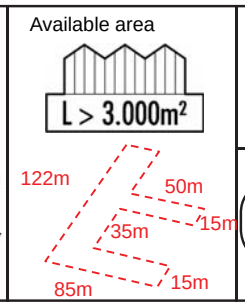
LATERAL THINKING FACTORY

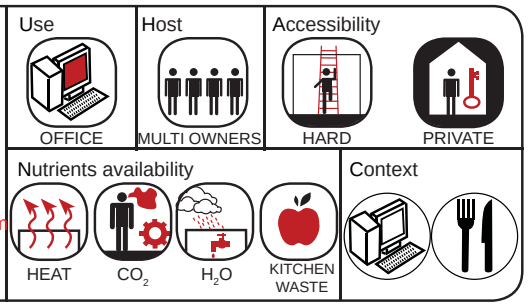
ResilieNtWEB
Innovate for a sustainable business

PROJECT
System-Holistic Diagram



Know what you have

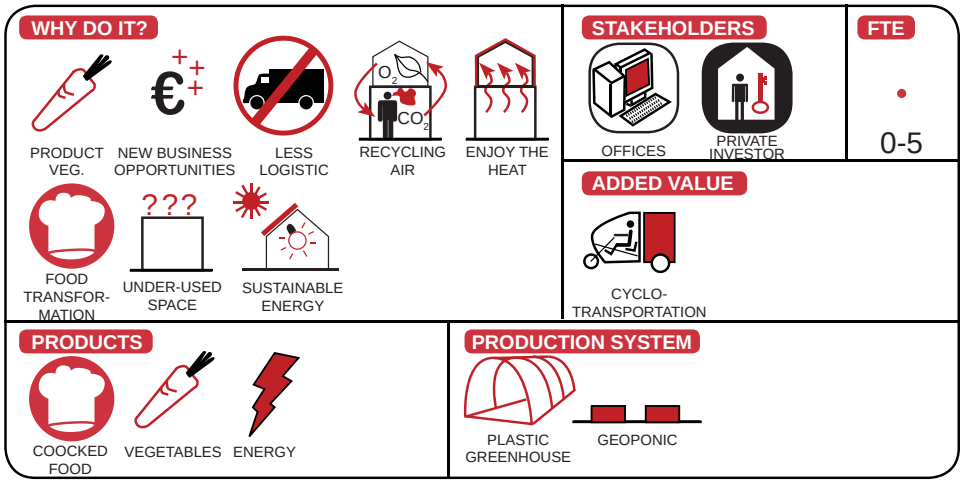




Available area	Approximately 4.800 m² (0.48Ha) of flat rooftop on different buildings.
Building use and structure	Location is complex due to the presence of differents owners. This configuration is common in Brussels and could be a nice pilot project. Buildings are high and access is not easy and should be studied on site.
Context	The area is dedicated mainly to offices, with several restaurants inside the buildings but also accessible to everyone onto the streets.
Nutrients availability	As nutrients we can find heat, CO2, water and kitchen waste.

Know what you want

One of the biggest problem in cities are delivery trucks traffic, especially for food distribution to shops and restaurants. Producing locally on greenhouses rooftop will reduce those problems. Beside this, we increase quality and we deliver by cyclo-cars combining with mail and others goods. At the end, we optimize a lost surface and create a new way of approaching and understanding local distribution.

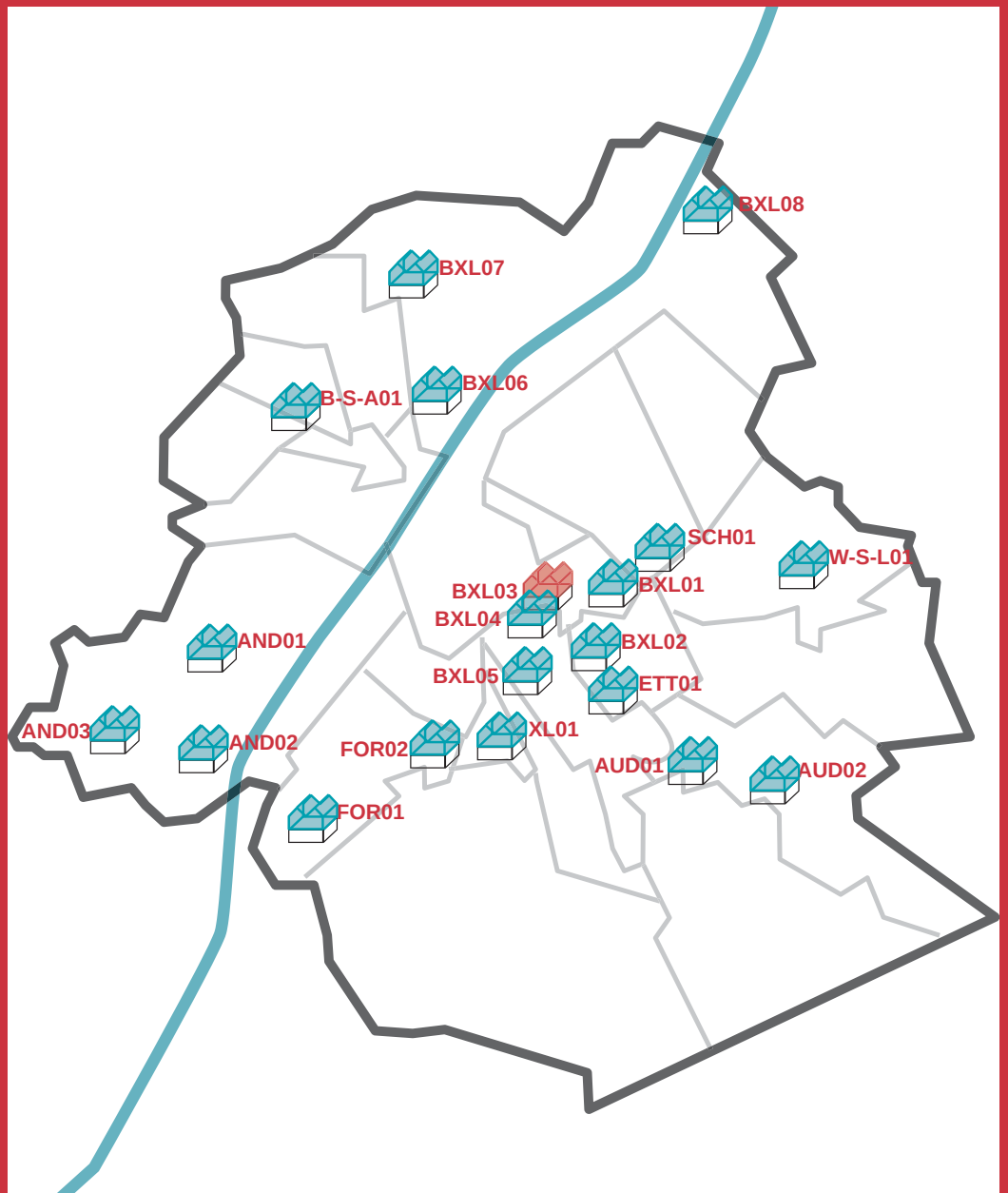


Integrated Indoor Farming Planning

TOOLBOX

01	3	14	1
02	0	15	2
03	0	16	1
04	3	17	2
05	3	18	2
06	1	19	2
07	0	20	0
08	2	21	0
09	3	22	3
10	2	23	2
11	1	24	0
12	2	24	0
13	0	26	1

QUICK WINS



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WIN-WIN SITUATION

BRUXELLES ENVIRONNEMENT

LATERAL THINKING FACTORY

ResilieNtWEB
Innovate for a sustainable business

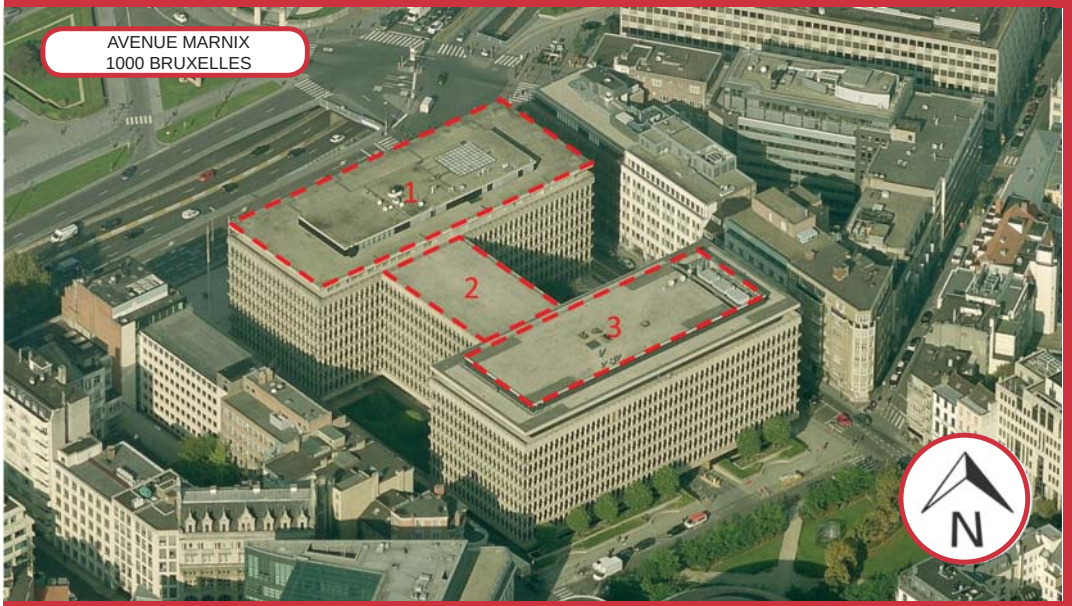
INDOOR FARMING IN RBC // 2014

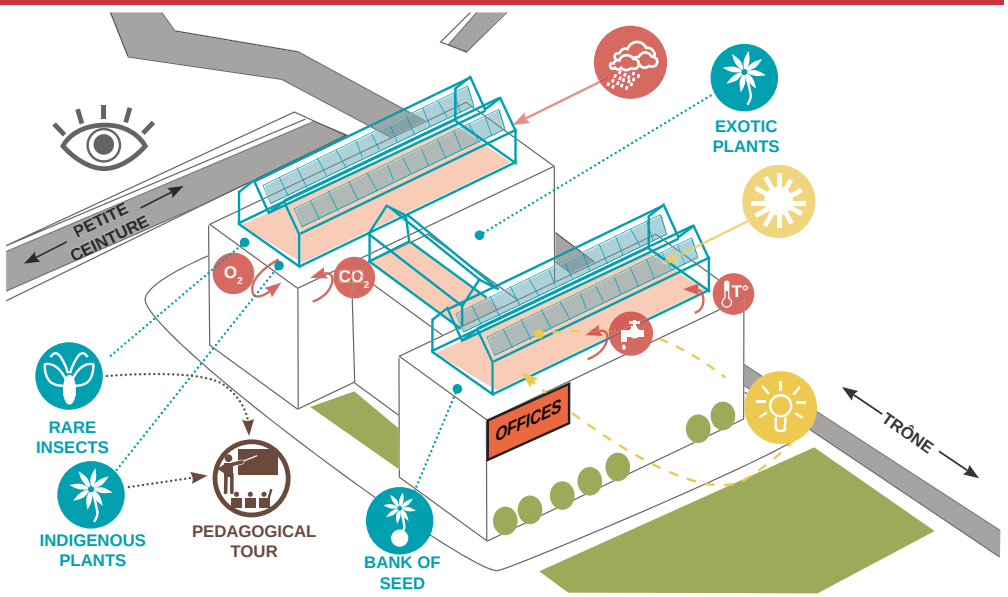
BXL04 ING Bank

LATERAL THINKING FACTORY

ResilieNtWEB
Innovate for a sustainable business

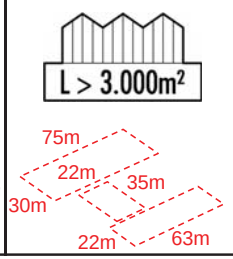
PROJECT
System-Holistic Diagram





Know what you have

Available area



Use: OFFICE

Host: ING — ING BANK

Accessibility: HARD, PRIVATE

Nutrients availability: HEAT, CO_2, H_2O

Context

Available area	Approximately 3.800 m² (0,38 Ha) of rooftop. Consider equipment already installed.
Building use and structure	ING bank building, security access has to be considered. This building is high and you should talk with fireman to start design your project in a proper way.
Context	An office area with some companies restaurants and others for lunch. Well located and communicated. This building is an icon of the Brussels architecture.
Nutrients availability	As a big office buildings, nutrients can come through the heating system, and a lot of CO2 is available.

Know what you want

Since more than 20 years we are the guarantor of your present and future interests. That is why we have created a biodiversity and species bank to go a little further in our compromise with you. This new equipment will allow us to preserve and produce seeds, plants, animals and insects. In another aspect, we will increase the building protection using the roof to reuse heat, and CO2 from usages and treat water for building use.

WHY DO IT?

HIGH VISIBILITY, AWARENESS, CSR, RECYCLING AIR, ENJOY THE HEAT

BANK OF BIODIVERSITY, SUSTAINABLE ENERGY, BANK OF SEEDS, UNDER-USED SPACE

STAKEHOLDERS

ING

FTE

0-5

ADDED VALUE

cradletocradle C2C MATERIALS

PRODUCTS

SEEDS, BIODIVERSITY, ENERGY

PRODUCTION SYSTEM

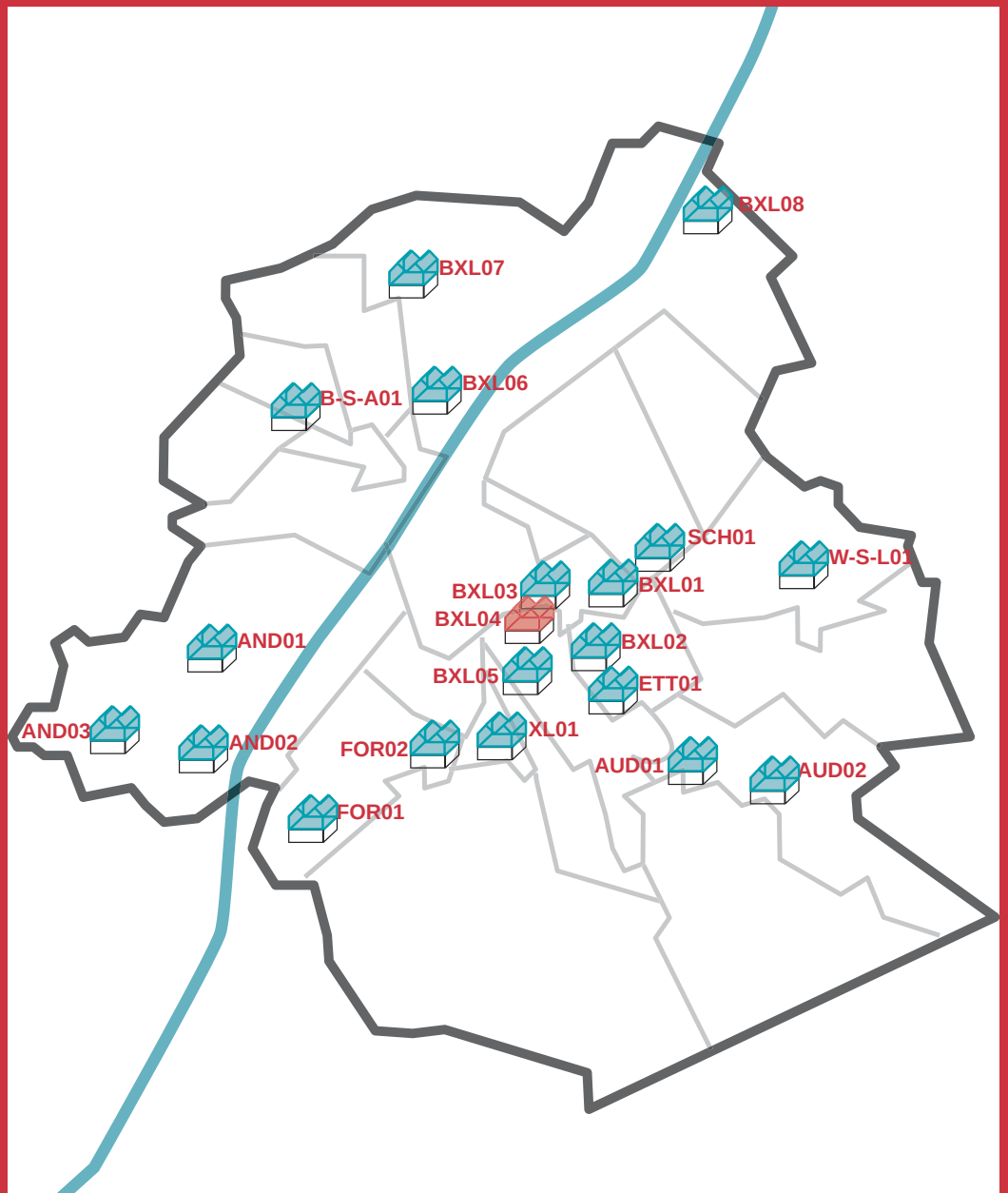
GLASS + P.V., GEOPONIC

Integrated Indoor Farming Planning

TOOLBOX

01	0	14	2
02	0	15	2
03	3	16	1
04	0	17	3
05	0	18	3
06	2	19	2
07	0	20	0
08	0	21	0
09	3	22	2
10	3	23	1
11	3	24	1
12	3	24	2
13	3	26	3

QUICK WINS



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WIN-WIN SITUATION

LATERAL THINKING FACTORY

ResilieNtWEB
Innovate for a sustainable business

INDOOR FARMING IN RBC // 2014

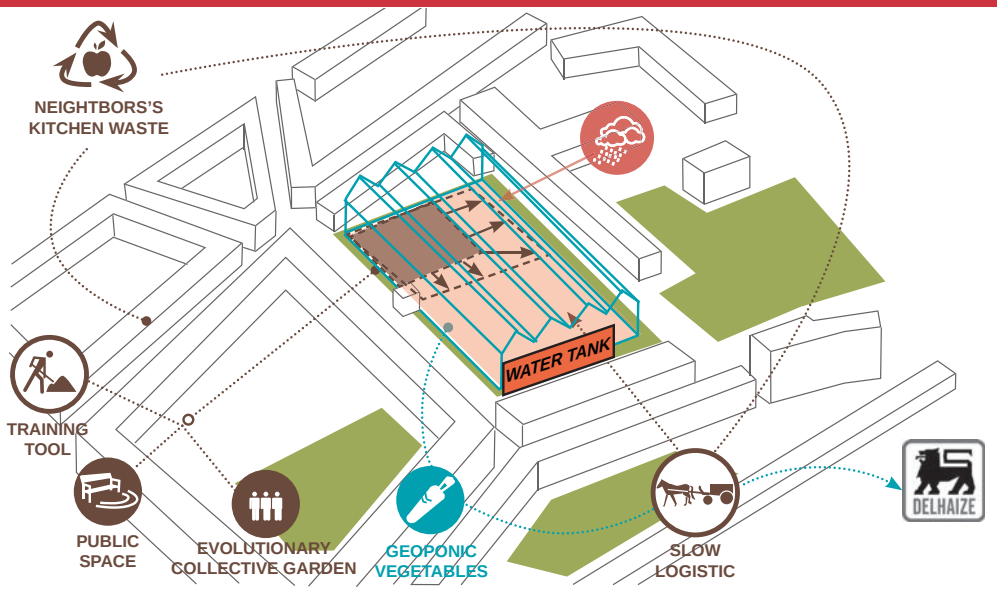
BXL05

Water tank - Vivaqua

LATERAL THINKING FACTORY

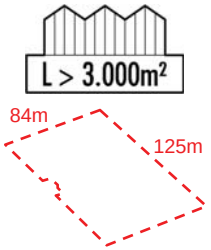
ResilieNtWEB
Innovate for a sustainable business

PROJECT
SYSTEM-HOLISTIC DIAGRAM



KNOW WHAT YOU HAVE

Available area



Use

WATER TANK

Host

VIVAQUA

VIVAQUA

Accessibility

EASY

PUBLIC

Nutrients availability

NEIGHTBORS'S KITCHEN WASTE

Context

Available area	Approximately 8.800 m² of grass above a drink water tank.
Building use and structure	This big unaccessible green space in a dense residential area is a water tank for the Brussels Region. Access is easy from the street. Green space is not considered as a green area on the Municipality Master Plan.
Context	This is a dense residential area near avenue Louise, school and supermarket.
Nutrients availability	As we are not allowed to interfere with the water tank, only kitchen and garden waste from neighbors should be considered as an ressource.

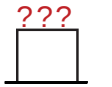
KNOW WHAT YOU WANT

We would like to use this big non-use urban space to create a evolutive and productive ecosystem. At first, 80% of the area will be used for production (direct sales to the supermarket nearby) and 20% of the area will be dedicated to collective gardening. This range can change depending of the neighbors acceptance of the collective part.
The Ixelles district may start a new local concept: collecting kitchen waste trough slow mobility (a horse) and so reduce carbon emissions. Plus, horse excrement can be used for compost!

WHY DO IT?

PRODUCT VEG.

LESS LOGISTIC



UNDER-USED SPACE

SOCIAL SPACE

COLLECTIVE COMPOST

TRAINING TOOL

PUBLIC SPACE

STAKEHOLDERS

VIVAQUA

FTE

5-15

ADDED VALUE

EVOLUTIVE PROJECT

SLOW LOGISTIC

NO PESTICIDES

PRODUCTS

VEGETABLES

PRODUCTION SYSTEM

GLASS

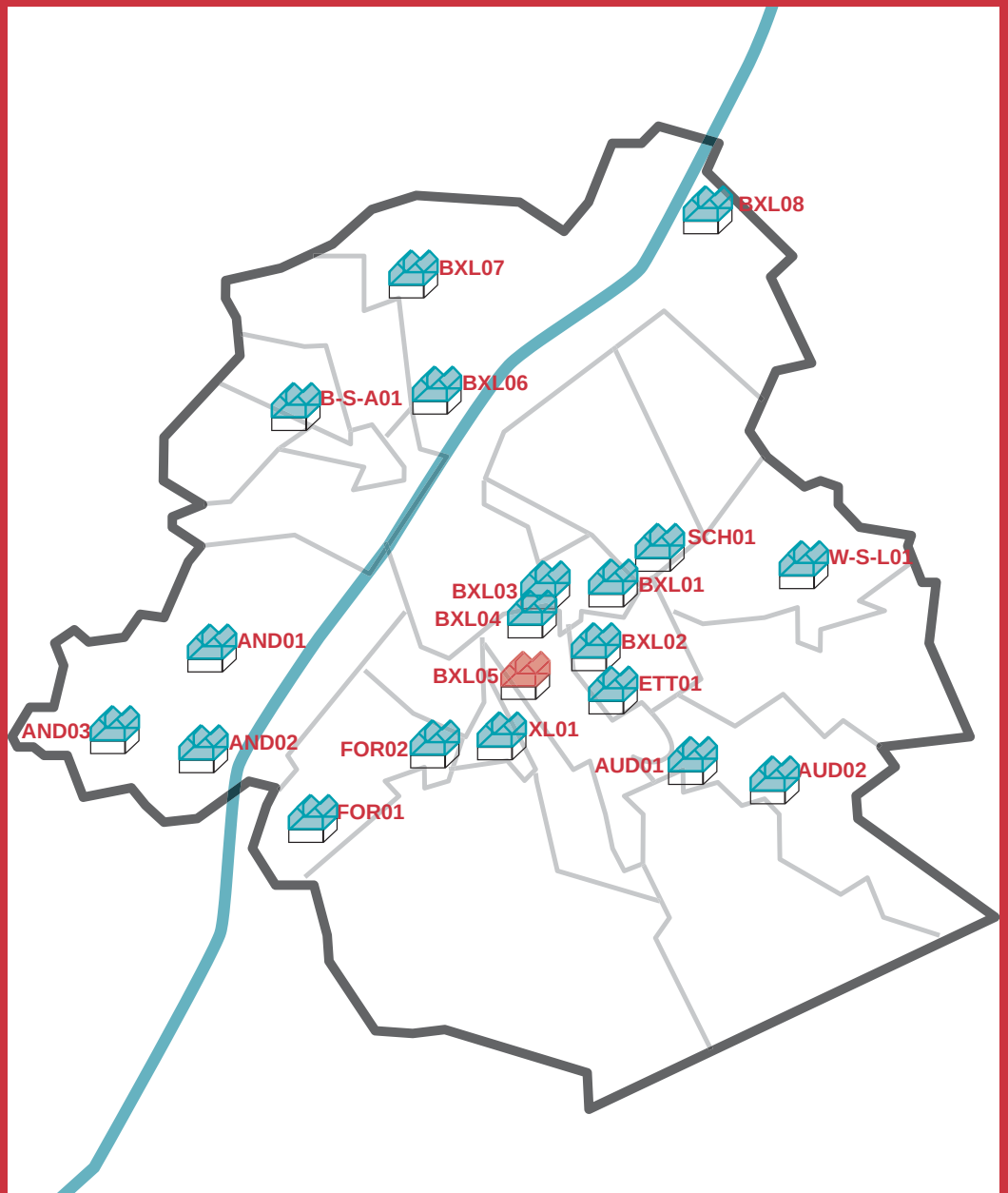
GEOPONIC

Integrated Indoor Farming Planning

TOOLBOX

01	3	14	0
02	3	15	0
03	1	16	0
04	2	17	1
05	3	18	2
06	1	19	3
07	3	20	0
08	3	21	0
09	0	22	0
10	2	23	0
11	1	24	1
12	3	24	2
13	2	26	1

QUICK WINS



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WIN-WIN SITUATION

BRUXELLES ENVIRONNEMENT · LATERAL THINKING FACTORY · ResilieNtWEB Innovate for a sustainable business

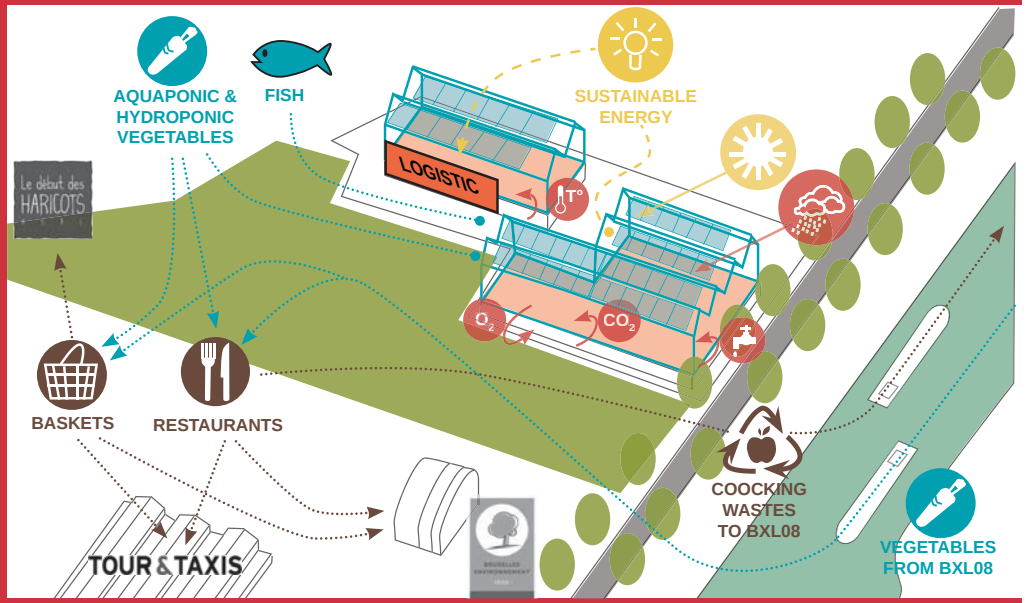
INDOOR FARMING IN RBC // 2014

BXL06 TIR

LATERAL THINKING FACTORY

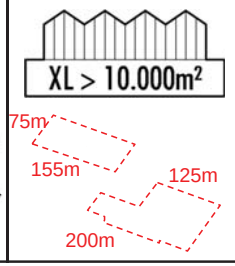
ResilieNtWEB
Innovate for a sustainable business

PROJECT
System-Holistic Diagram



Know what you have

Available area



Use: LOGISTIC

Host: sertrans — SERTRANS

Accessibility: EASY, PRIVATE

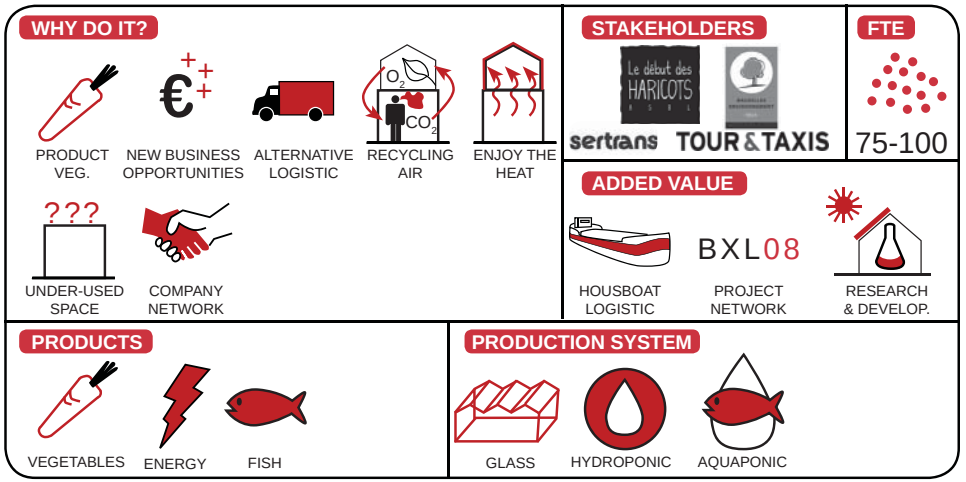
Nutrients availability: HEAT, CO_2, H_2O

Context

Available area	Approximately 39.000 m² (3,9ha) on two buildings. Available rooftop on two distincts buildings.
Building use and structure	Logistic building located near the brussels canal, activities are mainly storage and distribution.
Context	Located in an industrial area near the Tour&Taxi facilities where you can find restaurants and shops. The whole site is under construction and should receive in the coming years new residents, and the new IBGE-BIM offices. The whole roof area is used by PV, but this could be an opportunity to innovate by combining greenhouses and PV.
Nutrients availability	Heat, CO2 and grey water should be available.

Know what you want

As we started using our roof for energy production, we want to go further in this direction and develop agriculture between roof and PV. This is an opportunity for Greenbiz and IBGE-BIM to support this innovation through a partnership and then apply solutions to others roofs, with a bigger economical value.

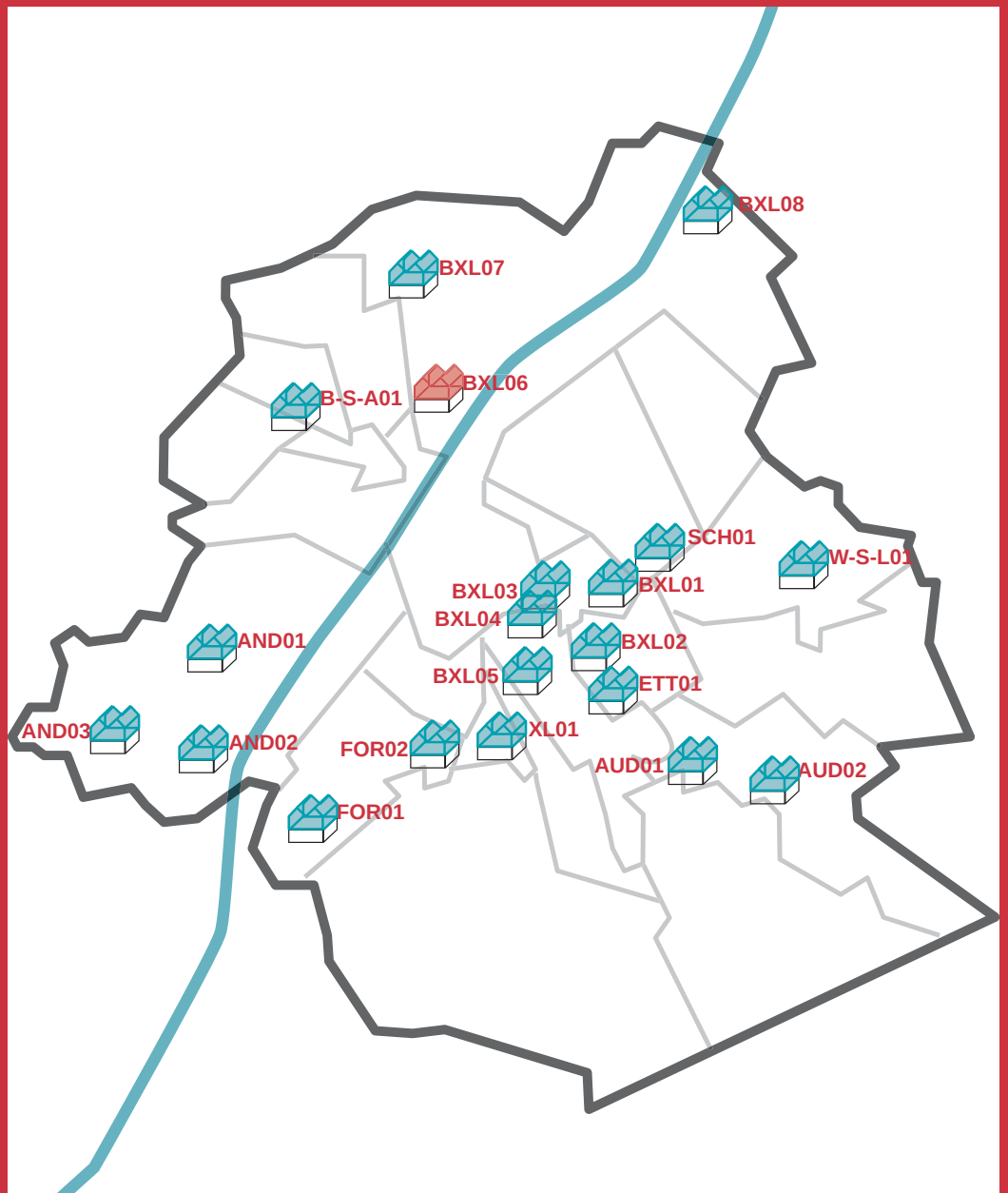


Integrated Indoor Farming Planning

TOOLBOX

01	2	14	2
02	3	15	2
03	0	16	2
04	3	17	1
05	3	18	1
06	2	19	3
07	0	20	0
08	2	21	0
09	3	22	2
10	3	23	2
11	2	24	2
12	2	24	0
13	1	26	2

QUICK WINS



START TO PLAN

STEP 1 Identify stakeholders, their goals & organisational culture.

STEP 2 Quickscan financial resources.

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STEP 8 Finallise big features

STEP 9 Roadmap timetable

WIN-WIN SITUATION

INDOOR FARMING IN RBC // 2014

BXL07

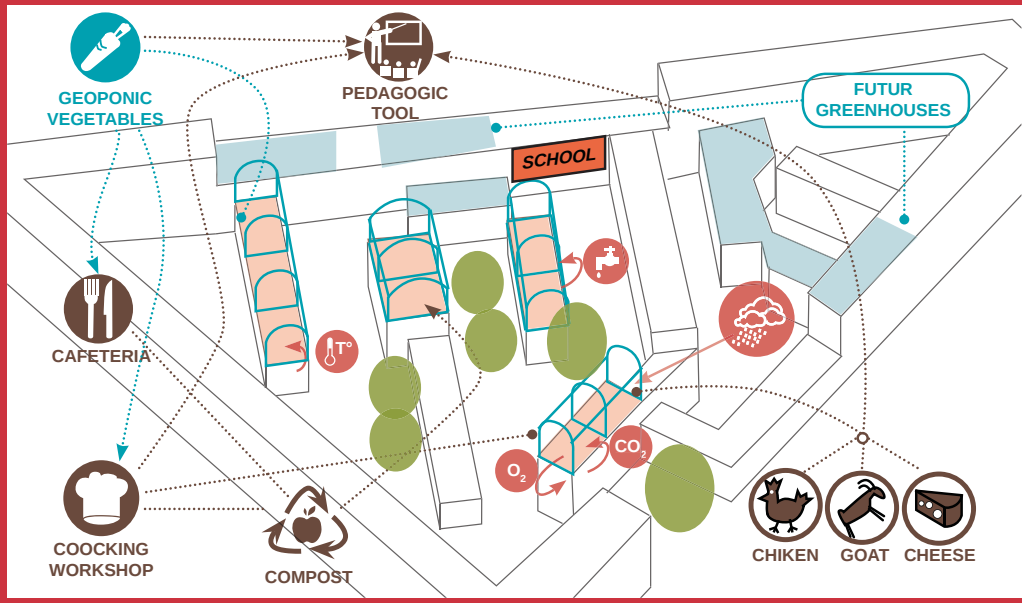
School in Laeken

LATERAL THINKING FACTORY

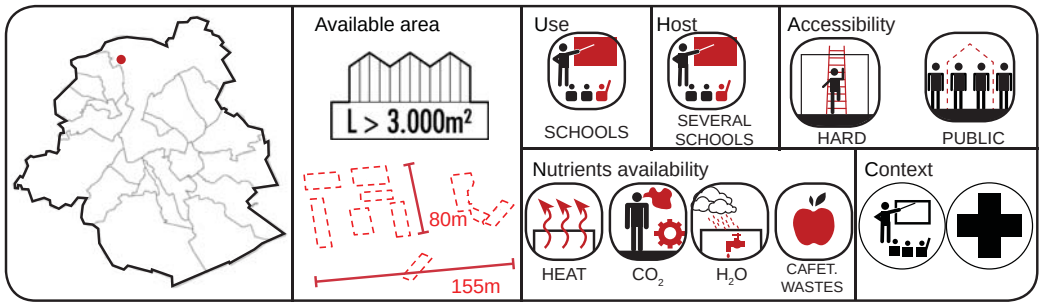
ResilieNtWEB
Innovate for a sustainable business

PROJECT

System-Holistic Diagram



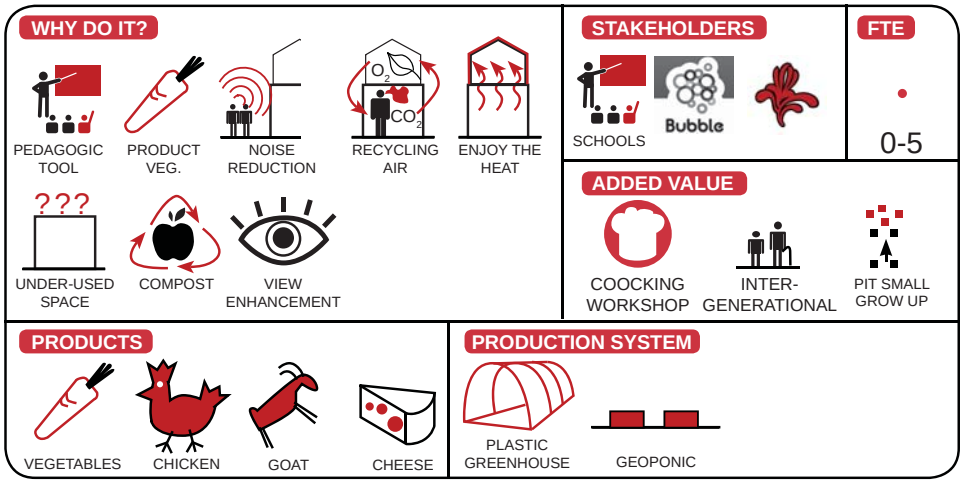
Know what you have



Available area	Approximately 4.500 m² (0,45Ha) on differents buildings in the same area.
Building use and structure	Group of pre-schools and primary schools with several available roofs in the same area. This configuration is common in the Region.
Context	Residential area mainly. Some shops and an Hospital nearby (Brugmann Hospital).
Nutrients availability	As kids produce quantity of CO2 and air renovation is a big concern, reusing CO2 for rooftop agriculture should be a good way to create a win-win situation.

Know what you want

Healthy and dynamic schools are our first concern, both for students and professors. Using greenhouses as an extension of our facilities, we will use those new class rooms to offer "Culture and Kitchen" workshops on wednesdays afternoon, inviting elderly people to take care of kids and share their knowledge in agriculture. Besides this, we will optimise performances of our buildings and generate significant savings that we will use to increase quality.

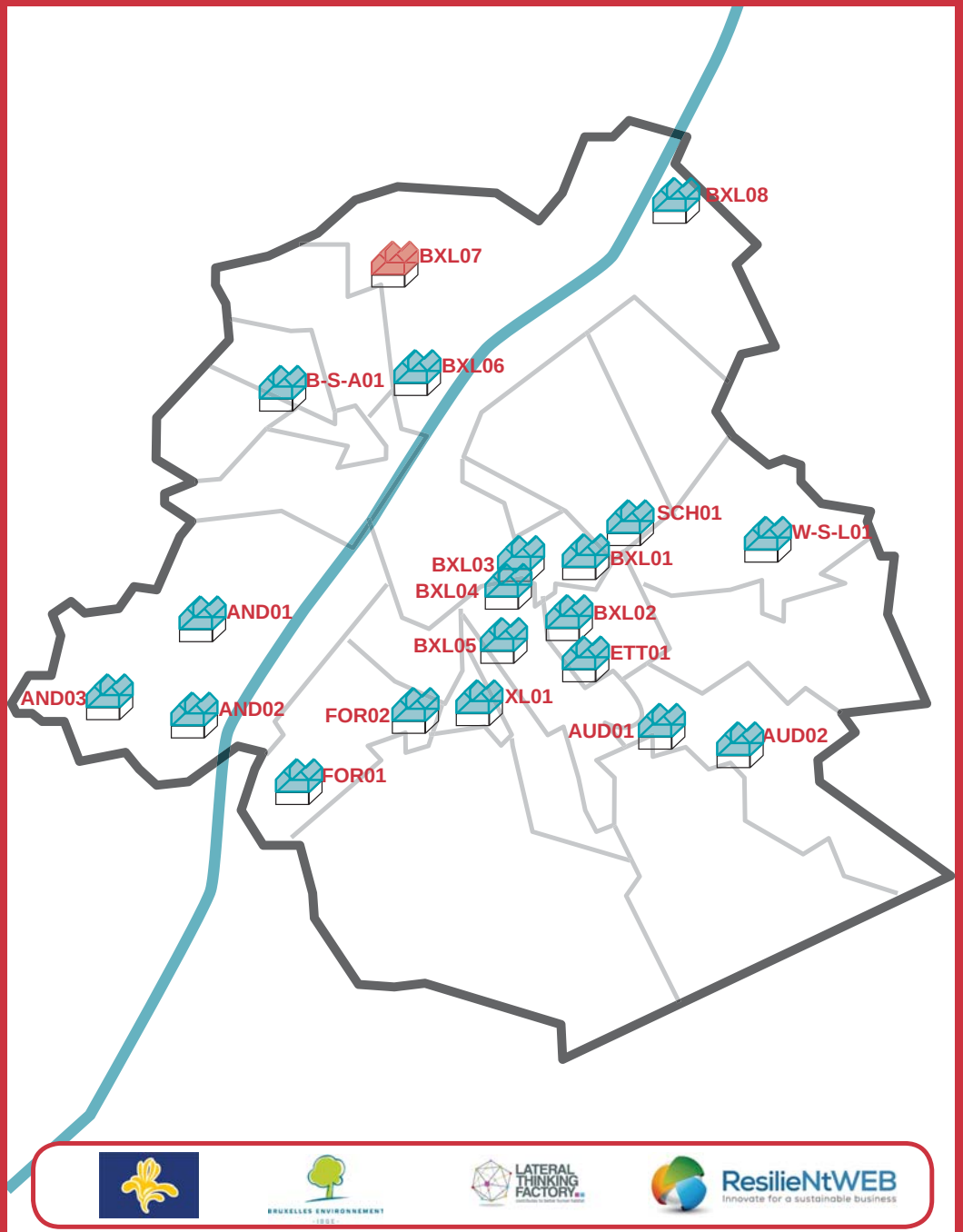


Integrated Indoor Farming Planning

TOOLBOX

01	2	14	3
02	0	15	3
03	1	16	3
04	1	17	2
05	2	18	2
06	2	19	3
07	3	20	2
08	2	21	0
09	3	22	2
10	2	23	2
11	1	24	1
12	3	24	3
13	2	26	1

QUICK WINS



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WIN-WIN SITUATION

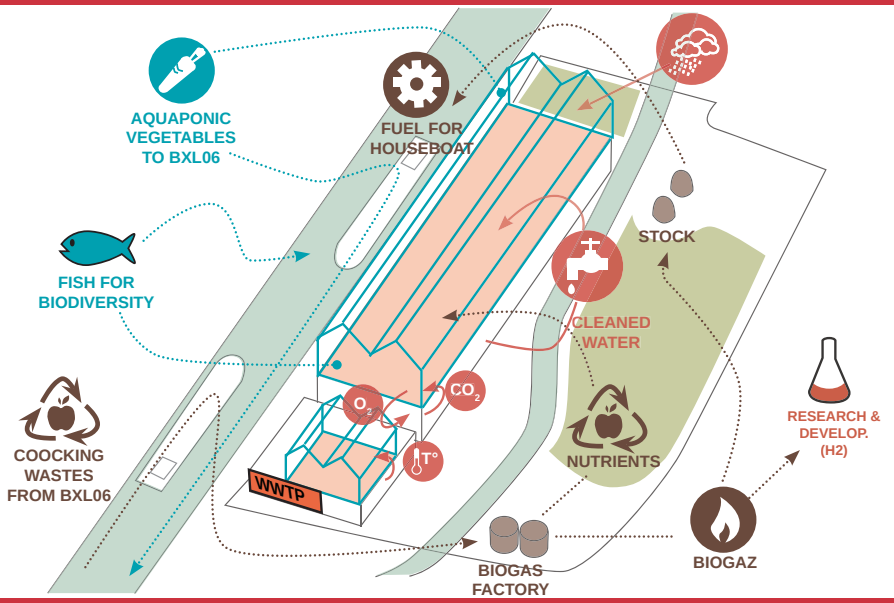
INDOOR FARMING IN RBC // 2014

BXL08 Wastewater treatment BXL-Nord

LATERAL THINKING FACTORY

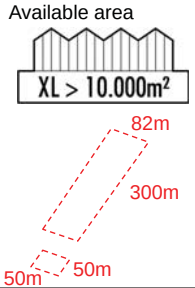
ResilieNtWEB
Innovate for a sustainable business

PROJECT
System-Holistic Diagram



Know what you have

Available area



Use: WWTP

Host: AQUIRIS

Accessibility: EASY

PRIVATE

Nutrients availability: HEAT, CO_2, H_2O, COMPOST FROM BXL06, WWTP

Context

Available area	Approximately 32.100 m² (32Ha) of available area.
Building use and structure	Water treatment station roof with high tech installations. Access should be easy due to low high building shape
Context	Located in an industrial area with no residents, neither shops or supermarket for production sales.
Nutrients availability	Potential use of greywater as a step of the treatment process, heat and CO2 coming from the process and energy coming from the bio-methane process.

Know what you want

Since 7 years, we treat your waste water with high level standards. To go further in our mission, we develop an aquaponic farm on our roof to demonstrate the quality of our water and diversify our core business. Producing fresh vegetables and fishes locally generate a new type of revenues and allows us to re-introduce fishes in the canal. Goods will be distributed through the canal and synergies can be created with others projects. Our methane production will be increased and compost will be used for our plants.

WHY DO IT?

PRODUCT VEG. · NEW OPPORTUNITIES · SHOW OUR QUALITY · RECYCLING AIR · ENJOY THE HEAT

RESEARCH & DEVELOP. · HIGH VISIBILITY · NURSERY · ALTERNATIVE LOGISTIC

STAKEHOLDERS

AQUIRIS · LIFE PROGRAMME

FTE

100-150

ADDED VALUE

HOUSBOAT LOGISTIC · BXL06 PROJECT NETWORK · BIOGAZ

PRODUCTS

VEGETABLES · FISH FOR THE CANAL

PRODUCTION SYSTEM

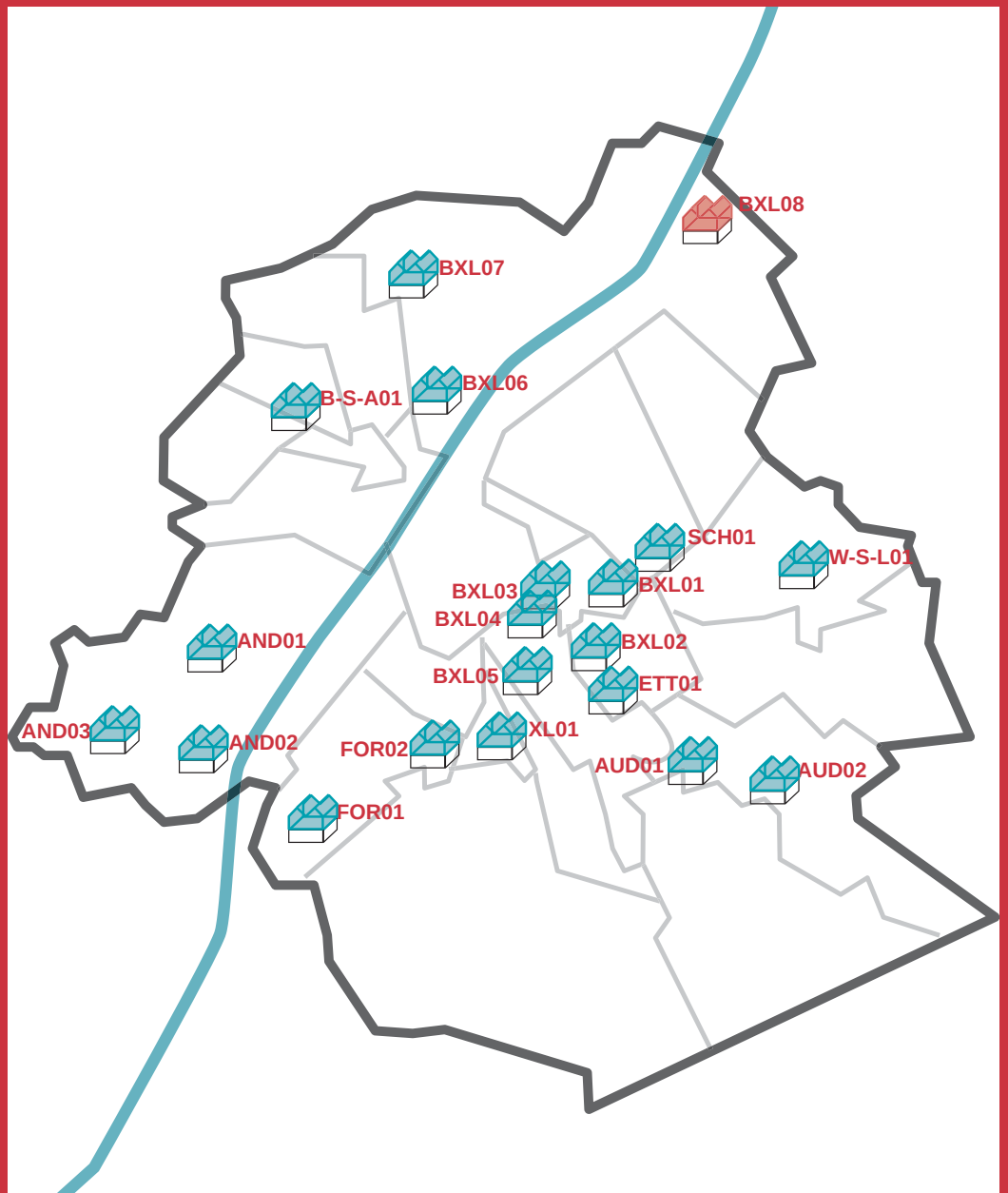
GLASS · AQUAPONIC

Integrated Indoor Farming Planning

TOOLBOX

01	2	14	3
02	3	15	3
03	0	16	2
04	2	17	1
05	2	18	2
06	1	19	2
07	3	20	0
08	3	21	0
09	3	22	3
10	3	23	2
11	2	24	3
12	2	24	1
13	3	26	3

QUICK WINS



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WIN-WIN SITUATION

LATERAL THINKING FACTORY

ResilieNtWEB
Innovate for a sustainable business

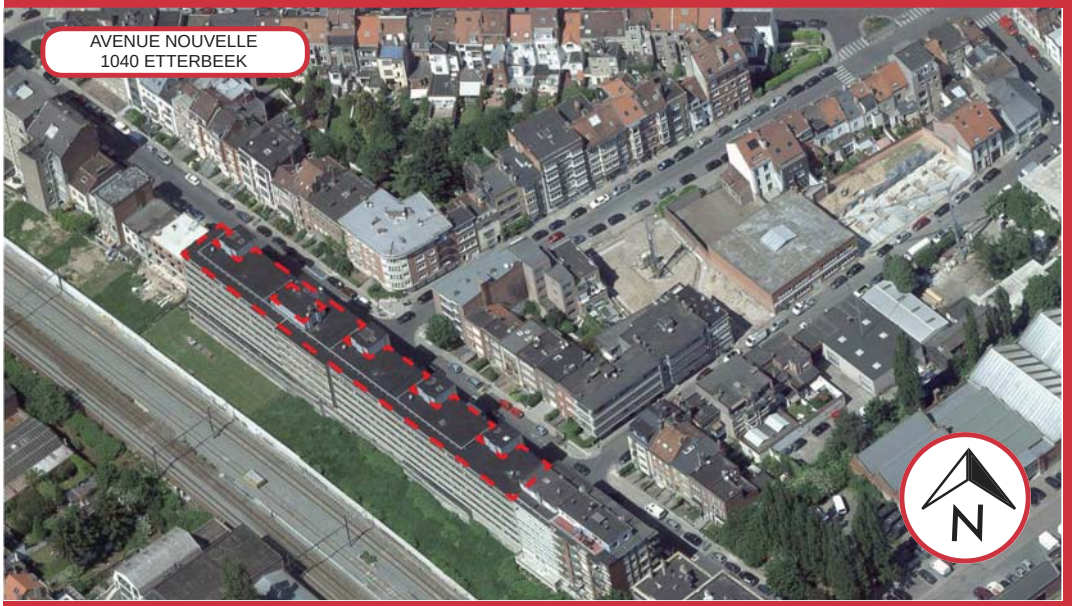
INDOOR FARMING IN RBC // 2014

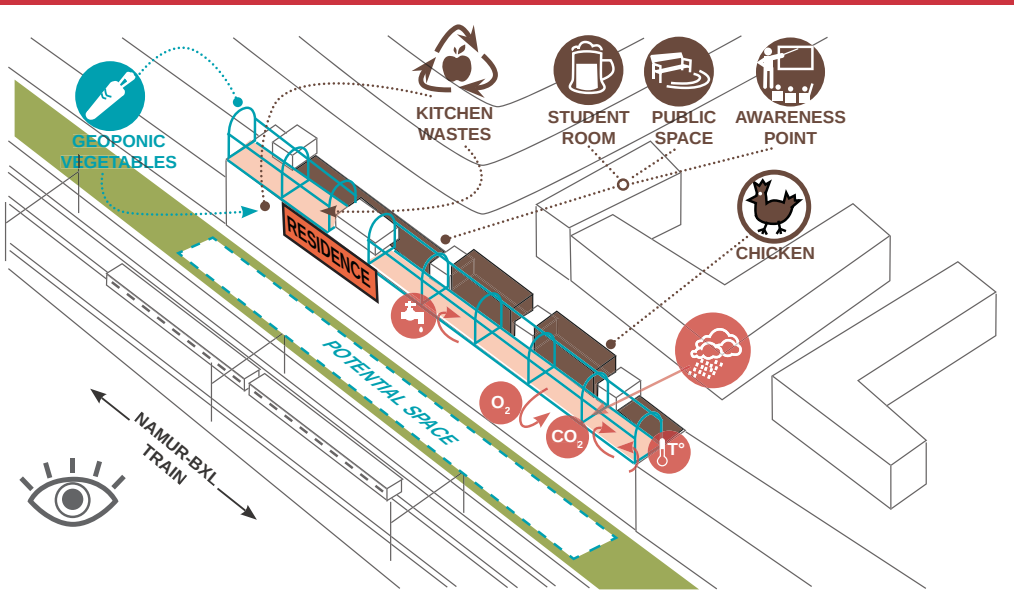
ETT01 Student Residence VUB

LATERAL THINKING FACTORY

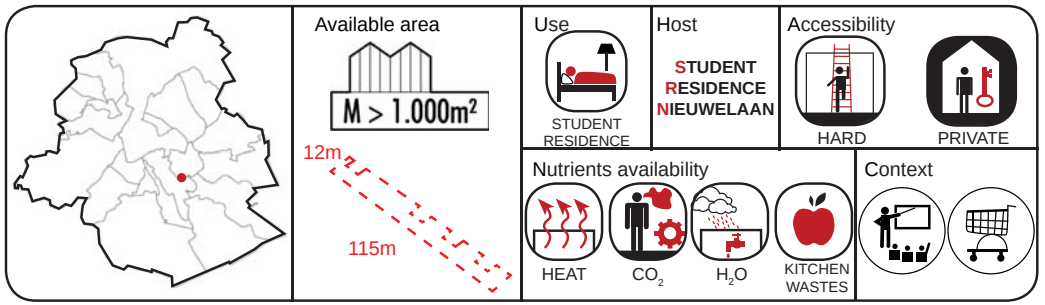
ResilieNtWEB
Innovate for a sustainable business

PROJECT
System-Holistic Diagram





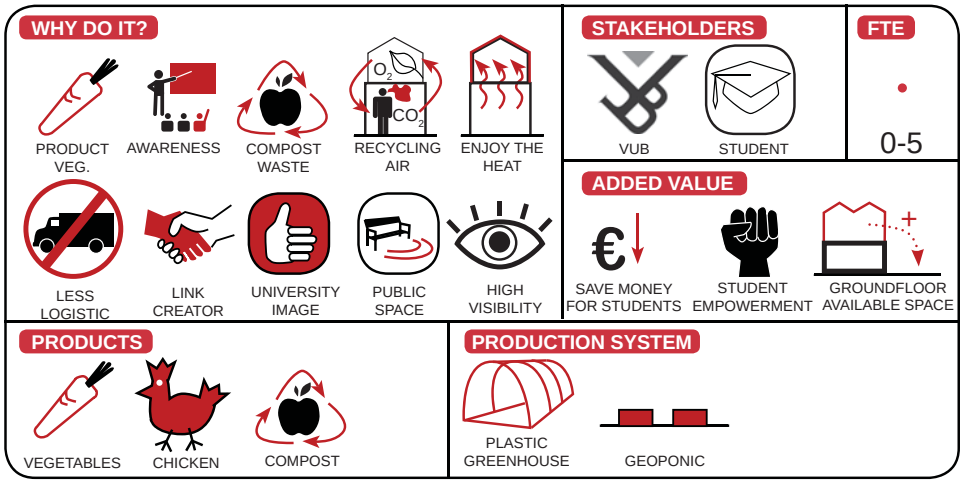
Know what you have



Available area	Approximately 1.100 m² (0,1 Ha) on rooftop deducing technical blocks
Building use and structure	Residential building for students from VUB. Around 300 dwellings.
Context	Located in a residential area with some shops and two schools. Community gardens located at the bottom of the building on a green area near train site.
Nutrients availability	Poor access to nutrients due to the building use (residential), but interesting for kitchen waste compost.

Know what you want

This project aims to allow students to participate to a civic process: produce food on their rooftop, and by the way extend collective spaces on a new surface. Engaged students will generate rent and taxes reduction, similar to the "Kots à projet" formula in the Louvain University.



Integrated Indoor Farming Planning

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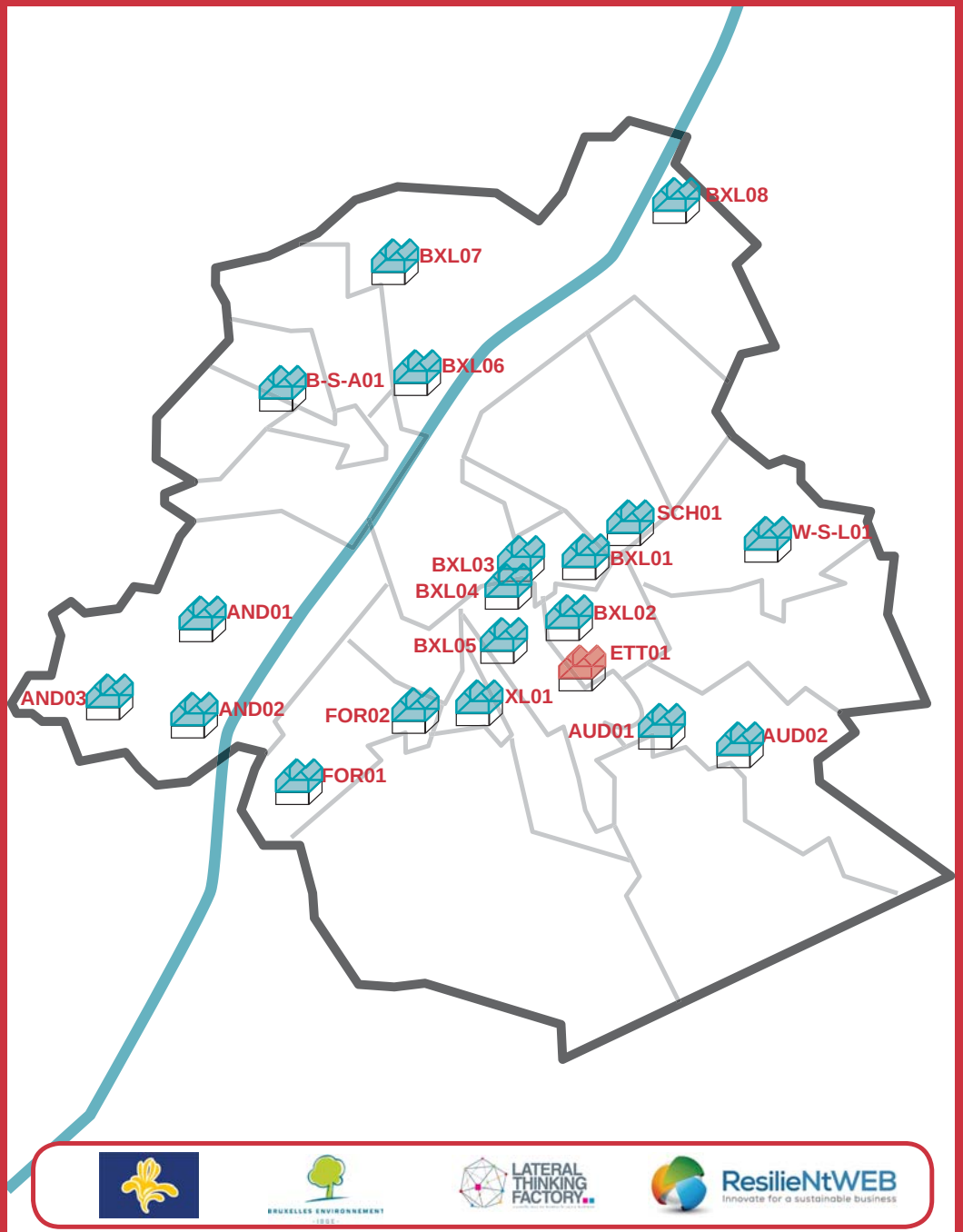
07	3	20	0
08	3	21	0
09	3	22	2
10	2	23	2
11	1	24	2
12	3	24	2
13	2	26	1

QUICK WINS



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WIN-WIN SITUATION

LATERAL THINKING FACTORY

ResilieNtWEB
Innovate for a sustainable business

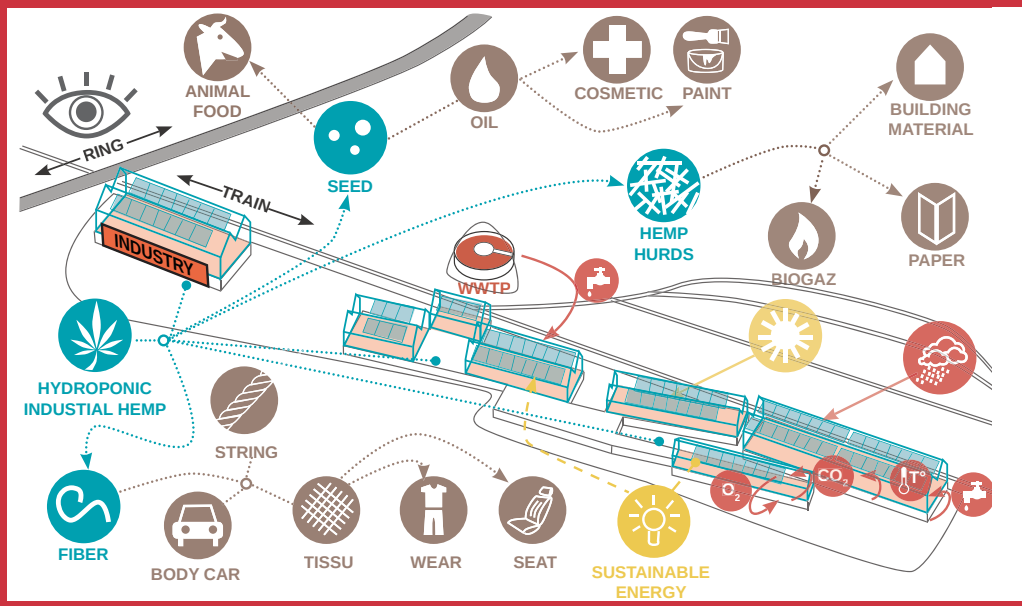
INDOOR FARMING IN RBC // 2014

FOR01 Audi Forest

LATERAL THINKING FACTORY

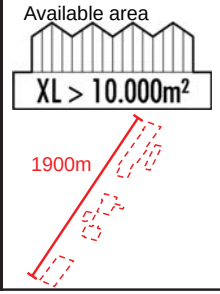
ResilieNtWEB
Innovate for a sustainable business

PROJECT
System-Holistic Diagram



Know what you have

Available area



Use: INDUSTRY

Host: AUDI FOREST

Accessibility: EASY, PRIVATE

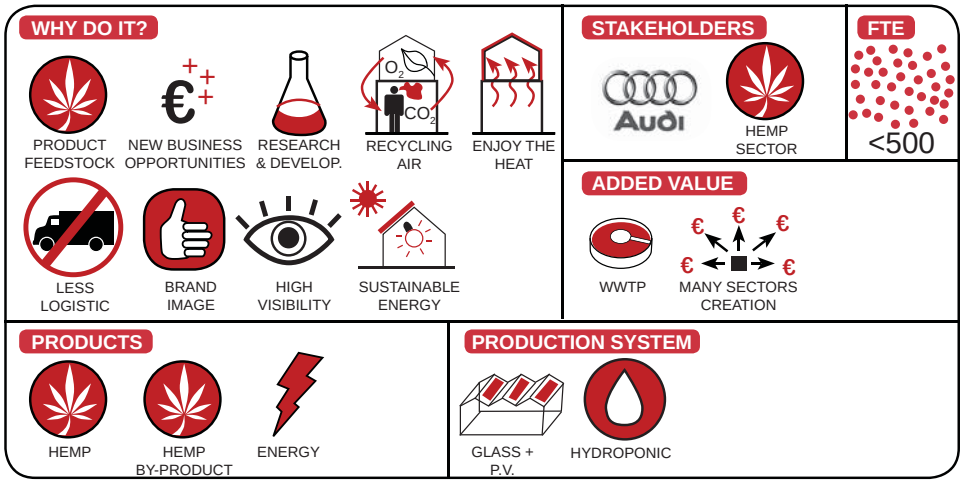
Nutrients availability: HEAT, CO_2, H_2O, WWTP

Context

Available area	The biggest flat roof in the Region with approximately 180.000m2 (18Ha) on several buildings belonging to the same owner.
Building use and structure	Audi Forest complex with one new building (34.000m2) and others old buildings (146.000m2). Buildings are quite high but easily accessible from outside.
Context	An island complex in the city, size of production should allow to implement a complete ecosystem by itself.
Nutrients availability	Nutrients will be available from the building, but also from the water treatment station and heat station nearby.

Know what you want

Audi brand is based on quality and technology. Concerned by the environment and innovation, we are engaged to develop a new whole industry by using our roofs to produce Hemp in greenhouses. This new business will provide good quality products to be used in construction, textile industry, cosmetics, pharmaceutics, etc. Hemp will also used for our new car generation prototype using biogas, made by hemp fibers (body car and textiles) and in the future 100% recyclable.

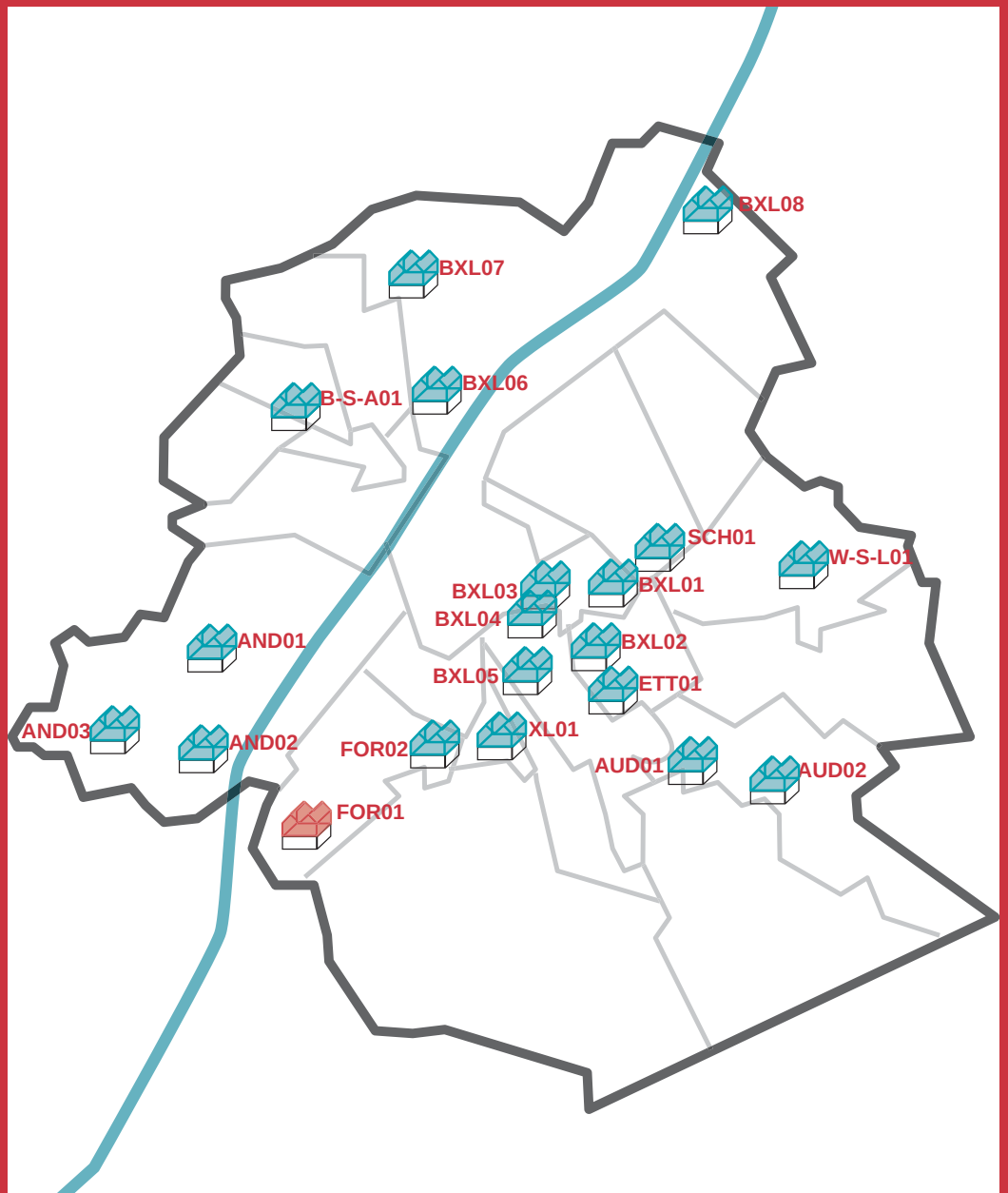


Integrated Indoor Farming Planning

TOOLBOX

01	0	14	2
02	3	15	2
03	2	16	2
04	2	17	1
05	1	18	3
06	1	19	3
07	0	20	0
08	0	21	1
09	3	22	2
10	3	23	3
11	2	24	3
12	2	24	0
13	1	26	3

QUICK WINS



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WIN-WIN SITUATION

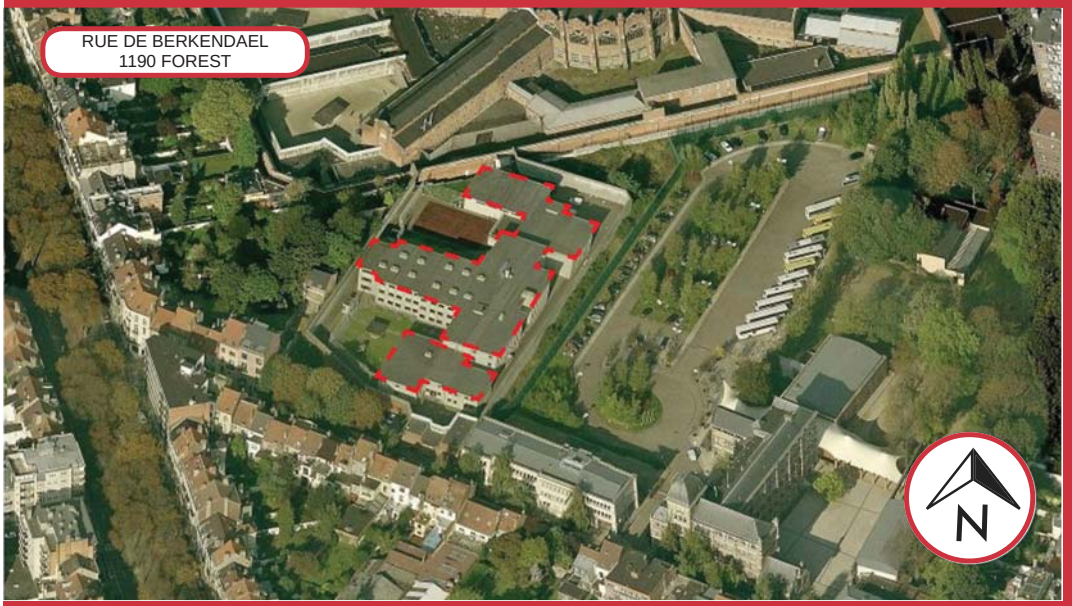
BRUXELLES ENVIRONNEMENT · LATERAL THINKING FACTORY · ResilieNtWEB Innovate for a sustainable business

INDOOR FARMING IN RBC // 2014

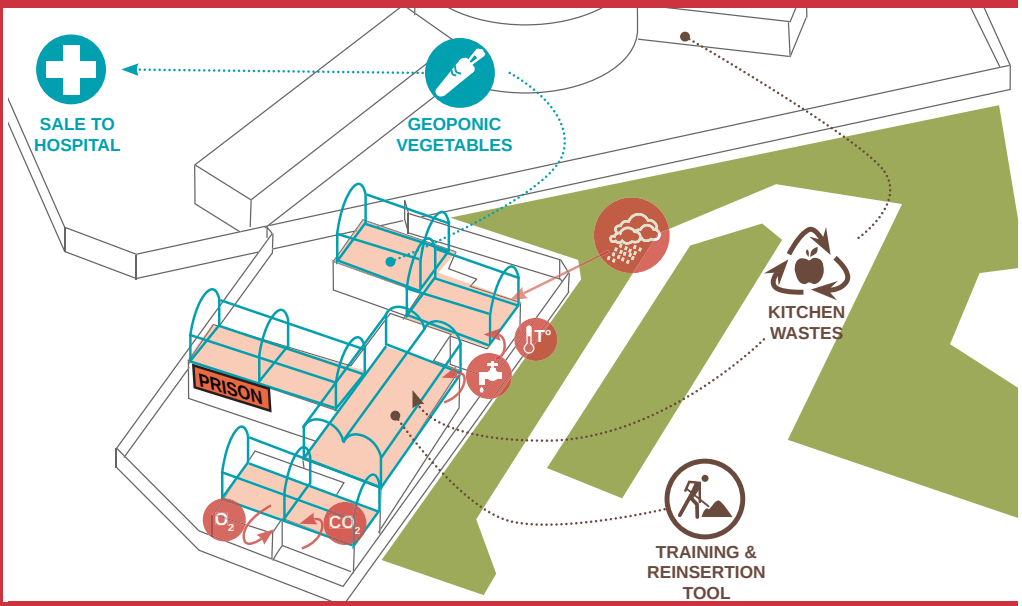
FOR02 Prison of Forest

LATERAL THINKING FACTORY

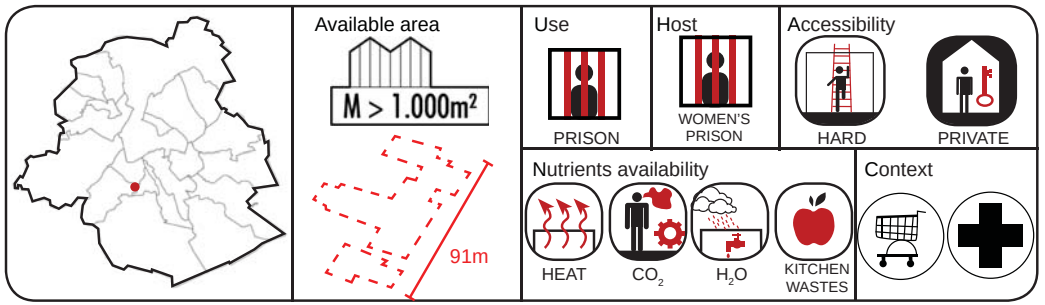
ResilieNtWEB
Innovate for a sustainable business



PROJECT
System-Holistic Diagram



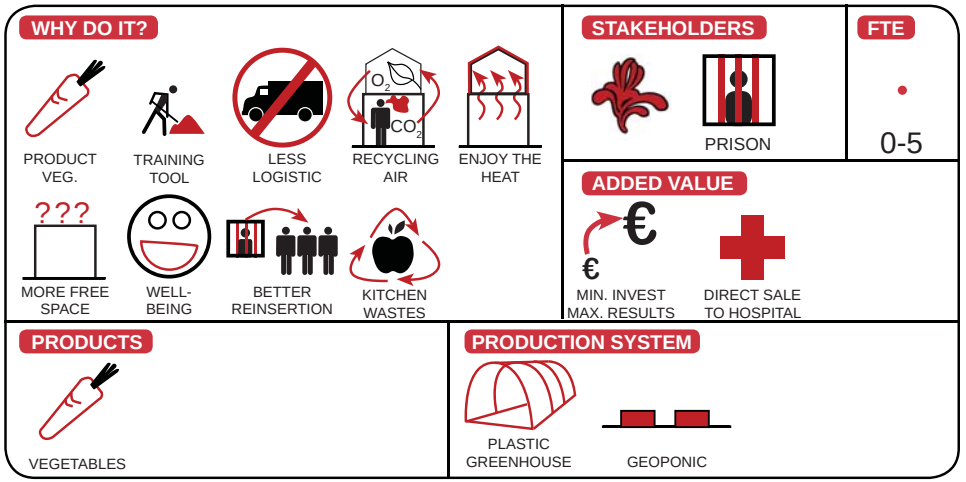
Know what you have



Available area	Approximately 2.800m2 (0,28Ha) of roof.
Building use and structure	Located on women prison in Forest.
Context	Located in a residential area and near the Forest prison (which will be transformed into residential use), shops and Molière Hospital in the area.
Nutrients availability	Heat, CO2, water and kitchen waste, as well as non qualify labor.

Know what you want

Contemporary prison are different than olders. Security is important but with this project we try to improve comfort and performances for people, as well as give them opportunities to learn new jobs. Being in charge of vegetables life is also good to change behaviour and adopt new responsibilities. Goods will be sold to the Hospital and create a link of trust between both institutions.

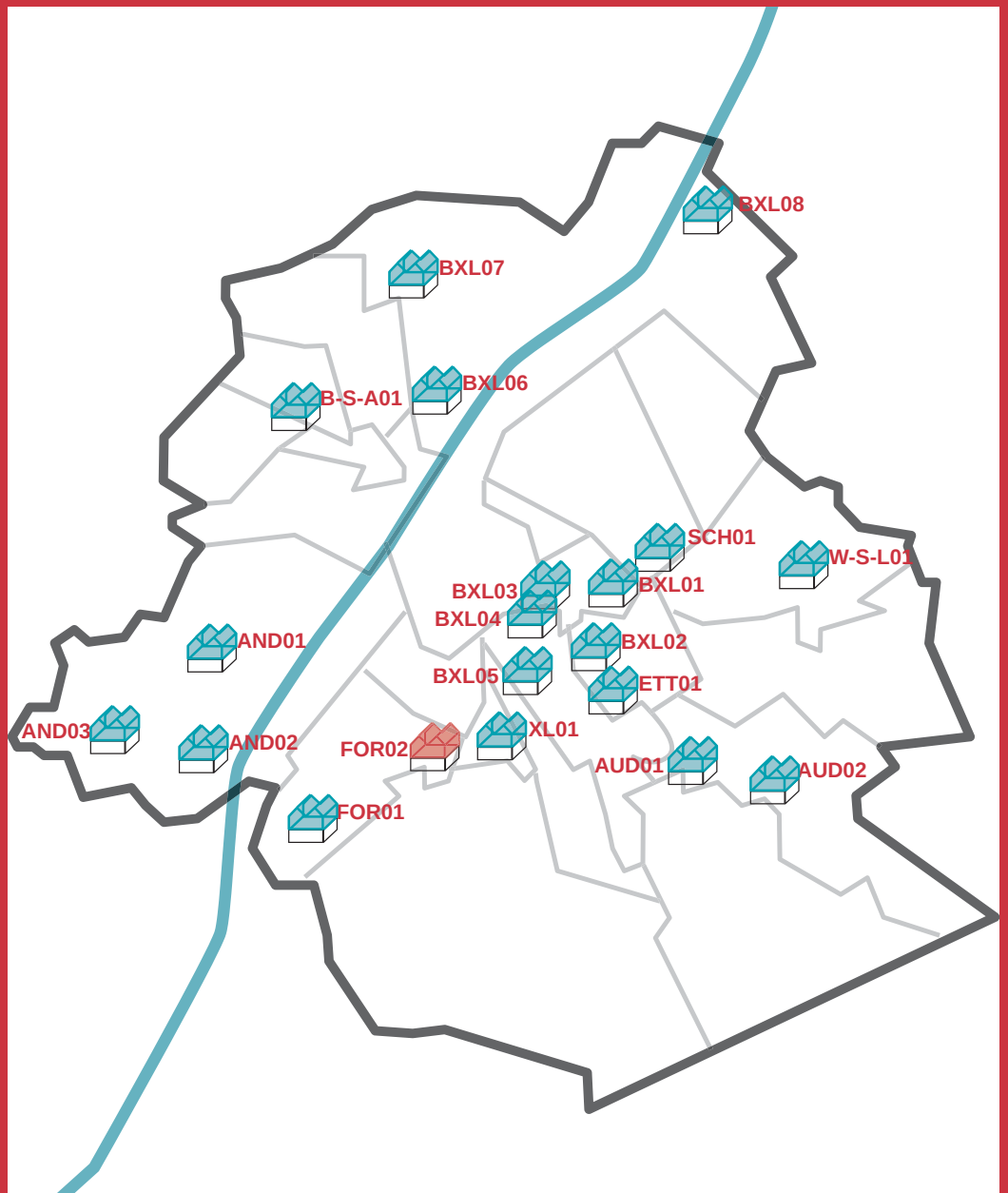


Integrated Indoor Farming Planning

TOOLBOX

01	2	14	1
02	1	15	2
03	0	16	2
04	1	17	3
05	3	18	3
06	2	19	3
07	1	20	0
08	2	21	0
09	3	22	3
10	3	23	2
11	0	24	0
12	3	24	3
13	1	26	2

QUICK WINS



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WIN-WIN SITUATION

LATERAL THINKING FACTORY

ResilieNtWEB
Innovate for a sustainable business

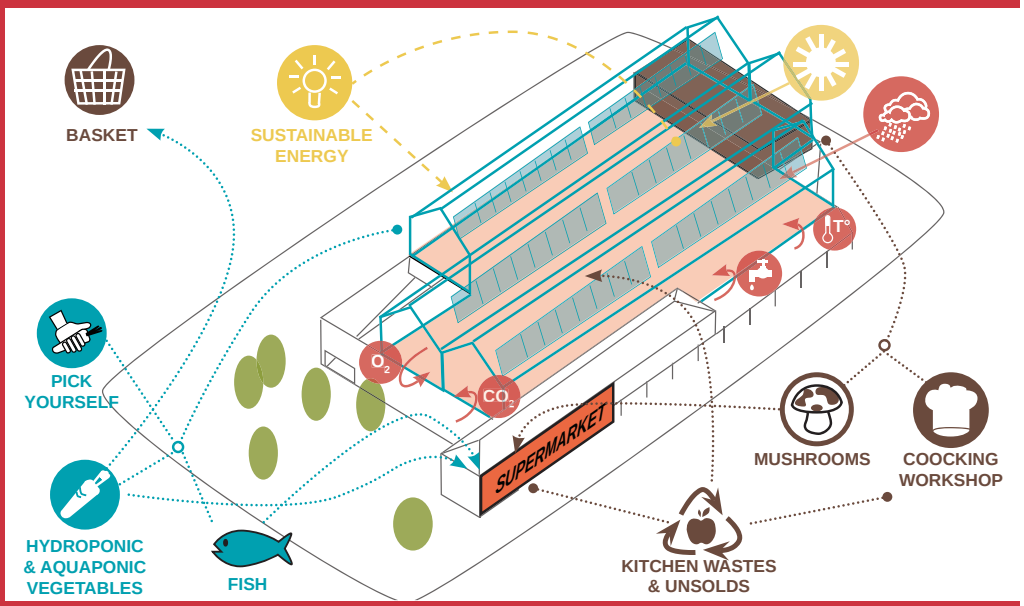
INDOOR FARMING IN RBC // 2014

SCH01 Delhaize Schaerbeek

LATERAL THINKING FACTORY

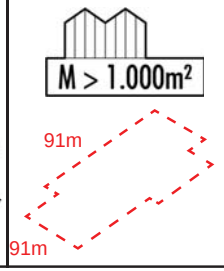
ResilieNtWEB
Innovate for a sustainable business

PROJECT
System-Holistic Diagram



Know what you have

Available area



Use: SHOP

Host: DELHAIZE

Accessibility: EASY, PRIVATE

Nutrients availability: HEAT, CO_2, H_2O, UNSOLD VEG.

Context

Available area	Approximately 2.900 m² (0,3Ha) of flat roof.
Building use and structure	This Delhaize supermarket has a well defined shape with easy access from the ground. Delhaize market is concerned by quality and should be sensitive to this new equipment.
Context	Located in a residential area with some schools and a few shops. Partnership will be made with the supermarket exclusively.
Nutrients availability	Heat, CO2, water from the supermarket activities and heat and cold production systems.

Know what you want

Delhaize is quality, quality and quality. Today we have created a new extension of our supermarket dedicated to fresh food production, where you can come pick up your own products. Impossible to do more fresh than us. On this level, you will find also kitchen courses with seasonal vegetables and others activities. If you bring your kitchen waste for compost, you will get bonus on your bill.

WHY DO IT?

PRODUCT VEG. · CSR · LESS LOGISTIC · RECYCLING AIR · ENJOY THE HEAT · MORE FREE SPACE · SUSTAINABLE ENERGY · COOCKING WORSHOP · CUSTOMERS WASTES

STAKEHOLDERS

DELHAIZE · ECO IRIS

FTE

5-15

ADDED VALUE

PICK YOURSELF

PRODUCTS

VEGETABLES · FISH · ENERGY · MUSHROOMS · COMPOST

PRODUCTION SYSTEM

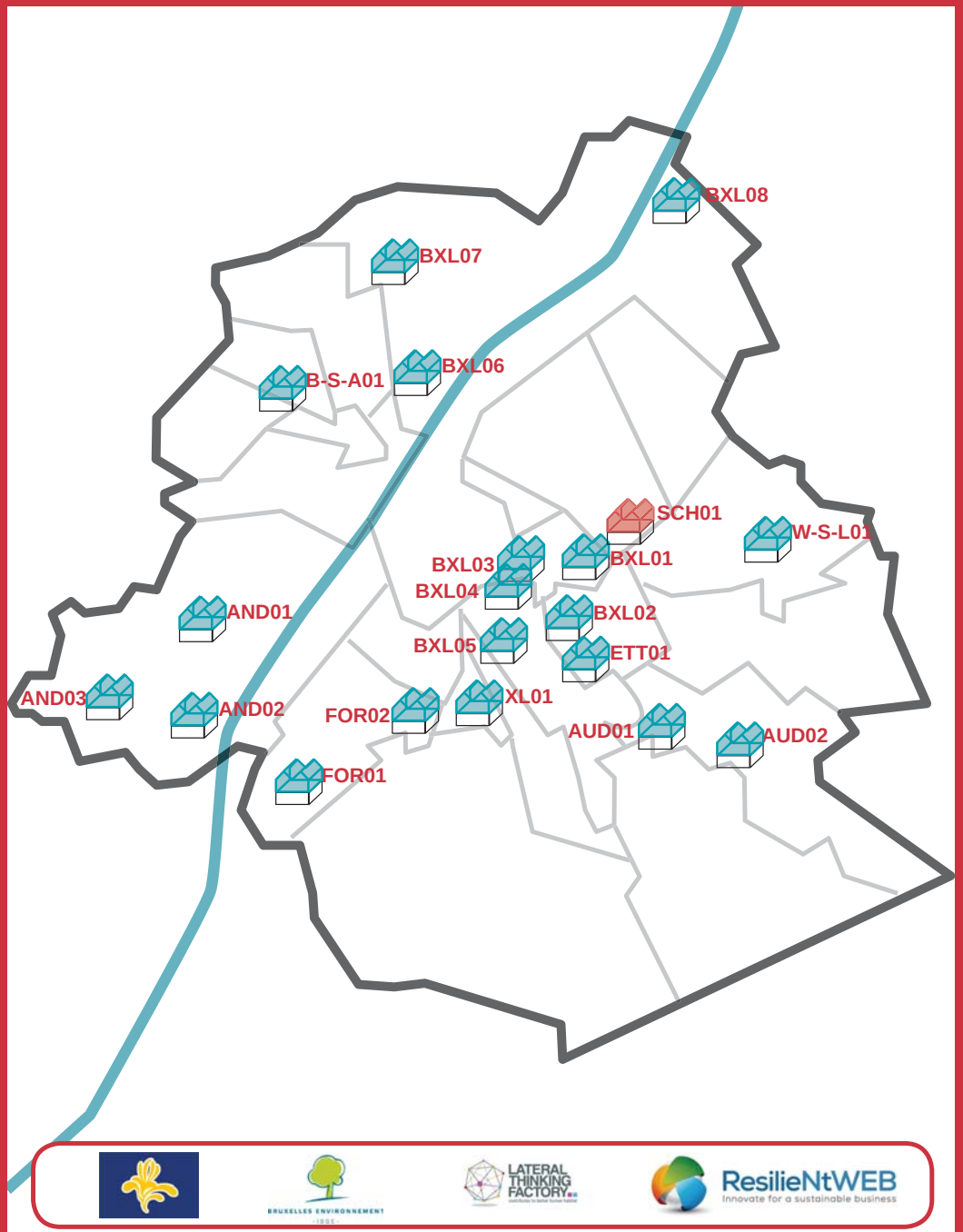
GLASS + P.V. · HYDROPONIC · AQUAPONIC

Integrated Indoor Farming Planning

TOOLBOX

01	3	14	2
02	3	15	2
03	0	16	1
04	2	17	2
05	2	18	2
06	1	19	3
07	3	20	2
08	2	21	0
09	2	22	2
10	2	23	2
11	1	24	2
12	3	24	1
13	1	26	3

QUICK WINS



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WIN-WIN SITUATION

BRUXELLES ENVIRONNEMENT

LATERAL THINKING FACTORY

ResilieNtWEB
Innovate for a sustainable business

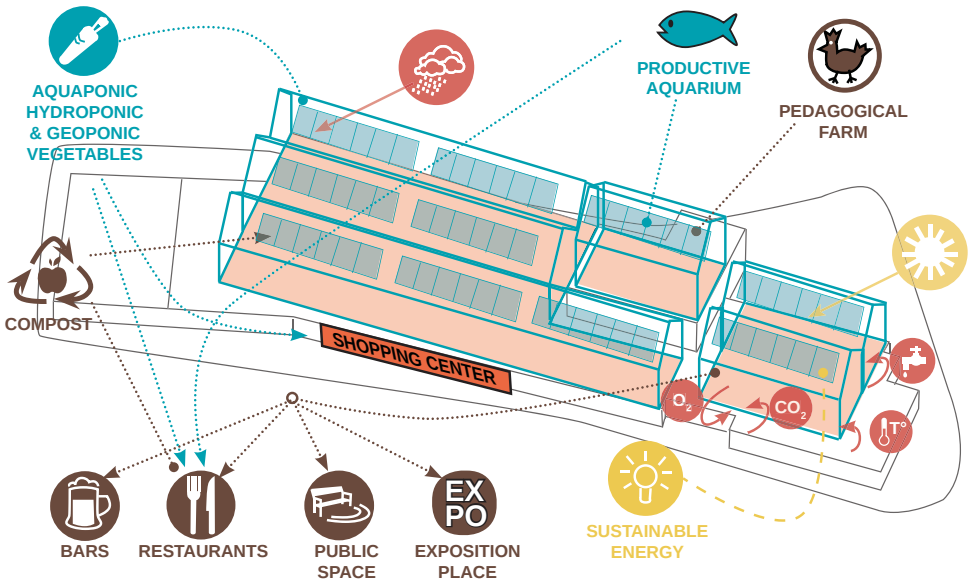
INDOOR FARMING IN RBC // 2014

W-S-L01 Shopping Center

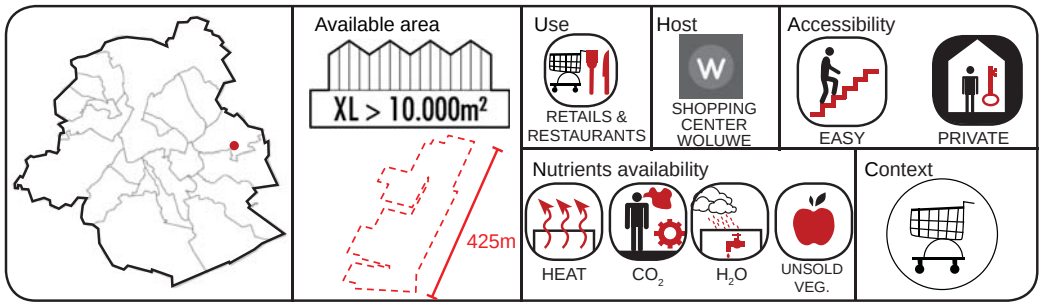
LATERAL THINKING FACTORY

ResilieNtWEB
Innovate for a sustainable business

PROJECT
System-Holistic Diagram



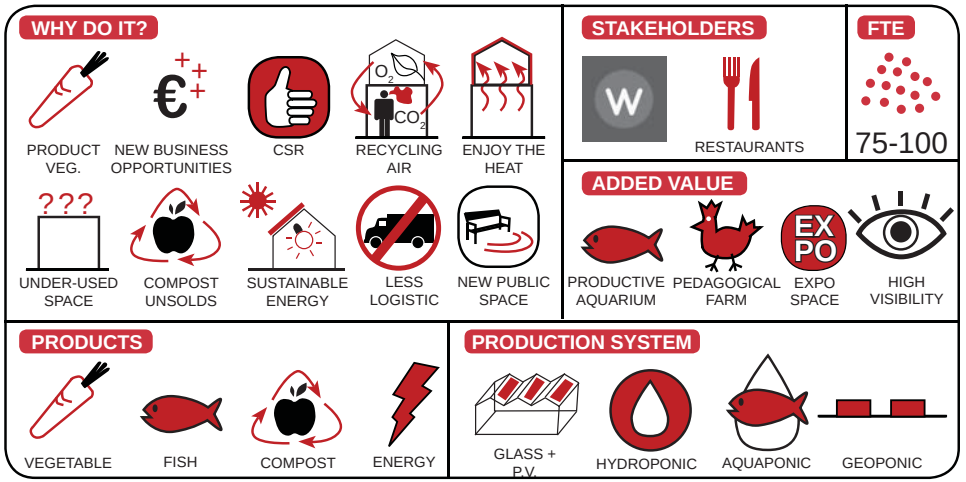
Know what you have



Available area	Approximately 26.300 m² (2,6Ha) rooftop with different levels. Parking is not included.
Building use and structure	Woluwe Shopping Center is still the biggest mall of the Region. Access is easy from the parking on the roof.
Context	Located in a residential and office area, restaurants and shops are present in the mall, as well as florists.
Nutrients availability	Builded as an old mall, all kind of nutrients are available and should be easily driven to the roof.

Know what you want

Woluwe Shopping Center present our new level: a new world of experiences dedicated to urban agriculture. You will find shops, restaurants, production and farms, activities for your kids but also nice places to enjoy our installations, under the sky. Discover a new land of pleasure.

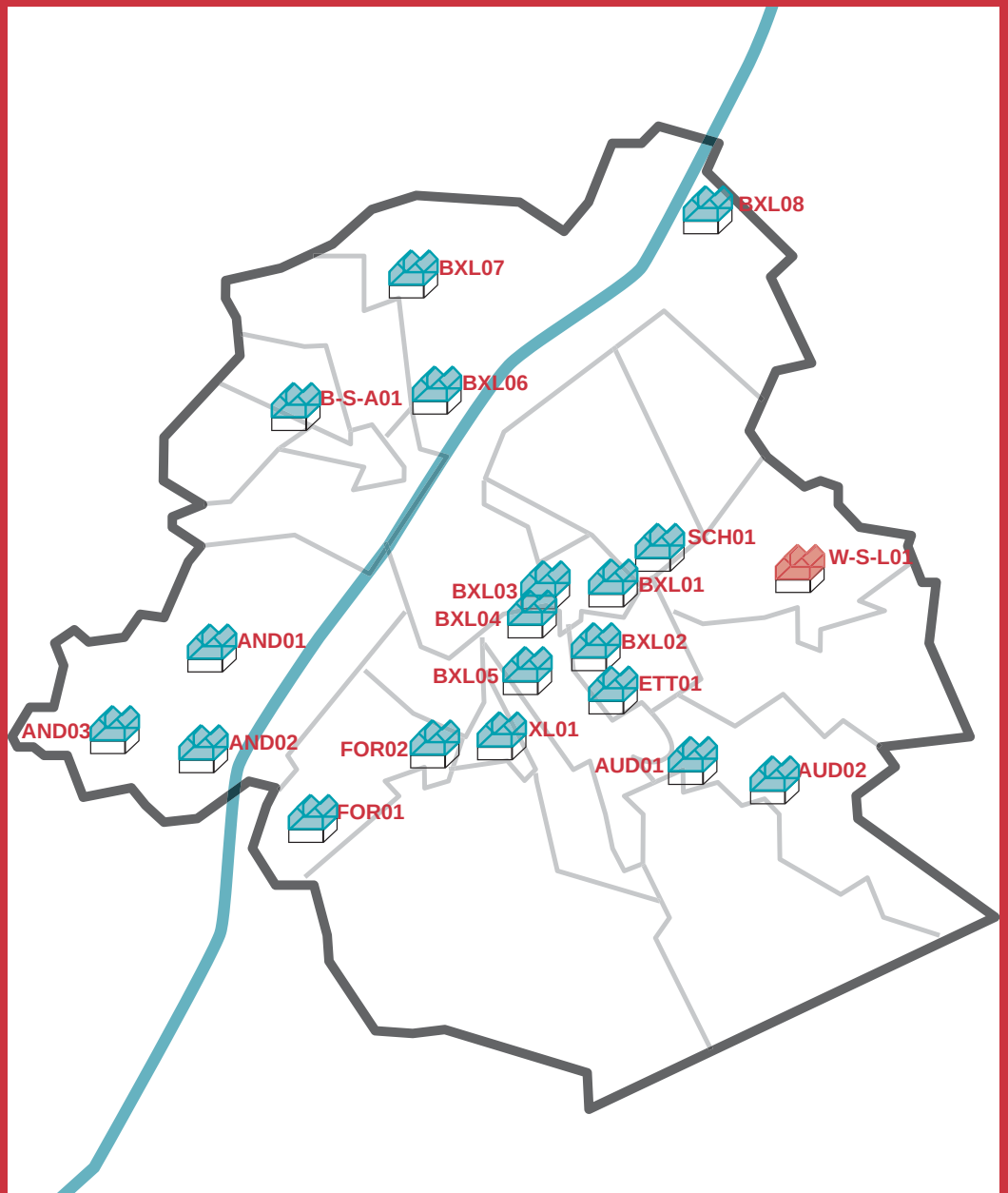


Integrated Indoor Farming Planning

TOOLBOX

01	3	14	2
02	2	15	2
03	0	16	1
04	3	17	3
05	2	18	3
06	1	19	3
07	1	20	1
08	3	21	2
09	3	22	2
10	3	23	2
11	1	24	1
12	2	24	2
13	2	26	3

QUICK WINS



START TO PLAN

STEP 1 Identify stakeholders, their goals & organisational culture.

STEP 2 Quickscan financial resources.

STEP 3 Identify potential value-added services.

STEP 4 Compare potential value-added services to stakeholder goals.

STEP 5 Identify growing methods, partners, structures.

STEP 6 Identify potential quick wins.

STEP 7 Align expectations with reality

STEP 8 Finallise big features

STEP 9 Roadmap timetable

WIN-WIN SITUATION

BRUXELLES ENVIRONNEMENT · LATERAL THINKING FACTORY · ResilieNtWEB Innovate for a sustainable business

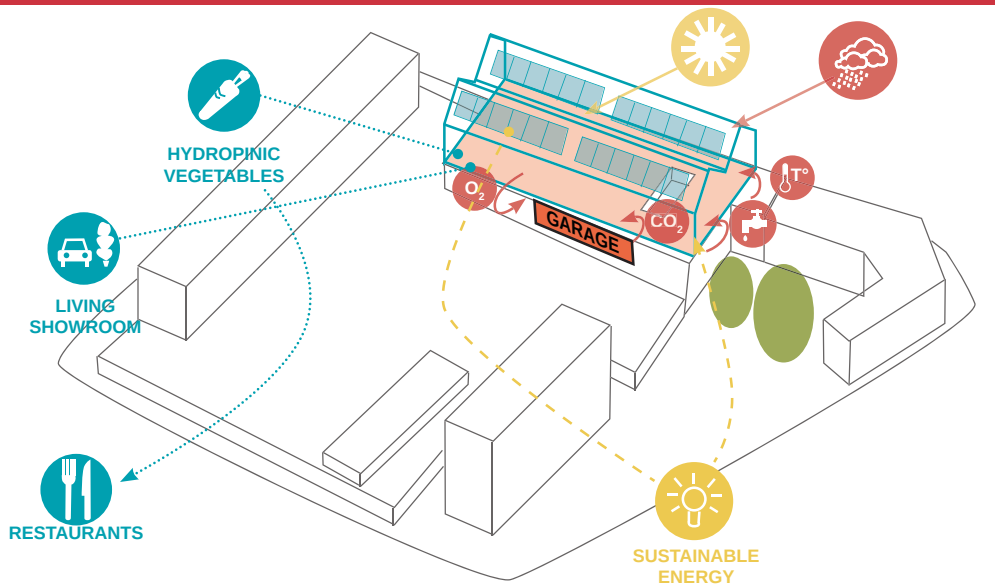
INDOOR FARMING IN RBC // 2014

XL01 D'Ieteren

LATERAL THINKING FACTORY

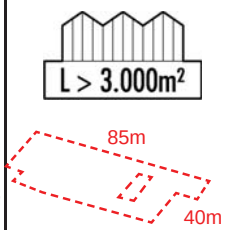
ResilieNtWEB
Innovate for a sustainable business

PROJECT
System-Holistic Diagram



Know what you have

Available area



Use: GARAGE

Host: AVIS — D'IETEREN & AVIS RENT

Accessibility: EASY, PRIVATE

Nutrients availability: HEAT, CO_2, H_2O

Context

Available area	Approximately 8.600 m² (0.86Ha) of roof. A very interesting area regarding the density of the location.
Building use and structure	Building is dedicated as a showroom for the car industry, D'Ieteren and Avis. There are also offices and workshops.
Context	Located in a trendy residential district, with a big shops offer and restaurants. On the other side of the street we can find a school.
Nutrients availability	Heat, water and CO2, marketing should be considered as a nutrient too.

Know what you want

"Think Blue" is what motivate us. In this way, we invest our marketing budget building a greenhouse on our roof and produce renewable energy locally. In partnership with restaurants and shops, we produce fresh foods using buildings waste considered as nutrients. In a win-win situation, we reduce our energy consumption and increase our impact in the area, building trust with our clients.

WHY DO IT?

- PRODUCT VEG.
- NEW BUSINESS OPPORTUNITIES
- LESS LOGISTIC
- RECYCLING AIR
- ENJOY THE HEAT
- UNDER-USED SPACE
- SUSTAINABLE ENERGY
- CSR
- LIVING SHOWROOM

STAKEHOLDERS

- RESTAURANTS

FTE

15-30

ADDED VALUE

- CUSTOMERS LOYALTY

PRODUCTS

- VEGETABLE
- ENERGY

PRODUCTION SYSTEM

- GLASS + P.V.
- HYDROPONIC

Integrated Indoor Farming Planning

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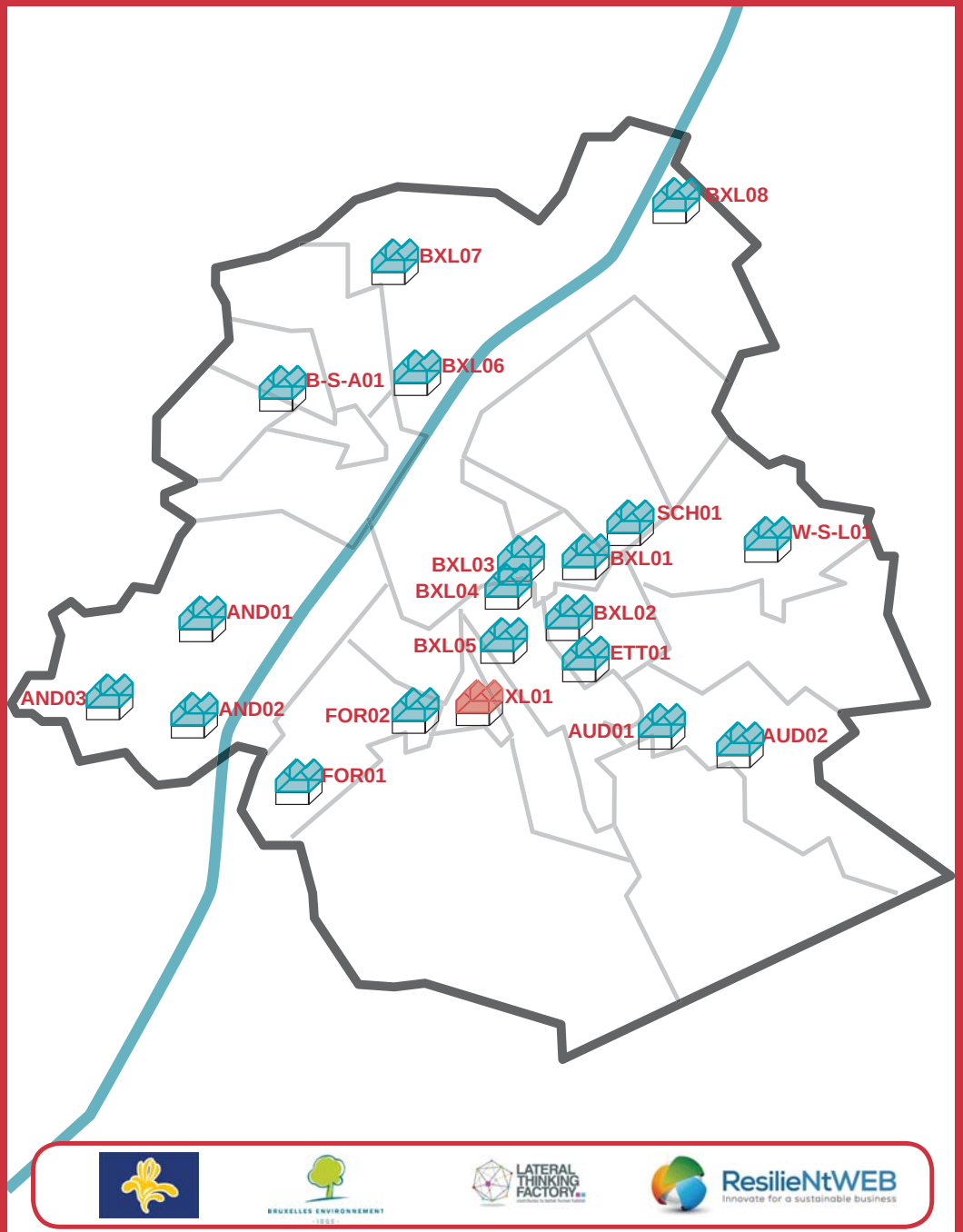
12	3	24	0
13	1	26	3

QUICK WINS



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