Action plan on Urban Resource Centers in the region of Mechelen

Reducing the material footprint with 30% by 2030,
for climate neutrality and a competitive green economy

MECHELEN

RESOURCEFUL CITIES

“

We want to make Mechelen the place where circular entrepreneurship thrives and circular business models are developed, tested, and rolled out so that all inhabitants of Mechelen can access and participate in the circular transition.

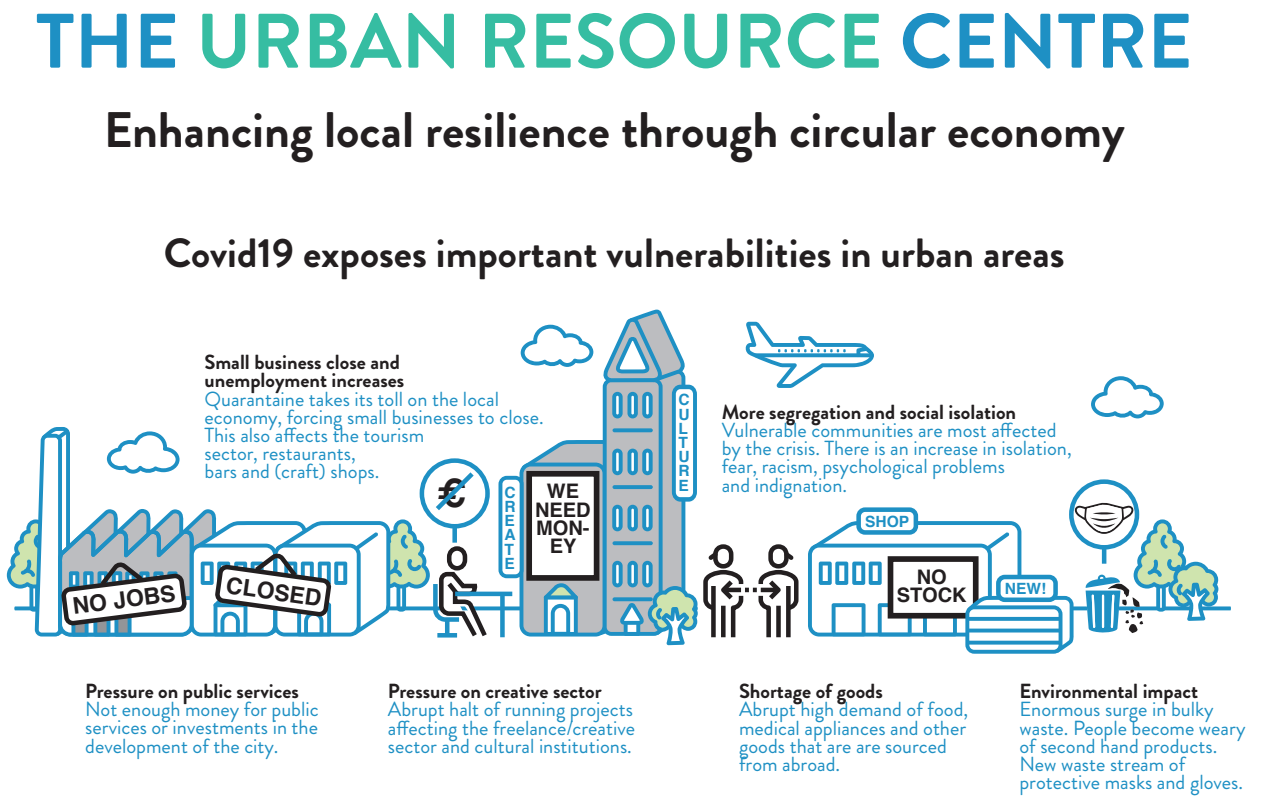
Contents

1. Introduction to the action plan

1.1 About URBACT Resourceful Cities

RESOURCEFUL CITIES is an URBACT Action Planning network of nine European cities. This project seeks to develop the next generation of urban resource centers (URCs), meant to serve as catalysts for the local circular economy, by adopting a participative and integrated approach[1]. The resource centers strive to promote positive economic, environmental, and social impacts, notably for the circular economy.

The network thus facilitates waste prevention, reuse, repair, and recycling. Urban resource centers also work as connection points for citizens, new businesses, researchers, and the public sector to co-create new ways to close resource loops at the local level. By bringing together interested actors to work alongside each other, the goal is to promote a change in values and mindset.



The urban resource center as a catalyst for the local circular economy

1 The development of URCs has been defined as one of the key actions within the Circular Economy Action plan made within the Urban Agenda for the EU Framework (2018).

1.2 About this IAP and Circular Mechelen 2030

Each partner in the URBACT Resourceful Cities network was required to produce an Integrated Action Plan (IAP), in close collaboration with their local stakeholders. Because the input gathered during the stakeholder process was so rich and went beyond the topic of urban resource centers, the city of Mechelen used this momentum to develop a general roadmap to reach a Circular Mechelen by 2030.

Our aim is to **reduce the material footprint by 2030 by 30%**, in order to reach our climate ambitions but also to foster a competitive green economy, in which economic growth is decoupled from resource use. Our general roadmap Mechelen Circular 2030 focuses on:

1. Actions that the city can undertake to lead by example
2. Actions to mainstream circular consumption modes among the broad public (creating demand)
3. Actions that create the offer of circular products and services by businesses and how we need to evolve towards resource collection and re-production or redistribution
4. Actions that we need to undertake to finance, govern and monitor the circular economy transition

We developed and will implement our roadmap in collaboration with businesses or the private sector, civil society, financial institutions, knowledge institutions, and other public authorities. During the co-creation process of this project, we have conducted several analyses to know our USP, analyze the strengths and challenges of our local fabric and prioritize which actions to concentrate on. The Urbact action plan, which focuses on urban resource centers or circular hubs, is thus one of the action plans under the general roadmap to becoming a circular city.

Mechelen aims to be a **frontrunner** regarding the circular economy, which has been formalized when the mayor signed the European Circular Cities Declaration as one of the founding signatories in 2020. At that time, the city council adopted a circular economy management vision, with six strategic actions for this policy period (2020-2025) among which was the creation of a resource hub. The global vision was that “we want to make Mechelen the place where circular entrepreneurship thrives and circular business models are developed, tested, and rolled out so that all inhabitants of Mechelen can access and participate in the circular transition.”

With a first set of three **strategic actions for this policy period**, the city wants to lead by example, by integrating sustainability and circularity in its procurement strategy and by integrating circular principles in its construction / renovation works, and its facility management or services. The city currently organizes a Circular Helpdesk, a funding scheme for circular initiatives, network events, and a communication campaign towards citizens and entrepreneurs. The city offers room for experimentation and is partner in different circular projects of private sector organizations or NGOs. Different innovative pilots and projects on circular economy are run by the city and by various local stakeholders, from civil society to entrepreneurs and businesses or researchers and educational institutions. The challenge is now to support the initiators of these pilots to scale up and make the change of the economic model systemic. This requires collaboration across the value chain between different businesses, civil society, experts, and financial authorities. This is what this IAP focused on urban resource hubs is about.

Disseminating the work from Resourceful cities to the citizens of Mechelen at opening weekend of the Impact Factory

The lead expert visiting the Potterij at the start of the Resourceful cities project

1.3 About the initial goal: a circular hub @ de Potterij

Upon the start of this project in 2019, the city of Mechelen had the ambition to develop one **Urban Resource Centre at the "Potterij", a former industrial laundry in the midst of the city center**, in partnership with the regional public waste agency OVAM (former owner of the Potterij). The Potterij has been decontaminated since 2015 by OVAM. Wanting to give this brownfield back to the community, OVAM hosted circular, citizen-led initiatives within the building, such as the tool library of Deelbaar Mechelen and makerhackerspace Ko-lab from 2017 onwards.

By the end of 2021, the city had taken over the Potterij from the OVAM in a concession to realize the central circular hub in a public-private partnership. The city has also signed an agreement with the real estate developer Stadsmakersfonds / Miss Miyagi, who owns a formerly unused office space next to the Potterij, to renovate the two buildings together and create one circular hub named the Impact Factory. The Impact Factory will consist of 4500m² of office, event, and workspace, which needs to serve as a breeding ground for the circular economy in the whole region. Simultaneously, the Impact Factory needs to make the potential of the circular economy tangible to the broad public. For instance, by offering room for experimentation, exhibitions on innovations, a concept store with circular products, and / or a zero-waste restaurant.

Throughout the action planning process, and more specifically by thinking about how the circular city should look like in the future, we realized we needed an action plan that goes beyond one hub. The Impact Factory is situated within the city center at a strategic location close to the railway station and the central shopping center of the city. Therefore, the Impact Factory cannot be a resource hub where large quantities of goods may be stored, dismantled, disassembled, sorted, refurbished, reproduced, or even collected to redistribute. However, these handlings are key to keeping resources in the economy as long as possible.

1.4 Short summary

As such, we do not only focus on the creation of the Impact Factory as the incubator and accelerator of circular businesses but choose to create an action plan that works toward the creation of several urban resource centers in the short to medium term (scope 2030). Every urban resource center needs to be developed together with the private sector, both businesses and civil society actors / citizens. The city is taking an active role in facilitating and bringing organizations together along the value chain while stimulating circular entrepreneurship.

The urban resource centers we focus on are in line with the analysis of the promising urban value chains for our local fabric, and the needs of the circular doers which were detected through a survey in 2020 among entrepreneurs:

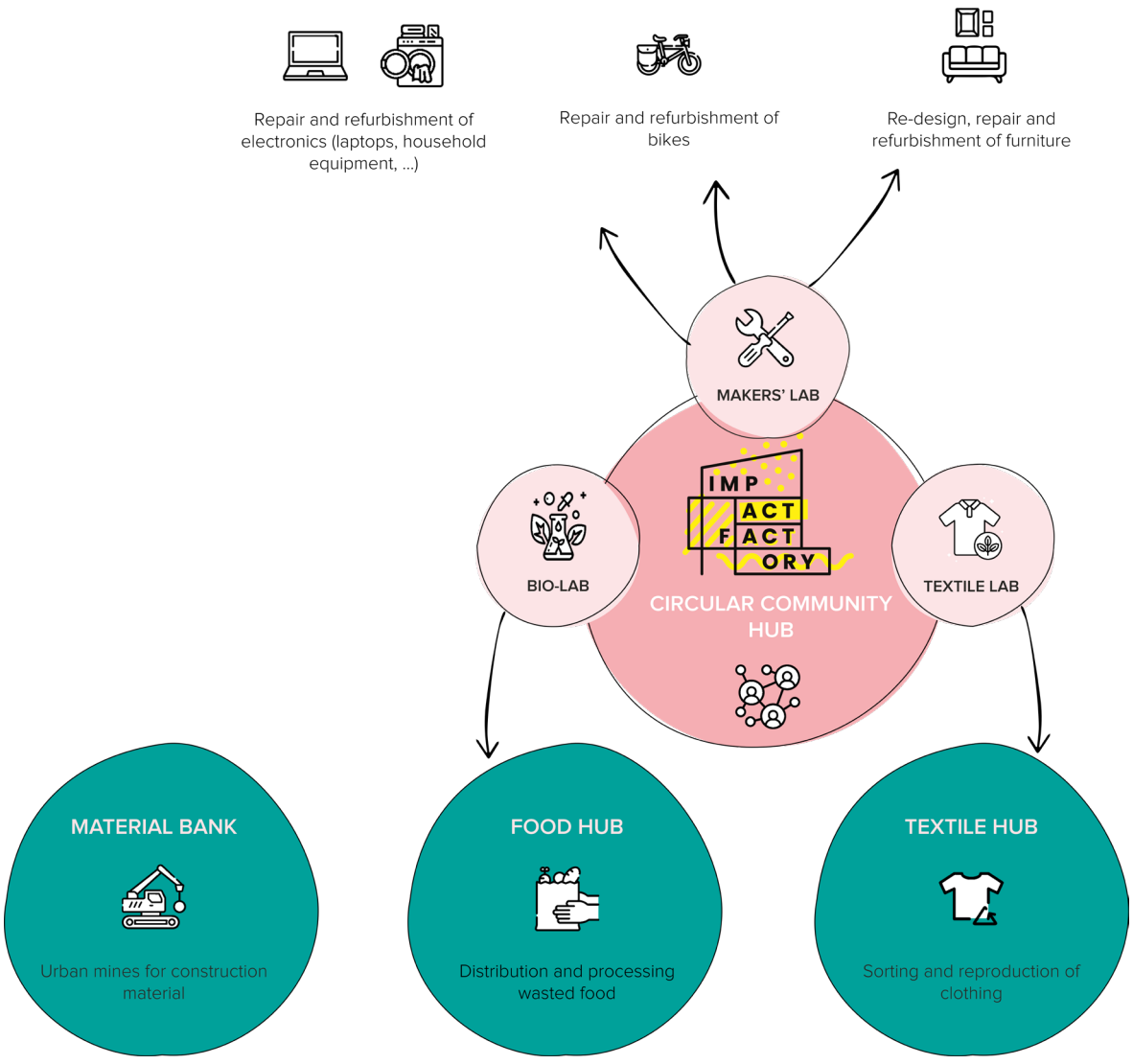
- a **community hub** that brings together and offers inspiration and room for experimentation, i.e. Impact Factory

- a **food hub** for the systematic redistribution and processing of food surplus
- a **material bank** or several material hubs to promote the reuse of construction materials (urban mines)
- a **circular textiles' hub** for closing textile loops locally

Other urban resource centers may be added to the plan gradually when specific urban value chains are tackled.

The idea is that the incubation of new circular hubs, or new innovative products and services that contribute to the transition to a green and inclusive economy, start in one central circular community hub or are at least connected to the central hub. To be an incubator for the circular economy, the Impact Factory hosts room for experimentation or labs, both for technical and organic waste streams. As such, our small-scale action within this Urbact project is the initiation of a bio-lab for the valorization of coffee grounds (Coflab). Furthermore, the Impact Factory currently has a makers' and textiles' lab for the reuse and valorization of non-organic waste streams (plastics, electronics, most of the textiles, …). Depending on the needs of entrepreneurs and associations, and the business model possible, other labs may be developed within the Impact Factory.

However, as soon as upscaling is required, sites on the outskirts of the city will have to be found. The innovations developed in the bio-lab or makers' lab(s) at the Impact Factory then might have to be moved to other resource hubs where there is enough capacity to treat large material flows. Scale is important for a viable business model of a resource hub. For the current material banks or initiatives based on coffee grounds the business models are often not yet viable and smart partnerships need to be made. Furthermore, quite some work still needs to be done to research which materials may be stored for reuse, what their quality should be (need of a certification system?), and what the role of the government should be. What we now see of resource hubs for construction materials or redistribution is often run by the government or depending on government support, but they should find viable ways of existence without subsidies.



The circular community hub as incubator of new circular hubs

2. Local context

2.1 Some facts and figures

Located centrally in Flanders, in close vicinity of Antwerp and Brussels, Mechelen is a young and innovative city that has grown in popularity over the last decades. Which led to a growing population and number of businesses. Mechelen also scores remarkably high in terms of economic innovation potential in comparison to comparable Flemish cities. Mainly thanks to the presence of enterprises active in digital technology.

POPULATION

86.911
inhabitants

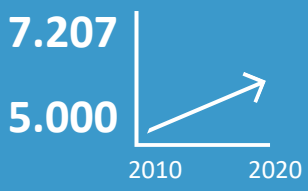
DEMOGRAPHICS: AGE

60,7% between 18 and 65 years old

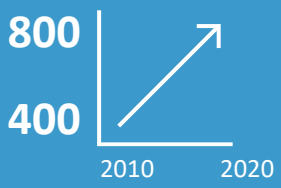
21% >65 years old

17,4% <18 years old

VAT RELIABLE ENTERPRISES



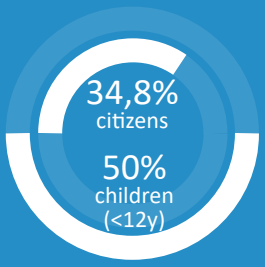
STARTING ENTERPRISES



POPULATION DENSITY

1.321
inhabitants per km²

DEMOGRAPHICS: MIGRATION BACKGROUND



The city's current policy plan (2020-2025) focuses on three priorities – stimulating entrepreneurship, halving child poverty, and leading the sustainable mobility shift – and two strategic actions – being a climate-neutral and inclusive city. Mechelen chooses decisively to be an accessible and warm city, in which every citizen has a place and a voice, and everyone can participate in building the city's future. The city's unwavering commitment to creating a citizen-centered, sustainable city is an obvious characteristic upon arrival.
Renovation of the houses to reduce energy consumption, rainwater recovery and infiltration, improvement of the air quality, and protection of biodiversity and nature reserves, are now at the top of the agenda thanks to the city's climate action plan. Since 2019, circular thinking has been added to the adopted climate action plan.

EMISSION

269 kton due to stationary energy*

81 kton due to transport

* energy produced for purposes other than transport

WASTE / CITIZEN / YEAR
(2020)

400 kg

159 kg residual waste

241 kg selective waste

REUSE / SECOND-HAND
SHOPS (Ecoso - 2019)

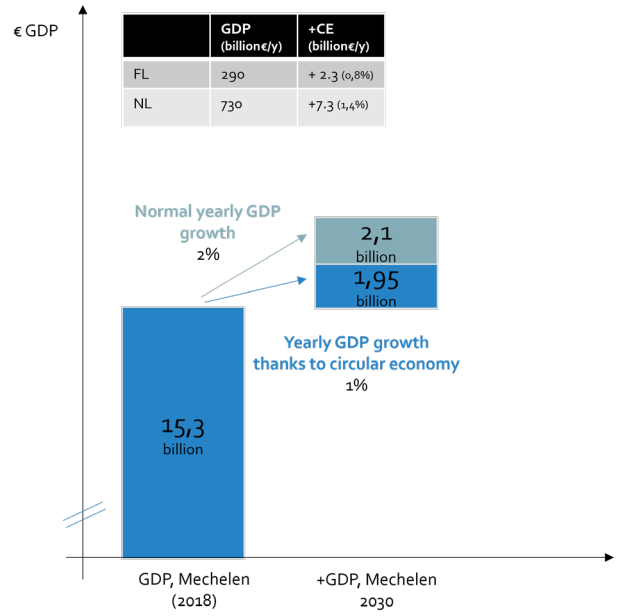
1000 tons collected

595 tons reused

The selective collection of household and comparable industrial waste is done by intermunicipal public waste company IVAREM. IVAREM hosts 12 recycling centers in 10 municipalities, 2 of which are located in the city of Mechelen.

2.2 Benefits of the circular economy

An analysis in preparation of this IAP showed the benefits of a circular transition in Mechelen, in terms of added value, job creation and (social) employment, CO_2 emissions, and raw material use.



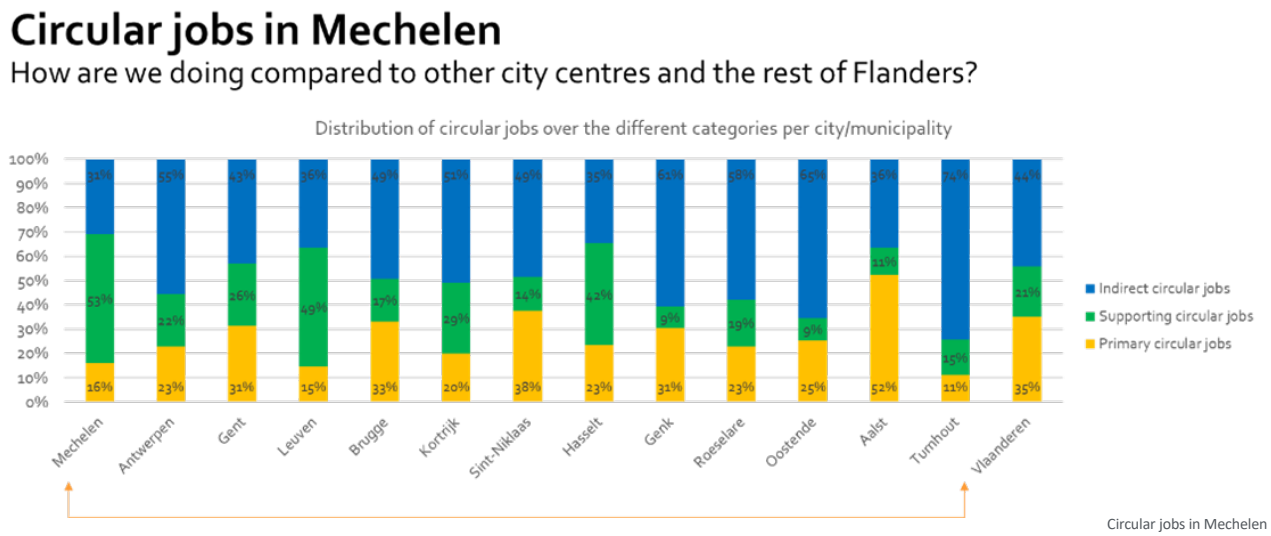
Analysis of the benefits of a circular transition in Mechelen

Compared to the GDP of 2018, the city of Mechelen can realize an **extra growth of 1,95 billion euros**[2] or 1% through the circular economy **by 2030**. This is an extra growth on top of the normal estimated growth of 2%, which amounts to 2,1 billion euros (see graph above).

There were already 5.205 circular jobs[3] within Mechelen in 2020 (=10% of all jobs). If a full circular transition is realized we can **create up to 2.900 extra circular jobs by 2030**[4].

When we compare the current circular employment with the Flemish average, we notice that the city of Mechelen, where 10,3% of the total amount of jobs is circular, is well above the Flemish average (7,5% of circular jobs) and also above the reference cities of Leuven, where 7,6% of jobs are circular, and Ghent with its 7,1% circular jobs. However, Copenhagen has an average of 12,3% of circular jobs, slightly higher than Mechelen.

If we zoom in on the current circular employment in Mechelen, we mainly see potential in creating more so-called primary circular jobs focused on lifetime extension and repair. Currently, the supporting circular jobs – jobs that support the scaling and acceleration of primary circular jobs, such as architect or data analyst – are predominant in Mechelen (representing 53,8% of all circular jobs). 25% of the circular jobs can be carried out by low-skilled workers and thus potentially through social employment[5]. In the case of Mechelen, this could currently amount to **1.300 circular jobs potentially being done by people with a distance to the regular labor market**.



Circular jobs in Mechelen

2 Rough extrapolations made based on existing calculations for Belgium and the Netherlands (https://ce-center.vlaanderen-circulair.be/nl/publicaties/publicatie-2/7-modelling-job-creation-in-the-circular-economy-in-flanders) These figures cannot be interpreted as exact predictions. They underline the importance of innovative concepts.
3 https://www.circular-jobs.world/
4 Rough extrapolations made based on existing calculations for Belgium and the Netherlands (https://ce-center.vlaanderen-circulair.be/nl/publicaties/publicatie-2/7-modelling-job-creation-in-the-circular-economy-in-flanders). These figures cannot be interpreted as exact predictions. They underline the importance of innovative concepts.
5 According to the study "Modelling job creation in the circular economy in Flanders", in the circular economy there are mainly low or medium-skilled workers.

Stakeholder workshop idea generation

Supported by the city's Mechelen Climate Neutral Subsidies, an engaged civil society has built up circular & sustainable initiatives according to the collaborative economy model throughout the last five years. Some examples are Deelbaar Mechelen which runs the tool library and laptop library, Klimaan which invests in the energy transition with civil capital, or Citamine which aims to turn public spaces and organic waste streams into bases for local food production.

Through the circular economy, we can realize a **yearly net saving of up to 178 – 195 ktons of CO_2 emissions**, which corresponds to building about 24 to 27 windmills[6]. For comparison, Mechelen emitted about 500 ktons[7] of CO_2 in 2019 (This includes the CO_2-emissions from all sectors: households, industry, mobility (public and private), agriculture, and the tertiary sector). We can also **save up to 74 – 450 ktons of resources annually**, which corresponds to 2.431 – 14 825 trucks[8]. For comparison, Mechelen used about 1 028 – 1 606 ktons[9] of raw materials in 2020.

In attachment 6.1 you can find a visualization of the benefits of circular economy which has been used during one of the meetings with local stakeholders.

2.3 Strengths and challenges

Mechelen has clear **strengths on which it can capitalize in realizing the circular transition**. It benefits from a wealth of expertise in circular economy, as well as from a high level of engagement with stakeholders within the circular economy. Different circular economy experts, regional waste management, and circular economy institutions have their main offices in Mechelen: the Flemish public waste agency OVAM, the Flemish circular economy authority Circular Flanders, and IVAREM (the intermunicipal waste company). Different student curricula from the Thomas More University of Applied Sciences form the students' education in eco-design, furniture design, spatial design for a future-proof city, and sustainable business models. Different researchers and educational trajectories are developed at both the Thomas More University of Applied Sciences and Technopolis.

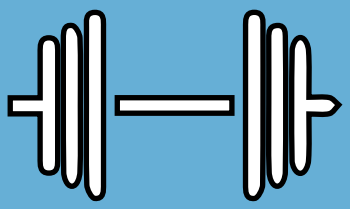
Besides, the city has a partnership with umbrella organizations supporting starting entrepreneurs[10], and with business park manager Quares for the management of the two industrial areas of Mechelen. Since 2021, the city also has a partnership with Unizo Antwerp, Ecoso, and the Thomas More Innovative and Creative Business Research Unit, to help entrepreneurs in the transition to circular business models, thanks to European Social Fund for Circular work(s)! : called **Circular Hub Region of Mechelen**.

The city of Mechelen also identified several **barriers to the circular transition** in 2030, thanks to a survey conducted among local entrepreneurs which has been executed in collaboration with Thomas More Research. To cite a few barriers: There is an insufficient knowledge among businesses about circular strategies and existing initiatives and thus into potential relevant partnerships. There is a lack of investments in circular businesses, and entrepreneurs indicate they need financial support to finance the initial extra costs. There is insufficient insight into locally available residual and waste streams (volumes, characteristics, quality). See attachment 6.2.

Throughout the development of this action plan, we explored how the local government can help reinforce these strengths and (as far as the powers of local government allow) take away these barriers. In the Roadmap Mechelen Circulair 2030 we go more into detail on the role of the local government, by for example bringing citizens and entrepreneurs together, financing circular initiatives, lobbying on other government levels, creating experimenting space, and so much more.

6 Rough extrapolations made based on existing calculations for The Hague (https://denhaag.raadsinformatie.nl/document/6291317/1/RIS299353_Bijlage_1) These figures cannot be interpreted as exact predictions. They underline the importance of innovative concepts.
7 Gemeente-Stadsmonitor
8 Rough extrapolations made based on existing calculations for The Hague (https://denhaag.raadsinformatie.nl/document/6291317/1/RIS299353_Bijlage_1) These figures cannot be interpreted as exact predictions. They underline the importance of innovative concepts.
9 Rough calculations based on the Domestic Material Consumption per country (source: Eurostat) extrapolated on a local level
10 Since early 2020, the city has had a partnership with VLAIO, UNIZO, VOKA, VDAB, NSZ, Flanders DC, Horeca Vlaanderen, Syntra, Starterslabo, and Haven, to join forces in the support of starting entrepreneurs.

Strenghts

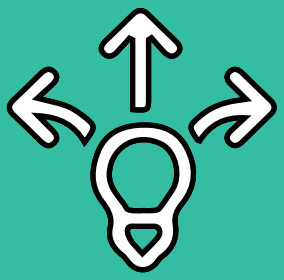


- Diverse population
- Manageable city size
- Political ambition to have a pioneering role in circular economy
- Frontrunner on climate action (e.g. Green Leaf Award Winner 2020)
- Expertise in the city regarding circular economy (e.g. Thomas More University of Applied Sciences, OVAM / Circular Flanders, …)
- Professional waste collection & high recycling rates
- Less residual waste produced per citizen than on average in Flanders: 155 kg / year / inhabitant in 2019
- Engaged civil society who run sharing economy initiatives, repair initiatives and showcasing circular consumption and lifestyles
- Preliminary experience with community building among entrepreneurs thanks to the Oh! (House of Entrepreneurs run by the city until 2021)

Weaknesses

- 2022 target for reuse of 7 kg / inhabitant / year is not within reach yet
- Lack of shared thinking and action across different city departments and cabinets
- Lack of focus in policymaking
- Different stakeholder groups use their jargon and do not often intermingle
- Lack of data on material streams and resource use
- Lack of indicators to monitor progress on circular economy (nationally, regionally and locally)

Opportunities



- Shared engagement to develop Urban Resource Centres to become a leading circular city in Flanders
- Possibility to embed this shared engagement through a memorandum of understanding with local stakeholders
- Continuous improvement of city infrastructure
- Integration of circular economy in the climate action plan
- Possibility to establish links with circular initiatives and partners in other Flemish cities
- Establishment of a public-private IoT platform for collecting data on e.g. air quality, mobility and smart water management
- Possibility to link diverse demographic groups through circular initiatives

Threats

- Lack of knowledge of circular business models
- Lack of awareness of locally available circular products and services
- Lack of investment in new circular business models
- Change management within companies / city takes time
- Not everyone is interested in climate change and sustainability issues
- Risk of not including everyone in a common circular economy approach

2.4 Other policy levels than the city

The circular economy is one of the top priorities at all policy levels, from the European one down to the local.

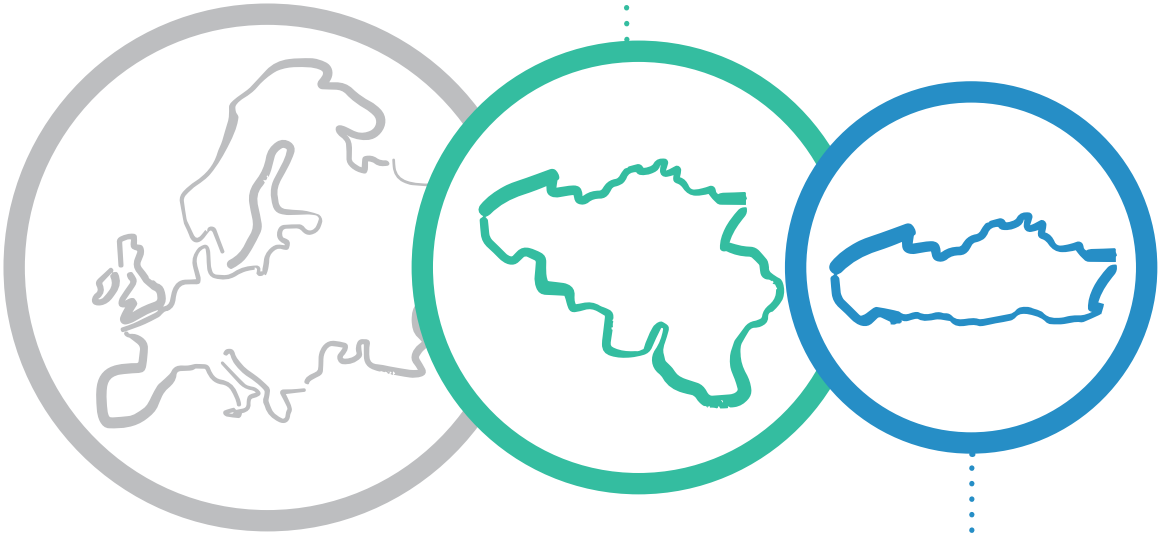
European Circular Economy Action Plan (2020 - central part of the European Green Deal)

The circular economy plan includes measures to:

- Make products more circular, by ensuring they last longer, are easier to repair, and contain more recycled raw materials
- Give consumers more rights, including a "right to repair"
- Reduce the amount of waste

Federal Circular Economy Action Plan (2022)

The Belgian federal government wants to enable the transition to a circular economy in Belgium via product policy, consumer protection policy, public procurement, fiscal policy, and the Belgian post-COVID Plan for Recovery and Resilience.



Flemish vision 2050

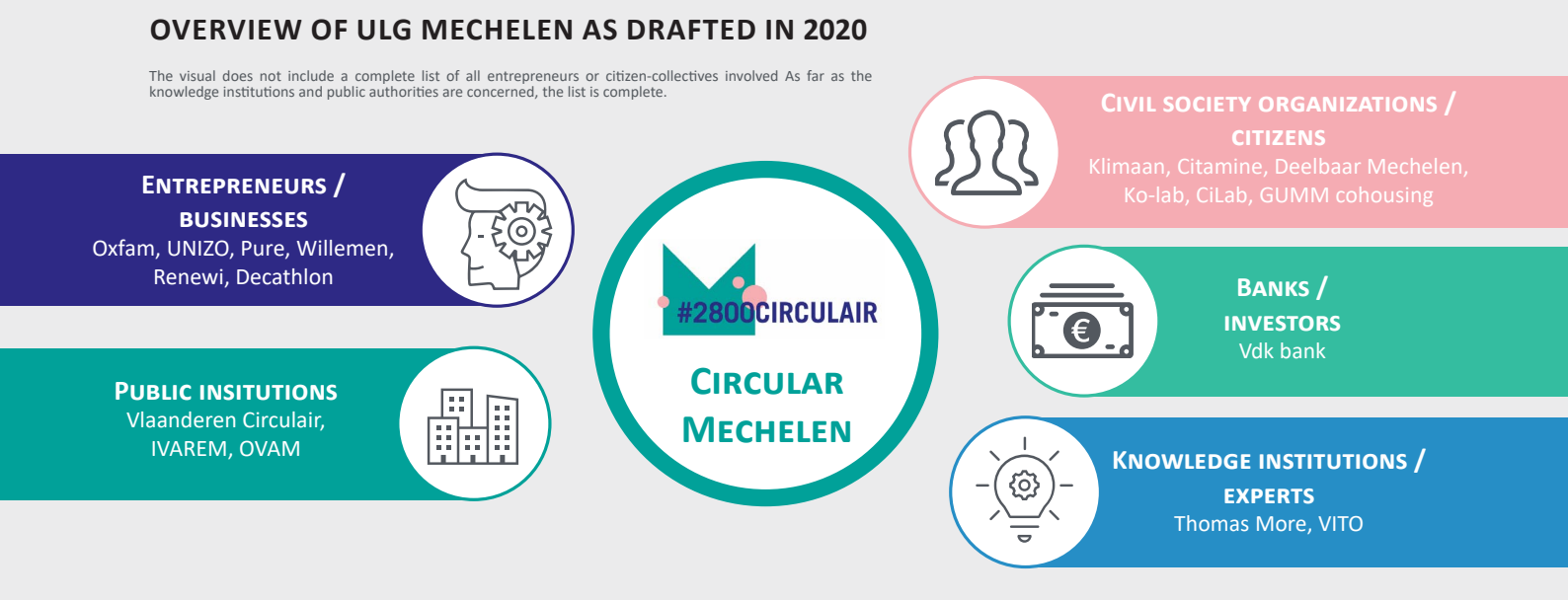
The circular economy is also a top priority at the Flemish level. It is one of the seven transitions in the Flemish Vision 2050. The ambition is to reduce the Flemish materials footprint by 30% by 2030, create jobs and prosperity, combat water scarcity, and make optimal use of natural resources by closing cycles and through more conscious use. This circular transition is taking shape within the framework of Circular Flanders, a partnership of governments, businesses, non-profits, and the knowledge community that together commit to action. Currently, six thematic public-private working agendas are being developed within Circular Flanders, around circular construction, chemicals and plastics, water cycles, bio-economy, food chain, and manufacturing industry (textiles, furniture, electronics, ...). Mechelen collaborated on the development of 3 of the Circular Flanders working agendas, i.e. a circular food chain, manufacturing industry, and circular construction, in line with the prioritization explained in section 4. The chemistry and plastics value chain did not come up in the quantitative analyses of employment in Mechelen and through the socio-economic fabric. As a result, Mechelen does not participate in this working agenda. The working agenda on bio-economy, however, is potentially an interesting one to participate in in the future when initiatives concerning bio-economy in Mechelen are more mature. Lastly, there is no proactive collaboration on the working agenda for water, but closed water loops and reuse of rainwater are a priority for the city. This is already part of the climate action plan under the adaptation measures (avoid water shortage or nuisance through a focus on infiltration, rainwater harvesting and depaving), we chose not to focus on water within this action plan. The goal of participating in the regional agenda setting is to be able to align the local circular economy policy with priorities at the Flemish level, as well as to influence agenda setting at the regional level with hands-on experience from the city level.

Circular Flanders / OVAM has also participated in the ULG meetings to form this action plan. The circular city is after all an important domain of action for Circular Flanders, in addition to the working agendas. In the medium-term Circular Flanders wants to embed the circular economy in the thinking and actions of all Flemish municipal and urban administrators, citizens and entrepreneurs. This focus on the local level is not accidental. As the level of government closest to citizens and entrepreneurs, cities can have an enormous impact.

3. Participatory development of this IAP

Within the Urbact Local Group (ULG), the city brought together local stakeholders from different angles (policymakers, entrepreneurs, citizen collectives, researchers, …) to develop the integrated action plan. In this section, we will describe the co-creation process and the Urbact Local Group that cooperated in this process.

The Urbact Local Group was not dissolved after the project. Stakeholders who were engaged still come together in working tables along specific value chains within the Circular Hub Region Mechelen project. Furthermore, the idea is to create a public-private governance structure or juridical entity, working further on the ULG, not only to manage the Impact Factory but also to monitor the whole roadmap Mechelen Circular 2030. The aim is to develop a strong partnership with more partners from the ULG, but expand it to other local municipalities in the region. The targets of our roadmap are ambitious but can be achieved if we collaborate with citizens, experts, businesses, financial institutions, and other public authorities, in short with the whole quintuple helix.



3.1 Urbact Local Group

The Urbact project was the start of a new network or community of circular doers or stakeholders who want to engage in the circular economy. Our ULG brought together some 30 to 50 individual entrepreneurs or representatives of businesses and business associations, policy officers from different departments, civil society organizations and individual citizens, knowledge institutions, and one bank, per workshop or ULG meeting. The participation of the circular city expert from Circular Flanders allowed us to get a helicopter view of circular strategies and initiatives in comparable (Flemish) cities and contributed to the alignment between regional and local policy frameworks. The aim is to develop a strong partnership with more partners from the ULG, but also other local municipalities in the region to execute and monitor this action plan.

To ensure a gender-neutral and social inclusivity view, an umbrella organization for female entrepreneurs (Best Pittig / Markant), a poverty organization (de Keeting) running the repair cafés in Mechelen, and a social economy company Ecoso which runs the second-hand shops in Mechelen and offer jobs for people with a distance to the labor market based on various circular activities (e.g. Camp2Camp, Foodsavers, Fietsatelier Mechelen), have been explicitly invited to cooperate.

The main focus of the ULG meetings between 2019-2021 was to collaboratively develop a common vision for a Circular Mechelen and draft our integrated action plan. ULG members had access to the outputs generated within the URBACT network and the interregional exchange. The main incentive to contribute was the opportunity to grow their network, connecting with other stakeholders and initiatives locally.

3.2 Co-creation process

The process to develop the IAP was structured according to **four phases**:

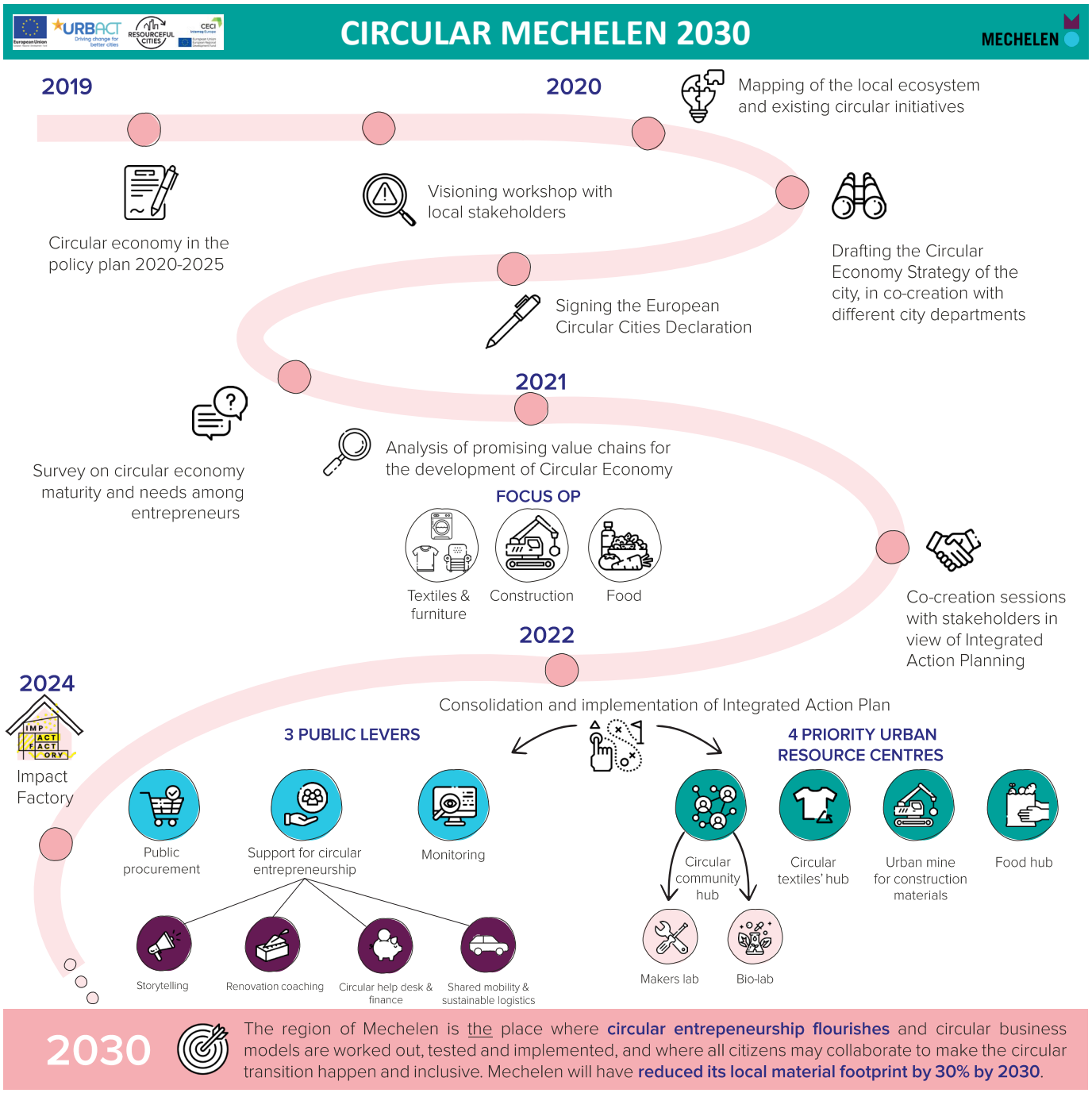
In 2019, we started the **problem analysis (problem three exercise) and visioning exercise** both with an internal stakeholder group (representatives of different city departments as well as IVAREM, the intermunicipal public waste company) and an external stakeholder group. The aim was to create a shared understanding of local challenges and opportunities in the context of circular economy. Representatives from civil society, from the University of Applied Sciences and umbrella organizations representing entrepreneurs in Mechelen were the first to respond to our call for collaboration in the ULG. We however realized we needed to broaden our ULG and add entrepreneurs or companies, involve the regional policy level via Circular Flanders, and try to reach financial institutions or investors, thus started to recruit them one on one.

In 2020, we also conducted a thorough **ecosystem mapping and mapping of existing initiatives**. We reached out to citizen collectives and companies to get a better idea of the 'as is' situation in terms of a local circular economy and initiatives within the city. Time was invested in numerous one-to-one meetings and informal interviews, participation in different citizen-led initiatives and visits to companies. In collaboration with the university of Applied Sciences Thomas More Research, the city launched an online circular economy survey among local enterprises. 175 entrepreneurs answered questions regarding their knowledge of circular economy and circular strategies employed, the barriers as well as the opportunities they saw. We also **mapped what kind of support both civil society and entrepreneurs / companies needed from the city** to accelerate the transition towards the circular economy. In December 2020, we gathered all of the stakeholders to present the results of the work done.

Together with the consultancy agency Möbius Business Redesign, the city's Circular Economy team organized three consecutive, intensive workshops with the consolidated ULG in March, April, and June 2021. During these **participatory workshops**, stakeholders formulated ambitions per priority value chain (see data analysis in section 4.1) and brainstormed on actions per ambition to be taken, while we provided inspiration via testimonials by circular 'doers' from Mechelen and beyond also to the stakeholders. Based on the promising value chains and the levers, some 90 actions have been formulated by the local stakeholders, which could be clustered into action lines (levers or value chains). For priority pilot projects further work was done with the ULG on identifying KPIs, resources needed, and key stakeholders to be involved.

To ensure **political support**, to further prioritize and refine the action tables, we discussed them with the Environmental and Climate Council of the city in October 2021, and with two aldermen – the alderman responsible for climate action and public works as well as the alderman responsible for economy and urban renewal early 2022.

Throughout the whole process of the project, we reported on the progress of the project within the city's steering group on entrepreneurship because of its focus on circular and innovative entrepreneurship. This action plan will be presented for approval to both the college of aldermen and the municipal council. The action plan will also be presented to city employees from different departments and the mayor on the climate steering group and the Advisory Commission for Public works, Environment, Energy and Sustainability.



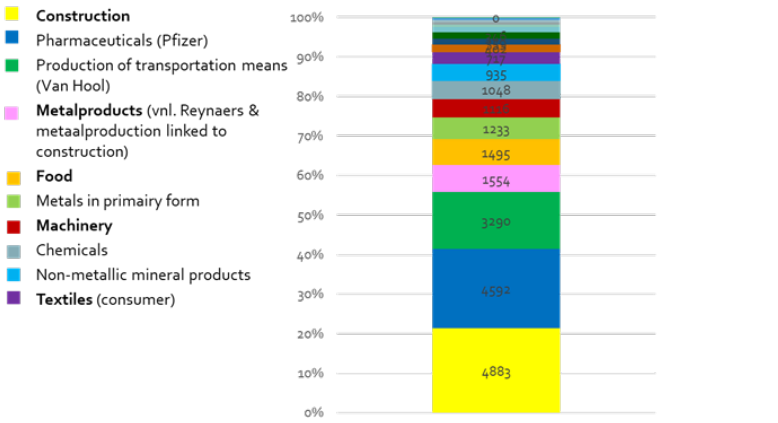
Visualization of Mechelen's circular roadmap

4. Vision and focus areas of this IAP

4.1 Data for focus

To prepare thoroughly for the ULG meetings of 2021, Möbius Business Redesign conducted a quantitative analysis of the **value chains which account for a high level of employment**, using data from the National Social Security Office and Belfirst databases. They also looked at figures on **locally generated waste streams**, and the way they are currently processed.

Based on the employment numbers in Mechelen[11], we saw that construction, pharmaceuticals and the production of transport equipment account for 56% of employment in the secondary sector in Mechelen. Food, machinery, and textiles were also in the top 10 value chains that create the most employment in the secondary sector, with respectively 6,5%, 4,9%, and 3,1% of the employment in the secondary sector in Mechelen. The large employment in pharma, machinery, and production of transportation means is in each value chain due to 1 single company namely Pfizer, Baltimore Aircoil and Van Hool respectively. These companies are independently exploring circular economy and the city of Mechelen has a limited impact on the operational activities of these companies. For these reasons, we did not include pharma, machinery and production of transportation means further in the IAP development.



Well-represented value chains in Mechelen in the secondary sector

Furthermore, the numbers of Ecoso (the largest social company in Mechelen that resales goods) were analyzed. There we saw major potential to increase the reuse of electronics, textiles, bicycles and furniture.

	Economic relevance (employment in Mechelen)		Circular potential	Social economy potential (cfr. p. 17)
Construction	**9,9%**	8,3% production construction materials 1,58% retail and wholesale of construction materials	+	- / +
Food	**9,8%**	2,5% production of food 3% horeca 4,3% retail and wholesale of food	- / +	- / +
Machinery	**4%**	2% production of machinery 2% retail and wholesale of machinery	- / +	- / +
Textiles	**1,7%**	1% production of textiles 0,7% retail and wholesale of textiles	+	+
Furniture	**1,5%**	1,25% retail and wholesale of furniture 0,2% production of furniture	+	+
Bicycles		/	+	+
Electronics (focus: consumer)	**0,95%**	0,7% retail and wholesale of electronics 0,25% production of electronics	+	- / +

11 Based on the analysis of the data of Belfirst and RSZ

In conclusion, construction, food, and machinery have a big economic relevance in Mechelen. Consumer goods have less economic relevance, but those value chains have large circular and social potential.

The quantitative analysis was complemented with a **qualitative assessment**, to identify the promising urban value chains with the most circular and social economy potential for the local fabric of Mechelen. Firstly, we assessed the degree to which it is realistic to roll out **local circular solutions** in the short to medium term.

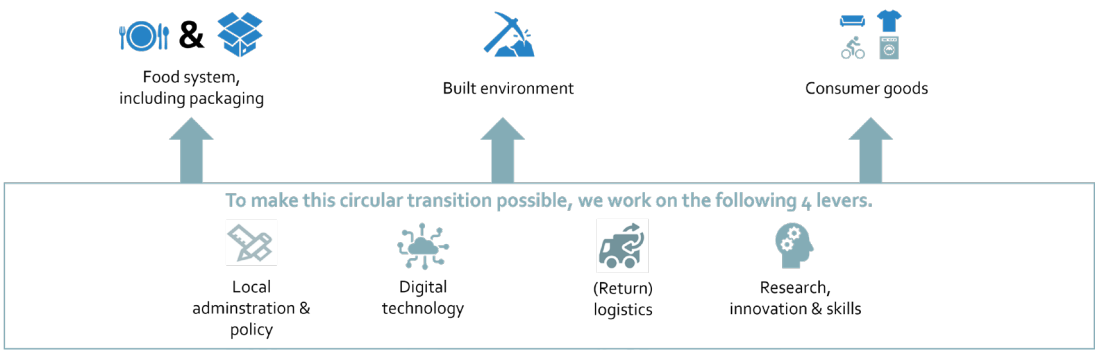
- We examined the extent to which there are opportunities in the so-called "inner" circles of the circular economy. Think of maintenance and repair activities or opportunities for shared use. These provide more value preservation and are often easier to set up locally than for example large-scale recycling facilities.

- In addition, we looked at whether there are any strategic trends for a value chain or sector – this could be legislation, technological developments, evolutions in the market – that have an impact at the local level and could accelerate the circular transition in a particular value chain.

Secondly, we also looked at the **social economy potential** of value chains. To fulfill this potential, circular activities typically need to involve labor-intensive process steps with required manual skills, repetitive tasks, and easily learned actions. Such conditions can be found within the circular economy, for example, in tasks such as collection, sorting, cleaning, simple repair, and dismantling.

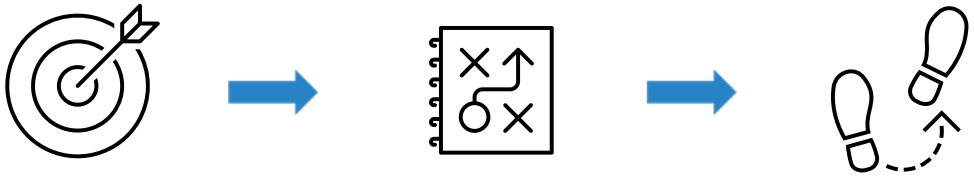
The promising value chains that emerged from this analysis were presented to local stakeholders (see table), to assess whether there was actual local support for working around these value chains. In addition, Möbius identified four levers that help accelerate the circular transition in the promising value chains, namely the role of the city administration and policy, digital technology, the need for logistical systems and research, innovation, and skills.

Mechelen wants to commit to the circular transition within 3 major value chains by 2030, namely:



The Urbact local group

4.2 Prioritization



Ambition
We set an objective for the future

We want to create a city in which empty spaces and buildings are used optimally and flexibly and in which building materials are reused as much as possible.

Action line
We determine what we need to do in general terms to contribute to our objective

Achieve maximum recovery of materials from demolition and reuse in renovation or new construction projects

Action
We define the concrete efforts to be made

Set up a (physical and virtual) material bank for building materials

As such, Mechelen wants to realize the ambition of reducing its material footprint by 30% by 2030, by accelerating the circular transition in a number of thoughtfully selected promising urban value chains, namely the **food system**, the **built environment** and **consumer goods** (**fashion**, **furniture**, **bikes**, **electronic equipment** and **laptops**, …). For each of the value chains, we formulated a joint ambition with the local stakeholders and co-created actions which could be undertaken to reach the ambition. Some 90 actions came out of the ideation workshop and these have been clustered according to action lines. It's important to note that some of these actions are not solely focusing on resource hubs, and are hence not included in this action plan, they have instead fed the roadmap Mechelen Circular 2030.

The actions were prioritized according to three criteria, namely **feasibility** (what can be implemented or achieved in the short to medium term), **impact** (the extent to which an action contributes to the realization of a local circular transition) and **support** (the extent to which stakeholders are prepared to put their shoulders under the implementation of an action, either as initiator or as partner). To prioritize further and create **detailed action tables**, an online survey has been conducted and the priority actions were drafted on posters (attachment 6.3), which also visualized the earlier inventory of existing initiatives mapped in 2021.

In the last ULG workshop, the stakeholders worked on **action tables per priority resource hub**, thinking about an estimated time horizon, possible milestones and first steps to be taken, actors to be involved, possible risks, and key performance indicators (KPIs). After this, interviews and reiteration of the specific action tables were being done together with key actors who want to engage in the implementation of the action.

Entrance to the Potterij - part of the new resource hub Impact factory

4.3 Ambitions

To realize a material footprint reduction of 30% by 2030, we need to collect, redistribute or reuse the materials or resources which are present within our economy on an impactful scale. Different small-scale initiatives are present but the amounts captured at this moment are not sufficient to change the currently dominant profit-driven economic model towards a people and planet centered economic model.

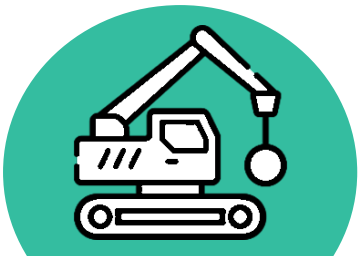
Maker hackerspace @ the Impact Factory

To transform the economy, larger regional urban resource centers need to be developed, or alternatively several smaller ones which are connected to each other and to recycling opportunities for those resources which cannot be put into the economy again. This fraction will become smaller and smaller throughout time. Furthermore, we want to create more jobs locally, both for people with a distance to the labor market and other people, through circular activities such as repair, refurbishment, logistics, dismantling or other ways of rehandling resources to make new products from what is considered waste.

The urban resource centers we focus on in this action plan are in line with the analysis of the promising urban value chains for our local fabric, and the needs of the circular doers which have been detected through a survey in 2020 among entrepreneurs:

a **COMMUNITY HUB**
that brings together and offers inspiration and room for experimentation, i.e. Impact Factory

a **FOOD HUB**
for the systematic redistribution and processing of food surplus



a **MATERIAL BANK**
or several material hubs to promote the reuse of construction materials (urban mines)

a **CIRCULAR TEXTILES' HUB**
for closing textile loops locally

This action plan is however a living document that is monitored and revised annually. Over time, we can identify new material streams of interest, and incorporate new action tables according to new opportunities and capacity to develop resource hubs. While finalizing this action plan, a new action table was on the way to be developed regarding the refurbishment of laptops and closing the digital divide with digihubs.

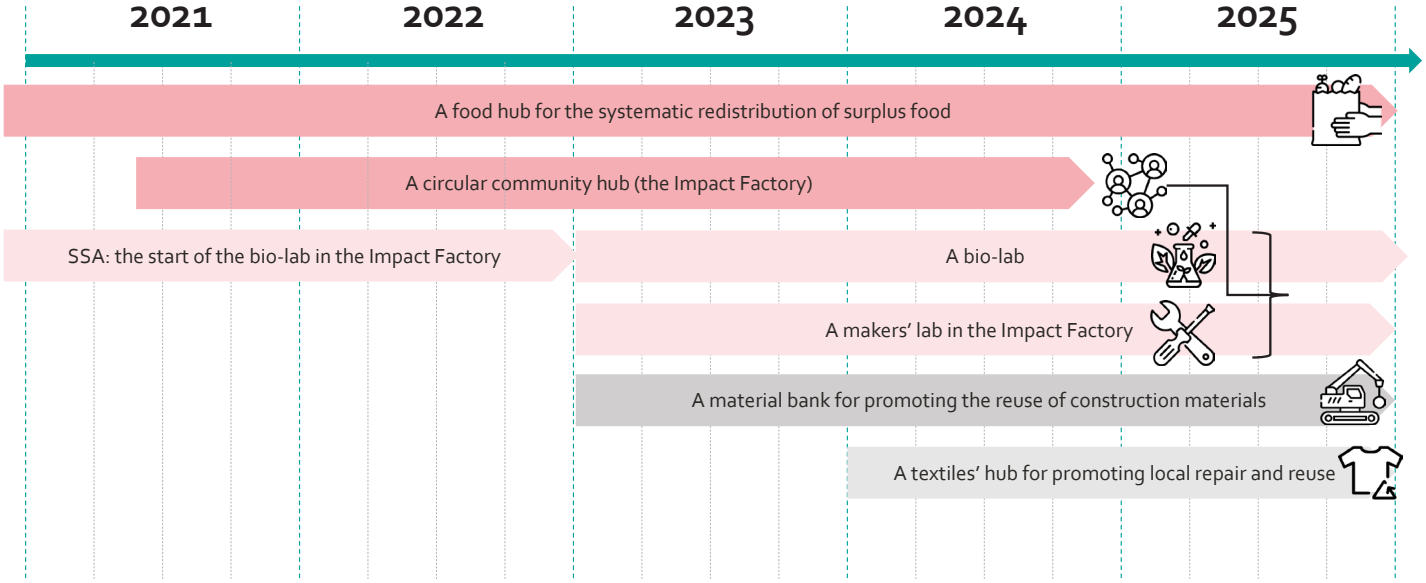
5. Action Plan Resource hubs in Mechelen

For four different URCs (a food hub, a construction material bank, a circular textiles' hub, and a general circular community hub), we prepared more detailed action tables together with the ULG. Three of the Urban Resource Centers we want to develop are meant to capture and valorize (large volumes of) value streams, namely food surpluses, construction materials, and textiles. These hubs cannot be situated within the inner city, because they require logistical movements, as well as storage and (re)production capacity.

One general Urban Resource Centre – named the Impact Factory – is situated within the inner city. It serves as a circular economy incubator and accelerator to develop and test circular products and services. The Impact Factory needs to host circular community events and raise awareness among the broader public concerning the potential of circular economy (think about a concept store, room for exposition and workshops, open atelier, …). This general Urban Resource Centre currently hosts a small-scale bio-lab, a makers' lab (for technical streams) and a textiles' lab. These labs test how the initiatives within Impact Factory can combine hands-on solutions for companies, education, awareness-raising among the large public and (social) job creation. For textiles, we chose to make an action table taking scaling up already into account because that is the small-scale action that is already in a more progressed stage.

For a URC on laptops - another consumption good besides fashion that has a high impact - an additional action table is under construction in 2022. This is not included in the action plan, but the project Digital Hubs is also in collaboration with the private sector and civil society.

However, this action plan is not a static document, but will be updated throughout time, adding extra resource hubs to the plan based on specific material streams or urban value chains of interest. We aim to build all the resource hubs in cocreation with the private sector, both regular and social enterprises or associations, creating additional jobs in the labor market and attracting innovative, green businesses to the region of Mechelen and fostering circular thinking and entrepeneurship among citizens (entrepeneurial citizenship for climate action).



Action Tables

5.1 A CIRCULAR COMMUNITY HUB

2021–2025

Main objective

By setting up a community hub, we want to:

- Bring together different stakeholders around specific value chains
- Set up periodic design sprints or meetings to work with certain flows / materials
- Refer entrepreneurs to each other, to social organizations and experts so that collaborations can arise
- Provide knowledge on circular strategies and business models
- Set up a circular concept store where circular initiatives from Mechelen are displayed
- Making circular economy tangible for citizens
- Provide space for experimentation

Background and current state of affairs

A former industrial laundry amid the city center, the so-called Potterij, has been decontaminated since 2015 by the regional public waste authority OVAM. Wanting to give this brownfield back to the community, OVAM hosted several circular, citizen-led initiatives within the building, such as the tool library of Deelbaar Mechelen and the maker-hacker space Ko-lab (from 2017 onwards). In 2019, the city of Mechelen's ambitions to create a circular hub at the Potterij have been described as a specific action in the new policy agreement. In December 2021 - January 2022, the city concluded a domain concession with OVAM to develop the Potterij, and a partnership agreement with Sylvestra NV, the new owner of a since long vacant office building which we jointly wanted to repurpose. The city is currently in the process of appointing a design team to develop one joint building with the main entrance at a new public square. Circular building techniques and materials are put central in the renovation of the buildings as the site needs to breathe circular economy.

This Resource Center, called the Impact Factory, hosts flexible office space but also workspace in the form of labs or small-scale production rooms. After the renovation, the site will offer 120 to 150 seats of work space for entrepreneurs, a zero-waste restaurant, multifunctional event spaces, a concept store, and an exhibition space to accommodate impact entrepreneurs and collaborations with students, researchers as well as the neighbors and visitors.

(Key)stakeholders involved

- City of Mechelen
- Sylvestra (Property manager)
- Switchrs (circular innovation agency)
- Stadsmakersfond (real estate agency)
- OVAM (regional public waste agency)
- Users of the space provided (a range of actors from civil society to impact entrepreneurs)

Indicators

(to be followed up during the transition phase)

- Outcome:
  - Number of circular doers / entrepreneurs working at the Impact Factory
  - Number of people attending the workshops and events at the Impact Factory / number of events hosted at the Impact Factory
  - Number of partners attracted to collaborate in the Impact Factory
- Impact:

Increase in jobs and circular economy activities in the region of Mechelen

Impact factory as a community hub to educate, inspire and help evolve circular entrepreneurship

Estimate of costs

- Buying the Potterij – domain concession: €16.335
- Renovations to make the Potterij safe for the temporary use before renovations: €345.938
- Making the Potterij ready for construction: €28.592,3
- Renovation budget: €1.512.500
- Works done by OVAM: €145.200
- Works by users: €484.000
- 8% unforeseen costs: €121.000
- 5% price revision: €72.625
- Outside works and utilities: €62.920
- Fees for architects: €158.812,5
- Fee for Switchrs: €108.694,30
- Fee for other consultants: €160.498
- Private investments: €5.756.954

Resources

- ERDF funding for the renovation of the two buildings + pubic square: €1.403.245,6 (01/09/2021)
- Social infrastructure fund from the Flemish government: €800.000
- Additional resources are needed and scouted in 2022-2024 to build the program of the Impact Factory (European subsidies, loans or investments)

Risks

- Public-private partnership may slow down the process (both of establishing and managing the project) due to different stakes or different expectations, more complex to establish the day-to-day delivery
- Business case depends on income by renting seats to entrepreneurs and by programming events – occupation rate should be 40% by 2025

Risk management

- Make sure that the revenues from renting out office spaces, events, tours etc. are enough to cover all the costs
- Investigate the needs of customers so that the offer is tailored accordingly
- Diversify activities and income streams to make sure the business case is robust enough
- Collaborate with the right partners to make sure resources (and start capital) can be pooled
- Find additional resources to make the business case more flexible
- A clear agreement with shared objectives as well as the division of roles and responsibilities to reach these objectives

First milestones	Key partners	Timescale
• **Set up an agreement between the owners of the buildings and square** to develop these together into one joint circular hub and find operational managers for the buildings for day-to-day rental and occupation within the transition phase.	Sylvestra NV & city of Mechelen	End of 2021
• **Start and run the procedure to design the circular hub** according to circular building principles and start a market dialogue with contractors to renovate – rebuild the site with innovative and circular building techniques and materials	Sylvestra NV & City of Mechelen – OVAM / Circular Flanders – WIT architects	2022
• **Build a program of events** that attracts possible partners, entrepreneurs, citizens, ... to co-create the Impact Factory of the future	Switchrs, city of Mechelen, Stadsmakersfonds, Deelbaar Mechelen, Mest vzw	Start in March 2022
• **Start of renovations**	City of Mechelen & Miss Miyagi	Mid 2023
• **Get the Impact Factory up and running** according to the mutual vision and ambitions	City of Mechelen & Miss Miyagi	End of 2024

5.2 A BIO-LAB

2021–2022

Main objective

By setting up a coffee grounds' valorization lab (Coflab) in the Impact Factory, starting as a nursery of oyster mushrooms, we want to:

- Use this project as a test case for the development of a bio-lab in the Impact factory;
- Find out how the city can support start-ups / local associations that want to develop a circular business model;
- Collect lessons learned and best practices for the final development of the Impact factory, the central Urban Resource Centre that we want to develop in the city center, which brings together citizens, associations, entrepreneurs, and researchers;
- Make the circular economy potential tangible to the broad public, learning every citizen to reuse or upcycle waste;
- Stimulate bottom-up innovation by teaching citizens the needed skills for circular entrepreneurship (offering open-source tools, room and gear for experimentation and workshops)

Background and current state of affairs

In 2019 - 2020 the city participated in a project from the Royal Boudewijn Foundation and the Belgian sector federation of coffee roasting companies to research the potential of the valorization of coffee production waste streams in Belgium. The city of Mechelen explored different valorization means for its waste stream (63 kg / week in four office buildings) and found a partner in Citamine, a citizens' collective active to realize its ambitions by the end of 2020. Using residual flows and underused sites for local food production (in this case in the Impact Factory), Citamine wants to set up a local mushroom nursery, using coffee grounds and other local organic waste streams as a breeding ground. The coffee grounds are collected at local restaurants, a school, an elderly home care, a hospital, and the city offices. The oyster mushrooms are sold locally to the very restaurants that also offer their coffee grounds (retour logistics with e-cargo bikes). After the oyster mushrooms are harvested, the coffee grounds get a third life and are converted into compost.

Oyster mushroom nurseries on coffee grounds exist in Belgium, but they struggle to survive because the current, classic business models are not profitable. This action wanted to change this, testing new ways to create value and income by raising awareness through workshops and providing open-source tools for citizens to grow mushrooms at home, by storytelling for businesses, and by exploring new ways of working across the value chain.

When launching the Impact Factory after renovations, the aim is to diversify the range of end products made with the organic waste streams and to have a viable business model for a bio-lab. At this lab we want to enable tests on different organic waste streams (not only coffee grounds) to develop innovative products or services that contribute to a circular economy.

(Key)stakeholders involved

- Public: The city of Mechelen supported Citamine both financially and in terms of connecting entrepreneurs and in overcoming the hurdles of setting up the oyster mushroom nursery. The city also provided coffee grounds (from an elderly care home in the vicinity of the Potterij and a hospital).
- Private: Local horeca provides coffee grounds and acts as a customer for oyster mushrooms
- Academic: Thomas More (Higher Education) provided Space and Service Design students who designed the mobile mushroom nursery and its services as part of their curriculum (2019-2020)
- Social Enterprise: Pronatura executes berm management and provides another organic waste stream that is mixed with the coffee grounds

Indicators

- Outcome:
  - Kilograms of coffee grounds valorized by the mushroom nursery
  - Capacity building: Number of people attending workshops and involved as volunteers
  - Number of different products and services which are made from organic waste streams, which are initiated at Coflab
- Impact:
  - Number of citizens inspired by the story told by coffee grounds
  - CO_2 avoided (measurement method to be developed)

Estimate of costs

- Location at the Impact factory (until mid 2023), afterwards a new location has to be found
  -> 18 months of rent at the Impact Factory, including water and electricity
- Enthusiasm, perseverance and hard work of Citamine and its volunteers
- Follow-up and support from city administration (1 day a month)
- Investment in materials to set up the nursery, including an e-cargo bike for logistics (total infrastructure costs: €40,000)
- €1,000 for consultancy by Glimps (expert in bio-economy) in the early stage of the project
- Sourced equipment and materials through urban mining in a former hospital and local businesses worth about €3000
- Communication and dissemination efforts

Resources

The total cost of the action (set up costs) amounted to €45.000. Multiple sources were used to cover these initial costs, including:

- €10,000 from the URBACT Resourceful cities budget for the SSA
- €5,000 from the city's Climate action fund donated to Citamine
- €10,000 from Citamine itself
- €9,000 from crowdfunding (planned in May 2022)

Risks

- Food safety concerning the food production at a converted black field
- Limited time to implement, also with the restrictions due to COVID-19 and the renovation needed to set up the SSA (which was delayed)
- Difficult to have a durable business model with the valorization of coffee grounds or organic waste streams

Risk management

- Conduct experiments to investigate the impact of sanitation installation on food safety
- Set up a conversation with the responsible government agency
- Invest in a mobile mushroom nursery, which can easily be moved
- Diversify activities to solidify the business case
- Work with volunteers to limit personnel costs

Coffee grounds from local restaurants form a breeding ground for oyster mushrooms

First milestones	Key partners	Timescale
1. Prepare the start of the oyster mushroom farm at the Impact Factory • Finalize the design of the oyster mushroom farm • Buy and collect the needed materials (in function of the final design)	Citamine& Students from Space & Service design	First half of 2021
2. Installation of the needed infrastructure and the start of the oyster mushroom farm • Start the clean-up of the Impact Factory and make it dust-free (together with engaged volunteers) • Build the oyster mushroom farm • Purchase the missing materials • Test and learn from the initial set-up and first cultures	Citamine	End of 2021 - early 2022
3. Activation of the local ecosystem and the set-up of the logistical processes • Activate and concretize the different possible partnerships • Start the communication, branding and storytelling on the oyster mushroom farm based on coffee grounds • Invest in cargo bikes, decide on the collection frequency with the different stakeholders, and map the routes to collect the coffee grounds in a cost-efficient way	Citamine With help from the city of Mechelen	2021, April 10: first information session for local horeca 2022, May 15: crowdfunding campaign
4. Test the business model and financial plan • The existing business model will be tested and after six months an adjusted business model will be presented based on the acquired knowledge • A crowd-funding campaign will be set up to guarantee cash flow until the end of December 2022 • Explore new valorization methods for the rest of the coffee grounds and the waste stream after the growing of the oyster mushrooms (f.e.: compost) • Find the right target group to sell the oyster mushrooms to	Citamine With help from the city of Mechelen	March 2022 - August 2022
5. Train citizens to become oyster mushroom farmers and build the open-source platform • Set up the workshops for citizens and city staff to make their growing buckets for oyster mushrooms • Test the success of these workshops and adjust them based on the feedback from citizens • Collect lessons learned and best practices to extrapolate these to the larger bio-lab	Citamine	Mid 2022 - in June 2022 activity on city staff day

5.3 A FOOD HUB

2022–2025

Main objective

By setting up a local food hub we want to systemically redistribute and process surplus food to:

- Provide vulnerable citizens with food thanks to a surplus food redistribution system for and by people with a distance to the labor market
- Set up logistics to and from the food hub
- Work closely together with other social initiatives concerning food (f.e. social grocer, social restaurant, food workshops, etc.) – creating and diversifying jobs for people with a distance to the labor market
- Transform residual flows from food into food (best valorization option, with highest additional value)

Background and current state of affairs

In 2020, the city of Mechelen together with the social enterprise Ecoso, and with support from the Interreg project Flavour, started the Foodsavers food distribution platform. Good quality food surpluses are currently collected daily from twenty-five donors / suppliers (auction, supermarkets, and food production companies). The collected food surpluses are taken to a central warehouse, from where they are redistributed to almost 65 initiatives in Mechelen and the surrounding municipalities that supply food to vulnerable groups. Currently, the logistical redistribution platform employs 9 people. Participating municipalities finance the system by paying 15 cents per inhabitant and by making a contribution per ton of food delivered to the organizations in their municipality. Donors enjoy a VAT reduction per donation and avoid waste costs.

The next step is to further develop the existing Foodsavers platform into a hub that covers the entire region of Mechelen, i.e. with the involvement of all local authorities in the region, and that diversifies its activities, for instance by setting up a social grocery shop, by hosting workshops on cooking with surpluses, … A new location is found for this at the Keerdok site, which can be used until the end of 2024. After that, another location has to be found. In addition, the intention is to set up a public-private partnership with shared investment so that the operations do not (solely) depend on subsidies. Surplus food that cannot be redistributed via the food hub or transformed into food, can be a testing ground for the local bio-lab. Connections may be made with the Impact factory for showcases or delivery of products to the circular restaurant.

(Key)stakeholders involved

- The city of Mechelen
- Other municipalities & poverty organizations in the region
- Social enterprise that redistributes food surpluses (at this moment: Ecoso)
- Enterprises focusing on the processing of food surpluses, i.e. social restaurants such as Hof van Coolhem, an affordable bistro with a social focus
- Providers of food surpluses (auction wholesale, food processing industry, etc.)
- Actor(s) to run the social grocery shop, social restaurant and food workshops
- Logistic player focusing on organic waste streams if there is a link with the bio-lab
- Knowledge institutions
- HERW!N, the umbrella organization for social and circular entrepeneurs

Indicators

- Outcome:

Number of municipalities and social organizations who are customers of the food hub - regional coverage intended

- Impact:
  - Kilograms of food saved thanks to the foodhub
  - Kilograms of food distributed to people in need
  - CO_2 avoided
  - Number of social jobs created by the food hub

Estimate of costs

- Rent or buy real estate for the physical distribution hub in the outskirts of Mechelen
- One half time equivalent at city level to expand the network of suppliers and demand for food redistribution and to expand the activities within the food hub
- One full-time equivalent to guide the operations at the redistribution center
- License cost for hard and software in view of monitoring which kind of products and how much is redistributed

Resources

- 100.000 euros foreseen in the current local policy plan for the period 2022-2024
- 2022-2025: Kick-start funding of around 144.000 EUR financing via Flemish subsidies for food hubs (attributed)
- 2018-2022: European FLAVOUR program co-financing € 363.252 (€ 242.168 public contribution)

Risks

- Legal obstacles to sell or transform wasted food (f.e. waste and food safety legislation)
- Changes in legislation regarding food donations and fiscal advantages
- Lack of long-term business case (continuously depending on subsidies and / or political support)

Risk management

- Set up a conversation with the responsible government agency
- Diversify activities to make the business case more solid

First milestones	Key partners	Timescale
1. Map the surplus food flows that are not yet a part of the existing Foodsavers platform • Mapping of the different flows within Mechelen (point of origin, volume, characteristics, different possible applications, etc.) • Feasibility study consisting of the analysis of functional, technical, regulatory, financial, and location aspects of the proposed hub	City of Mechelen & Foodsavers umbrella organization HERW!N	2022
2. Develop the business case • Drawing up a business case identifying market needs, expected benefits, products produced, broad estimates of time and cost • Drawing up a detailed financial plan	City of Mechelen & Ecoso	2023
3. Operational deployment on full scale • Looking for a suitable location • Setting up reverse logistics, production site, different selling channels, etc. • Assessing the viability of the business case and sales volumes • Refining the operational set-up of the food hub	City of Mechelen & Ecoso	2024

5.4 URBAN MINES FOR CONSTRUCTION MATERIALS

2022–2025

Main objective

By setting up (a) local urban mine(s), we want to:

- Sort, clean, disassemble and repair constructions materials where necessary, and temporarily store used building materials
- Set up a reuse inventory
- Reuse as much as possible, while differentiating the circular economy principles for each specific material flow (from high-value recycling to reuse)
- Set up a logistic system for building materials from construction site to construction site, while trying to minimize storage in the material bank(s)
- Match the reusable building materials to the right users through an app or online database

Background and current state of affairs

The city of Mechelen, together with VUB Architectural Engineering have received funding from Vlaanderen Circulair for the project “the municipality as Circular Construction Director”. In the context of this project, the city has focused on the reuse of building materials in several renovations-reconstructions that are procured by the city (repurposing of the former library, reconversion of a former hospital, …). The pilots clearly show that demolition contractors and a demolition management organization play a central role in an urban mining system and that we probably need different systems for different material streams to close the loop and find viable business models[12].

Within the pilot cases of renovation projects of larger city buildings according to circular principles, the city executed tests to draw up reuse inventories in cooperation with volunteers from citizen collectives and a real estate developer. In addition, the city offered cooperation and room for experimentation for the project on data- driven demolition. Based on the inventory method from FCRBE made by Rotor, the city created an excel-based tool that draws product sheets from the reuse inventory that can be sent to potential customers to be used within the city departments. However, screening buildings on their potential for reuse of materials, collecting, and keeping data on the buildings as materials banks need to be operated in collaboration with the private sector to make it impactful.

(Key)stakeholders involved

- The City of Mechelen
- Citizen movements who (want to) invest time and efforts in projects focusing on the reuse of construction (F.e.: Klimaan, Deelbaar Mechelen and Stuifmeel)
- (Social) enterprises that can supply or even rework construction materials (F.e.: Ecoso – wood atelier)
- (Social) enterprises that selectively disassemble construction materials in construction sites (e.g. Manus, Rekup, ...)
- Knowledge institutions that research material quality, product standards and norms (WTCB, Tracimat, VITO, …)
- Intermunicipal waste company IVAREM
- Local construction companies (F.e.: Willemen, Eestairs, Eco-deco, …)
- Demolition experts who issue certificates and follow up construction sites
- Stakeholders for data capture

Indicators

- Outcome:
  - Number of customers to the (online and physical-material bank)
  - Kilograms / value of reused building materials via the material bank
- Impact:
  - Primary material use avoided (measurement method to be developed)
  - CO_2 avoided (measurement method to be developed)

12 See also ‘Final report Urban Mining of buildings’, by VITO, WTCB and UHasselt, commissioned by Circular Flanders and OVAM, 2021, https://bouwen.vlaanderen-circulair.be/src/Frontend/Files/userfiles/files/FINAL%20Eindrapport%20Urban%20Mining%20van%20gebouwen.pdf

Estimate of costs

- Physical location(s) in the region (at certain construction sites, companies, or new locations) depending on the individual matching of the material flows
- FYI: A material bank in Leuven operates with a start capital of 200 000 euros and a team of approximately 25 volunteers

Resources

- The city currently aims to find a kick-start funding of around 300.000 euros financing via (European) subsidies to pay for a coordinator / facilitator for the system change we want to achieve and some pilots in cooperation with the public sector (Expression of interest in Interreg Nederland-Vlaanderen program 2022)
- Exploring to partner with the right knowledge institutions on this topic in different projects (with Tracimat, WTCB, VITO, …)

Risks

- Legal obstacles (out of reach of the local municipalities)
- Lack of funding or initial investments in additional costs for storage, logistics and data capture
- Insufficient supply of quality materials
- Insufficient demand for reused building materials
- Mismatch between available stock and demanded materials
- Lack of long-term business case, there aren't viable, self-sustaining B2B business models in Belgium yet for impactful reuse of construction materials

Risk management

- Set up a conversation with the responsible government agency
- Explore different subsidy channels for the first few years
- Raise awareness among local stakeholders to use reused building materials
- Research the viability of the business case and the willingness to pay for building materials
- Collaborate with the local intermunicipal public waste company and / or second-hand store(s) to guarantee the supply / sale of building materials
- Diversification of the activities (in addition to second-hand building materials, tools, consulting services, etc.) to make the business model more robust

First milestones	Key partners	Timescale
1. Market research: analysis of local needs, supply, and demand • Research on market needs: f.e. is there primarily a need for a physical hub for second-hand building materials or also for accompanying services (such as access to tools, advice on working with reused materials …). • An analysis of who can provide a (stable) supply of reusable building materials. • An inventory of the high potential private and public construction and renovation projects in Mechelen that could qualify for either the supply or the sale of used building materials. • Research the possible link with other services provided by the city of Mechelen or other local stakeholders (lending of tools, training of students, workshops for citizens ...) to diversify the business model	WTCB Tracimat Thomas More University of Applied Sciences Business partners such as Harvest Bay, Recuplan(k), ...	2022-2023

2. Analysis of the conditions for setting up a material bank & of the business case
• Investigation of the conditions that need to be fulfilled in order to successfully set up a material bank:
  • What are potential regulatory barriers and how to remove them? (f.e. waste legislation, public procurement law)
  • How can we adapt our permit policy to stimulate building with second-hand materials? How can we give non-binding advice to citizens concerning the reuse of construction materials?
  • Which awareness campaigns will be necessary (for which local actors)?
  • Should there be a certification to guarantee the quality of the materials?
  • What incentives can be created for building actors that will lower barriers to implement the reuse of construction materials?
• Drawing up a business case identifying market needs, expected benefits, services offered, broad estimates of time, cost, and revenue.		

3. Inventory of suitable sites for the material bank based on predetermined criteria • Evaluation of the extent to which a (specialized) central material bank can be combined with a network of decentralized hubs (f.e. existing recycling yards or wholesalers) where one can drop off / collect (more average) second-hand building materials. • Looking for (a) suitable location(s), preferably locations where we can link to existing channels.		
4. Facilitation of the dialogue between the different stakeholders involved • Uncover the practical bottlenecks by talking with both demolition contractors, treatment partners and producers of construction materials • Validate and refine together with the partners the high potential demolition sites, the existent building materials, the appropriate juridical framework, the appropriate reversed logistics (construction site to construction site and / or construction site to material bank) • Set up the cooperation structure between the different partners, including clear roles and responsibilities		

First milestones	Key partners	Timescale
5. Facilitation of the dialogue between the different stakeholders involved • Uncover the practical bottlenecks by talking with both demolition contractors, treatment partners and producers of construction materials • Validate and refine together with the partners the high potential demolition sites, the existent building materials, the appropriate juridical framework, the appropriate reversed logistics (construction site to construction site and / or construction site to material bank) • Set up the cooperation structure between the different partners, including clear roles and responsibilities		
6. Operational deployment on pilot scale • Setting up the reverse logistics, sorting and stocking site, different (off- and online) selling channels, etc. • Assessing the viability of the business case and sales volumes • Refining the operational set-up of the material bank and the different material flows		
7. Measurement of impact		2025

Stakeholders at work for the action plan

5.5 A CIRCULAR TEXTILES' HUB

2023–2025

Main objective

By setting up a textiles' hub, we want to collect and reuse unused post- and pre-consumer textiles locally and hence:

- Support entrepreneurs who set up different businesses based on the postconsumer fashion, according to R-ladder
- Create social employment (with sorting, washing, logistics, sewing, etc.)
- Set up a logistic system to support the textiles' hub
- Test rental models and / or platforms with local retailers
- Set up a product passport for clothing and textiles in order to track materials along the value chain

Background and current state of affairs

Since mid 2021, the city of Mechelen, together with Thomas More Research (Creative & Innovative Business Research) organizes inspiration sessions and working tables for entrepreneurs on the topic of rental and resale models for fashion as well as on what to do with post-consumer textiles, within the project Circular Economy Hub Region of Mechelen. As such, we gather entrepreneurs and experts in order to map the ecosystem and the role that different actors want to play in a systemic change to circular consumption and production models. The hub also provides firsthand advice to starters who want to set up a business based on textiles, focusing on circular production or (re)sale models, in collaboration with experts from Unizo Antwerp and CiLAB.

The Circular Innovation Lab in Mechelen, or CiLAB 2800 for short, is a collective of three entrepreneurs looking for circular solutions for textile waste, founded in 2021. CiLAB currently works together with brands and the fashion industry (e.g. Decathlon, JBC, Woody, Concordia Textiles) to find customized circular solutions for their deadstock, unsold collections or waste streams by making new collections or items that are resold by themselves. Experiments with a materials passport for clothing are also taking place in the collection of one of the entrepreneurs of CiLab. CiLab aims to change the behavior of both the producer and the consumer and to create a learning network. Both the efforts of Cilab and the CE hub region of Mechelen in bringing together a network of peers, now need to be gathered and transformed into impactful action (on a larger scale).

(Key)stakeholders involved

- City of Mechelen
- Circular fashion enterprises (F.e.: HNST)
- Social companies that want to sort, wash, and repair or rework textiles (eg CiLab, Nektari, Ecoso, …)
- Local retailers (F.e: Pure, Supergoods, Oxfam, Ecoso, …)
- Logistics player to collect waste streams of textiles
- The intermunicipal waste company IVAREM
- Digital platform provider(s)
- Fashion industry / brands who want to operate in a sustainable way (eg. Decathlon, JBC, Woody, …)
- Partners for recycling what cannot be reused as such (the closest recycling plant now is Wolkat)

Indicators

- Outcome:
  - Kilograms of reused textiles
  - Number of retailers involved in the rental platform
  - Number of customers on the clothing rental platform
  - Kilograms / value of reused clothing via the textiles hub
  - Number of circular solutions found for the different retailers and other organizations
- Impact:
  - Primary material use avoided (measurement method to be developed)
  - CO_2 avoided (measurement method to be developed)
  - Raised awareness with citizens concerning circular textiles (measurement method to be developed)

Estimate of costs

- Physical location in Mechelen
- Digital platform
- Research
- Staff
- Communication budget
- Budget for logistical system
- …

Resources

Several funding channels and partnerships are explored in 2022 in order to get seed funding for setting up the textiles' hub at least in the first three years

Risks

- Lack of funding
- Insufficient supply of quality materials
- Mismatch between available stock and demanded materials
- High costs for a location to stock the unsold clothing / clothing to be rented out
- Financial risks and a lot of administrative work for the retailers
- Insufficient skilled workers

Risk management

- Explore different subsidy channels at European, Belgian and Flemish level
- Research the local demand for reused textiles
- Investigate whether vacant buildings can be used as a suitable location
- Research the business case and the relating financial risks
- Investigate digital solutions to reduce the administrative work for the retailers
- Collaborate with the local intermunicipal public waste company and / or second-hand store(s) to guarantee the supply of textiles
- Raise awareness among citizens to boost awareness of textiles
- Cooperate with student curricula and adult education programmes

First milestones	Key partners	Timescale

1. Research customers' need concerning rented and reused clothing
• Research if the quality of the unsold stock at retailers meets customer needs
• Quantify and research the local market for reused and rented clothing in Mechelen (including the necessity of washing and repairing the reused and rented clothing)
• Research and learn from other clothing libraries / rental platforms elsewhere
• Research the different business models for the rental platform
  • Rental model vs. subscription fee vs. …
  • Subscription fee
  • Subscription period
	Thomas More Research, CiLab, Circular Flanders/ OVAM?	2021-2022

2. Analysis of the conditions for setting up a textiles hub & of the business case
• Investigation of the conditions that need to be fulfilled to successfully set up a textiles hub:
  • What are potential regulatory barriers and how to remove them?
  • What is a legally sound cooperation model between the different stakeholders?
  • Which awareness campaigns will be necessary?
  • …
• Drawing up a business case identifying market needs, expected benefits, services offered, broad estimates of time, cost and revenue.
• Convince local retailers to participate and invest in a pilot test case and explore potential partnerships with social enterprises
		2023

3. Operational deployment of the textiles hub • Look for a suitable location for the textiles hub where all the needed operations can take place • Set up the reverse logistics for the collection of the textiles, the sorting and cleaning site, repair, remanufacture & 'upcycling' site, rental platform, etc. • Assess the viability of the business case and sales volumes • Streamline the material flows (Which textiles are reusable, repairable, mechanically recyclable, chemically recyclable, etc.) • Refine the operational set-up of the textiles hub • Raise consumer awareness through communication and working together with different schools and study assignments with colleges		2024-2025

Attachments

6.1 Benefits of circular economy for Mechelen

VOORDELEN CIRCULAIRE ECONOMIE voor Mechelen

1%

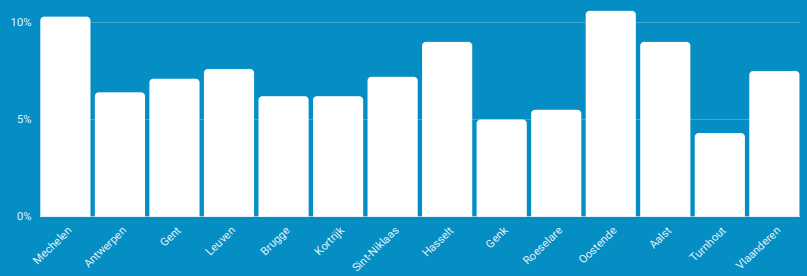
de extra groei van het GDP in Mechelen dankzij circulaire economie (naast de normale jaarlijkse groei van 2%). Dit komt neer op 1,95 miljard euro.

CIRCULAIRE JOBS

- Zorgen voor een gesloten grondstoffencyclus
- Hernieuwbare energie, recyclage en herstel
- Leasing, engineering en digitale technologie.
- Via onderwijs, logistiek, diensten en overheidsadministratie

5255 - 8105
circulaire jobs in 2030
= 50 - 2900 meer dan in 2020

Mechelen vs andere Vlaamse steden



Stijging aantal jobs voor mensen met afstand tot arbeidsmarkt. Van de 5205 circulaire jobs zijn er

1300
Sociaal circulaire jobs

Toegang tot duurzame consumptiegoederen **voor elke Mechelaar**

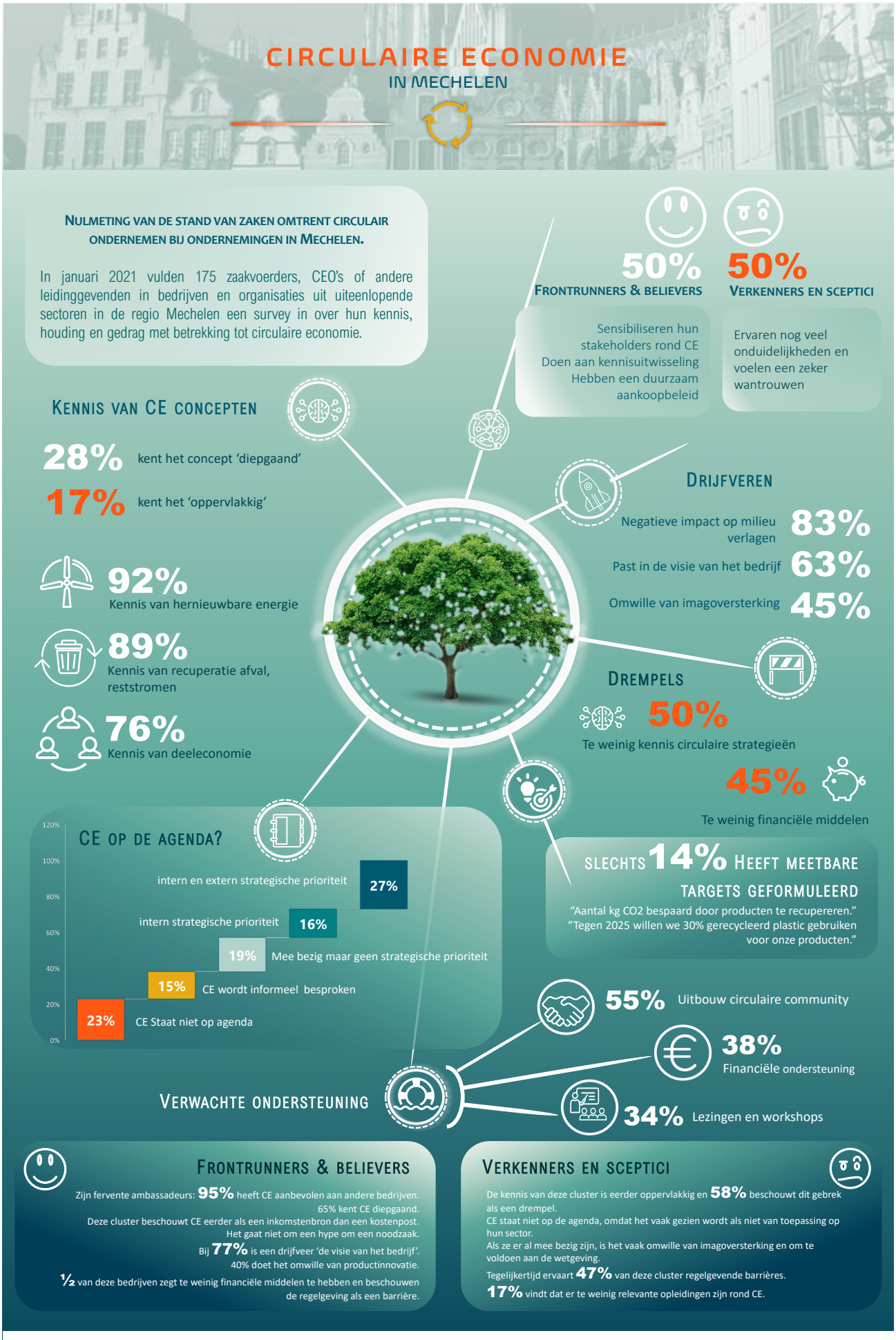
Jaarlijks netto
178 KTON
vermeden **CO2-uitstoot**

Dit komt overeen met de bouw van ± **24** windmolens

Jaarlijkse besparing van
74 KTON
grondstoffen

Dit komt overeen ± **2431** volle vracht-wagens

6.2 Baseline circular economy Mechelen in 2020



Meer informatie?
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MECHELEN

RESEARCH @THOMAS MORE

6.3 Posters, used during the co-creation process

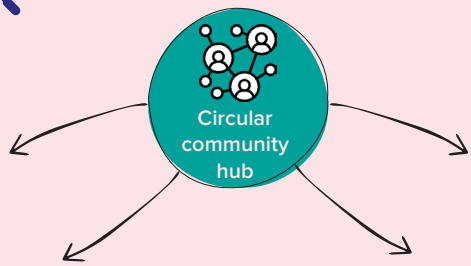
Poster The circular community hub

THE CIRCULAR COMMUNITY HUB
to encourage circular entrepreneurship

WHAT DO WE WANT TO ACHIEVE?

- Development of sustainable, innovative business models
- Bringing entrepreneurs together in function of partnerships in the value chain
- Set up a circular concept store and exhibition space to show the potential of circular economy to citizens and entrepreneurs
- Setting up periodic design sprints or meetings to work with certain flows / materials
- Making knowledge available regarding circular strategies and business models

LINK WITH EXISTING INITIATIVES



IMPACT FACTORY

Development of the Impact Factory, a former laundry and vacant office building that were converted into an incubator for circular doers and impact entrepreneurs

Circular helpdesk for entrepreneurs

coflab

A bio-lab where a community of people is brought together from citizens and entrepreneurs around the valorization of coffee grounds

CECI Interreg Europe

Civic engagement in the circular economy (CECI)

FIRST MILESTONES

1. Determine the intended target group and their specific needs
2. Develop value proposition and business plan
3. Pitch to potential users

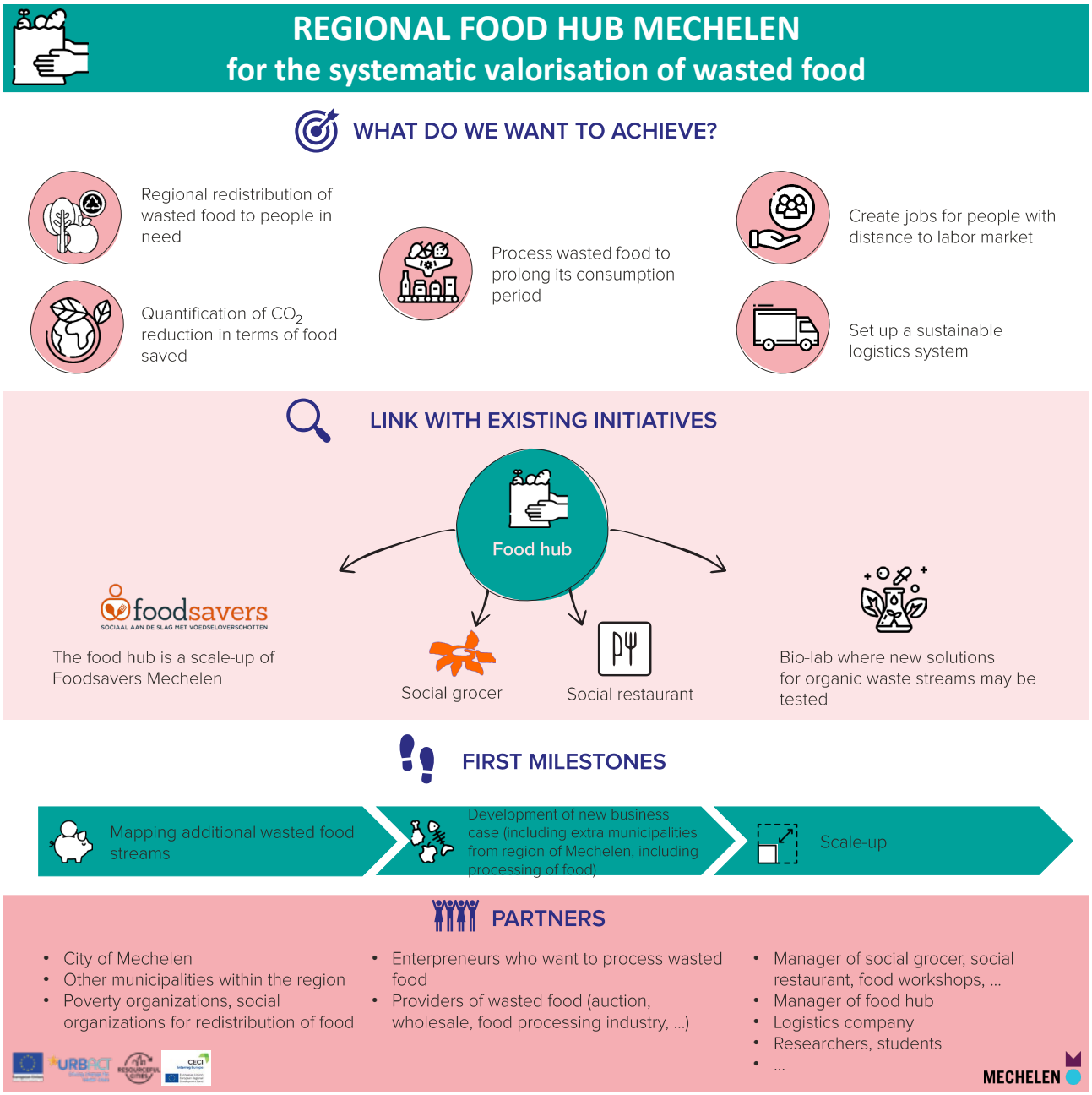
PARTNERS

- City of Mechelen
- OVAM / Vlaanderen Circulair
- Knowledge institutions and schools
- Entrepreneurial networks
- Miss Miyagi City Makers Fund
- Switchrs
- Mest vzw
- Thomas More University of Applied Sciences
- Circular initiatives from Mechelaars and civic organizations
- Entrepreneurs: from start-ups to seasoned ones

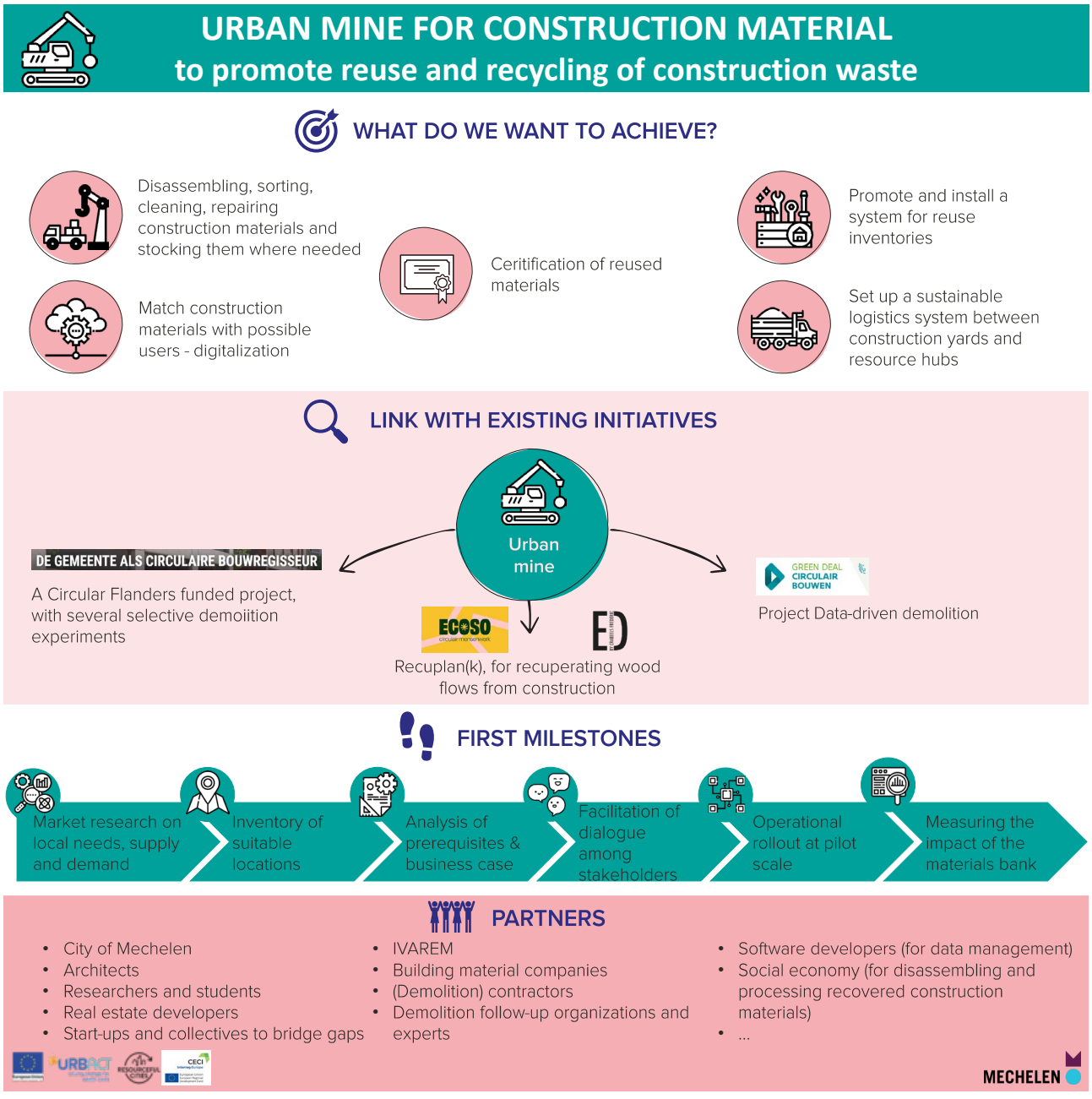
URBACT · RESOURCEFUL CITIES · CECI

MECHELEN

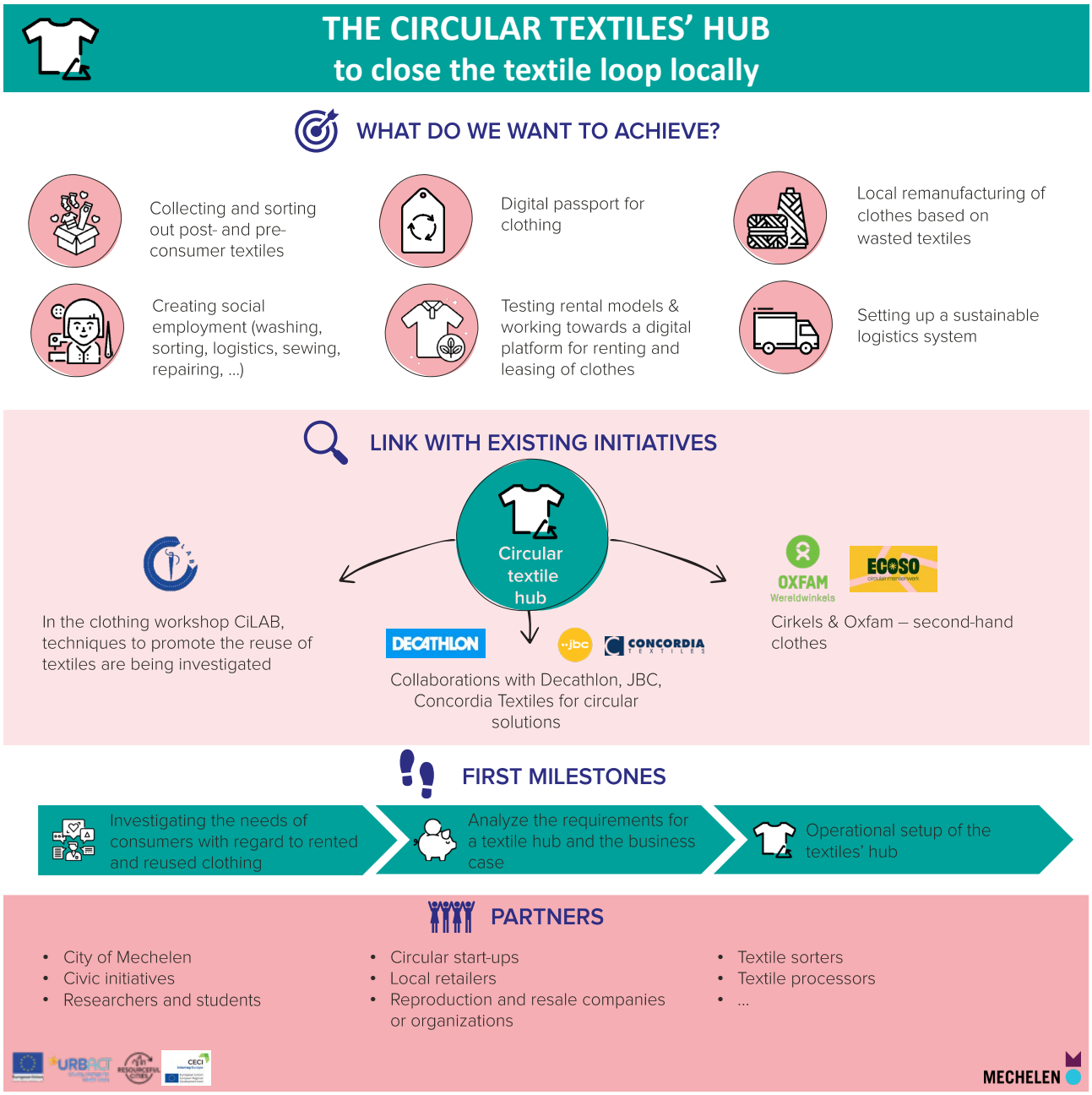
Poster Regional food hub Mechelen



Poster Urban mine for construction material



Poster The circular textiles' hub



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RESOURCEFUL CITIES
Spaces for circular co-creation and action

European Union
European Regional Development Fund

URBACT
Driving change for better cities

MECHELEN