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EXECUTIVE SUMMARY

The Active8-Matrix is part of the Active8-Planet Toolkit that is developed to support the implementation of the Active8-Planet learning model and methodology. The Active8-Matrix serves as a guiding, assessment and monitoring tool to aid 7+1 Teams to develop planet-centred concepts and interventions that are aligned with the core guiding agendas – i.e. UN Sustainable Development Goals, the European Green Deal and Ethics in Research & Development.

The present report represents the first development cycle of the Active8-Matrix. First the objectives of the Active8-Matrix are presented together with a brief overview of the core guiding agendas and the planet-centred development principles. Then, it is shown how the concept of the City Portrait with its accompanying canvas, developed by the Thriving Cities Initiative, offers a good framework to establish this integration. Finally, the implementation of the Active8-Matrix tool along the 7+1 Team Projects is explained and illustrated with a first example.

The Active8-Planet Matrix will undergo three development iterations taking into account the evaluation results from Learning Cycle 1 and 2. In addition, the process will be supervised by external experts from the advisory board (e.g. UNESCO) to assure coherence with guiding agendas.

Key words: integrative tool; core guiding agendas; social and ecological; local and global; city portrait canvas

1 THE ACTIVE8-MATRIX: WHAT IS IT?

1.1 Context

The Active8-Matrix is developed within WP2 of the Active8-Planet project. In this WP various learning and teaching approaches and practices in relation to a planet-centred development are pinpointed on European and international scale. This formed the basis for the development of a coherent Active8-Planet learning model and methodology, that is implemented and tested in WP3 and WP4, and evaluated in WP5. It integrates four key planet-centred development principles (see Figure 1): (1) Interdisciplinary & intergenerational co-creation, (2) People-centred Design, (3) University-Business Collaboration, and (4) Environmental Ambition and Action.

The Active8-Matrix is part of the Active8-Planet Toolkit that supports ensuring long-term sustainability of the Active8-Planet results and provides guidelines and lessons learnt to enable integration of the Active8-Planet learning approach in European higher education curricula.

Since geographical and cultural differences are an important factor, the tools, such as the Active8-Matrix, are developed in a way that they are applicable in various settings and at the same time are still open to adaptations by practicioners to their own social, cultural, academic, and business environment.

1.2 Objectives of the Active8-Matrix

Within the learning and teaching model, 7+1 Teams establish research & implementation plans and activities, to finally result in concepts and interventions. These 7+1 Team Projects need to be aligned with the core guiding agendas of the Active8-Planet project – i.e. UN Sustainable Development Goals, the European Green Deal and Ethics in Research & Development (see Figure 1). Therefore, the Active8-Matrix is developed to serve as a guiding, assessment and monitoring tool to aid 7+1 Teams to continuously assess current status, and to plan future effects and compliance of their research and development work in relation to the three core agendas. In addition, the results from the Active8-Matrix assessment tool are meant to be used as indicators for the environmental, societal, economic and ethical impacts of team projects by means of concrete qualitative and quantitative indicators.

The Active8-Planet Matrix will undergo three development iterations taking into account the evaluation results from WP5. In addition, the process will be supervised by external experts from the advisory board (e.g. UNESCO) to assure coherence with guiding agendas.

The present report represents the first development cycle of the Active8-Matrix.

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CORE GUIDING AGENDAS

UN Sustainable Development Goals

The European Green Deal

Ethics in Research & Development

INNOVATIVE APPROACH

PLANET-CENTRED DEVELOPMENT

Interdisciplinary & Intergenerational Co-creation

People-centred Design

University-Business Collaboration

Environmental Ambition and Action

OPERATIONALIZATION In Active8-Planet Project

Supporting a transition towards a balanced life on Earth

Circularity in Built Environment

Health and Wellbeing in future communities

Urban Mobility
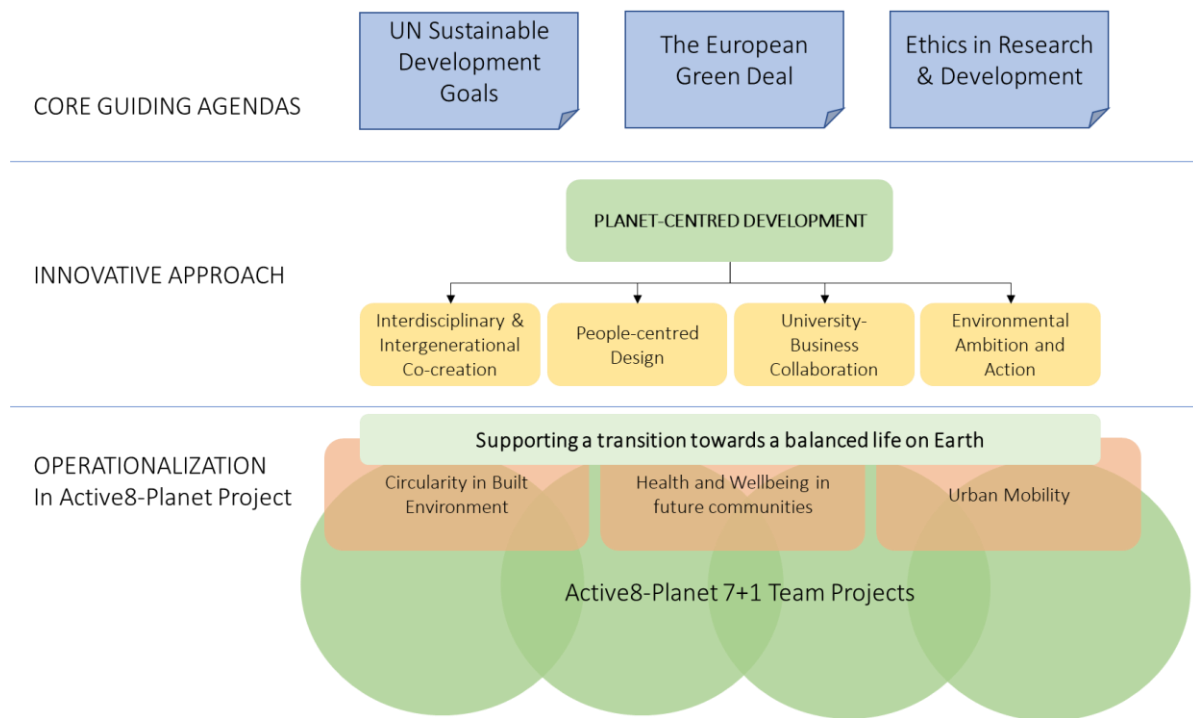
Active8-Planet 7+1 Team Projects

Figure 1: Core guiding agendas and key planet-centred development principles as overarching guidance for the Active8-Planet innovative learning/teaching approach

2 THE CORE GUIDING AGENDAS

The Active8-Planet project has a set of three **Core Guiding Agendas** - those key ideas, arising from the needs analysis, that permeate the project approach and activities, serving simultaneously as an inspiration, a guideline and a vision. At the centre of the project's attention is the recognition of the fragile equilibrium and the dynamic interplay between the social foundation and the ecological ceiling that sustains a safe and just life on the planet.

- The **UN Sustainable Development Goals** form the basis for the project's ambition and approach.
- The **European Green Deal**, serves as the strategical guide which sets the EU's comprehensive agenda for transforming the economy for a sustainable future. As the Green Deal acknowledges, mobilisation of research in a collaborative and interdisciplinary mode will play an integral part in achieving the ambitious objectives, while (higher) education institutions are particularly well placed for engaging students, securing a societal pull and an involvement of local communities in the transition.
- **Ethics in research and development** are therefore the third core principle that guides the project team in their research, cooperation and action.

Each of the core guiding agendas is briefly presented here below. More detailed information can be found in the references.

2.1 UN Sustainable Development Goals

As stated in [1], *the 2030 Agenda for Sustainable Development, adopted by alle United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. At its heart are the 17 Sustainable Development Goals (SDGs) (Figure 2), which are an urgent call for action by all countries - developed and developing - in a global partnership. They recognize that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests.*

Each of the 17 goals is further concretized in several target actions, resulting in total into 169 target actions.

More detailed information on the SDGs, the facts and figures, the targets and the current progress of countries towards achieving all 17 SDGs can be found in [1] and [2].

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Figure 2: The 17 Sustainable Development Goals as set by the UN in 2015 [1]

2.2 EU Green Deal

The European Green Deal, established in 2019, represents the concrete EU's ambition to make its economy sustainable and to become the first climate-neutral continent [3]. It provides an action plan *(Figure 2),* to boost the efficient use of resources by moving to a clean, circular economy, to restore biodiversity and to cut pollution, in a way that there are no net emissions of greenhouse gases anymore by 2050, that economic growth is decoupled from resource use and that no person and no place is left behind.
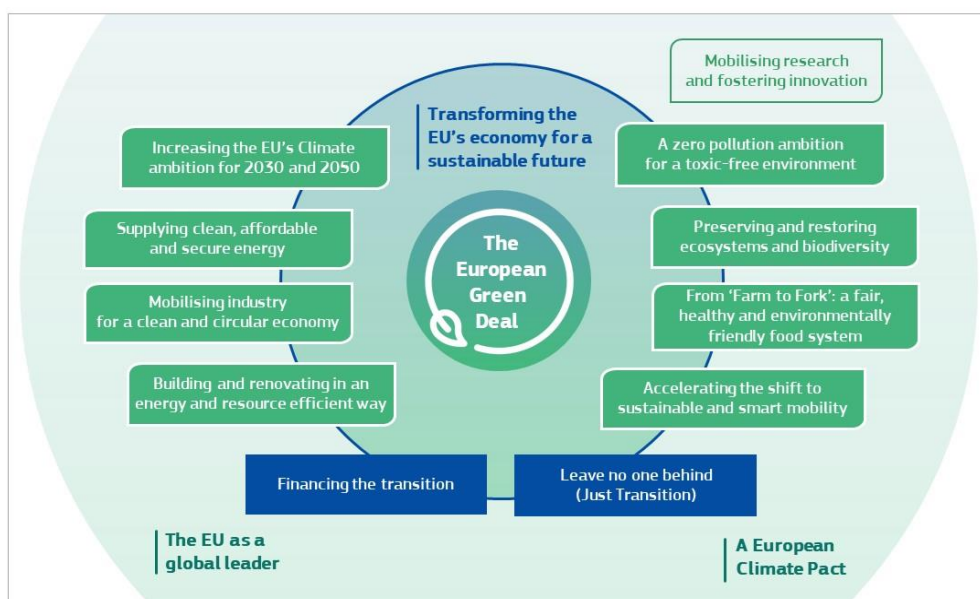

Figure 3: The main ambitions and focus points of the European Green Deal [3]

2.3 Ethics in Research & Design

As stated by Jean-Michel Baer in [4], ethics is of great importance in research and design and this importance has long been recognised by the European Commission. High ethics standards do not only add to the quality of research and design, but also increase its likely social impact, as it both promotes research integrity and strives for a better alignment of research and design with social needs and expectations. Especially in contexts where human beings and new technologies are involved.

Within the Active8-Planet project, we rely on the European Textbook on Ethics in Research [4], on the Horizon 2020 Guidance [5] and on the expertise in ethics that is available among the project partners and in the advisory board.

3 THE PLANET-CENTRED DEVELOPMENT PRINCIPLES

Apart from the core guiding agendas, the Active8-Planet learning model integrates also four key planet-centred development principles: (1) Interdisciplinary and Intergenerational Co-creation, (2) People-centred Design, (3) University-Business Collaboration, (4) Environmental Ambition and Action (Figure 1). This way, a new model of emerging applied sciences is shaped aiming at enhancing the relevance of teaching and research to deploy the potential in the eagerness and engagement of youth in tackling the sustainability challenges

The complexity of sustainability problems requires working across sectors and disciplines. However, higher education institutes rarely support these, whereas companies often do not have access to interdisciplinary knowledge and expertise that would enable them to radically transform towards carbon-neutral and circular economy. By bringing together universities from diverse disciplines and industries operating in the field of sustainability, Active8-Planet supports interdisciplinary and cross-sectoral university-business co-creation. Simultaneously, it offers intergenerational hands-on experiences for students, research staff and industry partners to transform their research, knowledge and disciplinary expertise into future-oriented sustainability action.

Another point of attention is that innovation and development of sustainability solutions is often carried out in silos and mainly dominated by technical engineering, with limited inclusion of social, societal and cultural factors. People are understood as passive users/consumers, which leads to (non-) technological developments that ignore the social embeddedness of their behaviours, habits and values. By implementing people-centred design (as one of the core principles of planet-centred development), which involves application of research methods from social anthropology, e.g. participatory research methods, field-experiments, observational studies etc., the purpose is to gain emphatic and more in-depth understanding of people's actual needs, habits and behaviours and contributing to increased innovation and development of meaningful, reliable, viable and sustainable products and services. Important in this sense is to mention the critical reflections by Royston and Foulds [6] on how the process of making evidence is often understood within science and technology studies. They discuss how evidence from social sciences is often excluded through expectations on the role of evidence from social science, on the preference for certain social science domains and on the validity and rigour of research methods. In this context, it is important to be attentive that evidence from social sciences is not just seen as instrumental, e.g. to deliver engagement and acceptance for technological solutions, that also domains of social sciences outside the domain of economics should be considered as the latter is often treated as the most preferential one, and that there are no implicit assumptions on a hierarchy of methods with regard to validity and rigour of results, where typically qualitative research methods are seen as inferior to quantitative methods.

Finally, the collaborative approach to co-create practice-based and people-centred sustainability interventions is also meant to creating a bridge between sectors, disciplines and generations, and to provide a platform for transforming the isolated and discipline-specific knowledge, both in science and technology, social sciences and industry into collaborative climate and sustainability actions. In this context, Active8-Planet also wants to raise the first cohorts of dedicated, risk-taking young individuals (the "Planeteers") becoming
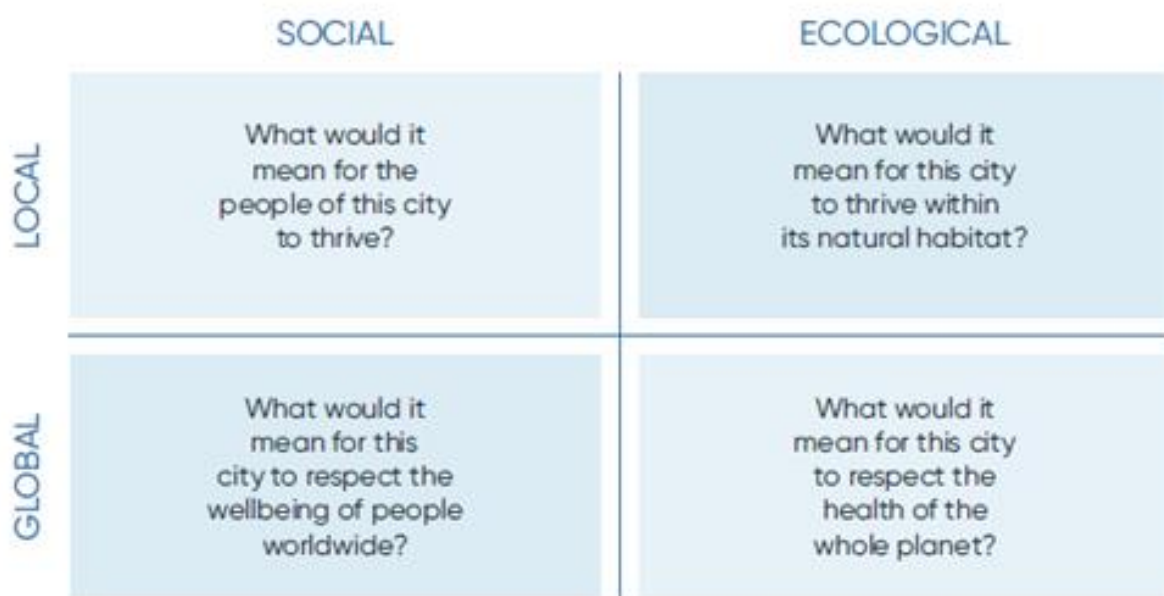
ambassadors of the Active8-Planet principles and active co-creators of their sustainable future.

4   DEVELOPMENT AND IMPLEMENTATION OF THE ACTIVE8-MATRIX

A challenging aspect in the Active8-Planet teaching/learning model is that each 7+1 team (and team member) should feel confident in integrating the three core guiding agendas in the exploration of the challenge and along the research and analysis process and the concept/intervention development, while stepping (partly) outside the comfort zone of their own domain of expertise. This demands for the complex combination of broadening their view on the topic under study ánd getting a focused scope in order to finally end up with a concrete concept or intervention.

4.1   The integrative concept of the four lenses of the City Portrait

The concept of the four lenses of the City Portrait [7] and its operationalization in the City Portrait Canvas [8] seems to offer a good framework to establish this integration. The methodology of the City Portrait, developed by the Thriving Cities Initiative[1], is a tool, originally directed towards cities, to explore and embrace the vision of a thriving city, which is a place that is unique and good to live, but that also recognises its global influence and responsibility. It has been developed to downscale and concretize the concepts of the Doughnut Economics as elaborated by Kate Raworth in her eponymous book [9]. As stated in [7], the City Portrait methodology combines local aspirations –to be thriving people in a thriving place – with global responsibility – both social and ecological plan *(Figure 4)*. This requires every place to consider its many complex interconnections with the world in which it is embedded.

	SOCIAL	ECOLOGICAL
LOCAL	What would it mean for the people of this city to thrive?	What would it mean for this city to thrive within its natural habitat?
GLOBAL	What would it mean for this city to respect the wellbeing of people worldwide?	What would it mean for this city to respect the health of the whole planet?

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[1] Thriving Cities Initiative is a collaboration between C40 (https://www.c40.org/), Doughnut Economics Action Lab (https://doughnuteconomics.org/) and Circle Economy (https://www.circle-economy.com), funded by KR Foundation.

The focus of the City Portrait is originally on the city scale, but as the project Brussels Donut showed in its first exploration of the application of the Doughnut model to the Brussels Capital Region [10], the methodology does not only fit for application on the action level of the city scale (macro), but can also be applied to the action level of policy strategies and actions (meso), (business) projects and activities (micro) and even to the action level of everyday products (nano) [11, 12] *(Figure 5)*.
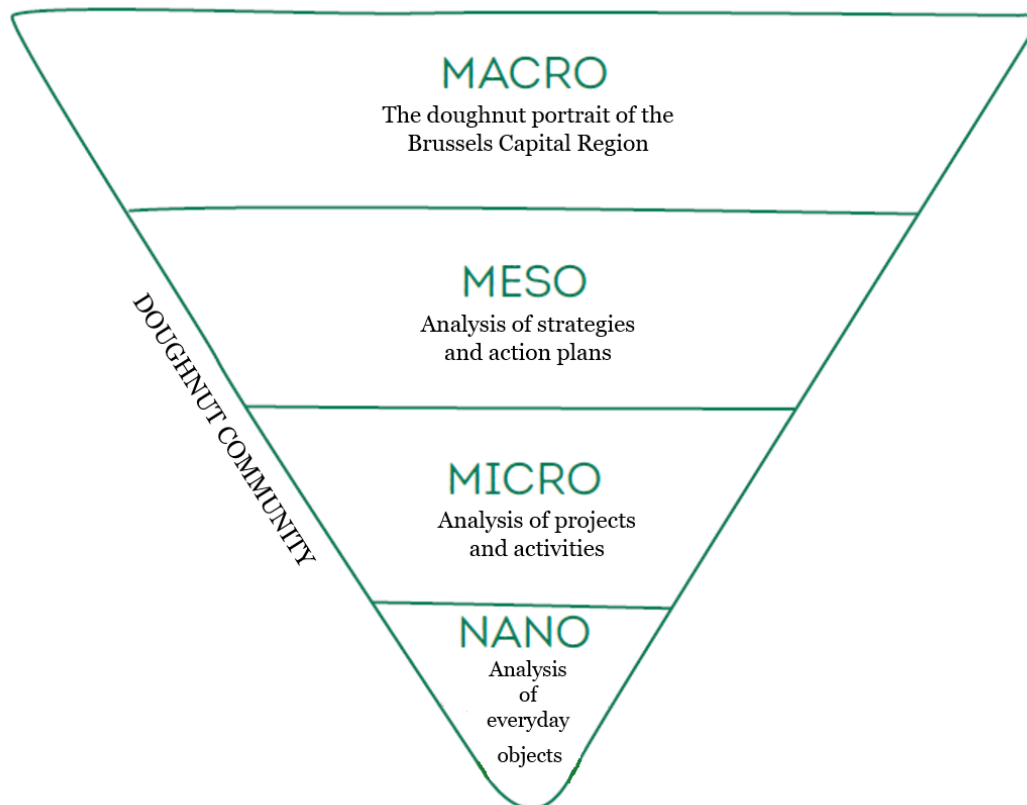

Figure 5: The four action levels to apply the City Portrait (translated into English by the author) [11]. These four action levels should not be confused with the four lenses of the City Portrait. That both are four, is purely coincidental.

If we position the planet-centred development principles from Section 3 onto the City Portrait *(Figure 6)*, we can see that the social lenses coincide with the people-centred design principle and that the ecological lenses coincide with the environmental ambition & action. Both principles serve as input for the interdisciplinary and intergenerational co-creation of the university – business collaboration. If we position the action plans of the European Green Deal as shown in Subsection 2.2 onto the City Portrait (Figure 7), we can see that the actions can be related to one or two of the four lenses, with a dominance of the local ecological lens. In the same way, positioning the 17 Sustainable Development Goals as shown in Subsection 2.1 onto the City Portrait (Figure 8), reveals that they all relate to one or two lenses, with a majority relating to the social lenses. Thus can be concluded that the City Portrait can serve as a useful tool to support the integration of both the core guiding agendas and the planet-centred development principles.
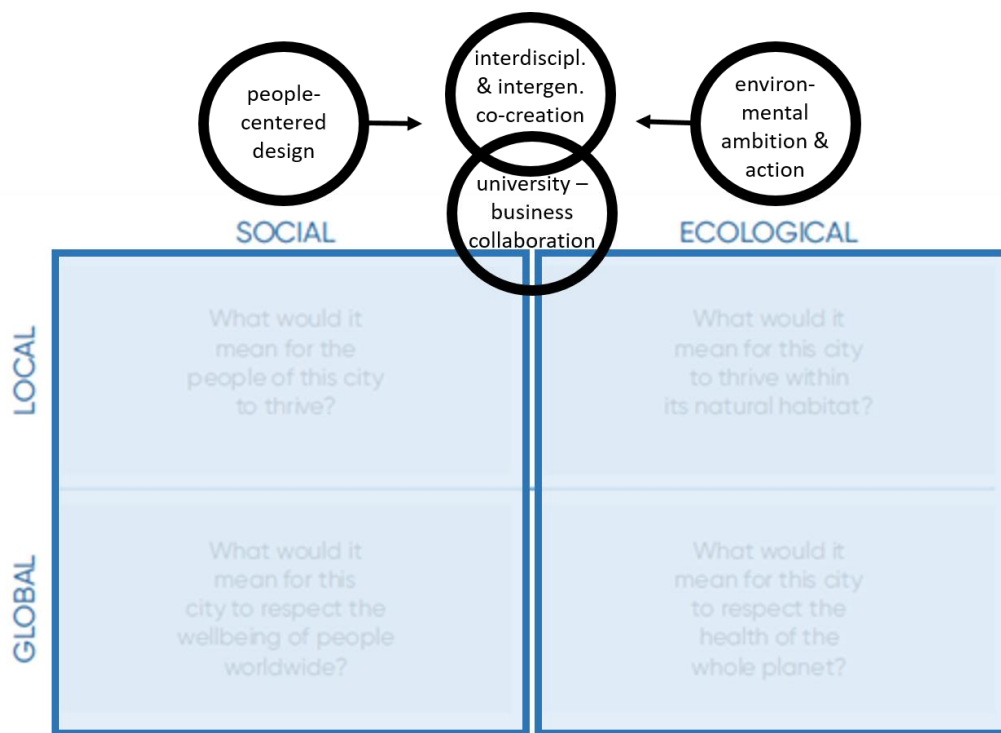
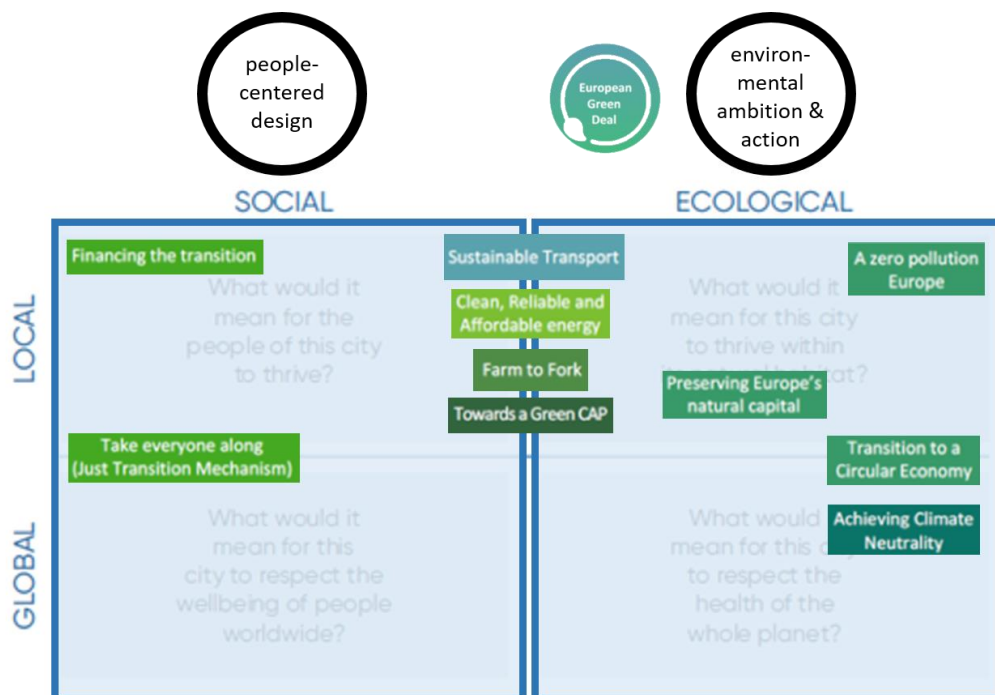Figure 6: Layering of the planet–centred development principles and the four lenses of the City Portrait.

Figure 7: Layering of the European Green Deal and the four lenses of the City Portrait.
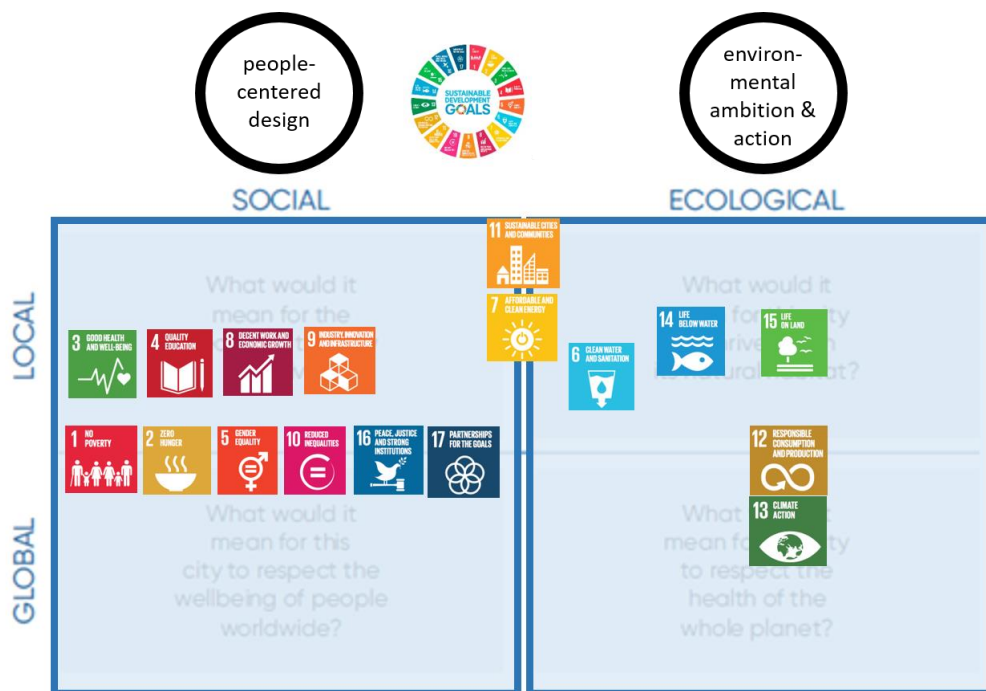
Figure 8: Layering of the SDGs and the four lenses of the City Portrait.

4.2 The implementation of the Active8-Matrix

4.2.1 Integrating the Active8-Matrix in the development process

The core element of the Active8-Matrix is the City Portrait Canvas [8] which serves as the basic canvas for the guiding, monitoring and assessmentof the concept development in the subsequent stages of the learning cycle (Figure 9).
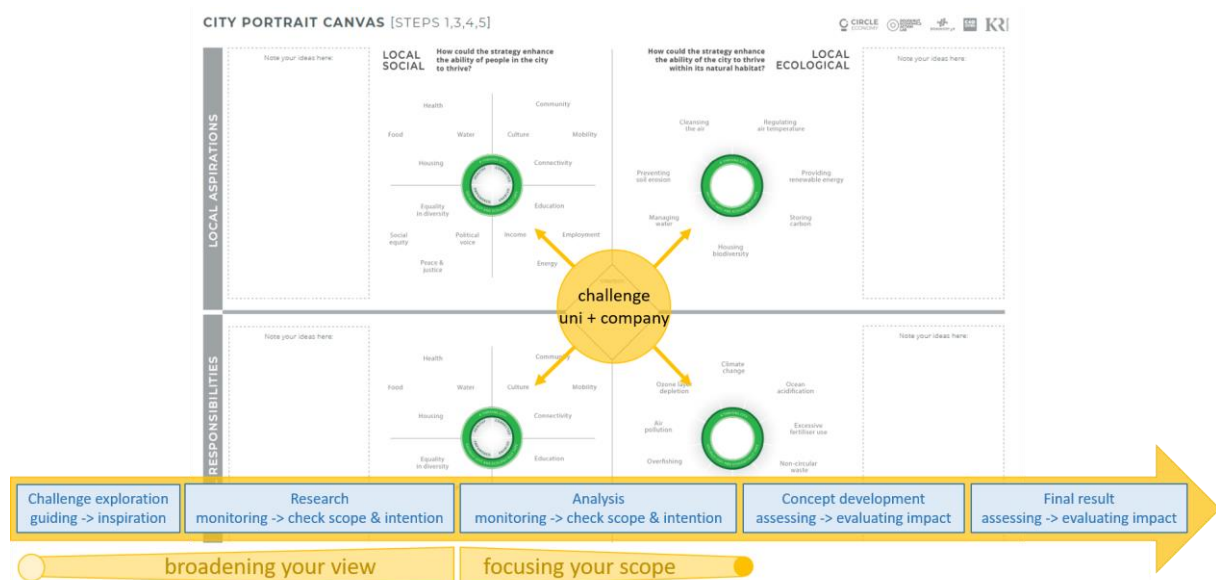

Figure 9: The City Portrait Canvas and its role in the different stages of the learning cycle.

In the first stage of challenge exploration, the canvas is meant as a guiding tool. In each 7+1 team, the challenge is expressed for a certain focus, i.e. health and wellbeing, circularity in

the built environment or sustainable mobility. Each of these focuses relates to one or two of the SDGs or action points of the European Green Deal, but it also bears the risk for a too narrow viewpoint that excludes other perspectives and impacts from the start. Therefore, in this stage the Active8-Matrix aims at supporting the 7+1 team to broaden its view and to explore which other ecological and social dimensions could be linked to the core focus of the challenge and how they are interconnected. This can be done by thinking about the possible positive and negative impacts their intervention can have, and this for each of the four lenses. This way, a more holistic perspective can be achieved and a first transformational learning step can be realized as the team members become aware of the broader social and ecological impact and interrelations of their core focus.

Then, in the stages of research and analysis, the canvas is meant as a monitoring tool. During the research stage the canvas can be used to check the scope and the intentions, in order to avoid that too quickly the research focus narrows down merely to the core focus. By asking themselves what the intervention would need to ensure and enhance the positive impacts and prevent or minimise the possible negative ones, the 7+1 team members can keep an open view and mind that takes them outside their own domain of expertise. Only in the analysis stage, after a broad and holistic research exploration of the challenge, the step towards narrowing the scope should be started. In this stage the canvas can serve as a monitoring tool to consciously pinpoint and select the set of social and ecological dimensions to be included in the further development of the concept.

Finally, in the stages of concept development and final results, the canvas is meant as assessment tool. The set of social and ecological dimensions should have led to defining a set of indicators (see further) that in these stages can be used to assess the extent to which the developed concept actually integrates a people-centred focus with environmental ambitions and actions.

4.2.2 Setting targets and selecting indicators

In order to make the implementation of the core guiding agendas and the planet-centred development principles as concrete as possible, it is important to consciously select the dimensions per lens to incorporate in the development proces *(*Figure 10*)*. For each of these dimensions, targets can be set. To evaluate the targets, indicators should be selected. At the start of the development process this could be mostly qualitative indicators, whereas along the development process this can evolve towards more quantitative indicators.

Figure 10: Setting indicators along the development process.

4.2.3 A first example of implementation of the Active8-Matrix

To illustrate the use of the Active8-Matrix along the development process, the example of a possible intervention with regard to health and wellbeing in hospitals is given here *(*Figure 11*)*.

The core focus of health and wellbeing in hospitals could lead to a strong focus on the design of the interior and the building systems of the hospital to enhance the health and wellbeing of the individual patient or visitors by improving the air quality and comfort. Health is a dimension mentioned in the local social lens of the City Portrait Canvas (red circle in Figure 11) and as such a good starting point.

A first step in broadening the scope of health and wellbeing could be by looking if the integration of other dimensions from the local social lens in the intervention could create multiple social benefits (blue circles in Figure 11*)*. E.g. by exploring what and how food is provided in the hospital and how this could enhance health and wellbeing and/or by exploring if the intervention could also lead to a higher feeling of community and connectiveness among patients, visitors and hospital staff.

A second step in broadening the scope could be by looking if the intervention could be designed in a way that it also contributes to the local ecological lens (yellow circles in Figure 11*)*. E.g. it could be explored if improving the indoor air quality could be achieved not only with technological solutions, but also with a garden indoors and/or outdoors that, apart from having a positive social effect, at the same time could cleanse the air, contribute to reducing the heat island effect around the hospital, store carbon and contribute to a higher biodiversity (if the right plants are chosen). If the garden also produces food, there could be an interconnection with the local social lens. If integration of nature-based solutions could lead to smaller technical systems, this could then also have a positive impact on the global ecological scale, as it reduces the energy consumption and non-circular waste and contributes to mitigating climate change (green circles in Figure 11*)*. If then, finally, e.g. the materials to execute the intervention are selected in a way that minimize the negative impacts for people

elsewhere (no use of tropical wood, no use of unsustainably mined resources,...), also dimensions of the global ecological lens are incorporated (brown circles in Figure 11).
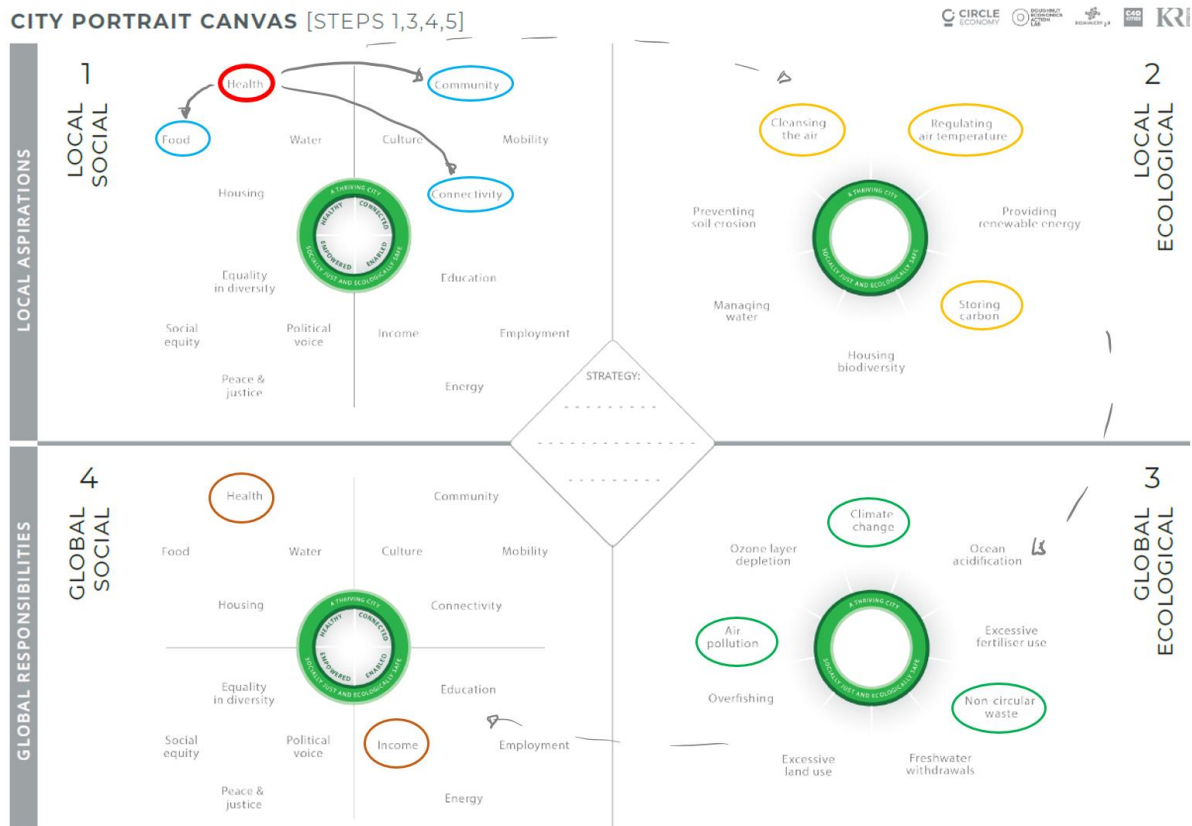

Figure 11: An example of exploration the challenge of health and wellbeing in hospitals by means of the City Portrait canvas.

It might not be feasible in the end to incorporate all these dimensions in one project, but by broadening their viewpoint by means of the four lenses and consciously considering all possibilities to incorporate multiple social and ecological elements in the intervention, the 7+1 team will go through a transformation in their way of looking at sustainability problems and it is highly probable that the final design will have a much broader and more holistic positive impact that goes beyond the core focus.

5 CONCLUSIONS

This report presents the first version of the Active8-Matrix. At this stage in the project, the concept of the four lenses of the City Portrait [7] and its operationalization in the City Portrait Canvas [8] seems to offer a good framework to establish the integration of the core guiding agendas and the planet-centred development principles in the 7+1 Team projects.

A first example is given of how the Active8-Matrix could be used within a team project. The first Learning Cycle will now be an essential test of its strengths and potential as well as its shortcomings. Based on the evaluation of the Active8-Matrix by its users, the tool will be further finetuned.

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