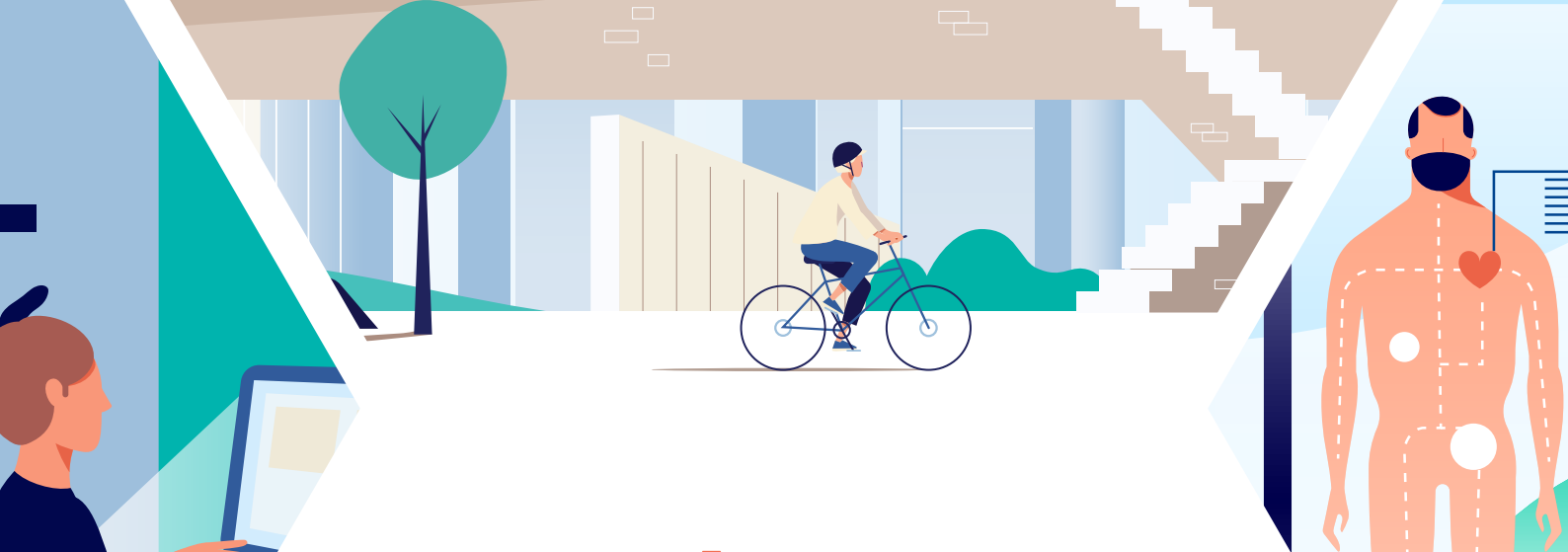

INHERIT

# REACHING THE 'TRIPLE-WIN'

## Four Future Scenarios of a Healthier, more Equitable and Sustainable Europe in 2040

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www.inherit.eu

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# EXECUTIVE SUMMARY

Our society is engaged in production and consumption patterns that are harmful for our society, economy, environment and ultimately to our health and well-being. Already confirmed as a global challenge, the issue of unsustainable development requires significant changes in our day to day living and related behaviours and operations. At the same time, improving social, economic, environmental, and political domains can have broad benefits for the environment, health and health equity.

The EU-funded project **INHERIT** advances sustainable and healthy lifestyles by looking more closely at the connection between human health, well-being and the surrounding environment. Our work covers three main areas that relate to lifestyles and behaviour: living, moving and consuming. Each of these areas have a more specific focus, living on green spaces and energy efficient housing; moving on active transport; and consuming on consumption trends and waste in the food and beverages context. Ultimately, within the project we aim at identifying interdisciplinary policies, strategic interventions and innovation to enable a 'triple-win': reduce environmental impacts, improve health, and increase health equity.

Achieving positive change and identifying necessary actions sometimes requires a 'fast forwarding into future thinking'. Our four future scenarios, **'My life between realities'**, **'Less is more to me'**, **'One for all, all for one'** and **'Our circular community'** allow for the latter. Each of our four scenarios describes a positive future in which the 'triple-win' has been reached differently. They differ in the way society is organised (individualistically versus collectively) and in the driving sector (public versus private). The scenarios are created to inspire EU and national policy makers as well as other stakeholders to jointly shape a future which can tackle the full potential of the 'triple-win'.

Digitalisation, including virtual and augmented realities, (inter-)connectivity and personalisation are the main attributes underlying the **'My life between realities'** scenario, in which big data drive efficiency and performance and enable high-quality and personalised products and services for a better and healthier living. This scenario is business-driven and complemented by mild but effective governmental intervention that ensures egalitarian, ethical and non-disruptive economical operations. The deployment of real (big) data and technological innovations, including artificial intelligence, have enabled citizens to benefit from individualised and need-based health services and prevention measures as well as diets; programmed and personalised living (green) spaces as well as highly resource-efficient energy and mobility solutions.

In the **'Less is more to me'** scenario, the government, while also collaborating with the private sector, takes the main role in ensuring the provision and management of products and services as well as the access to and affordability of health care services and education. Citizens in this scenario are more self-aware about their environmental surrounding and material ownership and usage, which brings society closer to sufficiency. Prevention over treatment, as well as elevated health literacy are the norm in regard to the highly valued personal health and well-being. Because of numerous privacy violations, technology and digitalisation are curbed to identifying individualised preventive

health solutions. Governmental policy tools, complemented by the citizens' support, have led to a qualitative, transparent and sustainable food and beverages market.

Driven by a focus on local development, participative governance and community involvement, local authorities are the driving forces of day-to-day living in the **'One for all, all for one'** scenario. Within a decentralised system, local governments aim to ensure preventive and free of cost healthcare services as well as a sustainable living environment for their citizens. This scenario is characterised by a strong role of local communities, which are nevertheless connected on a national and regional level for knowledge exchange and working towards common targets, as well as for the conduct of social activities. Nature-based health treatments are promoted because of their low levels of intrusiveness and affordability for all. Production and resource usage are also very local and optimisation-driven led by small family-owned enterprises and cooperatives. Technology is mainly used to facilitate and ease the communication among members of the community or between communities.

**'Our circular community'** is a scenario in which companies and governments, complemented by the citizens' support and science, come together to create a society where production and consumption adhere to closed-loop economic and business models. Following a hybrid public-private system, citizens are offered premium health services and products that are governmentally ensured and implemented by private companies. Technology plays an increasingly influential role in shaping lives in this scenario, for example through innovations in medical treatments and tracking of personal health data to peer-to-peer communication, reviews and exchange of knowledge. Growing appreciation of common over private ownership and the efficient and circular use of resources are some of the main attributes of this scenario of a collective society.

Each scenario is supplemented with a closer look and description of a person's life within that scenario. Additionally, the scenarios have been complemented by a characterisation of citizen behaviour, in relation to the driving sector and social dynamics through the lenses of INHERIT's behaviour change model and conceptual framework.

In order to lay the foundations for the development of pathways, recommendations for policies, strategic interventions and action plans at a later stage of the project, the INHERIT 2040 scenarios represent positive future visions for making healthier, more equitable and more sustainable European societies by 2040 a reality.

# THE PURPOSE OF DESIGNING THE SCENARIOS

The overall objective of the INHERIT scenarios is **to develop healthier, more equitable and sustainable European societies by 2040.** They answer the question: "What can healthier and more sustainable lifestyles, as well as greater health equity look like in Europe in the year 2040?" The future scenarios are developed for **EU and national policy makers** as well as other stakeholders interested in jointly building a better future for European citizens. They present points of reference for such a better future and can therefore serve as a goal towards which policy making can be oriented.

The scenarios build upon and follow the principles and rationale of **the EU-funded INHERIT project.** The project takes a systemic and holistic approach to European societies by identifying and bringing forward inter-sectoral policies, interventions and innovations that have the potential to enable the 'triple-win'. The latter consists of the **reduction of environmental impacts**, which damage health and restrict sustainability; while **improving health** and well-being, and generating greater **health equity**. Focusing on the most relevant components of lifestyles, namely **living** (green space, energy efficient housing), **mobility** (active transport) and **consuming** (food and drink), the project also looks into understanding citizens' day-to-day behaviours and related drivers and determinants. It also explores opportunities of behaviour change that lead towards coming closer to achieving the 'triple-win'.

Despite focusing on the positive future visions, the scenarios also depict risks and possible threats for each of the four possible futures. By crafting possible scenarios linked to healthy and sustainable lifestyles and identifying key drivers of change, trends and opportunities, the scenario-building activities set the ground for developing recommendations for future EU policies through a back-casting process at a later stage of the INHERIT project.

# READING THIS DOCUMENT

This document presents the four future scenarios developed within the INHERIT project. Chapter one depicts a few relevant **numbers about the current state of Europe** in the context of the INHERIT triple-win areas of health, health equity and environment. This description provides a baseline against which the scenarios can be benchmarked. For a more comprehensive description of the state of affairs please have a look at the INHERIT baseline report[1].

The **process of building the scenarios** is described in chapter two, before each of the four scenarios is presented in chapter three. For each scenario, the **general organisation of society** as well as the **four INHERIT areas** green space, energy efficient housing, active mobility and consumption of food and beverage are described before detailing the life of one **citizen living in 2040**. The **challenges related to each scenario** storyline as well as the **risks for the triple-win** of health, health equity and environment are also described. Finally, chapter four is devoted to demonstrating in more detail how a **change** in **behaviour** is achieved in each of the scenarios.

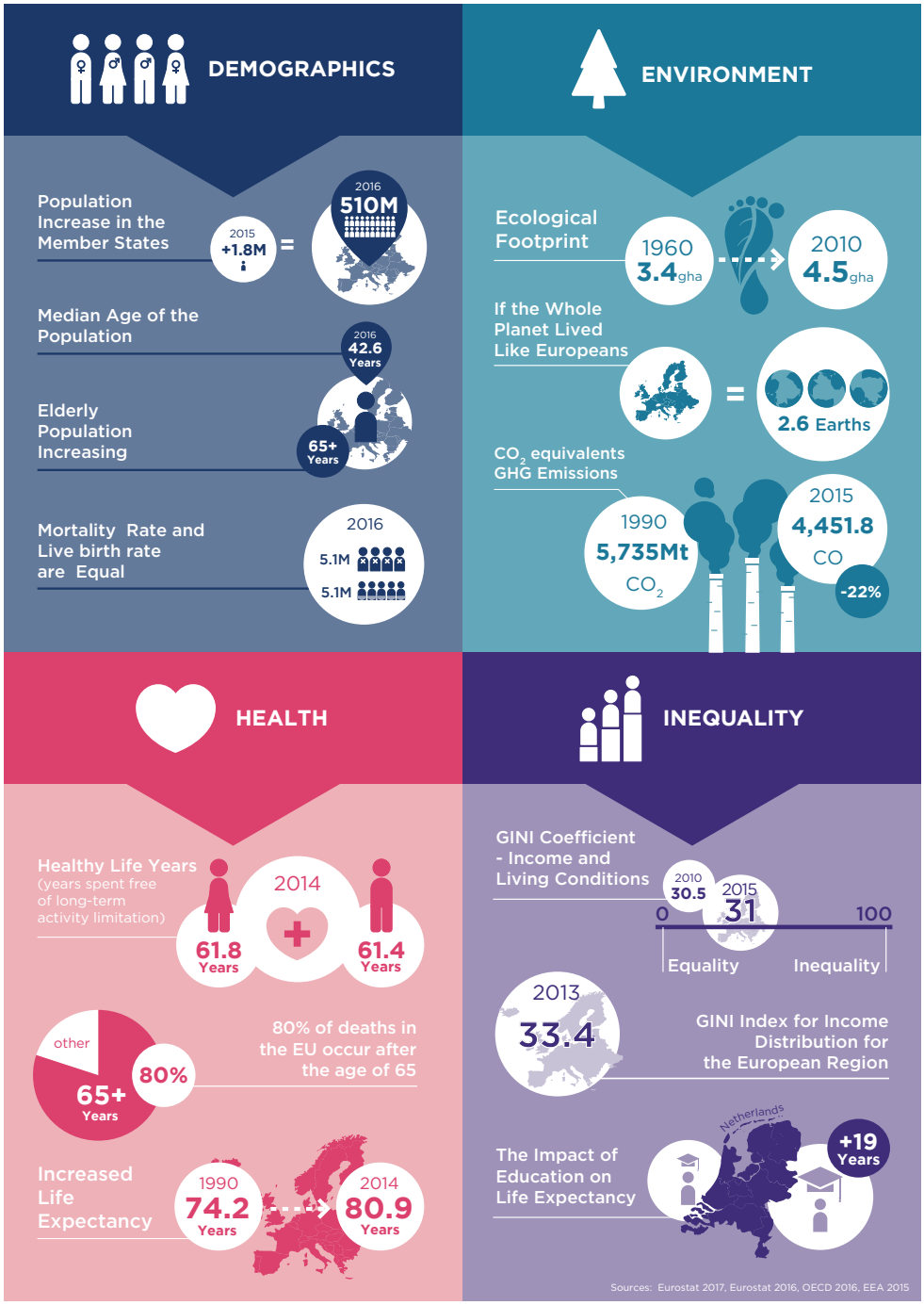
1 Staatsen, B., van der Vliet, N., Kruize, H., et al. (2017) INHERIT: Exploring triple-win solutions that encourage behavioural change, protect the environment, promote health and health equity.

# Chapter 1

## A SNAPSHOT OF THE EU TODAY

This chapter captures key information regarding the European Union's (EU) current state of affairs as shown in Figure 1 below. Using various indicators such as demographics, health and health spending, (environmental) sustainability and social inequality, this figure serves as the foundation for the future scenarios developed in Chapter 3.

**Figure 1:** The European Union



1.1

# Demographics

In January 2016, the **EU-28 population** counted 510.1 million inhabitants, an increase of 1.8 million as compared to the population figures at the beginning of 2015 (508 million) (Eurostat, 2017). Out of the 2016 figure, 15.6% of the population were young people, 0 to 14 years old; 65.3% of people were between 15 and 64 years old (also representing the EU working force); and 19.2% of people were above 65 years old. Noteworthy is the growth in the number of older people (65>) over the last years, their share of the overall population being up by 0.3% from 2015 figures and by 2.4% from 2006 figures. The ageing phenomenon can be explained by greater longevity. The median age of the EU-28 citizens in 2016 was 42.6 years, a 4.3-year increase from 2001 (38.3 years) and an annual increase of 0.3-years (Eurostat, 2017a).

1.2

# Environment

For the purpose of the INHERIT project, we use the **ecological footprint** figures and Greenhouse Gas (GHG) emissions to illustrate the EU's performance. The ecological footprint indicates how much biologically productive area is required to produce the resources required by the human population and to absorb humanity's carbon dioxide emissions. Between 1960 and 2010, the ecological footprint in the EU increased from 3.4 to 4.5 global hectares (gha) per person, while at a European level it rose from 3.4 to 3.9 gha per capita. For the same period of time, biocapacity (biological capacity, which is the ability of an ecosystem to produce useful biological materials and to absorb carbon dioxide emissions) increased from 2.1 to 2.2 gha per person. Between 1960 and 2010, the ecological deficit in EU-28 and continental level increased significantly from -0.2 to -1.2. This means that if everyone on the planet would follow the Europeans' example, we would need 2.6 Earths to support our depletion patterns (EEA, 2015a).

In 2015, the **GHG emissions for EU-28** amounted to 4,451.8 million tons of $CO_2$-equivalents, a decrease of 1,265 million tons of $CO_2$-equivalents or 22% from 1990 levels (5,716.4 million tons of $CO_2$-equivalents). The latter figures show that the EU is slowly moving towards achieving its targets to reduce GHG emissions by 20% and 40% by

2020 and 2030, respectively. Among the EU countries, Germany has emitted the highest share of GHG emissions for 2015 with 21% (926.5 million tons of $CO_2$-equivalents) of the total, followed by the UK and France. Lithuania, Latvia and Estonia are the countries with the highest reduction of GHG emissions since 1990, with -58%, -56% and -55%, respectively. On the same timeline benchmark basis, Cyprus, Spain and Portugal recorded the highest increases of GHG emissions by +44%, +19% and +18%, respectively (Eurostat, 2017b). Within these emissions, **transport is responsible for a quarter of the EU's present-day GHG emissions** and is also the only major economic sector in Europe where GHG emissions are higher than the 1990 levels. GHG emissions from transport increased slightly in 2014, following a period of decreasing emissions between 2008 and 2013 (EEA 2015b). This has significant impacts on the health of the European and world population. According to a 2016 OECD report, outdoor air pollution could lead to 6 to 9 million premature deaths by 2060 worldwide. Ageing populations in particular experience a large number of deaths due to air pollution. Some air pollutants behave like greenhouse gases that cause climate change (OECD 2016).

1.3

## Health and health inequality

The continuous improvements of the quality of life and socio-economic conditions over the last decades, complemented by a higher share of health care investments and better education in government spending, have led to an **increased life expectancy** at birth in the EU. Consequently, between 1990 and 2014, life expectancy in the EU increased from 74.2 years to 80.9 years, for both females and males, with an average annual increase of 3 months. There are, however, **large differences in life expectancy between and within countries,** strongly correlated with socioeconomic status. In the Netherlands, for example, there is a 6-year difference in life expectancy and 19 years in healthy life expectancy (the years spent free of long-term activity limitations) between lower and higher educated people (OECD, 2016).

As per 2014, in the EU, life expectancy at birth was 83.6 for females and 78.1 years for males. According to the EC, 2013, the difference in life expectancy at birth between the most and least advantaged EU regions was 10.6 years for females and 13.4 years for males in 2010. For men, the lowest life expectancy in 2014 was recorded in Latvia with 69.1 years and the highest in Cyprus with 80.9 years. For women, the range was narrower, from 78.0 years in Bulgaria to 86.2 years in Spain. Pertaining to the same year of reference, throughout the EU, the **healthy life years** were 61.8 and 61.4 for females and males, respectively (OECD, 2016).

Around 80% of **deaths in the EU** occur only after the age of 65, caused mainly by circulatory diseases. Cancer is the main reason for deaths occurring among people

below the age of 65 (OECD, 2016). The past decades have shown a decrease in infectious diseases but an increase in non-communicable diseases such as cardiovascular and respiratory diseases, cancer, diabetes, obesity, and mental disorders. Non-communicable diseases have surpassed infectious diseases as leading causes of death in the EU (Prüss-Ustün A. et al, 2016). Levels of income and wealth disparities are growing in European societies and translate into environmental and health inequalities. Low-income groups are more likely to experience an accumulation of unhealthy living conditions and exposures to environment-related inequalities. These inequalities' potential impacts on health and wellbeing are strongly related to socioeconomic factors, as well as to coping and adaptation capacities (EEA-JRC 2013, Marmot & Bell 2012). Across the EU, 78% of people belonging to high-income groups reported being in good health as compared to 61% of people belonging to low-income groups, indicating persisting health inequalities based on income. Access to care (because of finances, geography and/or waiting time) is four times lower on the side of low-income groups as compared to the high-income ones, 6,4% and 1,5%, respectively. The highest percentages are recorded in Latvia and Greece with 25% and 17%, respectively (OECD/COPE, 2017). According to OECD (2016), in 2013, 1.2 million people in EU countries died from diseases or other fatal causes that are considered avoidable.

In 2015, 9.9% of the EU's GDP was dedicated to the **health sector** as compared to 8.7% in 2005. With 11% of their GDPs, Germany, Sweden and France are the EU countries with the highest health care spending as opposed to Romania, Latvia, Estonia and Poland with the lowest spending, varying between 5.0 to 6.3% of GDP. The EU per capita health spending was 2,781 Euros in 2015, with Luxembourg being the top spender with 6,000 Euros per person and Romania the lowest with 816 Euros. Most of the health care spending in the EU in 2014, was financed by compulsory **health insurance schemes** with 43%, followed by **government schemes** with 37%, private with 15% and **voluntary health insurances** with 5%. Despite progressive development, in 2014, in certain EU countries (Cyprus, Greece, Bulgaria and Romania) more than 10% of the population did not have their health care costs covered on a regular basis (OECD, 2016).

1.4

## Wealth distribution and work

In 2015, the EU-28's **Gini index** was 31 (WHO, 2016)**.** The index ranges from 0 for maximum income equality and 100 for maximum income inequality with income and living conditions as measuring indicators. Among the EU countries, Romania and Bulgaria rank the lowest in terms of income and living condition equality with a Gini index of 37.4 and 37, respectively. Iceland, with 23.6, and Slovakia, with 23.7, perform best throughout the EU (Eurostat, 2017c). Throughout the years, income inequality has been increasing in most wealthy countries. This is best shown through a benchmark of 1980s figures

when the disposable income of the richest 10% was seven times higher than that of the poorest 10%; today, this figure has increased to 9.5 times (OECD/COPE, 2017).

In regards to **wealth and its distribution**, high concentration is being recorded in Europe, exceeding that of income. Half of the wealth of OECD countries can be attributed to the wealthiest 10% households, followed by the 50% richest. The 40% least wealthy own slightly more than 3% of the total wealth. Austria, Netherlands and Germany are the countries with the highest wealth concentration, Slovakia, Greece and Spain with the least concentrated wealth (OECD/COPE, 2017).

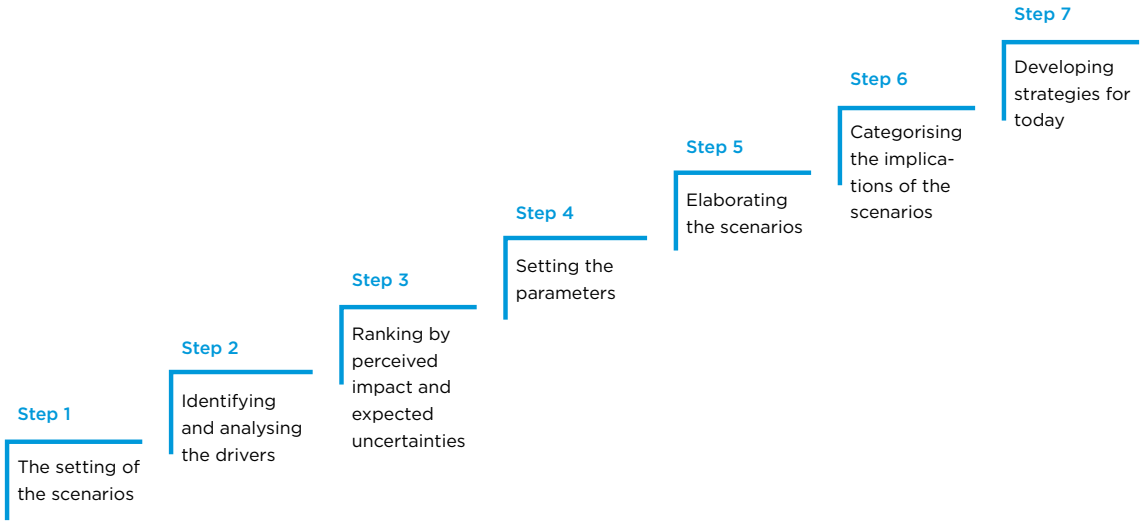
**Education and employment status** can have an impact on one's health (both mental and physical) as well as on life expectancy. Unemployment rates are slowly improving, recording a reduced jobs deficit (1,4 million) across the EU at the end of 2015. There is a discrepancy between countries, with Iceland, Czech Republic, Germany, Norway and Switzerland having the lowest unemployment rate with 4% and Greece the highest with 24% followed by Spain with 21% (OECD/COPE, 2017)

Making headway but still persisting is the **gender gap in employment and earning** across European countries. The employment gender gap has been reduced throughout EU countries by around 12% from 1992's figures (21,6%). Czech Republic, Greece and Italy are the countries where the gap still remains above 16% as compared to the Nordic countries where the gender gap is around 5% or less (2014 figures for the Nordic states). As for earnings, women still earn less than men by 13% in the EU, with the most significant differences recorded in Estonia and smaller differences in Luxembourg, Hungary and Southern European countries (OECD/COPE, 2017).

# Chapter 2

## DEVELOPING THE SCENARIOS

▼ **Graph 1:** The INHERIT Scenario Building Process




Scenario building is a **strategic planning and decision-making process** that involves the construction of methodologically researched future-oriented scenarios (Neiner et al., 2004). There are typically two to four scenarios to allow for comparison. In each scenario equally plausible, credible and logically consistent narratives describe what the future could potentially look like. Scenarios do not predict the future but rather illustrate possible futures (Fahey and Randall 1998; JRC, European Commission 2006).

**Scenario building as an analytical method** can support the decision-making processes and the development of action plans in the present and in the years to come, while keeping in mind the uncertainties and complexities of the future. The latter are expressed in the form of driving forces, trends, values or external shocks (like financial shocks or war activities). Main categories are for example social, economic, technological, environmental as well as political aspects (including here legal and ethical aspects specifically for our scenarios (Ringland, 1998). This method shifts decision making and planning processes from the short term towards the medium to long term by using a comprehensive and informed approach and way of thinking (JRC, European Commission 2006).

Scenario building processes are beneficial for any type of organisation regardless of their character (i.e. public or private). The open and flexible nature of scenarios allows them to be implemented in different contexts as well as for various reasons, e.g. addressing, dealing and finding solutions for exact problems or questions; developing strategy and action plans for any line of operation or process; broadening the understanding, not only of a whole or particular part of a sector/industry, but also of the environment surrounding them; as well as generating new or complementing existing concepts. Ultimately, scenarios help in anticipating future changes and successfully integrating them in an organisations' state of affairs (Fahey and Randal, 1998; Heijden, 1996; JRC, European Commission, 2006; Quist & Vergragt, 2006).

Scenario building processes can be conducted in various ways, however, within our project we have adopted a methodology which is closely aligned to the steps outlined by JRC and European Commission (2006), as demonstrated in Graph 1 below.

## Step 1: The setting of the scenarios

As a first step, we defined which question the INHERIT scenarios should answer: What can an overall **positive future vision of Europe in the year 2040 look like, when healthy and more sustainable lifestyles, as well as greater health equity have become reality**? The scenarios' focus is on the most relevant components of lifestyles as defined in the project, namely living (green space, energy efficient housing), moving (active transport) and consuming (food and beverages), as well as on actions, which create a triple-win for health, health equity and environmental sustainability. The future scenarios are developed for EU and national policy makers as well as other stakeholders interested in jointly building better futures for European societies. They can then serve as the basis for developing policy recommendations and implementation plans, as further detailed in Step 7.

## Step 2: Identifying and analysing the drivers

As the second step, we identified and thoroughly analysed **trends and drivers** that are relevant for the INHERIT triple-win areas of health, environment and equity. For this trend research, we used the Social, Technological, Environmental, Economic, Political, Legal, and Ethical changes (STEEPLE) **Horizon Scanning Approach**. Horizon Scanning is an instrument for the early detection of changes, which provides the evidence base needed to explore future issues, make informed decisions and create management approaches to respond to them (GO-Science, 2017).

The identification and scanning of the trends was done via desktop research by the consortium partners based on more than 40 specialised publications. For a comprehensive overview of the selected trends and drivers and related references, please refer to the compilation of the most impactful trends towards 2040[2]. A first round of ranking the level of relevance for the trends towards the INHERIT areas and the level of uncertainty of each trend was conducted by the consortium members. This evaluation formed the basis for determining the most important driving forces for significant change in the future and were used to decide which of the trends should be presented in the INHERIT future scenario workshop. It is important to highlight that specific health and health equity related trends were distributed across the STEEPLE model and were not clustered as a specific trend. This serves the purpose of showing how health-related trends are directly connected to other trends. The project partners then

2 Hanson, G.G., Strube, R., Xhelili, A. & Liseri, M. (2017). Impactful Trends in Europe towards 2040. Related to health, health equity and the environment following the STEEPLE (Social, Technological, Economic, Environmental, Political, Legal and Ethical) framework.

explored what contribution each of these trends made or could have to achieve the triple-win, also pointing out risks and time projections for each of these trends to have an influence on people's lifestyles.

## Step 3: Ranking by perceived impact and expected uncertainties

The consolidated trends were presented to a pan-European group of 30 representatives from academia, civil society, policymaking and business during the **INHERIT Future Scenario Workshop** that took place on May 11th 2017, in Cologne, Germany. In a qualitative exercise, the experts rated the trends according to their **perceived impact and their expected uncertainty** for the INHERIT areas based on a simple 'high-medium-low' scoring system.

The trends that would presumably have a high impact and low uncertainty based on the expert rating are most likely to shape the different futures and were included in the future scenarios to prepare long-term planning, such as ageing population and energy transition. The high-impact and high-uncertainty trends have the potential to shape different futures and were therefore used in different extremes of the scenarios (i.e. use of virtual/augmented realities and urbanization).

## Step 4: Setting the parameters

Based on the ranking exercise of the previous step and the overall rationale of the INHERIT project, the scenario building team (CSCP and EuroHealthNet with the support of the National Institute for Public Health and the Environment (RIVM)) decided on the two **dimensions** along which the scenarios would be constructed. The main reasons for the choice of the axes were: 1) they represent dominant drivers for future societies, and 2) their different extremes reflect the diverse nature of how various EU member states are organised. To be able to shed light on the dimensions for what influences the nature of societies in Europe, the team decided on one axis to represent the **social dimension**, ranging from a society where individuals behaved as a collective to an individualistic society, where people behave as single decision makers within the society (as demonstrated in Graph 2 below). The second axis represents the **sector** (public or private) that has the strongest influence in shaping society. This is related to the type of governance in a country (e.g. social/market oriented), and can lead to two extremes, one where private corporations and market mechanisms are the key drivers, and the other where the government holds most of the control and determines the direction of social interactions.

The extremes of each of the axes can be characterised as follows:

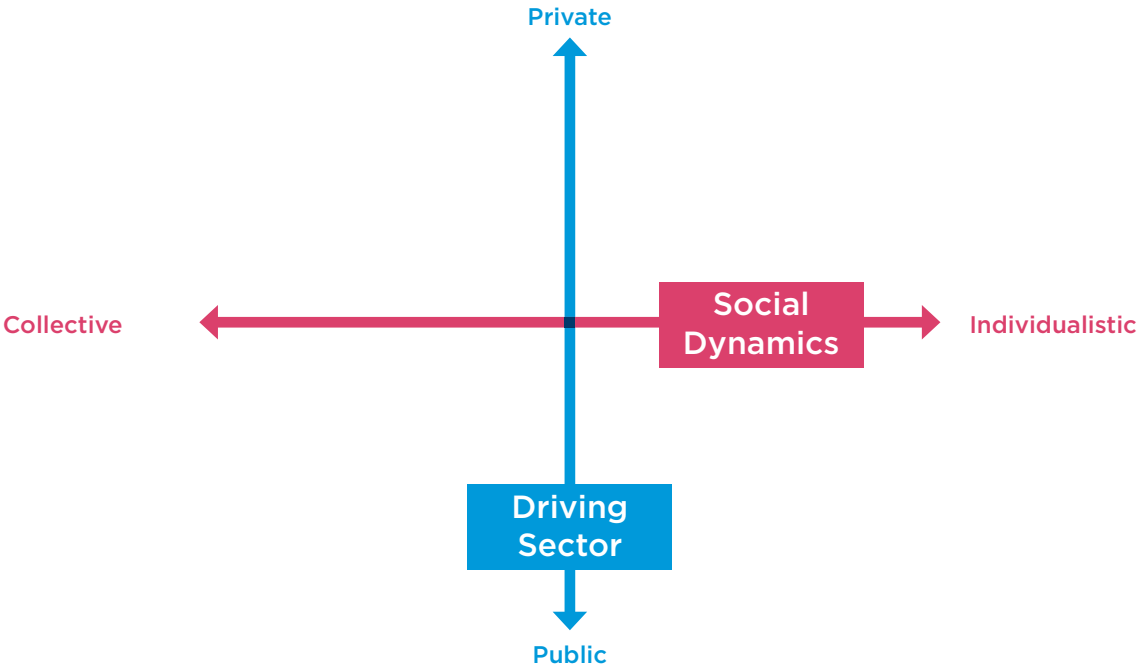
- **Collective social dynamics:** The collective social dynamics describe societies where citizens collaborate and jointly support common goals. Cooperation and being part of a group is more important than competing against others. As social cohesion is highly valued, a lot of effort is put into ensuring that no citizen is left behind.

- **Individualistic social dynamics:** The individualistic social dynamics describe societies where the needs and aspirations of the individual are valued most. Efforts are put into satisfying these individual needs with tailored solutions. High levels of competition both among citizens as well as among service providers (private and public bodies) characterise this dynamic.

- **The private sector as the driver:** Companies and the market drive the development of societies. This can be seen in a strong focus on benefits that need to result from each activity. These benefits are immediate and short-term returns as well as long-term returns taking into account the price of externalities like climate change and health problems. The market is seen as the best way to solve challenges, however, even with companies driving developments, governments are still responsible in setting the frameworks for the activities of companies.

- **The public sector as the driver:** Governments at EU, national and local levels strongly intervene in social processes. With cooperation, financial interventions and regulations, they actively steer the development of societies, also limiting the power of companies. The strong role of governments is accompanied by a lot of services (health, education, etc.) being in the hand of the public sector or being strongly regulated by the public sector.

▼ **Graph 2:** The axes of the four future scenarios



## Step 5: Elaborating the scenarios

After the axes of the scenarios were defined, the scenario building team populated them by first **identifying the key trends behind each scenario**, emphasizing the type of social dynamic and the main activities of the driving sectors. The team then described what the INHERIT areas would look like in each of the scenarios and **developed narratives** to illustrate the everyday life of a citizen living in the scenario. The names of the scenarios were chosen to reflect these characteristics. It is important to note that the scenarios intend to present general pictures of healthier, more equitable and more environmentally friendly lifestyles across Europe and they do not focus on a particular country or specific region.

## Step 6: Categorising the implications of the scenarios

Given the axes introduced above, **four scenarios** were developed:

1. **"My life between realities"** - driven by the private sector with more individualistic social processes
2. **"Less is more to me"** - driven by the public sector with more individualistic social processes
3. **"One for all, all for one"** - driven by the public sector with strong collectivism
4. **"Our circular community"** - driven by private sector with strong collectivism

Each of these scenarios will be detailed further in the next section.

To have a more comprehensive overview of what lifestyles could look like in each scenario, a short narrative describing "the life of citizens in 2040" is included. For these narratives, four fictional citizens representing different socio-economic segments across Europe were created. They differ in age, occupation, socio-economic condition and location and help to understand the way that everyday life would look like within each scenario. All lifestyle descriptions take place in 2040 and are described in first person[3].

Finally, each of the four scenarios has been linked to the INHERIT behaviour change model presented in more detail in Chapter 4, by looking at the interplay of citizens and driving sectors regarding motivations, opportunities and capabilities to adopt and maintain healthy, equitable and sustainable lifestyles.

3 The occupations were chosen based on the research of "the shape of jobs to come" (Talwar 2010) and their relation to the cross-cutting themes of the scenarios (data management and interconnectivity, technological development).

**The four citizens included in the scenario descriptions are:**

| Name | Age | Location | Occupation | Income level | Scenario |
|---|---|---|---|---|---|
|  MILAN | **82** (born 1958) | Southern European | Retired construction worker | Low | **One for all, all for one** |
|  ISABELLA | **59** (born 1981) | Western European | Old Age wellness manager | Middle – high | **Less is more to me** |
|  ADAM | **39** (born 2001) | Northern European | Technical expert on Human to Machine Interface Controlling | Low-Middle | **My life between realities** |
|  TEREZA | **21** (born 2019) | Eastern European | Trainee on vertical farming | Low – Middle | **Our circular community** |

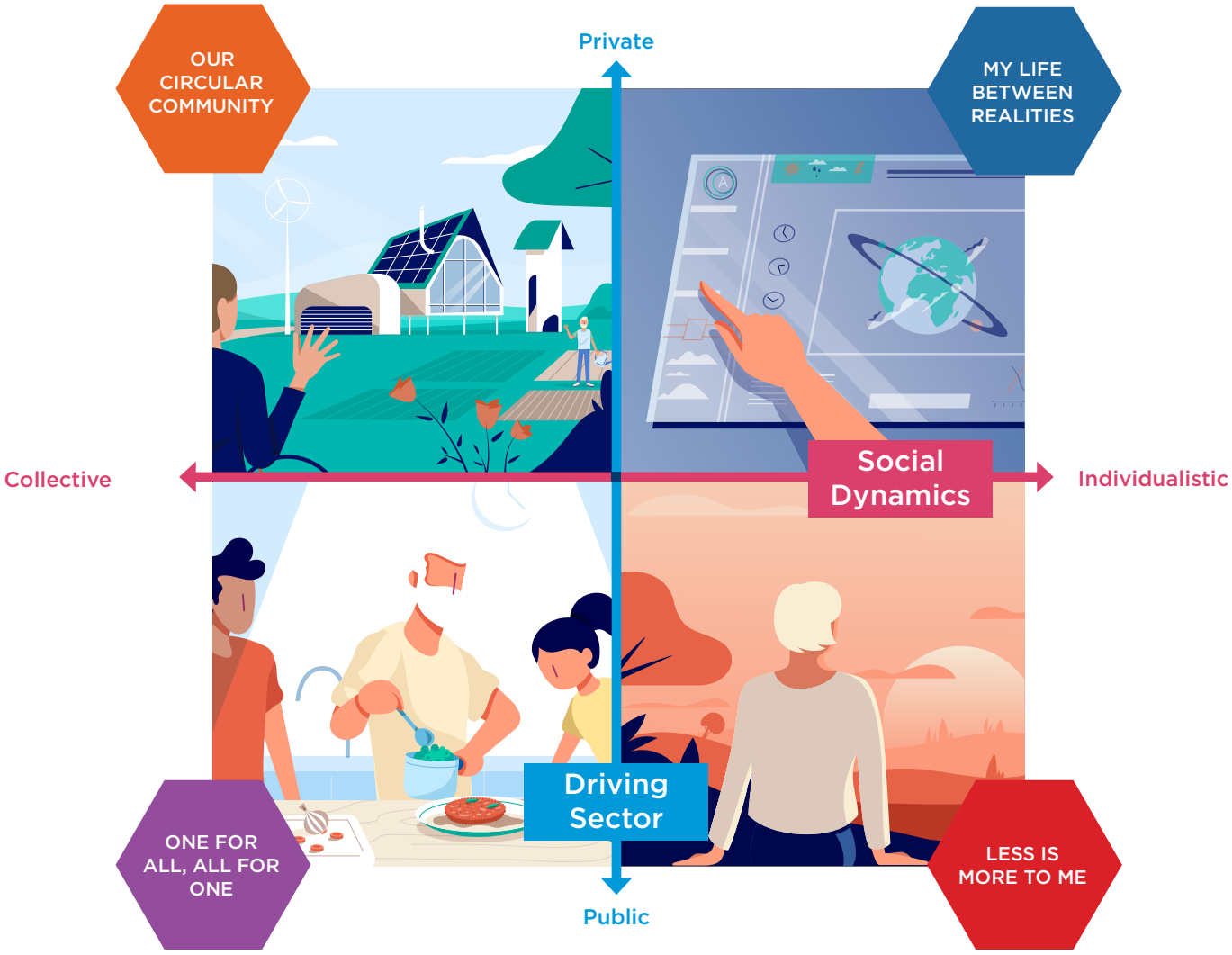
## Step 7: Developing strategies for today

Scenario building exercises set the ground for developing strategies, recommendations and action plans for future policies. As such, a final and complementary step to the INHERIT's scenario building exercise was the development of policies or action plans that lead towards the realisation of the desired future, this being healthier, more equitable and sustainable European societies by 2040 through a back-casting exercise as described in Quist & Vergragt, 2006. Consequently, within the INHERIT project we have developed a policy Roadmap containing a set of 20 policy interventions covering leverages and opportunities in the four lifestyle areas: green space, energy efficient housing, (active) mobility and (food) consumption. Issues and developments that foster the transition towards the 'triple-win', but are not strictly pertaining to one area, have been summarised under an additional fifth 'general' area. These policy suggestions are a combination of top-down and bottom-up approaches and hard and soft measures, ranging from legislative, environmental and social planning to service provision or communication and marketing policy types. For a more detailed overview of the suggested policies and interventions please refer to the INHERIT Policy Roadmap report[4].

4 Grossi, F., Strube, R., Xhelili, A., Stegeman, I. (2018). The INHERIT Policy Route Map for effective policy interventions promoting healthier, more equitable and environmentally sustainable European societies.

# Chapter 3

## THE FOUR FUTURE SCENARIOS




▲ Graph 3: The scenarios by social dynamics, key narrative and driving sector

"My life between realities", "Less is more to me", "One for all, all for one" and "Our circular community" are the four future scenarios that can be seen in Graph 3 which were created in the process described above. Table 2 in the Appendix provides an overview of the scenarios and their main characteristics that can contribute to driving positive outcomes for the environment, health and health equity. It also allows for an easy and quick comparison between the four scenarios.

3.1

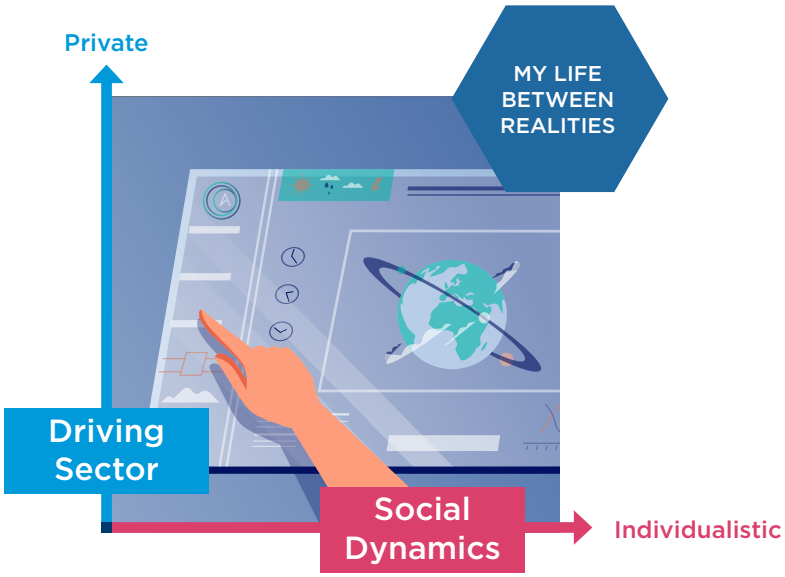
# My life between realities

## Private sector driven – Individualistic

Slogan:
**Everything is digital, connected and personalised**

## Discover this scenario

The year 2040 is a time where almost every activity is enhanced by virtual and augmented realities, or is organised virtually, according to the users' preferences. Citizens are therefore "living between realities" and this ubiquitous interconnectivity is the main trend behind the scenario. Citizens' activities are tracked and analysed through big data in this scenario. The data is owned by companies, but its use has been defined through the data protection frameworks of the European Union. This has led to a transparent and innovative European Union, with a broad range of new personalised services improving people's lives.



The government takes the role of creating the framework for a free market economy, where companies compete for the best performance, products and services. This predominantly arbitral role in setting a framework of market competition and standards for data usage also includes monitoring compliance with regulations that allow greater health equity, reduce environmental damage and ensure that citizens' rights are protected. The low-key role of the government has led to the emergence of a small number of strong market players (of which only Google and Tesla are already operating today), who control large parts of the economy and have a strong influence on the lives of citizens. However, because of the legislative frameworks and pressure from consumer protection organisations, companies have adopted strong self-commitments on aligning their business operations with society's needs. Part of the businesses' strategies for differentiation consists in keeping consumers informed about their health status and offering various personalised possibilities and solutions for conserving and/or improving it. Personalised services are designed from birth following genomics and epigenetic assessments and are adapted accordingly during an individual's lifetime. The large share of elderly people presents an important market for the companies. Citizens can freely choose from a pool of options that the large companies offer, with varying degrees of quality and pricing. Data tracking and ICT facilitate higher transparency about how goods and services are produced as well as their sustainability performance.

In this scenario, high levels of interconnectivity and technological dominance are the norm, however personalisation of services is crucial. Citizens program their living spaces and rely on virtual interactions. Primary care physicians have programs to assist them in their work and even doctor chat bots (artificial intelligence programs that can answer to humans' needs like a real person) are available which provide regular individualised recommendations based on medical records found on data clouds that are updated by the nanoscopic chips implanted in the human body at birth. However, this cannot replace the role of listener, discusser and advisor on health issues that doctors take. Personalisation is embedded in food choices and programmed diets (i.e. meals enhanced or even genetically enhanced with specific nutrients to target particular issues related to the health and the sustainability priorities of the consumer), only partly taking into account consumers' taste and habits. The high technological development, innovation and the creation of a "smart everything" through the internet of things and services (IoTS) have led to an optimal use of resources in consumption and production processes and facilitated the deployment of highly efficient renewable energy solutions.

## Green Space

In 2040 in the "My life between realities" scenario, the understanding of green spaces has changed. Besides the physical green spaces, which are now often sponsored and maintained by companies to benefit their employees' health, these areas are also virtual and adopted to individual users' needs. If you cannot reach a green space easily or are handicapped through your age, augmented reality technology brings it to your workplace or living room. Positive health effects that are attributed to green spaces can therefore be tackled in a cost-effective way, also providing access to citizens who live in areas with little green spaces close by.

## Energy Efficient Housing

In 2040, all energy-related and electric devices in the household are virtually connected. Additionally, the behaviour of humans within the house, as well as indoor air quality are carefully monitored and integrated into the smart home. Sensor-based environments adjust to the needs of the inhabitants (light, air quality, heat).

## Active Transport

Technology has advanced quickly in this scenario, offering new options for highly efficient and interconnected transport systems. Due to stricter rules on maximum emissions from the European Union, companies completely stopped producing cars powered by fossil fuels. The emergence of self-driving cars has led to a decrease in cars ownership, as a smaller number of cars can provide the same services and ownership of cars is no longer the norm. At the same time, people receive benefits for tracking their walking or biking activities from health insurances and employers. Improved video-conferencing and mixed reality applications now offer a real alternative for travelling to other locations, while it is more cost- and time-efficient.

## Consumption of Food and Beverages

In the “My life between realities” scenario in 2040, consumers can pick among food and drink choices with personalised nutrients based on the health condition of the user (as reported by the devices); there is also a daily provision of dietary advice and delivery of goods to prepare the meals accordingly. Scientists have succeeded in growing meat in laboratories using cells from few actual animals without harming the environment and simultaneously satisfying various nutritional requirements. Food and drinks value chains of are completely transparent and accessible to consumers, who tend to choose their providers directly with the support of market platforms.

## Meet Adam

Watch Adam

My life between realities

- **Name:** Adam
- **Born:** 2001 (age 39)
- **Occupation:** Technical expert on Human to Machine Interface Controlling
- **Income:** Low-middle
- **Family status**: Single
- **Location:** Northern Europe
- **Health status:** Markers for obesity and potential diabetes II

## A glimpse of Adam's life

**At home**

*My job requires continuous testing of existing interfaces, which means my home is itself a test site. At night, my bed sensors keep track of my sleeping patterns, body functions and vital signs in order to adapt the light source, the air and the sounds in the room to provide me with the best sleeping experience possible. The system also ensures a smooth transition from sleep into a conscious state when it is time for me to wake up. By the time my body is ready to eat, my meal is ready on the counter, having been prepared by my home assistant robot. Pretty much everything in my living environment adapts itself to my health needs, both mental and physical, as well as to the optimal use of all resources. Of course, I am a bit of an extreme here, I like technology and I always have the newest gadgets. Most people around me don't have as much technology and smart applications in their houses, but some of it is rather standard by now.*

**Outdoors**

*I like using green areas with augmented reality to enhance my experience, from being able to see what kind of birds are endemic to the area in another season of the year to recreating smells and sounds I can later on upload to my home environment. I like participating in virtual challenges that also take place outdoors, you get a virtual tour of a place and then you need to find the physical spot, or vice-versa, you can go to a green area, turn it into a virtual experience and then challenge others to find it. It is a very fun way to switch between realities and interact with other people! You can also introduce augmented elements and customise the environment based on your preferences.*

**Eating and drinking**

*Most of my meals are pre-prepared by my cooking system, which is just convenient for someone single like me who is not much into cooking. I let my fridge order food online automatically based on my body condition. My food providers make sure everything is properly enhanced to guarantee optimal levels of nutrient intake. The meals are often delivered pre-cooked and ready to be eaten. It's all so simple! Sometimes I like to go out with friends or share a virtual social room – there, I also enjoy having a choice of different drinks just for the sake of their taste, something that is less important to me when I'm consuming food and drinks at home.*

**Moving**

*I don't need to leave my house that often, I normally walk when going out for tests or errands and connect my smartphone to my bike for optimising my transportation so that I always take the best, shortest route. What I like is that my smart home system automatically charges my devices when a lot of energy is in the grid and the price is low. I don't have to waste my time thinking about it!*

**My relationships and work**

*My work does not require leaving my living space as most of my activities are done virtually, the same applies to my social life. I don't really know my customers or my employer very well, I mean I've only ever been together in the same physical space with some of them, but that is alright. For dating, I prefer to meet the person virtually and after some time we agree on meeting personally, most of my friends do the same. My parents aren't very fond of this type of interaction so normally I disconnect when going to their house.*

**About my health**

*Once a week, I get a reading of my health condition based on my activities of the previous days and my planned agenda for the day, this information I can feed directly to my health care provider who suggests different routines and environmental settings for me to choose from. All of them are designed to provide me with the healthiest conditions possible. The competition among the few big health care providers makes it very affordable to choose among options and tailor their offerings to my needs.*

## Highlights of the scenario

- Mixed realities (augmented reality and virtual reality) allow different experiences of nature, without necessarily having to be there.

- Artificial intelligence has taken over different tasks in everyday life, including the assessment of most healthy and sustainable behaviours that people could apply and encouraging them to do so. Deep learning algorithms are used to enable computers to automatically identify and extract high-level features of unstructured data, which increases the odds of better health predictions.

- Living spaces are small and energy efficient, equipped with sensors to facilitate quick changes of ambiance and customisation of environments based on the users' health (physical and mental) conditions.

- Companies use the large amount of data available on citizens to offer services adapted to their needs and preferences, among them a large number for the elderly, from which citizens can chose the best one for them.

- Real-time data plays a crucial role for health treatments. The real-time data provision also helps with food/beverage choices: Supported by the IoT, consumers can remotely request their meals and have them delivered to their homes, ready to be made or already prepared.

- Most health-related actions are made without a physicians' recommendations as people are more involved in their own healthcare (particularly for prevention).

- In agriculture, gene editing has been used to speed up the introduction of new varieties of animal feed, crops and of livestock, leading to desirable traits such as increased yields or disease resistance or better suitability for specific human conditions.

- The high technological development, innovation and the creation of a "smart everything" through the internet of things and services (IoTS) have led to an optimal use of resources in consumption and production processes.

## Key challenges of the scenario

- **Data and privacy issues:** With the whole scenario being highly dependent on personal data, which is used by companies to develop more services, ethics and privacy concerns are key challenges of this society. This is especially true for health-related data.

- **Power of few big companies:** The concentration of power and competition between few large companies leads to efficient processes but holds the risk of these companies being more powerful than democratic mechanisms.

## Potential impacts of this scenario for the INHERIT triple-win

### Health equity

The high relevance of personal data in this scenario, which is generated and collected for almost every single activity and owned by companies comes with a risk for health equity. There is a risk that health-related data will be used for discrimination e.g. when choosing an insurance policy or applying for a new job. Also, there is a risk of

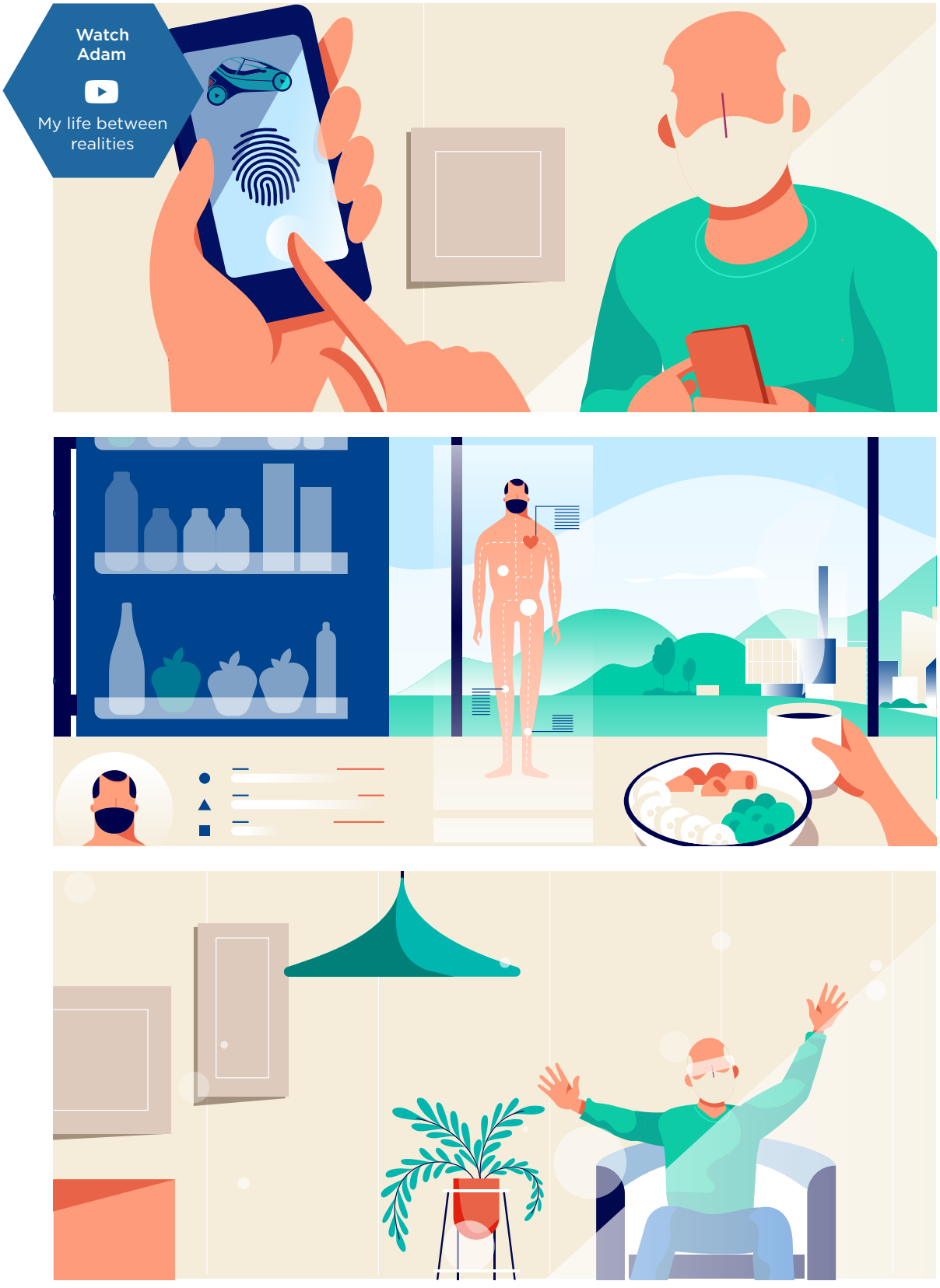
being excluded from information, both voluntary (if you chose a less machine- and data-linked life) or involuntary (if you do not have the access to technology, the needed qualifications or disabilities). Another risk is that some technology-based preventions and treatments might be too expensive for some parts of the population.

### Health

The high reliance on technology also represents a risk related to malfunctioning equipment, hacking or even exposure to different types of radiation. The personnel dealing with the software and the maintenance of the equipment should also be highly skilled to not compromise the quality of the generated data and the users' application. The strong role of technology and the decreasing actual human interaction might have negative effects on mental health. Finally, as patients become customers of companies providing health services, the competition for those could lead to a lower quality of services in order to achieve cheaper prices.

### Environment

This scenario describes high levels of technological development and sees technical equipment integrated in all parts of life. Therefore, there is a risk concerning the resource needs and waste due to high levels of technology, calling for advanced systems of material recovery.


Watch
Adam
My life between
realities

3.2

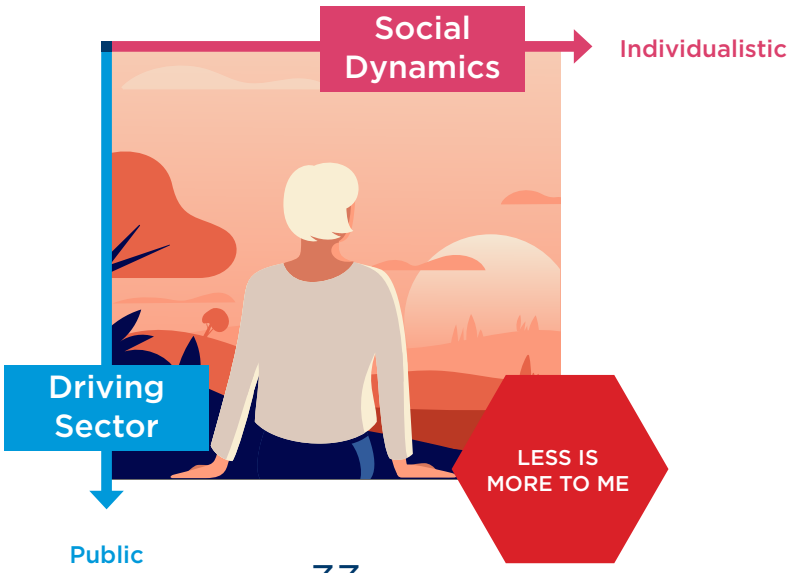
# Less is more to me

## Public sector driven – Individualistic

Slogan:
**Less material ownership and tendency towards sufficiency**

## Discover this scenario

This scenario is characterised by a centralised system, where the national government and the European institutions play a strong role in the management of services and products. Governments see their role in strongly regulating harmful activities and products, while at the same time providing a strong public healthcare system and comprehensive health education. For delivering better services, governments engage in partnerships with the private sector, comprised by large companies and small and medium sized enterprises (SMEs). A basic set of health services are part of the social welfare package and citizens can decide whether to purchase additional services from private providers or not. In cases where specialised services are needed, a payment-scheme related to the economic possibilities and circumstances of the citizen is used.



Self-awareness, understanding and valuation of health and well-being is prominent among individuals. Thus, in this scenario the focus is strongly on prevention rather than treatment as well as increasing health literacy among the general population. The latter are supported and promoted by government-driven actions (e.g. health based campaigns, lifetime education etc.). The health system has given space to new occupations such as health and wellbeing prevention officers that provide individual preventive coaching and advice. Although still relevant, technological developments have faced a slowdown compared to earlier developments, because of severe concerns regarding data security and several serious breakdowns caused by hackers or system malfunctions.

Technological solutions are deployed to identify preventive measures by providing more information on the importance of balanced diets and/or offering suggestions for physical activities that boost health and fitness levels. There is a guaranteed degree of independence for citizens to choose whether they want to connect their personalised health devices to the clouds or remain anonymous as privacy is very important. Experiences of being hacked caused a considerable part of society to de-digitalise their lives. People's stronger demand for products with long term usability and increasing preference for products that can be repaired and reused has led to better product quality. The government has implemented several taxes on unhealthy food such as red meat and sugar. Furthermore, the mandatory requirement for each food product to have quality and safety labels has increased the consumer ability of making more sustainable and healthier food choices.

## Green Space

Green spaces have been acknowledged as highly relevant for personal health and wellbeing as well as for creating a more sustainable local climate, hence governments ruled for a minimum quota of green spaces in cities and in new housing projects. Silent areas in open public spaces are available for users to enjoy nature without being disturbed by other people.

## Energy Efficient Housing

Together with the law on green spaces, governments set up standards for a proportion of new housing to become more flexible and customisable to the needs of the inhabitant. This way, no living space needs to be wasted when family sizes change together with their spatial needs. Through government-supported improvements in energy efficiency and personal behaviour change, the need for energy in housing has decreased.

## Active Transport

By tightening the regulations for individual car use, first in the cities and later on also in the rural areas, while at the same time investing in better infrastructure for public transport, biking and walking, citizens have shifted their mobility patterns towards more active ones. Many of the streets and roads built in the 20th century and in early 21st century ware turned into walking and cycling paths. A number of government-run campaigns tailored to different citizen groups on the benefits for personal health and the personal carbon footprint have supported this shift.

## Consumption of Food and Beverages

Most food products with a proven negative effect on personal health or high negative environmental impacts have been highly taxed by the governments. Awareness campaigns have helped to get the necessary citizen support for it. This has led to almost meat-free diets and self-produced goods for these with access to gardening options (indoor gardening is the norm) and also markets and supermarkets where everything can be found.

## Meet Isabella

Watch Isabella

Less is more to me

- **Name:** Isabella
- **Born:** 1981 (age 59)
- **Occupation:** Old age wellness manager
- **Income:** Middle-high
- **Family life:** Divorced. Has one daughter who does not live at home
- **Location:** Southern Europe
- **Health status:** Markers for hypertension but has kept it treated since first diagnosed in her youth.

## A glimpse of Isabella's life

### At home

*I think I am among the group you can call "de-digitalized", because after spending so much time online and catching up with new technologies during my youth and some terrible experience with hackers, at some point I realized I can live just as fine without that much ever-evolving technology. Of course, at home I have the most basic systems in place to make the most efficient use of water, electricity and air flows, but it's not that I'm always updating to the newest thing on the market. I rather use what works fine and repair what breaks than get new things for the sake of it. The material recovery system of the government makes this very simple. My apartment is quite small, but still big enough for me. When my daughter visits, I always reserve her children's room, which is now used as the guest room by all families in our building.*

### Outdoors

*I like my lonely walks in the garden and public parks, sometimes I also like talking to the neighbours and hanging out with a friend or two. I often attend the open-air repair shops and flea markets. As I'm a specialist on natural fitness solutions for the elderly, and provide mental health education to future healthy-ageing consultants, the green areas are fantastic for doing my job. Simple technologies also make it possible to use the surrounding green areas. For example, I can take my client-related administrative tasks with me and/or interact with government agencies that I work with (online - which I am not a fan of - or in the special centres located in some parks). This really makes a difference to my older clients and to me.*

### Eating and drinking

*I often participate in food sharing initiatives endorsed by the local government to prevent food waste and I keep a very close eye on what I eat, particularly on where it comes from. I favour organic peri-urban agriculture as it reduces costs and emissions related to transportation. I like tracking down the origin of my food and also have a good relationship with the farmers I meet at the market or online. I sometimes use apps, but mostly I stick to good old paper and pen to help me plan my menus in advance and try to cook all my meals for the week to save time. Thanks to the early diagnosis of potential hypertension, I've learned to keep my sodium intake low and cook meals that keep me fit and energised.*

### Moving

*I am in very good shape but I'm not a teenager, for long-distance travel I use an e-car rental, it's a rental service but it's very convenient as I need to move around at my own pace and sometimes sharing vehicles with others or waiting for public transport is not optimal. Of course, I have to pay more but I do this out of need, not for fun. For my daily activities, I use an e-bike, which I decided to purchase after the government offered some subsidies for it.*

**My relationships and work**

*My job demands constant interaction with other people pretty much all day long, that is why I appreciate my "alone" time and try to really use it to focus on my own wellbeing. I like to spend time with friends and as some of them are my neighbours, it is easy to simply have a chat on the balcony. I am a single child and I had my daughter when I was in my mid-thirties, so it's not that I have a lot of relatives to be in contact with, my mom lives in a retirement home not far from me so I visit her often. My daughter and her partner are very active ladies and are in no hurry to settle. I am currently dating a very interesting man with whom I enjoy spending time but it's not what you'd call a formal relationship and I like keeping things this way.*

**About my health**

*The social welfare system covers all my basic health expenses, I think I paid for a private specialist only three or four times. As someone who works in the health sector, I am conscious of how important it is that I "walk the talk" to serve as an example to my clients.*

## Highlights of the scenario

- People are more involved in their own healthcare (particularly for prevention), mainly driven by increased self-awareness and understanding of health and wellbeing

- Technological developments in the health area are focused on enabling easy access to preventive measures; these include more information about foods consumed, dietary options and workout programs to perform at home, yet the users are not dependent on these technological devices and often opt for more non-technological approaches.

- Governments have invested in programmes to incentivise the refurbishment of private homes to increase the level of energy efficiency.

- Progressive property taxes and subsidies for the construction of small and modular flats have been introduced as incentives for people to reduce their domestic space.

- The government has established a series of minimum standards for food chains, producers and retailers. Taxes on unhealthy food contents such as meat and sugar have been implemented, ensuring that healthier choices are also cheaper.

- Products made with recycled materials get tax subsidies.

## Key challenges of the scenario

- Data privacy is very important and is ensured by governments. Therefore, there is a big expenditure in ensuring the protection of information and a need for high levels of trust in governmental institutions.

- Traditional growth models are challenged by the notion of "less is more" as reaffirmation of sufficiency, which challenges established business and fiscal models.

- Significant government interventions especially in the health system and education come with high spending which needs to be financed via taxes.

## Potential impacts of this scenario for the INHERIT triple-win

### Health equity

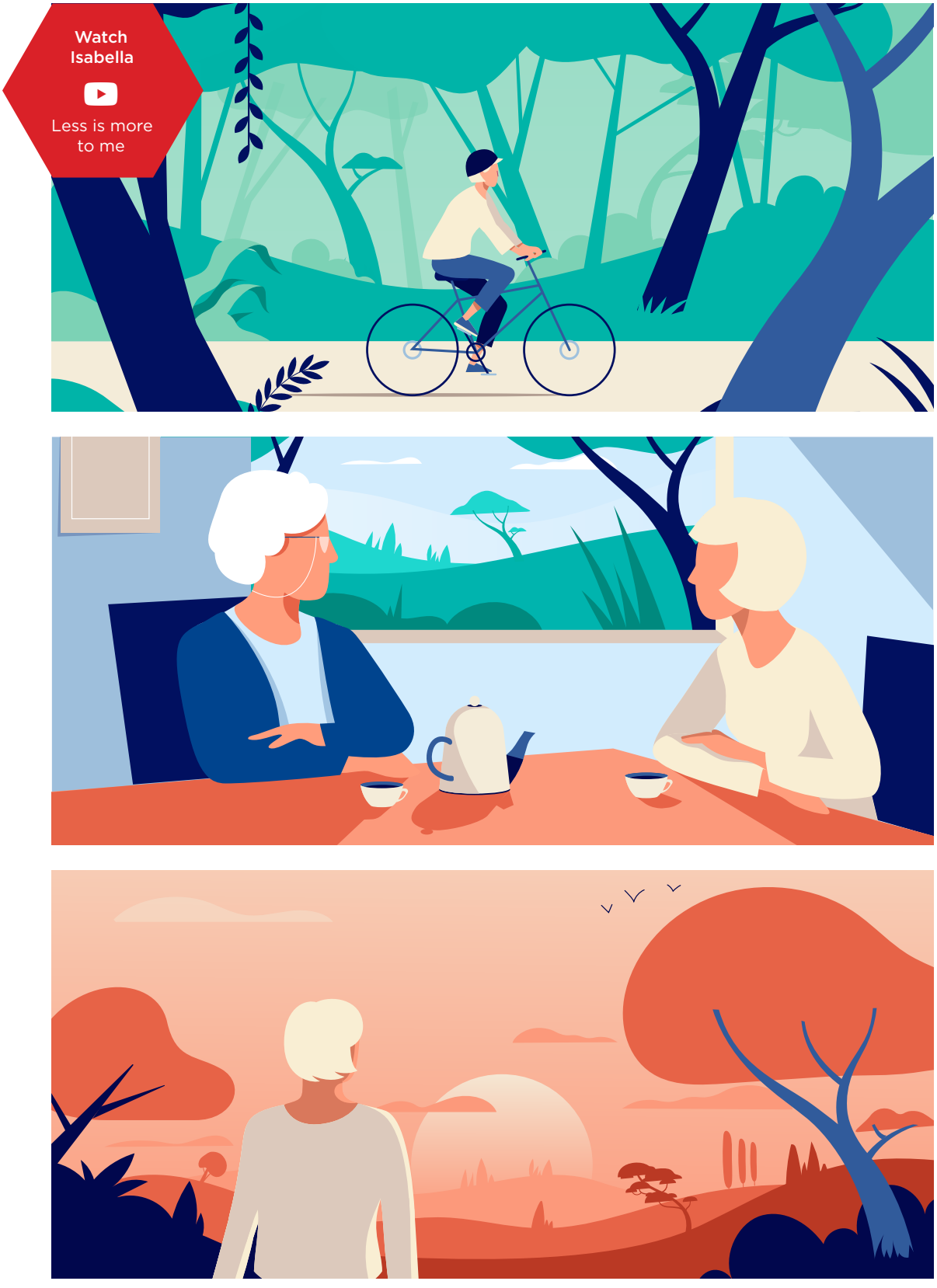
This scenario offers a mix of private-public services citizens can choose from. However, there is a risk that the pricing of private services may institutionalise a two-class health system, leaving low-income groups without the possibility to access the full scope of services they may need. Also, there is a risk that especially people from lower socio-economic groups are less self-aware of their health conditions and therefore engage less in prevention activities.

### Health

The focus in this scenario is on health prevention, asking the individual to play an active role in this. Though the government is investing largely in education, there is a risk that not all people can live up to these expectations equally.

### Environment

With technological development advancing slower than in the other scenarios, clean technologies may come into the market slower than needed. Without the high speed of technological solutions, pure behaviour change does not always lead to the expected results.


Watch Isabella
Less is more to me

3.3

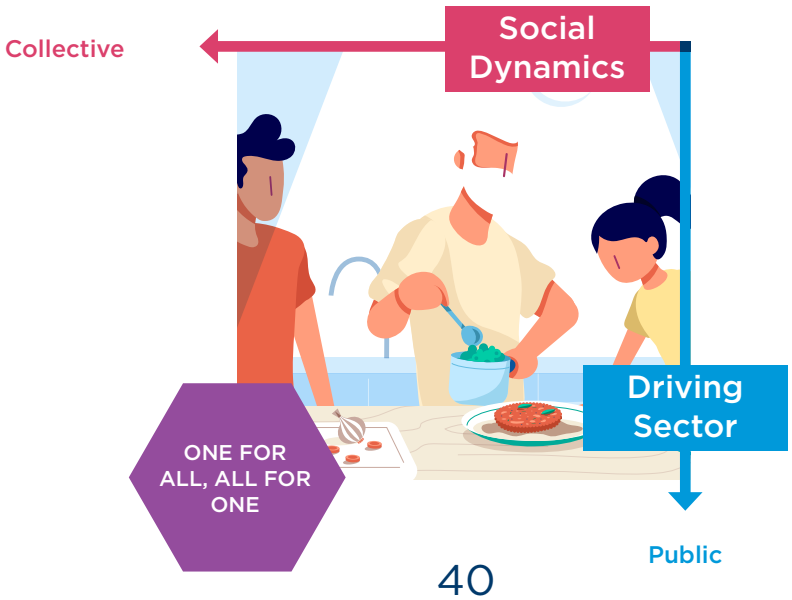
# One for all, all for one

## Public sector driven – Collective

### Slogan:
### Everybody plays an important role in the local context

## Discover this scenario

In the "One for all, all for one" scenario, local authorities take the role of steering the life of citizens and facilitate interactions among communities. Taking local needs and wishes of their citizens into account and closely engaging them into decision-making processes, the local policy makers provide rules and regulations to ensure healthy and sustainable living environments. Though most interventions happen at the local level, with citizens interacting with the government via e-services, the cities and municipalities are globally connected and exchange their experiences, learn from each other and agree on common goals for climate protection, sustainability and health prevention. Local governments provide strict security frameworks for personal data. With most processes decentralised in this scenario, comprehensive and preventive healthcare options are the product of participative governance and constant interaction between the communities and their local governments, connected and reflected at the national



and European level. Different local governments are organised in networks to exchange knowledge and agree on common goals.

The government-managed health care system provides free health services for all and puts a lot of efforts into prevention. Often nature-based treatments are preferred as they normally bring together the expertise of various members of the community and are considered less intrusive for the body. Also, they are affordable to everyone. Health is strongly promoted and mainstreamed at all educational levels and institutions by including corresponding subjects in teaching and learning curricula. Localism is a characteristic of this scenario and it is reflected in the inter- and intra-community interactions, local diets, as well as work-leisure activities and even living conditions.

The scenario is characterised by mostly small- and medium-sized companies, many of them family-owned and often connected to the community at their location. Small and medium-sized enterprise (SME) networks and knowledge hubs ensure easy cooperation, exchange of experience and constant learning between them.

Technology helps to upkeep the relationship between communities and local governments going and is also relevant for interactions between communities. Neighbours favour open air, collaborative activities that allow better use of local resources compared to private use of spaces, particularly for production and consumption of food or mobility. In general, technological innovation facilitates local development, taking specific local needs as well as materials and cultural traditions into account.

## Green Space

Green spaces are an essential part of the local identity, in which cities and local communities take pride. Communal local activities like crafts, food preparation and consumption or sports are taking place here. The spaces are adequate to all groups of users and are available in all urban areas.

## Energy Efficient Housing

In this scenario, local authorities have supported the establishment of co-housing solutions leading to improved living conditions for older people and more efficient use of living space. To increase energy efficiency at the local level, refurbishment and construction is done using reused material, which fits with the local characteristics of construction and the needs for heating/cooling/lighting. There are also “train the trainers” initiatives for people to build and repair things together with their neighbours. Local bio-based materials provide highly efficient alternatives to traditional ones.

## Active Transport

Over the years, the local communities have actively worked on creating living environments of short distances, where local companies with their products and services, the work place, kindergartens, schools and public services are within short distances to each other, drastically reducing the need for motorised transport. There is a well-developed public infrastructure, including bike-sharing schemes, to facilitate access to all areas of the city. Urban areas have sections of pedestrian-only zones and vehicles other than bikes are only allowed in peripheral areas.

## Consumption of Food and Beverages

Food consumption has again taken a more local, seasonal and traditional approach. Local recipes have been fashionable for a while which made it more attractive to cook with food traditionally grown in the region. Growing a part of your daily food on your own has become almost a norm, be it in private gardens or - more commonly - in shared community gardens with neighbours. Food is even used as a currency of exchange among neighbours.

## Meet Milan

Watch Milan

One for all, all for one

- **Name:** Milan
- **Born:** 1958 (Age 82)
- **Occupation:** Retired construction worker
- **Income level:** Low
- **Family life:** Widower. His children do not live in the area but visit often
- **Location:** Southern Europe
- **Health status:** Chronic lung disease due to smoking

## A glimpse of Milan's life

### At home

*As I am pretty crafty, I like doing repairs for my neighbours and I like doing stuff at home, using discarded material mainly. The construction workers nowadays days are crazy about these new bio-based materials like cross-laminated wood – locally sourced wood which due to a special treatment has much better characteristics – but that's too fancy for me. I like keeping things simple so I don't have many of the modern devices that other people my age have at home, except those devices that are pre-installed by the city and which are normal for all co-housing compounds.*

### Outdoors

*I like open spaces and love to go out in hot and cold weather; after all, you can always get home and change into different clothes. Most of my time is spent in the common garden with my other housemates, where we plant and harvest a lot of our food depending on the season. I like building stuff so I'm also helping at several of the city projects. When I left my hometown to get a profession in the city, I'd never have imagined that I'd end up living in the city performing the same activities as a retiree that my grandparents did when they lived in the countryside.*

### Eating and drinking

*My neighbours make sure there's nothing missing on the table, normally I get nicely cooked meals in exchange of some of my help or simply because… well, the others think of me. Besides, I can always use the food coupons I get from the government. I know some of the stuff I like is not necessarily what most would call "very healthy", but in general my community of neighbours get inspired by healthy local traditional Mediterranean diets, so there are always tasty things.*

### Moving

*I've always been into walking, particularly for spending time with other people. We normally don't go very far so it's been a while since I was in a vehicle for long-distance travel. Longer journeys I normally do either with my family or by public transport, after all, I have a free pass to use all over the country and with lots of discounts for traveling abroad if I would want to. But, to be honest, I prefer to stay at home because I can get anything I need here without any hassle.*

### My relationships and work

*I enjoy it when my family comes over for a visit and I get to spend time with the children and I must confess I never feel lonely; it is good to live in a caring community where there is always something to do! From simply telling stories to the children to being involved in building a new tree house! As you can imagine, I am very active in the DIY communities, so even though I'm not as busy as I was when working full time, I'm always involved in a couple of projects promoted by the government or developed together with my neighbours.*

**About my health**

*I've never been one to be too attached to technology for my personal use, I'm a simple man who enjoys life's small pleasures, even if that means indulging a glass of good wine every now and then. For a long time, I couldn't abstain from my occasional cigarette, and my doctor was telling me to stop for a long time. Finally, some friends convinced me to quit smoking, as I was not only harming my own health, but also putting the people around me at risk. Let's face it, my community takes good care of me, the community doctor visits twice a month and my neighbours keep a close eye on me. In case I report something is wrong, they would immediately call the doctor, but so far nothing really serious has happened.*

## Highlights of the scenario

- Volunteering is a very common thing among people of all ages, specifically older people, increasing the living quality for the volunteers and the people they engage with.

- Greater focus lies on local/close to home activities and products, as cities are "re-designed" into more people-centric development areas.

- Local co-housing solutions include agreements between young people like students and elderly or disabled people. The former pay little or no rent but support the latter in everyday activities, which they would find harder to manage on their own. At the same time, it reduces loneliness and consequently leads to better mental health.

- Social innovation driven by social needs and often with citizens as active drivers of the process has become the norm.

- Close interaction and co-creation between citizens and local governments takes place partly virtually but mostly in real live.

- Cooperatives are supporting the shift to renewable energies by jointly building several small and decentralised solar and wind power plants, making local communities often energy sufficient.

- A new generation of bio-based solutions has allowed to tremendously improving the use of local materials, like biop lastics, bioenergy or construction products.

## Key challenges of the scenario

- Localism and nationalism may increase because of less integration amongst different parts of Europe and a focus on local needs.

- The government has very high costs for building and maintaining new infrastructure and for the continuous development of local communities and to safeguard citizens' private data.

## Potential impact of this scenario for the INHERIT triple-win

### Health equity

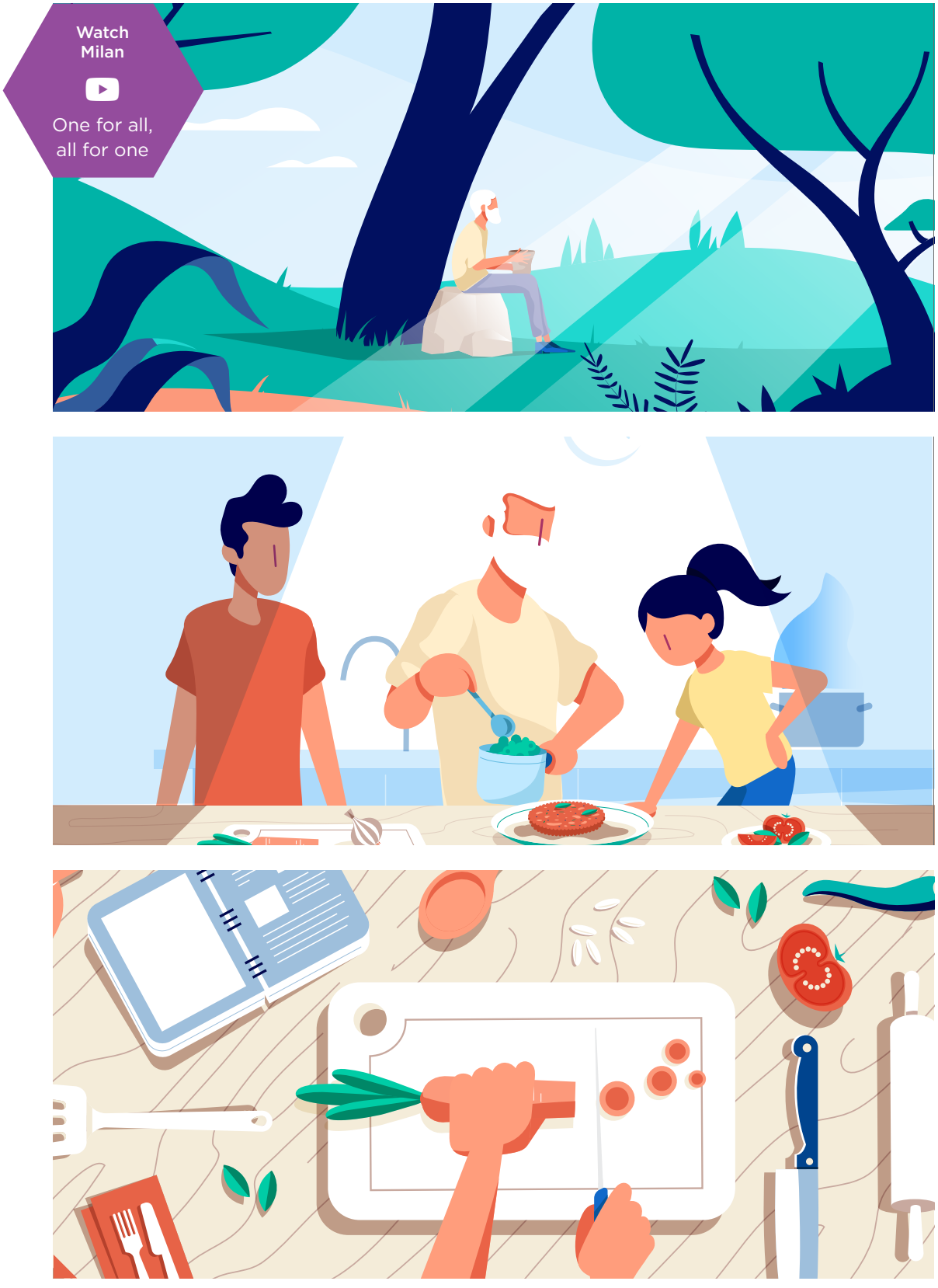
The government is struggling under the high costs of free health services, something which may lead to the privatisation of health services and higher prices, or unequal access to different societal groups. There may be differences between local communities in the ways that they manage to organise environmental, economic and social conditions that influence the health of different groups of citizens.

### Health

In this scenario, health prevention is a priority to improve citizens' health. Health education is therefore broadly introduced into the education system, but not all citizens might be able or willing to follow these recommendations in their personal life.

### Environment

In countries with colder temperatures in winter, seasonality is not an option for healthy eating, which means that food has to be imported and transported or grown in special green houses, which can lead to higher $CO_2$ emissions.


Watch
Milan
One for all,
all for one

3.4

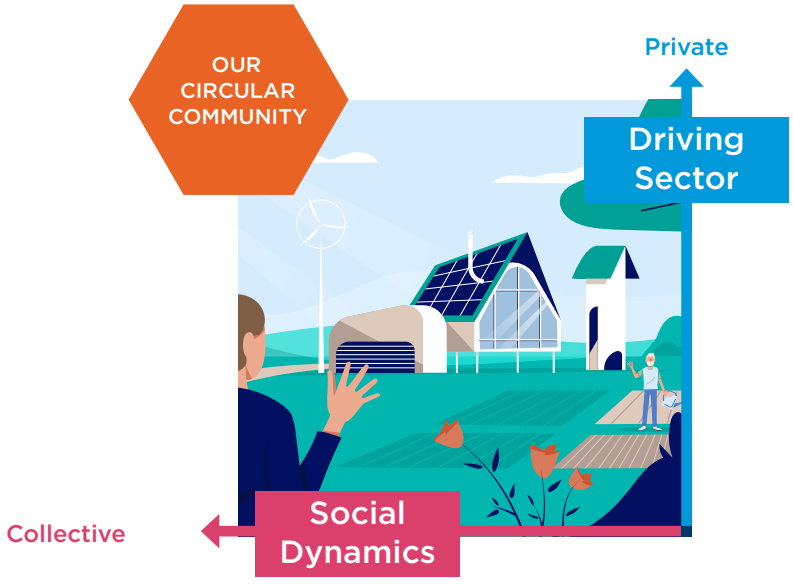
# Our circular community

## Private sector driven – Collective

### Slogan:
### Co-creation, citizen sciences and the circular economy

## Discover this scenario

In 2040, in the scenario "Our circular community" companies, governments and citizens work together to create a closed-loop economy. Some leading companies were willing to advance the sustainability agenda in adopting new business models based on environmentally friendly solutions that vary from more circular resource use to changes in design and materials up to biotechnology. They noticed, however, that these new models were only possible with a binding framework that would ensure externalities (costs of emissions or waste or other environmental burdens on society) to be internalised into real prices of products and services. A network of these companies teamed up with governmental bodies and managed to put a number of new business models in place, which emphasises services over product ownership and management of resources throughout the entire value chain. At the same time, citizens gained an important role in these innovation processes, as their behaviours are key to making the new business models work. Moreover,



citizens decide where to invest the revenues gained from environmental control mechanisms to secure transparent activities of the companies often using blockchain technologies (a blockchain enables many people to write entries into a record of information, and a community of users can control how the record of information is updated). A number of co-creation and citizen science initiatives have therefore been set up or supported by companies and governments, running both in physical and virtual environments.

The health system is a hybrid public-private model, where private companies perform activities and services, while the government ensures high standards and accessibility for all citizens. The government acts as partnership broker for the provision of public services between companies and communities, with moderate levels of intervention. Medical treatment has greatly advanced e.g. through the creation of artificial parts for human bodies with prosthetic implants. Citizens are highly connected and dependent on technology for making most of their decisions, peer reviews are important for making choices, even when it comes to health. Smartphone apps and sensors in clothes or even inside the body make it very easy to track personal health data and share it with health experts or companies for feedback. It is common that health practitioners host clouds of information for citizens to interact with each other virtually and physically if possible. Ubiquity and pertinence to community needs are characteristics of technology that encourages citizens to join different health-related communities and experience different forms of health management.

The happenings in this scenario are more community- rather than individual-driven. This is because societies are more aware of the importance of commonly owned and created goods and advocate more efficient services and products. Education via joint knowledge platforms has supported this development. Companies collect immense amounts of data, but it is being anonymised to allow for open source usage. Start-ups and citizens work with the open data for the benefit of their communities, i.e. creating new apps in hackathons that make their daily lives better.

## Green Space

In the “Our circular community” scenario, green spaces are frequently used by healthcare groups who meet and exercise together. The physical encounters are complemented by augmented reality applications, which enable meetings also for those who live further away from the green areas or have physical difficulties getting there. Outdoor gyms are connected to personal health devices that also indicate the best areas for the user to spend time at.

## Energy Efficient Housing

In 2040, companies offer connected systems of renewable energy. Local electricity grids and shared energy-using devices like electric vehicles or washing machines provide systems for efficient energy production and use. Additionally, bio-based solutions replace fuels to heat the houses.

## Active Transport

Companies have started to reward their employees' active commuting by providing financing models for e-bikes and reward schemes for people commuting by bike or walking. Technologically enabled solutions make mobility smart and help to maximize interactions between users, e.g. via apps that encourage users to move through group games.

## Consumption of Food and Beverages

In this scenario, the farm to fork services are enabled by technology to create communities of consumption which are virtually connected. Food grown at a farm nearby or further away can be ordered via an app directly from the farmer, which increases the consumers' appreciation for the food and leads to less food waste. Food is also 3D-printed, helping to convert alternative ingredients such as proteins from algae or beet leaves into tasty products.

## Meet Tereza

Watch Tereza

Our circular community

- **Name:** Tereza
- **Born:** 2019 (age 21)
- **Occupation:** Trainee at a farm practicing vertical farming (horticultural practice where goods are produced in vertical arranged surfaces)
- **Income:** Low-middle income (her personal income is low; her parents have middle-income status)
- **Family status:** Has two siblings, one older and one younger. She lives with her parents during the holidays and in a student dorm during the semester
- **Location:** Eastern Europe
- **Health status:** Biomarkers for dementia and Alzheimer's

## A glimpse of Tereza's life

### At home

*The community knows me as one of the "do it yourself" practitioners, starting with everything my little room in the dorm. I like using technology although I don't mind the "old ways" either and I normally combine both to keep my room at the dorm cosy. Companies collect old stuff and provide refurbished products to all the inhabitants of the dorm, which helps to keep up with the latest developments for a very smart and efficient living environment. Considering that I'm training to be a vertical farmer, this is very good as I can keep my personal crops in optimal conditions. Given the "zero waste" infrastructure, everything in our place is properly reused, repaired and disposed of when necessary.*

### Outdoors

*I participate in various community programs that take place in the green, hosting workshops for other housemates and members of the community. In general, a lot of our practices for the training take place outside as well so we can learn about the optimal conditions for the crops and then be able to program our growing devices to enable the environments for indoor growth that resembles the outdoor one. I find it fascinating that despite the season, we can always produce fresh food. Companies sponsor so many of our activities that it leads to a real diversity in the environments we can create and the foods we produce.*

### Eating and drinking

*One of the advantages of living in the same place with other people with roots in other countries, is that we have so much variety in our food! We use a cooking schedule and experiment with different types of recipes. Additionally, it is easy to interact with other communities online, facilitating the exchange of food through specialised retailers. My diet is ever changing, I know I have to make sure I have meals that can help prevent potential diseases such as Alzheimer's, which has been recurrent in my family. As I like to experience new flavours, I'm also doing an apprenticeship in biocultural business cooking, which helps me to combine my knowledge in vertical farming with processes for food commercialization.*

### Moving

*I am very active and like to visit different types of farms and eating facilities, either restaurant or community-diners, within the campus and my city. This is not very difficult as I can go by bike or use public transport. To go to other cities, I normally share a ride with other people going the same direction or use public transport. There are so many companies offering those services now. The variety of offers has kept the prices low while simultaneously increasing the affordability for everyone.*

### My relationships and work

*Besides my training as a farmer and a cook, I am very active in the online DIY communities, so I am always busy! Here I work on a drone that will support me as a farmer by providing satellite-based monitoring and precision intervention to my crops. I spend*

*a lot of time talking to my older sister, who is working for a company that placed her in Central Africa, where she gets extraordinary recipes! I am not in a relationship with anyone as I like to keep things uncomplicated. I don't really have a lot of money as I normally exchange services and goods for the things I need and I'm often taking up short-term tasks for different companies in order to keep up with some of my expenses. In a way, I'm financially independent from my family, yet strongly dependent on my communities.*

**About my health**

*Company representatives visit us constantly with the purpose of checking our health conditions and offer package deals for groups. Sometimes I find it a bit too much but that's what the practicing health community is for, so I understand they're doing their job. I favour nature-based solutions and I'm still undecided whether I want to specialise in the growth of herbal medicine or continue specialising in food. I know that at my age the idea of suffering from something like Alzheimer's when old sounds really far off, but part of our education consists in helping us prevent such diseases and it is important to start with this at a very early age.*

## Highlights of the scenario

- A society and economic system this focused on circular-economy business models has led to the development of a new understanding of the value of materials, and the value of repairing and upgrading things over buying new products.

- Biotechnology has affected industrial processes, biofuels, and agriculture as biological processes, organisms, cells or cellular components have been exploited to develop new technologies.

- Precision and autonomous farming techniques have grown and satellite-based monitoring and management for crop cultivation is increasingly used.

- Citizens are active players in the innovation system by developing new solutions through co-creation and citizen science, giving citizens an active role in the advancement of knowledge and innovation.

- Citizens are also active players in the health system, creating for example collective health groups or collectively owned health insurance funds.

- Companies are using citizen data to create more and more private services for better health and to lower environmental impacts.

- Blockchain technologies have been introduced to facilitate a safe and transparent use of money e.g. in the environmental control mechanism.

- The steady increase of open data has led to a whole movement of young people engaged in building new knowledge and applications with this data to make society better, while at the same time demonstrating their attractiveness for the job market.

- 3D-printing has not only revolutionised the way that citizens can print their own goods, but also helped to make precision medicine much more affordable for everyone.

## Key challenges of this scenario

- The need for close interaction between companies and the government in difficult questions like setting prices for externalities and determining responsibilities for companies, leads to conflicts between both sides, which often need a great deal of cumbersome negotiation to find a solution.

- There is a need for highly sophisticated transparency mechanisms to secure the appropriate offsetting, transfer and investment of revenue generated by the compliance of environmental quality mechanisms (i.e. carbon trading), this include monitoring and reporting as citizens are shareholders of companies.

- As companies take on a lot of responsibility for the health and personal life of citizens - though governments are keeping an eye on it - there is a risk that those unemployed or less attractive to the job market are left behind. There is also a risk that personal data is being used in an unethical manner as citizens have a very limited influence on how their own data is being used.

- Circular economic models can be applied more easily to some sectors than to others, and for many of them to work, a completely new user awareness needs to be created.

## Potential impact of this scenario for the INHERIT triple-win

### Health equity

High levels of e-literacy are needed to guarantee equal participation of citizens in the common and open public life. This includes basic knowledge on how to benefit from the hybrid public-private schemes.

### Health

The slightly lower focus on prevention activities in this scenario leads to more people falling sick in the first place.

### Environment

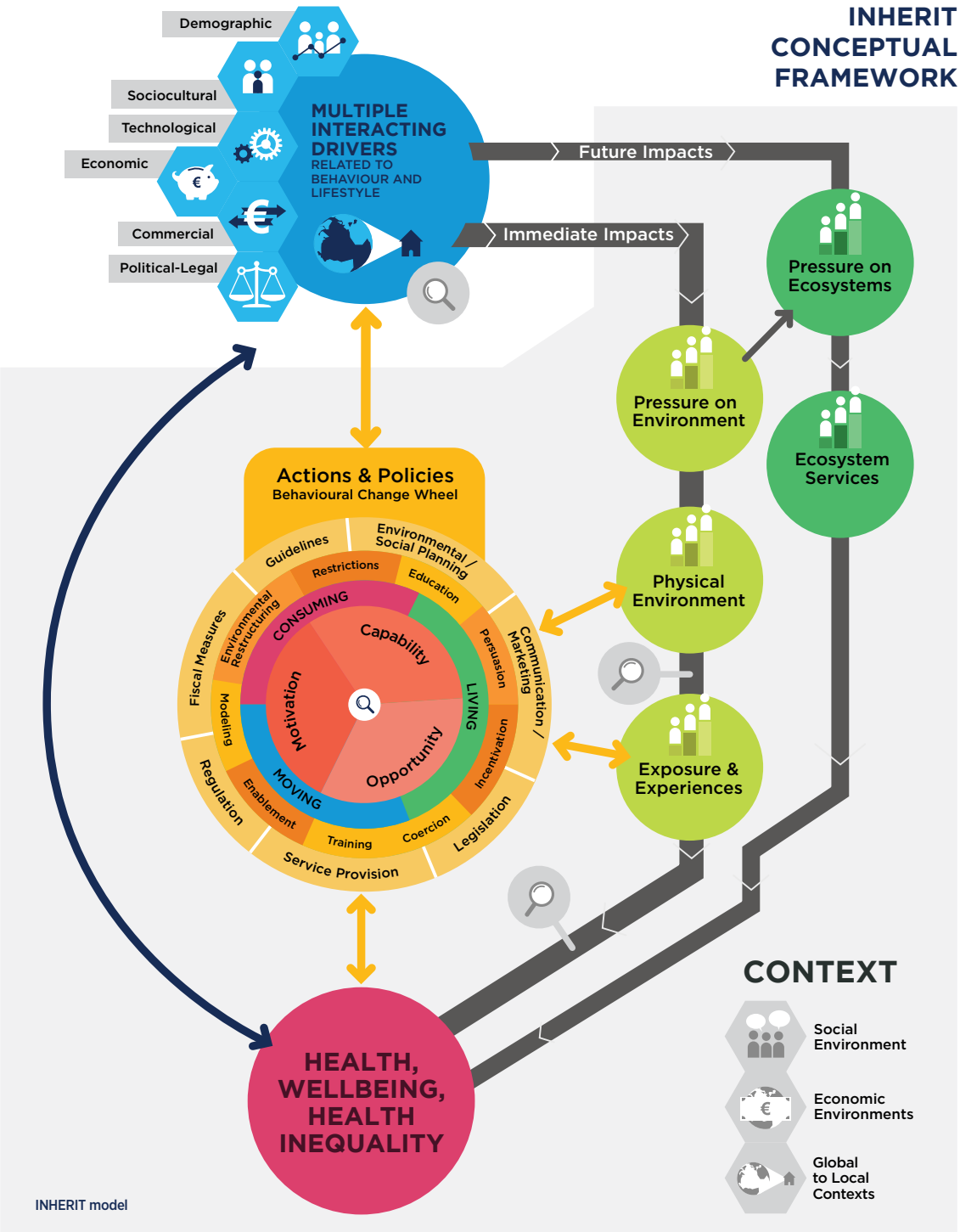
The implementation of circular economy models might not be sufficient to actually reduce resource use and waste. Steadily increasing consumption and rebound effects may be stronger than the benefits of keeping materials in closed loops.


Watch
Tereza
Our circular
community

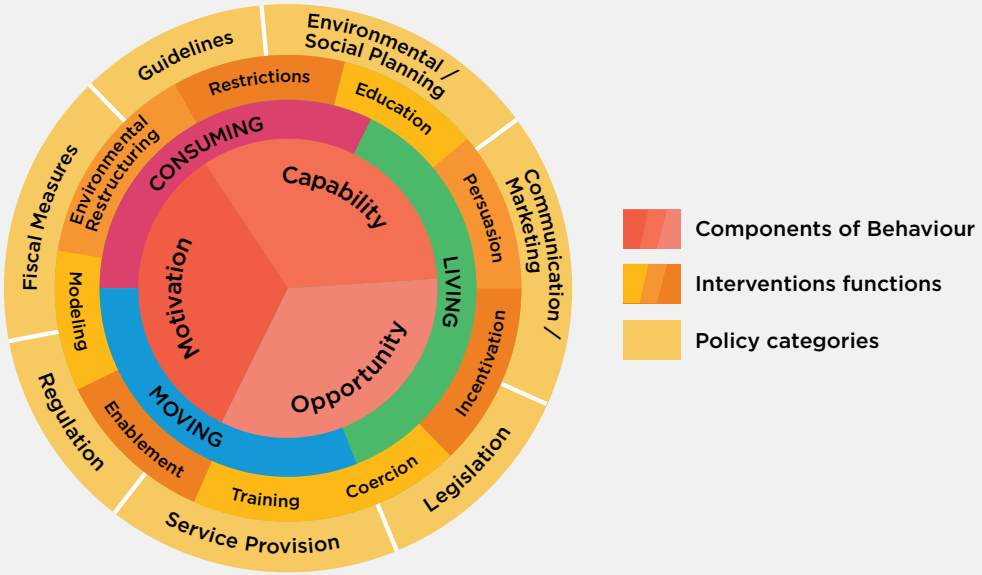
# Chapter 4

## ACHIEVING BEHAVIOUR CHANGE IN THE SCENARIOS

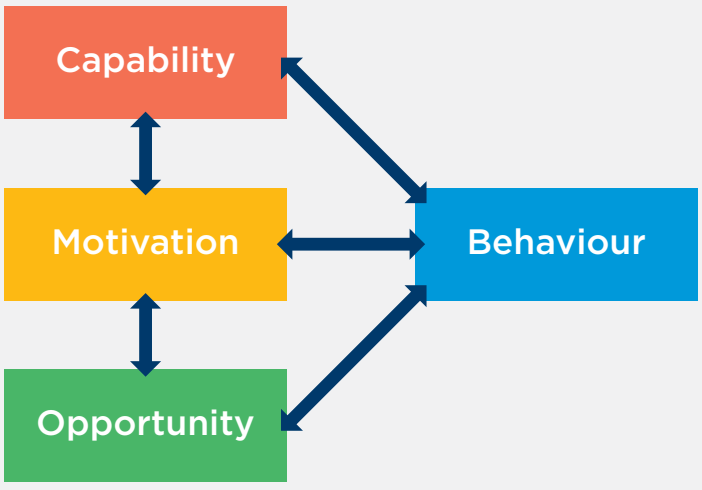
▼ **Figure 1:** The INHERIT Conceptual Framework (Model)



▼ **Figure 2:** The Behavioural Change Wheel




▼ **Figure 3:** The Behavioural System



The **INHERIT Conceptual Framework (Figure 1)** visualises the complex and dynamic relationships between the physical environment, human health and wellbeing, (in) equalities and environmental sustainability. It facilitates an analysis of the central role that behaviour plays in these relationships and the factors that shape our behaviour and lifestyles. It can be used to evaluate existing knowledge, efficacy of our policies and the opportunities and impediments for beneficial change in the field of health and sustainable behaviours across the social gradient, in the areas of living, moving and consuming. Ultimately, the model aims at understanding, influencing and promoting healthy and pro-environmental behaviours.

Drawing from different research and understandings of human behaviour, the INHERIT model includes behaviour by using the **Behavioural Change Wheel (BCW)** (Figure 2). This model incorporates both the reflective system (central route) and automatic system (peripheral route, including habitual behaviours). It consists of three parts that can influence each other, and together influence behaviour - capability, motivation, and opportunity (Figure 3). Behaviour change strategies can target and change one or several components of the behavioural system.

**Capability** entails being psychologically or physically able to perform a certain behaviour. *Physical capability* may be achieved through physical skills development such as training, whereas *psychological capability* describes the capacity to engage in the necessary thought processes - comprehension, reasoning etc..

**Motivation** can stem from the reflective or automatic system, defined as all brain processes that energise direct behaviour, including habitual processes and analytical decision-making. Increasing knowledge or changing attitudes towards certain behaviour can realise a change in *reflective motivation. Automatic motivation* is best achieved using associative learning that elicits certain feelings and impulses related to certain behaviour, or using imitative learning and habit formation.

**Opportunity** can be social or physical (our cultural milieu may dictate what we define as normal travel or appropriate energy-use behaviour, and the presence of a public park offers the opportunity to be in a green space or not). An economic situation can also be a barrier or facilitator for opportunities. Physical and social opportunities can be both positive and negative (lack of opportunities such as lack of money, access to green space) and opportunities can be improved through environmental change.

The section above is based on the INHERIT baseline report. For a complete overview of the INHERIT model and the scientific literature behind it please refer to this report or it's summary[5].

5 Full report and executive summary: Staatsen, B., van der Vliet, N., Kruize, H., et al. (2017) INHERIT: Exploring triple-win solutions that encourage behavioural change, protect the environment, promote health and health equity, and Van der Vliet, N., Staatsen, B., Kruize, H., Morris, G., Costongs, C., Bell, R., Marques, S., Taylor, T., Quiroga, S., Martinez Juarez, P., Máca, V., Šèasný, M., Fozija, F., Gjorgjev, D., Arild Espnes, G., Schuit, J. (under review). The INHERIT model: a tool to improve health, environmental sustainability and health equity through behavior and lifestyle change.

With the purpose of linking the scenarios with the Behaviour Change Wheel (BCW) and the INHERIT Conceptual Framework, a short overview of drivers for behaviour change in 2040 is provided in Table 1. Drivers are broken down and described through the lenses of the three main determinants of behaviour as described above (Figure 3). Needless to say, individuals may express these behaviour components in different degrees as they are also related to their specific circumstances and values. Table 1 does not emphasise on a specific country or geographical region.

▼ **Table 1:** The INHERIT behaviour wheel in relation to the scenarios

| SCENARIO | MOTIVATION | OPPORTUNITIES | CAPABILITIES |
|---|---|---|---|
| **"My life between realities"**<br><br>**Driver:** Private Sector<br><br>**Social dynamic:** Individualistic | Personalised solutions and perpetual feedback provision stemming from the large amount of data, collected and supported by the increasing technological advancements, encourages individuals to better leverage intrinsic motivation, set and maintain goals as well as customise and create environments and processes that stimulate interaction and engagement (e.g. virtually spending time in nature). In other instances, motivation for certain behaviour stems from financial rewards offered mostly by companies. | The prevalence of competing companies helps to overcome economic barriers, lower prices of services and products and consequently increases the accessibility and affordability of these by the majority of citizens. Moreover, it positively contributes to the introduction of new and innovative products that make the adoption of certain behaviours easier and more convenient (e.g. augmented reality solutions, e-bikes, smart meters etc.) | The technological advancements and operational processes as described in this scenario support the adoption of behaviours that are more sustainable and healthy, by increasing the citizens' health and sustainability literacy and necessary abilities in all lifestyle areas (e.g. programmed/ customised diets based on consumer needs, augmented reality enables each person to use green spaces etc.). Transparency and the availability of product and company data enable citizens to make informed decisions. |
| **"Less is more to me"**<br><br>**Driver:** Public Sector<br><br>**Social dynamic:** Individualistic | Motivation for more sustainable and healthy behavioural patterns in this scenario is highly reflective and based on increased awareness and valuation of personal health and well-being as well as prevention of diseases over treatment. The uptake of the latter principles and the restrictions on the harm inflicted on the surrounding environment is the by-product of government-driven holistic approaches (e.g. health campaigns, mindful lifetime education etc.). | Governmental measures (e.g. taxation, subsidies etc.) to curb the presence and consumption of harmful products and services and label remaining products increases the availability and accessibility of sustainable and healthy products. Consequently, it is easier for consumers to choose wisely and evaluate their purchasing decisions. Moreover, some of these measures (e.g. social welfare packages) also address and reduce the inequality gap between people's individual capacities and resources for a better living. | The government driven approaches on health literacy and education on sustainability improve citizens' capabilities to make informed behavioural decisions within each of the lifestyle areas. Improved understanding of what constitutes healthy and sustainable behaviour is driven also by the preventive measures (e.g. coaching, advising, prevention officers etc.). |

| SCENARIO | MOTIVATION | OPPORTUNITIES | CAPABILITIES |
|---|---|---|---|
| **"One for all, all for one"**<br><br>**Driver:** Public Sector<br><br>**Social dynamic:** Collective | The prevalence of schemes and operations which are the result of participatory and collective-based governance mechanisms, and which consequently reflect the needs of individuals as part of a collective, drive the motivation to adopt desired behaviour patterns in this scenario. This is complemented by the socially upheld norms of helping each other, communality and engaging in joint activities with other community members (e.g. nature-based treatments). | Driven by localism traits, the way how societies and related affairs are construed in this scenario contributes positively towards increased social cohesion as well as accessibility to products and services, mainly through volunteering and/or sharing schemes (e.g. train the trainers, bike sharing, local food production etc.). Moreover, through subsidies from public institutions, collective initiatives, which are easily accessible to the majority of citizens, are prolific (e.g. walking clubs). | In this scenario, citizen decision-making processes and capabilities are improved through the diversification of educational curricula, by including health and sustainability-related topics. Moreover, unique for this scenario is the creation and exchange of knowledge and capabilities within and among the members of the community, bringing forward and putting the focus on local needs. |
| **"Our circular community"**<br><br>**Driver:** Private Sector<br><br>**Social dynamic:** Collective | Community shared values prevail in this scenario and drive the motivation for adopting more sustainable and healthy lifestyles (e.g. commonly over privately owned goods). The solid intra- and inter-community interaction inspire people to get together and engage in the creation of goods and services that are beneficial for society and environment. Moreover, motivation is also driven by financial rewards offered by companies to citizens who show dedication towards the desired behaviours (e.g. walking or biking to work). | The joint work between companies, governments and citizens has increased the offer and as well as the citizens' opportunities to make use of products and services that fit their personal context while maintaining communal attributes. These products/services also drive social cohesions. Various technological solutions such as apps connect people and provide opportunities to efficiently use and share products, services as well as spaces (e.g. outdoor gyms, household devices such as washing machines etc.). | Business-encouraged and -driven practices such as group work for psychological guidance and support, as well as training in groups improve citizens' capabilities to engage in healthy and environmentally friendly activities (e.g. peer to peer reviews enabled by technological advancements). Moreover, enhancing citizens' digital literacy is being accounted for already at the beginning of one's educational journey |

# CONCLUSION

The INHERIT four future scenarios capitalise on the need and visualise the road for a holistic and systemic socio-economic, political and technological transformation from the current highly unsustainable practices towards more sustainable, healthier and equitable European societies. Normative scenarios in general and those portrayed in this report do not predict the future. Rather, they illustrate one or several narratives of what the future could potentially look like and allow for the creation and promotion of developments that would enable their realisation.

Accordingly, detailed on the basis of three lifestyle areas, namely living, moving and consuming, and with different social dynamics (collective vs. individualistic) and driving sectors (public vs. private), the INHERIT scenarios describe four different future narratives in which European societies are living according to the 'triple-win' principle: increasing health and health equity among its members and simultaneously reducing negative impact on the environment. The first scenario 'My life between realities' illustrates a future in which healthier, more equitable and sustainable living is largely enabled by digitalisation and technological developments. In the 'Less is more to me' scenario, on the other hand, this is achieved through elevated individual self-awareness and the prevalence of sufficiency tendencies and less material ownership. Opposing the individualistic drive of the latter scenarios is the 'One for all, all for one' scenario in which desired living patterns are achieved through developments facilitated on a local level and through inter- and intra-community cooperation. A similar community focus is found in 'Our circular community' where multi-stakeholder co-creation initiatives aiming at closing loops and efficient circular resource usages are promoted.

In the report, we highlight the role of (human) behaviour and behaviour change in achieving the desired vision(s) and altering current living patterns. Consequently, understanding human behaviour and all the intrinsic and extrinsic factors that determine it, is key in designing and promoting healthier and pro-environmental strategies and initiatives. The INHERIT Conceptual Framework is a tool that helps building this understanding and properly targeting the complexities of human behaviour. It is important to highlight that any attempt of understanding and changing behaviour should capture and target the variety of roles individuals exhibit in social contexts (e.g. policy makers, business dealers etc.) and go beyond targeting individuals in their role as citizens only.

As such, the report reiterates the need for a collaborative approach to driving and implementing strategies for healthier, more equitable and sustainable living patterns, led by policy makers and supported by other actors, such as those operating in the business sector and/or citizens alike.

Regardless of how developments will unfold, future policies, strategies or initiatives should always be centered on and designed to benefit all people of Europe, by improving and promoting their good health and preserving the environment they need in order to live while ensuring equal opportunities for all.

# APPENDIX

## ▼ **Table 2**: The dominant characteristics of the four INHERIT scenarios

| Scenario | My life between realities | Less is more to me | One for all, all for one | Our circular community |
|---|---|---|---|---|
| **Key story** | Everything is digital, connected and personalised | Less material ownership and a tendency towards sufficiency | Everyone plays an important role in the local context | Co-creation, citizen sciences and the circular economy |
| **Social dynamic** | Individualistic | Individualistic | Collective | Collective |
| **Driving sector** | Private | Public | Public | Private |
| **ROLE OF KEY ACTORS** | | | | |
| **Role of government** | Governments regulate markets to establish a framework for fair competition and ensure citizens and consumers have access to accurate and evidenced based information. | Government impose tight regulations on markets to ensure high environmental, health and social standards. They invest strongly in schools, educational programmes and campaigns to ensure environmental and health literacy. | Much government power is decentralised to the regional and local level, who develop and deliver their own strong environmental, health, social and education policies. | Governments regulate the market to establish a fair framework for competition, with a strong emphasis on strengthening the links between private sector actors and citizens, and on enabling citizens to become prosumers. |
| **Role of companies** | Big multinational companies offer most of the goods and services that people rely on. They engage in voluntary agreements to comply with societal values and expectations. | Many companies and SME's populate the market to offer individuals a wide range of choice, but must do so within a government framework of strict environmental, health and social standards. | Economic activity is clustered and regulated tightly at the local level and driven by small and family-owned companies that are networked for knowledge exchange and support. | Companies of all sizes offer most goods and services, apply hybrid models of ownership, and facilitate co-creation via open portals and data exchange to innovate constantly. |

| Scenario | My life between realities | Less is more to me | One for all, all for one | Our circular community |
|---|---|---|---|---|
| **Role of citizens** | Citizens are critical consumers and ensure that companies act in environmentally and socially sustainable ways. | Citizens shift their preferences increasingly to non-material values. | Citizens strongly identify with the local community. They are active in local councils. | Citizens proactively engage in policy-making and with companies (as prosumers). |
| **KEY DRIVERS** | | | | |
| **Technology** | Rapid development, ubiquity, personalisation via technological advancements and 'smartisation'. | Slower development, focus on long-term use, product-as-a-service models and reparability. | Slower development, more locally driven and adapted to group use. | Rapid development, based on community needs and open access. |
| **Data** | Companies collect personal data and used it to develop and market their products and services. The European Union has set standards to avoid the misuse of data. | People are able to keep close control of their data thanks to strict regulations, which limit the power of companies. Some people decide to de-digitalise their lives. | Less data is generated due to a slow-down in technological developments and as exchanges occur at the local level. | A lot of data is generated and collected, but regulations ensure that citizens have strict control over how it is applied for open source use. The data collected enables high levels of co-creation activity. |
| **HEALTH** | | | | |
| **Health System** | Health care and insurance services are also largely privatised, although governments implement schemes to ensure individuals have access to a minimum level of care. Market mechanisms keep the quality of products high and prices low. | Health systems are publically funded, though many services are delivered by private actors. There is a strong emphasis on primary care and a strong focus on the promotion of physical and mental health and prevention of ill and on ensuring high levels of health literacy. | Health systems are publically funded, with a strong emphasis on primary care and integrated, people centred services and a strong focus on health promotion and prevention and on ensuring high levels of health literacy. | Private companies run health systems and a number of prevention activities. Joint knowledge platforms are run by public-private partnerships that allow for exchange. |

| Scenario | My life between realities | Less is more to me | One for all, all for one | Our circular community |
|---|---|---|---|---|
| **Health Promotion and Education** | Health care providers encouraging people to adopt and maintain healthy lifestyles and adopt personalised preventive approaches. Clients receive individual advice and services through chat bots and other virtual sources. | Public and private health insurances and services provide Integrated, people-centred services and education for holistic thinking and mindfulness. | Health education is mainstreamed in all schools and introduced into vocational training. Health related services are, as far as possible, organised and delivered at the local level. | The concept of shared ownership has led to interactive health communities e.g. via apps which are designed to be attractive to different socio-economic groups. |
| **Foreseeable risk for health** | High reliance on technology presents a risk related to malfunctioning of equipment or hacking. | A good level of personal health is even more dependent on level of education than before. | Not all citizens might be able or willing to play a strong role in disease prevention as foreseen for them in the scenario. | The slightly lower focus on prevention activities leads to more people falling sick in the first place. |
| **HEALTH EQUITY** | | | | |
| **Level of general equity between diverse groups** | Equity is more likely to be adversely affected in this scenario. | High level of equity between EU countries, while it is slightly lower within countries. | High level of equity within local communities, but slightly lower between countries. | Relatively high level of equity. |
| **Pathways to improved distribution of goods and services for health** | Continuous competition and the aim of increasing market share keeps companies offering affordable prices and good products. | National governments have developed a series of programs that individuals can choose and benefit from, based on their own health conditions, interests and lifestyles. | Many welfare services are handled at a local community level by citizens. This is enabled by a public framework that creates various types of incentives for this type of “voluntary” work. | The concept of shared ownership has led to interactive health communities e.g. via apps which are designed to be attractive to different socio-economic groups. |

| Scenario | My life between realities | Less is more to me | One for all, all for one | Our circular community |
|---|---|---|---|---|
| **Foreseeable risk for health equity** | Health-related data can potentially be used for the discrimination against vulnerable groups, and some technology-based prevention and treatment options are too expensive for the majority. | Pricing of services might leave low-income groups without the possibility to access the full scope of services they may need. | The government might struggle under the high costs of providing healthy living conditions to citizens and free health services. | High levels of e-literacy are needed to guarantee an equal participation of the citizens in the common and open public life. |
| **ENVIRONMENT** | | | | |
| **Energy production** | Highly competitive markets have produced large energy providers that makes access to energy produced in large scale renewable energy parks (like offshore wind parks) relatively cheap. | Mostly state-owned enterprises of different sizes ensure a broad mix of renewable energy production and secure easy access to all citizens. | Decentralised, yet connected energy solutions are the norm. The citizen-led initiatives have led to well-developed local energy systems and grids. | Prosumerism (consumers taking an active part in the production) is the most common model for energy generation and distribution. Companies own the grids and partner with the prosumers. |
| **Recycling and resource use** | The strong reliance on technology and the constant need to upgrade devices has led to high amounts of waste at first, and then slowly to new closed loop relationships (reusing raw materials) with providers of goods to guarantee customer loyalty and maximisation of resource use. | Government regulations call for urban mining (reclaiming compounds and elements from products, building and waste). Most recycling is carried out by the individuals at household level. There is an emphasis on using fewer resources and individuals get awarded for their efforts. | Local municipalities and citizen initiatives collaborate when it comes to recycling and reusing materials. Public programs support the use of local craftsmen and high-quality products. | Companies and communities collaborate closely for the recovery of raw materials and their processing, creating closed loop systems. Biotechnology offers new opportunities for producing products based on natural organisms. |

| Scenario | My life between realities | Less is more to me | One for all, all for one | Our circular community |
|---|---|---|---|---|
| **Diets** | People are aware of their health condition and the environmental impacts of food products. They use the support of technology to make the necessary food choices. The food could be genetically enhanced if that helps the person to improve their health. Some meat is produced artificially in labs. | The regulation implemented by the government has led to an increased cost of certain products that have a negative effect on health (e.g. sugar, meat taxes). In addition to this, awareness about the impacts of meat consumption on the planet and personal health has led to almost no meat consumption. | Through ambitious governmental support programmes for organic and locally produced food, the share of these products in overall consumption has increased considerably. People are largely producing their own fruits and vegetables (e.g. indoor/ urban farming, aquaponics, etc.). | There is a high demand for healthy food with low environmental impact, while at the same time a lot of emphasis is put on drastically reducing food waste to reduce food-related environmental impacts. Some meat is produced with 3D-printers. |
| **Foreseeable risk for the environment** | Resource needs and waste-related to high levels of technology, call for advanced systems of material recovery. Genetically modified plants may pollute other plants or cause negative health effects that are unknown. | With technological development advancing slower than in the other scenarios, clean technologies may come into the market more slowly than needed. | In some countries, seasonality is not an option for healthy eating, so that fresh food supply would still be responsible for higher $CO_2$ emissions. | The implementation of circular economy models might not be sufficient to actually reduce resource use and waste. |

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Throughout the years our societies have engaged in production and consumption patterns that have proven to be harmful for our society and the environment and ultimately human health and well-being. Widely recognised as a global challenge, resolving the issue of unsustainable development calls for significant and systemic changes in our day to day behaviours, overall lifestyles and the contextual infrastructure shaping these.

**INHERIT**, a project funded under the EU Horizon 2020 research programme, aims at identifying and promoting effective inter-sectoral policies, interventions and innovations that enable and encourage the uptake of sustainable, healthier and more equitable living practices.

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