A synthesis of Beyond-GDP metrics for Wellbeing, Inclusion, and Sustainability

including a deep dive into EU metrics and their role in governance

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About WISE Horizons

The WISE Horizons project, funded by the European Union, seeks to accelerate systemic change beyond the dominant economic paradigm towards one that prioritises wellbeing, inclusion, and sustainability (WISE). This work aims to create a unifying theoretical framework which synthesises the current beyond-growth literatures and initiatives. This synthesis provides WISE metrics, a WISE accounting framework and WISE models for evidence-based policymaking and narratives.

The resulting WISE data, available for up to 180 countries will be provided in a special database, which includes long-term time series (going back to the 19th century) as well as contemporary data relevant to policy and media. These datasets will be used to analyse historical patterns and policy trade-offs as well as win-win opportunities.

The project will deliver nine partial policy models, which provide a vision of 2050, from the perspective of wellbeing, inclusion, and sustainability. The topics covered include living within planetary boundaries, sustainable wellbeing, the circular economy, the welfare state, productivity and the environment, gender inequalities and tax policy etc. Two integrated WISE models will also be created including a model of the Sustainable Development Goals.

The metrics, accounts, models, and visions of 2050 will be developed using various co-creation “labs” to be held in Brussels and online. The participants will be chosen from the WISE Stakeholder Network which is a “network of networks” of a global community of policymakers, researchers, activists, among others. At least five events will be organised to gather feedback from the various stakeholders in order to create a vision of the future and the necessary policies to achieve wellbeing, inclusion, and sustainability.

Reviews of Metrics, Models and Policies

This document is part of a series of three reviews carried out at the beginning of the WISE Horizons project (which started on January 1st 2023). This report provides a synthesis of Beyond-GDP metrics.

There are also two other reviews in this series. Firstly, the consortium has mase an inventory of models to assess their applicability for wellbeing, inclusion, and sustainability (deliverable D1.2). Secondly, there is a review of policies worldwide to see how these policy frameworks are linked to the WISE dimensions (deliverable D1.3). All three reports can be read in isolation, but this report on Beyond-GDP metrics provides a more comprehensive discussion of the underpinnings of the WISE conceptual framework.

The three reports will be foundational for the WISE theoretical framework that will be published at the end of 2023. See the www.wisehorizons.world website for the other reviews as well as all the latest reports of the WISE Horizons project.

Executive Summary

For decades, there has been criticism of Gross Domestic Product (GDP) as a measure of social progress. Many measurement systems, including indexes (which summarise progress in one number) or dashboards of indicators, have been proposed by academics, NGOs, international institutes and governments. To overcomes the great heterogeneity, consolidation of methodologies and terminology is needed.

This report offers a synthesizing framework to categorise the most important Beyond-GDP metrics using a conceptual framework based on the Brundtland and Stiglitz-Sen-Fitoussi reports. The framework helps to focus on the commonalties between metrics rather than the differences. The “WISE” framework distinguishes three dimensions: wellbeing of current generations (“Wellbeing”), distribution of wellbeing (“Inclusion”) and wellbeing of future generations (“Sustainability”).

The synthesis shows that it is possible to categorise Beyond-GDP metrics using this framework, despite the measurement systems coming from different scientific schools of thought (including welfare economics, needs theories and system-based assessments). An inventory of the many initiatives of governments around the world is also provided as well as an analysis of the influential Beyond-GDP metrics.

In addition, this report also contains an in-depth discussion of eleven dashboards that are used in European policymaking to illuminate the ability of metrics to effectively steer policymaking into desirable directions. The deep-dive into these monitoring and evaluation frameworks indicates that sustainability is currently the main political priority, with binding political targets having been enacted in this domain. There is, however, a bias towards the environmental dimension of sustainability, while other factors that might affect future wellbeing such as an aging population, are underrepresented. Inclusion is the secondary focus of current EU policymaking, covering a wide range of issues such as income disparities, gender equality, and energy poverty. Wellbeing – while being generally well represented – was found to lack a holistic policy framework. Lastly, the analysis highlighted that using metrics for formulating binding targets and instituting enforcement mechanisms is key to making them matter for policymaking.

This report shows that the WISE framework is a useful way of synthesising the multitude of Beyond-GDP metrics, which could be very important in the various UN and EC processes currently underway.

1. INTRODUCTION

"How are you?" might be one of the most common questions we ask each other. In all languages and dialects of the world, this phrase is used to start conversations every day. Sometimes it is used as a rhetorical question, but often it reflects a deeper desire to know if our family, friends, colleagues or even strangers are doing alright. Consciously or not, most of us continuously assess how the world around us is doing. We notice when our pets are not feeling well, when the weather changes or when there is 'something in the air'. On a larger scale, beyond what we can immediately see and feel, it is much harder to assess how we are doing. What does it mean "to be well" as a community, as a nation or planetary system? And even more daunting: how can we measure this?

Assuming that we all want the best for our children, neighbours, and our surroundings, it's important to answer these questions. Only then, can we create a society that puts wellbeing at its core. Yet, there is no global framework in place that helps us to assess how society is doing. Instead, economic statistics have become highly influential in the way we assess and govern our societies. Notably, the Gross Domestic Product (GDP), an internationally agreed measure of economic activity, has become a compass for society and political decision-making. But to take economic growth (growth in real GDP) as a proxy for social progress is the same as a doctor only checking your temperature: you do not get the full picture of your health. Therefore, we must move 'Beyond-GDP'.

As Robert F. Kennedy, leading candidate for the Democratic nomination for the US presidency in 1968, put it: "*Too much and for too long, we seem to have surrendered personal excellence and community values in the mere accumulation of material things. Our Gross National Product .... counts air pollution and cigarette advertising, and ambulances to clear our highways of carnage. It counts special locks for our doors and the jails for the people who break them. [...] Yet the gross national product does not allow for the health of our children, the quality of their education or the joy of their play. It does not include the beauty of our poetry or the strength of our marriages, the intelligence of our public debate or the integrity of our public officials. It measures neither our wit nor our courage, neither our wisdom nor our learning, neither our compassion nor our devotion to our country, it measures everything in short, except that which makes life worthwhile*".

With global challenges on the rise, it's imperative to replace society's focus on economic growth with a new societal paradigm.

The aim of this paper is to create a foundation for a measurement paradigm for wellbeing. More specifically, the goal is to provide a starting point for a global measurement framework of wellbeing by synthesising the insights from the last five decades. Much has been written about this topic since Kennedy's statement, yet no real advancements have been made. This paper will bring a new angle to the debate by doing two things:

- Synthesizing Beyond-GDP initiatives using an interdisciplinary approach.
- Exploring how these indicators might have more impact on societal change by providing an in-depth analysis of relevant indicator dashboards that are used in governance of the European Union.

Reading Guide

Chapter 2 will start with a brief history of discussions on wellbeing and the development of GDP. It will also cover some of the key developments affecting the Beyond-GDP movement and the chapter ends with a description of the "WISE" framework that is used for the interdisciplinary synthesis. Readers that are already familiar with the history of GDP and the Beyond-GDP movement, might head straight to Paragraph 2.5, where the WISE framework is introduced.

Chapter 3 describes, very briefly, what literature was used to find the Beyond-GDP metrics covered. Chapter 4 provides an extensive overview of Beyond-GDP indexes and dashboards and goes into depth on the theoretical background of the different initiatives, including country initiatives and a summary of the most important WISE frameworks.

Chapter 5 provides a deep dive into EU policymaking, focusing on the question to which extent metrics present in existing eleven monitoring and evaluation frameworks cover the WISE dimensions. Although these metrics are usually not marketed as 'Beyond-GDP', there exists a variety of scoreboards that can be considered to fall within this scope. Finally, the last two chapter are on the discussion & conclusions (chapter 6) and recommendations & outlook (chapter 7).

2. WISE FRAMEWORK

2.1 Measuring wellbeing

Discussions on living a good life, being well or being happy might be as old as humankind. Around 450 BC, Siddharta Gautama, also known as The Buddha, developed his influential teachings on the quest for liberation from suffering to help individuals attain a good life. Not long after this, around 340 BC, the Greek philosopher Aristotle wrote his Nicomachean Ethics which begins with an examination of the human good. According to Aristotle, the act of living well is the highest goal in human life. He refers to this using the term 'Eudamonia', which Aristotle relates to wellbeing or welfare in general (Irwin, 2011).

In the 18th century, enquiries on living a good life extended from the domain of philosophy to a science which we now know as 'economics'. The philosopher and economist Jeremy Bentham has been instrumental in this field. Bentham is mostly known for 'utilitarianism'. According to Bentham, we should strive for the maximization of utility, meaning we should aim to maximize those things that give us benefit, pleasure, good or happiness and prevent the happening of pain, evil or unhappiness. It's about 'the greatest happiness for the greatest number' (Bentham, 1789). Influenced by Bentham, economics developed as a study of optimal welfare creation, where welfare is the sum of utility (see box 1 of the relationship between the terms wellbeing and welfare). Bentham's theory is central in later work of Pigou, often credited as one of the founders of welfare economics (Hicks, 1975). Pigou (1920) equates a person's welfare to his or her (dis)satisfactions or (dis)utilities. In addition, he equates social welfare to the sum of individual utilities.

Pigou was highly criticized by other economists. It was argued that welfare is a moral concept, which makes it impossible to quantify the welfare of the collective by simply taking the sum of individual utilities. For example, many economists argue that we should give some priority to the most miserable (Layard, 2005). In that case, additional units of utility of the most miserable should add more to welfare than those same units of utility of the people that are already well-off.

To make it even more complicated, the concept of utility itself is often debated. The amount of utility that someone experiences is influenced by many factors. One hundred euros of additional income might give more utility to a deprived person than to a billionaire because of 'diminishing marginal returns' (Diener et al., 1993). In

addition, literature illustrates that experienced utility is also influenced by adaptation (Brickman & Campbell, 1971), comparison (Hopkins, 2008), preferences (Binmore, 2009), genetics (Stubbe et al., 2005) and happiness levels (Robinson & Kirkeby, 2005) also play a role in the utility that someone experiences. Hence, utility might not be the only factor that should be considered when addressing welfare or going Beyond-GDP.

In the 1920s, the focus in economic science shifted from measuring utility to measuring more 'objective concerns' such as economic "output". Kaldor (1939) proposed to analyse aggregate production and Hicks (1939) describes "an optimum organization of the economic system in which every individual is as well off as he can be made" as the ultimate goal. The (renewed) wish to quantify the economic system was not just scientific. This coincided with political developments that led to an increased demand for national accounting statistics, as described in the following paragraph.

Box 1: Welfare and wellbeing

The terms welfare and wellbeing are often used interchangeably. The Oxford Dictionary (2023) defines welfare as 'the general health, happiness and safety of a person, an animal or a group' and as a synonym for wellbeing. In practice, welfare is also used to refer to the provision of social services or government support. To prevent this association, we mainly use the term wellbeing throughout this report. Exceptions are made when quoting or describing existing work that uses the term welfare.

2.2 History of Measuring Gross Domestic Product (GDP)

In order to understand why and how we need to go Beyond-GDP, it's important to understand how GDP came to be. The aspiration to measure economic activity goes back for a long period of time. In 1665, the English economist and philosopher William Petty presented early national income estimates of the United Kingdom. Using population data, he applied averages in earnings and expenditures to arrive at a national aggregate.

Boisgullebert did the same for France in the early 1690's; in Italy, Verri presented a definition of national income and production in 1771 (Studenski, 1958). Adam Smith's

Wealth of Nations (1776) might also be seen as an early attempt to describe national income accounts. According to Smith, the wealth of a nation was its stock of physical assets less the national debt. He distinguished between productive and unproductive activities – referring to activities that concern the production of material goods and activities related to services such as domestic work or civil and military personnel of government.

In 1890, Alfred Marshall rejected this distinction in his *Principles of Economics*. He stated that wealth includes both material and non-material wealth. Following this publication, several researchers aspired to improve the collection of economic statistics and the measurement of national income (Coyle, 2015). In the United Kingdom, the economist Colin Clark calculated national income statistics throughout the 1920s and 1930s, providing an important basis for Gross Domestic Product (GDP). Following the Great Depression, Nobel prize winner Simon Kuznets developed national income estimates for the United States in 1934.

In the late 1930s, the UN - at the time called the League of Nations - Statistical Experts Committee felt that an increasing number of countries had signalled the need for guidance on statistical measurement of national income. In 1939, they decided to install a sub-committee to develop this guidance under leadership of Richard Stone, who was also working on the development of national income statistics for the UK in collaboration with the highly influential Keynes (Studenski, 1958). The sub-committee's report (1947), which was delayed by the war, emphasized the importance of distinguishing between different types of income, such as wages and profits, and of accounting for depreciation of capital.

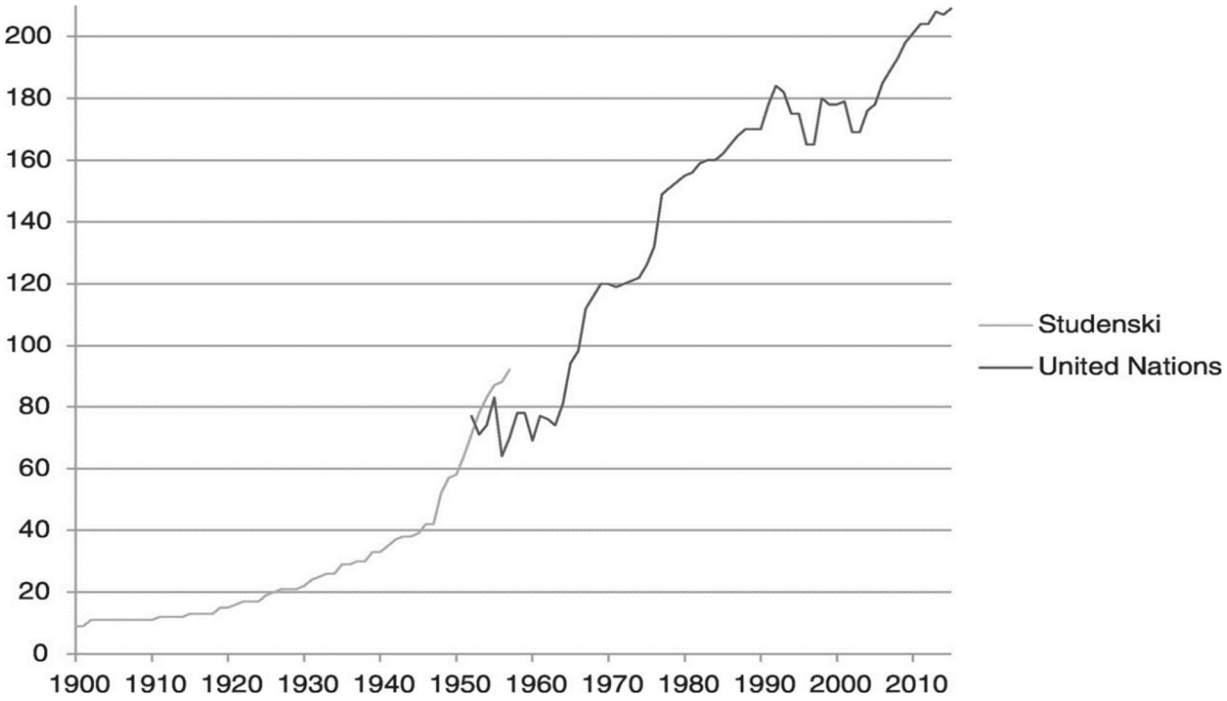
Meanwhile, World War II (WWII) had only increased the demand for guidance on national accounting statistics. During the war, national accounting figures were crucial to understand how a war economy could be created while minimizing the negative effects for the real economy. Keynes' *How to Pay for the War* (1940) was an example of this. In this book, Keynes describes a macroeconomic strategy of how the UK could effectively conduct a long war against Germany. In the aftermath of the war, these statistics were important for economic recovery (Hoekstra, 2019).

At the 1944 Bretton Woods Conference, the foundations were laid for the IMF and the World Bank to promote financial and economic stability by facilitating international cooperation and supporting the post-war reconstruction efforts. As part of their efforts, the IMF and the World Bank needed a standardized measure of economic

activity to track and compare the economic performance of countries. Likewise, the US wished to monitor the effectiveness of the Marshall Plan, the European Recovery Plan which ran from 1949 to 1952.

The increasing need for a standardized national accounting system eventually led to the publication of the 'System of National Accounts' (SNA) by the UN in 1953. Gross Domestic Product (GDP) was born. The scope was more modest than the 1947 report so that the concepts and definitions of the accounts were applicable for most countries, including developing countries. In the period after 1950, the number of countries that estimated national income rose significantly (Figure 1).

Figure 1. Number of countries with national income estimates



Source: Hoekstra (2019), based on Studenski (1958); UN (1952, 1957, 1968, 1982)

The SNA itself does not explain how GDP and GDP growth became such dominant statistics in society today. Up to 1950, economic growth was usually not a goal in itself. National income statistics were used to plan the war economy or target employment. In the period after 1950, this began to change. Governments started to directly set growth targets for the economy, at the time usually measured as Gross National Product (GNP). In 1961, an international growth target was set by the Organization for Economic Co-operation and Development (OECD), the organization

that succeeded the Committee of European Economic Co-operation (CEEO) which monitored the Marshall Plan. The OECD pledged to increase the combined GNP of the OECD economies by 50% by 1970 (Schmelzer, 2012).

Economic growth was also a crucial element of the Cold War competition between the United States and the Soviet Union and their allies, both for political and ideological reasons and for financing this intense military competition. Economic growth became a key policy objective and economic thinking started to dominate many aspects of society.

This was reinforced in the aftermath of the 1970s economic turmoil. Politicians such as Ronald Reagan and Margaret Thatcher pledged for a smaller government, increasing deregulation and privatization. This policy proved to be successful from an economic point of view. Economic growth rose and the sky seemed the limit, at least in developed countries. This reinforced the confidence in economics, until the 2008 financial crisis showed the enormous downside risks related to deregulation. Starting as a crisis in the financial system, real economies throughout the world were affected.

Moreover, over the past decades it has become more and more evident that economic growth is no guarantee for creating the greatest happiness for the greatest number of people. Growth figures mask the all-time high of inequality within countries (Chancel et al., 2021), 1.2 billion people still live in poverty (UNDP & OPHI, 2022), and ecosystems are being threatened by global warming, microplastics and biodiversity loss (Persson et al., 2022; Steffen et al., 2015). It's important to widen our horizon and create a framework for the measurement of important statistics beyond GDP. This is a fundamental step in creating a system in which the general public, media, private sector, investors and government can hold each other accountable for those things that really matter. But before we go deeper into this, the following paragraph goes into depth on what GDP measures and what not.

2.3 Gross Domestic Product (GDP)

So what is GDP? GDP is a measure of national income, it measures the economic output within a country's border for a specific time period, usually a year or a quarter. GDP is not something that is out there in the real world, but it's an empirical construct, a convention about how we measure national income. These guidelines to

measure GDP, and the rest of the economic system, are described in the UN's System of National Accounts (SNA). GDP can be measured in three ways, which in principle leads to the same outcome. GDP can be measured as the sum of:

1. The output or production of the economy. More specifically, this is measured as the sum of the gross value added of all within-border institutional units engaged in production, plus any taxes on products and minus any subsidies on products. Gross value added is the difference between output and intermediate consumption.
2. The expenditures or final demand in the economy. This is measured as the sum of the final uses of goods and services (all uses except intermediate consumption) measured in purchasers' prices, minus the value of imports of goods and services.
3. All incomes in the economy. This is measured by the sum of primary incomes distributed by domestic producer units.

GDP can be contrasted to Gross *National* Product (GNP), which measures the income of a country's institutional units irrespective of a country's physical borders.[1] Another variation on GDP is *Net* Domestic Product (NDP) which also considers the decrease in the value of fixed assets used in the production process (depreciation). Potentially GDP could also be corrected for the depletion of non-renewable natural resources (such as fossil fuel reserves or other natural resources) or the non-sustainable use of non/cultivated biological resources. The exact definition of Net Domestic Product is currently topic of discussion in the SNA revision which will be published in 2025.

GDP has been criticized since it was created. One of the main critiques is that it's unable to account for all components that affect welfare, as also highlighted by Simon Kuznets (1946). It doesn't count the value of social connections, work-life balance or nature. It treats the economy as a distinct concern, while it's interconnected to many social and environmental processes. Furthermore, GDP is an aggregate national measure and therefore doesn't show inequalities. This obscures

[1] Since 1993, GNP is not part of the SNA anymore. SNA 1993 and SNA 2008 mention the term 'Gross National Income' (GNI), which is identical to GNP. To be precise, GNI is "GDP less net taxes on production and imports, less compensation of employees and property income payable to the rest of the world plus the corresponding items receivable from the rest of the world (in other words, GDP less primary incomes payable to non-resident units plus primary incomes receivable from non-resident units); an alternative approach to measuring GNI at market prices is as the aggregate value of the balances of gross primary incomes for all sectors" (United Nations, 1993).

important information about the distribution of welfare in a country. If the average income increases, it might be that the rich are getting richer while people at the middle or the bottom of the distribution do not experience an increase in welfare, or even a decrease. Another shortcoming of GDP is that it doesn't tell us anything about the future. Current GDP growth might have been made possible at the costs of future generations, for example because they need to repay financial loans or deal with environmental damages related to current production and consumption.

GDP is thus not a good measure of welfare. However, it is often argued that GDP is good proxy for progress. The rationale is that economic growth is needed to pay for increasing material goods and services and government expenses such as health, education and infrastructure. Many studies have examined the relation between GDP and wellbeing. In 1974, Easterlin showed that, for the United States, individually self-reported happiness increased with individual income, although there are "decreasing happiness returns" to increases in income. The effect is thus particularly present when transgressing from a lower income group to a medium or high-income group. However, Easterlin (1974) also found in the same study that aggregate national happiness over time was essentially flat, seemingly irresponsive to sustained increases in GDP per capita. This finding is often known as the "Easterlin paradox".

Killingsworth et al. (2023) illustrate that contradictory findings might occur due to a failure to anticipate that happiness derived from additional income is influenced by the level of happiness of a person. When accounting for this, the level of decreasing happiness returns only holds for the least happy 20% of the population. For most people, the happiness returns are stable while the 30% happiest people, experience increasing happiness returns from an income increase. To conclude, the relation between wellbeing and income is not straightforward. GDP should not be taken as a simple proxy for happiness or progress, and we need direct measures of wellbeing, inclusion and sustainability to make a true assessment of progress.

GDP should thus be considered as a measure of the economic output of a country, and not as a proxy of welfare or wellbeing. While GDP is a pretty good measure of economic activity, GDP estimates should still be interpreted with some caution. It is common practice even for the most advanced economies to adjust GDP estimates in the years after the initial publication. This has to do with the time it takes for underlying data to become available. Data quality in is a challenge for many countries. Moreover, globalization and digitalization make it increasingly difficult to measure the size of the economy. For example, Ireland's GDP grew by 24% in 2015. This might

give the impression that the economy was booming, while this exceptional high growth rate was mainly caused by some accounting changes of a big tech company. The rise of free online products is another example of a challenge measuring the modern economy. Subscribing to Facebook is free and it's not directly part of GDP while, say an address book bought in store, would be.

Another technical challenge relates to the consideration of inflation. To calculate the real level of GDP, GDP is discounted to changes in the average price level which in turn is based on data related to prices and quantity. In 2010, Ghana's GDP increased by 60 percent overnight when the base year for calculations was changed from 1993 to 2006 and the weights used in aggregating the individual quantity relatives into sub-indices was updated. The real economy did not change overnight, yet GDP grew by 60% because of a change in statistics. This had significant consequences: Ghana turned from "low-income" into a "low-middle-income" country, which affects the amount of international assistance and financial aid a country receives.

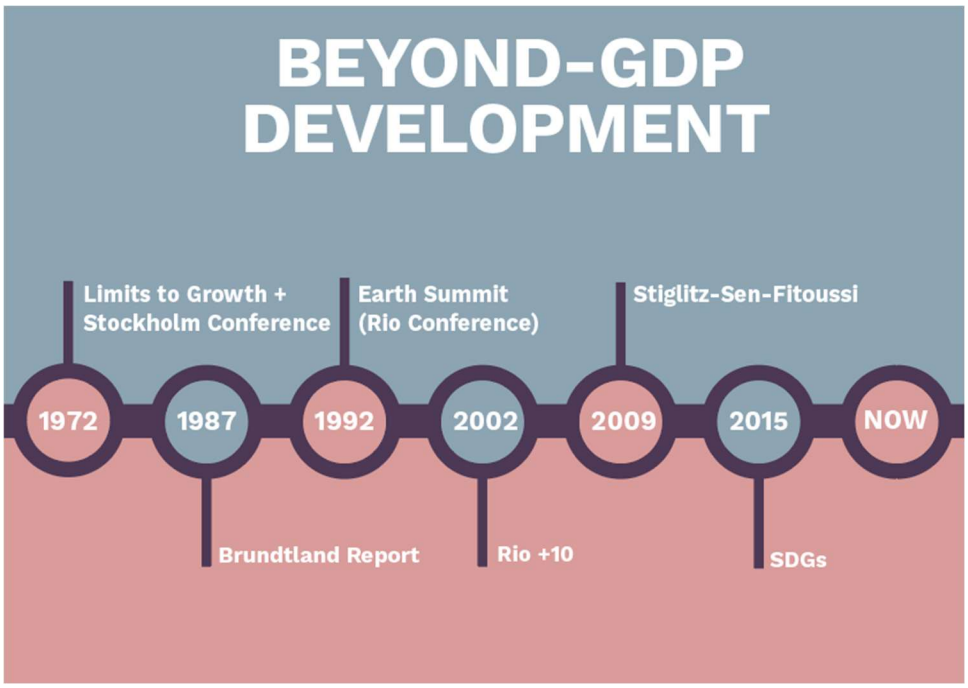
As illustrated by the example of Ghana's adjustment, there are consequences related to GDP estimates. GDP influences government policy decisions. Depending on the absolute level of GDP and growth levels, governments will decide what they spend their money on within a certain year. This is not necessarily a linear process, meaning that the size of the pie might influence how the different pieces are cut as well. It's also used as success indicator of fiscal and general policies, both within government as in interaction with the public. Empirical evidence illustrates that voters often hold incumbents accountable for recent economic circumstances (Guntermann et al., 2021). This creates an incentive for politicians to focus on relative short-term GDP growth numbers, potentially negatively affecting the wellbeing of future generations. GDP estimates also affect the perceived competitiveness and creditworthiness of countries, influencing business decisions and affecting the amount of funding countries can attract. It also influences the costs (interest rate) at which government and the private sector can borrow. This in turn influences the size of the pie.

It will be clear by now that GDP is a highly influential number. It's a pretty good measure of economic activity but should not be taken as a proxy for progress or wellbeing. To address global challenges such as poverty, environmental degradation and rising inequalities within countries, a new societal paradigm that moves away from GDP growth is essential. Much has been written about measurement frameworks for wellbeing, inclusion, and sustainability. The next chapter will present an overview of some of the developments influencing the Beyond-GDP movement.

2.4 History of Measuring Beyond-GDP

As the use of GDP and focus on economic growth grew, so did the criticisms. Since the 1970s, the number of metrics that have been proposed to complement or replace GDP, grew tremendously. To understand some of the driving forces behind the development of these metrics, this section discusses some of the main events and reports that inspired the Beyond-GDP community, as summarized in Figure 2. In the second part of this chapter, we create a synthesis of these main developments, summarized in the WISE framework.

Figure 2. Key events and reports in the Beyond-GDP Development



Source: Own elaboration

The first peak in Beyond-GDP measurement was in the early 1970s. The late 1960s – early 1970s were a time of significant social unrest marked by protests and social movements that sought to challenge established power structures and bring about social change. These involved protests concerning civil rights, the Vietnam war, gender inequality and the environment. In relation to the environmental movements, the 'Limits to Growth' report of the Club of Rome (1972) was highly influential. The report analysed the consequences of exponential growth on a finite planet by examining scenarios for five major global trends: population growth, industrialization,

pollution, food production, and resource depletion. The report concluded that if (then) present growth trends continued unchanged, the limits to growth on this planet will be reached sometime within the next one hundred years. According to the Club of Rome, this would most probably lead to a rather sudden and uncontrollable decline in both population and industrial capacity.

These conclusions were alarming and helped to raise awareness on the link between the environment, resources, and economic growth. Later in 1972, the first UN Conference on Human Environment was organized in Stockholm, also signalling the importance of environmental considerations. Inspired by these developments, a variety of metrics were proposed to adjust GDP to account for environmental factors. In addition, social indicators gained attention. However, due to the economic turmoil of the 1970s, these initiatives were overshadowed by forces to get economic growth back on track. The 1970s turned out to be a false start for the Beyond-GDP movement (Hoekstra, 2019).

The real turning point would prove to be the publication of a report called 'Our Common Future' in 1987. This report is often called 'The Brundtland Report', after the chairperson of the UN commission responsible for the report. The Brundtland Report (1987) focused on the concept of sustainable development, which it defined as "*development that meets the needs of the present without compromising the ability of future generations to meet their own needs*." The report argued that economic growth and social progress should be pursued in a way that does not harm the environment or compromise the ability of future generations to meet their needs. The report also highlighted the importance of an integral approach towards sustainable development and poverty, as environmental problems and development problems often go hand in hand. As of today, an ample amount of literature shows that much of the environmental pressures are negatively affecting developing countries the most, while richer countries reap the benefits of using up the planet's ecological capital (e.g. Chancel, 2022; Hubacek et al., 2017).

The Brundtland Report shaped the international agenda for sustainable development for years to come. Much of what was written in the report is strikingly relevant for today's society. "*Building a future that is more prosperous, more just, and more secure*" resembles much of the language used in relation to the COVID-19 response and ongoing debates about global challenges. At the time, the report stimulated the development of a variety of Beyond-GDP metrics. Especially with the 1992 "Earth Summit" which was the first United Nations Conference on Environment and

Development (UNCED), held in Rio de Janeiro. During this Summit heads of state, government officials, and representatives from non-governmental organizations (NGOs) came together to address pressing environmental and sustainable development issues. It raised awareness about the interdependence of environmental, social, and economic issues further and highlighted the need for integrated approaches to address global challenges. A concrete action plan was formed called Agenda 21. This action plan covered many topics that are still highly relevant today such as combating poverty, changing consumption patterns, conservation of biological diversity, combating deforestation and strengthening the role of indigenous people.

The Brundtland Report and Rio Summit placed the issue of sustainable development and environmental pressures high on the agenda. This led to increased attention for environmental accounting. In 1993, the UN published the first System of Environmental-Economic Accounting (SEEA) in an effort to harmonize environmental accounts. The SEEA deals with the physical accounts of stocks and flows in the economy, such as mass and energy units. However, the various editions (in 1993, 2003 and 2012) have also included a couple monetary aggregates where macro-economic data was corrected for environmental damages. The development of the SEEA is an important step forward for the Beyond-GDP community. However, it also illustrated clearly that there was no integrated approach towards sustainable development yet, as the decision was made to not include the environmental accounts in the core SNA, but to create a separate “satellite” system.

Following earlier efforts to promote sustainable development, the UN presented the Millennium Development Goals (MDGs) in 2000. The MDGs were eight international development goals for 2015. Not longer after, in 2002, the World Summit on Sustainable Development took place in South Africa, often referred to as Rio+10. The conference - themed “People, planet and prosperity” - led to renewed momentum of Agenda 21 and more and more institutions started to develop initiatives to measure sustainable development. In 2006 the OECD organized a conference on the measurement of wellbeing and societal progress, and they published a report called Alternative Measures of Wellbeing (2006). Eurostat also started to work on Sustainable Development Indicators in 2005 and the World Bank published their first ‘Where is the Wealth of Nations?’ report in 2005.

In 2008, the President of France, Nicholas Sarkozy, joined the discussion. Unsatisfied with the present state of statistical information about the economy and the society,

he asked Joseph Stiglitz, Amartya Sen and Jean-Paul Fitoussi to create a commission to work on the measurement of economic performance and social progress. In 2009, they presented their report (hereafter: SSF-report). The SSF-report identifies several major shortcomings of GDP as a measure of progress, including its failure to account for income inequality, environmental sustainability, and the distribution of economic benefits. To address these limitations, the report recommends developing a multi-dimensional approach towards wellbeing. Key dimensions to consider simultaneously include material living standards, health, education, political voice, social connections and the environment.

Similar to the Brundtland report, the report emphasizes the need to assess inequalities and sustainability in addition to current wellbeing and economic performance. One new aspect is the emphasize on the separation of the different dimensions. Current wellbeing, sustainability and inequality should be examined separately. As the report argues, different dimensions provide valuable information that would be lost if summarized in one composite indicator. For example, one cannot capture the average wellbeing of a country and the inequality of wellbeing in one number and still provide an intuitive insight into the two different dimensions. That would be the same as summarizing a person's heart rate and temperature into one number, while you would want the doctor to be able to measure both separately.

The SSF-report inspired the development of the OECD Better Life Initiative launched in 2011 at the 50-year anniversary of the OECD. This initiative consists of a framework to assess wellbeing, several publications on wellbeing indicators (from 2011 to the present) and the presentation of the Better Life Index. The Better Life Initiative is just one example of the many initiatives that were conceived around 2010. The financial crisis of 2008 strengthened the idea that society had been focused on economic growth for too long. In addition, developments in the field of data collection and environmental sciences also gave rise to a boost in Beyond-GDP indicators, as further discussed in chapter 4. In 2012, the third World Summit on Sustainable Development (Rio+20) took place. This led to the foundation of the Sustainable Development Goals (SDGs), which would be adopted in 2015 after the MDGs expired. The SDGs have grown to be one of the most successful Beyond-GDP initiatives, being adopted and monitored by many countries and companies throughout the world.

Currently the momentum for Beyond-GDP initiatives is on the rise again, illustrated by the UN report 'Valuing what counts' (UN System Chief Executives Board for Coordination, 2022) and the Beyond Growth Conference organized by the European

Parliament in May 2023. The EU reserved tens of millions of euros for research and innovation into post-growth thinking, including projects like WISE Horizons, ToBe, SPES and REAL.

2.5 The WISE Framework

The previous sections have shown that it has been known for a long time that equating economic growth to social progress is incorrect. Even one of the founding fathers of modern-day GDP, Simon Kuznets, famously said that "*The welfare of a nation can scarcely be inferred from a measure of national income*" (Kuznets, 1934). Nevertheless, the discussion has also shown that in the post-war period, economic growth increased its dominance in government policies and GDP became the most important measure of success for countries.

This economic paradigm same under intense scrutiny in the late 1960s and early 1970s with rising social unrest and environmental concerns with the *Limits to Growth* report and the United Nations Conference on the Human Environment being important catalysts for the early 1970s. It was also the first year when economist started to think of a Beyond-GDP alternatives, with Nordhaus and Tobin suggesting the Measure of Economic Welfare (MEW) (Nordhaus & Tobin, 1972).

Since the early 1970s, the idea to look for alternative development models has been discussed in plethora of meetings, reports and action plans. Many hundreds of Beyond-GDP indexes and indicator dashboards have been suggested (see Hoekstra, 2019). A seminal report was the so-called Brundtland Report (WCED, 1987) which stressed that economic development, social progress, and environmental sustainability are interdependent. It also provided a definition for sustainable development: "*development that meets the needs of the present without compromising the ability of future generations to meet their own needs*." The Brundtland report however also stressed the importance of overcoming global inequalities and poverty.

Later, the so-called Stiglitz-Sen-Fitoussi report also stressed that progress can be seen as current and future wellbeing, with inequality also being a vital component. The Stiglitz-Sen-Fitoussi report did say that these dimensions should be viewed separately., As the Stiglitz-Sen-Fitoussi report says "*the assessment of sustainability*

is complementary to the question of current well-being or economic performance, and must be examined separately."

The WISE framework follows the conceptual framework laid down in the Brundtland and Stiglitz-Sen-Fitoussi reports, labelling these three dimensions as Wellbeing, Inclusion and Sustainability (WISE). These are very board categories which are related to the intertemporal dimensions of sustainable development (wellbeing vs sustainability) and distribution (inclusion). The latter is very board, with reference to disparities within or between countries (per demographic groups).

Table 1 provides more clarification of these dimensions by showing a short slogan and a more formal definition. We also provide a longer clarification, association and policy domains that are typical for these dimensions. Note that splitting these conceptually does not mean that all themes can be neatly split into one or the other category. For example, education is known to be something that affects current wellbeing, but for policy makers is also important because it is also important for building up human capital, which is vitally important on the long term.

As we will see in the WISE Horizons review of metrics, this WISE Framework is consistent many of these indexes and indicator dashboards that have been proposed are consistent or can be linked to these definitions.

What is the role of the economy in the WISE framework? It is clear that, what happens in the economy and economic policy has profound impacts on the current quality of life, distributional issues and long-term sustainability. The economy is therefore a means to end, and should aim to achieve wellbeing, inclusion and sustainability, rather than being a goal in itself. However, currently economic goals are often still seen as a goal. The WISE framework seeks to change this paradigm.

Table 1. What are Wellbeing, Inclusion and Sustainability?

Term	Wellbeing	Inclusion	Sustainability
Slogan	Wellbeing today	Wellbeing for all	Wellbeing in the future
Definition	Relates to wellbeing of the current generation.	Relates to the distribution of wellbeing[2]	Relates to the wellbeing of future generations
Clarification	Wellbeing is a multidimensional concept which encompasses both experienced wellbeing and factors such as social relations, mental health, and living standards.	Inclusion is a multidimensional concept which encompasses the distribution of wellbeing determinants and opportunities across spatial scales (within countries, between countries, and globally) and social groups (gender, background, race, etc.).	Sustainability is a multidimensional concept which encompasses social and economic conditions for future wellbeing, such as education and infrastructure, as well as environmental conditions, such as planetary boundaries.
Associations	Happiness, quality of life, prosperity, welfare, life satisfaction, flourishing, fulfilment,	Equality, fairness, equity, opportunities, minorities, poverty, social floors, subsistence, (global) disparities	Resilience, long term, wealth, planetary boundaries, natural limits, resources, natural capital, human capital, social capital,
Typical policy domains	Health, social connections, housing, air pollution	Poverty, Gender and racial disparities, global north-south divide,	Climate change, biodiversity, aging society, Research and Development, Infrastructure

Source: Own elaboration

[2] Inclusion covers the distribution of current and future wellbeing. However, in practice, measurement is usually restricted to inequalities in wellbeing of the current generations.

Box 2: What is the role of the economy and economic policy in the WISE framework?

The definitions provided in Table 1 do not include a discussion of the economy. This is because we adopt the conclusion from the Beyond-GDP literature that economic growth should not be regarded as the goal of society. In this project, we assume that wellbeing, inclusion and sustainability are a good reflection of the ultimate aims of societal progress which are defined the literature.

However, that does not mean that the economy is unimportant – quite the contrary. What happens in the economy and economic policy has profound impacts on the current quality of life, distributional issues and long-term sustainability. In some cases, economic growth is positively correlated to these phenomena, while in other cases it is detrimental. That is why economic growth cannot be taken as a proxy for societal progress. In the WISE framework, the economy should be a means to an end, not the end itself.

However, the current situation is that economic indicators, policies and models predominate. This is why, in the publications of the WISE horizons project, the economic perspectives dimensions are also discussed and taken on board.

It must be noted that in the WISE framework, the economic system is not the only system that affects wellbeing. The non-economic part of society, such as our social connections and neighbourhoods, education system, lifestyles and health affect wellbeing and inequalities significantly. This also has implications for policy: social policies which are not seen as “economic” are also crucial when thinking about how to transition to a society that prioritizes wellbeing, inclusion and sustainability.

3. Scope

This paper will not provide a comprehensive overview of all Beyond-GDP metrics. There are simply too many. Instead, it has used previous overviews to create a synthesis. Most notable previous reviews that have been used are: Bleys (2012); Costanza et al. (2009); Fleurbaey & Blanchet (2013); Hák et al. (2012); Hoekstra (2019). For the overview of country dashboards we have used an OECD overview (Exton & Shinwell, 2018) as well as the WISE Horizons review of policies. In the process of drafting the review there have also been many contacts with Beyond-GDP colleagues which also led to some useful tips for the review.

4. Review of Beyond-GDP Metrics

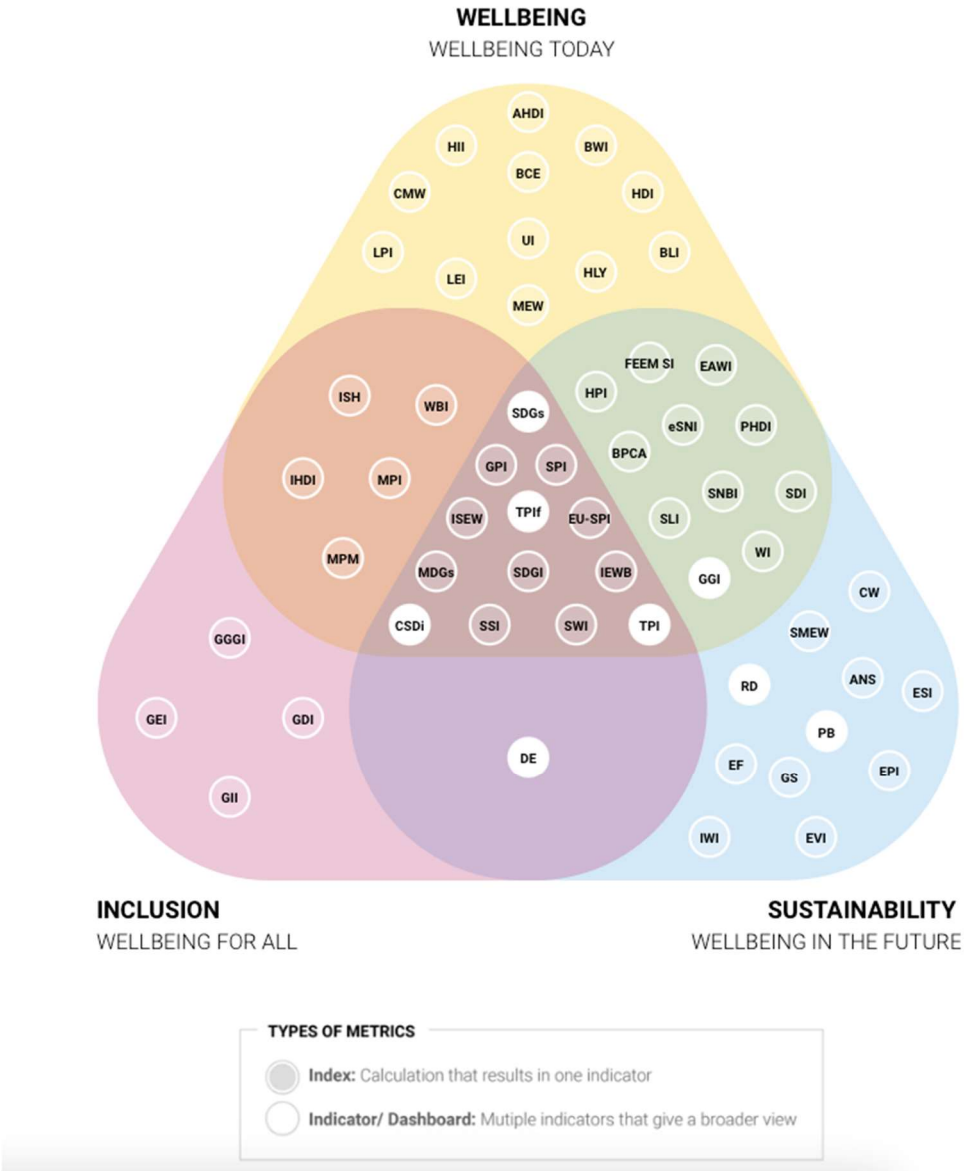
4.1 Introduction

This chapter introduces a wide range of Beyond-GDP metrics proposed to measure country performance. Each metric will be analysed using the WISE framework as introduced in Paragraph 3.5 which makes a distinction in the measurement of current and future wellbeing, and the distribution of wellbeing. To understand how existing metrics relate to wellbeing, inclusion, and sustainability, we present a figure showing Beyond-GDP metrics organized around these WISE dimensions. As Figure 3 shows, there are two types of metrics that can be distinguished:

1. An **index** provides one summary number. For example, the Human Development Index (HDI) aggregates the performance of a country on education, health, and income into one number and is one of the most popular examples of Beyond-GDP metrics.
2. A **dashboard of indicators** presents the performance of a country in a set of indicators without aggregating them into one number. This is done to respect the fact that progress is multidimensional and should be measured in separate measures. It is argued that these dimensions cannot be aggregated in a single unit, such as money. Dashboards often have indicators for topics such as education, social connections, health, income inequality, gender disparities, CO_2 emissions, material use or biodiversity loss. A famous example of a dashboard is the Sustainable Development Goals (SDGs) which has nearly 200 indicator/targets which the world should achieve by 2030.

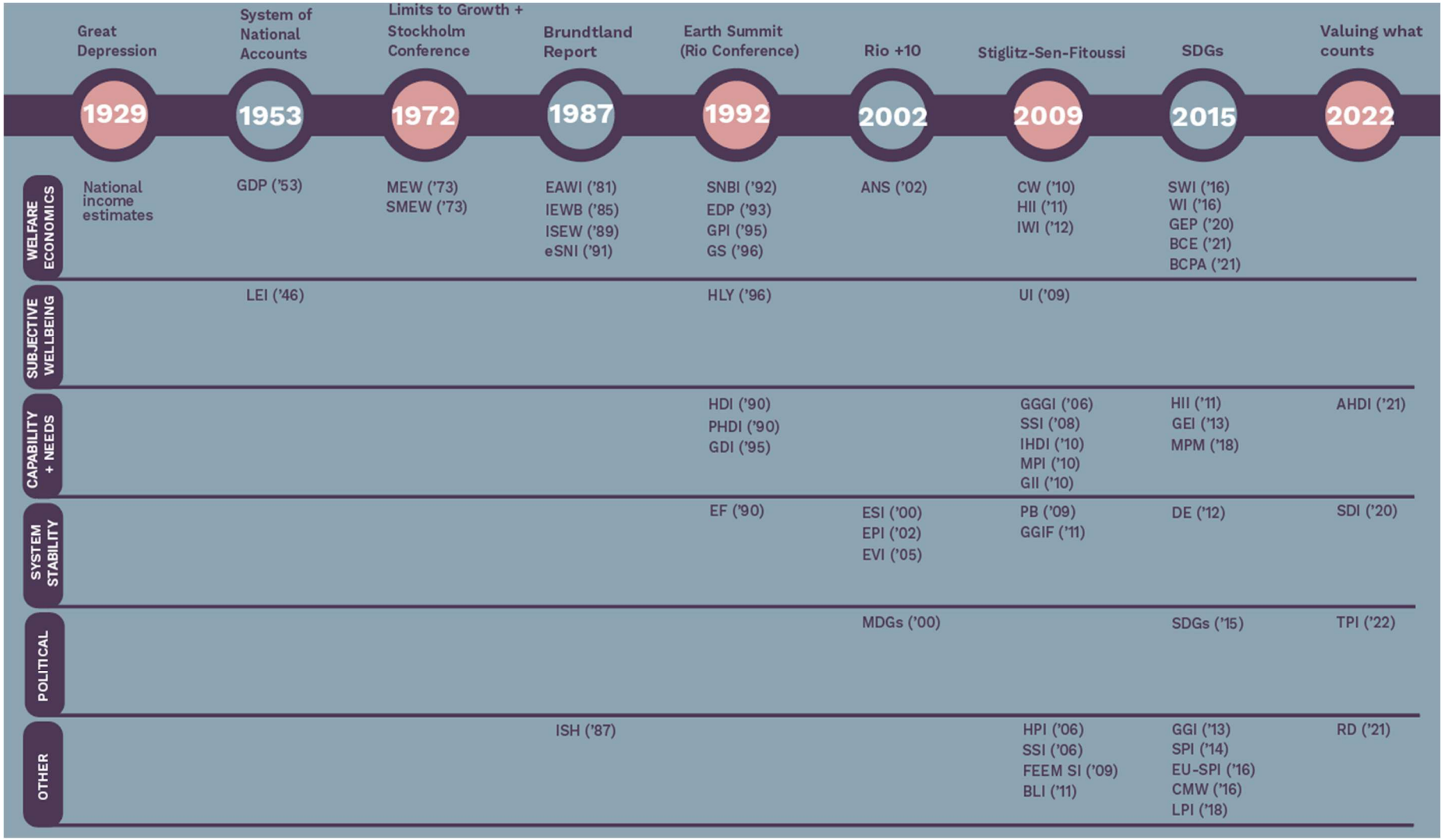
Each metric is placed in a position which reflects what it measures. The yellow, pink and blue are metrics for wellbeing, inclusion and sustainability. The orange, green and purple cover two the three dimensions and the inner triangle are measurement system that cover all three dimensions. In the next sections, the Beyond-GDP metrics shown in Figure 3 will be discussed. They will be clustered according to the theoretical basis: Welfare economics, Subjective wellbeing, Capability approach, Needs theory, System Stability, and political processes and metrics with a less explicit foundation. In order to keep track of the historical perspective throughout, all metrics are plotted in one timeline on the next page (Figure 4).

Figure 3. Summary of Beyond GDP metrics



This visualisation is updated on www.beyond-GDP.world

Figure 4. Historical overview



Source: Own elaboration based on Bleys (2012); Costanza et al. (2009); Fleurbaey & Blanchet (2013); Hák et al. (2012); Hoekstra (2019).

4.2 Welfare Economics

Kuznets himself understood that GDP falls short as a measure of welfare when he presented it in 1934. It's a good measure of economic activity, but it does not measure happiness, nor does it say anything about the state of the environment. Early attempts to improve GDP focused on the ambition to include more welfare-determining aspects. Similar to GDP, these attempts are based on welfare economics. Welfare economics has its roots in theories of Bentham and Pigou, as discussed in Paragraph 2.1. It's characterized by the approach to measure welfare in terms of utility (box 3) and the assumption that individuals aim to maximize this.

In practice, many of the metrics related to welfare economics estimate welfare in monetary terms summarized into one index. Within welfare economics, there are two main domains. One line of thought focusses on the measurement of the flows of goods and services in a society, sometimes called 'green accounting' or 'Green GDP'. Since green accounting usually corrects for more aspects than just environmental damage, we choose to use the term 'welfare accounting'. The second approach focusses more on the stocks of assets in a society, also known as 'wealth accounting'. The next paragraphs will present a large variety of metrics that originate from welfare economics and discusses how these metrics relate to the WISE framework. The figure below summarizes the metrics in a historical perspective.

Box 3 – Valuation in welfare economics

Most of the metrics proposed by welfare economists measure welfare by valuing the utility that people derive from income or consumption and other welfare-related aspects that are not directly linked to market transactions, such as household work. The valuation of "equivalent income" usually occurs by studying peoples' revealed preferences, meaning that actual choices and decisions of people are analysed opposed to peoples' stated preferences. Literature from behavioural economics and psychology finds that people often make inconsistent choices, fail to learn from experience, base their own satisfaction on how their situation compares with the satisfaction of others (Kahneman & Krueger 2006). Hence, revealed preferences are seen as a more reliable measure of actual preferences by welfare economists.

4.2.1 Welfare accounting

Following the Limits to Growth report and the Stockholm conference, Yale economists William Nordhaus and James Tobin presented the **Measure of Economic Welfare (MEW)** and the **Sustainable Measure of Economic Welfare (SMEW)** in 1973 as an alternative to GDP in a paper called "Is Growth Obsolete?" (Nordhaus & Tobin, 1973). The MEW takes total private consumption as starting point – similar to GDP – and then adjusts it to include monetary estimates of activities that contribute to welfare, such as leisure time and the amount of unpaid work in an economy. In addition, it subtracts a number of negative "externalities" of economic growth, such as costs of commuting. MEW can therefore be seen as a monetized proxy for wellbeing of a country or economy.

However, the MEW itself does not provide information about the ability to meet certain wellbeing standards in the future, nor does it address distributional aspects. To account for sustainability, Nordhaus and Tobin (1973) propose to address the Sustainable Measure of Economic Welfare (SMEW) separately. SMEW measures the level of MEW that is compatible with preserving the capital stock. To convert the MEW into the SMEW, an estimate of total public and private wealth was computed that included net reproducible capital, nonreproducible capital (limited to land and net foreign assets), educational capital and health. The difference between MEW and SMEW then indicates whether economic welfare is sustainable or not.

Coming back to the title of the paper and the Limits to Growth Report – Nordhaus & Tobin did not find evidence that the depletion of natural resources will become an increasingly severe drag on economic growth. Their analysis seems to support that high elasticity between natural resources, capital and labour, will avoid this drag. The limitless substitutability between different types of resources is at the heart of what is sometimes called 'weak sustainability'. Weak sustainability refers to a non-decreasing overall capital stock and is often associated with neoclassical economics (e.g. Hartwick, 1977; Pearce & Atkinson, 1993; Solow, 1974).

In 1981, the Greek economist Xenophōn Zolōtas proposed **The Economic Aspect of Welfare Index (EAWI)**. Like Nordhaus and Tobin, he starts from a private consumption function and then adds and deducts factors that influence welfare. Zolōtas is the first one to also consider pollution, subjective quality of life indicators to account for "revolution of rising expectations" and objective quality of life indicators such as mental and physical health (Zolōtas, 1981). In 1985, Osberg proposed the **Index of**

Economic Wellbeing (IEWB). The foundation is the per capita consumption figures to which he adds the net accumulation of stocks of productive resources for future generations, poverty and inequality of the current generation, and insecurity of income flows. These four components reflect economic wellbeing in both the present and the future, and account for both average access to economic resources and the distribution of that access among members of society. Each component is fed by 2-6 subindexes. The overall Index is the weighted sum of the four domains, although individuals can also select weights for the four domains in accordance with their own values (Osberg, 1985).

Another, more well-known metric is the **Index of Sustainable Economic Welfare (ISEW)** developed by Daly et al. (1989). The ISEW is known as the successor of the MEW and has three important additions to the MEW: it includes a valuation of environmental degradation, natural capital depreciation, and a distribution of income. Contrary to the MEW, ISEW excludes leisure time since the measurement of the value of leisure time was considered not fit to assess properly (Neumayer, 1999). ISEW also let go of the distinction between current and future wellbeing that followed from the distinction in MEW and SMEW.

Cobb continued to develop the ISEW and presented a new version of this approach in 1995 called the **Genuine Progress Indicator (GPI).**[3] Similar to ISEW, the GPI starts from personal consumption expenditures, adjusting it for income distribution and deducting so-called 'defensive expenditures' such as costs of environmental pollution, depletion of non-renewable resources and long-term environmental damage costs. It adds welfare relevant services such as household labour and services from the public capital stock such as highways. Although ISEW and GPI are often presented as alternative names for the same index (Posner & Costanza, 2011), there are some differences. Compared to ISEW, GPI usually includes a wider range of social costs including leisure time that is lost due to working hours. Another difference is that GPI is usually not presented in isolation, although it's a composite metric. The method allows to distinguish between economic, environmental, and social components, providing valuable information about the underlying dynamics. When analysing the underlying indicators, some care is in order as the GPI includes both flow indicators, e.g. the value of consumption expenditures within one year, and

[3] Often applied in US. Also similar initiatives, for Australia, there also exists a related measure, which comes under the name of sustainable net benefit index (SNBI) (Lawn and Sanders, 1999).

stock indicators, e.g. accumulative loss of farmland over the years. This is one of the reasons why the GPI does not distinguish between current and future welfare.

Lawn and Sanders (1999) propose the **Sustainable Net Benefit Index (SNBI)** which is based on two separate accounts: one account to measure net benefits of economic activity (using net psychic income concept inspired by Fisher), and one account to measure the 'uncancelled costs' of economic activity, which relates to the loss of natural capital services. Lawn and Sanders used this method to measure welfare in Australia. Van der Slycken (2021) argues in line with Lawn and Sanders that ISEW and GPI should clearly distinguish between **Benefits and Costs Experienced (BCE)** here and now and the **Benefits and Costs of Present Economic Activities (BCPA)**, which includes effects on the future and rest of the world. BCE takes a Fisherian approach to income, meaning it focusses on "psychic income". This relates to non-monetary rewards or benefits that individuals derive from their work or other activities. BCPA follows a Hicksian view, since the consumption of community capital is labelled as a cost. Depending on the perspective taken, welfare items as climate disruption and resource depletion are only included in relation to either here and now (BCE) or in relation to the future and rest of the world (BCPA).

In relation to inclusion, metrics such as ISEW, GPI and BCE account for welfare loss that is caused by an unequal distribution of income. It discounts the average consumption expenditure per capita based on income inequality, usually measured by the Gini coefficient. As income inequality is not presented as a separate domain but only included in the calculation of the index number, these measures provide little explicit information about inclusion. Inclusion is only assessed from the perspective of the effect on current wellbeing, and not with the aim to assess inequality for the sake of providing insights into the level of inclusion.

There is also a variety of welfare accounting metrics that focus mostly on the environmental sustainability aspect. One example is **Environmentally Sustainability National Income (eSNI)**. Compared to the initiatives described above, it has a narrower focus on adjusting GDP to include environmental factors, and a more advanced approach to do so. With the Brundtland Report in 1987, the first IPCC report in 1990, and the 1992 Rio Conference ("Earth Summit"), sustainability was high on the agenda. In preparation of this conference, Hueting and Tinbergen wrote a paper on the importance of considering environmental destruction in Gross National Product and the need for a measure on environmentally sustainable national income (1991). Based on Hueting's earlier work starting in the mid-60s, the concept of

sustainable national income gives the production level, associated with national income, that maintains the availability for future generations of the vital environmental functions. The method is more advanced than the SMEW approach. It adds a dynamic dimension by accounting for interdependencies between the level of sustainability and impact of measures that have to be taken to create a more environmentally sustainable economy. The lower the current level of sustainability, the bigger the disruptions associated with achieving a more sustainable system. To include this dependency in calculating the sustainable national income level, a general equilibrium model is used (e.g. Hueting, 2010). This measure thus starts with a distinction between current welfare and environmental factors that influence future welfare, and then brings this together in one number.

Another metric that was proposed during this time is the **Eco-Domestic Product (EDP)**. The EDP was part of the SEEA 1993. It can be calculated by subtracting environmental costs from the Net Domestic Product (United Nations, 1993). Variations on this measure are also part of the SEEA 2012, referred to as 'depletion-adjusted' measures. The development of this metric was an important step towards institutionalization of a 'Green GDP'. Despite the efforts, EDP never got the attention that GDP received.

Costanza et al. (2016) also investigated what's important for a successor of GDP. The paper proposes a potential hybrid **Sustainable Wellbeing Index (SWI)** which is defined as a function of net economic contribution, natural capital and social capital. In addition, he argues for the importance of the development of dynamic, non-linear systems model that can replace macro-economic modelling.

More recently, Ouyang et al., (2020) proposed the use of **Gross Ecosystem Product (GEP)** to summarize the value of the contributions of nature to economic activity. GEP is a measure of the aggregate monetary value of ecosystem-related goods and services in a region in an accounting period. Ecosystem services can be classified into material services (the contribution of nature to the provision of food, water supply, and so forth), regulating services (the contribution of nature to carbon sequestration, flood mitigation, soil retention, sandstorm prevention, and so forth), and nonmaterial services (the contribution of nature to ecotourism, nature experience for mental health, and so forth). Using a similar approach to GDP, GEP adds all ecosystem services based on accounting prices.

Lastly, there are some metrics that start from the concept of utility without monetizing this concept. The **Happy Income Index (HII)** is a satisfaction-weighted income measure based on material and psycho-social wellbeing. It uses an ordinal happiness scale and multiplies this by a country's mean equalised household net income. It's developed by Prinz and Bünger (2011) and applied to 27 EU countries.

A similar measure is the **Wellbeing Index (WI)** presented by Jones and Klenow (2016). The Wellbeing Index also departs from a consumption equivalent to assess the economic wellbeing of a country's population. The measure incorporates consumption, leisure, mortality, and inequality based on detailed survey data and multi-country datasets. Both measures mostly relate to current wellbeing.

4.2.2 Wealth accounting

Compared to the metrics described above, 'wealth accounting' focusses more on measuring stocks rather than flows of goods and services. These stocks of assets, produced, natural, human and social capital, are considered to be the foundation of the wellbeing of future generations.

The Rio Declaration from 1992 highlighted the importance of recognizing the full value of natural resource capital, pleading for better measurement (UN, 1993). Shortly after, Pearce and Atkinson proposed to measure how a nation's total capital stock changes year-on-year in real terms (1993). In 1996, they named this metric **Genuine Savings (GS)**, others have also called it comprehensive savings, comprehensive investment, adjusted net savings, and inclusive wealth.

Adjusted Net Savings (ANS) was initiated by the World Bank in 2002, based on the method developed by Hamilton and Clemens (1999). ANS measures the change in value of a specified set of assets, excluding capital gains. ANS are equal to net national savings plus education expenditure and minus energy depletion, mineral depletion, net forest depletion, and carbon dioxide and particulate emissions damage. If a country's net savings are positive and the accounting includes a sufficiently broad range of assets, economic theory suggests that the present value of social welfare is increasing. Conversely, persistently negative adjusted net savings indicate that an economy is on an unsustainable path.

A variation to ANS is **Adjusted Net National Income (ANNI)**. ANNI differs from the adjustments made in the calculation of adjusted net savings by not accounting for investments in human capital or the damages from pollution.

Comprehensive wealth (CW) is a concept presented by the World Bank in 2010 to complement GDP. Based on the method by Hamilton & Hartwick (2005), it measures the present value of future consumption. It distinguishes between the economic value of renewable natural capital (such as forests, cropland, and ocean resources), non-renewable natural capital (such as minerals and fossil fuels), human capital (earnings over a person's lifetime), produced capital (such as buildings and infrastructure), and net foreign assets. By looking at all of these assets that underpin national income, wealth accounting provides a means to track the sustainability of economic progress into the future. The World Bank publishes data on CW in the report 'Changing Wealth of Nations'. The latest version from 2021 tracks the wealth of 146 countries between 1995 and 2018.

The UN has presented a related but alternative approach to wealth accounting, called the **Inclusive Wealth Index (IWI)**. It is calculated based on directly estimating stocks of human, natural and produced (manufactured) capital which make up the productive base of an economy. This is in line with the method developed by Arrow et al. (2012). IWI was developed by UNEP in 2012 with Kyushu University.

4.2.3 Concluding remarks

GDP-related measures and wealth accounting are complementary approaches to assess welfare or wealth. Flow-measures such as GDP generally have a more short-term focus related to welfare here and now, although the perspective has widened by including environmental indicators. Wealth accounting generally provides more information about conditions for future wellbeing, both related to environmental and social factors such as education. Both approaches – if used well – are of added value to create an understanding about a variety of important welfare determinants. GPI comes close to capturing an overarching view on welfare by including a variety of social and environmental indicators, especially if wealth accounts could be added to the picture. One important point of attention would be the relevance of the indicators for different countries across the world. In addition, there should be a broader assessment of the distribution of welfare. None of the metrics has a notion of inequality beyond the distribution of income.

4.3 Subjective wellbeing

Despite sensitivities in self-evaluative measurement of wellbeing, there seems to be consensus that 'subjective wellbeing' or 'self-reported wellbeing' should be at least part of an overall assessment of wellbeing when measured adequately. Measures of subjective wellbeing show meaningful associations with a range of life circumstances and can provide an important complement to other indicators already used for monitoring and benchmarking countries performance, for guiding people's choices, and for designing and delivering policies (OECD, 2013).

The subjective approach started just after World War II in the USA. Later, the 'social indicators movement' arose in the 1960s, driven by increasing public concern about the quality of life and wellbeing. This stimulated a growing body of research outside of the economic discipline concerning the publication of several major efforts to define and develop a methodology for the measurement of indicators of subjective wellbeing (e.g. Andrews & Crandall, 1976; Campbell & Converse, 1972).

When considering subjective wellbeing, there are three commonly recognized dimensions: life satisfaction, affect and eudamonia (OECD, 2013). Life satisfaction refers to an individual's overall evaluation or judgment of their life as a whole. Life satisfaction considers various aspects of life, such as personal achievements, relationships, work, health, and expectations about the future. Affect refers to the experience of positive and negative emotions, typically measured with a reference to a particular point in time. It includes the frequency, intensity, and balance of emotions that individuals experience in their daily lives. Positive affect encompasses emotions like joy, excitement, and contentment, while negative affect includes emotions like sadness, anger, and stress. Eudaimonic wellbeing is associated with a sense of purpose, meaning, and fulfilment in life.

To measure subjective wellbeing, surveys are needed. The first surveys were conducted in 1946 in the USA by the American Institute of Public Opinion (AIPO), which is nowadays known as the Gallup Poll. Gallup is still well-known for its surveys that are published each year in the 'World Happiness Report' as the so-called **Life Evaluation Index (LEI).** The index measures how people from all over the world rate their current and expected future lives using survey data. The LEI is not a classical index in the sense that it combines different measured components, but it can be seen as a composite from the point of view that life evaluation is based on a variety of aspects in one's life. LEI is seen mostly as a measure of current wellbeing. It is

sometimes mentioned that it also includes some notion of expectations about the future and the environment, relating to sustainability. The World Happiness Report also looks at the happiness of the top and bottom halves of each country's population, giving an indication of the distribution of wellbeing.

Another measure is **Happy Life Years (HLY)** proposed by Ruut Veenhoven. The measure adds expected life years to life satisfaction data to assess how long and happily people live. It might be seen as a more long-term indicator for wellbeing and less relevant for assessing wellbeing of nations on a year-by-year basis since expectancy is quite stable in the short-run. Data is available for a selection of mostly European countries for the period 1973-2020 (Veenhoven, 1996). The LEI and HLY are both measures of life evaluation. They are based on questions about the satisfaction one has with life.

Krueger, Kahneman, Schkade, et al. (2009) propose a metric related to affect: the **U-index** measures the proportion of each person's time engaged in an activity in which the dominant emotion was negative. It thus combines affect data with time use. The U-index can be computed for each individual and averaged over a sample of individuals. Krueger et. al. explain that the U-index overcomes the problem of scaling differences between people which are present in traditional life satisfaction surveys. At the same intensity level of satisfaction, some people might describe this as 'satisfied' while other are more likely to use superlatives and refer to this as 'very satisfied'. For the U-index, an episode is classified as unpleasant if the most intense feeling reported for that episode is a negative one. It does not matter whether one uses the whole of the 0-6 intensity scale or just 2-4 to report the (un)pleasantness of an activity. The U-index is a measure of current wellbeing.

4.4 Capability approach and needs theory

One critique against welfare economics and subjective wellbeing is that it's a utility-based assessment. The utilitarian notion of value is usually defined in terms of some mental condition, such as satisfaction or happiness. However, life evaluations on satisfaction are influenced by mood and affect is prone to adaptation. Adaptation relates to the fact that humans tend to get used to certain circumstances as housing and even health conditions (except for mental health and pain) (Fleurbaey & Blanchet, 2013). When solely focusing on subjective wellbeing, one might fail to reflect a person's real deprivation as a thoroughly deprived person might not appear to be

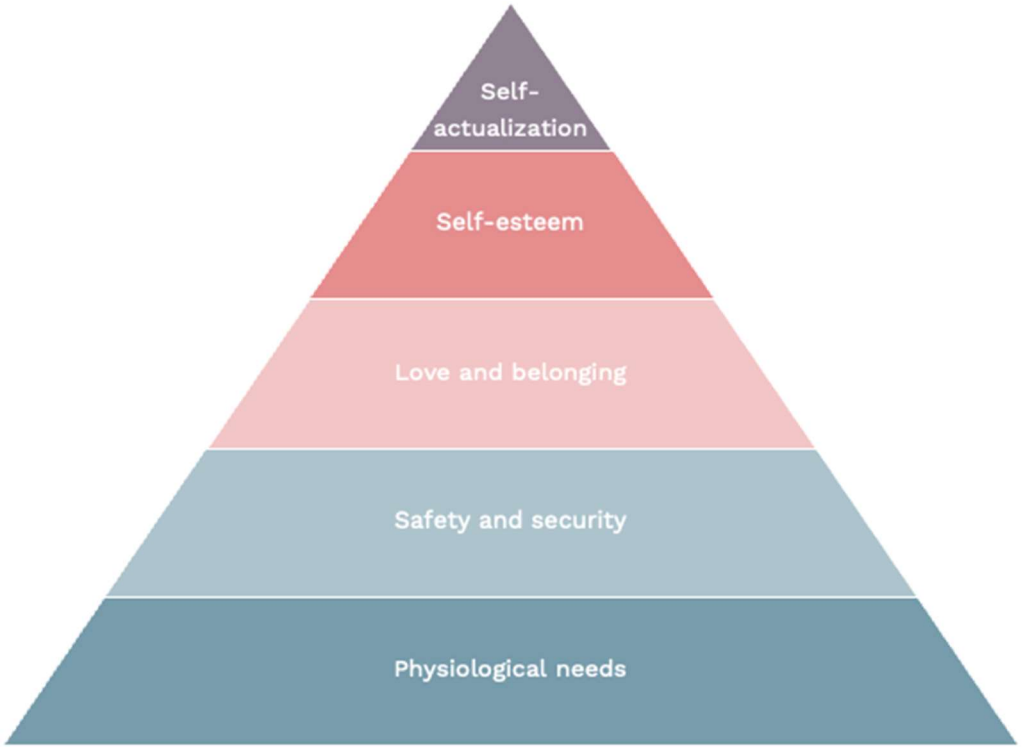
badly off in terms of the mental metric of utility if the hardship is accepted with resignation.

An alternative school of thought that overcomes these difficulties, is the “capability approach”. This approach relates the quality of life to the assessment of the capability to function, reflecting the person’s freedom to lead one type of life or another (Sen, 2001). The better someone is capable to function, the higher the quality of life is. The capability to function might be influenced by a wide range of factors such as living environment, education and (mental) health. The roots of this approach go back to Aristotle, Adam Smith and Karl Marx, but nowadays it’s mostly associated with Amartya Sen that made this theory popular in the 1980s.

The capability approach has implications for the way in which wellbeing is measured. As Sen writes in 2003: “*If life is seen as a set of ‘doings and beings’ that are valuable, the exercise of assessing the quality of life takes the form of evaluating these functionings and the capability to function*”. To evaluate this capability to function, a capability set might be assessed which constitutes a person’s freedom to achieve various functioning combinations. For example, if someone would be able to become a nurse, a dentist, and/or a mother (if one would want to).

However, measuring this pallet of options, of freedom, is a daunting task. A lot of data would be necessary to assess all the functionings that a person is able to achieve. In practice, the capability approach focusses on the observed functioning achievements. Another alternative is to define which capabilities are most important. Martha Nussbaum developed such a list (Nussbaum, 2011). This list has some similarities to measurement frameworks based on needs theories. Needs theories relate to the understanding that people have certain basic needs that need to be fulfilled. One well-known need theory is Maslow’s hierarchy of needs, as shown in Figure 5. According to this theory, first physiological needs need to be met, followed by safety and security, then followed by love and belonging, self-esteem and self-actualisation respectively (Maslow, 1943).

Figure 5. Hierarchy of needs



Source: Adapted from Maslow (1943)

Max-Neef created a taxonomy of human needs. In this taxonomy, Max-Neef made an explicit distinction between needs (a requirement) and satisfiers (how the requirement is met). He further organised needs in two categories – existential and axiological. The existential needs are Subsistence, Protection, Affection, Understanding, Participation, Idleness, Creation, Identity and Freedom. The axiological needs are Being, Having, Doing and Interacting. (Max-Neef, M., 1992).

Doyal and Gough take as a starting point that the ultimate universal goal of human need fulfilment should be a minimally impaired participation in in the setting/society in which an individual lives. This can only be achieved if persons can fulfil basic needs: they are in good physical health and have autonomy of agency, the latter in turn requiring a good mental health, cognitive understanding and opportunities/ freedom for societal participation (Doyal & Gough, 1984).

4.4.1 Human Development

One of the first and most well-known metrics that was inspired by the capability approach is the **Human Development Index (HDI)** that was proposed by the UN in 1990. It considers average achievement in three key dimensions: health, education and standard of living. Each dimension is given equal weight in the index. One of its strengths is its simplicity: based on four underlying indicators, the HDI is able to assess the development of 195 countries for the period 1990-2021. Health outcomes are measured by life expectancy at birth, education is measured by mean years of schooling and expected years of schooling, and a decent standard of living is estimated by GNI per capita. The HDI can be seen as a measure of current wellbeing.

Since the first publication of the HDI, numerous alternative indexes have been based on the HDI. In 2010, the **Inequality Adjusted HDI (IHDI)** was introduced by the UN. The IHDI adjusts the Human Development Index for inequality in the distribution of health, education and income. It is based on the exact same variables as the HDI but it accounts for inequalities by "discounting" each dimension's average value according to its level of inequality.[4] The IHDI value equals the HDI value when there is no inequality across people but falls below the HDI value as inequality rises. In this sense, the IHDI measures the level of human development when inequality is accounted for. The IHDI is available for 191 countries for the period 2010-2021. It relates to wellbeing and inclusion.

In 2020, the UN presented another new HDI-based index in the Human Development Report: the **Planetary Pressures-adjusted Human Development Index (PHDI)**. The PHDI is an experimental index that adjusts the Human Development Index for planetary pressures in the Anthropocene. It represents the level of human development adjusted by carbon dioxide emissions per person (production-based) and material footprint per capita. In a scenario where there are no pressures on the planet, the PHDI equals the HDI. The PHDI is available for 155 countries for the period 1990-2021. The index relates to wellbeing and sustainability.

Another variation on the HDI is the **Augmented Human Development Index (AHDI)**, developed by Prados de la Escosura (2021)**.** Similar to the HDI, it combines

[4] The level of inequality draws on the Atkinson (1970) family of inequality measures. Atkinson (1970) proposed an inequality measure that compares equally distributed equivalent level of income (*ede*) to the mean of the actual distribution (*m)*. The larger the difference between the two concepts, the larger inequality is. The measure is defined as 1 minus the ratio of *ede* to *m*. This implies that with an inequality value of 0.3, the same level of welfare could be achieved with 70% of national income if it would be distributed completely equally.

achievements in health, education, and standard of living, but it adds a dimension of political freedom based on the Liberal Democracy Index. The indices for each dimension are combined using equal weights into an index of augmented human development. The AHDI is available for more than 160 countries, for the period between 1870 and 2020. It relates to current wellbeing.

The capability approach might also be used to assess gender inequality, as gender gaps decrease the possibilities for women. The **Gender Development Index (GDI)** measures gender inequalities in achievements in three basic dimensions of human development: health, education, and command over economic resources. It includes indicators such as female and male life expectancy and female and male estimated earned income. The GDI ranges from 0 to 1, where 1 indicates no gender gap. Initiated by the UN in 1995, data is available for most countries for the period 1990-2021.

The **Gender Inequality Index (GII)** of the UN has similarities to the GDI but brings a different perspective. It focuses on gender-based disadvantage in three dimensions: reproductive health, empowerment, and the labour market. Indicators include maternal mortality ratio, share of seats in parliament, and labour force participation rate. It illustrates the loss in potential human development due to inequality between female and male achievements in these dimensions. It ranges from 0, where women and men fare equally, to 1, where one gender fares as poorly as possible in all measured dimensions. Data is available for most countries for the period 1990-2021. Both the GDI and GII are included in the annual Human Development Report of the UN next to the HDI, IHDI and PPHDI.

The **Gender Equality Index (GEI)** is a tool to measure the progress of gender equality in the EU, developed by the European Institute for Gender Equality (EIGE). It covers 8 domains including work, time, health, violence against women, and intersecting inequalities and is based on 31 underlying indicators. Another initiative is the **Global Gender Gap Index (GGGI)**. This index was developed by the World Economic Forum (WEF) in 2006. It measures gender-based gaps in access to resources and opportunities. Its main dimensions are economic participation and opportunity, educational attainment, political empowerment, health and survival. Data is presented annually in the Global Gender Gap Report. All metrics relate to the domain of inclusion.

4.4.2 Poverty

The capability approach has an intuitive link to the assessment of inclusion. In case of inequality, the capability to function is unequally distributed across demographic groups. The capability approach can therefore be used to assess wellbeing of the people that are least well-off. In that case, it is used more as an assessment of inclusion than current wellbeing. One example of a metric in this field is the **Multidimensional Poverty Index (MPI)**, which was developed by Oxford Poverty and Human Development Initiative (OPHI) and the United Nations Development Programme (UNDP) in 2010. It shows the proportion of people that are poor and the average number of deprivations that each poor person experiences simultaneously. Poorness is defined as a function of different dimensions. Similar to the HDI, it's based on health, education and standard of living. Each of the three dimensions is weighted equally, and within each dimension each indicator is also weighted equally. The 10 underlying indicators are different from the HDI and include for example undernourishment, not attending school, no access to electricity, and inadequate housing. From this perspective, the number of people being poor is nearly double from the number of people who are seen as poor when poverty is defined as living on less than $1.90 per day (the international poverty line proposed by the World Bank). The World Bank developed a similar measure in 2018 called the **Multidimensional Poverty Measure (MPM)**. The MPM is based on the following three dimensions: monetary, education and access to basic infrastructure. The MPM has six underlying indicators: consumption or income, educational attainment, educational enrolment, drinking water, sanitation, and electricity. The three MPM dimensions are weighted equally, and within each dimension each indicator is also weighted equally. Individuals are considered multidimensionally deprived if they fall short of the threshold in at least one dimension or in a combination of indicators equivalent in weight to a full dimension. Because the monetary dimension is measured using only one indicator, anyone who is income poor is automatically also poor under the multidimensional poverty measure. The MPM defines "poor" as earning less than $2.15 a day.

4.5 System stability

Another school of thought starts from the basic understanding that there are certain limits, or thresholds, that should not be exceeded for human beings to live well on this planet. Ecosystems should remain stable. As mentioned by the Brundtland Report (1987), the concept of sustainable development implies limitations imposed by the present state of technology and social organization on environmental resources and by the ability of the biosphere to absorb the effects of human activities. Within this category there are two sub-categories: the ecological approach and the integral approach. The ecological approach focusses on environmental systems, whereas the integral approach integrates both environmental and human systems.

4.5.1 Ecological approach

Ecologists start from the view that the Earth has a certain carrying capacity which should not be exceeded. Rapid changes in atmospheric composition, as now caused by human economic activity, is directly undermining these ecospheric equilibria and may permanently disable certain negative feed-back mechanisms required to restabilize the system (Rees, 1992). This approach might be contrasted to the welfare economics approach, where many environmental goods and services and the costs of potential irreversible negative environmental consequences are left out of scope.

With regard to resource depletion, neoclassical economists assume this is not a fundamental problem. Rising prices for scarce resources will automatically (via the market mechanism) lead to conservation of these resources and the search and use of substitutes, as also pointed out by Nordhaus & Tobin (1973). Ecologists argue that there are limits to this substitutability (e.g. Costanza & Daly, 1992). Furthermore, there no prices or markets for biophysical goods like the ozone layer and biodiversity, and therefore there can also be no market mechanism that ensures equilibrium.

One metric that relates to the concept of Earth's carrying capacity, is the **Ecological Footprint (EF)** that was first proposed by Wackernagel and Rees in the early 1990s. The Ecological Footprint is based on two principles: the resources people consume and the waste generated. These categories are converted to one unit by calculating the space that is needed on land and sea to provide these functions. Nowadays, these two concepts are referred to as National Footprint and Biocapacity Accounts

(NFAs). The Accounts measure the ecological resource use and resource capacity of nations over time, being a parameter for environmental sustainability. Since 2003, the Global Footprint Network calculates the Footprints of more than 200 countries, territories, and regions from 1961 to the present.

Another well-known concept in this field is **Planetary Boundaries**, presented by Rockström et. al. (2009). Compared to the Ecological Footprint, Planetary Boundaries relates to a broader perspective of environmental sustainability. It's a set of physical and biological limits of the global Earth system that should be respected in order to maintain the plant's human-friendly living conditions. Exceeding one or more of these boundaries may be detrimental for humanity due to the risk of crossing thresholds that will trigger abrupt environmental change. The planetary boundaries concern: Novel Entities, Stratospheric ozone depletion, Atmospheric aerosol loading (not yet quantified), Ocean acidification, Biogeochemical flows, Freshwater use, Land-system change, Biosphere integrity, and Climate change. Currently, six of the nine boundaries are transgressed (source to be found on the website of the Stockholm Resilience Centre).

Both the Ecological Footprint and Planetary Boundaries provide insights in environmental conditions for future wellbeing. They do not directly capture the current status of wellbeing or inclusion.

4.5.2 Integral approach

The integral approach starts from the same ecological foundation as the ecological approach, but it integrates social dimensions related to wellbeing and/or inclusion.

One example is the **Environmental Sustainability Index (ESI)** which was developed in 2000 by the Yale Center for Environmental Law and Policy, and the Center for International Earth Science Information Network (CIESIN) at Columbia University. The ESI uses the Ecological Footprint as an input measure and adds several other dimensions. It tries to capture environmental systems, environmental stresses, human vulnerability, social and institutional capacity, and global stewardship. Each component is linked to several indicators and underlying variables. Examples of variables are urban NO2 concentration, percentage of mammals threatened, radioactive waste, under-5 mortality rate, civil and political liberties, and ecological footprint deficit. In total, the index provides a composite profile of national

environmental stewardship based on a compilation of 76 variables related to 21 indicators. The latest release from 2005 covers 146 countries in the period 1978-2000. It relates to wellbeing and sustainability.

In 2002, Yale and Columbia University also launched a narrower environmental measure, the **Environmental Performance Index (EPI)**. Using 40 performance indicators across 11 issue categories such as air quality, sanitation & drinking water; waste management; biodiversity and acid rain, the EPI ranks 180 countries on climate change performance, environmental health, and ecosystem vitality. Considering the EPI measures environmental factors that affect both current wellbeing and future wellbeing, it can be seen as a measure of wellbeing and sustainability.

Around the same time, from 1999 to 2005, the **Environmental Vulnerability Index (EVI)** was being developed by the South Pacific Applied Geoscience Commission (SOPAC), the United Nations Environment Programme (UNEP) and their partners, which again includes Columbia University. The EVI was developed to provide insights into the processes that can negatively affect the sustainable development of countries, with special attention to natural hazards. Environmental vulnerability is measured by 50 indicators related to climate change, biodiversity, water, agriculture and fisheries, human health aspects, desertification and exposure to natural disasters. Data is available for 234 nations and geographies (such as Antartica) for the period 1973-2005. Originally, the EVI was mostly a measure of sustainability. Nowadays, the UN uses EVI indicators in relation to Least Developed Countries (LDCs). There are eight main indicators which include share of agriculture, forestry and fishing in GDP, remoteness and landlockedness, instability of agricultural production and victims of disasters. The EVI illustrates that lower income countries are generally more vulnerable to environmental degradation. From this perspective, the EVI can be both seen as a measure of sustainability and a measure of inclusion.

Another example of an integral approach that places more emphasis on inclusion is the doughnut-shaped **Safe and Just Space Framework** created by Kate Raworth (2012), also known as **Doughnut Economics**. The framework combines the concept of planetary boundaries, originally proposed by Rockström and colleagues, with the complementary concept of social boundaries, or social floors. According to this theory, development should occur within a doughnut-shaped space where resource use is above the level required to meet people's basic needs, but below the level that carries a substantial risk of crossing the nine planetary boundaries. Due to the focus on basic needs, the social floor might be seen as a safeguard for inclusion,

more than a measure of average wellbeing. In its application, the doughnut framework is sometimes adjusted to monitor developments related to average wellbeing. Instead of defining a social floor, countries or cities might choose to monitor aspects such as the percentage of people with good mental health or crime severity.

Based on the Doughnut Economics framework, a group of researchers - including Andrew Fanning, Dan O'Neill, Jason Hickel and Kate Raworth - set up the initiative **A Good Life For All Within Planetary Boundaries**. The initiative analyses 7 biophysical indicators and 11 social indicators to assess whether we are progressing towards a good life for all within planetary boundaries. The biophysical indicators differ from the original planetary boundaries and include an ecological and material footprint, while ocean acidification and ozone depletion are not included. There is data available for more than 140 countries from 1992 to 2015 (Fanning et al., 2021). This initiative relates to inclusion and sustainability.

The **Sustainable Development Index (SDI)** is an index proposed by Jason Hickel in 2020. The SDI uses the base formula of the HDI but places a sufficiency threshold on per capita income, and divides by two key indicators of ecological impact: CO2 emissions and material footprint, both calculated in per capita consumption-based terms and rendered vis-à-vis planetary boundaries. The SDI is an indicator of strong sustainability that measures nations' ecological efficiency in delivering human development. The index relates to wellbeing, inclusion, and sustainability. As it's an index number, it does not allow to assess these three domains separately.

4.6 Political

There is also a variety of metrics that have no clear theoretical foundation, and instead are rooted in political processes. One of the most well-known initiatives is the United Nation's **Sustainable Development Goals (SDGs)**. The SDG's are 17 global goals for 2030 related to sustainable development. The goals, that were adopted by all United Nations Member States in 2014, recognize that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests. The 17 SDG's are defined in a list of 169 more concrete SDG Targets and 231 indicators.

There are different initiatives to track progress. The UN publishes an annual report called The Sustainable Development Goals Report with a global overview, and Eurostat has a database on the sustainable development indicators for European countries. Both can be seen as a dashboard of indicators. There also exists an **SDG Index** that summarizes country performance on the 17 SDGs, developed by Schmidt-Traub et al., (2017). It assesses country performance on the SDGs by giving equal weight to each of the 17 goals. The score signifies a country's position between the worst possible outcome (score of 0) and the target (score of 100). The SDG's and SDG Index touch upon a variety of topics related to wellbeing, inclusion and sustainability. It does not however, allow to distinguish clearly between wellbeing today, wellbeing in the future and the distribution of wellbeing.

One European initiative that has some resemblance to the SDG's is the **Transition Performance Index (TPI)**. The TPI is a scoreboard that monitors and ranks countries based on the transition to six priorities of the European Commission related to a transition towards fair and prosperous sustainability[5]. The transition is measured in four dimensions: economic, social, environmental and governance. Underlying the four dimensions are 28 internationally comparable indicators, such as healthy life expectancy, the Gini coefficient of disposable income, material use and homicide rate. The TPI illustrates both how each country performs on each of the four dimensions, as well as providing an overall performance score per country. The index score is computed as the weighted arithmetic average of the scores of the four dimensions[6]. Most of the TPI indicators are outcome-oriented in order to present to the public and policymakers the combined impact of the policy mix implemented in each country (TPI report, 2022). The TPI relates mostly to sustainability.

4.7 Mixed or less explicit theoretical foundations

One last category of metrics concerns indexes and dashboards that have no clear theoretical framework or political foundation. This section also includes frameworks that combine various conceptual frameworks. The metrics are ordered alphabetically.

[5] See for more information about the six priorities for the period 2019-2024: https://commission.europa.eu/strategy-and-policy/priorities-2019-2024_en

[6] The arithmetic mean allows to account for correlation. For instance, two indicators each capturing marginal but important differences, when strongly correlated, need to be weighted down to increase the overall statistical balance of the sub-pillar. It is both expected and desirable for the overall robustness of the index that indicators and pillars be mostly positively – but not strongly – correlated (Transition Performance Index, 2021).

The OECD launched the **Better Life Initiative** in 2011. As part of the initiative, a conceptual framework which is a mixture of different underlying methodologies. The **Better Life Framework (BLF)** is based on consultations with international experts and the recommendations of the Stiglitz-Sen-Fitoussi report from 2009. Some of the recommendations that have been followed up relate to the multi-dimensional perspective on wellbeing, the consideration of objective and subjective dimensions of wellbeing, the notion of inequalities, and the assessment of sustainability of wellbeing over time by including natural, human, social and economic capital. The framework consists of two main dimensions: current wellbeing and resources for future wellbeing. Current wellbeing includes eleven underlying factors that should be assessed by looking at averages and differences across groups. Resources for future wellbeing relates to four types of capital: natural, economic, human capital, and social, and includes both stocks, flows, risk factors and resilience.

The BLF provides a framework for wellbeing, inclusion, and sustainability. The framework can be seen as a dashboard of indicators, while the related **Better Life Index (BLI)** is a simplified composite measure related to current wellbeing. The BLI aggregates the average value of eleven factors: health, education, environment, housing, safety, income, jobs, work-life balance, community, civic engagement, and subjective wellbeing. The indicators are initially equally weighted, but one can assign personal weights to the indicators by using the website. Contrary to the BLF, the BLI does not provide insight into inequality and sustainability.

The OECD also worked together in a joint task force which resulted in the "**Conference of European Statisticians Recommendations on Measuring Sustainable Development**" (2014). Just like the BLF, this was a follow-up of the Stiglitz Report, in which suggestions for made for three separate dashboards "here and now", "later" and "elsewhere".

The OECD has also launched two 'How Was Life?' reports, assessing wellbeing and global inequality from the period 1820 until 2010. In the report, a **Composite Measure of Wellbeing (CMW)** is presented by the Clio-Infra team. The measure is based on nine different dimensions of wellbeing and inequality including GDP per capita, average years of education, polity, biodiversity, working hours, income inequality and gender equality. Subjective wellbeing is excluded as data are not available for a period back to 1820. It uses two different methods to create the composite: (i) assigning equal weights to all 9 variables, and (ii) using a latent variable model. The latent variable model approach has benefits in terms of dealing with missing data

and accounting for the uncertainty this causes in the composite indicator, but this comes at the expense of transparency. Data are available for the period 1820-2000 for 182 countries and for 25 countries until 2010 (OECD, 2021).

The **FEEM Sustainability Index (FEEM SI)** uses a general equilibrium model to consider sustainability based on economic, environmental and social indicators simultaneously. To be more specific, it's based on a recursive-dynamic general equilibrium model using 19 different indicators. The FEEM SI is unique compared to other indexes as it can be used to assess sustainability performance across countries both now and in the future, using projections (Carraro et al., 2009, 2013)

The **Green Growth Indicators Framework** is a dashboard by the Global Green Growth Institute, the OECD, the United Nations Environment Programme, and the World Bank. The framework includes four domains: productivity, policies, natural asset base, and environmental quality of life. The last report by the OECD was published in 2017. It covers data on a selection of OECD and G20 countries for the period 1990-2017. More recent data can be found in the OECD dataset on green growth indicators. The indicators provide insights into environmental sustainability.

The **Happy Planet Index (HPI)** is an index of human wellbeing and environmental impact that was introduced by the New Economics Foundation in 2006. Each country's HPI value is a function of its average subjective life satisfaction, life expectancy at birth, and ecological footprint per capita. It covers 152 countries for the period 2006-2019. The index relates to wellbeing and environmental sustainability.

The **Index of Social Health (ISH)** monitors the social wellbeing of US society. It is a composite measure that combines multiple indicators to produce a single number for each year. The Index of Social Health is based on sixteen social indicators. These are: infant mortality, child abuse, child poverty, teenage suicide, teenage drug abuse, high school dropouts, unemployment, weekly wages, health insurance coverage, poverty among the elderly, out-of-pocket health-care costs among the elderly, homicides, alcohol-related traffic fatalities, food insecurity, affordable housing, and income inequality. It has been released annually for the US for the period 1987-2011 by the Institute for Innovation in Social Policy of Vassar College. The ISH is a measure of current wellbeing.

The **Legatum Prosperity Index** assesses prosperity for a large number of countries and territories using 104 different variables related to twelve categories including

health, education, personal freedom, safety and security, and the investment environment. It's developed by Legatum Institute, a London-based think-tank. Data are available for 167 countries and territories for the period 2007-2023. It's a measure that relates to current wellbeing.

The **EU Resilience Dashboards** aim to provide a holistic assessment of resilience in the EU and its Member States. In relation to ongoing societal transformations and challenges ahead, the dashboards assess resilience as the ability to make progress towards policy objectives amidst challenges. Through a broad set of indicators, the resilience dashboards assess the relative strengths and weaknesses of countries. They also help the Member States identify areas for further analysis and potential policy actions. The indicators span four dimensions: social and economic, green, digital, and geopolitical. For a subset of indicators, they also show how the EU27 is doing with respect to selected countries outside the EU. The resilience dashboards mostly relate to sustainability, as assess the ability to respond to (future) changes.

The **Social Progress Index (SPI)** measures social progress as a function of basic human needs, foundations of wellbeing and opportunity. The index is structured around 12 components including personal safety, environmental quality and inclusiveness. In addition, it has 60 distinct indicators such as child mortality rate, household air pollution, equal access to quality education, species protection, access to justice and acceptance of gays and lesbians. The SPI is an interesting index from a WISE perspective. It's based on a definition of social progress that relates closely to Brundtland's definition of sustainable development[7] and the three domains are closely related to the WISE definitions: wellbeing today (basic human needs), wellbeing in the future (foundations of wellbeing) and the distribution of wellbeing (opportunity). The SPI and the underlying components are published annually for 169 countries fully and an additional 27 countries partially for the period 2011-2022. The SPI was initially developed by Stern et al. in 2014 from The Social Progress Imperative, a global non-profit based the United States.

Based on the SPI framework, the European Commission developed the **European Social Progress Index (EU-SPI)** in 2016. The Index measures social progress in European regions, at the NUTS2 level, using twelve components described by a total number of 55 comparable social and environmental indicators, purposefully

[7] The Social Progress Imperative defines social progress very similar to Brundtland as "the capacity of a society to meet the basic human needs of its citizens, establish the building blocks that allow citizens and communities to enhance and sustain the quality of their lives, and create the conditions for all individuals to reach their full potential." (Social Progress Index, 2022)

excluding economic aspects. Its components are further aggregated into three broader dimensions describing respectively basic, intermediate and more sophisticated aspects of social progress. Developed by the European Commission, it is available for European countries for 2016 and 2020. The SPI and EU-SPI both relate to wellbeing, inclusion, and sustainability.

The **Sustainable Society Index (SSI)** is an index with three dimensions: human wellbeing, environmental wellbeing, and economic wellbeing. Each dimension consists of two to three categories with a total of 21 underlying indicators, including safe sanitation, healthy life, gender equality, income distribution, biodiversity and genuine savings (reference). The SSI can be seen as a dashboard of three indexes covering three dimensions. There is no overall wellbeing score which combines the three indexes. The SSI was initially developed in 2006 by Van de Kerk and Manual from the Dutch Sustainable Society Foundation and is maintained by TH Köln since 2019. Data are covering 213 countries back to 2000. The SSI provides insights into wellbeing, inclusion, and sustainability, although it does not clearly distinguish between these three dimensions.

4.8 Country initiatives

The metrics reviewed in the previous sections were initiatives by academics, NGO's or international organisations. However, many governments have also launched Beyond-GDP measurement frameworks. The first, Bhutan's Gross National Happiness framework was launched as far back as 1972.

Figure 6 shows some of the country initiatives which have been reviewed and are Annex 1. It by no means a comprehensive overview, but we update these initiatives a couple of times a year on the www.beyond-GDP.world website. Most of the country initiatives are dashboards, with a minority using an index. Many of the country initiatives are based on the Better Life Framework and some have adopted the CES recommendations on measuring sustainable development. Both are very similar to the WISE framework. In addition to these country initiatives shows in the figure, more than 150 countries measure progress towards the Sustainable Development Goals following a framework developed by the UN. This is often presented in so-called 'Voluntary National Reviews'.

Figure 6. Country initiatives reviewed

Source: OECD overview (Exton & Shinwell, 2018) as well as the WISE Horizons review of policies

4.9 Most influential Beyond-GDP metrics

The previous sections have discussed around 80 initiatives, some of which have been discontinued. Of the ones that are still in use, some are more influential than others. It is difficult to the quantify exactly how important each of the measurement systems are, but this section suggests some criteria to narrow down the list of WISE metrics.

While, many prominent scientists have been involved in Beyond-GDP measurement, there are even a couple which are proposed or endorsed by Nobel Prize Winners:

- **Welfare accounting approaches** (e.g. Genuine Progress Indicator (GPI)). Since **Nordhaus and Tobin** proposed their Measure of Economic Welfare (MEW) in the 1970s, many welfare accounting methods have been proposed with varying names. The Index of Sustainable Economic Welfare (ISEW) and the Genuine Progress Indicator (GPI) are probably the best-known.
- **Human Development Index (HDI). Amartya Sen** helped develop the HDI as a core indicator that is used by the UNDP (see also next paragraph).
- **U-index (UI). Daniel Kahneman** developed the U-index together with Alan Krueger and other collaborators.
- **Sustainable National income (SNI). Jan Tinbergen** endorsed Roefie Hueting's method by publishing a joint paper in the early 1990s.

- **Wealth Accounting (Comprehensive Wealth (CW)/Inclusive Wealth Index (IWI)). Kenneth Arrow** published extensively on wealth accounting. However, it can also be linked to the work on **Bob Solow** in the early 1970s.

In terms of initiatives at International Organisations:

- **Better Life Index/Initiative (BLI).** This measurement system is used by the Organization for Economic Cooperation and Development (**OECD**).
- **Sustainable Development Goals (SDG).** The SDGs are the goals which have been created and are promoted by the United Nations (**UN**).
- **Human Development Index.** The HDI was introduced by the United Nations Development Program (**UNDP**).
- **Inclusive Wealth Index.** The IWI has been published by the United Nations Environmental Program (**UNEP**) in its Inclusive Wealth reports.
- **Comprehensive Wealth (CW**). This is published by the **World Bank** in its Changing Wealth of Nations report. Also includes the flow metrics Adjusted-Net Savings.

Then there are couple of other initiatives which have managed to break through in terms of influence:

- **Doughnut Economics (DE).** This framework, developed by Kate Raworth, has received a lot of attention and is applied at many spatial scales, including country and city levels.
- **Social Progress Index (SPI).** This index garners much attention and has been applied in EU and India policy processes.
- **Planetary Boundaries (PB).** This approach, developed by Johan Rockström, Will Steffen and colleagues, has reshaped the representation of global environmental issues in environmental science and policy.
- **Ecological Footprint (EF).** This index is a popular tool to illustrate humanity's overshoot of the carrying capacity of nature.

Based on these criteria these are the most important WISE measurement systems: Welfare accounting approaches such as the Genuine Progress Indicator, Human Development Index, U-index, Sustainable National income, Comprehensive Wealth, Inclusive Wealth Index, Better Life Index, Sustainable Development Goals, Doughnut Economics, Social Progress Index, Planetary Boundaries and the Ecological Footprint.

5. A DEEP DIVE INTO METRICS USED IN EU POLICYMAKING

The previous chapter has provided an overview of around 80 initiatives and has suggested which frameworks are most influential. This also relates to the point that metrics alone do not bring about societal change. It is rather the ways in which metrics are embedded into a particular socio-political context that determines the capacities of metrics to effectively steer policymaking into desirable directions. In this chapter, we will hence focus on the use of metrics in policymaking. In particular, we seek to shed light on the ways in which metrics are employed in EU policymaking by analysing the monitoring and evaluation frameworks[8] that underlie certain policy strategies and initiatives. Assessing the relevance of the WISE dimensions in an applied political context is interesting insofar as metrics used in monitoring and evaluation frameworks represent the result of political deliberation processes and can therefore be viewed as a reflection of current political priorities.

Metrics constitute fundamental elements of policy strategies and initiatives. The power of metrics to influence political decision-making can, however, vary tremendously based on their mode of application. While metrics used purely for monitoring or policy evaluation may have only limited impact on political decision-making, the use of metrics to allocate financial resources or define binding political targets with enforcement mechanisms has the capacity to substantially impact the behaviour of political actors (Kaufmann et al., 2023). It is hence not only crucial to assess the representation of WISE dimensions in monitoring and evaluation frameworks but also to illuminate the ways in which metrics are used.

For this investigation, we select a non-exhaustive list of recent EU policy strategies and initiatives and assess the use of metrics in their monitoring and evaluation frameworks. In order to identify relevant monitoring and evaluation frameworks, we draw on prior research in this field (Barth et al., 2021) and complemented it with research on current policy strategies and initiatives, utilising the Joint Research Centre's scoreboard explorer[9]. The eleven monitoring and evaluation frameworks under scrutiny in this chapter have been selected based on three selection criteria.

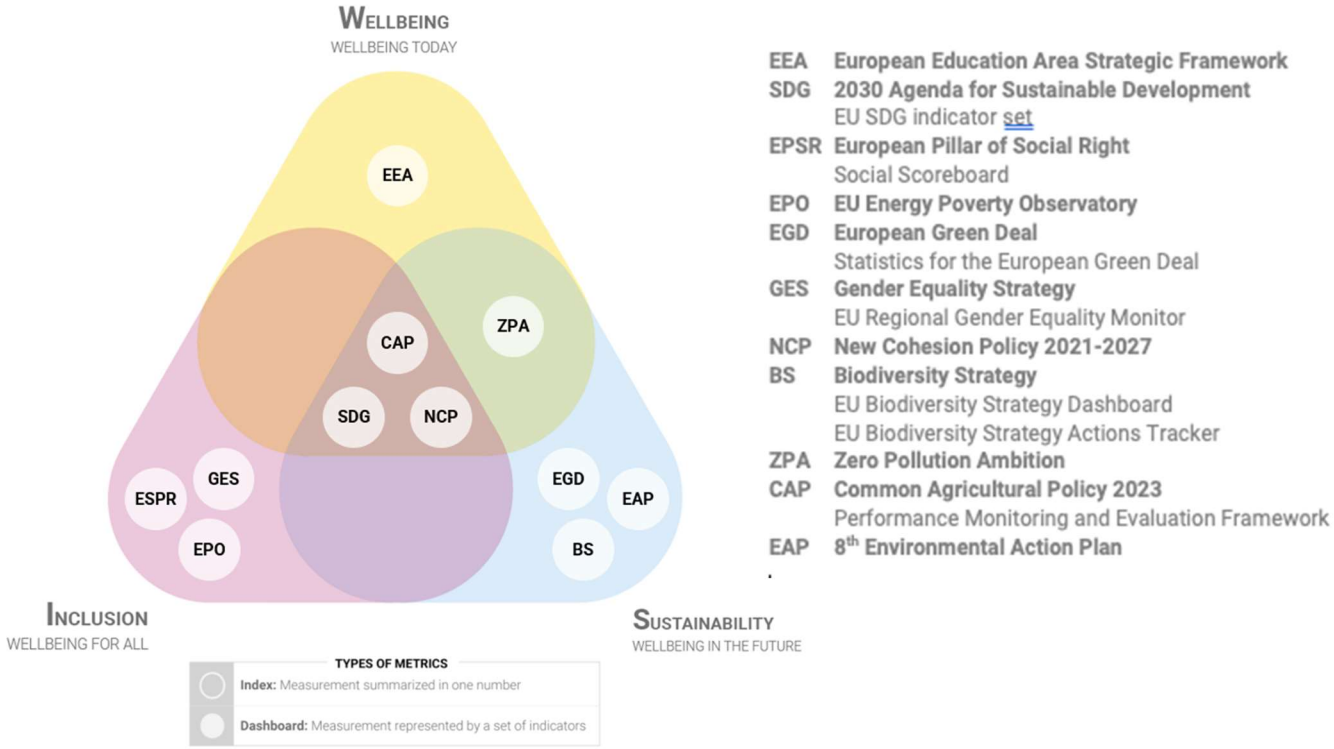
[8] The term "monitoring and evaluation frameworks" is employed in an encompassing way here, while the terminology used in reality is of course more diverse. Moreover, it should be noted that not all policy strategies and initiatives have designated monitoring and evaluation frameworks (e.g. the EU Energy Poverty Observatory) but nevertheless employ metrics for that very purpose.

[9] Composite Indicators & Scoreboards Explorer

First, we confine our analysis to scoreboards which are directly connected to a genuine EU policy strategies and initiatives, thus excluding the many EU scoreboards where information on metrics is simply reported on without reference to an institutionalised political framework with a clear policy objective. Second, we select only those monitoring and evaluation frameworks directly relevant for at least one of the three WISE dimensions. Lastly, we confine our analysis to monitoring and evaluation frameworks that underlie recent and on-going policy strategies and initiatives, covering the timeframe 2012–2022.

This chapter is structured as follows. First, the eleven policy strategies and initiatives are described, and their underlying monitoring and evaluation frameworks analysed10 in chronological order of initiation. An overview of the policy strategies and initiatives can be found in figure 5, covering an allocation of the monitoring and evaluation frameworks along the WISE dimensions. Subsequently, we discuss the result of our analysis and conclude with an outlook on the use of Beyond GDP metrics in EU policymaking.

Figure 5 – The eleven monitoring and evaluation frameworks allocated along the lines of the three WISE dimensions.



[10] Further information on the categorisation process can be found in the annex.

5.1 European Education Area Strategic Framework

The **European Education Area strategic framework**[11], initiated in 2012, aims to structure the collaboration between Member States and key stakeholders to build more resilient and inclusive national education and training systems, improve quality and accessibility of education, and promote lifelong learning. The **Education and Training Monitor**[12] consists of a comparative report, national reports, and a monitor toolbox, the latter providing insights into education and training systems and their variation across Member States. On this basis, the monitor reports and analyses progress made towards realising the targets set in the European Education Area Framework Strategy. Targets and indicators cover the areas early school leaving, work-based learning in vocational education and training, tertiary educational attainment, as well as underachievement in reading, maths, science, and digital skills. The ex-post policy evaluation that reports provide to track the progress made towards given targets, support Member States to address challenges, implement reforms and identify needs for further investment. With that the European Education Area strategic framework and its scoreboard target the wellbeing of current generations by improving access to and quality of education.

5.2 2030 Agenda for Sustainable Development

The **2030 Agenda for Sustainable Development** and its 17 Sustainable Development Goals (SDGs)[13], were commonly adopted by the UN General Assembly in 2015. The EU – that has sustainable development firmly anchored in its treaties (European Union, 2012)[14] for a long time – fully committed to play an active role in maximising progress

[11] Strategic Framework | European Education Area (europa.eu)

[12] Scoreboard profile | Composite Indicators & Scoreboards Explorer (europa.eu)

[13] While the 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals were already examined in chapter 3.5. in a more general sense, this section shines light on their translation into the EU context.

[14] While the 1991 original version of the Treaty of Europe (European Union, 1991), that established a legal basis for the EU's political and economic integration, promoted the objective of "economic and social progress which is balanced and sustainable", its most recent 2012 version promotes "the sustainable development of Europe based on balanced economic growth and price stability, a highly competitive social market economy, aiming at

towards the SDGs by adopting the 2030 Agenda for Sustainable Development as a core objective into internal and external policies.[15] While an overall policy integration aims at the UN SDGs being considered in all proposals, policies and strategies, the **EU Sustainable Development Goals indicator set**[16] monitors the status and progress towards the achievement of the SDGs primarily according to their policy relevance for the EU. The indicator set, that has been developed through a broad consultative process, encompasses qualitative and quantitative indicators. It is reviewed annually to incorporate indicators from new data sources and consider new targets in line with EU priorities. Building on that, an annually published report assesses short- and long-term statistics on the EU and Member State level, thus evaluating progress made towards the SDGs and simultaneously addressing cross-cutting topics that affect more or all SDGs. The goals and their respective indicators target different aspects of wellbeing. While e.g., "good health and wellbeing" and "quality education" focusses on the wellbeing of current generations, "sustainable cities and communities" and "responsible consumption and production" focuses on the wellbeing of future generations, that is the dimension of sustainability. The goals "no poverty", "zero hunger" and "gender equality" additionally target the distributional aspect of wellbeing i.e., inclusion.

5.3 European Pillar of Social Rights

The **European Pillar of Social Rights (EPSR)**[17], initiated in 2017, contributes to deliver on the European Commission's priorities for 2019-2024 as well as on the 2030 Agenda for Sustainable Development (see 5.2). Its implementation is guided by 20 principles, that either reaffirm existing rights or set clear objectives towards building fairer and more well-functioning labour markets, and an inclusive welfare system by 2030. Building on the Action plan that seeks to turn the principles into concrete actions, the **Social Scoreboard**[18] provides time series data for a set of headline and secondary indicators. It allows to detect the most significant employment and social challenges

full employment and social progress, and a high level of protection and improvement of the quality of the environment."

[15] Sustainable Development Goals (europa.eu)
[16] Database - Sustainable development goals - Eurostat (europa.eu)
[17] European Pillar of Social Rights - Building a fairer and more inclusive European Union - Employment, Social Affairs & Inclusion - European Commission (europa.eu)
[18] Scoreboard profile | Composite Indicators & Scoreboards Explorer (europa.eu)

and benchmarks successful outcomes to ensure overall improvement. In that way, it monitors the EU Members State's performance and progress towards the principles as part of the policy coordination framework in the context of the European Semester[19]. Delivering on the EPSR is a shared responsibility of EU institutions, national, regional, and local authorities. With focusing on equal access and opportunity, indicators within the three areas "equal opportunity and access to the labour market", "fair working conditions" and "social protection and inclusion" covered in the Social Scoreboard exclusively target the WISE dimension of inclusion.

5.4 EU Energy Poverty Observatory

The **EU Energy Poverty Observatory**[20] was established by the European Commission in 2018 as a forty-month project for resource collection and the development of national energy poverty indicators. It is followed by the Energy Poverty Advisory Hub, a central platform of energy poverty expertise in Europe. By creating a public forum for the collection and sharing of knowledge, best practices, and possible policy solutions related to energy poverty, these initiatives aim to address the multidimensional aspects of energy poverty. Overarching goals encompass improving transparency, disseminating information about outreach activities, and providing technical assistance. The EU Energy Poverty Observatory highlights a set of primary and secondary indicators to diagnose and analyse energy poverty. Whereas primary indicators, such as "inability to keep home adequately warm" capture various aspects of energy poverty, secondary indicators such as "Fuel oil prices" capture aspects relevant but not indicative of energy poverty. The indicator dashboard is presented as an interactive database[21], enabling users to navigate and compare different energy poverty indicators. It further offers practical visualisation of the quantifiable aspects of energy poverty. Building on this database, reports, studies, and other publications are produced to share insights and facilitate planning and implementation of energy poverty mitigation measures on Member state level. With that, the indicator set is exclusively used for monitoring and reporting, targeting inclusion in the context of access to energy.

[19] The European Semester is the EU's institutionalised framework for socioeconomic policy coordination.
[20] Energy Poverty Advisory Hub (EPAH) (europa.eu)
[21] The interactive database can be accessed here.

5.5 European Green Deal

The **European Green Deal**[22], launched in 2019, aims to transform the EU into a resource efficient and competitive economy, while equally improving the wellbeing and health of citizens and future generations. It's overarching goal of a climate-neutral EU by 2050 was put into legislation as a binding political target with the European Climate Law[23]. It establishes a European Scientific Advisory Board on Climate Change, providing independent scientific advice and reporting on EU climate measures. As one of the six European Commission priorities for 2019-2024, the European Green Deal builds the basis for various subprocesses such as the Biodiversity Strategy for 2030, the new Industrial Strategy and Circular Economy Action Plan, the Farm to Fork Strategy for sustainable food, and proposals for pollution-free Europe. Its scoreboard, the **Statistics for the European Green Deal**[24], monitors and assesses the progress made towards achieving the European Green Deals objectives, enabling policy evaluation, evidence-based decision-making, and continuous improvement. Indicators, divided into the three subcategories "reducing our climate impact", "protecting our planet and health" and "enabling a green and just transformation", primarily target the wellbeing of future generations, while focusing specifically on the preservation of natural resources and ecosystem-services. Some indicators – such as "population to keep home sufficiently warm" and "high speed internet in low settled areas" – however, implicitly align with the WISE dimension of current wellbeing and inclusion, respectively.

[22] A European Green Deal (europa.eu)

[23] The Climate Law (European Union, 2021) is an EU regulation that establishes the framework for achieving climate neutrality in the European Union by 2050, aligned with the long-temperature goal of the Paris Agreement. EU regulations enter into force directly and have direct effects on the national legal systems. The Climate Law also sets the intermediate target of reducing net greenhouse gas emissions by at least 55% by 2030, compared to 1990 levels. The Climate Law includes measures to keep track of progress and adjust actions, based on existing systems, regular reports by the European Environment Agency, and the latest scientific evidence on climate change and its impacts. Noncompliance with the European Climate Law can result in enforcement measures such as infringement proceedings – a series of steps, starting with formal notice to the Member State, followed by reasoned opinions and referral to the Court of Justice of the European Union –, financial penalties and the potential loss of EU funding.

[24] Statistics for the European Green Deal (europa.eu)

5.6 Gender Equality Strategy 2020-2025

The **Gender Equality Strategy 2020-2025**[25], adopted in 2020, aims to facilitate progress towards a gender-equal Europe by 2025. It contributes to deliver on one of the European Pillar of Social Rights' key areas (see 5.3) and intersects with the 2030 Agenda for Sustainable Development (see 5.2). Key objectives of the strategy include "ending gender-based violence", "closing gender gaps in the labour market", "addressing gender pay and pension gaps", and "achieving gender balance in political decision making". Based on the Gender Equality Index, which measures gender equality at EU Member State level, the **EU Regional Gender Equality Monitor**[26] was developed by the EU to monitor gender equality at the regional level. The Monitor builds on the seven domains work & money, knowledge, time, power, health, safety and security, and life quality, which organise and aggregate 35 individual indicators into summary measures of gender equality. Monitoring and annual reporting is used for strategy evaluation and development. By monitoring the two complementary aspects "gender gaps" and "levels of female achievement" within the above-mentioned domains, the EU Regional Gender Equality Monitor targets the WISE dimension of inclusion.

5.7 New Cohesion Policy 2021-2027

The **New Cohesion Policy 2021-2027**[27], which was adopted in 2020 as a successor of the Cohesion Policy 2014-2020, aims to strengthen economic, social, and territorial cohesion between countries and regions within the European Union. It supports EU political priorities with 5 policy objectives that are thematically highly relevant for a competitive, future-proof Europe. These include actions on a more competitive and smarter Europe, a greener, low carbon transitioning towards a net zero economy, a more connected Europe by enhancing mobility, a more social and inclusive Europe, and a Europe closer to citizens by fostering the sustainable and integrated development of all types of territories. Based on these objectives, Member States and their regions follow the implementation of their individualised Partnership Agreements, which establish a framework for cooperation between the European Commission and respective national authorities and stakeholders. A monitoring

[25] Gender equality strategy (europa.eu)
[26] The regional gender equality monitor - Publications Office of the EU (europa.eu), (Joint Research Centre (European Commission), 2019)
[27] Inforegio - New Cohesion Policy (europa.eu)

framework enables the Commission alongside the Member States to measure, report and evaluate the progress and outcomes throughout the program period. Indicators cover a wide range of areas including economic, social, and environmental factors and are analysed and compiled into regular reports. The monitoring framework is designed to provide a comprehensive and integrated view on policy performance, where subcategories target wellbeing, inclusion, and sustainability in different outcome and result indicators.

5.8 European Biodiversity Strategy for 2030

The **European Biodiversity Strategy for 2030**[28], adopted in 2020, follows the long-term goal to protect nature and reverse the degradation of ecosystems. The strategy contains specific commitments and actions to be delivered by 2030. In addition to the establishment of an EU-wide network for protected areas and the introduction of measures, an EU nature restoration plan is put forward. As part of this plan, the European Commission proposed a European Nature Restoration Law[29], which seeks to deifne binding political targets to restore degraded ecosystems, focusing on those with high carbon capture potential and the ability to mitigate natural disasters. The strategy is a core part of the European Green Deal (see 5.5) and supports the green recovery following the COVID-19 pandemic. Moreover, it seeks to enhance resilience in the face of future threats such as climate change impacts, food insecurity, and disease outbreaks. On the international level, the strategy will inform negotiations on the global post-2020 biodiversity framework. The implementation of the Strategy is monitored by two online tools. While the **EU Biodiversity Strategy Dashboard**[30] monitors progress to the quantitative biodiversity targets set by the Strategy on EU

[28] Biodiversity strategy for 2030 (europa.eu)

[29] The regulation for a Nature Conservation Law (European Commission, 2022b) was proposed in 2022 by the European Commission. The proposal is currently reviewed and amended by EU Member States and Members of the European Parliament. In case of adoption, such a law would require Member States to develop national plans to restore at least 20 per cent of EU land and sea by 2030 and repair all ecosystems in need of restoration by 2050. As a regulation, the law would enter into force directly and have immediate effects on the national legal systems, including the use of enforcement mechanisms in case of non-compliance with binding targets.

[30] EU Biodiversity Strategy Dashboard (europa.eu)

and Member State level, the **EU Biodiversity Strategy Actions Tracker**[31] provides up-to date information on the state of implementation of the strategy's main actions. By focusing on the preservation of ecosystem integrity, the strategy and its four pillars– "establishing a larger EU-wide network of protected areas", "launching an EU nature restoration plan", "unlocking funding for biodiversity", as well as "introducing measures to tackle the global biodiversity crisis" – target the wellbeing of future generations, that is the WISE dimension of sustainability.

5.9 The Zero Pollution Action Plan

The **Zero Pollution Action Plan** is a cross-cutting objective, aligned with the 2030 Agenda for Sustainable Development (see 3)), as well as the EU's goals for climate neutrality, clean and circular economy, and biodiversity. The EU Action Plan 'Towards Zero Pollution for Air, Water and Soil'[32], adopted in 2021, provides guidance to integrate pollution reduction and prevention into relevant EU policies, increase implementation of related legislations, and helps to identify potential gaps and trade-offs. It follows six targets to reduce health impacts from air pollution, chronic transport noise disturbances, air pollution threats to biodiversity, nutrient loss and use of chemical pesticides, plastic release into ecosystems, as well as total wate generation. **The Zero Pollution monitoring framework** (European Commission, 2021) is part of the wider 8th Environment Action Programme (EAP) monitoring and offers insights into overall pollution levels and supports better governance towards zero pollution through the evaluation of policy effectiveness. A regular outlook report analyses synergies and trade-offs between related EU policies. The targets "indicating impacts on biodiversity and ecosystems", "pollution", "emissions and other pressures on the environment target" and their related indicators capture the dimension of sustainability, while "impacts on human health" focuses primarily on the wellbeing of current generations, that is wellbeing.

[31] EU Biodiversity Strategy Actions Tracker (europa.eu)
[32] Zero pollution action plan (europa.eu)

5.10 Common Agricultural Policy 2023-2027

The **Common Agricultural Policy (CAP 2023-2027)**[33] is the latest version of the EU's framework for agriculture and rural development policies. As a successor of the CAP 2014-2020, it was adopted in 2021 and implemented in 2023. With a strong emphasis on results and performance, it focuses on ten specific objectives that align with the Biodiversity Strategy (see 5.8) and the Farm to fork-Strategy. Objectives address emerging challenges and opportunities within the agricultural sector and aim to improve its sustainability resilience and competitiveness. Actual implementation depends on the national CAP Strategic Plan, which each Member State tailors according to its needs and capabilities. Guided through a toolbox of broad policy measures, national plans merge income support, rural development, and market measures to manage agricultural markets, maintain price stability and ensure fair income for farmers. **The Performance Monitoring and Evaluation Framework (PMEF)**[34] uses common performance indicators to monitor the implementation of the CAP 2023-2027 as well as the progress towards and the overall policy performance against its ten specific objectives. It further provides an analytical basis for future policies and objectives. By addressing challenges and opportunities within the agricultural sector, most objectives and their respective performance indicators target sustainability in the context of sustaining capacities for agricultural practices. Aspects of wellbeing can be found in the objective "Supporting viable farm income", while the dimension of inclusion is discernible in the objective "Jobs, growth and equality in rural areas".

5.11 The 8th Environmental Action Plan 2023-2027

The **8th Environmental Action Plan (EAP)**[35], which entered into force in 2022, is a policy framework established to guide European environmental policy until 2030. It follows the EU's long-term vision to live well within planetary boundaries and builds on the European Green Deal (see 5.5). By addressing the most pressing environmental challenges, it forms the basis for achieving the UN's Sustainable Development Goals. The monitoring framework of the 8th EAP (European Commission, 2022a) is based on existing, sector specific monitoring tools and draws on insights from the

[33] CAP 2023-27 (europa.eu)
[34] European Commission | Agri-food data portal | CMEF Indicators (europa.eu)
[35] Environment action programme to 2030 (europa.eu)

environmental implementation review. Supported by the European Environmental Agency (EEA) and the European Chemicals Agency (ECHA), the Commission aims to publish annual reports. By tracking the progress towards a green transition and providing strategic political oversight, the monitoring of the 8th EAP informs citizens and policy makers on whether actions taken were sufficient to stay within planetary boundaries or whether greater ambition is required. Priority objectives and headline indicators used to monitor progress in the six thematic priorities are: “climate change mitigation”, “climate change adaptation”, “regenerative circular economy”, “zero pollution and toxic free environment”, “biodiversity and ecosystems”, as well as “environmental and climate pressures related to EU production and consumption”. All these focus on ensuring future generations wellbeing and therefore target the WISE dimension of sustainability.

5.12 Discussion and outlook

Upon examining each policy strategy and initiative and analysing their monitoring and evaluation framework employing the WISE lens, it becomes evident that most of them address primarily one of the three WISE dimensions. Whereas the monitoring and evaluation frameworks of the European Pillar of Social Rights, the Energy Poverty Observatory, and the Gender Equality Strategy focus on inclusion, the ones that underlie the Resource Efficiency Scoreboard, the European Green Deal, the Biodiversity Strategy, and the 8th Environmental Action Plan focus on sustainability. Wellbeing, on the other hand, seems to be less prominent, being exclusively addressed only by the European Education Area Strategic Framework and its Education and Training Monitor. There are, however, also instances of monitoring and evaluation frameworks which target more than one WISE dimension. The EU Action Plan towards a Zero Pollution Ambition covers both wellbeing and sustainability simultaneously, thus capturing two WISE dimensions. Moreover, we found that **three monitoring and evaluation frameworks exhibit elements of all three WISE dimensions**, namely the scoreboards that underlie the 2030 Agenda for Sustainable Development, the New Cohesion Policy, and the Common Agricultural Policy.

Reflecting on the representation of the WISE dimensions in current EU monitoring and evaluation frameworks, it becomes clear that **sustainability seems to be the top priority of current policymaking efforts in the EU**, being targeted by seven of the eleven scoreboards under investigation. Here, the European Green Deal and its

underlying monitoring and evaluation framework constitute the most comprehensive framework covering a broad variety of environmental issues such as emissions, biodiversity, waste, and hazardous materials. On a more critical note, it should, however, be noted that the EU's focus on sustainability is exclusively limited to environmental issues, while other challenges relevant for sustainability (e.g., ageing societies) remain unaddressed by the frameworks analysed here. **Inclusion and especially wellbeing seem to be a bit less prominent** but are nevertheless well represented in the frameworks under consideration here. Regarding inclusion, it is notable that there exist two frameworks that target quite specific issues, namely gender (in)equality as well as energy poverty. Moreover, the European Pillar of Social Rights and the underlying Social Scoreboard provide a quite holistic framework exclusively concerned with the distribution of wellbeing. Overall, the dimension of inclusion seems to be well covered in the EU when it comes to inequalities between social groups, while interregional or -country inequalities are of only limited concern. With respect to the dimension of wellbeing, it is interesting to note that the metrics present in **monitoring and evaluation frameworks exclusively target objective notions of wellbeing** such as employment, health, education, as well as impacts of environmental issues on human livelihoods. Conversely, subjective measures of wellbeing such as life satisfaction are absent altogether in the frameworks analysed. Moreover, crucial wellbeing determinants such as social trust, access to basic services as well as social relationships are not sufficiently addressed by current frameworks. Lastly, our analysis indicates that wellbeing issues are quite dispersed across different policy strategies and initiatives highlighting the lack of a holistic wellbeing framework in EU policymaking. This constitutes a clear difference to the dimensions of sustainability and inclusion.

Moreover, our analysis shows that most monitoring and evaluation frameworks are focused on individual WISE dimensions, while four instances target more than one WISE dimension at a time. This can be interpreted as an indication of the **policy silos in EU policymaking**, which complicates holistic and integrated policy strategies and related policy initiatives. Given the multidimensionality and interconnectedness of current societal challenges, it is, however, safe to say that more holistic approaches to policymaking will be required to effectively deal with trade-offs and make use of synergies between the WISE dimensions. Let us now turn to the question of how metrics are used in policy strategies and initiatives and which purpose they serve in the underlying monitoring and evaluation frameworks. Some of the scoreboards and underlying metrics are integrated into established governance cycles. While the

Social Scoreboard is anchored in the European Semester's Pillar of Social Rights, other metrics are either part of reoccurring political priorities – such as the Monitor for the 8th Environmental Action Plan and the Monitoring and Evaluation Framework for the Common Agricultural Policy – or are a result of new defined political priorities – such as the Statistics for the European Green Deal and the Regional Gender Equality Monitor. **Most monitoring and evaluation frameworks are set up in line with political targets in the respective domains**; by tracking performance and progress towards these targets, metrics increase accountability and transparency and further serve as the basis to measure policy impact, thus laying the foundation for monitoring, policy evaluation, and future evidence-based policy making. Here only the Energy Poverty Observatory represents a distinct case, focusing primarily on the collection, analysis, and dissemination of data.

As mentioned before, most monitoring and evaluation frameworks make use of metrics to define political targets. Here, of course, it is crucial to distinguish between **binding and non-binding political targets**, the former being coupled with enforcement mechanisms in cases of non-compliance. In our analysis only two instances – the European Green Deal with the European Climate Law, the Biodiversity Strategy with the proposed European Nature Restauration Law – incorporate or propose to incorporate binding targets, which of course have a more profound impact on political decision-making as opposed to non-binding targets. This further strengthens the aforementioned conclusion that sustainability seems to be a current top priority in EU policymaking, with binding targets and enforcement mechanisms being readily implemented.

Let us now conclude this chapter with a tentative outlook on EU policymaking and the relevance of Beyond-GDP considerations therein. While the monitoring and evaluation frameworks analysed here do not comprise explicit Beyond GDP metrics, **the subject matter of Beyond-GDP is slowly gaining traction in the work of the European Commission and its Directorate-Generals** (see for example, Directorate-General for Economic and Financial Affairs (European Commission) & Terzi, 2021). Only recently, the 8th environmental Action Programme called for the development of a Beyond GDP dashboard as an enabling element to guide the EU's transformation efforts.[36] The Transitions Performance Index (TPI) is another case in point. Developed by the Directorate-General for Research and Innovation, the TPI explicitly employs a Beyond GDP perspective to quantify the progress of countries in facilitating

[36] Environment action programme to 2030 (europa.eu)

interconnected transitions in four domains: economic, social, environmental, and governance (Directorate-General for Research and Innovation et al., 2022). Another example of Beyond GDP approaches emerging from inside the European Commission is the Beyond GDP Sustainable Development Index, which compiles a set of metrics into a monitoring dashboard to evaluate global progress towards the SDGs (European Commission, 2023).

While these examples showcase how Beyond GDP is receiving increasing attention within the European Commission, their capacity to substantially impact on political decision-making remains limited when they remain limited to mere monitoring tools. To strengthen Beyond GDP considerations in the EU's economic policymaking, it is necessary to **leverage metrics to allocate financial resources among Member States and define binding political targets with clear enforcement mechanisms** (Kaufmann et al., 2023), for instance by instituting an overarching EU governance framework for Beyond-GDP policymaking. Only in this way, will it be possible to make metrics matter for policymaking and truly bring about societal change towards a WISE-centred economic system.

6. Discussion & Conclusions

This report has used a conceptual framework based on the Brundtland and Stiglitz-Sen-Fitoussi reports, the WISE framework, to categorise around 80 Beyond-GDP indexes and indicator dashboards. The synthesis has shown that – despite the metrics being based on a very broad range of scientific and political foundations – the WISE dimensions are a suitable way to categorise them. The WISE conceptualisation provides a framework that can highlight similarities between metrics while still allowing identification of their differences.

The framework can help a process of harmonisation and could facilitate the streamlining of terminology. This report argues that wellbeing, inclusion and sustainability are the core concepts underlying Beyond-GDP metrics despite that being hidden under heterogenous terminology. For example, rather than referring to Human Development Index, Subjective Wellbeing and the U-index, it might be clearer to say that these are all *wellbeing indexes*, and only referring to their theoretical foundation as a specification of how the wellbeing index was created (i.e. through the capability approach, hedonic psychology and national time use accounting.

Our overview has also informed the selection of the most important Beyond-GDP initiatives, based on whether they were created by Nobel Prize winners, adopted by international institutes or otherwise influential. Here, the following Beyond-GDP metrics stand out: Welfare accounting approaches such as the Genuine Progress Indicator, Human Development Index, U-index, Sustainable National income, Comprehensive Wealth, Inclusive Wealth Index, Better Life Index, Sustainable Development Goals, Doughnut Economics, Social Progress Index, Planetary Boundaries and the Ecological Footprint.

In the deep dive into metrics used in EU policymaking, we have analysed eleven monitoring and evaluation frameworks that underlie recent and on-going policy strategies and initiatives. Our analysis indicates that sustainability is currently the main political priority in EU policymaking, with binding political targets having been enacted exclusively in this domain. It should, however, be noted that there is a notable bias towards the environmental dimension of sustainability, while other issues that can affect the wellbeing of future generations – such as an aging population – are rarely addressed. Inclusion is the secondary focus of current EU policymaking, covering a wide range of issues such as income disparities, gender equality, and energy poverty, while issues of interregional and -country inequalities are hardly touched upon. Wellbeing is well represented in the frameworks analysed, but this is approached thematically (health, education etc) rather than approaching it from a holistic viewpoint. Also, not all themes that are related to wellbeing are included in the analysis. Lastly, the analysis highlighted that using metrics for formulating binding targets and instituting enforcement mechanisms is key to making them matter for policymaking.

7. Recommendations & Outlook

This report has attempted to address the heterogeneity in Beyond-GDP metrics by providing a synthesis of around 80 initiatives. There are also various initiatives which will provide an impulse to this debate and might also led to more consolidation of the Beyond-GDP space.

- *UN process*. As part of “Our Common Agenda” the Secretary General of the United Nations has started an ambitious Beyond-GDP process. The main

aims are to define 10-20 indicators which will be unveiled at the Summit of the Future in 2024.

- *SNA 2025 revision*. The System of National Accounts (SNA) is periodically revised and the next edition is set for 2025. The second chapter will deal with wellbeing and sustainability. The fact that the SNA is discussing these topics is probably going to have a significant impact on the discussion going forward.
- *European Initiatives*. The EU also provides an important impulse to the Beyond-GDP discussion. Most prominent was the Beyond-Growth conference in May 2023, but the EC has also funding three Horizons projects, the WISE horizons (of which the report is a product), ToBe and SPES. The ERC has also funded the REAL project which is led to Julia Steinberger, Jason Hickel and Giorgos Kallis. The next 2-6 years will therefore probably see a major acceleration in research and policy recommendations in this field.
- *WISE Accounts and Models*. In the WISE Horizons project will develop an interdisciplinary WISE accounting framework and also WISE models. This synthesis of metrics, and the identification of the most important initiatives will help the development of these products, which will be further developed in the WISE theoretical framework (expected at the end of 2023).

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ANNEX A. BEYOND-GDP COUNTRY INITIATIVES

Country	Initiative	Type	Description
Australia	Measure of Australia's Progress (MAP)	Dashboard	The Measure of Australia's Progress is a report published by the Australian Bureau of Statistics. It covers 26 indicators in four dimensions (Society, Australian Bureau Economy, Environment, Governance) measuring progress in Australia since 2002. The latest publication of the report was in 2013. Currently, Australia does not have a nationally agreed set of indicators to measure wellbeing. In 2023, the Australian Government will release a new 'Measuring What Matters Statement'. It is expected to present a framework unique to the Australian context for measuring what matters to, and for, Australians, to provide a high-level view of Australia's progress and well-being (Treasury 2022).
Austria	Austria.Data.Figures.Facts	Dashboard	Statistics Austria publishes an annual report on 30 key indicators categorized into three dimensions: material wealth, quality of life and environmental sustainability. An interactive tool allowing exploration of historical trends and comparison across indicators was also developed. Since 2021, Austria also conducts the survey "How we are today", together with 9 other EU countries. Every three months, changes in living conditions, income and wellbeing of private households in the European Union are recorded.
Belgium	Complementary indicators to GDP/Sustainable Development Indicators Belgium	Dashboard	Complementary indicators to GDP is a Belgian initiative to publish an annual report aimed at measuring people's well-being and societal development at the federal level. The report has been published in 2016 and 2017, and details trends for 67 indicators grouped in 13 themes covering three conceptual dimensions: current generation (here and now), future generation (later) and other countries (somewhere else). From 2022 onwards, the report is called Sustainable Development Indicators.

Botswana	Botswana Vision 2036	Dashboard	Vision 2036 is an agenda that defines Botswana's aspirations and goals as a people. In order to achieve prosperity for all there are four key priorities pillars: Sustainable Economic Development, Human and Social Development, Sustainable Environment Governance, and Peace and Security. There are 24 related indicators identified for which targets are set for 2026.
Bhutan	Gross National Happiness	Index	The Gross National Happiness (GNH) Index has been developed by the Centre for Bhutan Studies. The Index is constructed using a robust multidimensional methodology known as the Alkire-Foster method. The concept of GNH has often been explained by its four pillars: good governance, sustainable socio-economic development, cultural preservation, and environmental conservation. The four pillars have been further classified into nine domains which are all equally weighted. Within each domain, two to four indicators were selected that seemed likely to remain informative across time, had high response rates, and were relatively uncorrelated. Within each domain, the objective indicators are given higher weights while the subjective and self-reported indicators are assigned far lighter weights.
Canada	Canadian Index of Wellbeing (CIW)	Index	The Canadian Index of Wellbeing (CIW) tracks changes in eight quality of life categories or domains: community vitality, democratic engagement, education, environment, healthy populations, leisure and culture, living standards, and time use. The domains were determined in a co-creation process. The first report was published in 2012.
China	Annual Evaluations of the Ecological Progress	Dashboard	China started annual evaluations of ecological progress made by provincial, city and country governments since 2017. The evaluations are based on green growth targets, including resource utilisation, environmental quality and public satisfactions.
China	14th Five-Year Plan	Dashboard	The 14th Five-Year Plan (2021-2025) is the overall road map for society, economy and environment. The Plan highlights high-quality, green development. The Plan has 20 quantitative targets, 8 of them binding, under five categories: economic development, innovation, people's well-being, green development, and food and energy security. Seven targets focus on people's well-being.

Denmark	Danish sustainability indicators	Dashboard	Statistics Denmark and the 2030-Panel publish 197 Danish indicators to translate the 17 UN Global Goals into a Danish context. The indicators are based on input from more than 6,000 Danish companies, organisations, researchers and dedicated citizens.
Ecuador	Buen Vivir	Dashboard	The Ecuador Statistics Office (INEC) compiled a set of indicators to monitor progress in line with the Buen Vivir concept, which stands for internal harmony, harmony within and among communities and harmony with nature. Buen Vivir is composed of three components, each based on different units of analysis: people, communities and nature. The selection of 7 dimensions and over 35 objective and subjective indicators is based on the various rights recognized by the Constitution, international experiences of life quality measurement (including the OECD Guidelines on Measuring Subjective Well-being), as well as national literature on the more subjective and spiritual facets of Buen Vivir.
Finland	Findicator	Dashboard	Launched in 2009 by Finland's Prime Minister's Office and Statistics Finland, the Findicator (Findikaattori) is an online compendium of over 100 indicators on social progress, with a specific well-being category. The well-being indicators include 23 indicators across eight dimensions. Findicator will not be updated anymore as of 2022. A significant reason for discontinuing the maintenance of the Findicator service is that over the years the technology behind the service has become outdated. In February 2021, the Ministry of Social Affairs and Health appointed a steering group on the economy of well-being. Its task is to prepare a national action plan to integrate the economy of well-being approach into knowledge-based decision-making.
France	New Indicators of Wealth	Dashboard	In April 2015, the French Senate and the Parliament passed a law introducing the New Indicators of Wealth. The law requires, at the same time as the draft budget bill, the publication of an annual report using alternative indicators to GDP, with a view to modifying the statistical framework within which national economic policies are made. The dashboard considers 10 topics and 15 underlying indicators related to the economic, social and environmental domain.
Germany	Government Report on Wellbeing in Germany	Dashboard	The Government Report on Wellbeing in Germany describes wellbeing by means of 12 dimensions and 46 indicators. The dimensions and indicators were selected based on the results of a six-month national dialogue with citizens. The indicators will be updated on a regular basis and are tagged accordingly (last update: March 2020).
Ghana	2030 Agenda for Sustainable Development	Dashboard	Ghana's Agenda 2030 is built upon four pillars: Economic, Social, Environmental, and Institutional. The government has instituted an effective implementation coordination arrangement based on the decentralised planning system. Ghana

			also developed a tracking tool within the national budgeting process to monitor allocations and expenditure on sustainable development-related activities.
Iceland	Indicators for Measuring Well-being	Dashboard	Iceland introduced a framework of 39 well-being indicators in 2019. The indicators are grouped into three domains: society, environment and the economy. The process of developing and securing consensus on the wellbeing indicators involved various stakeholders, including the public, political opposition, public service, and spanned two years. The outcomes of the process are six wellbeing priorities, mental health, secure housing, better work-life balance, zero carbon emissions, innovation growth and better communication with the public, which will guide the country's Five Year Fiscal Strategic Plan. While the framework and priority list have been approved by the Government, they could be improved upon as collaboration with stakeholders continues.
Ireland	Initial Well-being Dashboard of Indicators	Dashboard	The dashboard measures life and progress in Ireland through a cohesive set of indicators. The indicators relate to subjective well-being, mental and physical health, income and wealth, knowledge and skills, housing and local area, environment, safety, work and job quality, time se, community and social connections, civic engagement and cultural expression. The dashboard provides information on trends or direction over time across these indicators and benchmarks Ireland's position against the EU as a whole. Inequalities are drawn out through examining distributions, differences between groups of people and deprivations.
Israel	Well-being, Sustainability and National Resilience Indicators	Dashboard	Well-being Sustainability and National Resilience Indicators is an annual report by the Israelian Central Bureau of Statistics which publishes a set of wellbeing, sustainability, and national resilience indicators. It includes indicators on the following domains: quality of employment; personal security; health; housing and infrastructure; education; higher education and skills; personal and social wellbeing; environment; civic engagement and governance; and material standard of living. In addition, the resolution required the development of two additional domains: information technology; and leisure, culture, and community. For each domain 8 indicators were selected.

Italy	Measures of equitable and sustainable well-being (Bes)	Dashboard	The project to measure equitable and sustainable well-being (Bes) in Italy aims at evaluating the progress of society not only from an economic, but also from a social and environmental point of view. The National Institute of Statistics (ISTAT) in Italy published an annual Bes report from 2013-2017 which covered 12 domains. In 2016, the "Equitable and sustainable well-being" has become part of the economic planning: the Economic and Financial Document (Def) has to include an analysis of recent trends for selected indicators and an impact assessment of proposed policies. Every year in February, moreover, a monitoring report is to be presented to the Parliament.
Luxembourg	Luxembourg Index of Well-being	Dashboard	The Luxembourg Index of Well-Being ("PIBien-être") was developed through a collaboration between the National Statistics and Economic Studies Institute (Statec), the Economic and Social Council, and the Higher Council for Sustainable Development. It reports on 63 indicators, grouped under 11 domains of life, which closely correspond to the domains of the OECD framework for measuring wellbeing. In an additional step, these indicators are also summarised through a synthetic index. This is intended to provide a "compass" to guide users through the data, and is used in the 2017 report to evaluate trends in overall wellbeing, as well as trends in specific domains, since 2009.
The Netherlands	Monitor of Well-being The Netherlands	Dashboard	The Monitor of Well-being from The Netherlands has been published since 2018 and is used to hold the government to account every year on Accountability Day in May on the basis of not only economic growth in terms of GDP, but also in terms of a broad concept of well-being. The first Monitor of Well-being included over 100 indicators on quality of life here and now, and how this affects the well-being of future generations and that of people living elsewhere. Since 2019, the SDG indicators have been incorporated into this monitor, as there is a lot of overlap between the well-being indicators CBS was using and the global SDG indicators. So every year in May the Dutch government is now held to account partly on how it performs on in terms of well-being and SDG's.
New Zealand	Living Standards Framework (LSF) Dashboard	Dashboard	The LSF Dashboard provides the indicators that the Treasury believes are most important to inform their wellbeing reporting and policy advice on cross-government well-being priorities. For example, it informs their long-term stewardship publications such as the four-yearly Wellbeing Report required by the Public Finance Act. Analysis of the indicators from the LSF Dashboard was also used, alongside other wellbeing evidence, to inform development of the five priorities of the Government's 2019 Wellbeing Budget.

New Zealand	Living Standards Framework New Zealand	Policy instrument	The Living Standards Framework (LSF) is a flexible framework that prompts thinking about policy impacts across the different dimensions of wellbeing, as well as the long-term and distributional issues and implications of policy. Examples of domains are health, engagement and voice, subjective well-being, firms and markets, families and households and capital accounts. It supports Treasury analysts to understand the drivers of wellbeing and to consider the broader impacts of their policy advice in a systematic and evidenced way.
New Zealand	Ngā Tūtohu Aotearoa – Indicators Aotearoa New Zealand	Dashboard	Indicators Aotearoa New Zealand is being developed by Stats NZ as a source of measures for New Zealand's wellbeing. The set of indicators goes beyond economic measures to include well-being and sustainable development. It distinguishes three conceptual dimensions of sustainable development: current well-being, future well-being and the well-being of people living in other countries. In addition, contextual indicators are included. While these contextual indicators are not directly indicators of Aotearoa New Zealand's well-being, they are included to assist with interpreting the indicators.
Rwanda	Rwanda Vision 2050	Dashboard	Vision 2050 is a framework for Rwanda's development, presenting the key priorities and providing Rwandans with a guiding tool for the future. There are five priority pillars: Human Development, Competitiveness and Integration, Agriculture for Wealth Creation, Urbanization and Agglomeration, and Accountable and Capable State Institutions. There are 46 underlying indicators for which targets are set for 2035 and 2050.
Scotland	National Performance Framework	Dashboard	The National Performance Framework of Scotland was first published as part of the 2007 Spending Review, providing a 10 year vision for Scotland which uses an outcomes-based approach to measuring government's achievements measuring national and societal well-being, rather than inputs and outputs. It features 5 strategic objectives, 16 national outcomes, and 55 national indicators. The National Performance Framework forms the basis of performance agreements with public service delivery bodies, and is used to monitoring their effectiveness. In June 2018 the Scottish Government launched a new and revised version of the National Performance Framework.
Slovenia	Indicators of Well-being in Slovenia	Dashboard	Indicators of Well-being have been developed as part of the National Development Strategy launched by the Slovenian government. The indicators are presented in three categories: Material, Social and Environmental well-being. The indicator set is implemented by a consortium of four institutions: the Institute of Macroeconomic Analysis and Development (IMAD), the Statistical Office of the Republic of Slovenia (SURS), the Slovenian Environment Agency (ARSO) and the National Institute of Public Health (NIJZ).

United Kingdom	Measuring National Wellbeing programme	Dashboard	The Measuring National Well-being (MNW) programme from the UK started in 2010. Its aim is to monitor and report “how the UK as a whole is doing” through measures of well-being. A progress report is published biannually covering areas including health, natural environment, personal finances and crime. The measures include objective and subjective data.
Wales	Well-being of Wales	Dashboard	The Well-being of Wales is an annual report that helps to assess whether Wales is making progress against the 7 national well-being goals. These goals have been institutionalised via the Future Generations Act (2015) with the aim to incorporate social, economic, environmental and cultural well-being into the considerations of public bodies in Wales. As part of this, the act puts in place seven well-being goals for a prosperous, healthier, resilient, more equal and globally responsible Wales, with cohesive communities and a vibrant culture and thriving Welsh language. Related to the seven goals, 50 indicators were selected to monitor progress on well-being.

ANNEX B. CATEGORISATION OF MONITORING AND EVALUATION FRAMEWORKS ALONG THE WISE DIMENSIONS

Policy strategy and initiative	Monitoring and evaluation framework	Subcategory	WISE	Conclusion	Time of Initiation	Use of Metrics
European Education Area Strategic Framework	Education and Training Monitoring	Early childhood education and care	W	W	2012	quantitative political targets, monitoring and reporting, policy evaluation (ex-post)
		Early school leaving	W			
		Work-based learning in VET	W			
		Tertiary educational attainment	W			
		Underachievement in reading	W			
		Underachievement in maths	W			
		Underachievement in science	W			
		Underachievement in digital skills	W			
2030 Agenda for Sustainable Development	EU SDG indicator set	SDG 1 'No poverty'	I	W, I, S	2015	qualitative and quantitative political targets, monitoring and reporting, policy evaluation (ex-post)
		SDG 2 'Zero hunger'	I			
		SDG 3 'good health and well-being'	W			
		SDG 4 'Quality education'	W			
		SDG 5 'gender equality'	I			
		SDG 6 'clean water and sanitation'	W			
		SDG 7 'affordable and clean energy'	S			
		SDG 8 'decent work and economic growth'	W			
		SDG 9 'industry, innovation and infrastructure'	W			
		SDG 10 'reduced inequalities'	I			

		SDG 11 'sustainable cities and communities'	S			
		SDG 12 'responsible consumption and production'	S			
		SDG 13 'climate action'	S			
		SDG 14 'life below water'	S			
		SDG 15 'life on land'	S			
		SDG 16 'peace, justice and strong institutions'	W			
		SDG 17 'partnership for the goals'	X			
European Pillar of Social Rights	Social Scoreboard	1. Headline indicators: Equal opportunities	I	I	2017	political targets, monitoring and reporting
		1. Secondary indicators: Equal opportunities	I			
		2. Headline indicators: Fair working conditions	I			
		2. Secondary indicators: Fair working conditions	I			
		3. Headline indicators: Social protection and inclusion	I			
		3. Secondary indicators: Social protection and inclusion	I			
		4. EPSR indicators by regions and degree of urbanization	I			
EU Energy Poverty Observatory (as predecessor of the Energy Poverty Advisory Hub)	National indicators	Primary Indicators: Consensual-based indicators – EU-SILC Target variables	I	I	2018	monitoring and reporting
		Primary Indicators: Expenditure-based indicators (long list) – HBS	I			
		Secondary indicators: Energy prices	I			
		Secondary indicators: Consensual based	I			
		Secondary indicators: Expenditure-based	I			

		Secondary indicators: Building stock features	I			
		Secondary indicators: Poverty and health risks	I			
European Green Deal	Statistics for the European Green Deal	Reducing our climate impact	S	S	2019	quantitative political targets, reporting and monitoring, policy evaluation (ex-post)
		Protecting our planet and health	S			
		Enabling a green and just transformation	S			
Gender Equality Strategy	EU Regional Gender Equality Monitor	Work and Money	I	I	2020	quantitative political targets, monitoring and reporting, policy evaluation (ex-post)
		Knowledge	I			
		Time	I			
		Power	I			
		Health	I			
		Safety, Security & Trust	I			
		Life Satisfaction & Quality	I			
New Cohesion Policy 2021-27	Common output and result indicators	A more competitive and smarter Europe	W	W, I, S	2020	political targets, monitoring & reporting, policy evaluation (ex-post)
		A greener, low-carbon transitioning towards a net zero carbon economy	S			
		A more connected Europe by enhancing mobility	W			
		A more social and inclusive	I			
		A Europe closer to citizens by fostering the sustainable and integrated development of all types of territories	W			
Biodiversity Strategy	EU Biodiversity Strategy Dashboard &	Coherent network of protected areas	S	S	2020	political targets, monitoring and reporting, policy
		EU nature restoration plan	S			
		Enabling transformative change	S			

	EU Biodiversity Strategy Actions Tracker	EU external actions and an ambitious global biodiversity agenda	S			evaluation (ex-post)
Zero Pollution Action Plan	Monitoring and outlook framework	Key headline indicators on impacts / harm: Impacts on human health	W	S, W	2021	political targets, monitoring and reporting, policy evaluation (ex-post)
		Key headline indicators on impacts / harm: Impacts on biodiversity and ecosystem	S			
		Pollution and emerging concerns	S			
		Key headline indicator for emissions and other pressure on the environment	S			
		Key headline indicators for regular assessment: Impacts on human health	W			
		Key headline indicators for regular assessment: Impacts on biodiversity and ecosystem	S			
Common Agricultural Policy 2023	Performance Monitoring and Evaluation Framework	Food and health (Responding to societal demands on food & health)	W	W, I , S	2021	political targets, monitoring and reporting, Policy evaluation (ex-post)
		Vibrant rural areas (Jobs, growth and equality in rural areas)	I			
		Generational renewal (Generational renewal)	S			
		Landscapes (Halting and reversing biodiversity loss)	S			
		Environmental care (efficient natural resource management)	S			
		Climate change (contributing to climate change mitigation)	S			
		Food value chain (Improving farmers position in the value chain)	W			
		Competitiveness (Increasing competitiveness)	S			

		Fair income (Supporting viable farm income)	W			
		Knowledge and Innovation (Fostering knowledge and innovation)	S			
8th Environmental Action Plan	Monitoring Framework	Climate change mitigation	S	S	2022	political targets, reporting and monitoring, policy evaluation (ex-post)
		Climate change adaptation	S			
		A regenerative circular economy	S			
		Zero pollution and a toxic free environment	S			
		Biodiversity and ecosystems	S			
		Environmental and climate pressures related to EU production and consumption	S			
		Enabling conditions	S			
		Living well, within planetary boundaries	S			

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