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# *Bikenomics:*
# Making the case for cycling investment in your city

## Bikenomics – what, why, how and when?

The positive effects of promoting cycling as a mode of transport are, by now, well documented.[1][2][3][4][5]
Reduced local air and noise pollution, less road congestion, improved city accessibility and quality of public space, as well as increased mental and physical health are all well-known results experienced by a city that promotes cycling.

In this way, cycling benefits individuals, companies, the economy and society as a whole, whilst contributing to broader efforts to create a more sustainable future and tackle climate change. Determining how large these benefits are and quantifying them can be, however, quite challenging.[6]

Many active mobility projects or policies fail to receive funding and/or support because policymakers perceive investment costs to be too high, or that the anticipated economic contribution is negligible or intangible. Moreover, as road space for cars is redistributed to make way for walking and cycling and restrictive traffic regulations are introduced – changes which are regularly met with suspicion – it becomes increasingly important to build greater stakeholder support using rational arguments.[7][8][9]

With these goals and challenges in mind, how can we assess the return on investment for society and costs associated with cycling? Also, how can we provide the figures that help decision-makers justify the investment in cycling? Finally, how can we prove that cycling is a sound investment?

**One suggestion? → Bikenomics!**

## What is Bikenomics?

Bikenomics applies *economic thinking* to cycling. People often associate the word *economy* with *money*. Money is, however, just a unit of measure for *value*. In principle, the more you pay for something the more value you attach to it. Hence, Bikenomics studies how cycling influences societal wellbeing by looking at the value of its impacts.

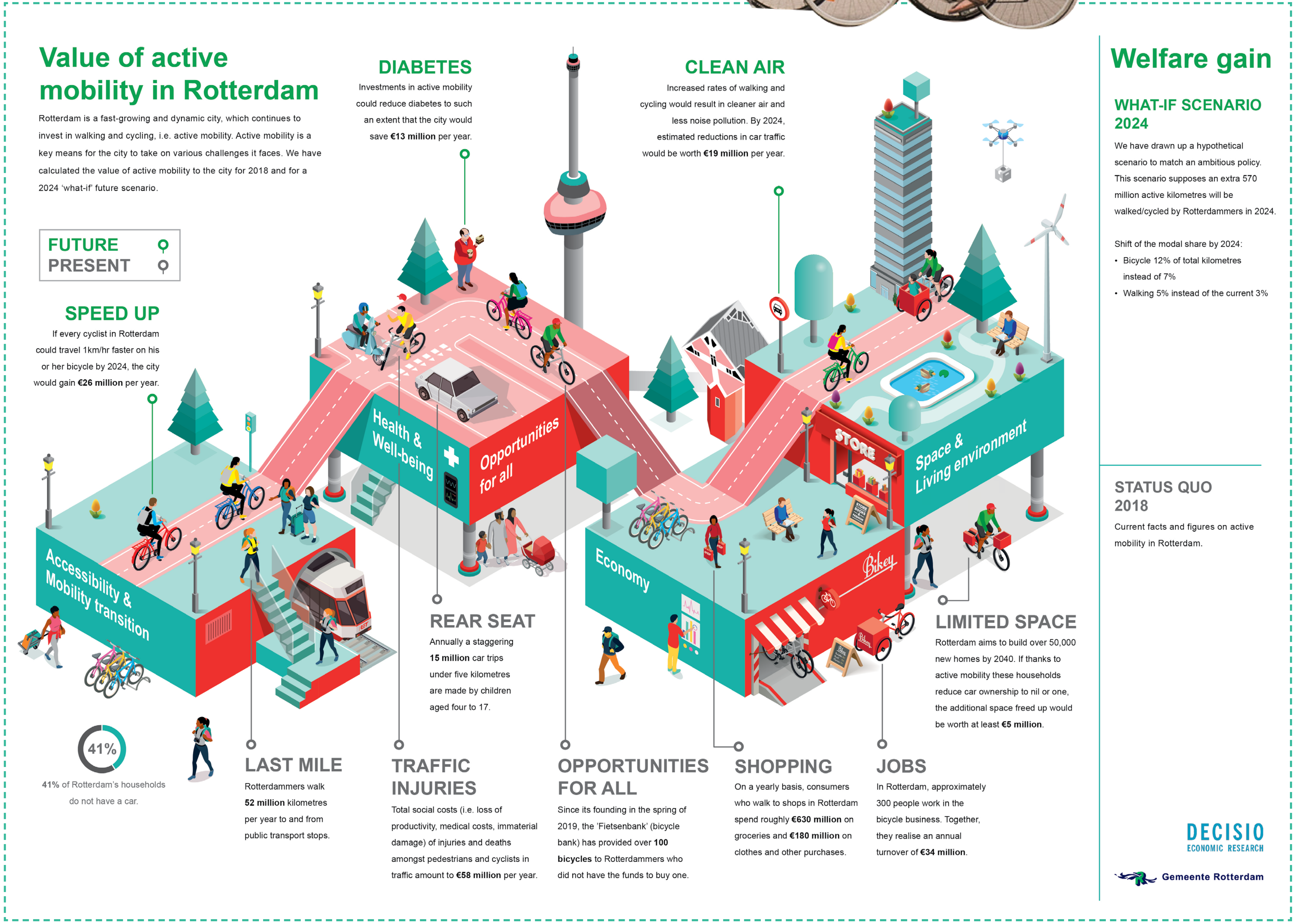
Using the same principles of cost-benefit analysis and economic impact assessment [10], Bikenomics lists and compares all the initial and expected future investment costs for a cycling project against the economic value of its societal impacts. Impacts can be positive or negative. This comparison will establish whether a project is *socially efficient* or has *good value for money*.

## Why is it useful?

The advantages of Bikenomics are:

- It allows positive and negative impacts to be compared against each other, thereby making it **easier to understand its overall impact on society**
- **It makes decision-making simpler** regarding where, how much to invest and what to prioritise
- **It helps policymakers explain and communicate the benefits of cycling** in order to gain support from key stakeholders, and thus advance cycling on the political agenda
- **It shifts the view of cycling from beyond recreation**, to transportation and mobility, thus ensuring that cycling projects gain the same attention as other transport modes
- **It is data-driven**, meaning that organisations are able to evaluate policies, schemes and projects free of subjective opinions or personal biases

Although Bikenomics may be data-intensive and complex, the process of performing an assessment **has great learning value in itself**, as it can help uncover less-than-obvious success factors or risks. Additionally, the Bikenomics process can also allow for better understanding of the problem that the policy or project is trying to address.



## What are the socio-economic impacts?

Public infrastructure projects focusing on roads, railways and bridges represent investments in terms of planning, design, construction and traffic management. Society is willing to bear such investments if they provide a greater collective return. This return might not be a direct *cash return* but it could rather enable conditions that lead to greater societal and economic prosperity.

For instance, reducing travel distance between two locations by building a bridge may enable greater exchange of goods and services, thereby leading to economic growth and employment. In this case, a societal benefit is realised even if no one directly pays a toll for using the bridge and thus no direct cash return is collected. Similarly, promoting alternatives to car travel may lead to a decrease in $CO_2$ emission levels and ease the burden of climate change on everyone, thus resulting in an economic benefit even when no one directly pays for obtaining such advantage.

Socio-economic impacts are, therefore, those material and immaterial consequences of a project that affect the prosperity and well-being of society as a whole. A project can be considered a *good investment* in terms of collective welfare if the sum of social benefits outweighs the sum of the social costs.

Cycling infrastructure projects are not often considered to be a transport investment option and are thus rarely appraised. Even in countries in which the cycling culture is prominent, such as the Netherlands and Denmark, these projects can be deemed as for recreational purposes.[11][12]

Whether considered a recreational activity or used as a mode of transportation, cycling affects our social prosperity in multiple ways. As an inexpensive, flexible and sustainable means of travel, cycling can increase accessibility and promote social inclusion. This is particularly true for categories of people who, for personal or economic reasons, would not have access to other alternative forms of mobility.[12][13] By encouraging cycling, particularly as a replacement for short or medium-distance car trips, a series of private and social benefits can result, including[1]:

- Improved physical and mental health, with a reduction in direct health costs, as well as an increase in life expectancy and quality of life
- More competitive public transport
- Decreased environmental impacts associated with the consumption of fossil fuels, such as local air pollution
- Increased employment via the cycling tourism sector, and subsequently, enhanced sustainable access to local resources
- Regenerated public space, including greater protection of heritage and redeveloped disused infrastructures (i.e. old canals, railways, etc.)

With a multitude of socio-economic effects in mind, it would be self-defeating to ignore the positive benefits of cycling when weighed against the relatively low costs of investment.

1 European Union, World Health Organisation and various national governments [14][15][16]

## How are social impacts quantified and valued?

Determining the monetary value of societal impacts is the central feature of Bikenomics.
To do this, the following formula is used:

**Value of a social impact (S) = Quantity of Effect (Q) X Economic value of a unit of effect (P)**

It can be challenging to determine quantities and values however, as some knowledge of transportation modelling and econometrics is needed. Also, the effects of cycling are often intangible and thus difficult to price, therefore indirect calculation methodologies and proxies must be used.

Bikenomics addresses these challenges by relying on an increasing number of scientific publications, guidelines and tools that, in recent years, various public institutions[1] have funded and published making such calculations more accessible.

**IMPACT AREA**

| Micro Economy | Macro Economy | Welfare Economy |
|---|---|---|

**TOOLS USED**

| Financial Business Case | | Economic Impact Studies | | Social Cost-Benefit Analysis | |
|---|---|---|---|---|---|
| TRAVELLER | COMPANY | NEIGHBOURHOOD / CITY / REGIONAL LEVEL | | SOCIETY LEVEL | |
| Accessibility, travel time, travel costs | Direct costs | Employment | Spending | Well-being | Health and life years |
| Comfort, travel experience | Productivity | Land-value & use | Traffic safety | Pollution, Noise | Climate change |

## When should assessments be performed?

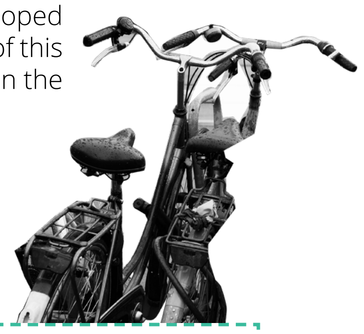
Depending on the policy or project in question, cities and regional governments can perform Bikenomics assessments before (ex-ante) or after (ex-post) implementation.

**Knowing the value of a bicycle project before implementation can help identify priorities and ease decision-making, whereas city planners may use Bikenomics after investment in order to examine its effectiveness.**

## Developing a Bikenomics assessment

Guidelines that address many concepts relevant to Bikenomics have already been developed by the European Commission and other organisations. It is therefore not the purpose of this document to repeat these concepts in detail, but rather to explain how they are used in the context of cycling investment.

A Bikenomics assessment requires a number of essential steps that are summarised below:



POLICY

STUDY QUESTION AND DESIGN

COST ESTIMATION
- Identification of costs
- Quantification of costs
- Valuation of costs

throughout the life cycle of the project

IMPACT ESTIMATION
- Identification of impacts
- Quantification of impacts
- Valuation of impacts

throughout the life cycle of the project

DISCOUNTED BENEFIT-TO-COST RATIO

SENSITIVITY ANALYSIS

PRESENTATION OF THE RESULTS AND DECISION

The assessment is guided by the following five analytical phases:

| Step | Phase | Main actions |
|---|---|---|
| 1 | Preparatory phase | The **suitability of Bikenomics** is explored, concerning its ability to answer the policy/ project question.<br>A **study design** based on the policy or project in question is proposed, with all **relevant stakeholders involved** in the process. |
| 2 | Costs estimation | The **measures needed** to answer the policy/project question are detailed.<br>Measure **costs** are identified, quantified and valued. |
| 3 | Impact estimation | **All possible effects are forecasted and quantified.**<br>Each quantified effect is **expressed in monetary terms.** |
| 4 | Discount the benefits and costs and conduct sensitivity analysis | All **monetized benefits and costs** accumulated during the life cycle of the project are **reported** at their present (monetary) value and compared to each other.<br>A **sensitivity analysis** capable of testing changes to and uncertainties of key parameters is performed. |
| 5 | Present results and support decision-making | **Results are presented.**<br>**Decision-makers are supported in understanding the results.** |

## Step 1

### Explore the suitability of Bikenomics

The earliest stage of the process aims to determine the suitability of using Bikenomics as an evaluation method.

Three examples for which Bikenomics is a well-suited methodology, include:

- **Assessment of bicycle strategies and policies** – it can measure the socio-economic opportunities that higher bicycle use may provide to a city, and therefore justify specific targets and budget allocations.
- **Behavioural campaigns and programmes** – it can measure the social benefits resulting from a new scheme (such as bike-to-work) against the cost of the programme to determine if the investment is sound.
- **Bicycle infrastructure projects** - it can provide a basis for selecting and prioritizing investments by comparing the total expected cost of each option with its total expected benefits.

As a quantitative-economic appraisal method, Bikenomics is best suited to assess cycling projects and programmes that are able to produce measurable effects (i.e. traffic volume, distance cycled, travel speed, etc.). It is considered less suited for the measurement of intangible impacts (i.e. awareness, culture, image, etc.).

Even when the effects may be quantifiable, data collection, modelling and valuation can be increasingly challenging depending on the depth and the scope of the policy/project question. Hence, before initiating a Bikenomics assessment it is always good practice to critically pre-assess:

**a)** Whether the policy/project question has measurable outcomes (viability).

**b)** Whether the effort required to perform the assessment (time, budget) exceeds the capacity of the organisation (feasibility).

### Consider getting external support

For most public authorities, the specific skills required to perform a Bikenomics assessment may exceed staff capacity. It may therefore be appropriate to contract external experts, which has the double effect of covering skill requirements and developing specific expertise within the organisation.

### Develop an adequate study design

Once Bikenomics is determined to be a feasible and viable appraisal method, the policy/project question is approached within the scope of a study design.

Indicators are defined during the development of the study design. Include change in bicycle traffic volume and change in CO2 emissions. The indicators will be evaluated when modelling the reference scenario and forecasting the intervention scenario.

Another important role of the study design is to define appropriate boundaries of the research, in order to optimize time and resources. In particular, the following should be established:

- What are the physical boundaries of the area?
- Which effects and costs will be accounted for?
- Which data sources and methods of data collection will be employed?
- Which tools are needed to model and measure specific effects (e.g. is the use of a traffic model necessary)?
- Which stakeholders will be consulted?
- How will data uncertainty be treated?

Additionally, the topic of data collection should be addressed during the study design phase. **The quality of the analysis pends on the quality of the inputs.**

Finally, the study design should consider the proportion of time/effort spent and the complexity of the project. A project limited in scope may be appraised by means of a quick assessment in which only the most significant effects are quantified and valued, whereas larger and more costly projects that may impact a significant amount of people require more advanced modelling and valuation methods.

### Involve all relevant stakeholders in the process

The early involvement of key stakeholders is crucial for both acknowledging all possible impacts and increasing support and transparency of the evaluation process. Understanding the priorities and concerns of different stakeholders may inform sensitivity analyses and support an effective utilisation of Bikenomics findings and results.

Key stakeholders are those who will directly contribute to the evaluation as well as those who will be making decisions based on the evaluation findings (policy makers, city officials, transport authorities, etc.). Other involved stakeholders may include those directly or indirectly affected by the evaluated measures, such as local NGOs, shop owners and property developers.

## Step 2

### Detailing the measures and costs

Once the study design is complete, the next step is to detail all possible alternative activities (projects, policies, programmes) that may be necessary to address the policy/project question, and to calculate their costs.

The cost calculation of measures should be relatively easy because most of these activities have a known market price.

Costs are usually determined through a technical feasibility study, which lists the components of the proposed activity, including land, buildings, equipment, materials, licenses and other pre-production expenses.

In addition to initial (one-off) investment costs, there are other recurring costs that must be considered throughout the lifetime of the implemented infrastructure such as:

- **Maintenance and management costs**
- **Depreciation costs**
- **Potential risks and uncertainties related to both the implementation and cost analysis**

The amount of time needed to implement the policy or project must also be considered. This depends on the type of infrastructure project, which could range from 10-20 years for minor improvements, to 20+ years for larger infrastructure projects, such as bicycle bridges, bicycle tunnels etc.

## Step 3

### Estimating and valuing the impacts

In Bikenomics, impacts are mapped and quantified using impact assessment as a methodology.

In a nutshell, the impact assessment is carried out as follows:

1) All direct and indirect effects attributable to a bicycle policy/project are identified and mapped throughout its entire life cycle;

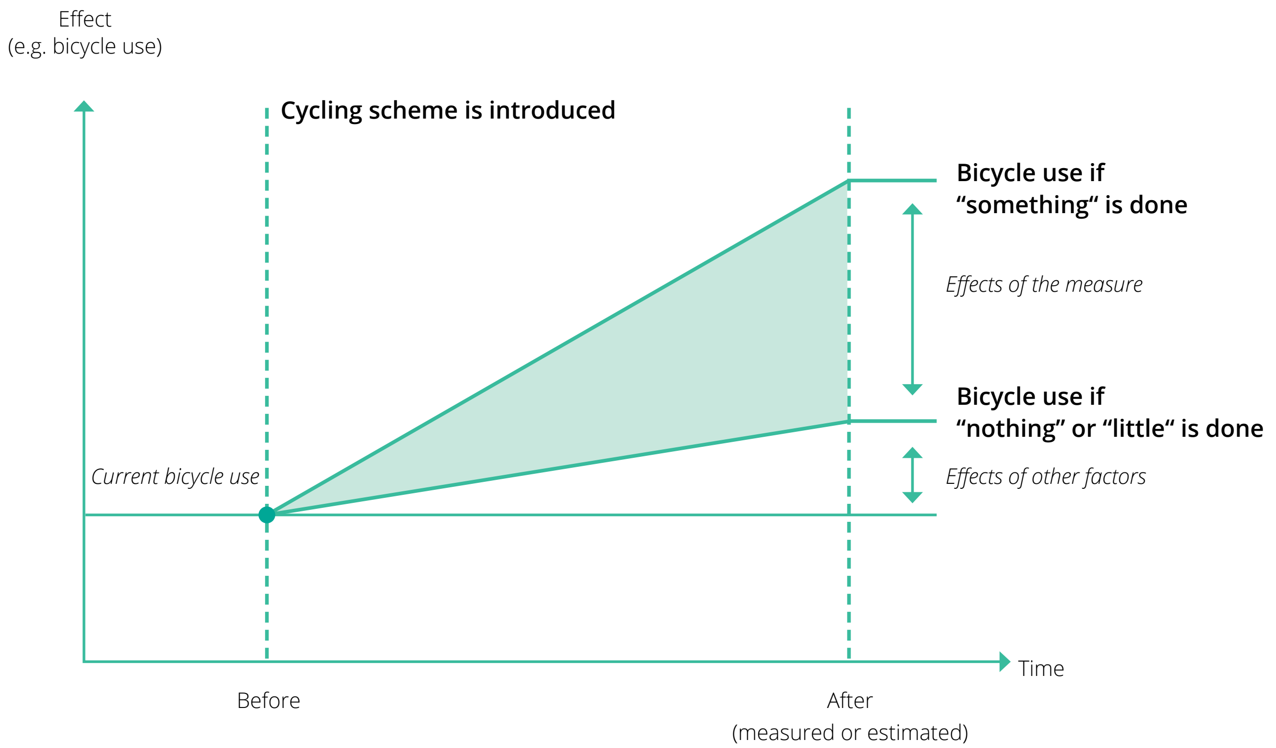
2) A set of quantitative indicators that describe each identified effect are proposed;

3) The value of these indicators is observed before and after the implementation of the policy/project, while preventing other influencing factors from interfering with the measurement;

4) A before and after comparison is made to both assess the effectiveness of the policy/project and calculate the net difference between the two situations.

In addition to the impact assessment, in Bikenomics each net effect is then monetized. When the impact for society is positive, the effect is classified as a social benefit. Conversely, when the impact is negative, the effect is considered a social cost.

If Bikenomics is performed before the implementation of the policy/project, the information describing the situation after implementation can be forecasted using models. Since the cost of cycling policies or projects is often relatively low but the scale of impact is usually high, the final results will be highly sensitive to the quality of these forecasts. It is therefore important that credible and unbiased hypotheses are made. The input of experts and stakeholders, as well as the use of sensitivity analysis, will be crucial to compensate for the uncertainty of the models.




2 For further information, see the Refined CIVITAS Process and Evaluation Framework

### Identification and quantification of the impacts

The identification of the possible impacts of an implemented policy/project, as well as their quantification, will allow for a forward-looking understanding of the policy/project. In general, two orders of effects are considered, and their identification is usually supported by expert judgement, scientific literature, case studies and input from various stakeholders.

- **Direct effects**
  Outcomes that are directly attributable to the implementation of a policy/project and immediately experienced by the target group. Typical direct effects relate to accessibility, journey quality and public space quality.

- **Indirect effects**
  Outcomes that are indirectly attributable to the result of an action, occur later in time, or are somehow removed from the implemented policy/project. Typical indirect effects relate to changes in travel demand resulting from improvements in cycling conditions.

Once all the known direct effects and indirect effects are identified, they are mapped as positive or negative impacts for society, as shown in the table below.

#### Example

| | Direct effects | Indirect effects and externalities | | |
|---|---|---|---|---|
| **Outcome of a bicycle scheme** | Improved cycling conditions | Increased cycling volumes | Reduced motorised traffic volumes | Improvement in spatial quality and land use |
| **Positive impacts** | Improved user convenience, comfort, and perception of safety;<br>Improved accessibility;<br>Enjoyment;<br>Lower traffic speeds. | Improved fitness and public health<br>Reduced absenteeism and higher productivity<br>Longer and healthier life years | Reduced traffic congestion<br>Roadway and parking facility cost savings<br>Operation cost savings<br>Increased traffic safety<br>Energy conservation<br>Pollution reduction | Higher property values<br>Open space preservation<br>Increased social safety<br>Reduced barrier effect caused by road traffic |
| **Negative impacts** | Infrastructure and programme costs<br>Lower traffic speeds | Equipment costs<br>Increased safety risk | Reduced tax revenue from fuel and insurance | Maintenance costs<br>Gentrification |

Each effect needs to be quantified in **physical units**, keeping in mind that a feasible methodology to monetise these effects will then be needed.

For example, improving accessibility is one of the key reasons to invest in transport infrastructure, since greater spatial reach equals greater social and economic opportunities. That said, **access** is a complex concept that is difficult to quantify proxies are needed.

Travel time saved has become a common proxy to measure accessibility improvement, as it is easy to quantify and value in monetary terms.

Reducing the amount of time spent on travel enables transport users to spend the time they have saved more productively or enjoyably. The construction of a bicycle tunnel, for example, that cuts travel time by reducing the overall length of the journey.

Regardless of the quantification methodology used, it is important that the quantification unit can be somehow monetized.

## Valuing the impacts

Once all impacts are identified, described and quantified, what remains is a list of impacts each expressed in their unique terms and through a different indicator.

Consider the following example: *"the cycle path project saves 100 tons of CO2, lowers the environmental noise in the area by 3 dB and reduces the risk of cardiovascular disease of cycle path users 5% on average".* If the construction of this cycle path costs €100,000, should it be built or not?

The challenge arises because the impacts can neither be compared to each other, nor with the project costs. Comparison can only take place when the impacts are monetized.

Through economic valuation techniques that indirectly attempt to measure the value society attaches to those effects.[18] The desirable effects of a proposed policy/project are positive impacts, and are therefore recognised as **benefits** when monetized, whereas all undesirable effects are considered **costs**.

Using the previous example, if society values the impact of 100 tons of CO2 at €50,000, the reduction of 3dB in noise at €20,000, and the health benefits of reducing cardiovascular disease at €50,000, the total value of the impacts of the cycling project is €120,000. If the project costs €100,000, the final result is positive because the benefits are higher than the costs.

**The core of Bikenomics, therefore, lies in this monetization process.**

Since it is typically challenging and costly to obtain relevant economic figures (though recommended!), monetary values can be gathered through scientific literature and other secondary sources, such as handbooks or guidelines. While this can provide a low-cost approach to obtaining desired monetary values, they should be treated cautiously, and their use justified.

**Tip!**
The *Handbook of External Costs of Transports* commissioned by the European Commission DG MOVE, provides an overview of the methodologies and input values that can be used to provide estimates of all main external transport costs.

## Dealing with costs and benefits that cannot be given monetary value

Some costs and benefits cannot be assigned a monetary value. A Bikenomics assessment should include, nevertheless, all relevant information that can affect a policy/project decision, and it should make explicit allowance for costs and benefits that cannot be valued.

Cost and benefit estimates should be reported in one of three categories:

- Quantified and monetized
- Quantified but not monetized
- Not quantified and not monetized, thus only expressed in qualitative terms

If quantification is not possible, the analysis should at least and evaluate their strengths and limitations.

## Step 4

! SUPER ECONOMICS

## Discounting the results and performing the sensitivity analysis

### Discounting benefits and costs

Once a monetary figure is assigned to each effect, it is multiplied by the number of years of the policy/project lifetime. This equation identifies the total monetized net impact of the project in its lifetime.

It is worth noting that cash flow in the future is considered to be less valuable than the same cash flow in the present. This phenomenon is called "discounting" and it is a key feature of economic thinking.[18] Discounting, or the fact that money in the future is worth less than money today, happens primarily for two reasons:

1) Money today can be put to use immediately or invested in some type of economic activity. Since it is assumed that the general economy grows, any sum of money should in principle have a positive return.
2) People generally prefer an income today rather than an income tomorrow, even without considering the return on investment.

Discounting is fundamental to Bikenomics since many cycling projects might have benefits that occur well into the future, whereas investment costs occur in the present or near future.

**An example of discounting**

The construction of a cycling path will cost €1 million this year and it would allow for 100 tons less of $CO_2$ to be emitted between next year and 2050. The total, non-actualized value attached to 100 tons of $CO_2$ between next year and 2050 is also €1 million. Is the project a good financial investment?

According to economic theory, the cycle path project would not be a good investment because the actualized value of 100 tons less of $CO_2$ is worth less than the cost of investment.

**Calculating discounting**

To take discounting into account, the *Net Present Value* (NPV) is calculated, which is simply a correction of any cash flow that occurs in the future to express it in equivalent terms as of today. This is done using a *discount rate*, which is simply a number that expresses how much people are considering the worth of the future cash flow in comparison to the worth of the present cash flow. When a future cash flow is expressed through a discount rate in *as of today* money, it is called *actualized.*

A *value of discount* rate commonly adopted in the EU is 3.5%,[19] although different values have been proposed for different types of projects, geographic contexts, etc.

In Bikenomics terms, all monetized costs and benefits must be actualized through a suitable discount rate in order to actualize all cash flow relative to all impacts. Actualized cash flows can then be summed up for the whole duration of the policy/project, and *total actualized benefits* and *total actualized costs* can be finally calculated and compared.

## Sensitivity analysis

Throughout the process of drafting a Bikenomics assessment it is likely that many assumptions and approximations will need to be made. The purpose of sensitivity analysis is to test the robustness of Bikenomics results in the presence of uncertainty by testing different assumptions.

A good example of this is the value of $CO_2$ emissions. The table below, developed by the European Commission, shows great variation between low and high cost scenarios[20]:

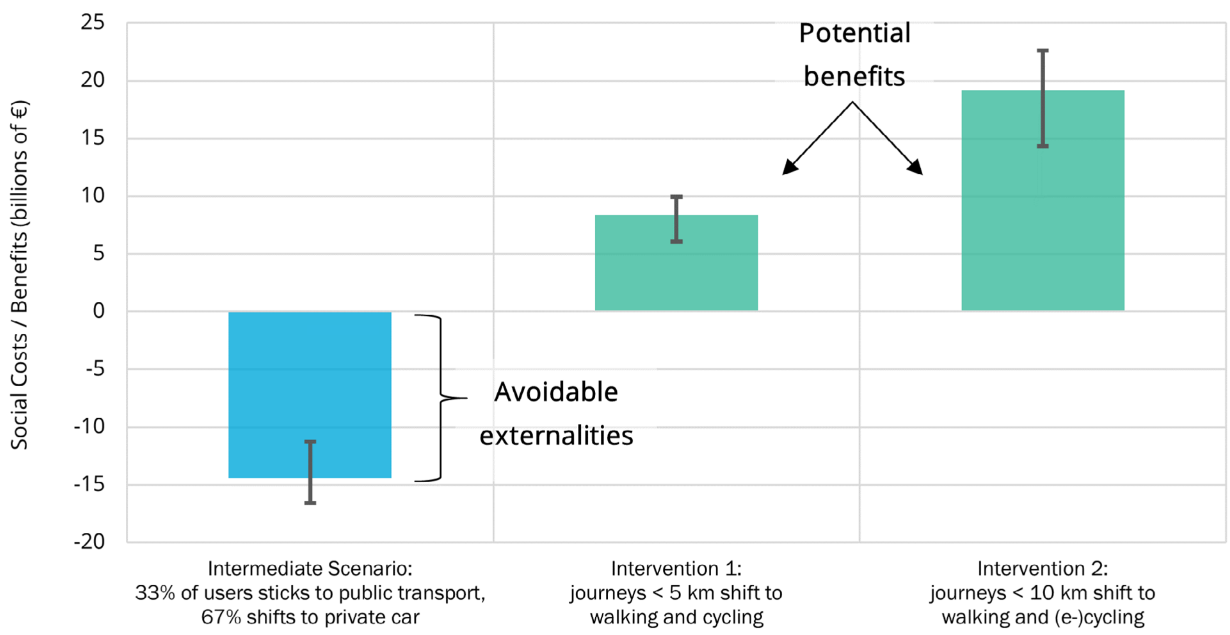
Climate change avoidance costs in €/t$CO_2$ equivalent (€$_{2016}$)[20]

| | Low estimate | Central estimate | High estimate |
|---|---|---|---|
| Short-and-medium-term (up to 2030) | 60 | 100 | 189 |
| Long-term (from 2040 to 2060) | 156 | 269 | 498 |

Which value would you choose? Low, central or high? It is obvious that without foreknowledge on climate change avoidance costs, the choice may be uncertain. Many would go for a "safe" choice by "betting" on the *central value* reported by a Handbook  but possibly underestimating or overestimating the actual impact.

A way to avoid under or overrepresentation of certain effects is to accompany the results with sensitivity analysis to show how the end results would change if lower or higher ranges are used. In the example below, the use of an error bar was used to show the uncertainty related to traffic congestion and other externalities.

**Social costs and benefits of post COVID-19 lockdown mobility scenarios in Italy: Intervention scenarios (billions of €)**




If Bikenomics is performed after policy/project implementation, it may also be valuable to perform a sensitivity analysis of mobility inputs. The reason for this is that walking and cycling projects in particular tend to be present a high degree of uncertainty.

### Step 5

## Presenting the results

The results of a Bikenomics assessment can be communicated in two ways, depending on the aim.

The **table format**, which is typically used in reports, should make a clear distinction between the costs of the project, the anticipated direct and indirect effects, as well as the total benefit-to-cost ratio.The benefit-to-cost ratio is often the main indicator that policy-makers use to judge the profitability of a project. It is also important to list the effects that are qualitative and may not be valued at that moment.

An example of the table format is visible below.

Note: "PM" refers to something that is left to policymakers to define, whereas "+" and "-" indicate something that, according to the analyst, could be valued positively or negatively.

| Impacts in NPV (*1 mln euro) | Conservative scenario | Realistic scenario | Very optimistic scenario |
|---|---|---|---|
| **Costs** | | | |
| Investment costs | -10,7 | -10,7 | -10,7 |
| Maintenance and management costs | -1,9 | -1,9 | -1,9 |
| **Total costs** | **-12,6** | **-12,6** | **-12,6** |
| **Direct effects** | | | |
| Travel time benefits (current cyclists) | 6,7 | 8,6 | 13,3 |
| Travel time benefits (new cyclists) | 3,3 | 5,4 | 10,1 |
| Travel time reliability | 2,5 | 3,5 | 5,9 |
| **Total direct effects** | **12,5** | **17,5** | **29,3** |
| **Indirect effects** | | | |
| Reduced congestion car traffic | 0,2 | 0,3 | 5,0 |
| Increased reliability of car traffic | 0,1 | 0,1 | 1,2 |
| Increased work productivity (new cyclists) | 3,2 | 4,5 | 7,8 |
| Reduced healthcare costs (new cyclists) | 1,2 | 1,6 | 2,8 |
| Improved recreation opportunities | +PM | +PM | +PM |
| **Total indirect effects** | **4,7** | **6,5** | **16,8** |
| **Externalities** | | | |
| Reduced CO2 emissions | 1,0 | 1,4 | 2,1 |
| Reduced local air pollution emission | 0,3 | 0,4 | 0,5 |
| Reduced noise | 0,1 | 0,1 | 0,1 |
| Traffic safety | -2,2 | -3,0 | -5,5 |
| Social safety | PM | PM | PM |
| **Total externalities** | **-0,8** | **-1,1** | **-2,8** |
| **Total balance** | **3,8** | **10,3** | **30,7** |
| **Benefit-cost ratio** | **1,3** | **1,8** | **3,4** |

Tables like the one illustrated above are typical of technical studies, so their communicative power among a wider audience may be less effective.

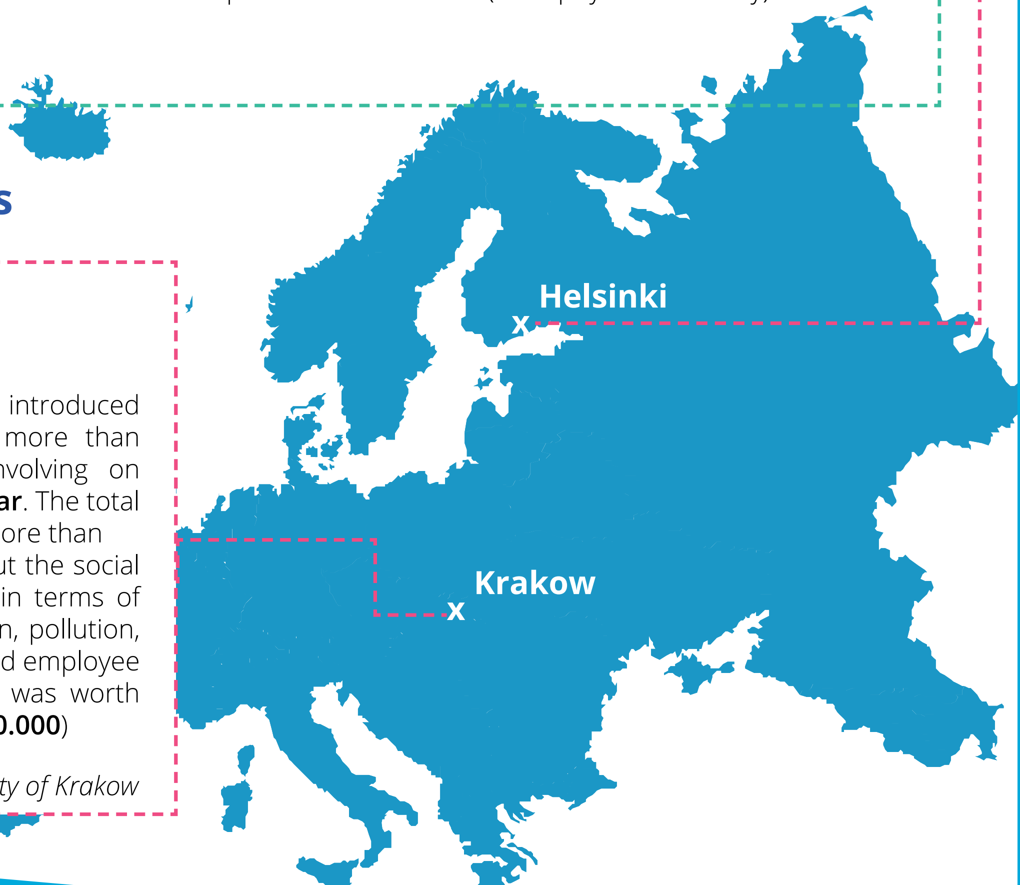
For those without technical knowledge, **a visual format**, which is typically simplified and reliant on examples and infographics, is the most effective means for the communication of results.

### Non-economic figures with high communicative value

Information that cannot be quantified or monetized is still worth including in final reports, as it is capable of promoting discussion and providing further perspective. Some figures that are usually very effective to highlight are:

- Number or percentage of short car trips that may be responsible for causing congestion and could be replaced by bicycle trips
- Average commuting time and speed by different modes of transport during rush hours
- Amount of space used by different modes of transport
- Energy required and carbon footprint generated for the same distance travelled by different modes
- Economic and job multipliers of the cycling investment vis-à-vis other investments
- Spending of the average cycling customer vs. the average driving customer
- Cost-effectiveness of cycling investments to solve specific societal issues (such physical inactivity) vs. other schemes

## Handshake examples




#### Bike-to-work campaign

Between 2017–2022, Krakow introduced a bike-to-work scheme among more than **150+ local companies** and involving on average, **1650 employees per year**. The total investment cost was significant, more than € 270.000 have been invested, but the social benefits accumulated over time in terms of reduced road impacts (congestion, pollution, noise, etc.) and improved improved employee physical activity and productivity was worth almost **3 times** that amount (**€900.000**)

*City of Krakow*

#### Redevelopment of Hämeentie (Helsinki, Finland)

Helsinki redeveloped a major road artery by adding dedicated bike paths and a removing through traffic for cars with investment cost of over € 9 million. This caused a reduction of car speeds and a longer detours, through an adjacent main street, but cycling levels have increased tenfold, leading to an improvement of the livability of the area and reduced emissions. **The benefits are valued at twice the investment cost,** making it a high value improvement.

*City of Helsinki*

## Final thoughts on Bikenomics

The focal point of economics is the necessity to make decisions in the face of scarcity. We cannot do *everything* since we do not have infinite time, space or money. This requires then, a decision on what to pursue and what to give up.

The very same necessity surrounds Bikenomics, namely, the need to decide where to invest, what to promote or disincentivize, and what is most advantageous for the social good.

At the end of a Bikenomics analysis, the process of learning is of key importance, secondary to any final numbers that are determined.

The thinking, weighing, and analysing needed to produce accurate calculations illuminates the possible pitfalls and merits of a policy/project, as well as where it needs to be revised. This process provides all of those involved, like the public administration, engineers, designers and analysts with a full picture of the project, as well as a broader perspective for future projects.

For this reason, it is important that the Bikenomics assessment is designed to be as comprehensive and participative as possible, thereby allowing all contributors to understand the scope of its impacts - and not just the final number.

As the saying goes, it is not about the destination, but rather the journey. Will it be a cycling one?

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## Making the case for cycling investment in your city

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