



The impact of Booking.com in the Netherlands

A cooperation between
Booking.com & KPMG



28 June 2023

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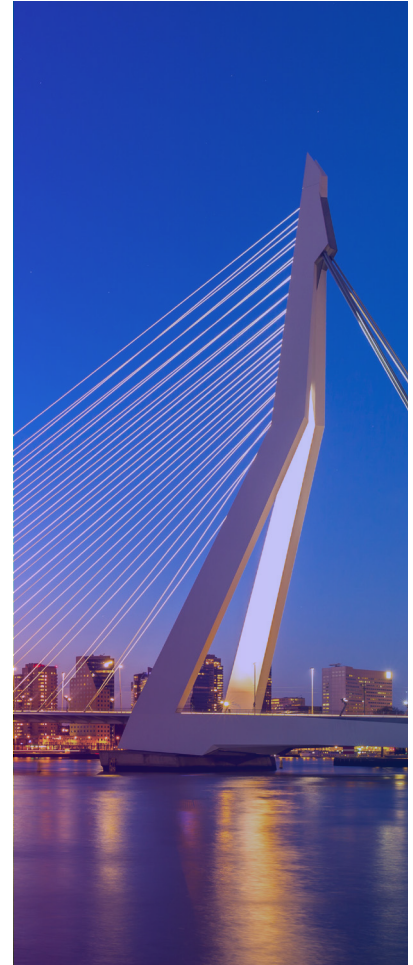
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Executive Summary

Booking.com was founded in the Netherlands in 1996 and with its headquarters in Amsterdam, it is one of the few globally successful online businesses based in Europe. Its operations have local and global impacts. For example, Booking.com provides employment opportunities and contributes to national income and tax revenue. At the same time, its operations make use of environmental resources and it affects local communities in various ways. As one of the leading online travel platforms, Booking.com plays an important role in the Dutch and global tourism industry. It increases accessibility for travellers to various accommodation options, enhances transparency in the market, and provides a platform for smaller or independent businesses in the hospitality industry.

Booking.com is striving to be a sustainable business, contributing to society by generating net-positive impacts through its business model and operations. Delivering on this ambition requires an understanding of its impacts throughout the value chain. Therefore, Booking.com commissioned KPMG to perform a True Value study to identify and measure the direct impact and the externalities generated by Booking.com's operations and the associated downstream value chain in the Netherlands. Using KPMG's True Value methodology, a selection of environmental, social and economic impacts of Booking.com is measured in monetary value, as seen in Figure 1. This selection of impacts is chosen and measured based on the materiality of these impacts as well as data availability. It focuses on Booking.com's

operations in the Netherlands and the external effects of its accommodations business. While the magnitude of economic impacts appears significantly larger than that of social and environmental impacts, one must note that many environmental and social impacts, although material, were not included in this quantitative analysis due to lack of data. These impacts include, but are not limited to, ecosystem, biodiversity, air and water pollution. Nonetheless, such quantitative analysis, while not perfect, provides a first approximation of Booking.com's impacts. The results also provide a baseline for future benchmarking, sustainability strategy development and progress tracking.

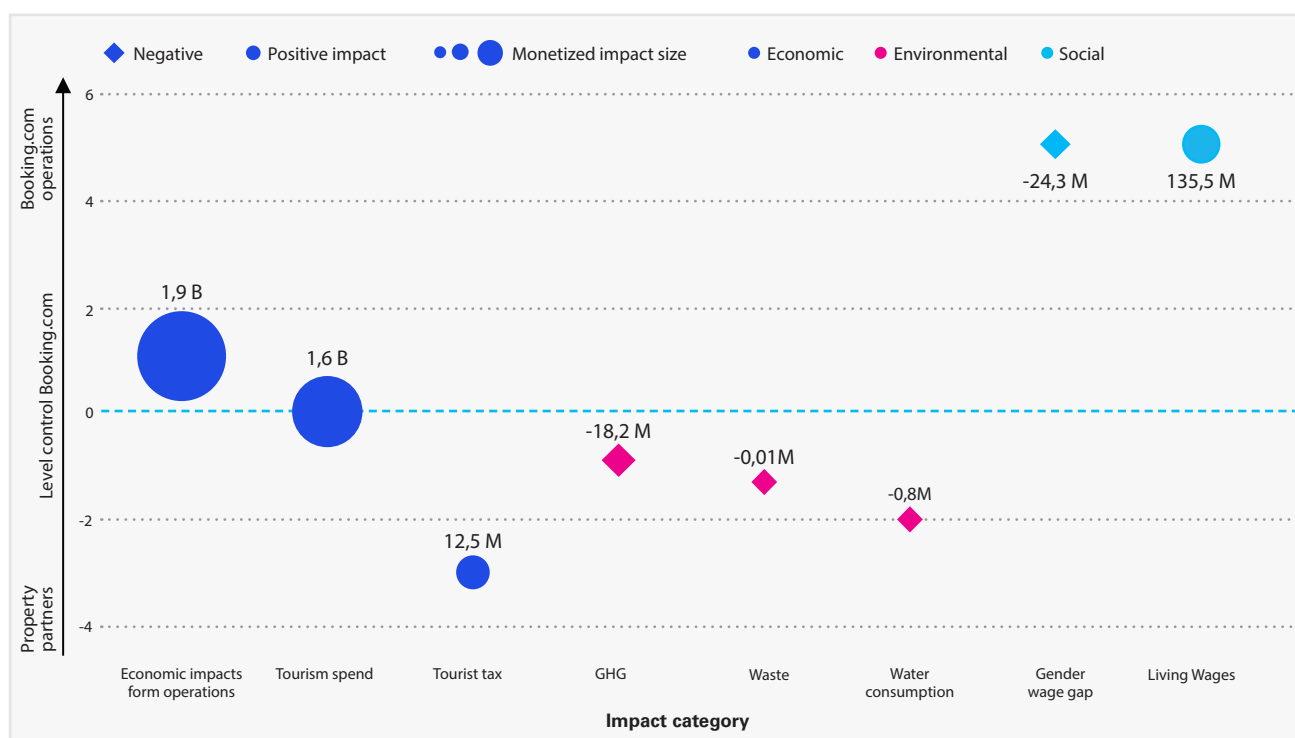
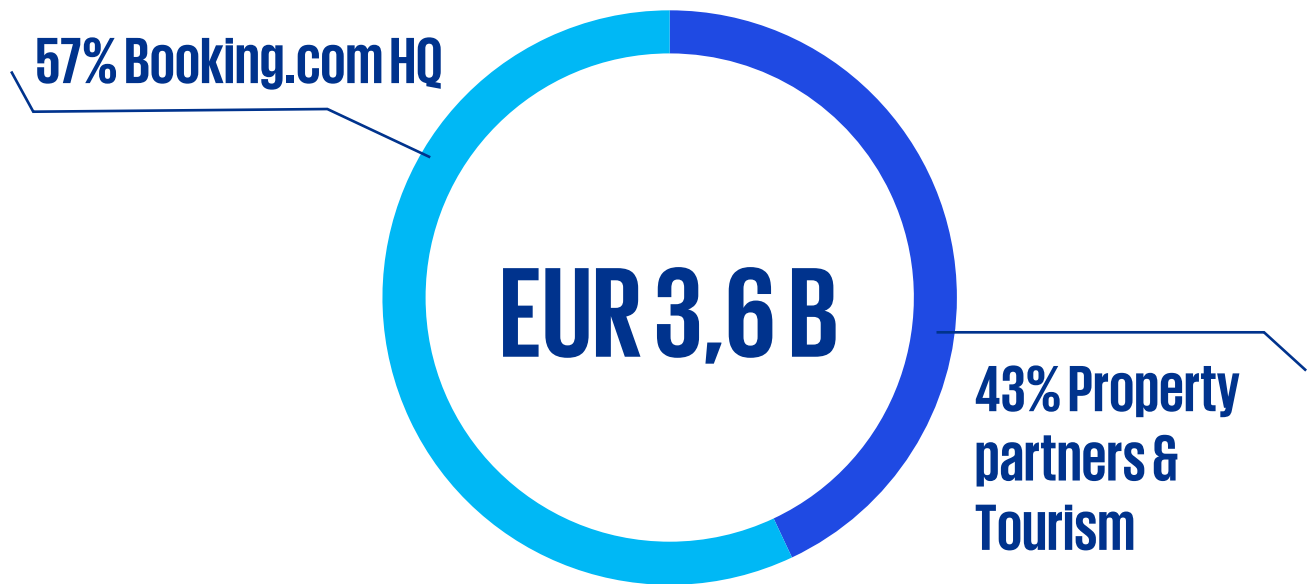


Figure 1 – Overview of Booking.com's impacts scoped in this project

As seen in Figure 1 Booking.com's operations create significant positive economic and social impact in the Netherlands. This includes the company's Dutch tax contributions and above-average wages paid to local employees. On the other hand, the most significant negative effect arises from greenhouse gas (GHG) emissions.

The total net value of environmental, social and economic impacts created by Booking.com in the Netherlands is estimated to be about EUR 3,6B from 2019 to 2021. 57% of this total impact arise from Booking.com's operations in the Netherlands, whereas the remaining 43% occurs due to the incremental nights globally induced by Booking.com.



The Covid-19 pandemic had a profound impact on the results included in this report. In 2020 and 2021, the global travel and tourism industry experienced its largest ever downturn. This report is therefore likely to underestimate the economic value created by Booking.com in an average year, but also environmental impacts as, hotel stays were much lower than other years.



Introduction and background

Booking.com provides one of the world's leading marketplaces for travel. It partners with entrepreneurs of all sizes to offer their services to travellers around the world.

Booking.com is not just a leader in travel but continues to challenge itself and the tourism industry¹ to become more accountable to the planet and people. It has already taken steps by establishing carbon neutral operations, carbon offset projects, waste reduction and enabling more sustainable travel choices. By assessing its impacts through a True Value approach, it aims to gain insights on the net social value that it creates, understand the areas for optimization and be more transparent about its impact on Dutch society.

The request

Booking.com has commissioned KPMG to conduct an assessment of its direct and indirect impacts in the Netherlands from 2019 - 2021 in order to:

- **Communicate:** Provide stakeholders with an overview of its impacts generated in the Netherlands;
- **Substantiate:** Support claims by applying a methodology based on academic research and studies; and
- **Capture:** Gain insights for the management of net benefits generated for society beyond financial results.

This impact valuation has been conducted by applying the True Value methodology. This methodology enables Booking.com to comprehensively measure its material impacts throughout its value chain. By using a common metric (euros), this allows comparison to be made across its impacts and empowers Booking.com to identify focus areas, thus enabling it to better deliver on its ambitions. This valuation offers a starting point in impact understanding, communication and steering decision-making.

Having this understanding will provide Booking.com insight into the following:

- Levers to reduce negative and increase positive impacts;
- Short and long term actions to be taken by Booking.com in its role as an employer, technology platform, and online travel platform;
- Deep dives into key impacts; and
- Future data points to be collected for further exploration.

The outline of the report consists of an explanation of the True Value Methodology, including the scope as well as the limitations to the valuation. It is followed by the overall results (quantitative and qualitative), as well as a deep-dive into the social, economic and environmental impacts.

¹ Booking.com works in unison with various tourism partners to blaze the trail in sustainable travel. For example, it is a founding member of Travalyst, a not-for-profit organisation made up of leading travel companies working together to make travel a catalyst for good in the world. Booking.com also works in partnership with the Global Sustainable Tourism Council to find a collective solution to making travel more sustainable. More information can be found on: [Home | Sustainability \(booking.com\)](https://www.booking.com/sustainability)

About the True Value analysis for Booking.com

Booking.com commissioned KPMG to identify and quantify material impacts created in the Netherlands. The project was conducted through a four-step approach as seen below. The analysis was built upon Booking.com's data, but the valuation factors were derived from reliable third party sources such as governmental papers and scientific research.



Scoping

Booking.com has several integrated products offered via one platform including stays, flights, car rentals, attractions and airport taxis. This True Value analysis focuses on the identification and valuation of the impacts generated by Booking.com's operations and accommodations in the Netherlands. This includes the additional revenue realised by accommodations through working with Booking.com as well as the associated environmental and social impacts of these incremental stays. Other environmental and social impacts generated by tourists when staying at the property partners of Booking.com, such as the food waste generated at establishments other than the property partners or carbon footprint of the transportation they have taken, are not in scope as they are not under the influence of Booking.com. The analysis takes into account the years from 2019 – 2021.



A simplified value chain for Booking.com's operations and its accommodation vertical includes :

- Suppliers which provide Booking.com with products and services to facilitate its operations;
- Booking.com's own operations including its own employees and facilities; and
- Property partners that collaborate with Booking.com to provide travellers with accommodation choices.

Depending on the impact being estimated and depending on data availability, the value chain segments in scope are detailed in the methodology section. For the purpose of this analysis, the impact of upstream suppliers of purchased goods and services and the impact of the Booking.com own operations at its offices in Amsterdam, its headquarters, are collectively categorized as "Booking.com HQ". This is distinguished from the property partners and tourism related impacts, downstream in the value chain of Booking.com.



The downstream impacts (i.e. impacts arising from property partners and tourism) have been estimated based on the incremental nights induced by Booking.com and not the total nights that were booked on Booking.com's platform for the Netherlands. The key difference is that the incremental nights would not have occurred without Booking.com. Hence, this study examines the added value of Booking.com to the Dutch society.

The intention of this analysis was to be as comprehensive as possible. For this reason, initial themes and indicators were selected which take into consideration as many externalities in the value chain as possible. This includes Booking.com's own operations at its headquarters and offices in Amsterdam and at its property partner. Through interviews with internal stakeholders and desktop research, a "long list" of externalities deemed relevant and material in Booking.com's value chain was identified. This long list was then shortened based on data availability to form a "short list", as seen in Table 1. By means of KPMG proprietary True Value methodology, KPMG professionals quantified these externalities and applied a financial value to them using expert input and the best available reliable third party data sources. These included data from the US Environmental Protection Agency (EPA), [Centraal Bureau voor de Statistiek \(CBS\)](#), [True Price](#) and [Valuing Nature](#).





	Booking.com HQ 	Downstream [Property partners & Tourism] 
Positive externalities 	<ul style="list-style-type: none"> • Economic impacts from revenue and expenditure • Living wages • Attracting international talents* 	<ul style="list-style-type: none"> • Increase in revenue earned by property partners • Tourist spend • Tourist tax • Geographic dispersion*
Negative externalities 	<ul style="list-style-type: none"> • GHG • Waste • Gender wage gap 	<ul style="list-style-type: none"> • GHG • Waste • Waste consumption • Housing prices and quality of life*

Table 1 – Shortlisted externalities throughout the value chain, where * denotes a qualitative assessment of the impact

Limitations

There are limitations to the True Value analysis of Booking.com's impacts in the Netherlands. Some limitations, directly related to specific indicators, are listed in the chapter dedicated to that indicator. However, there are also some general assumptions and limitations that need to be stated.

The downstream impacts measured in this project only considers the incremental nights induced by Booking.com, calculated from 2019 to 2021. This is the impact associated with the nights otherwise not booked in the absence of Booking.com. While this provides a snapshot of the added value of Booking.com over the period in scope, we hypothesize that the impact of Booking.com is much greater, more far reaching and systemic if we examine the tourism industry before and after the rise of online travel platforms. This is a much longer timeframe compared to the 3 years in scope. As a result, It is likely that Booking.com (along with other travel platforms) has facilitated an expansion of the tourism industry far larger than the incremental nights identified and included in this project. This means that there could be further environmental, social and economic consequences not captured in this project.

With the current analyses, we cannot and do not assume to predict the future. For example, new regulations may change pricing factors or technological innovations may generate substitutes to current products with reduced externalities. When considering impacts containing high

levels of uncertainty, more conservative approaches have been applied both to data gathering and valuation techniques. These made sure that impacts are balanced, yet offer strategic insights. In some areas, a higher degree of unpredictable systemic interactions made precise measurement challenging; nevertheless we have identified and documented qualitative results with recommendations to measure them in future work.

It is also important to understand that the quality of the input data is determinant for the final values of the externalities. More specifically, data about Booking.com own operations was only partially available for the specific scope defined by this study, as reporting scope of data available was not focused on the Netherlands. For instance, only the total GHG emissions relating to Booking Holdings were available for the analysis. Therefore we created an attribution factor based on the proportionate number of employees and number of incremental nights booked at properties in the Netherlands induced by Booking.com.

Furthermore, as data about the impacts generated at the property partners were not readily available to Booking.com, extensive research has been conducted to understand the environmental and social impacts generated by one night of stay. Peer-reviewed sources have thus been considered. However, the scope of the studies in consideration did not match this study completely. For example, multiple studies were based on South-East Asia. We therefore must account for uncertainties generated by the geographical context of some data sources being different from the Netherlands.

Results

Overall Results

The 3-year results of each impact are visualized in the diagram below, expressed in positive (circle) or negative (rhombus) impacts. Plotting these on a scale of potential control or influence potential by Booking.com, it is possible to see which impacts have the highest potential to be maximised or minimised given the role of Booking.com. Recommendations on how to address these impacts are provided in the recommendation section.

As seen from the graph, economic and social impacts from operations are the most positive impacts the company creates. On the other hand, the most negative effect arises from GHG emissions.

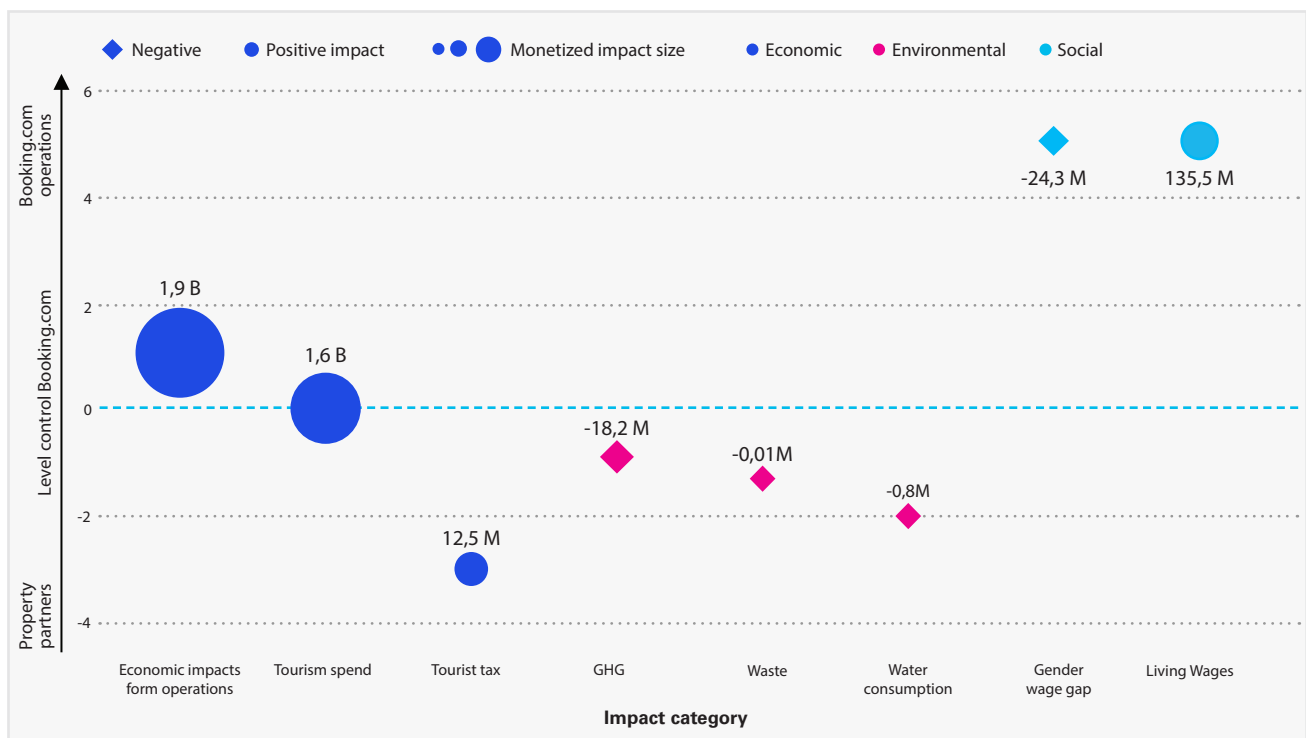
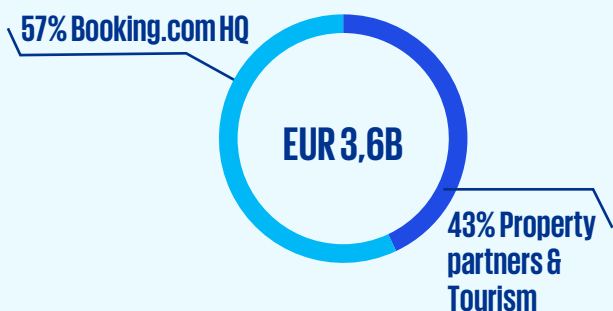


Figure 2 – Overview of Booking.com's impacts scoped in this project

Total value sums up to about EUR 3,6B accumulated from 2019 to 2021, whereby 57% of total impacts is created from Booking.com's HQ, particularly from the taxes paid and incremental tourism spend.



Impact of the Covid-19 pandemic

The Covid-19 pandemic had an enormous impact on the tourism and travel sector. The lockdowns introduced to curb the spread of the virus restricted movement, thereby bringing the tourism sector to a halt. The pandemic and lockdowns resulted in a reduction of economic activity in the sector and, therefore, also a reduction in overall impact. This analysis of the impact of Booking.com spans the years that include the peak of the pandemic, 2020 and 2021, in many countries across the world, including the Netherlands. The effects of the pandemic on the operations of Booking.com, stakeholders and the environment are evident. This report is therefore likely to underestimate not only the economic value created by Booking.com in an average year, but also the environmental and social impacts.

Environmental Impacts

Three main categories of environmental impacts associated with Booking.com's operations and business model are considered in this report:

- 01 GHG emissions
- 02 Water consumption
- 03 Waste generation

As evident from the graph below, the most material among the three are GHG emissions. They create a total of EUR 18,2M of negative externality from 2019-2021, mainly arising from the incremental nights booked with property partners (73,2%). The downstream externalities that result from the incremental nights are much more material than the externalities generated by Booking.com's own operations (which includes the use of office space and data centres).

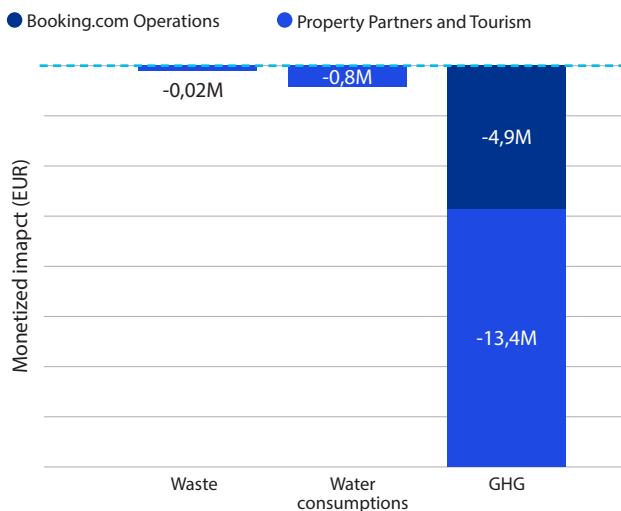


Figure 3 – Breakdown of Booking.com's environmental impacts scoped in this project

01 GHG emissions

Scope

Value chain



Affected Stakeholders:



Booking.com's impact on the environment is most material through GHG emissions. Booking.com, its suppliers and its property partners' operations emit greenhouse gases, which have an impact on the environment and the wider society. In the scope of this project, we consider Booking.com responsible for GHG emissions in two ways: through its GHG Scope 1-3 impacts as covered in its sustainability report and through its property partners. In Booking.com's own operations, we aim to capture emissions generated in the Amsterdam offices and activities, as well as upstream purchase of goods and services (including data centres). We thus assign to this category of impact Scope 1 and 2 emissions and a part of Scope 3 emissions, related to office usage, employees travel and commute and purchase of goods and services and data centres. When it comes to emissions of the property partners, GHG is mainly generated by energy use at the properties. The average volume of GHG emissions per night found in literature is multiplied by the total incremental nights booked at the properties in the Netherlands induced by Booking.com to quantify the total GHG emissions downstream.



In the graph below, we provide an overview of the monetary impact of GHG emissions over the years, split by Booking.com and its downstream property partners.

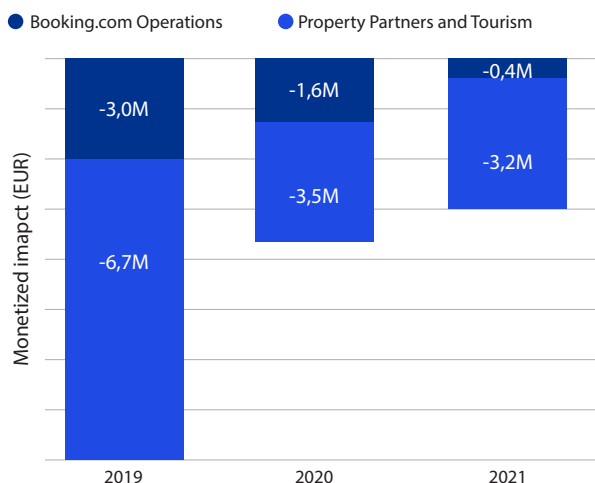


Figure 4 – Year-on-year monetary impact of GHG emissions attributable to Booking.com

It is evident from the graph above that 2019 GHG emissions were significantly higher than in 2020 and 2021. The reasons are twofold. For Booking.com’s impact, GHG emissions capture office use as well as data centres, purchased goods and services, business travel and employee commuting. The sharp decrease in 2020 can be explained by the introduction of Covid-19 related measures such as working from home and travel restrictions, which resulted in a reduction in total energy usage.

On the other hand, property partners’ impacts are computed by multiplying the total incremental nights booked at properties in the Netherlands induced by Booking.com with a proxy expressing the average GHG emissions per room night. Therefore, as tourism declined in 2020, the number of nights booked also declined. This reduced the GHG emissions for the year 2020. A slight increase in emissions, especially at property partners level, can be seen in 2021. Here, the driver is again the number of booked nights. Booking.com’s impact in 2021, in contrast, is showing a similar value to 2020, perhaps due to better management of its emissions or the fact that actual office use has remained stable from 2020.



02 Water consumption

Scope

Value chain



Affected Stakeholders:



Water is consumed in the offices of Booking.com as well as at the properties managed by property partners. Booking.com’s value chain operations draws water from water sources and will not be returned to these sources in its original state. This has an impact on the environment and society as a whole. Water consumption at Booking.com’s offices is not reported in any official documentation, therefore we only include an estimation of water consumed per hotel night in our analysis. As all other property partners’ impacts, we compute it by multiplying the price with a volume (of water in this case), where the volume comes from the multiplication between the total incremental nights booked at properties in the Netherlands induced by Booking.com and the average water consumed per night in a hotel.



Figure 5 – Year-on-year monetary impact of water consumption attributable to Booking.com

As the downstream impact is driven by the incremental nights induced by Booking.com, the trend is exactly the same as for all other downstream impacts. Therefore, the pandemic restrictions to traveling and the slow recovery of 2021 are all visible drivers in the graph above.

03 Waste generation

Scope

Value chain



Booking.com operations



Property partners and tourism

Affected Stakeholders:



Local Community

The tourism industry contributes to waste generation, which has a significant impact on the environment. To estimate the waste generated downstream at Booking.com's accommodation partners, we researched the solid average values per night. We then multiplied it by the total incremental nights induced by Booking.com. These calculations resulted in an estimate of total amount of waste produced, expressed in kg. For Booking.com HQ, waste generation concerns the waste generated by Booking.com's offices in Amsterdam.

Waste generated by the use of infrastructure of property partners is higher than the one generated by Booking.com offices itself. However, waste is not as material as other impacts. For every hotel night, estimates of waste

produced range from 0,4 to 1,6 kg, while the emission of CO₂e ranges from 0,3 to 50 kg, and water from 188 to 509 L. Waste figures as defined in the studies of reference include both containers, packaging, products and food waste. The monetized impacts are also determined by the prices of waste. Such prices range between 35 and 48 EUR/ton, CO₂e per Tonne 109-140 EUR/ton, and water 580-620 EUR/L. These two aspects (quantity and price) explain why waste is the least material impact in this framework.

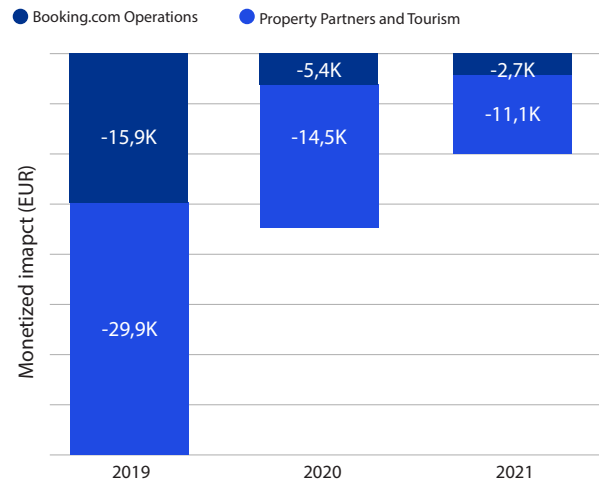


Figure 6 –Year-on-year monetar impact of waste generation attributable to Booking.com

It is clear that in 2020 and 2021, Booking.com's waste has been reduced. Property partners' impact follows the same trend as all other impacts associated with the incremental nights induced by Booking.com. Again, this is probably due to the reduced use of facilities and properties during the pandemic in the years 2020 and 2021.



Social Impacts

Social impacts are impacts directly relating to people. Regarding social impacts, two categories are considered:

01 Living wage

02 Gender wage gap

Both impacts are related to the direct employees of Booking.com.

● Booking.com Operations

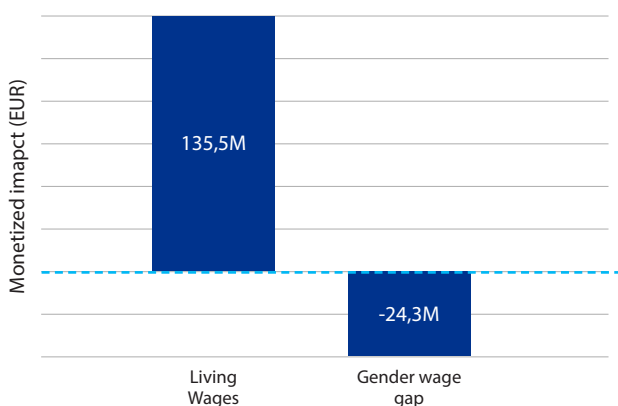


Figure 7 – Breakdown of Booking.com’s social impacts scoped in this project


Across the different career levels, Booking.com’s employees are receiving salaries above the Netherlands’ living wage. This therefore contributes to a positive living wage impact of about EUR 136M in total. With regards to gender wage gap, a gap is observed across most career levels. Such wage disparity within the same career levels contributes to an impact of about EUR -24M in total. Female employees are also visibly less present in the upper career levels, but this has not been factored into the valuation.

01 Living wage 

Scope

 Value chain

 Booking.com operations

 Property partners and tourism

Affected Stakeholders:



Employees (and their families)

This section identifies how the difference between the salary received and the living wage of the country impacts the employee’s wellbeing. The living wage is defined as the basic pay that allows a household to obtain basic necessities in life such as access to good health, education, nutrition and more (Vionnet et al., 2021). It has been adjusted for inflation over the years in scope. From 2019 – 2021, Booking.com paid its employees across the different career levels above the living wage of the Netherlands and impacted the employees’ well-being positively.

● Booking.com Operations

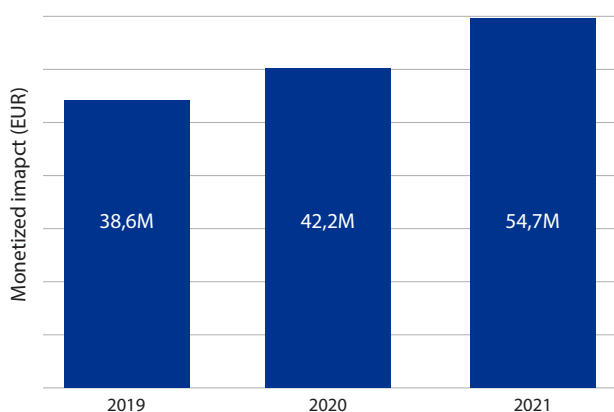


Figure 8 – Year-on-year monetary impact of living wages at Booking.com

As seen from the graph above, there is a net positive societal impact of EUR 39-55M per year. The fact that the positive impact has grown over the years can be attributed to a general increase in salary across most career levels.



02 Gender wage gap

Scope

Value chain



Booking.com operations



Property partners and tourism

Affected Stakeholders:



**Employees
(and their families)**

This section estimates the impact of the wage gap between males and females at Booking.com. In general, gender wage gap impacts female employees, as it reduces, among many other factors, their lifetime earnings, pension, purchasing power, financial resilience and independence when compared to male employees.

Across most career levels, there is a noticeable wage gap between male and female employees within the same career level. While the average salaries of both men and women increased over the course of the years in scope, so did the wage gap. In fact, the impact of the wage gap increased by 91% between 2020 and 2021, as seen in the graph below. It is worth noting that this is not a comparison of males and females in the same role within a career level. Part of the difference might be due to females being more prevalent in a certain career level in a department where the wage band for that career level is lower than for the same career level in another department, where men are more prevalent. However, this might in itself be an outcome of bias and it will be worth exploring why this would be the case - for example whether there are certain education opportunities excluded to females which limit their ability to take up roles that demand a higher wage.

● Booking.com Operations

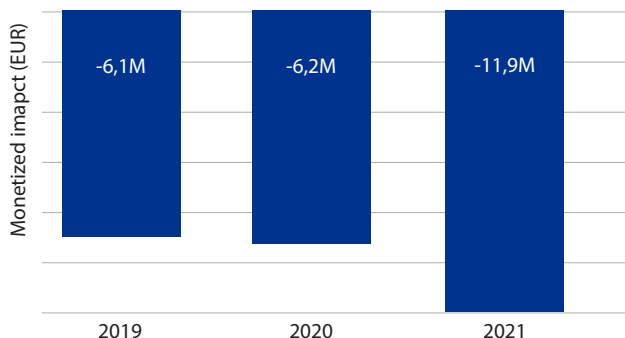


Figure 9 –Year-on-year monetary impact of gender wage gap at Booking.com

As an example, from 2020 to 2021, average salaries of men increased by 5-10% across some career levels, but the increase in salaries for women of the same career levels increased by less than half of their male counterparts. In addition, there is also a visibly lower female to male ratio in the upper career levels (Career Level L being the highest level) which could be caused by reasons including unequal promotion opportunities or unconscious bias in hiring, as noted in the graph below. This unequal ratio has not been factored into the current valuation, but should also be consciously noted.

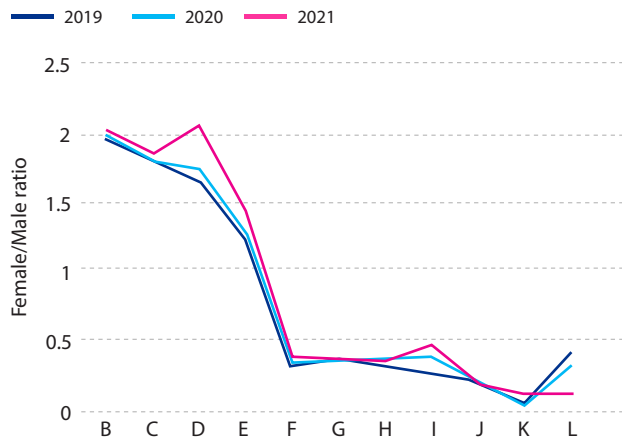


Figure 10 - Female/Male ratio across career levels

This sparks the question of whether the increase in salaries or the hiring of employees in the higher career levels has been fairly distributed between male and female employees.



Economic Impacts

The economic impacts are clearly the most material and have an overall positive effect. Regarding economic impacts, 3 impact categories are considered:

- 01** Economic impacts from Booking.com's operations
- 02** Tourism spend
- 03** Tourist tax

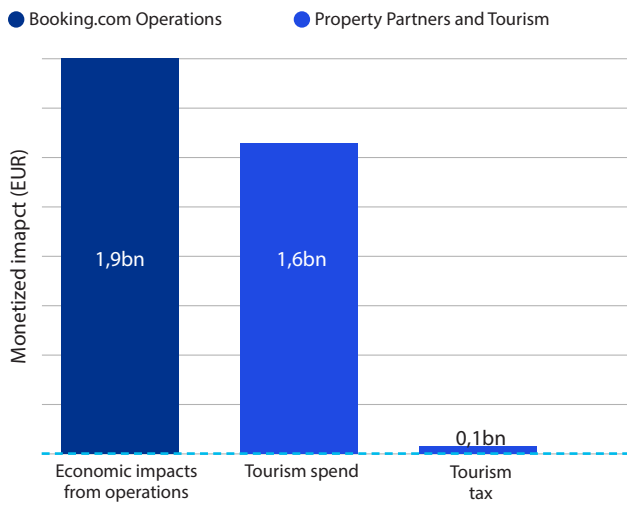


Figure 11 – Breakdown of Booking.com's economic impacts scoped in this project

The most significant impact is the economic impacts from operations, which arises from Booking.com's revenue, expenditure, and taxes paid. All of which contribute to the GDP of the Netherlands and create employment. With regards to tourism spend and tourist tax, these arise downstream and are calculated based on the incremental nights induced by Booking.com i.e. nights reserved that would not have happened in the absence of Booking.com.



01 Economic impacts from Booking.com's operations

Scope



Affected Stakeholders:



In the course of operating their business, Booking.com spends money on various goods and services and in so doing impacts the economic environment in which it operates. That impact is broader than the accounting or financial statements record since it also contains the impact that Booking.com has on the economy through its supply channel and as an employer in the economy.

The total impact that Booking.com has on the economy is therefore the sum of:

- 1 Direct impacts: its direct expenditure on goods and services;
- 2 Indirect impacts: the increase in demand that is required by entities making up its supply chain in order to supply the inputs it requires; and
- 3 Induced impacts: the added demand that is experienced in the economy from employees of Booking.com itself as well as its supply chain businesses when spending their money in the economy.

Using an economic impact model based on the economic data contained within the input-output tables published by Statistics Netherlands, we are able to estimate the total economic impact of Booking.com's operations as measured by an estimation of its contribution to GDP, indirect jobs created and total tax expenditure arising from Booking.com's operations and upstream supply chain activities. The total tax expenditure includes the income taxes paid by Booking.com directly as well as the indirect and induced taxes paid by its employees as well as from its supply chain as a result of their interactions with Booking.com. These impacts on GDP, employment and tax are due

to Booking.com's own operations, and thus, differ from the impacts of tourism spend which occur in a different part of the value chain i.e. downstream.

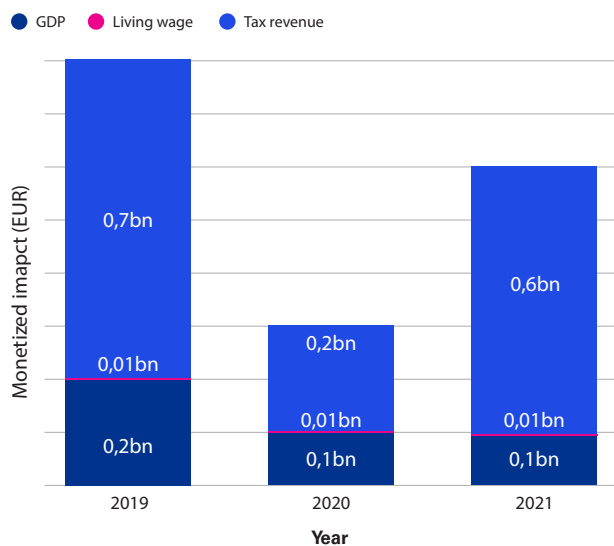


Figure 12 – Economic impacts arising from Booking.com's operations

As seen from the above, the tax paid comprises the most significant portion of the economic impacts. As this report considers the value created in the Netherlands, the full tax amount paid to the Dutch authorities, although generated from the commission Booking.com earns from its property partners globally, has been included. This is due to the fact that Booking.com is headquartered in the Netherlands. This therefore explains why the economic impact Booking.com created in the Netherlands is so large.

Total employment is provided as the number of full-time equivalent (FTE) jobs indirectly created by Booking.com's operations. The impact of jobs directly created by Booking.com (i.e. Booking.com's own employees) has been covered under the living wage section. Nonetheless, the valuation approach for these two categories of jobs created (direct and indirect) are aligned – we have assumed that the indirect jobs created pay an average Dutch salary to the employees, and this average Dutch salary has been compared with the living wage of the Netherlands, and the difference gives rise to a welfare impact on the employees which has been measured in monetary value.

Evident from the graphs above, the transition from 2019 to 2020 results indicate the severe impact that the tourism sector experienced from the Covid-19 pandemic, which included restrictive mobility and socialisation constraints under official lockdown regimes. By 2021, a Covid-19 vaccine had been developed. Although some restrictions in mobility were still in place, a clear improvement from 2020 outcomes is visible in the graphics above.

02 Tourism spend

Scope

Value chain



Booking.com
operations



Property partners
and tourism

Affected Stakeholders:



Local
Community

The visibility and global reach provided by Booking.com induces more nights to be booked at property partners. While the average daily rate of properties experiences a reduction due to the effects of Booking.com (e.g. increased transparency leading to more competition), there is still a general added value to tourism spend, arising from the incremental tourism activity induced by Booking.com. The incremental tourism activity leads to increased spending at the destination, therefore creating more jobs that support the tourism industry directly and indirectly and an overall increase in GDP. The impact of tourism spend is therefore measured in two ways:

- 1 Contribution to GDP
- 2 Increase in jobs where the value is measured via a living wage approach

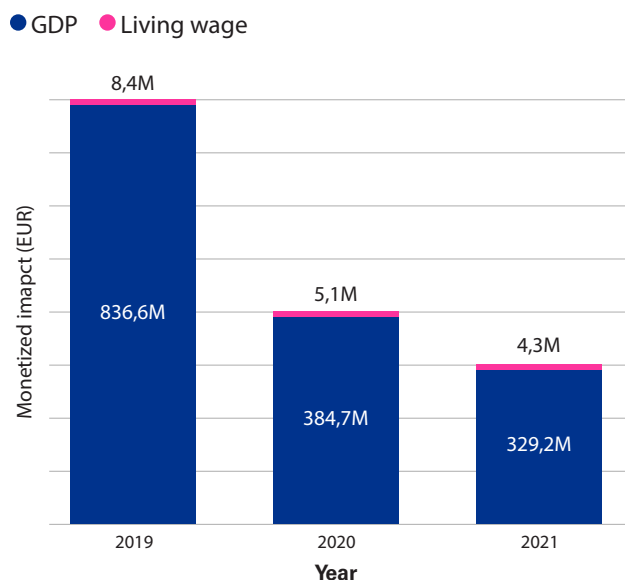


Figure 13 – Effects of tourism spend attributable to Booking.com

Evident from the graph above, the contribution to GDP from tourism spend attributable to Booking.com is as high as EUR 837M in 2019, but this fell by 54% and 14% year on year in 2020 and 2021 respectively. This drop is likely due to the COVID-19 pandemic and the restrictions on travel and mobility.


Besides contribution to GDP, the graph above shows Booking.com's contribution to the increase in the number of jobs and living wage from increased tourism spend. The estimation approach was similar to that followed in the 'Living wage' section of this report, inspired by [Valuing Nature](#). Similar to GDP, the drop in the living wages impact across the years is due to the loss of jobs due to the COVID-19 impacts on the tourism industry.




03 Tourist taxes

Scope

Value chain

 Booking.com operations

 Property partners and tourism

Affected Stakeholders:

 Local Community

While tourism brings several positive social and economic benefits to the populations of tourist destinations, it is also accompanied by negative social and environmental externalities. These impacts are mostly felt by the local communities that reside in these destinations. Therefore, in order to compensate for the negative impacts of tourism on the local communities, raise funds for investment into better and more sustainable tourism infrastructure, and to fund use and maintenance of local facilities and infrastructure, government bodies introduce tourism taxes (Buckley, 2019).

Tourist taxes are paid in a variety of different manners, for instance at accommodations or as part of visa fees. Booking.com facilitates increased travel and thereby, enables municipalities to collect more tourist taxes. Attributing some of these taxes to Booking.com will allow us to understand Booking.com's contribution to the knock-on effects of tourism on local communities. The tourist tax might act as a proxy to encapsulate the cascading effects of tourism on local communities, and Booking.com's contribution to remunerating and potentially further developing areas impacted by tourism.



● Property Partners and Tourism

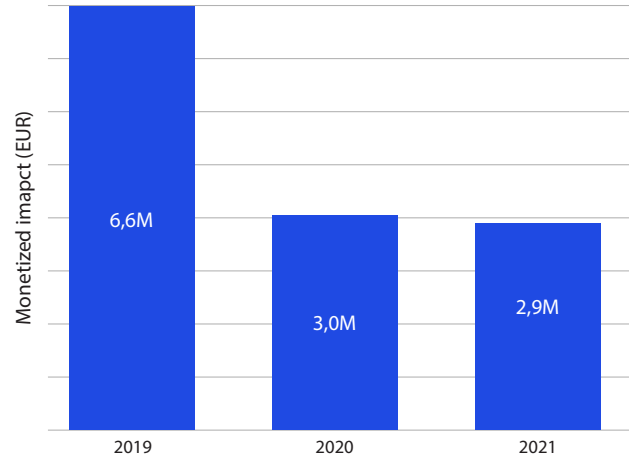


Figure 14– Tourist taxes attributable to Booking.com

The taxes collected over 2020 and 2021 are lower than those collected in 2019 by 54-56%. This is largely due to the slowing down of the tourism sector because of the pandemic.



Socio-Economic Impacts

- 01 Housing prices & quality of life
- 02 Geographic dispersion
- 03 Attracting international talents

Due to the complexities of quantifying the above impacts, the methodology taken in this section will follow a qualitative analysis based on desktop research.

01 Housing prices & quality of life

Scope

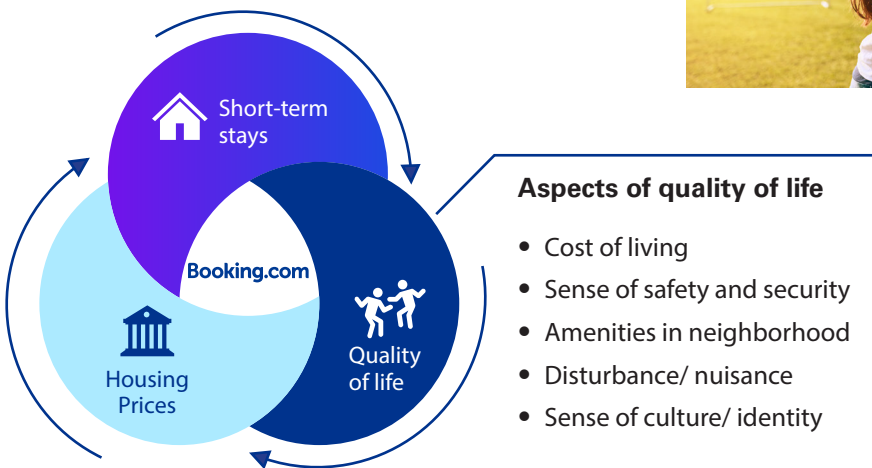


Image 1 – Correlations between short-term stays, housing prices and quality of life

Overall, there are contrasting relations between short-term stays and housing prices as observed from research:

- Short-term stays may **increase housing prices** as properties used for tourist rental contribute to scarcity (Companen BV, 2022) **BUT**
- Short-term stays may also be **linked to more crime** and nuisance which **drives down housing prices** (Cheung & Chung, 2022)

Affected Stakeholders:



Through the properties listed on Booking.com, the company impacts the housing prices and quality of life in the local communities, as seen in Image 1. However, it is difficult to quantitatively assess a blanket effect on the housing prices and quality of life as they are also affected by many other factors. Nonetheless, a qualitative desktop research suggests that short-term stays, as facilitated by Booking.com, have both an increasing and decreasing effect on the housing prices and quality of life, plausibly depending on the population density of the neighbourhood. Therefore, a more in-depth (statistical) analysis in specific neighbourhoods is recommended to better assess the effects. From this analysis, Booking.com might be able to derive actions to reduce negative impacts. This can include measures such as working with policy makers to regulate tourist disturbances in tourism hotspots.



Scientific research extensively shows that tourism (in the form of short-term stays) raises housing prices – by at least 4-5% on average in the OECD economies (Paramati & Roca, 2019), (Peri, Smiljanic, & Kezic, 2022). The reasons are two-fold:

- Tourist rentals contribute to scarcity of properties (Companen BV, 2022)
- Homebuyers who rely on income from short-term stays are willing to offer a higher price for a property (ING, 2019)

However, it has also been argued in other research that the presence of tourists is linked to more crime and nuisance and other negative externalities (such as pollution and overcrowding) (Gottlieb, 2013) which can cause a reduction in house prices. In particular, (Cheung & Chung, 2022) found that the number of Airbnbs around the home has a negative effect on the price per square meter. While their research is specific to Airbnb, the consequence of short-term stays bringing in more tourists and tourist-related disturbances might be applicable to Booking.com.

From the research, it is clear that the correlations can significantly vary which could depend very much on specific neighbourhoods, where some factors such as the current population density could play a part. A statistical analysis is recommended to better assess the causal mechanism and its impact on housing prices. Such an analysis might provide more insights into options to reduce negative impacts.

A similar contrast is also observed between short-term stays and quality of life:

- a Short-term stays **provide additional income** for residents to perform home renovations or- increase **viability of some facilities** (e.g. café, farmers' markets), which **improve quality of life BUT**
- b **"Touristification" of neighbourhoods** may result in **replacement of local amenities** with "tourist shop", increase in issues relating to **waste, disturbance and reduced sense of security.**

Short-term stays have been argued to help preserve property values and support residents with sufficient additional income to pay or repay mortgages and carry out home renovations, all of which can contribute to a greater quality of life and sense of liveability (Jefferson-Jones, 2014). In addition, short-term stays can contribute to livelier neighbourhoods and increase the viability of certain types of facilities (e.g. cafés, 'farmer markets') (Koens, Postma, & Papp, 2018). These correlations are likely to occur before the neighbourhood reaches its optimal density level.

Short-term stays are however also reported to negatively impact the quality of life. The rise of short-term stays is argued to be related to a potential loss of amenities aimed at residents (e.g. corner shops) and a general "touristification" of the neighbourhood. Common complaints include noise by visitors, issues with traffic and parking as well as insufficient waste management of

visitors (Gurran & Phibbs, 2017). This is likely to occur after the neighbourhood reaches the optimal density level.

Overall, "touristification" of neighbourhoods linked with short-term stays can have a two-way effect on the quality of life, and this is likely dependent on the current density level of the specific neighbourhood. Further analysis is recommended to identify current and optimal density levels and the current effect of short-term stays on the quality of life. Geographic dispersion could reduce the density of tourists in overcrowded neighbourhoods and direct them to less crowded neighbourhoods, thus enabling the quality of life in both neighbourhoods to improve. This is further explored in the next section.



02 Geographic dispersion

Scope

Value chain



Booking.com
operations



Property partners
and tourism

Affected Stakeholders:



Local
Community

As described in the previous section, the rise in tourism has resulted in some locations becoming tourism hotspots. While the increase in tourism is beneficial to local communities to a certain point this fine line is sometimes crossed. This can lead to converting tourist locations to hotspots and bringing along with it the negative impacts of over-tourism, which in turn reduces the quality of life and environment. The UN World Tourism Organization defines over-tourism as “the impact of tourism on a destination, or parts thereof, that excessively influences perceived quality of life of citizens and/or quality of visitor experiences in a negative way” (S. Carvão, 2018).

Online travel platforms enable accommodation providers to market their properties to a global audience. This includes chain hotels that are mainly centred in cities and tourist hotspots, as well as alternative accommodation options such as bed & breakfasts, smaller independent hotels, lodges, etc., that are more spread out across the urban and rural landscape. By providing these varied options to the customer, online travel platforms such as Booking.com help reduce the pressures of over-tourism on certain locations and help disperse tourists geographically to locations less visited (Oxford Economics and Booking.com, 2022).



This geographic dispersion of tourism has a number of impacts on local communities and the environment. The rise in tourism helps improve the quality of life as seen in the previous section. Local businesses also thrive as tourism increases in areas less explored. The dispersion reduces pressure on the environment and the community in tourist hotspots, by distributing it across various locations, thereby, increasing the restoration capability and resilience of these locations (Szromek, Hysa, & Karasek, 2019).



03

Attracting international talents



Scope

Value chain



Booking.com operations



Property partners and tourism

Affected Stakeholders:



Employees (and their families)



Dutch Economy and companies

The Netherlands is experiencing a rising talent shortage due to factors including declining birth rates and the rise in early retirees. For example, as noted from Centraal Bureau voor de Statistiek (2023), there are 121 vacancies per 100 unemployed people. The Information Technology sector experiences one of the highest talent shortages across the different sectors, where 66% of employers are unable to find the employees they need (Manpower Group, 2022). Talent shortage could suppress the economic output of a company and broader economy as there are not enough people taking up the jobs to realize the output potential (Barnow, Trutko, & Piatak, 2013). At the same time, talent shortage might increase expenses of the company as it is pressured to increase remuneration as a means to attract or retain its employees (Barnow, Trutko, & Piatak, 2013).

Booking.com plays an active role in attracting international talents to the Netherlands:

- Partnering with LinkedIn to find and analyze data on hiring potential in different regions of the world as part of their efforts to recruit globally (LinkedIn, 2016)
- Collaborating with governmental agencies such as Gemeente Amsterdam and Amsterdam Economic Board to identify current demand and supply of tech talent, looking into what the Amsterdam Metropolitan Area can do and inform other Dutch cities (Gemeente Amsterdam; Amsterdam Economic Board; Startup Amsterdam, 2017)

Booking.com extensively hires international talents which later feed the Dutch tech talent ecosystem and contribute to the economy.

For example, in 2020-2021, 68% of its total attrition moved on to other firms within the Netherlands, and 43% of its total attrition stayed in the Internet, Computer Software or Information Technology Industries. While Booking.com's contribution to the Dutch tech talent ecosystem and to the economy is recognizable, it is currently challenging to quantify due to lack of data.



Conclusion

Booking.com is one of the most successful companies founded and headquartered in the Netherlands, and a global leader in travel. It is committed to making a net positive contribution to society and to creating a more sustainable travel sector. This report is testament to this ambition and provides a comprehensive impact analysis of Booking.com's economic, environmental and social impacts created in the Netherlands.

Based on KPMG's True Value methodology, this report quantifies Booking.com's impact in the Netherlands – both positive and negative. By assigning a monetary value to the natural and social dimensions of Booking.com's business model, it makes tangible costs and benefits that otherwise might be overlooked and allows for a more holistic understanding of Booking.com's net contribution to the Dutch economy, society, and natural environment.

Booking.com's operations create significant positive economic and social impact in the Netherlands. This includes the company's Dutch tax contributions and above-average wages paid to local employees. On the other hand, the most significant negative effect arises from greenhouse gas (GHG) emissions. Booking.com also creates socio-economic impact which is based on qualitative research. This includes Booking.com enabling geographic dispersion and thereby reducing the pressures of over-tourism on certain locations. Additionally, Booking.com plays an active role in attracting international talents which positively impacts the talent shortage in the Netherlands, especially in the Information Technology sector.

This True Value analysis provides a first approximation of Booking.com's impact in the Netherlands as well as a baseline for benchmarking of future results. The insights in this report are meant to inform Booking.com's stakeholders for steering decision-making in a more sustainable direction, for instance by collaborating with key stakeholders and leveraging the unique role that Booking.com plays in this industry.



Appendix – Methodology Handbook

True Value Methodology

The True Value methodology is an approach developed by KPMG to assess, manage and transform corporate and societal impact. The methodology provides insights into the non-financial performance of institutions. It does so by quantifying and monetizing formerly unknown or unacknowledged societal impacts in order to determine the ‘true value’ of an activity. The approach can be used to perform a comprehensive impact assessment of a country, enterprise, organization, region, division or product. The methodology brings together global expertise from a great number of disciplines to deliver a credible and transparent method of quantification, monetization and management (i.e. analytical prediction of future costs and benefits, and proposed strategic responses).

A three-step process

KPMG’s True Value approach is a three-step process. The first step begins with identifying a company’s positive and negative, socioeconomic and environmental externalities. An externality is a consequence of an industrial or commercial activity which affects other parties without this being reflected in market prices; this can either be a cost or a benefit. In the second step a valuation is performed for each externality, by calculating the expected risk and rate of internalization as a result of regulation and standards, stakeholder actions, and market dynamics. In the third step business cases to create greater corporate value, societal value and competitive advantage are evaluated. In this manner the approach informs investment decision making, corporate strategy and business model transformation.

1. Assess ‘true’ costs (and earnings)

by identifying and quantifying material externalities (economic, environmental and social)

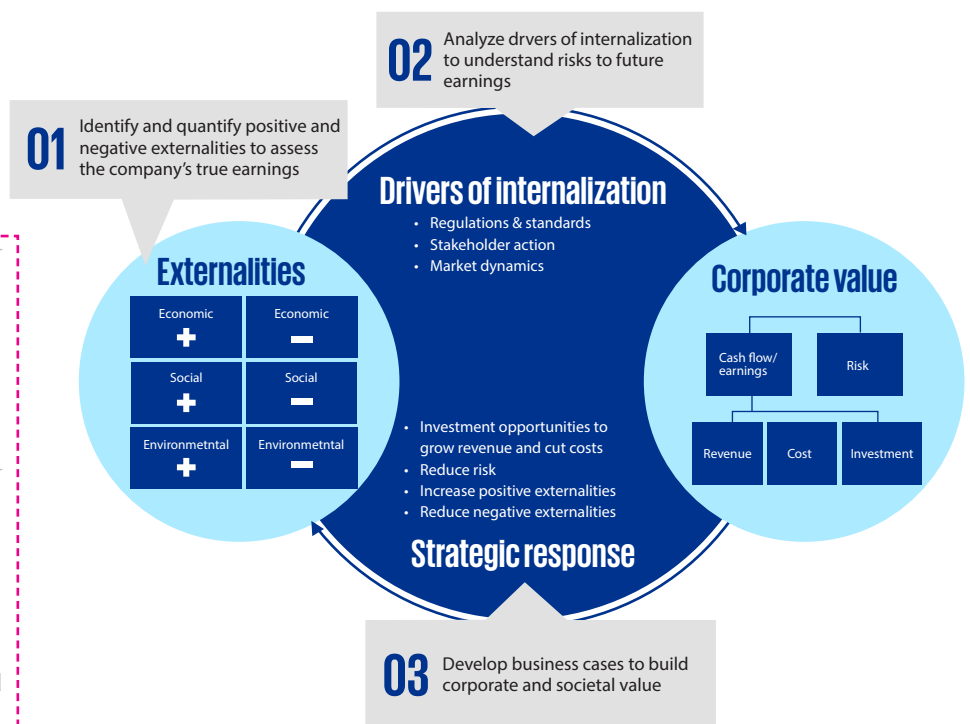
2. Understand future earnings at risk

by analyzing exposure to the forces of internalization

3. Create corporate and societal value

by developing and evaluating business cases that capture value, create opportunities and reduce risk

Not included in this report



Limitations of the methodology

The challenge to establish standard criteria in this space should come as no surprise. It took over a century to develop adequate standards for accounting, and yet progress towards one set of global financial reporting standards remains slow and uncertain. The spirit behind the True Value methodology, and other efforts contributing to the development of global standards for a financial, environmental and societal profit and loss statement, is that optimal standards will only emerge through ongoing trials and pilots such as this one.

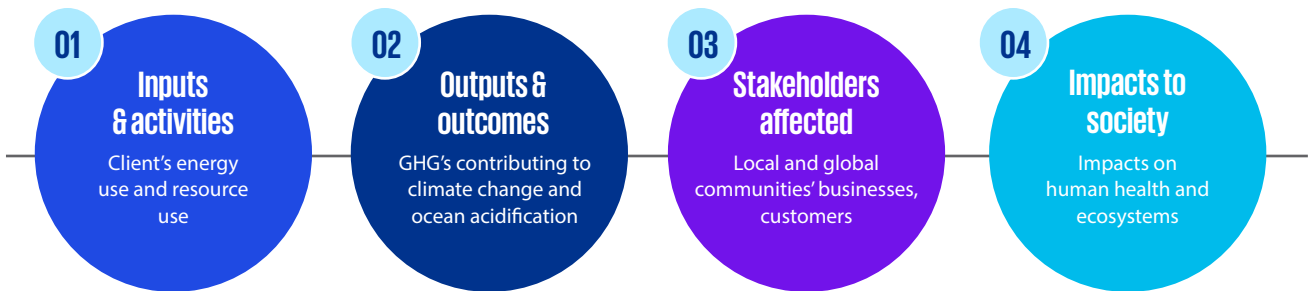
In undertaking this challenge we are manoeuvring into a field of uncertainty, where success requires that we make use of the best thinking and tools currently available. While the outcomes may not be perfect, they do represent some of the current best thinking of international experts, and with continued open exchange and iterations we are confident that more best practices will emerge. Openly communicating the limitations and assumptions underlying the quantification of externalities, while at the same time making use of open source data wherever possible, offer stakeholders the opportunity to comment and even contribute to the development of the methodology.

Environmental Impacts

GHG emissions

Greenhouse gases are emitted by Booking.com and its property partners through their daily operations such as energy use, purchase of a variety of good and services etc. This contributes to climate change and negatively impacts the environment and society at large. The damage caused by the release of these gases is calculated through the social cost of carbon (SCC), which is the net present value of future economic damages that result from emitting one additional ton of GHGs into the atmosphere today.

Impact pathway:



Scope

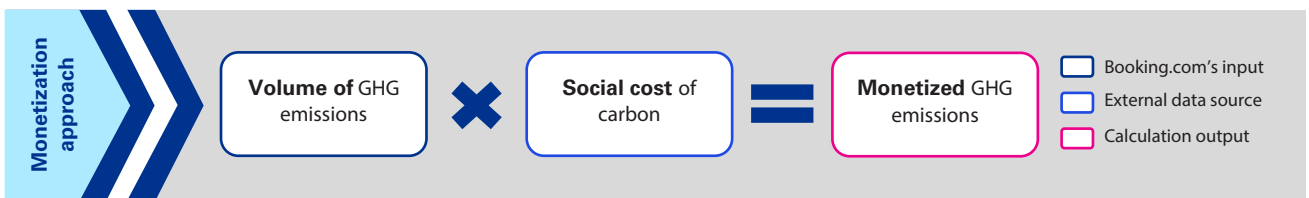


Scope	Coverage
Scope 1 – Booking.com HQ	Direct emissions from owned or directly controlled operations: facilities, installations and company-owned vehicles.
Scope 2– Booking.com HQ	Indirect emissions due to purchased electricity, steam, heat or cooling consumed.
Scope 3– Booking.com HQ	All other indirect emissions including Purchased Goods and Services, Business Travel and Employee Commuting.
Property partners	Third-party accommodation provider partners emissions, related to use of facilities attributed to Booking.com, were estimated to be average emissions in accommodations based on publicly available data on emissions in different types of accommodations (Wang K.-T. H.-C., 2015) (Filimonau, 2021).



This impact includes Booking.com’s operations in the Netherlands as well as the total incremental nights booked at properties in the Netherlands induced by Booking.com and is quantified on a yearly basis from 2019-2021.

Methodology Approach:



Terms	Definition
Volume of GHG emissions	Volume of GHG emissions emitted due to Booking.com’s operations as well as emissions by its value chain partners including property partners that can be attributed to Booking.com.
Social cost of carbon (Interagency Working Group on Social Cost of Greenhouse Gases, 2021)	The net present value of future economic damages that result from emitting one additional ton of GHGs into the atmosphere today. The effects of the greenhouse gases impact society on a global scale regardless of where they are emitted, and hence, a global monetization factor is used.
MMonetized GHG emissions	The total monetized value of all GHG emissions due to Booking.com’s operations.

Assumptions and limitations:

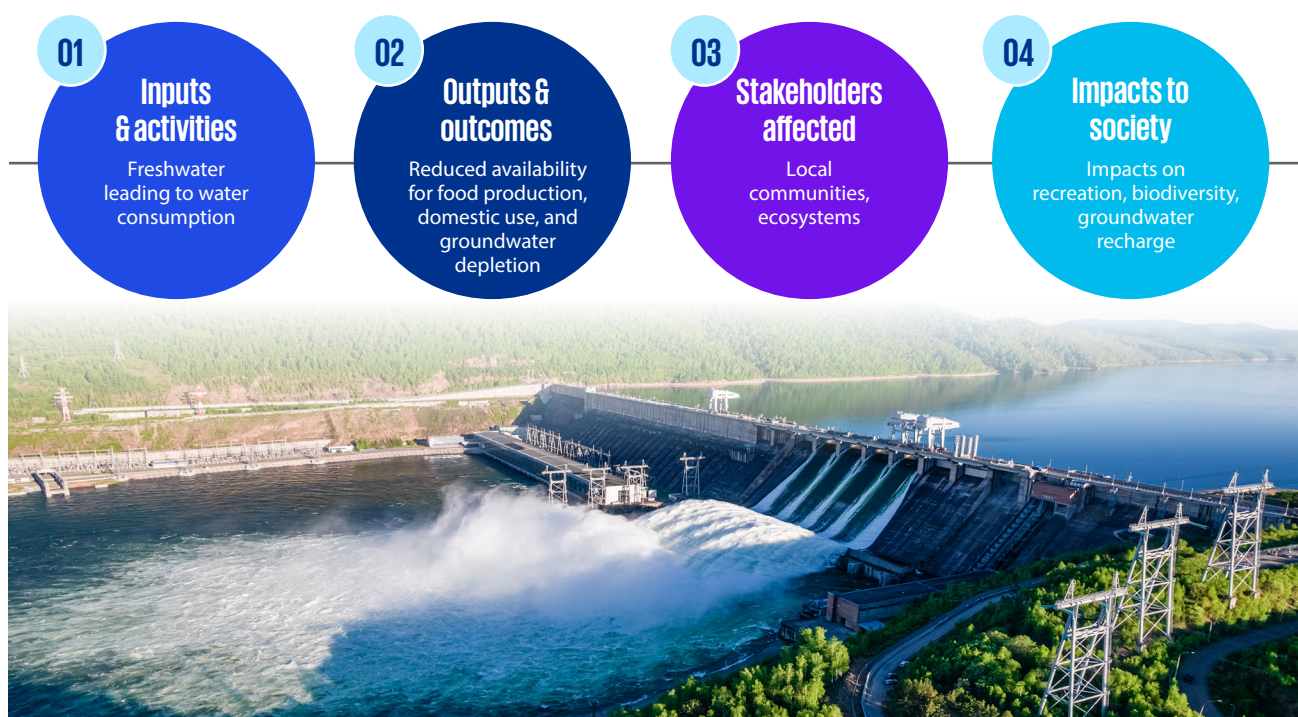
- Due to the lack of primary data, the emissions at **property partners** were estimated taking the total incremental nights booked at properties in the Netherlands induced by Booking.com, and multiplying it with the average emissions in accommodations based on publicly available data on emissions in different types of accommodations (Wang K.-T. H.-C., 2015), (Filimonau, 2021).
- Attribution: Due to the lack of granular data for **Booking.com's** Netherlands GHG emissions, Booking Holdings' data in the annual sustainability reports was scaled and attributed to Booking.com's Netherlands stays business. The method of attribution is detailed in the below table.

Scope	Coverage	Method of attribution of impact to Booking.com
Scope 1	Direct emissions	Based on ratio of employees working in the Netherlands and worldwide under Booking Holding.
Scope 2	Indirect emissions due to purchased energy	Based on ratio of employees working in the Netherlands and worldwide under Booking Holding.
Scope 3	All other indirect emissions	The part related to Purchased Goods and Services and Data centres is based on ratio of number of nights booked on Booking.com in the Netherlands and number of nights booked on Booking.com worldwide. The part related to office use, employees commuting and traveling is based on employees ratio as described previously.

Water consumption

Booking.com and its value chain partners consume water in their offices, factories and properties to optimally run their operations. This water is withdrawn from water sources and will not be returned to this source in its original, pristine state. The monetized impact of water consumption reflects the social impact of using water at specific location. This cost is based on the scarcity of water at the source of origin and hence, it captures the idea that consuming water in a water scarce location is more impactful than doing so in a place without scarcity issues.

Impact pathway:



Scope

Value chain

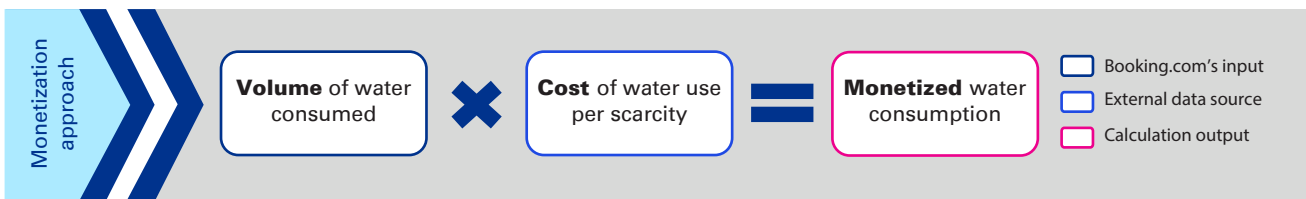
Booking.com operations

Property partners and tourism

This impact includes all offices of Booking.com in the Netherlands as well as total incremental nights booked at properties in the Netherlands induced by Booking.com and is quantified on a yearly basis from 2019-2021.



Methodology Approach:



Terms	Definition
Volume of water consumed	Amount of water [m3] consumed i.e. withdrawn and not returned to the original source.
Social cost of water use based on water scarcity	Social cost of water use based on location-specific scarcity. This allows for valuing water sourced in countries where water is scarcer, and thereby assigning higher impact to its consumption.
Monetized water consumption	The social cost of water determined by Capitals Coalition entail direct non-consumptive use and indirect use values. Specifically, values for recreation, biodiversity, groundwater recharge, and other benefits including navigation were linked to water scarcity in each, to create a social cost of water relative to scarcity.

Assumptions and limitations:

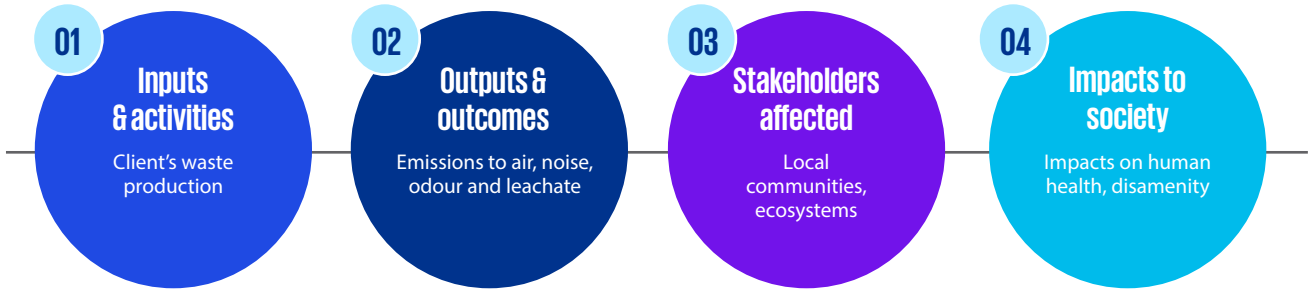
- Water consumption data at Booking.com's offices is not reported and therefore only the property partners' water consumption is included in this analysis. An average value of the water use across different types of accommodation options is used (Pensiri, 2016).
- Multiplier: Water consumption data at partners' was attributed to the scope of this study based on total incremental nights booked at properties in the Netherlands induced by Booking.com



Waste generation

Booking.com and its value chain partners generate waste as by-products of their operations. The waste generated has a negative impact on the environment and on society. This impact aims to calculate the cost of externalities that are a cause of landfilling and incineration of waste. The monetized value represents the cost of implementing corrective measures to reduce these externalities.

Impact pathway:



Scope



This impact includes all offices of Booking.com in the Netherlands as well as total incremental nights booked at properties in the Netherlands induced by Booking.com and is quantified on a yearly basis from 2019-2021.

Methodology Approach:

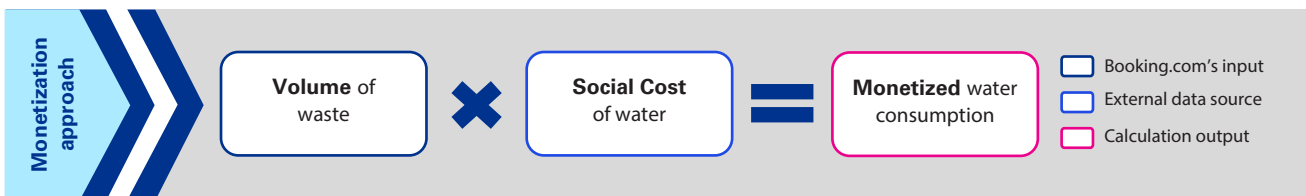


Figure 11 – Monetization approach for waste generation

Terms	Definition
Volume of waste	Volume of waste that is generated by Booking.com and its property partners.
Social cost of waste	Monetization factor representing the cost of reducing and correcting these externalities due to landfilling and incineration. Recycling impacts are excluded from scope.
Monetized waste impact	Total monetized impact of landfilling and incinerating waste generated by Booking.com and its partners.

Assumptions and limitations:

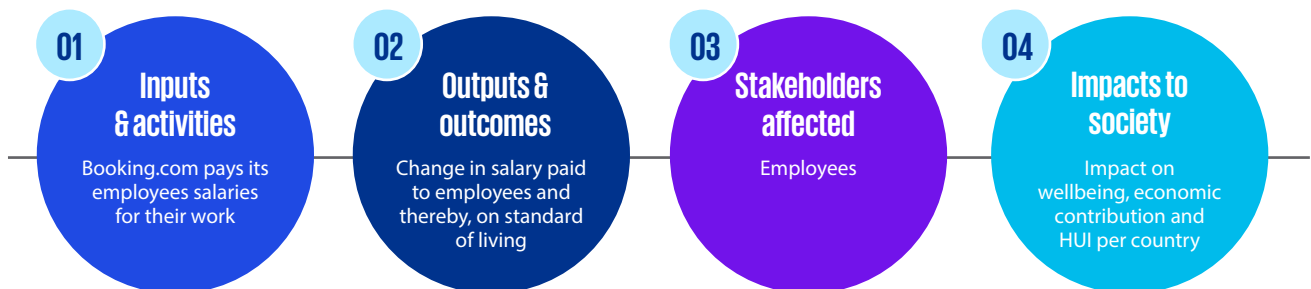
- We exclude the amount of impact generated from the recycling part of waste, as the source used to value impacts of waste does not report the impact on recycling, and valuable correction/proxy factors to get to a valuation of recycling from there would not be robust.
- The amount of waste generated at property partners was estimated as an average amount of waste across different accommodation types (Matsui, 2018).
- Due to lack of data regarding waste produced at property partners, attribution of waste to property partners was based on the total incremental nights booked at properties in the Netherlands induced by Booking.com.
- This analysis is based on a study in Australia, that puts a cost on the generation of waste based on the direct cost of treatment, transport and disposal of the waste as well as indirect costs such as regulatory costs, workplace injury and illness and environmental and social costs of landfilling. It was used because of well-defined indirect and non-market costs (Marsden Jacob Associates, 2014). The values for other countries have been extrapolated based on the country's GDP.
- All waste was assumed to be non-hazardous.
- The amount of waste generated at Booking.com facilities was estimated based on the payments made to waste managers.

Social Impacts

Living wage

A living wage enables employees and their families to have a decent standard of living. Employers are expected to pay all of their employees a living wage at the least to enable them to afford a decent standard of living. This living wage and standard of living is location specific. This calculation provides a comparative estimate of the impact of paying employees a particular salary against that of paying a living wage.

Impact pathway:



Scope

Value chain

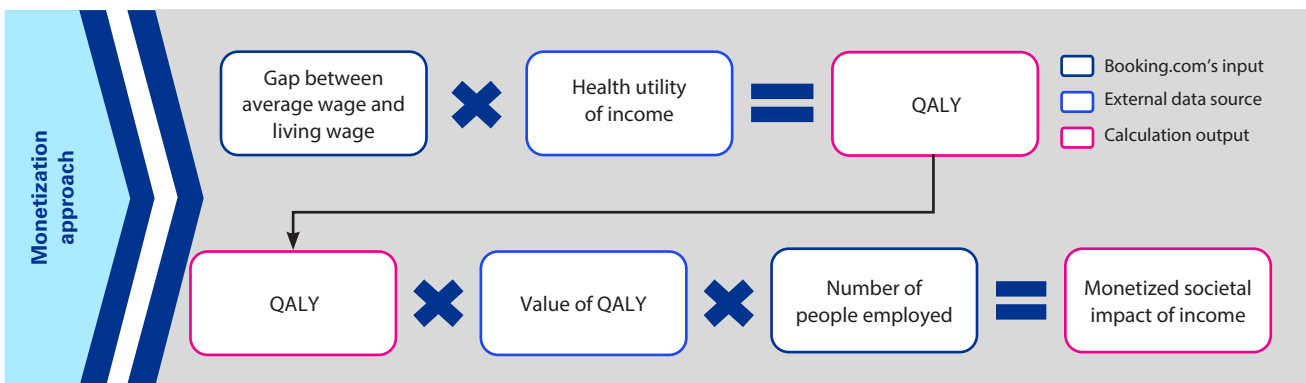

Booking.com operations


Property partners and tourism

This impact includes all employees of Booking.com in the Netherlands and is quantified on a yearly basis from 2019-2021.



Methodology Approach:



Terms	Definition
Increase in salary	Difference between the salary paid to the employee and the living wage of the country where salary is paid.
Health utility of income	The contribution of income to the well-being of an individual at country level. It translates the effects related to income into the change of an individual's quality of life. It also increases with GDP.
QALY	Quality-adjusted life years, and represents the amount (fraction) of years that the stakeholders are experiencing a higher quality of life compared to country average, in relation to each USD earned above living wage. It is expressed in fraction of years/ USD gained.
Value of QALY	QALY value expresses the monetary value of increased quality of life. is determined though a fixed value of a statistical life (VSL) and the gained quality of each additional life year.
Number of people employed	Total number of people employed at Booking.com and value chain steps in scope i.e. own operations of.
Monetized societal impact of income	The monetized impacts as a result of paying living wages.

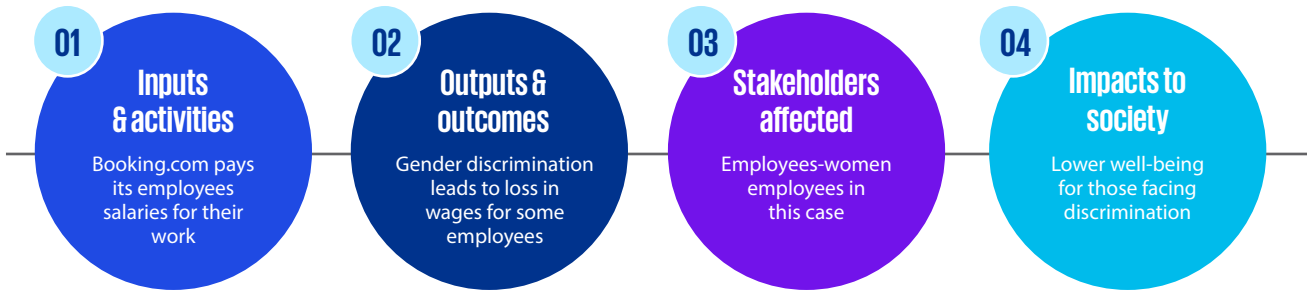
Assumptions and limitations:

- As QALY can have different values depending on the valuation approach of life, multiple estimates exist in literature. We decide to align with the OECD methodology which adopts quite a high-end number as the value of QALY.
- Multiplier: employees working in the Netherlands which receive a salary above the living wage.

Gender wage gap

Booking.com pays its employees' salaries as remuneration for the work that they perform for the company. Gender discrimination may result in unequal pay for the same work for employees of different genders. The monetized impact will represent the cost of restoration of lost wages due to gender discrimination as well as costs to prevent gender discrimination in the future.

Impact pathway:



Scope

The scope of this impact only covers Booking.com's own operations and employees working on these operations.



This impact includes all employees of Booking.com in the Netherlands and is quantified on a yearly basis from 2019-2021.



Methodology Approach:

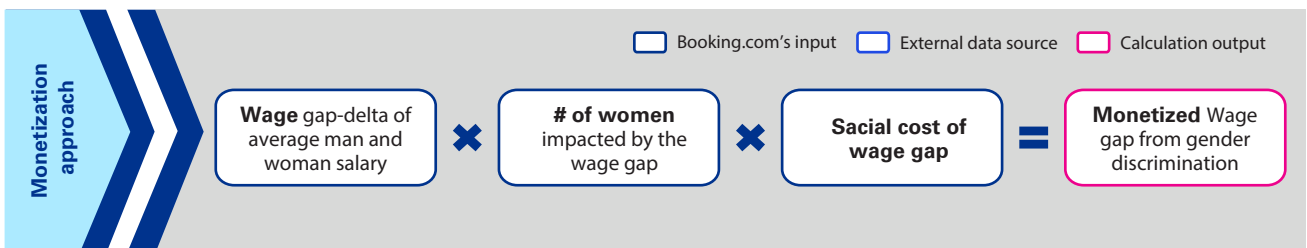


Figure 13 – Monetization approach for Gender Wage Gap

Terms	Definition
Wage gap	The difference between the average salary of a of man and woman salary.
Social cost of wage gap	The cost of restoration of lost wages due to gender discrimination as well as costs to prevent gender discrimination in the future.
Monetized wage gap from gender discrimination	The monetized impact of not paying men and women employees equally for the same job as a result of gender discrimination.

Assumptions and limitations:

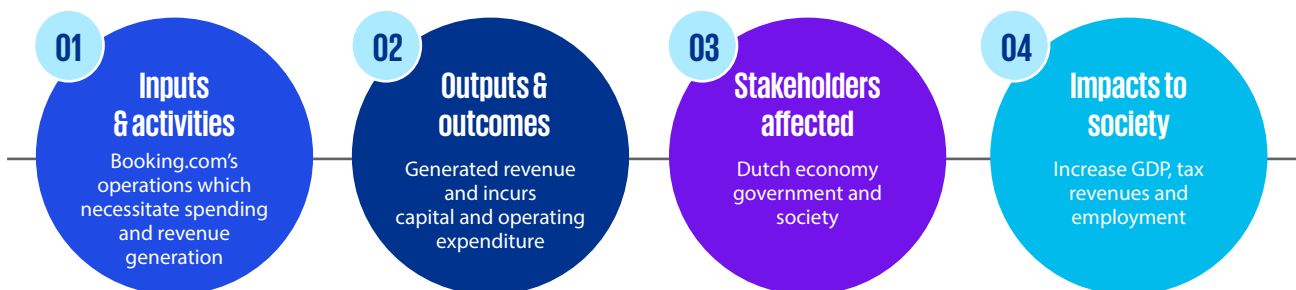
- This impact is calculated using the average base pay reported by HR at Booking.com and multiplying it to all potentially impacted people. In this specific case, we assume this corresponds to all women. Using more granular data, e.g. salaries per gender per position, to calculate the impact would provide more representative results.
- Valuation price comprises a combination of restoration and prevention costs. The restoration cost represents the restitution of wage lost due to gender discrimination, the prevention cost expresses the cost of generic auditing setup to prevent future instances of discrimination (True Price, 2021). While these are the major costs involved, the valuation price is not fully comprehensive of other aspects of discrimination and other type of costs involved.



Economic impacts from Booking.com's operations

An important component of the True Value assessment is the quantification of the economic impact associated with Booking.com's spend in the Netherlands. The economic impact methodology² extends beyond the financial or accounting impact since it considers the impact of its ongoing activities on various sectors of the economy and its subsequent contributions to the GDP, tax revenues and employment. The economic impact of Booking.com operations over a period are calculated as the sum of the **direct³ and indirect⁴ economic impacts of its revenue and expenditure from 2019 - 2021.**

Impact pathway:



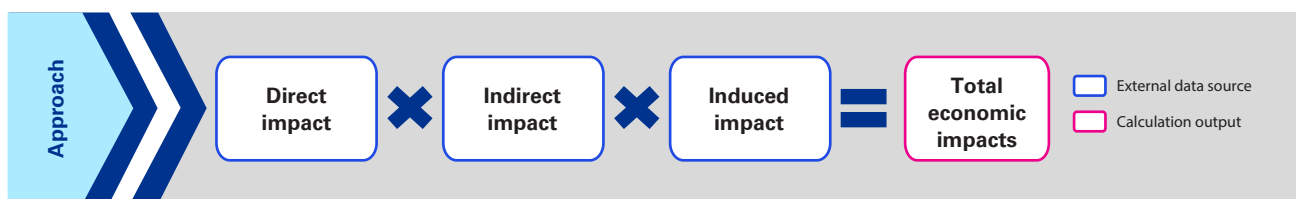
Scope



This impact includes Booking.com's operations in the Netherlands and is quantified on a yearly basis from 2019-2021.



Methodology Approach:



Terms	Definition
Direct impact	Economic impact that results from the revenue and expenditure generated by Booking.com in managing its daily business activities.
Indirect impact	Economic impact that results from the added expenditure on purchases of goods and services of Booking.com's supply chain.
Induced impact	Economic impact that is generated when employees of either Booking.com or from its supply chain spend their income on goods and services.

Note that only the immediate impacts of Booking.com's operations in the Netherlands have been determined here, while the substantial economic impacts from tourism spend are estimated in separate sections.

² A Leontief Input-Output models is a general equilibrium model that examines the amount of one sector's output required for the production of output in another sector. While the IO Model contains the production accounts of the economy, other accounts like factors of production, institutions, capital and the rest of the world are not fully captured in these models.

³ The additional expenditure and any additional capacity required in terms of construction or operational activity that contributes directly to gross value-added creation. Any additional employment as well as consumer income and expenditure and trade will also be captured as part of the direct impact.

⁴ Measures both additional production and employment that results for the businesses located along the value chain of the company undertaking the new or additional expenditure and also includes the additional increases in aggregate demand due to the increased consumption expenditure resulting from the increase employment in the supply chain.

1 GDP Impact

To derive an estimate for these values, one calculates the economic multipliers applicable to each sector of the economy using data contained within the input-output table (I/O) for a particular economy for a year. The input-output matrix represents the value of the flows of goods and services between the various sectors of the economy in matrix form and can include production, consumption, trade with the rest of the world, private and public sectors etc. The total of all the flows between all sectors of the economy therefore provides a disaggregated view of GDP for a particular country.

The result of an expenditure of say EUR 1M in sector X creates, on average, an impact on the economy's GDP of Y depending on all the relationship between sector X and all other sectors of the economy as captured by the input-output matrix.

In the case of operational expenditure, we need to estimate the economic impact of generating a revenue of EUR 98,8M for 2021 within the sector in which Booking.com would operate i.e. Information Service Activities. We then use the derived multipliers between this sector and all others in the economy to estimate the economic impact on GDP.

In the case of capital expenditure, one first needs to take account of the proportion of expenditure made domestically versus imports from abroad, since only domestic expenditure will generate a local multiplier effect. All capital expenditure was assumed to be domestic for this project. The capital expenditure can be allocated to different sectors of the economy to gain a more disaggregated view of resulting impact e.g. for 2021 we divided the EUR 136,1K between information services, computer programming and consultancy services, financial services and other professional, scientific and technical activities. As with the operational impact we again use the derived multipliers between these sectors and the rest of the economy to estimate the impact on GDP.

2 Employment impact

The employment impact is based on an employment multiplier derived for each sector of the economy using sector value added and total employment for that sector. The result is a set of multipliers that estimate the number of employment opportunities created for each sector per EUR 1M economic value of GDP generated.

The calculated GDP impacts are used with the employment multipliers to derive the estimated employment impact.

3 Tax revenue

Tax revenue included in this model pertains to the actual income tax paid by Booking.com in the Netherlands based on the revenue generated across its business segments globally and actual tax paid on other business activities (e.g. VAT).

4 Sectors included in the Dutch I/O model

The I/O table consists of 81 sectors for the Dutch economy including number 50 Information Service Activities, in which Booking.com would operate.

5 Technical background on using input-output matrix to derive economic impacts

An economic-impact model is built based on the National Input Output model for the Netherlands, where a fixed-structure, Leontief inverse matrix is used. The basic Leontief methodology (SNA 2008:512; Jensen 2001) shows that:

$$D=X-AX$$

where demand is equal to total production minus the production needed by other industries as inputs.

- D = Demand
- X = Production vector
- AX = Production needed by other industries as inputs
- A being the technology matrix, which shows how much input from each industry is required to produce EU1 of output for each industry.

The goal of a Leontief-based economic-impact model is to solve X for this equation, that is, find the total production for each goods and services needed to satisfy a certain demand.

If a matrix I is an identity matrix, then $IX=X$. That is:

$$D=IX-AX$$

Factoring out the production vector X:

$$D=(I-A)X$$

Multiply through by inverse $(I-A)^{-1}$:

$$(I-A)^{-1} D=(I-A)^{-1} (I-A)X$$

And since $(I-A)^{-1} (I-A) =I$, it follows that:

$$(I-A)^{-1} D=IX$$

And solving for production vector yields:

$$X=(I-A)^{-1} D$$

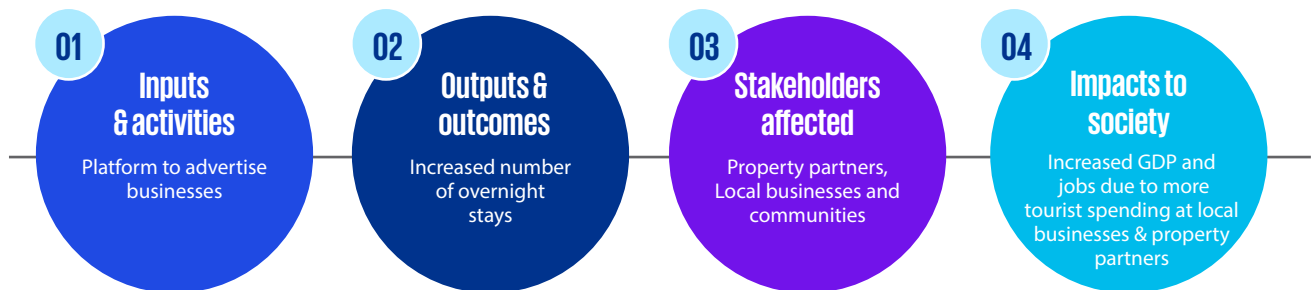
The result is a set of linear multipliers summarizing the linkages between all sectors of the economy in terms of value added or GDP that can be used to estimate the impact of a particular investment or expenditure.

Tourism spend

The increased competition in the tourism accommodation market due to increased transparency by providing customers with access to information regarding prices and offerings, results in a decrease in prices and increase in value for the customer. This translates directly to an increase in overnight stays by tourists. The impacts of the increased number of overnight stays and the resulting increase in spending by tourists can be measured by:

- Change in GDP due to tourism: Incremental spending on accommodation and at local businesses
- Living wage impact of increase in jobs: Increase in number of jobs at local business and support businesses due to increased demand.

Impact pathway:



Scope

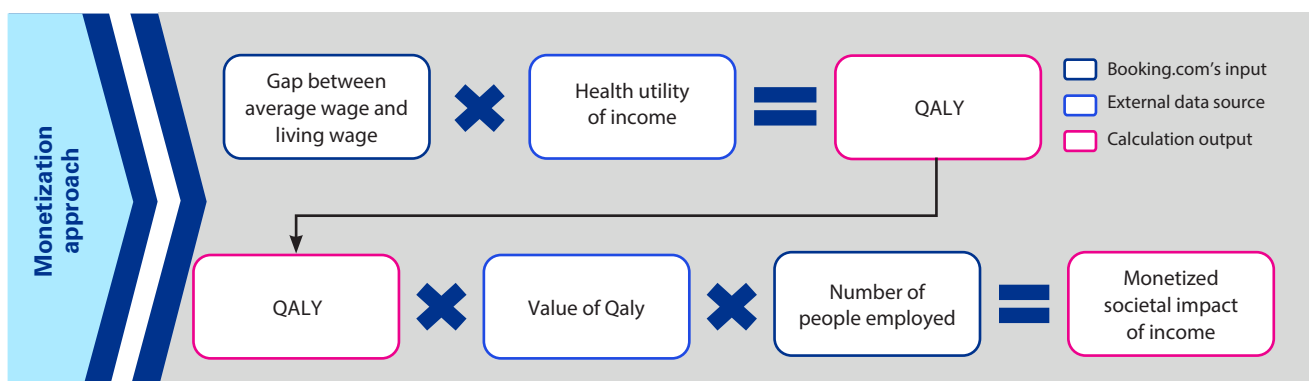


This impact includes all properties in the Netherlands and is quantified on a yearly basis from 2019-2021.

Methodology Approach:

The additional nights and reduced average daily rate attributable to Booking.com were converted into an overall tourism spend impact. Relevant spend/ GDP ratios, productivity estimates and multipliers were then applied to the tourism spend to identify total GDP and employment estimates. This methodology and calculations have been developed by Oxford Economics.

Further, in order to identify a monetary value associated with the number of jobs generated from the tourism spend, it has been assumed that these jobs pay the average Dutch salaries. These average salaries were then compared with the living wage of the Netherlands to identify the value of the societal impact generated to the employees and their families. This approach undertaken is similar to how the living wage impact is calculated from the jobs directly provided by Booking.com as an employer.



Terms	Definition
Increase in number of jobs	Incremental increase in number of jobs due to increase in tourism, attributed to Booking.com
Impact on wellbeing	Impact on wellbeing (QALY/year) based on the average wage and living wage in the Netherlands as well as the National Health Utility of Income of the Netherlands
Monetized value of QDALY	Monetization factor for QDALY
Living wage impact of increase in jobs	The total amount of living wage calculated based on the number of additional jobs arising from the tourism spend attributable to Booking.com

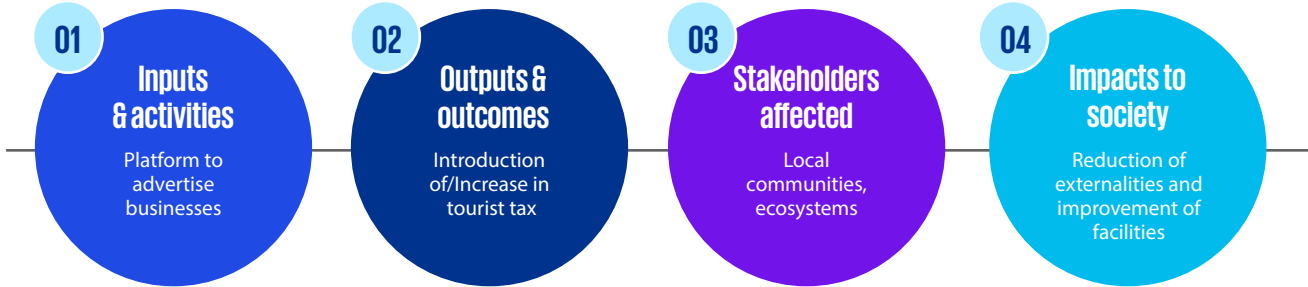
Assumptions and limitations:

- It was assumed that the additional jobs created paid the averages wages of the Netherlands, which is higher than the living wage



Tourist taxes

Increased tourism often takes a toll on the communities and the environment of the host destinations. In order to remunerate for these negative impacts and ensure that facilities and infrastructure are well-maintained to support tourism, governments collect tourism taxes in various ways. The tourist tax acts as a proxy to encapsulate the more difficult to quantify cascading or knock-on effects of tourism on local communities and the environment. This impact estimates the contribution of Booking.com to collection of tourist tax through the total incremental nights booked at properties in the Netherlands induced by Booking.com.



Scope



This impact includes all properties in the Netherlands and is quantified on a yearly basis from 2019-2021.

Methodology Approach:



Terms	Definition
Total amount of tourist tax collected	Sum of tourist tax collected across the Netherlands at all types of properties in one year
Increase in occupancy due to platform	Percentage increase in the number of nights booked, attributed to Booking.com
Tourist tax attributed	Tourist tax collected, attributed to Booking.com

Assumptions and limitations:

- **Attribution:** The tourist taxes are attributed to Booking.com based on the total incremental nights booked at properties in the Netherlands induced by Booking.com

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