4.A.1 & 4.B.1 Value Chain Analysis

Employee Commuting

2024

4.A.1. & 4.B.1 Employee Commuting
Value Chain Analysis
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1. Introduction

ICT Group has achieved level 5 of the CO_2-Performance ladder. This report contains the results of the chain analysis required to comply with requirement 4.A.1 from the Manual CO_2-Performance Ladder 3.1:

"The organization has demonstrable insight into the most material emissions from scope 3, and can submit at least 2 analyzes of GHG-generating (chains of) activities from these scope 3 emissions.*

And to requirement 4.B.1:
"The organization has formulated CO_2 reduction targets for scope 3, based on 2 analyses from 4.A.1. Or the organization has formulated CO_2 reduction targets for scope 3, based on 2 material GHG-generating (chains of) activities. An accompanying action plan has been drawn up, including the measures to be taken. Objectives are expressed in absolute numbers or percentages in relation to a reference year and within a specified time frame.*

This report contains the qualitative and quantitative chain analysis of Employee Commuting (chapter 2). CO_2-reduction targets are formulated on the basis of the analysis (chapter 0).

1.1. Topic of this analysis: Employee Commuting

Employee commuting was selected as the topic of analysis for the following reasons:

- Employee commuting is an integral part of ICT Group and therefore relates to all Product Market Combinations (PMC).
- Employee commuting was chosen due to the notion that it is a materiality (>5%) and relevant Scope 3 emission in the total carbon footprint of ICT Group. Therefore it is an activity with significant CO_2 reduction potential.
- Employee commuting was chosen due to the fact that the level of influence of ICT Group is high.

Employee Commuting

ICT Group hosts over 2000 employees that almost all commute between home and ICT offices. Since the corona pandemic working on distance has been an increasingly common practice. However, there is still a need to meet with colleagues and work on projects together on location. Commuting is likely to rise as ICT Group aspires to grow in the amount of FTE in the coming years.

Work-related mobility is a recurring topic on the sustainability agenda with many solutions ranging from establishing a fully electric car fleet to nudging workers into using public transportation. The call for green work-related mobility is strengthened by the 'CO2 Reduction Work-related Personal Mobility Decree' [6] which obliges employers with 100 or more employees to provide data on work-related

personal mobility annually. This obligation took effect on July 1st, 2024 and provides insight into and control over CO_2 emissions.

As a software development company, ICT Group does not use extensive amounts of raw materials nor does it deploy large scale production activities. This makes work-related mobility an interesting topic to investigate when it comes to reducing the carbon footprint of ICT Group. As an employer, ICT Group has a major influence on the reduction of these emissions. For this value chain analysis the scope will be solely on employee commuting, while its interrelatedness with business travel and private use of vehicles is recognized and taken into consideration whenever applicable. Based on an Scope 3 inventory from 2019 and 2022, the emissions from employee commuting are relevant.

1.2. Value chain analysis approach

1.2.1. Data collection

The approach as described in the SKAO manual version 3.1; requirement 4.A.1. was followed to arrive at the value chain analysis of emissions. The handbook 3.1 says the following about data collection:

"For a chain analysis it is not necessary to immediately request extensive data from all kinds of suppliers. It usually has clear added value to request some crucial data from one or a few suppliers, so selectively. That is often sufficient for a good first version of a chain analysis."

Data about employee commuting was gathered directly from ICT Group and available carbon emission data in the Carbon Manager. When possible, primary data were collected and where necessary they were supplemented with secondary data. Data used for the analysis was updated in 2025 through a survey among ICT Group's entire Dutch workforce about their commuting behavior in 2024.

Overview of data source(s)

- ICT Group
- Carbon Manager (www.carbonmanager.nl)
- RWS (2022)[3]
- CBS (2023)[4]
- MJ Hudson (2022)[5]
- Survey 2024

1.2.2. Emission factors

For this analysis, the CO_2 emission factors of CO2emissiefactoren.nl are used, as indicated in SKAO manual version 3.1.

2. Value Chain Analysis – Employee commuting

As indicated in Handbook 3.1 of the CO_2 Performance Ladder, the chain analysis follows the structure described in chapter 4 of "A Corporate Accounting and Reporting Standard" (WBCSD, 2004). The analysis consists of the following parts:

- Describe the value chain (section 2.1);
- Determine which scope 3 categories are relevant (section 2.2);
- Identify partners along the value chain (section 2.3);
- Quantify scope 3 emissions (section 2.4).

2.1. Description of the value chain

To start the analysis, a general description of the value chain is provided. We start by identifying the system boundaries. Then we describe the value chain and the process map (figure 1).

System boundaries

The system boundaries determine which processes and activities are included in the overall analysis. This to define where to stop tracking energy and material uses of processes; otherwise, the analysis would be infinite. The following system boundaries are set:

- This analysis focusses on employee commuting of the Dutch workforce within ICT Group.
- Employee commuting is an ongoing activity with temporary fluctuations depending on the time of year and business events. Therefore, the analysis is performed over the course of one year. The year 2019 will serve as the base year, as it is representative due to the notion that corona measures were not in place yet and are therefore not significantly influencing employee commuting.
- For this analysis the chain of employee commuting is considered, with an emphasis on the transportation movements (use phase of vehicles), because this stage of the chain falls directly under ICT Group's scope of influence and represents therefore the biggest potential for CO_2 reduction.
- For this analysis, the full life cycles of other technologies and infrastructure necessary to make employee commuting function - such as roads, charging stations, cars, public transport, bikes, fuel, spare parts etc. - are outside the scope of this analysis. They are an essential part of the chain of employee commuting, but ICT Group has little influence over the development of these assets. Instead, only the CO_2 eq emissions resulting from the use of fuel and energy related to transportation movements will be taken into account.

Value chain

The chain is shown in simplified form in Figure 1. At each step, energy, materials and labor are added and emissions to the air, soil and water are released. Potentially, transport takes place between the steps. To describe the chain, the names of the life cycle phases have been used as defined in "Greenhouse Gas Protocol Product Life Cycle Accounting and Reporting Standard" (WRI & WBCSD, 2011). For the analysis only CO_2 equivalent (CO_2e) emissions are considered, in accordance with the requirements of the CO_2 Performance Ladder.

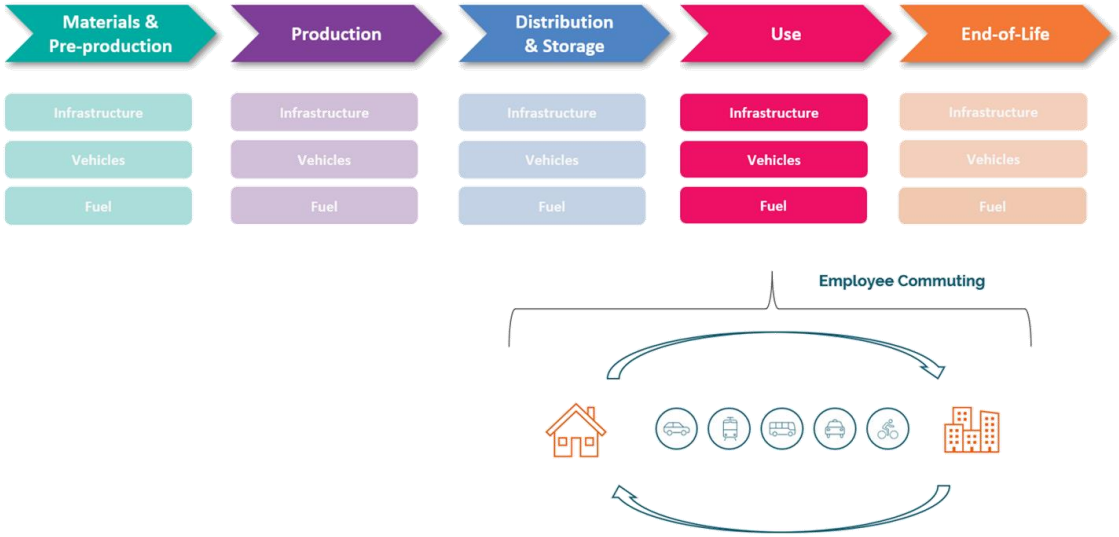

Figure 1: Simplified version of the employee commuting chain

Employee commuting depends on a range of infrastructural assets, vehicles and fuels that ultimately facilitate transportation movements. Mobility products and infrastructure require material inputs and production processes to be created, after which they are distributed and installed for use. Vehicles and infrastructure, such as cars and public transport, are then utilized by employees for the purpose of commuting. After they are used up, they reach their end-of-life and will be processed for the purpose of resource recovery or demolition. Fuels are often used up and rarely have an end-of-life scenario.

Employee commuting can be seen as a utility chain. This means that the scope of the analysis is not set for an actual product or service, but rather for the collective of activities taking place when employees travel between home and the workplace. To conduct a meaningful analysis that generates actionable results, the analysis will focus on the use phase of the generic value chain (visualized in figure 1). The upstream and downstream life cycle stages will be taken into account for those elements within employee commuting that can be directly influenced by ICT Group.

2.2. Relevant scope 3 categories

Table 1 lists the relevant scope 3 categories per step in the chain, in accordance with the GHG Protocol (WRI & WBCSD, 2011). GHG Protocol develops guidelines to provide clarity on how specific industries can apply GHG Protocol standards. We used GHG Protocol, ICT sector guidance (2017) to determine which scope 3 categories are relevant and what we should include in this.

Table 1: Relevant scope 3 categories

Stage	Relevant scope 3 categories	Relevant
1. Material acquisition & Pre-production	1. Purchased goods and services	No
2. Production	1. Purchased goods and services 2. Capital goods	No
3. Distribution & Storage	4. Upstream transportation and distribution 8. Upstream leased assets	No
4. Use	3. Fuel- and energy-related activities (not included in scope 1 or scope 2) 7. Employee commuting 8. Upstream leased assets	Yes
5. End-of-life	8. Upstream leased assets 12. End-of-life treatment of sold products	No

2.3. Identification of value chain partners

In Table 2 the most relevant value chain partners are listed.

Table 2: Value chain partners Employee Commuting

Stap	Partners
1. Material acquisition & Pre-production	Suppliers
2. Production	Manufacturers
3. Distribution & Storage	Leasing companies Fuel and energy suppliers Manufacturers
4. Use	ICT Group employees (Netherlands) ICT Group (Netherlands) Leasing companies Public transport providers
5. End-of-Life	Leasing companies

2.4. Quantification of scope 3 emissions

The analysis of employee commuting is detailed in table 3. A calculation sheet is also available in Excel, which can be requested for additional information.

Table 3: Analysis of employee commuting

2019		
Modality	**Division**	**Carbon footprint** (ton CO2)
Car - general	**56,5%**	**1370,6**
Car – 100% electric	**3,5%**	**1,16**
Car passenger	**2%**	**35,2**
Other (incl. moped/scooter)	**2%**	**6,8**
Bicycle	**21%**	**0**
Walking	**3%**	**0**
Train	**7%**	**7,6**
Bus / tram / metro	**5%**	**24,9**
TOTAL	**100%**	**1446,2**

2024		
Type of transport	**Division**	**Carbon footprint** (ton CO2)
Car - total	**79,6%**	**915,9**
Car - 100% electric	27%	9,3
Car - (plug-in) hybrid	17,3%	226,4
Car – petrol	32%	618,9
Car - diesel	2,3%	49,8
Car - other fuels	1%	11,6
Motorcycle – petrol/diesel	**0,8%**	**7,1**
Moped/scooter – 100% electric	**0,4%**	**0**
Bicycle (electric) or walking	**12,1%**	**0**
Public transport	**7%**	**14,4**
TOTAL	**100%**	**937,4**

Results

ICT Group's total emissions for employee commuting in 2019 are 1446,2 ton CO_2e (after recalculation of base year in 2025). The biggest contributor to the carbon footprint comes from commuting by car (94,8%). This can be explained by the majority of employees travelling by car as well as its relatively high emission compared to other means of transportation. Travelling by car as a passenger accounts for only 2,4%. Other significant contributors are means of public transport such as bus, tram, metro (1,7%) and in lesser extend the train (0,5%). Commuting by bicycle or by foot do not cast out any emissions.

ICT Group's total emissions for employee commuting in 2024 are 937,4 ton CO_2e, a reduction of 35,2% compared to 2019. This drop can be contributed to several factors. First of all, the 2024 analysis contains additional primary data from an internal survey on commuting behavior, which resulted in new insights and a deeper understanding of the situation for ICT Netherlands. This allowed for a more detailed analysis, for example in the modality division, distances travelled by employees and an updated FTE count. The drop in carbon footprint can mainly be contributed to (1) an increase in working on distance; and (2) electrification of ICT's car fleet.

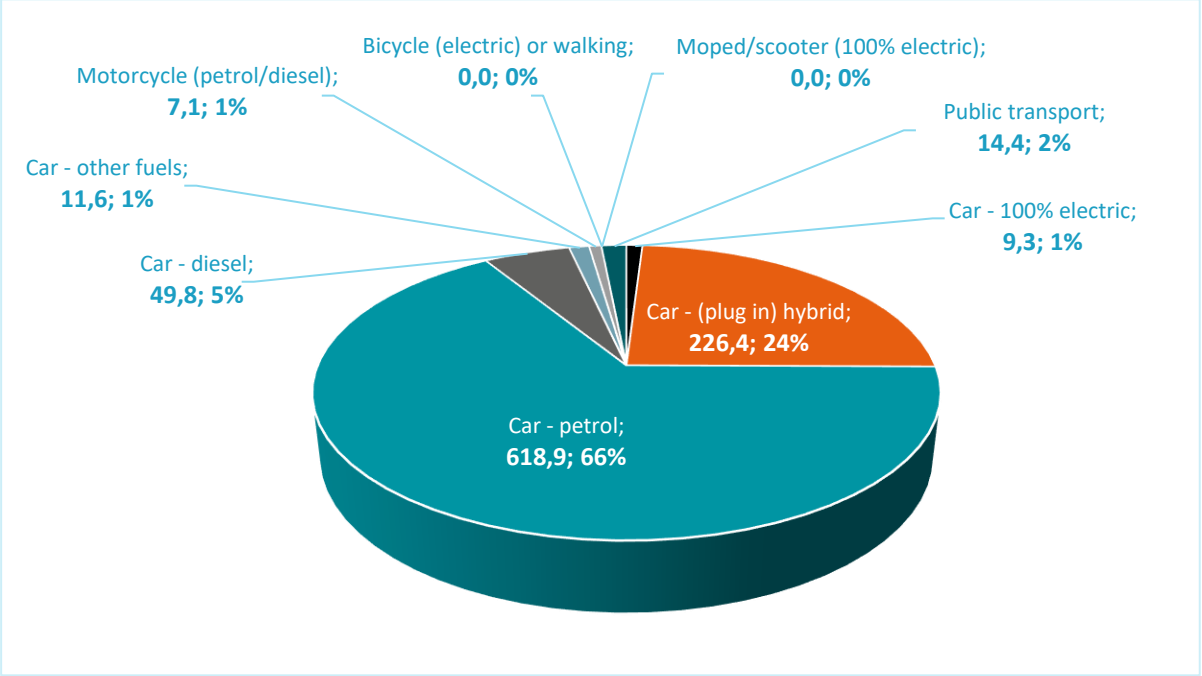

Figure 2: Overview results Employee Commuting 2024 in ton CO_2e

3. Reduction targets (4.B.1)

For requirement 4.B.1 we have drawn up the following reduction targets. The requirements for this are as follows:

"The organization has formulated CO_2 reduction targets for scope 3 on the basis of 2 analyses from 4.A.1. Or the organization has formulated CO_2 reduction targets for scope 3, based on 2 material GHG-generating (chains of) activities. An associated action plan has been drawn up, including the measures to be taken. Objectives are expressed in absolute numbers or percentages in relation to a reference year and within a defined period." (CO2 performance ladder manual 3.1)

3.1. Targets

Four targets have been identified that would achieve significant CO_2 reduction potential in employee commuting. Findings are supported by a worksheet that contains the calculations and assumptions made.

1. **One day less commuting per week | 20-30% reduction**
   Reducing the amount of kilometers in commuting can contribute greatly to lowering the carbon footprint. This can be accomplished by limiting travel between home and office to a minimum, without compromising the quality of work and cohesion of the workforce. Commuting one day less per week (from 3,8 days to 2,8 days on average) is estimated to result in an annual carbon footprint reduction of 380 ton CO_2e (26,3% reduction).

2. **Fully electric car fleet (renewable energy powered) | 30-35% reduction**
   Commuting by car is the biggest contributor to the footprint and therefore this category represents the largest potential for footprint reduction. ICT Group's ambition is to realize a fully electric car fleet that is powered by renewable energy. In 2019 a share of the car fleet (14,5%) was already electric. Meaning that 85,5% of the car fleet can still be swapped for electric models. In total, the potential CO_2 reduction of switching to fully electric car fleet is estimated to be 492 ton CO_2e (34% reduction).

3. **10% more use of public transport instead of car | 10-15% reduction**
   A target to decrease commuting by car is to switch to other means of transportation such as public transport. An increase of 10% commuting by public transport instead of the car would result in an annual footprint reduction of 174 ton CO_2e (12% reduction). For lasting impact it is advised to stimulate this behavioral change among the group of employees that do not drive a lease vehicle, due to the ICT Group's ambition to swap these for electric vehicles anyway sooner or later.

4. **10% more ride sharing instead of own car | ± 5% reduction potential (2019)**

Another way to reduce the amount of kilometers by car in commuting is to simply share a vehicle among employees. An increase in ride sharing of 10%, instead of using their own car, will result in an estimated annual drop of 67 ton CO_2e (4,6% reduction).
When all reduction targets are met the carbon footprint from base year 2019 can be reduced with an estimated 60-70%.

3.2. Measures

These measures help ICT Group to reach their targets.

Measure 1 **Maintain the support for working on distance**

- Set a directive on the amount of office days available for employees.
- Provide a personal budget for decorating a home office.
- Additionally, services such as heating/cooling/lighting of office space can be provided selectively based on the amount of employees coming into the office.

Measure 2 **Drive fully electric (powered by renewable energy)**

- Only introduce electric vehicles when renewing the car fleet.
- Provide sufficient charging stations to supply the car fleet with electricity from renewable sources.
- Promote electric driving among private car owners, for example by making charging stations available or increasing the kilometer allowance.

Measure 3 **Support public transport**

- Provide OV business cards for employees.
- When moving offices ensure accessibility through public transport.
- Reward people to come once per week/month with public transport, for example with an increased kilometer allowance.
- Introduce shuttle bus at peak hours to cover the distance from local public transport stations to the office

Measure 4 **Support carpooling**

- Allow car passengers to also receive a kilometer allowance.
- Providing insight into information about colleagues' routes so that a more targeted search for a carpool partner can be made. Potentially utilize applications such as Blablacar.
- Reserved parking spaces for carpool cars close to the entrance.
- Research and tackle barriers among employees with reasons for not wanting to carpool or cycle to work.
- Research and tackle employee uncertainty of not having direct control over travel times. Providing homecoming guarantees through a public transport card, use of

a company car, a declaration of travel expenses, or the option to easily arrange another lift, can help them overcome this hurdle.

Measure 5 **Make biking more attractive**

- Supply (electric) bikes for employees
- Provide parking spots for bicycles close to the office entrance
- Reward for biking through an extra kilometer allowance
- Provide showers and lockers
- Emphasize the benefits of biking (e.g. combine with employee health program)

3.3. Approach

ICT Group can improve the value chain analysis and realize CO_2 reduction when engaging in the following activities:

- Conduct a survey to gather more accurate data about present day commuting behavior among the Dutch workforce.
- Engage with mobility related NGOs and initiatives to optimize the sustainability aspect within employee commuting.
- Select the most promising measures from section 3.2 for implementation.

4. Progress

Since the publication of the report in 2023, ICT has taken several steps to 1) improve the quality of the value chain analysis; and 2) work towards the implementation of CO_2 reduction measures.

4.1. Data enhancement

The initial report (2023) utilized primary data from ICT Netherlands in combination with general market information to fill any data gaps. To improve the analysis, an internal survey was conducted to acquire more accurate data on employee commuting behavior in 2024. The survey was sent out to all employees within ICT Netherlands and had a response rate of 79%. The data was analyzed which resulted in new useful insights, an update of the carbon footprint and additional reduction measures.

Besides the survey, the declaration of commuting costs has also been refined, giving more insight and more accurate data right away. A recalculation was made for the base year 2019 due to new data, methodology changes and updated emission factors.

4.2. Progress on the reduction

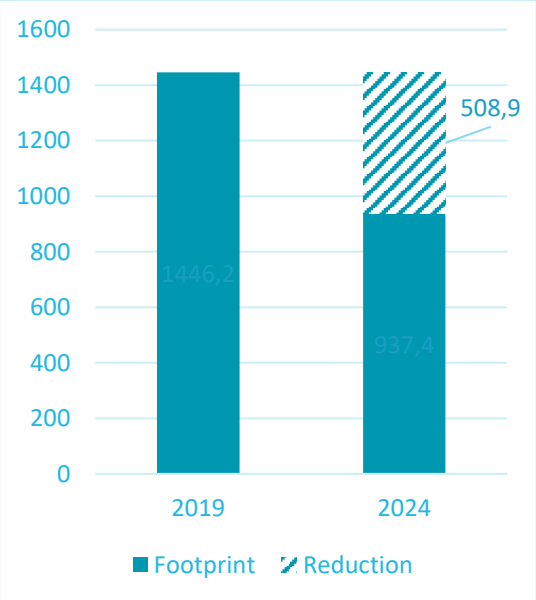

Figure 3: Overview of carbon footprint reduction (in ton CO_2e)

ICT Group's total emissions for employee commuting in 2024 are 937,4 ton CO_2e, a reduction of 35,2% compared to 2019. This drop can be contributed to several factors. First of all, the 2024 analysis contains additional primary data from an internal survey on commuting behavior, which resulted in new insights and a deeper understanding of the situation for ICT Netherlands. This allowed for a more detailed analysis, for example in the modality division, distances travelled by employees and an updated FTE count. The drop in carbon footprint can mainly be contributed to (1) an increase in working on distance; and (2) electrification of ICT's car fleet.

An update on the reduction targets from the initial report (2023).

4.2.1. Less commuting

A reduction target was to commute on average one day less per week. The initial analysis was conducted for the reference year of 2019, in which ICT employees commuted on average 3,8 days per week. The survey data show that in 2024 this has changed to an average of 2,5 days per week Working on average 1,3 days less per week results in an annual reduction of 509 ton CO_2 (35% reduction from the total carbon footprint in 2019). An explanation for this change is the pandemic and its effect on the way ICT Group engages with working on distance. Any further reduction of commuting days in no longer an objective as the target was met and further decrease could interfere with company productivity.

4.2.2. Electric car fleet

It has been a long standing ambition of ICT to own a fully electric car fleet. With regards to 2019, in which 14,5% was electric, in 2024 the share of electric vehicles has increased to 50,9% within the lease segment. This increase has resulted in an annual drop of 190 ton CO_2e (13% reduction from the total carbon footprint in 2019). Electrification of the remaining half of the car fleet represents a reduction potential of 20-25% reduction and would save another 302 ton CO_2e annually. The ambition to own a fully electric car fleet remains.

4.2.3. Public transport

Supporting the use of public transport remains a focus for ICT. Based on general statistics, it was assumed that in 2019 an estimate of 12% of commuting was done through public transport. The survey data from 2024 show that for the Dutch workforce this is actually 7%. With accurate data and better insight in commuting behavior, ICT remains committed to increase the share of commuting through public transport. An increase of 10% commuting by public transport instead of cars fueled by petrol or diesel would result in a footprint reduction of 174 ton CO_2e (12% reduction from the total carbon footprint in 2019).

4.2.4. Location based solutions

The survey data (2024) provide useful information to assess and reevaluate the reduction targets. Furthermore, the general overview of commuting behavior for ICT Netherlands is an excellent basis to come up with new reduction measures. One of those is the focus on office or location based solutions. Every office has its own commuting landscape, challenges and solutions which should be respected in coming up with effective measures and footprint reduction strategies. In the future ICT Group will look into the possibility of office/location based solutions such as:

- Promote walking, biking and e-mobility for those employees that live close by the office

- Promote public transport (e.g. provide overview of local and regional options to reach the office)
- Promote ride sharing among employees that live together in a cluster
- Promote peak prevention with respect to local and regional infrastructure (e.g. prevent commuting during peak hours, certain weekdays or through certain locations)
- Hybrid work space – local access to office space; already partly implemented through employee access to all ICT offices

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