

LIFE GreenYourRoute: A European innovative logistic platform for last mile delivery of goods in urban environment

*Deliverable C3.2: Report focusing on the results
achieved and/or deviations experienced/expected as
compared to the original estimates/inputs in the KPI
Webtool and LIFE performance Indicators*

Deviations

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Abbreviations

CH ₄	Methane
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
CP	Check Point
EASME	Executive Agency for Small and Medium-sized Enterprises
FC	Fuel Consumption
GYR	GreenYourRoute
KPI	Key Project-level Indicators
N ₂ O	Nitrous Oxide
NH ₃	Ammonia
NO _x	Nitrogen Oxides
PM	Particulate Matter
SME	Small and medium-sized enterprise
SO ₂	Sulfur Dioxide
VOC	Volatile Organic Compounds

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TABLE 1: FORESEEN VS ACTUAL ENVIRONMENTAL IMPACT..... 10

1 Indicator Context

1.1 C.1 Overarching context

Concerning the “Overarching context” the project was implemented in Greece, Czech Republic, and Italy. The project was not implemented in geographic areas beyond consortium such as Belgium, Slovakia and Hungary. Although contacts have been established in Belgium, Slovakia and Hungary as well as in other European countries, the deal-making process was much tougher than in Greece. GYR Platform is not a plug and play software, and this is why it is effective, it is always customized to fit the specific customer needs. Similar solutions that advertise that are plug and play do not really work because they are too generic. As a result, GYR team needs to spend approximately 3-6 weeks to the client’s premises to streamline the data processes. As a result, and because SMEs feel more comfortable buying products and services after meeting in person, GYR team had to spend time and money for travelling without guaranteed success. Hence, from a business perspective, it seemed more efficient to focus on local potential customers. The reason of the obligatory physical presence of our collaborators was because of various confidentiality issues concerning the data, companies were reluctant to send data to us even when signature of NDAs was proposed. Additionally, as we mention in the replicability plan (Deliverable 7.1) 3PL companies with medium to high level of digitalization are the most suitable basic customer type for GYR Platform. However, this type of company would not easily trust a foreign-start up without a strong record, which is expected.

1.2 C.2 Specific context

Concerning the “Specific context” the project was implemented in Greece, Czech Republic, and Italy. The project could not be implemented in geographic areas beyond consortium such as Belgium, Slovakia and Hungary. The same reasons for the deviation related to “C.1 Overarching context” are also valid for this indicator.

2 Project Specific Settings and Indicator Selection

D. Project setting, area/length and population

1.5. Project area/length

No value for this indicator was foreseen in the beginning of the project as the available at the time excel file named “LIFE Performance indicators Call 2017.xls” which was submitted on the eproposal did not included this indicator. As a result no deviation was expected. Note that in the Part B of the proposal Question B2 PROJECT PILOT / DEMONSTRATION CHARACTER OF THE PROJECT, it is mentioned that a total area of 106,096 km² will be influenced by the project which is slightly lower than the value achieved.

1.6. Humans (to be) influenced by the project

No value for the indicator “Number of residents within or near the project area” was foreseen in the beginning of the project as the available at the time excel file named “LIFE Performance indicators Call 2017.xls” which was submitted on the eproposal did not included this indicator. As a result no deviation was expected.

The indicator “Persons who changed their behaviour due to project actions” was foreseen in the beginning of the project, as it was included at the available at the time excel file named “LIFE Performance indicators Call 2017.xls”. The value foreseen for the end of the project was 300 persons and 3 years after the end of the project was 450 (i.e. additional 150 persons). The value achieved is slightly lower compared the one foreseen both for the end of the project (i.e. **238**). The reason for this deviation is that it was difficult to estimate in the beginning of the project the number trained on how to use the apps and the number following green procurement rules. In addition, the initial indicator included also the persons participated in workshops which currently is part of a different indicator i.e. Persons with improved capacity or knowledge due to project actions. The value 3 years after the end of the project is higher than the one foreseen and equal to **1624**.

No value for the indicator “Persons with improved capacity or knowledge due to project actions” and indicator Persons who may have been influenced via dissemination or awareness raising project actions (reaching) were foreseen in the beginning of the project as the available at the time excel file named “LIFE Performance indicators Call 2017.xls” which was submitted on the eproposal did not included this indicator. As a result, deviation was expected.

E. Environmental and Climate action outputs and outcomes

6.1. Air – emissions and 8.1 Greenhouse gases

The percentage achievement comparing the impact foreseen and the impact achieved per year is presented in the following table:

Fuel consumed and pollutant emitted	Savings Foreseen	Savings Achieved	% achieved
FC (Tones/year)	No foreseen	1,747.401	N/A
CO2 (Tones/year)	8885.697	5,512.628	62.04%
CH4 (Kilograms/year)	8939	202.092	2.26%
CO (Kilograms/day)	304.7208333	71.429	23.44%
N2O (Kilograms/year)	No foreseen	116.964	N/A
NH3 (Kilograms/day)	7.7875	0.172	2.21%
NOx (Tones/year)	42.255	46.915	111.03%
PM (Kilograms/day)	19.3	2.700	13.99%
VOC (Kilograms/day)	44.01666667	9.474	21.52%
SO2 (Kilograms/day)	33.85833333	0.469	1.39%

The goal concerning the NOx saved (tns/year) was achieved with a percentage equals to 111.03%. Additionally, 62% of the goal for CO2 was achieved. The goal for CO and VOC emitted were achieved by 23.44% and 21.52% respectively and the goal for PM by 13.99%.

Finally, only a small percentage of the goal for CH₄, NH₃ and SO₂ was achieved (i.e. 2.26%, 2.21% and 1.39% respectively). We have to notice that the impact associated with the fuel consumed and the N₂O emitted was not foreseen in the frame of the project and for this reason there is not comparison between the fuel consumed and N₂O emitted using GYR service and using the simulation tool.

Note that the above number corresponds to the indicators related to pollutant emitted tns/year or kg/day depending of the emission. In Deliverable C1, the absolute values and not the yearly or daily values were foreseen. In that case, the percentage achievement comparing the impact foreseen and the impact achieved during the 17 months of real life practice is presented in the following table (taken by Deliverable C1):

Table 1: Foreseen vs Actual environmental impact

Fuel consumed & Pollutant emitted (tns)	Foreseen	Actual	Percentage Achievement
FC	No foreseen	1571.247331	No foreseen
CO ₂	8885.697	4964.766548	55.87%
CH ₄	8.939	0.157894506	1.77%
CO	73.133	18.27085537	24.98%
N ₂ O	No foreseen	0.098281616	No foreseen
NH ₃	1.869	0.031742329	1.70%
NO _x	42.255	39.11386862	92.57%
PM	4.632	0.481660713	10.40%
VOC	10.564	2.011292094	19.04%
SO ₂	8.126	0.101558902	1.25%

The goal concerning the NO_x saved was achieved by a high percentage which is equal to 92.57%. Additionally, more than 55% of the goal for CO₂ was achieved. The goal for CO and VOC emitted were achieved by 25% and 19% respectively and the goal for PM by 10%. Finally, only a small percentage (less than 2%) of the goal for CH₄, NH₃ and SO₂ was achieved. We have to notice that the impact associated with the fuel consumed and the N₂O emitted was not foreseen in the frame of the project and for this reason there is not comparison between the fuel consumed and N₂O emitted using GYR service and using the simulation tool.

Note that the indicators presented in KPI 6.1 and KPI 8.1 have a higher percentage achievement than the absolute values as corresponds to a yearly or daily base. The absolute values corresponds to a short period (7 months) than a year for the 3 new users of the GYR service resulting lower impact than the estimated yearly impact (KPI 6.1 and KPI 8.1).

2.1.1 Justification of deviations

The above deviations were resulted mainly by one major error to the initial calculations followed by GYR team to estimate the potential benefit using GYR service and one major wrong assumption taken when the environmental impact of the project was estimated.

2.1.1.1 Wrong calculation

The minimum requirements to approximate a baseline of emissions emitted by the demonstrators of the project used was the pollution emission factors per tonne-kilometre (tkm) for LDVs and the freight traffic demand in tkm of each demonstrator.

Ecoinvent database, for an average fleet of light duty vehicles up to 3,5 tones, gives the following emission factors: NOX=0.52, PM=0.057, CO=0.9, NH3=0.023, CO2=109.35, CH4=0.11, NMVOC=0,13 and SO2=0,1.

KOUKOUZELIS: The 12 months before the starting month of the project, the total distance travelled by KOUKOUZELIS's trucks was around 5,500 km during 140 trips (~39km/trip), and the total amount of freight transported was around 120 tn (~ 0,85 tn/trip). Hence, in each trip the traffic demand was $0.85 \times 39 \approx 33.7$ tkm per trip. The total yearly tkm for KOUKOUZELIS is equal to 4,718tkm and results by multiplying the 33.7 tkm per trip by 140 trips. When the environmental impact was calculated, the total tkm was calculated wrongly by multiplying the tkm per trip by the total kilometers ($33.7 \times 5,500 = 185,204$) which give a value to the total tkm 39 larger than the correct one.

PLUS: The 12 months before the starting month of the project, the total distance travelled by PLUS's trucks was around 172.602km during 1.040 trips (~166 km/trip), and the total amount of cold cargo transported was around 2.846 tn (~ 2,73tn/trip). Hence, in each trip the traffic demand was $166 \times 2.73 \approx 453.18$ tkm per trip. The total yearly tkm for PLUS is equal to 471,307.2tkm and results by multiplying the 453.18 tkm per trip by 1,040 trips. When the environmental impact was calculated, the total tkm was calculated wrongly by multiplying the tkm per trip by the total kilometers ($453.18 \times 172.602 = 78,219,774.36$) which give a value to the total tkm 166 larger than the correct one.

ATHINAKI: The 12 months before the starting month of the project, the total distance travelled by ATHINAKI's trucks was around 978.078km during 4.520 trips (~216 km/trip), and the total amount of dry cargo transported was around 11.023tn (~ 2,45tn/trip). Hence, in each trip the traffic demand was $216 \times 2.45 \approx 639.45$ tkm per trip. The total yearly tkm for ATHINAKI is equal to 2,890,314.2tkm and results by multiplying the 639.45 tkm per trip by 4,520 trips. When the environmental impact was calculated, the total tkm was calculated wrongly by multiplying the tkm per trip by the total kilometers ($639.45 \times 978.078 = 625,431,977.1$) which give a value to the total tkm 216 larger than the correct one.

CEDA and ITACA demonstrators: We assumed that the customer of CEDA and ITACA have a yearly traffic demand of at least 1.5% of the total demand of the Greek demonstrators which corresponds to a traffic demand of at least 10,000,000tkm both. Based on the wrong calculation that the Greek demonstrators would have a total demand of 703,836,955tkm ($=185,204+78,219,774+625,431,977$) the 1,5% of this demand is equal to 10,557,554.3tkm.

2.1.1.2 Wrong assumption

The above assessment of the environmental impact of the project was done based on the assumption that the tons of freight delivered or pick-up were transported for the entire km travelled by the trucks. This assumption was wrong for all demonstrators as for instance the trucks of ATHINAKI, PLUS, KOUKOUZELIS and ITACA start from the depot and progressively decrease their load factor by visiting one by one the delivery points and when the last point is served they return to depot empty. Additionally, the trucks of CEDA's demonstrator start form the depot with their freight and go to their final destination to deliver it and then go empty to the next visiting point to pick-up the next freight to deliver etc. As a

consequence of this wrong assumption the total tkm of each demonstrator were 2-3 times overestimated.

F. Societal outputs and outcomes

10.2. Involvement of non-governmental organisations (NGOs) and other stakeholders in project activities

No value for this indicator was foreseen in the beginning of the project as the available at the time excel file named "LIFE Performance indicators Call 2017.xls" which was submitted on the eproposal did not included this indicator. As a result no deviation was expected.

11.1. Website (mandatory)

The unique visits foreseen based on "LIFE Performance indicators Call 2017.xls" was 4,200 and for the period 3 years after the end of the project was additional 1,800 unique visits. The first value of the indicator (unique visits until the end of the project) is satisfies as GYR website has 4,365 unique visits. The unique visits for the period of 3 years after the end of the project we estimate that it will be equal to 3,924 and it will be easily achieved as new customers will purchase GYR service and several dissemination activities will be implemented to increase the market chare of GYR company.

The number of downloads of GYR mobile application was forseen equal to 120 as it is presented in "LIFE Performance indicators Call 2017.xls". At the end of the project in total 149 downloads of GYR mobile app were reached satisfying the foreseen value. It is expected that at least 500 downloads will be performed without a problem by the new customers of GYR service during the 3 year period after the end of the project.

No value for the indicator "Average visit duration in the project website" was foreseen in the beginning of the project as the available at the time excel file named "LIFE Performance indicators Call 2017.xls" which was submitted on the eproposal did not included this indicator. As a result no deviation was expected.

11.2. Other tools for reaching/raising awareness of the general public

a) Number of discrete Project Reports drafted

There is not deviation for this indicator. The 31 reports foreseen have been prepared.

b) Number of different publications made (Journal/conference)

No value for the indicator "Number of different publications made" was foreseen in the beginning of the project. As a result no deviation was expected.

c) Other distinct media products created

There is not deviation for this indicator. The 5 promotional videos foreseen have been created and the 11 newsletters foreseen have been produced and disseminated.

d) Number of Hotline/information centers created

There is not deviation for this indicator. An online help desk is available.

e) Number of events/exhibitions organised

The initial foreseen number of events (i.e. workshops) was equal to 9 in total, which corresponds to 3 events per country of demonstration (i.e. Czech Republic, Greece, Italy). The workshops in Czech Republic and in Greece were organized as they were initially foreseen. The main deviation concerning the organization of events in the organization of workshops in Italy, where only one workshop has been organized.

f) Number of different displayed information created (posters, information boards)

There is no deviation for this indicator as the initially foreseen material, including 8 notice boards and 2400 dissemination packages (i.e. mousepad, notepad, folder, brochures of GYR, leaflets, calendar), have been designed and produced.

12.1. Networking (mandatory)

No value for the indicator “Professional training or education” was foreseen in the beginning of the project as the available at the time excel file named “LIFE Performance indicators Call 2017.xls” which was submitted on the eproposal did not include this indicator. As a result no deviation was expected.

12.2. Professional training or education

No value for the indicator “Professional training or education” was foreseen in the beginning of the project as the available at the time excel file named “LIFE Performance indicators Call 2017.xls” which was submitted on the eproposal did not include this indicator. As a result no deviation was expected.

G. Economic outputs and outcomes

13. Jobs

The foreseen total FTE was equal to 17.2 FTE. The final total number of FTE is 27% higher than the one foreseen i.e. 21.84 FTE.

After the end of the project 4.4 FTE were estimated. Based on the business plan the jobs created after the end of the project will be 4 FTE.

14.1. Running cost/operating costs during the project and expected in case of continuation/replication/transfer after the project period

No value for this indicator was foreseen in the beginning of the project as the available at the time excel file named “LIFE Performance indicators Call 2017.xls” which was submitted on the eproposal did not include this indicator. As a result no deviation was expected.

14.2.1. Capital expenditure expected in case of continuation/replication/transfer after the project period

No value for this indicator was foreseen in the beginning of the project as the available at the time excel file named “LIFE Performance indicators Call 2017.xls” which was submitted on the eproposal did not include this indicator. As a result no deviation was expected.

14.2.2. Operating expenses expected in case of continuation/replication/transfer after the project period

No value for this indicator was foreseen in the beginning of the project as the available at the time excel file named "LIFE Performance indicators Call 2017.xls" which was submitted on the eproposal did not included this indicator. As a result no deviation was expected.

14.2.3. Revenue expected in case of continuation/ replication/transfer after the project end

The revenue expected after the end of the project have been estimated equal to 459,540 EUR. Based on the business plan the revue expect is equal to 1,920,000 EUR.

14.2.4. Cost reduction expected in case of continuation/ replication/transfer after the project end

No value for this indicator was foreseen in the beginning of the project as the available at the time excel file named "LIFE Performance indicators Call 2017.xls" which was submitted on the eproposal did not included this indicator. As a result no deviation was expected.

14.3. Future funding

No value for this indicator was foreseen in the beginning of the project as the available at the time excel file named "LIFE Performance indicators Call 2017.xls" which was submitted on the eproposal did not included this indicator. As a result no deviation was expected.

14.4.1. Entry into new entities/projects

Both indicators were foreseen in the available at the time excel file named "LIFE Performance indicators Call 2017.xls" which was submitted on the eproposal

Replication

No value for this indicator was foreseen in the beginning of the project as the available at the time excel file named "LIFE Performance indicators Call 2017.xls" which was submitted on the eproposal did not included this indicator. As a result no deviation was expected.

Continuation

For this indicator the value of 8 entities was foreseen in the "LIFE Performance indicators Call 2017.xls" which was submitted on the eproposal. This value was satisfied as the 5 beneficiaries and the 3 new customers have signed a contract with the GYR company.