



Digital Transformation
for Regions

***DT4REGIONS' Award:
Your solution for digital transformation***



DT4REGIONS is a European
Parliament Preparatory Action
supported with European Funds

Barcelona, 28th June 2022

***DT4REGIONS Event: "A Journey towards an EU Platform
for AI and Big Data in Public Administration"***



DT4Regions' Award

Your solution for digital transformation



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Simona Pede,
Head of Talent lab, bwcon, WP5
Leader

DT4region in a nutshell



DT4REGIONS Digital Transformation for Regions



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Aim of the Award

DT4REGIONS' Award: Your solution for digital transformation



Candidate your initiatives or technological solutions based on Artificial intelligence and big data and participate in our competition!

[Read more](#)

The DT4regions award gives visibility to the best solutions (such as initiatives and technological applications) based on Artificial Intelligence and Big Data currently in use by public administrations in Europe



Wanted: your digital transformation solution!



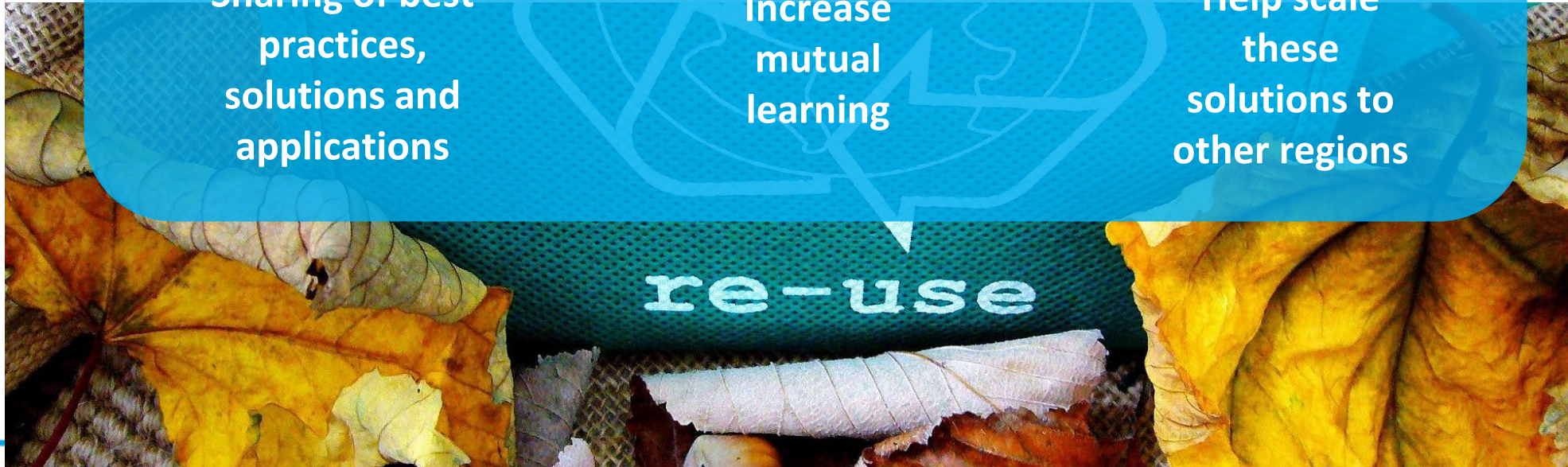
Sharing of best practices, solutions and applications



Increase mutual learning



Help scale these solutions to other regions



Award's categories

Supporting
policy making

01

02

Improving
public service
delivery

Enhancing
internal
management

03

04

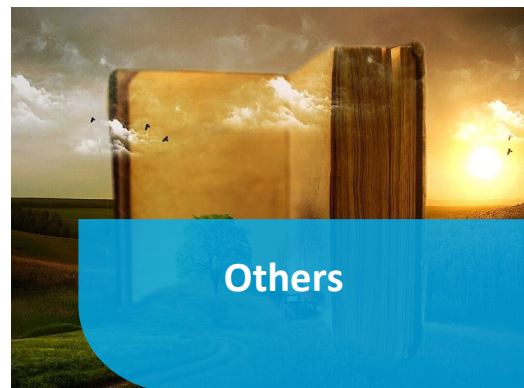
Others



Thematic Areas



Thematic Areas



Who can participate?

01

Civil Servants

02

Representative of
public administration

03

Members of European
regional and national
authorities



Why should you join?



- ✓ Contribute to exchange knowledge among public administrations in Europe
- ✓ Give visibility to your institution's initiative and contribute to scale it to other countries
- ✓ Boost digital transformation in Europe through knowledge sharing
- ✓ Be part of a community of peers exchanging best practices
- ✓ If award as winner, use the graphic label to give credibility and recognition to your initiative



How to participate?

Apply under <https://dt4regions.eu/award>

- Each entrant can candidate one or more initiatives, applications or solutions providing all data to its best knowledge.
- It is possible to candidate initiatives belonging to one's own region, city, nation or public administration
- ...but each entrant can also candidate initiatives of which he/she is aware of, belonging to other countries or public administrations.

DT4REGIONS

DT Book ▾ Award Acade

Deadline for candidatures

The award will be open from 1st July 2022, candidatures can be submitted till the 31st October 2022 at 23pm CET.

Guide for applicants

Download here the [Guide for Applicants](#) to get all details on the awards and the modalities of participation.

Terms and Conditions

All candidatures will be managed by the DT4REGIONS European Parliament Preparatory Action supported with European Funds and will be published on the DT4regions website and be accessible by its users. Please check our [Terms and Conditions](#).

Apply here



Sample of application Form I

→ Go to <https://dt4regions.eu/award>

Personal Information

Full name *	
Phone number *	Email address *
Address *	
Region/City *	Country *
Role within the initiative/company *	



Sample of application Form II

Information about Solution

Name of the solution *

Briefly describe your Solution *

How has the solution been designed and implemented?
What outputs have been delivered?
Who can access these deliverables?
Can your solution be further extended?
What methodologies have been used to test and measure the performance of the system?

Which problems or needs is your Solution tackling? *

which problems, needs, or strategic objectives your initiative, technological applications or solutions is trying to solve? Does your solution deal with supporting policymaking, improving service deliveries, or enhancing internal management?

Which benefits does this Solution offer to its users? *

Indicate here which benefits or advantages your solution offers to its users. Who are the stakeholders who benefit from this solution?

Which technology is used within your Solution? *


What models or technologies have been employed in the solution?
How has the data been collected? Dependencies on other software?



Sample of application form III

Solution Labels * 






Which fields does your Solution address? * 



Additional Information

Add here any further resources related to your Solution, through external hyperlinks or upload of documents

	<input type="text" value="Link Title"/>	<input type="text" value="Link URL"/>		
<input type="button" value="more items 1"/>	<input type="button" value="Add"/>			

 Upload documents

Unlimited number of files can be uploaded to this field.

15 MB limit.

Allowed types: gif, jpg, jpeg, png, bmp, eps, tif, pict, psd, txt, rtf, html, odf, pdf, doc, docx, ppt, pptx, xls, xlsx, xml, avi, mov, mp3, mp4, ogg, wav, bz2, dmg, gz, jar, rar, sit, svg, tar, zip.

GDPR

- By submitting your candidature you agree that your information will be managed by the DT4REGIONS European Parliament Preparatory Action supported with European Funds and will be published on the DT4regions website and be accessible by its users. You can check our full GDPR policy [here](#). Please tick the box to confirm that you understand and would like to confirm your submission.

Consent for data sharing

- Having read the [Privacy Policy](#) and the information on art. 13 GDPR (Privacy Notice) that the Partners have provided therein, I give my express consent to the sharing of my personal data with the Project Partners.

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Prizes

**Most Innovative Solution
for public administration
based on AI and Big Data**

Selected and awarded by
an expert jury

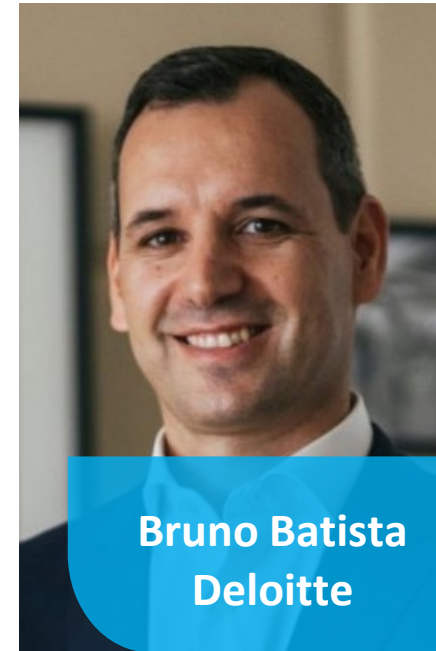
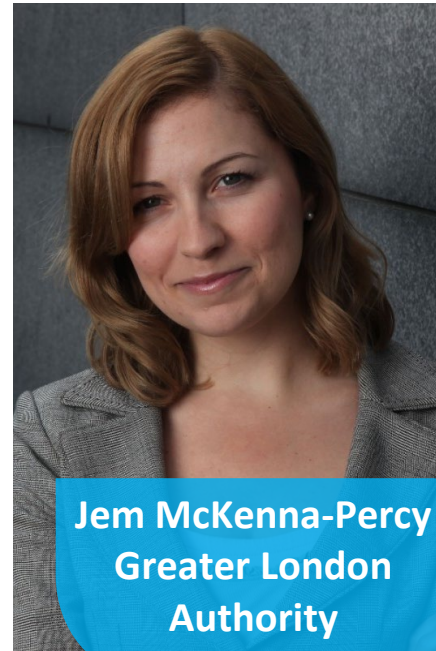


Selected and awarded by the
DT4regions' platform users

**Public's
favourite**



Jury



Jury



Selection Criteria

01 Innovation Degree of the solution

02 Performance of the solution

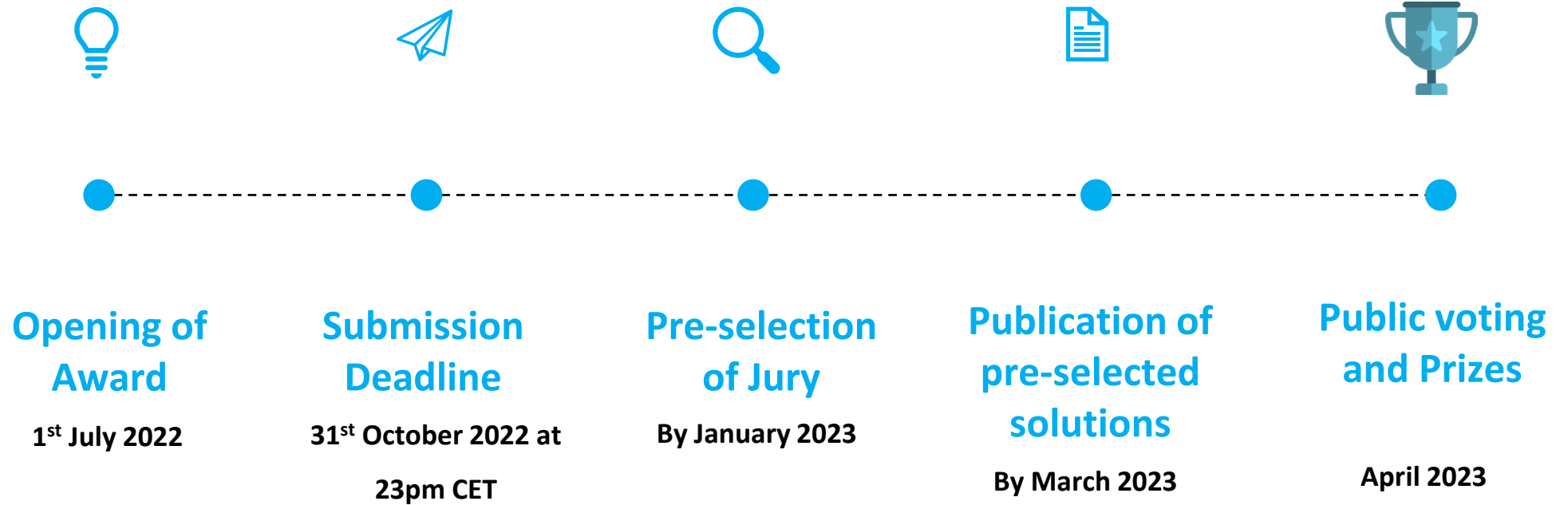
03 User friendliness

04 Technology

05 Impact



Timeline for the Award





Share your digital transformation solution now!

Thank you for your attention!



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Digital Transformation
for Regions

DT Story of the Emilia-Romagna Region

Intelligent digital workspace in the era of smart working



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Speaker: Giada Spaccapanico Proietti

giada.spaccapanico@regione.emilia-romagna.it

Outline

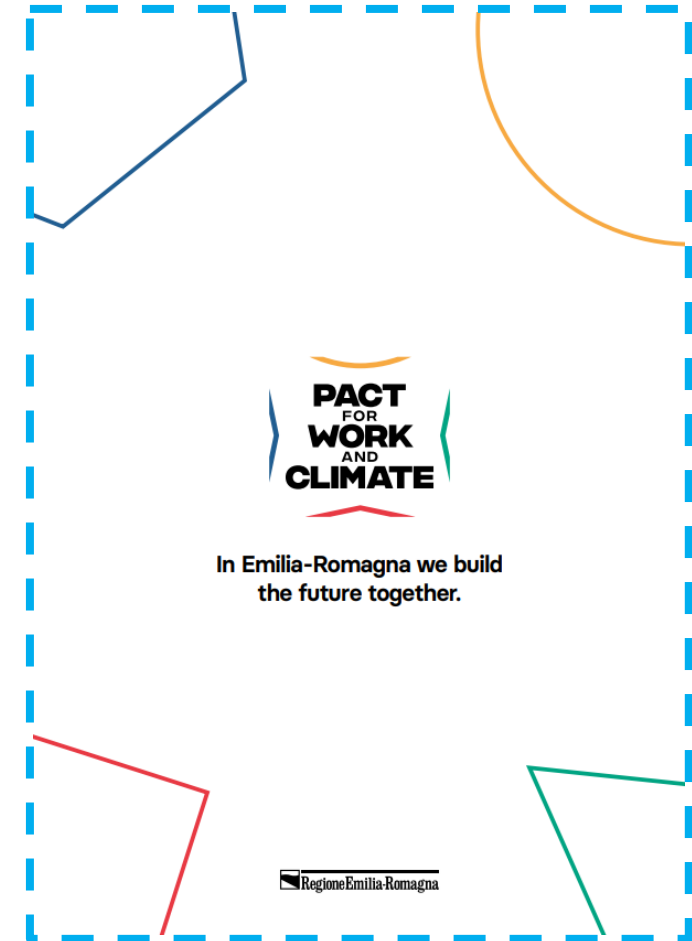
- Introduction
- Strategic Objectives and Beneficiaries
- Available Resources
- The DT Solution
 - Description
 - Tactical Objectives
 - Methods
 - Impact and Results
 - Dependencies and Constraints
- Acknowledgements



Introduction

During and after the pandemic **Smart working** and remote work practices have been massively implemented by the private and public sector.

Thanks to a more efficient and **AI-driven management**, Emilia-Romagna Region **policymakers** wonder how to use the data produced by these new organizational models to push towards the achievement of **strategic objectives** defined in the Pact for Work and Climate.



Strategic objectives



Increase the quality of administration and staff performance



Create innovative welfare, such as improving the workers' work-life balance



Speeding up the environmental transition by promoting more sustainable mobility

Beneficiaries



4000+ employees and collaborators of the Emilia-Romagna Region



Entire Community



Available Resources

The employee registry:

- `Employee_id`: identification number in our HR system
- `Birthday`: date in DD/MM/YYYY format
- `Gender`: string indicates gender
- `Organisational unit`: internal code
- `Smart working flag`: indicates if the employee has smart working rights
- `Workplace id`: office code
- `Country`, `region`, `province`, `city`, `address`, `zipcode`: Geographical informations as separated fields

The workplace registry:

- `Workplace id`: office code
- `Country`, `region`, `province`, `city`, `address`, `zip code`: Geographical informations as separated fields
- `Status`: Boolean flag indicates if the office is still available





The DT Solution

**Identification of the optimal location of co-working spaces
using clustering methods**

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Description

The proposed solution exploits the potential of the **clustering techniques** to help the Emilia-Romagna Region get insights into the **mobility** of the collaborators who commute to work and find **homogenous areas** of workers, in terms of their **home** locations and **distance** to their **workplace**

The project was born within the initiative of the **Data Analytics Lab**, a permanent working group, coordinated by Eleonora Verdini (Chief Data Governance Officer) set up to respond to business needs with advanced analytics, big data analysis, AI and machine learning

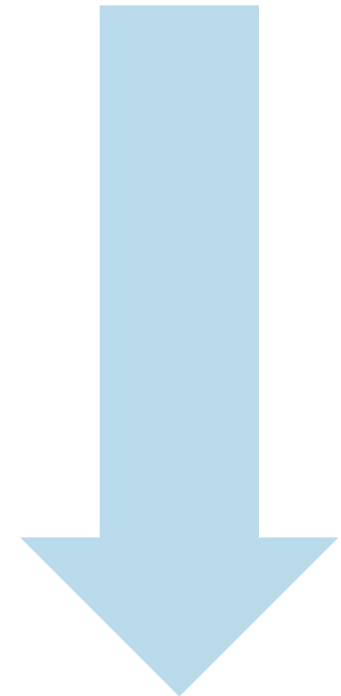
- Developers:
 - *Andrea Iacobucci - Data scientist*
 - *Serena Borsari – GIS Expert*
 - *Luca Bonafede – Business Intelligence*
- Supervisor:
 - *Luca Cisbani – GIS (Chief)*
- Project duration:
 - *6 months*



Tactical Objectives

- Identifying the **location of workstations** that yields the **lowest travel times** and costs
- **Reduce emissions** produced by workers who commute to their assigned offices by **private cars**
- **Reduce the commuting time** of the workers, especially those who **live far** from their current workplaces
- Generate a more efficient **use of buildings** and other working facilities to **reduce energy and space consumption**

From Knowledge ...



... to
Value



Methods 1/2 – The approach



1. Routing

Georeferenciation of employees' **homes** and the **workplace** buildings.

Calculating the **distances** and **driving times***



2. Clustering

Selection of employees far from their workplaces more than 15kms

Cluster analysis with the DBSCAN algorithm based on the **density of employees within the regional territory and distance to their workplace***



3. What-if

Find closest cluster of workers-workplace combinations.

Simulate what-if scenarios modifying **percentage of smart-working days** in the year and average costs per km, and estimating **time, costs, and emissions***

Methods 2/2 – Open Technologies



Open Source Routing Machine

Modern C++
routing engine for
shortest paths in
road networks



Scikit-Learn

Python machine
learning library



Pandas

Python data
manipulation and
transformation



Apache Spark

Efficient
distributed in-
memory compute
engine

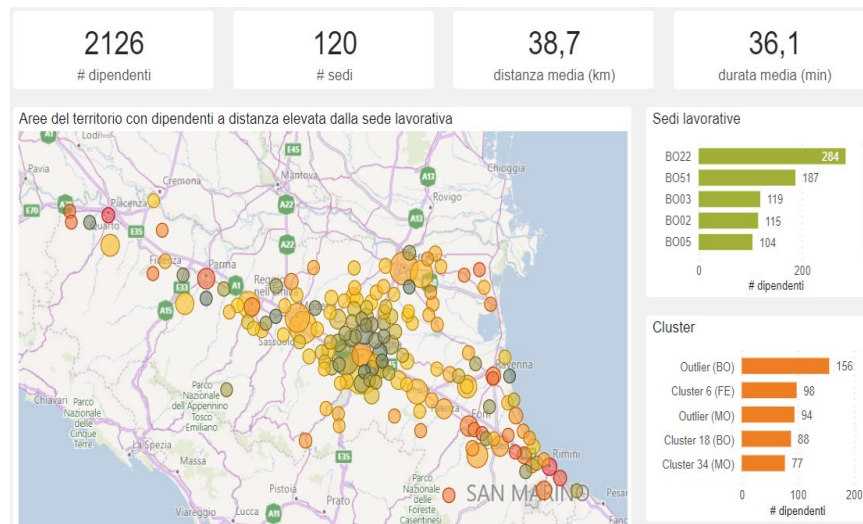


Impact and Results 1/2

Delivery

In order to deliver results to **managers** and **decision-makers**, we propose an interactive dashboard to:

- Visualise **where** the employees live and **how** many kilometers they travel to work, **where they work**, and **where they potentially can work or cowork** (smart) and measure the effect by simulation
- Support the **planning phase** of **searching for co-working places**



Impact and Results 2/2

A snapshot

Assuming that employees are allowed to work **remotely for 49%** of the workdays in a year, we **estimate a 30% reduction** in costs and emissions related to employees who travel to their assigned office



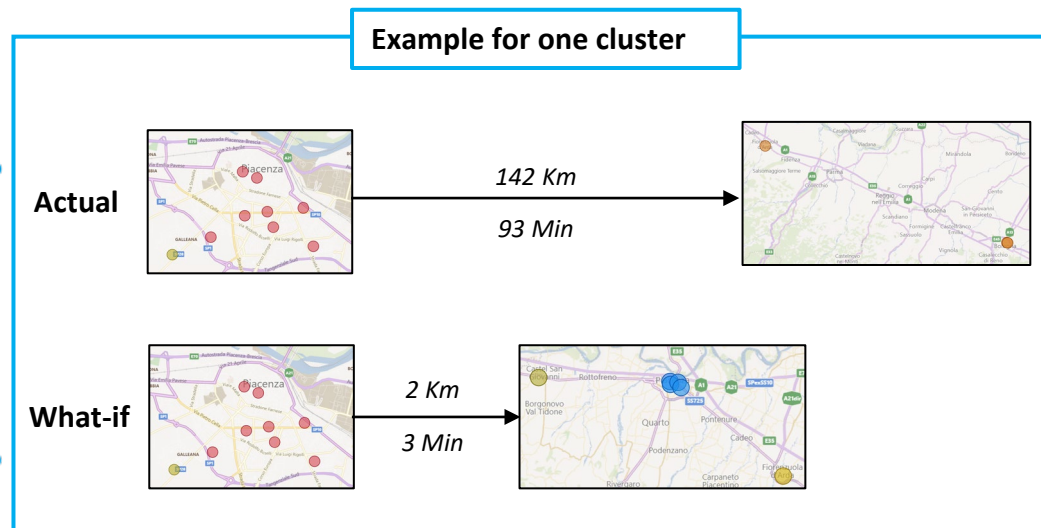
Daily **travel time** would go from around **40 minutes** to **12 minutes**



The annual savings would be around **€ 1000 per capita**



The amount of **CO2** saved would be about **2000 tons** per year



Dependencies and constraints

- **Pseudonomysation** of employee data to comply with the GDPR.
- **Dashboards and data** containing personally identifiable information of employees **are not available for public access.**
- Georeferencing is made with a **proprietary software** EgeCo.
- **Lack of information about means of transport used by the employee** to commute. Private car is assumed as a preferred vehicle.
- **Lack of data about the availability of workspaces in the buildings.** Using this data in a constrained optimization model, the optimal distribution of the employees in terms of buildings usage and minimal commuting costs could be found.



Acknowledgements

Special thanks to:

- Francesco Raphael Frieri (Director General and Digital Transformation Officer)
- Stefania Papili (Chief of Digital Innovation and Data Sector)
- Eleonora Verdini (Head of Data Science Area)
- Luca Cisbani (Head of GIS Area)
- Agnese Gagnano (Responsible for Business Intelligence Unit)

