DATAITIS

Data Science by ITIS Mario Delpozzo

OUR TEAM

1. Vittorio Fino
2. Rebecca Simondi
3. Lorenzo Bruno
4. Luca Grosso
5. Beatrice Risso
6. Francesco Torterolo
7. Viola Peruzzi

CUNEO

DELPOZZO

INTRODUCTION

This project analyzes logistics data from Tesisquare to identify delivery patterns and inefficiencies. The dataset includes over 14,000 shipments across E-commerce, Courier, and Road Transport services in Italy and the US.

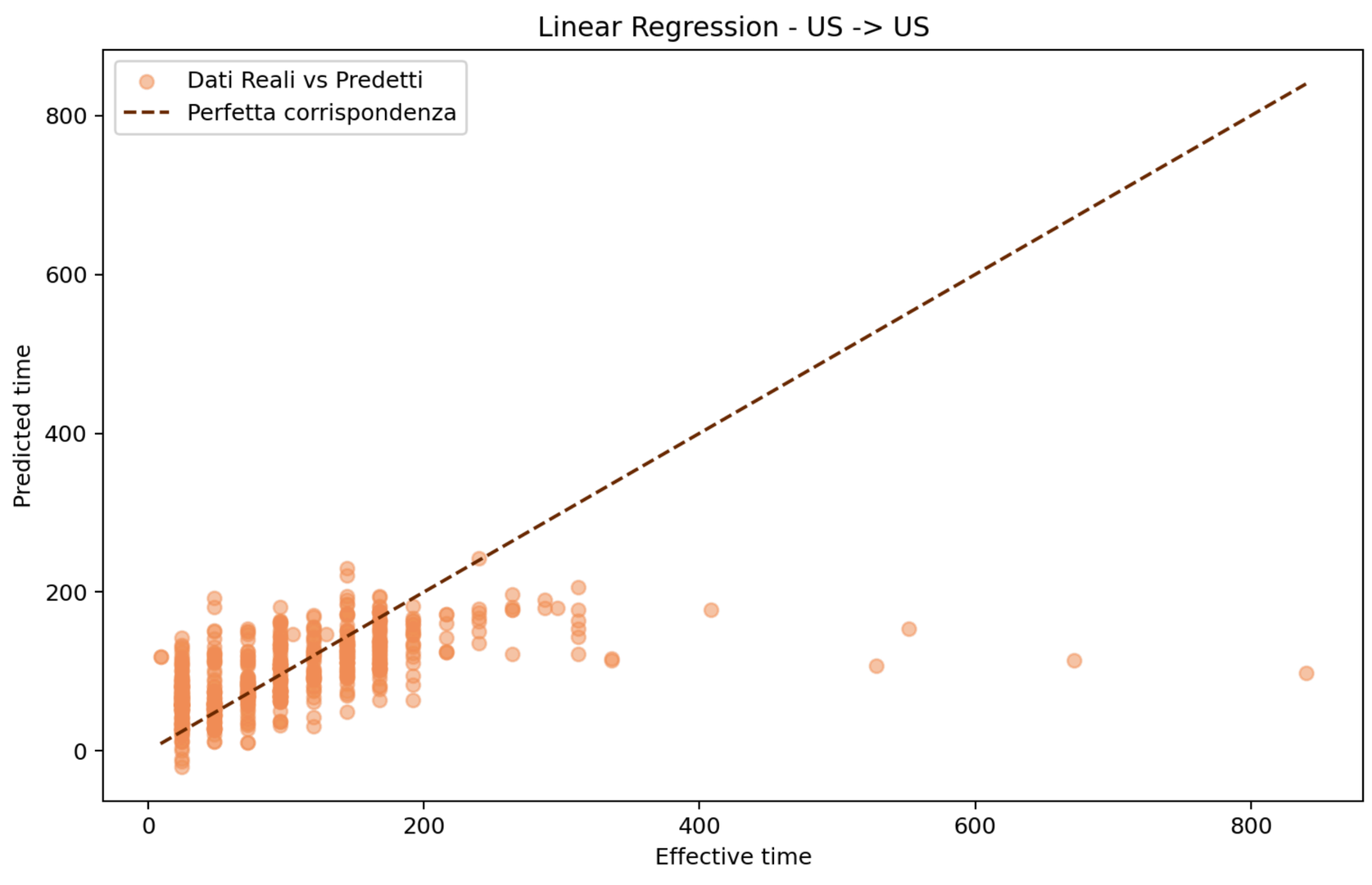
GOALS

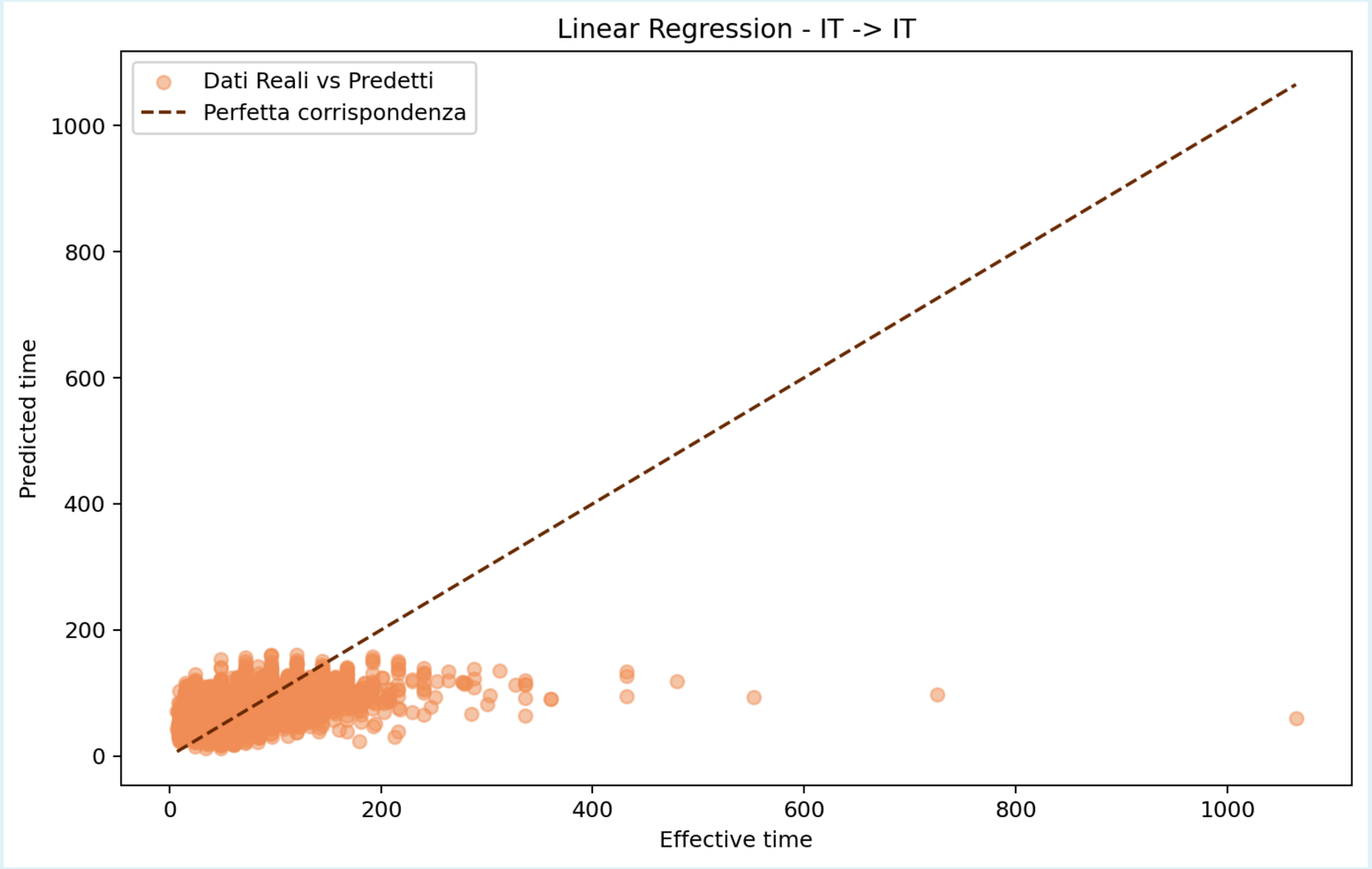
- Understand what affects delivery time and distance
- Identify trends based on service type and geography
- Build predictive models for delivery performance
- Support logistics planning and optimization

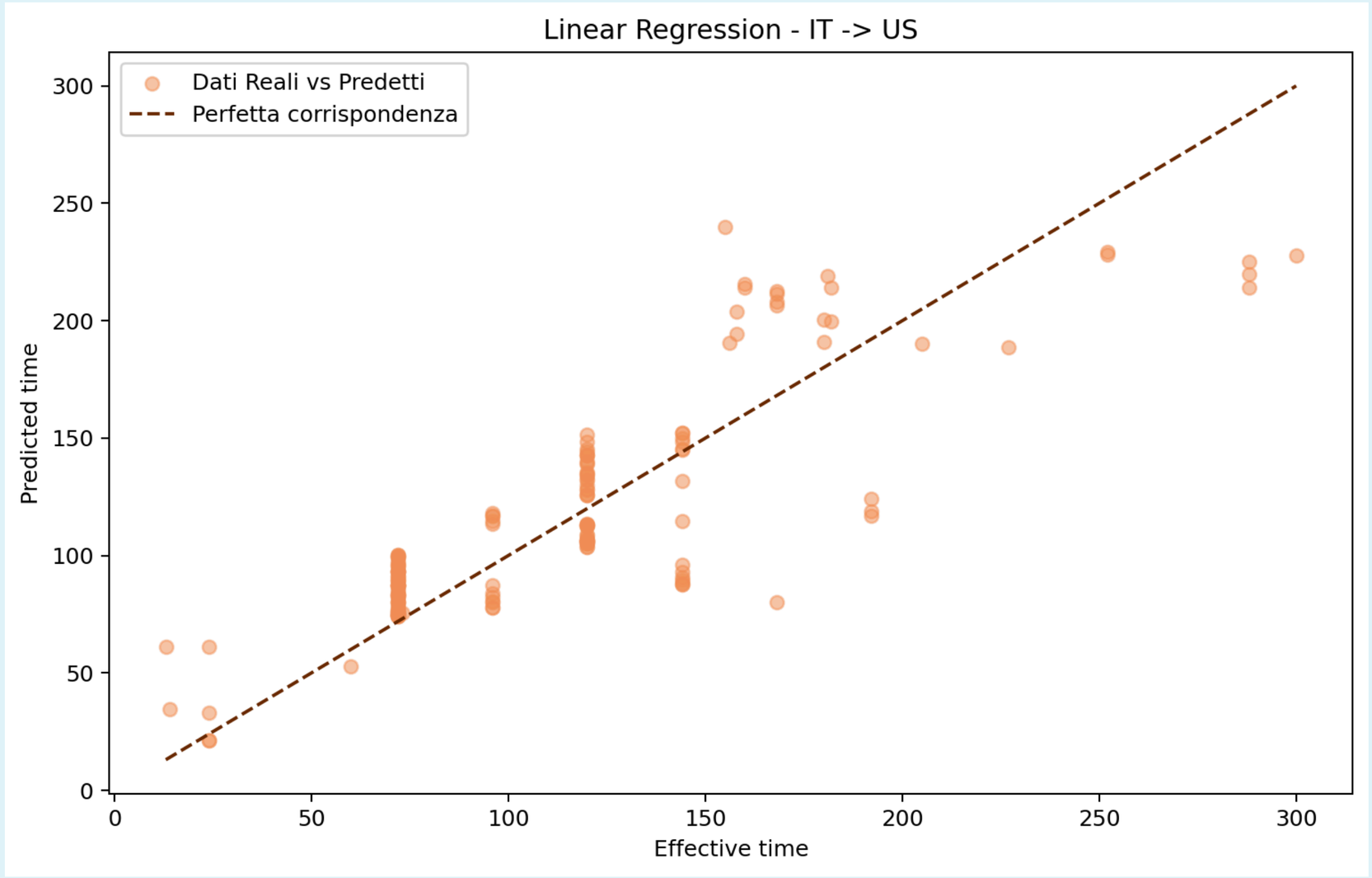
METHODOLOGY

We cleaned the data by fixing missing values and errors, then segmented it by service type and country. We analyzed delivery trends, explored correlations, and visualized patterns. Finally, we built predictive models using Gradient Boosting to estimate delivery distance and time, accounting for weekends and work hours.

LINEAR REGRESSION GRAPHS


Linear Regression - US -> US
Dati Reali vs Predetti
Perfetta corrispondenza
Predicted time
Effective time
0
200
400
600
800


Linear Regression - IT -> IT
Dati Reali vs Predetti
Perfetta corrispondenza
Predicted time
Effective time
0
200
400
600
800
1000


Linear Regression - IT -> US
Dati Reali vs Predetti
Perfetta corrispondenza
Predicted time
Effective time
0
50
100
150
200
250
300

HYPOTHESIS

We hypothesized that delivery times increase for shipments scheduled near weekends, especially for Courier and Road Transport services. Domestic routes (like IT-IT and US-US) were expected to show more consistent delivery patterns than international ones. We also believed that E-commerce would have the most stable performance and that delivery time would depend on factors beyond just distance, such as day of the week and service type.

CONCLUSION

The analysis confirmed that service type and shipment timing strongly affect delivery times. E-commerce showed the most consistent performance, while Courier and Road Transport were more impacted by day of the week, especially near weekends. Distance predictions were highly accurate, while time predictions revealed the influence of additional external factors. These insights can help improve delivery planning, optimize schedules, and provide more accurate estimates to customers.

THANK YOU