Purpose
NTT Data Italia challenged us with a business game where we impersonated a data-driven, machine learning, and business team, to enhance the value of an e-commerce which aggregates smaller independents sellers operating in Spain.

Design & Methodology
NTT provided us several data related to orders, payments, shipments and information about sellers and customers. Thanks to advanced data exploration techniques we got insights about the business activities, and leveraged them to build predictive, statistical-based models, to understand and improve 3 key activities for the e-commerce:

- Customers' clustering and Micromarketing: segmenting customers based on similar features to create tailored marketing strategies.
- Recommendation System: techniques to predict which are the products a user can be interested in purchasing.
- Delivery Time Analysis: to predict an accurate date of delivery for customers and getting insights on the drivers which influence the shipping time.

Main Findings

- Thanks to clustering, approx. 96000 customers were clustered in 6 main segment each of one characterized by similar features. For each segment we designed a tailored marketing strategy, mainly based on:
    - Increasing the C.L.V.
    - Inducing a second purchase (95% of customers did only one purchase of one product)
    - Loyalize customers
- Our Recommendation System can predict the score a customer would give to a new product, with an error of +-1 star out of 5.
- Our delivery time prediction model can estimate the delivery time with an error of +-1 day.
    - We found out that most of the delivery "delay" is caused by inertia within the seller store.
    - Moreover, the variables that influenced the delivery time are distance, the historical delivery time of the seller, the weight of the package, the n. of order the same seller has to deal with in the same day and the shipping costs.

Value of the Research/ Theoretical Contribution
In a data-driven approach decisions are based on analysis and interpretation of hard data rather than on observation. We demonstrated its efficacy because ensures solutions supported by sets of information, and not just hunches, feelings, and anecdotal evidence.

Keywords: Machine Learning, Project Management, Data-Driven, E-commerce

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- Name of team's participants:
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    - Vincenzo Junior Striano – Team Leader
- Name of the master's degree program: Data Science and Management – DIM
- Name of the course and name of the professor: Machine Learning, prof. Giuseppe F. Italiano