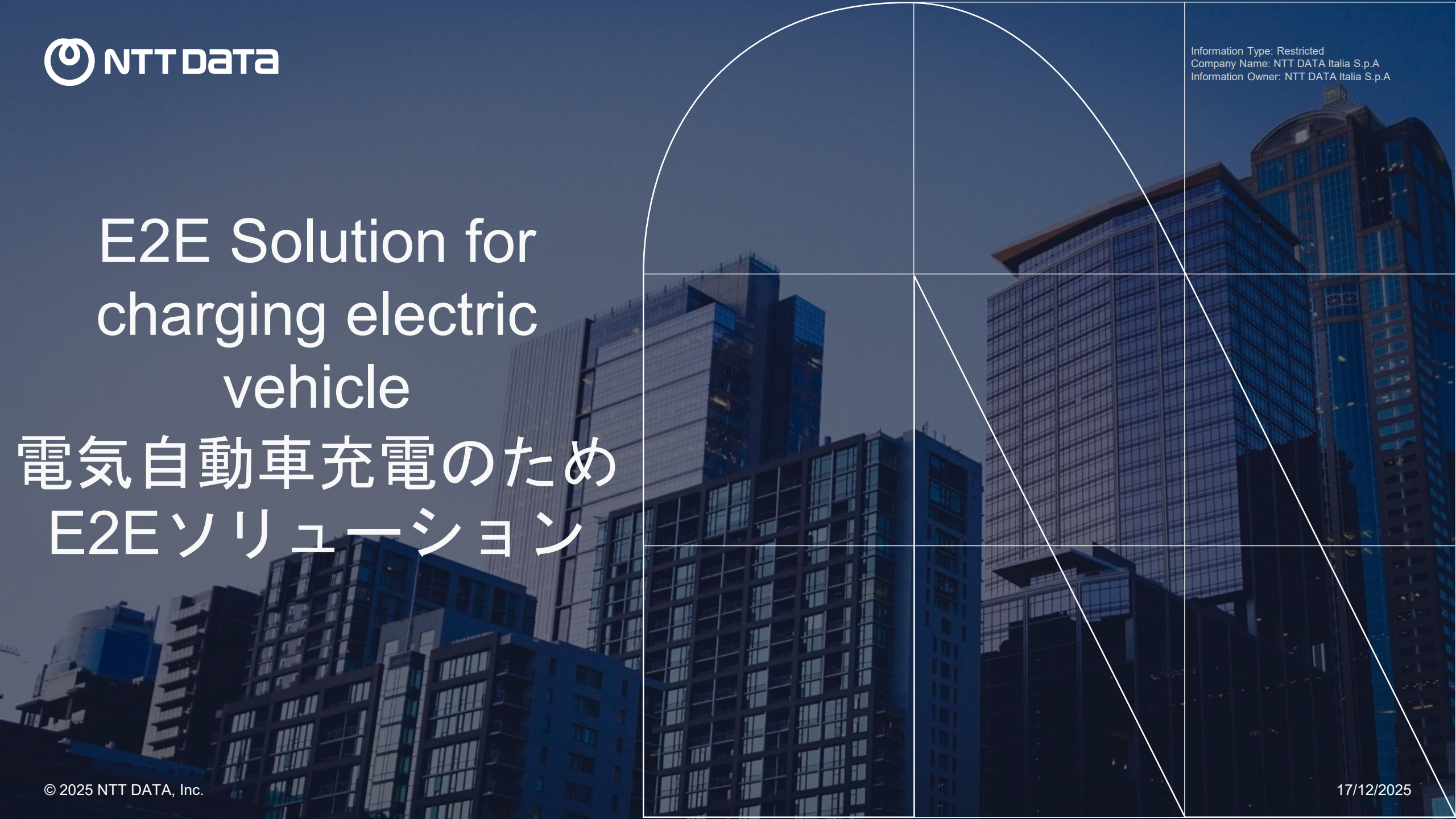


Information Type: Restricted
Company Name: NTT DATA Italia S.p.A
Information Owner: NTT DATA Italia S.p.A

E2E Solution for charging electric vehicle
電気自動車充電のためE2Eソリューション

17/12/2025

The Critical Role of Electric Mobility in the Evolving Energy Landscape

Electric mobility is a vital component in the transition towards **sustainable transportation**.

+51% EV (ITA 2023)

+34% Charging Points (ITA 2023)

Context

The energy sector in Italy is undergoing a profound transformation, driven by the need to reduce dependence on fossil fuels and accelerate the transition toward a more sustainable system. Renewable energy sources are playing an increasingly central role, with the goal of covering 70% of the national energy demand by 2030. In this context, **electric mobility** is emerging as a **key element of decarbonization**

Environmental Impact

Unlike conventional vehicles, EVs emit no tailpipe pollutants, which significantly decreases the levels of harmful substances in urban environments. When charged using renewable energy sources such as solar, wind, or hydroelectric power, EVs contribute to a substantial reduction in greenhouse gas emissions, leading to cleaner air and a healthier plane

Economic Benefits

- **Lower operating costs**
- **Reduced maintenance costs**
- **Job creation**
- **Economic stimulation**

Who is our Client?

Context

The Client, a new 50/50 joint venture established by an Italian leader in the fuel and mobility sector, with approximately 1,600 employees and a network of over 4,500 service stations, and an Australian financial fund, aims to electrify urban and extra-urban service areas.

With an initial **€200 million investment** over the first three years, the Client plans to install **fast and ultra-fast charging stations** in **300 service areas**, supported by Italian and international financial institutions. They were established with the goal of transforming over 500 service areas on urban and extra-urban roads into multi-energy and multi-service hubs by 2032

NTT DATA for the Client

The company has chosen **NTT DATA** as its technology **partner** for the development of the **E2E solution** to manage **electric vehicle charging**, both on proprietary infrastructure and in roaming.

Needs

- **Design Customer Journey**
- **Design of operational processes**
- **Design target Architecture**
- **Development Architecture solutions**
- **Syntphony configuration (NTTD asset)** for charging infrastructure management
- **Development a Mobile app** for managing registration, charger selection, booking, start/stop, and payment for EV charging (integrating underlying systems such as **CRM**, **Billing**, **eMSP**, and **other external systems**)
- **POS payment systems**
- **Customer service support**
- **A Business Intelligence dashboard** for analytics and insights

Master-Plan & Key Facts

HIGH LEVEL DESIGN

The main components of the IT system, their interactions and the basic architectures were defined

LOW LEVEL DESIGN

The specific technical details required to implement the system components described in the HLD have been defined

DEVELOPMENT

Implementation of the system according to the specifications defined in the design phases.

TEST

The entire system was tested to ensure that the requirements defined in the design phase were met

GO LIVE

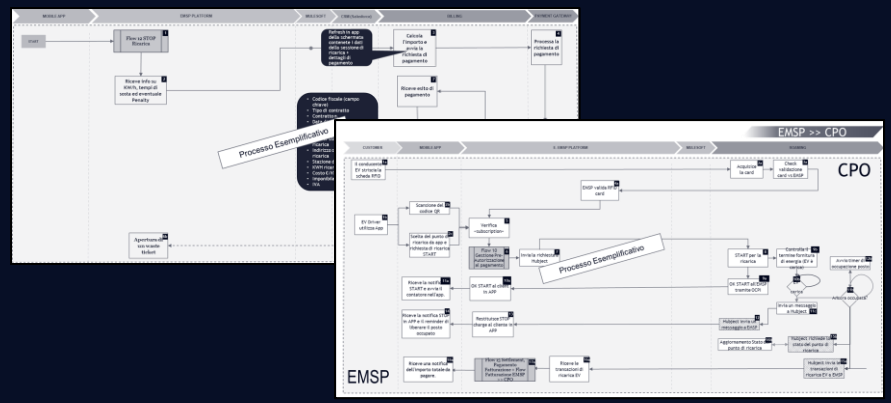
Release of the solution in operation

High Level Design

Performed **assessment** on OIL architecture

EV Architecture design

Disegned over **37 Processes**



Low Level Design

Performed architectural design and **environment set up**

Produced over **400 pages** of Functional Specifications

Produced over **400 pages** of Technical Specifications

Development

Implemented over **300 API**

Implemented over **80 features**

Integrated over **15 Systems** between the Client and stakeholders

Test

Run over:

- ✓ **5.000** integration and functional tests
- ✓ **75** accessibility tests
- ✓ **15** days of VAPT
- ✓ **30** runs to optimize Performance Test results

Supported the Customer in **8 UAT sessions**

GoLive

1 month of Business Simulation

GO LIVE of the solution **1 year** after the project kickoff

The **high quality of the software** released allowed to be on time respect to GoLive planned

Architecture solution

LEGENDA

Systems implemented by NTT DATA

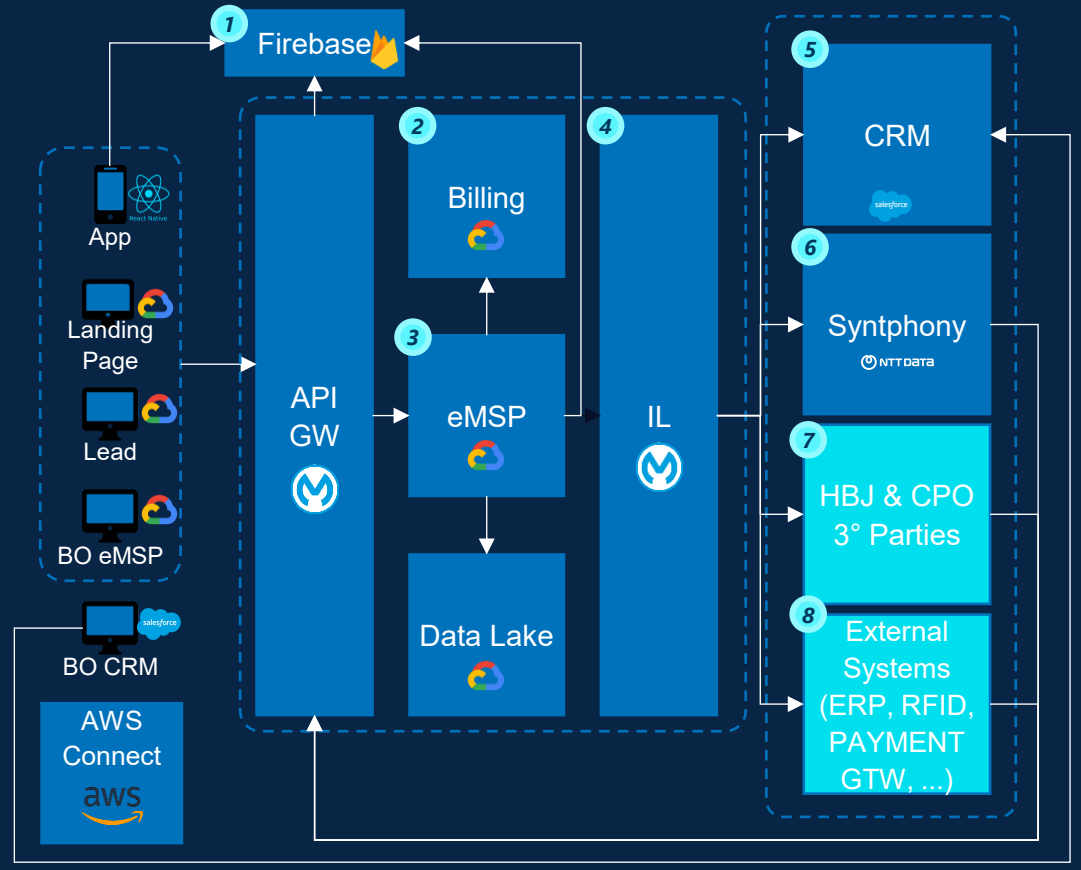
External systems

1 **Firebase** is an IAM system, responsible for users registration and authentication

2 **Billing** is a layer dedicated to pricing management, payment methods and subscriptions, payment flow management

3 **eMSP** orchestrates business logic between Mobile App and all other infrastructure modules. Enables communication with the owned CPO Charging infrastructures and with the various interoperability of which the client is a partner

4 **IL (Mulesoft)** is a layer that contains integration logics and ensures centralized management of communication with external systems connected to the platform



5 **CRM/Salesforce** has the entire Customer Base, manages offers and eligibility rules and all other assets

6 **Syntphony** e-Mobility platform is an NTT DATA solution created to enable electric vehicle charging services, both for its own CPO and CPO integration with third parties via protocols (PCIP, OCPI, OICP)

7 **Hubject** is the roaming platform that connects and communicates with our eMSP to manage all customer recharges in interoperability

8 In this layer are grouped all the external systems with which we interface: **ERP** for invoicing, RFID card producer, Payment gateway and so on

Customer Journey

Download

1

App Installation

Download the app from Google Play or Apple Store and launch it for the first time

Onboarding

2

Splash

Display of the splash screen

Walktrough steps

Viewing and scrolling through the onboarding screens

Registration / Login

3

User Registration

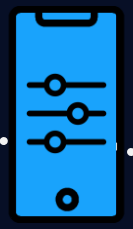
User registration and personal data collection

Log In

In app login with username and password or as a guest

In app navigation

4

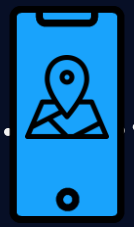


Experience personalization

Access to the homepage and registration of the user preference (adding favourite chargers, vehicles, payment method…)

Charger booking

5



Charger browsing and booking

Selection and booking of the desired/available charger

Vehicle Charging

6

Charging start and stop

Authentication and start/end charging at the station using an RFID Card or the App, with a pay-per-use tariff

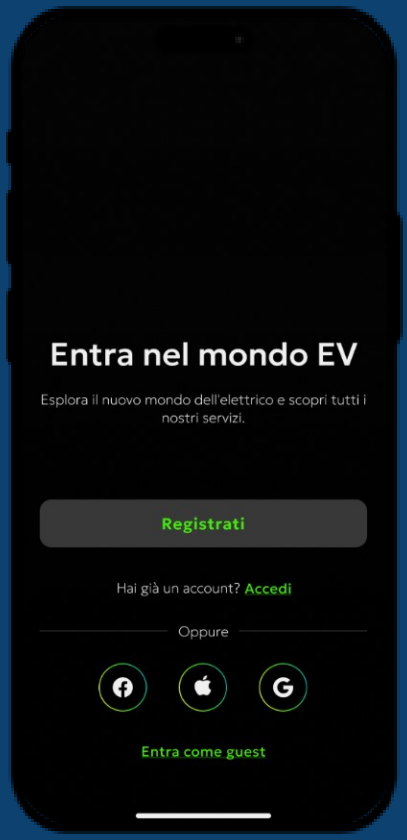
Charging summary

Display of the charging summary

Customer Onboarding

01

Multiple access options: simple registration, social login, guest access

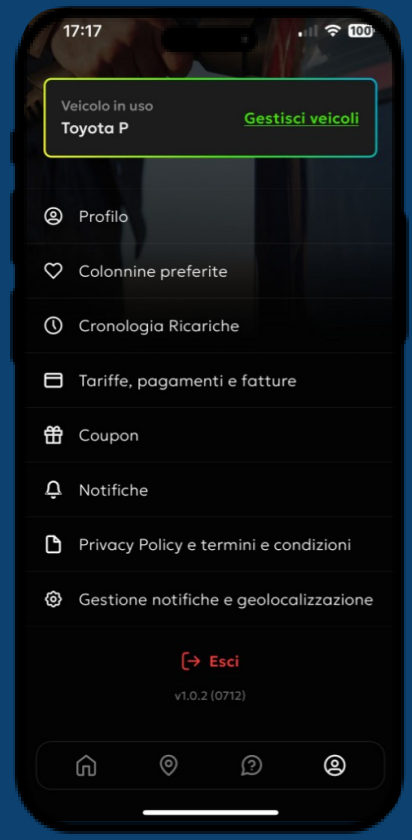


02

Personal profile creation, collection billing data , offer selection

03

User profile: selection vehicle, add payment method, selected preferred charging stations, RFID card request and more



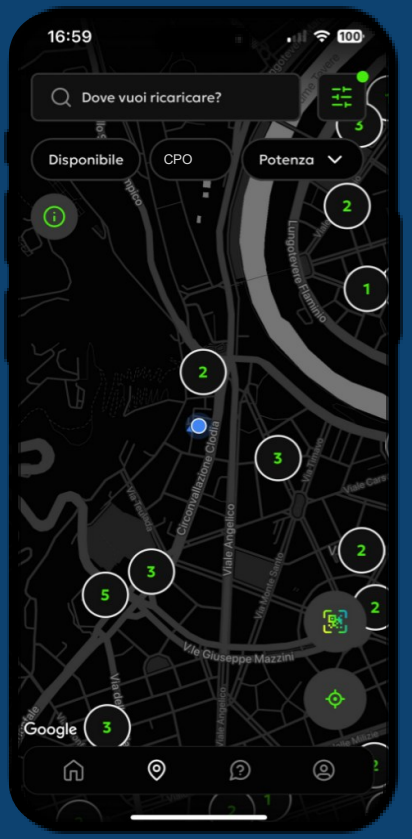
APP Navigation

01

Homepage with double visibility: near you and favoritesVehicle in use and control bar

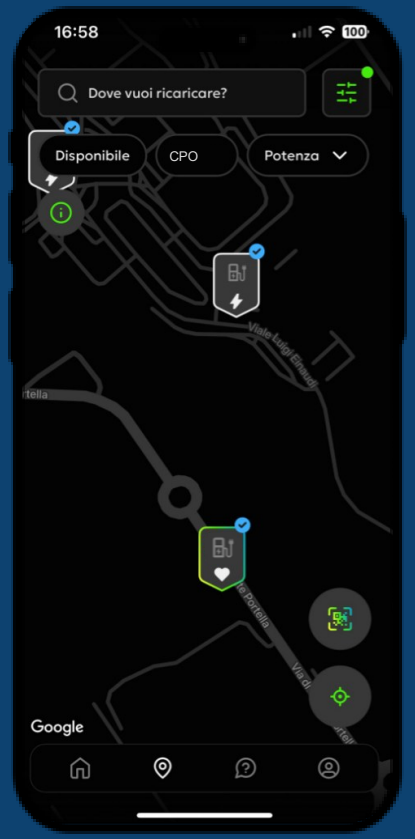
02

Map navigation, scan Qrcode of the charging station, set search filters



03

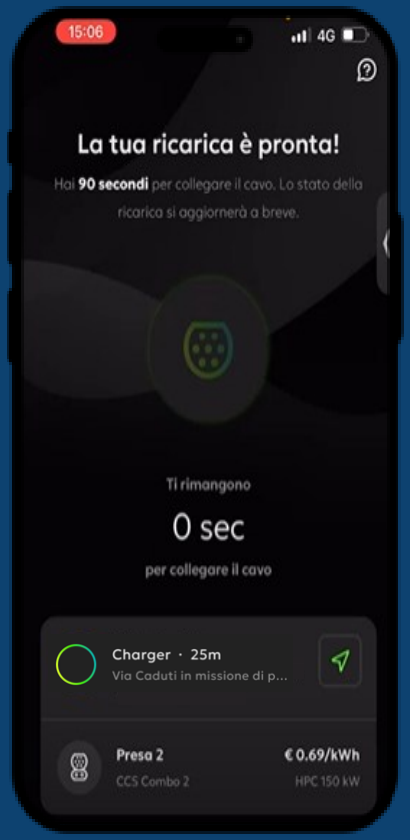
Select charging column or station, view detailed information



Charging Experience

01

Charging station reservation or start charging



02

Monitoring charging details in real time

03

Stop charging, check consumption and payment details

Customer Benefits

E2E PROCESS SOLUTION

Business and IT strategy to design a digital and technological solution to support the EMSP (E-Mobility Service Provider) and CPO (Charging Point Operator) processes to create a single customer that proposes, integrating EV with fuel and Non-Oil

CHARGING EXPERIENCE

Management of interactions with the Customer through an **APP** that accompanies the **Customer** throughout the **lifecycle**, from the onboarding phase to the provision of the service, allowing the adoption of multiple payment methods

CUSTOMER SUPPORT

Definition of a service and operational model to allow the provision of **Customer Support** services in order to guarantee the necessary levels of **Caring** and **After-Sales Support**

COMPLIANCE WITH STRATEGIC PLAN

Implementation of a complex IT infrastructure in compliance with the timelines set by the strategic plan

Future Impacts

SYNTPHONY EV CHARGING

The use of the Syntphony solution grows its influence in the sector, potentially opening new opportunities for collaboration with new customers in the Italian and foreign markets

EV PLATFORM AS AN NTT ASSET

The project saw the birth on a new NTT Asset in the form of an APP that will extend Syntphony's offering portfolio covering the EMSP customer needs too

NEW PARTNERSHIP

The project evolved in a partnership with the customer, ensuring future collaboration in the growth of their business and NTT's influence in the sector