



Ignazio Cordella
Enel X

<p>IVECO BUS</p>	<p>Partner</p>  	<p>Sponsor</p>   	<p>Comitato scientifico</p>  	
<p>Organizzato da</p> 	<p>Mobility partner</p> 	<p>Evento organizzato in collaborazione con</p>    		



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Enel X e-City

Ignazio Cordella - Strategy & Commercial Development, Global e-City

5 key trends are affecting the energy sector

URBANISATION

68% of global population will live in cities by 2050

DECARBONISATION

79% of new generating capacity by 2050 will be Renewables

ELECTRIFICATION

60% represents the increase in the global electricity demand by 2040

DIGITALISATION

40% represents the increase of digital investments in the energy sector by 2025

FLEXIBILITY

20% is the share flexibility makes out of the total power mix by 2050

The energy sector is experimenting a deep transformation
 Digitalization and customer centricity will change the sector paradigm

Il mondo si muove verso il trasporto sostenibile



France to ban sales of petrol and diesel cars by 2040 

 INDEPENDENT 
China to ban petrol and diesel cars, state media reports

Volkswagen Investing \$1 Billion To Convert Zwickau Plant To EV-Only Production 

 INDEPENDENT 
News > Business > Business News
Daimler is investing £571m to build electric cars in China

Globally, the car manufacturer plans to invest €10bn in the expansion of its electric fleet over the next few years

U.K. Joins France, Says Goodbye to Fossil-Fuel Cars by 2040


 FINANCIAL TIMES 
More than half Norway's new car sales electric or hybrid

December 18th, 2017 by [James Ayre](#)

Volkswagen AG will be investing around €1 billion to fully convert its manufacturing facility in Zwickau, Germany, to electric vehicle production over the next 5 years. This is part of a broader €22.8 billion investment package for 2018–2022.

Volvo Says All its Cars Will Be Electric or Hybrid in 3 Years

By [REUTERS](#) July 5, 2017 


Scotland aims to phase out new petrol, diesel cars by 2032 

But tax breaks and subsidies fuelling rapid growth being questioned

Richard Milne
JANUARY 3, 2017

 Mobility and Transport 

European Commission >
Energy Union: Commission takes action to reinforce EU's global leadership in clean vehicles

The Dutch government confirms plan to ban new petrol and diesel cars by 2030 

Fred Lambert - Oct. 10th 2017 1:56 pm ET 

BMW Wants to Sell Half a Million Hybrids and Electric Cars by 2019

BMW to offer 12 fully electric car models by 2025 

Posted Sep 7, 2017 by [Darrell Etherington \(@etherington\)](#)

BMW says that it'll have a total of 25 electrified vehicles in its lineup by 2025, with

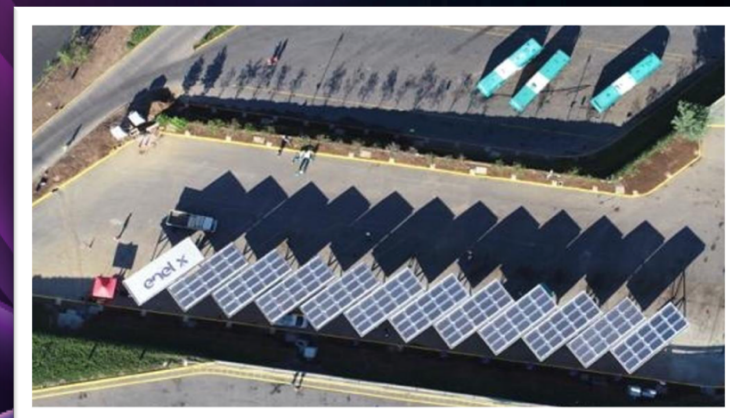
is launched after 2019 will...
ids, the Chinese-owned...
said Wednesday, making it



Il Ruolo di Enel X:

**Abilitare la trasformazione del
trasporto pubblico verso la
mobilità elettrica**

Cosa stiamo facendo in Cile



Un viaggio condiviso

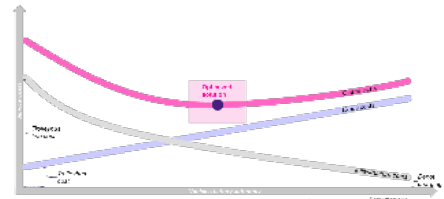


Santiago del Chile



Ottimizzazione e ingegneria

- BYD bus@250km (280kWh)
- 80kW AC caricatori@deposito (1:1)
- Potenza ridotta fino al 50% grazie a soluzioni intelligenti di ricarica



Delivery

- Metbus Maipú: Connessione MT (12KV) per 1,5MW; 70 caricatori
- Deposito Metbus Peñalolén: connessione MT per 3,0MW. in 12kV; 30 caricatori
- Attività di formazione

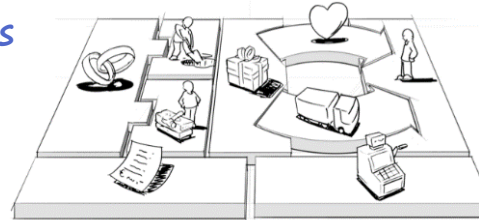


Def. del servizio

- Sistema e-BRT Via GRECIA
- 100 e-bus su 300
- 50 fermate
- 91,000 p/g
- 3 comuni: Peñalolén, Ñuñoa and Providencia.

Set-up del business model

- Leasing di infrastrutture e bus
- Contratto di 10 anni
- Approccio "one stop shop"
- Garanzia del governo Cileno
- Accordi con fornitori e partner



Trasporto Pubblico Elettrico Santiago del Cile

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➤ Risultati dopo il primo anno di sperimentazione con 2 bus:

- Linea di 59 Km in pendenza
- Disponibilità bus elettrico pari a 99,23%, incremento di circa 1% rispetto ai bus tradizionali
- 350.000 passeggeri trasportati
- 76% di risparmio sui costi operativi
- Aumento dei ricavi
- **A valle del primo anno aumento della flotta a 100bus elettrici (2018) più altri 180 che saranno introdotti nel 2019**



SOME GOOD RESULTS

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EMISSION REDUCTION

+15 TONS OF CO2
PER ELECTRIC BUS

MORE COMFORT A/C, WIFI, NO NOISE

DEVELOPMENT OF
URBAN INFRASTRUCTURE

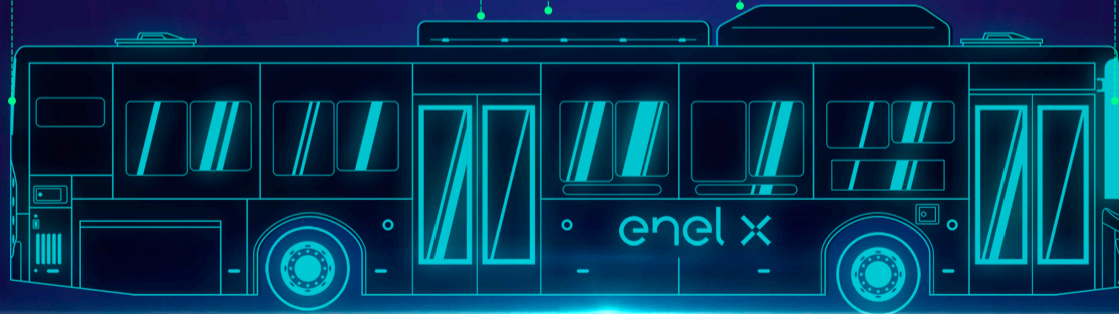
LOWER EVASION RATES DUE TO BETTER SERVICE

CLIENT SATISFACTION

RANKS 6,3 OUT OF 7 ACCORDING TO THE
LATEST POLLS AND 84% SATISFACTION RATE

QUALITY OF LIFE (ENVIRONMENT)

100 TIMES LESS NOISE POLLUTING
THAN DIESEL BASED BUSES





PUBLIC TRANSPORT AS BACKBONE OF CITY SERVICES

Citizen engagement
Urban Services

An efficient and sustainable Public Transport
System that opens a window of opportunity in
urban development

IMPLEMENTING E-BUS BUSINESSES

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DIGITAL
SCREENS



AUTOMATIC
PAYMENT



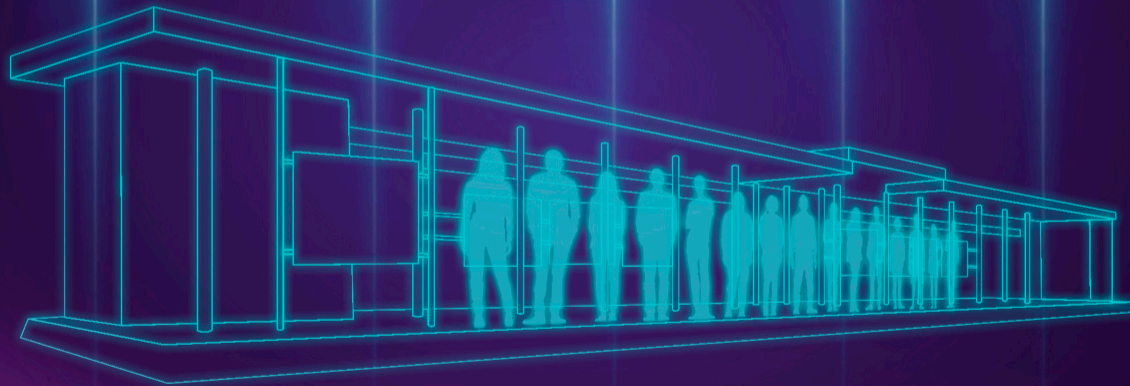
PHOTOVOLTAIC
PANELS



WIFI
NETWORK



VIGILANCE
CAMERAS



AND CHARGING INFRASTRUCTURE

OPENS DIFFERENT BUSINESS OPPORTUNITIES FOR THE DEVELOPMENT OF URBAN INFRASTRUCTURES IN THE CITY, IMPROVING QUALITY OF LIFE FOR CITIZENS.

La Sfida della Smart-City

SMART CITY

Il futuro è presente



Per maggiori informazioni vieni a trovarci sul sito www.enelx.com

Servizi smart che migliorano la qualità della vita, integrando molteplici informazioni provenienti dall'ecosistema urbano

Grazie all'infrastruttura urbana di illuminazione pubblica e alla nostra piattaforma digitale offriamo ai nostri clienti servizi "smart city" che integrano le informazioni provenienti da sensori e videocamere presenti nelle aree urbane con quelle provenienti dalle fonti disponibili in ambito big data.

- > **La sicurezza al primo posto:** il servizio di videosorveglianza che permette di evidenziare tempestivamente eventi critici per la sicurezza dei cittadini e mandare allarmi alle autorità preposte, nel rispetto totale della privacy
- > **Una mobilità ottimizzata:** servizi che ricostruiscono i flussi di mobilità delle persone e i flussi di traffico per consentire una pianificazione più efficiente delle attività cittadine, migliorando ad esempio la viabilità attraverso una regolazione semaforica ottimizzata
- > **Una città pulita e green:** una rete di sensori per il monitoraggio ambientale ed una forte promozione della mobilità elettrica permettono di monitorare l'inquinamento cittadino e promuovere comportamenti virtuosi
- > **Una città sempre "on":** soluzioni di connettività sia locale Wi-Fi che a più ampia copertura, legate al 3G-4G-5G che permettono di sfruttare al meglio le infrastrutture urbane di trasmissione ad altissima velocità in fibra ottica
- > **Informazioni in tempo reale:** grazie ad una piattaforma unica di controllo, che utilizza le nuove tecnologie di data analytics e dell'Internet of Things (IoT), Enel X ha la capacità di raccogliere informazioni, elaborarle ed orchestrarle, in un percorso di continuo apprendimento e miglioramento dei servizi stessi

PROGETTO INTEGRATO



Mission

Supporting the effective public transport electrification by optimizing the entire system.

Enel X offering

Mobility

- Feasibility study
- Cost/Benefits analysis
- Transport engineering
- Fleet Management
- ebus supply
- EV charging station supply, Installation & maintenance
- Smart Charging system

Energy Efficiency (bus depot)

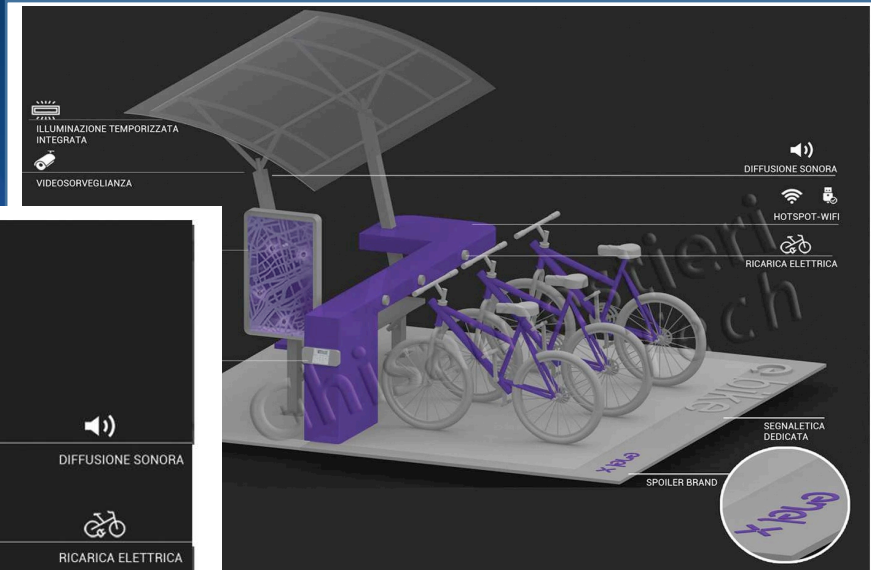
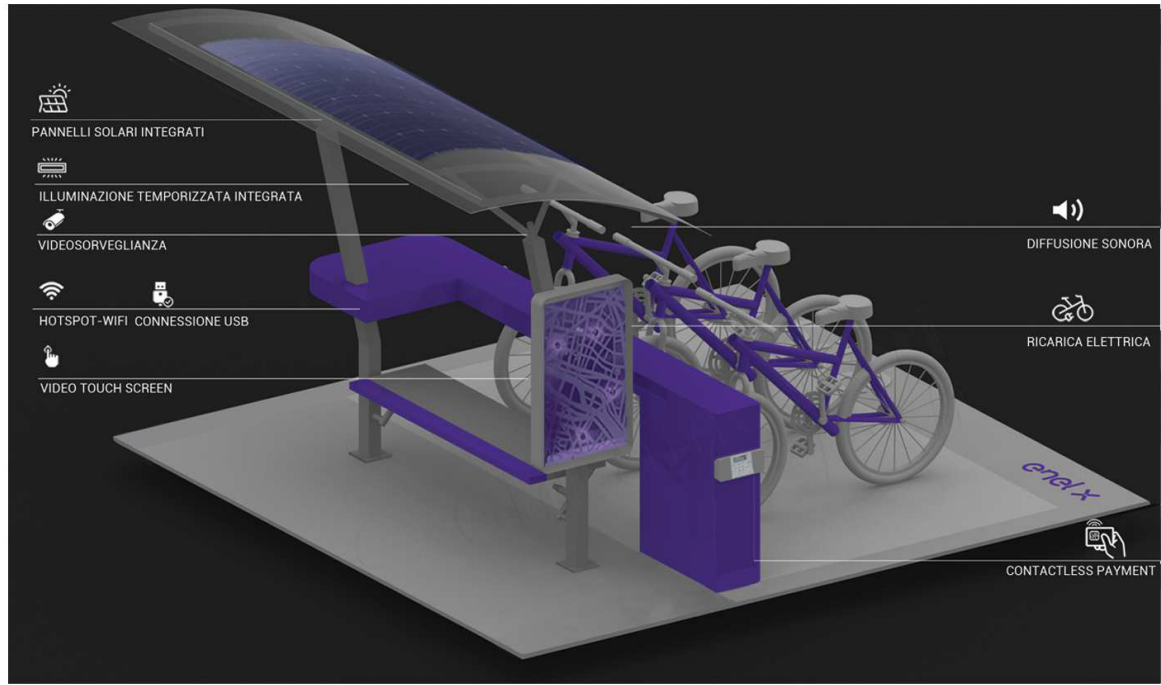
- Renewable Energy Production (PV + Storage)
- Energy Efficiency interventions → full electric buildings
- Lighting

Smart City Services

- Smart Bus Stop
- Safety with smart camera
- Video Analytics
- Advertising & citizens info point
- Connectivity
- Digital Payment

Urban infrastructure: Smart city corner

Enel X “eShelter”



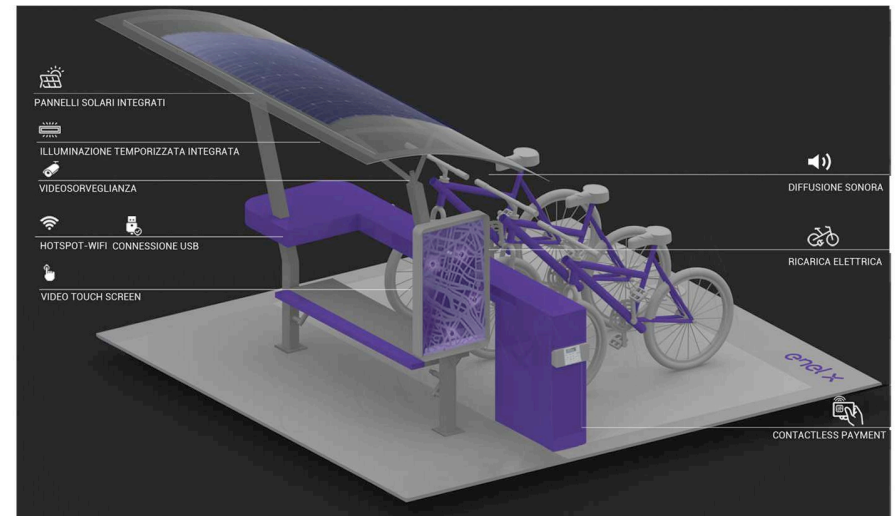
Concept

L'Enel X JuiceShelter è il nuovo concetto di pensilina di attesa degli autobus come area smart e polifunzionale.
L'obiettivo principale, ossia attendere l'arrivo dei bus viene arricchito da ulteriori servizi IoT e Smart

Modulare → comprende numerosi servizi che possono essere inseriti o meno a seconda delle specifiche esigenze

Funzionalità

- Integrazione pannelli fotovoltaici
- Telecamera per video sorveglianza e video Analisi:
 - Allarme auto in sosta vietata
 - Allarme oggetti abbandonati
 - Conta persone
- Display per info point e Advertising
- Monitoraggio Ambientale
- Porte USB per ricaricare Smartphone e tablet
- Prese per caricare Bici e scooter elettrici
- Diffusione Sonora
- HotSpot Wifi e Small Cell
- Piattaforma IoT Enel X
- Illuminazione a led temporizzata/instant dimming



City Analytics

Customer needs

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Flow reporting for events

- *"We need to monitor people flows for the Patron Saint's festival"*

Data driven Public services planning

- *"The origin/destination matrix can help us to plan and manage public transport"*
- *"Data are the main driver in order to manage urban mobility, services and advertising"*

City Analytics

Collect autonomously and manage data from different sources without requiring specific hardware/sensors

BIG DATA to plan infrastructures and services according real citizens demand



Dashboard



User Presence



Origin/Destination Matrix

Geo Behaviours:



• Resident / Tourist

• Arts & Culture users



• Home / Work Location



• Public Transport User

• Sports fans



Asset footfall (ie. bus stop, parking)

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User needs : Public Administrations



End Users	Needs
Dept of Planning	improve sizing and positioning of infrastructures & services (ie. schools, hospitals waste containers)
Dept of Statistics	support in institutional census tasks
Dept of Tourism	ad hoc campaigns to boost touristic economy
Dept of Mobility	support in defining “mobility urban plan” and in sizing the service according real demand
Dept of Advertising	urban panels valorization through audience measurement and clustering

Relevant Stakeholders / Facilitators
for Solution Adoption:

- **Director Information Systems / CIO / CTO**
- **Director Digital Transition (Italy)**



Enel-X “JuiceLamp”

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What

- A new lighting pole able to **recharge electric cars** thanks to the **integration of 2 Enel-X Juiceboxes**

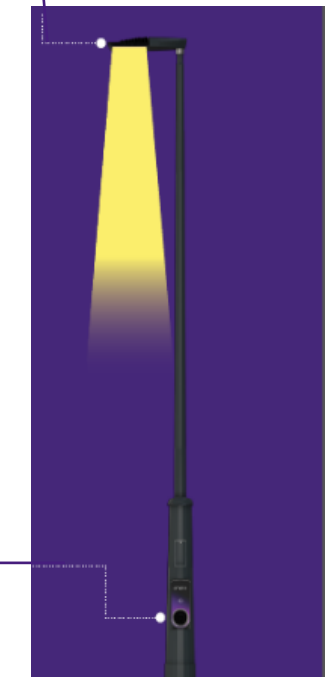
Application

- **Anywhere** – can replace any lighting pole
- Particularly useful for areas currently **off-grid**

Features

- **Smart Lighting**, with high efficiency LED lamps equipped with remote control system and (potentially) adaptive lighting
- **Interoperability, “lamp technology free”** with the opportunity to use any lamp
- **Same performance and functionalities** of standard public **charging stations**
- **Led strip** to indicate the status of the charging station (available, busy, out of order)
- **4 different designs** available to suit any urban context
- **Different heights** (from 4,2.m to 12m) and **different colors** available
- **Fast charging**, thanks to the 2 enel-x juiceboxes able to charge **up to 22KW** – connected to Enel-X Juice Platform and accessible to the users via APP
- **Opportunity to provide Value Added Services** such as:
 - videosurveillance, people counting, smart traffic control, smart parking
 - (Environmental monitoring, e.g., pollution and other KPIs (through sensors)
 - Connectivity, e.g. public wifi and 2G/3G/4G/5G (via fiber optic connection)

Smart Lighting



Juice BoX

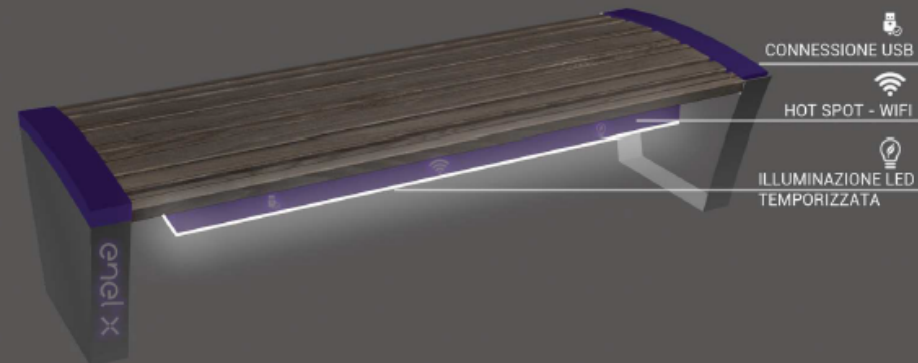
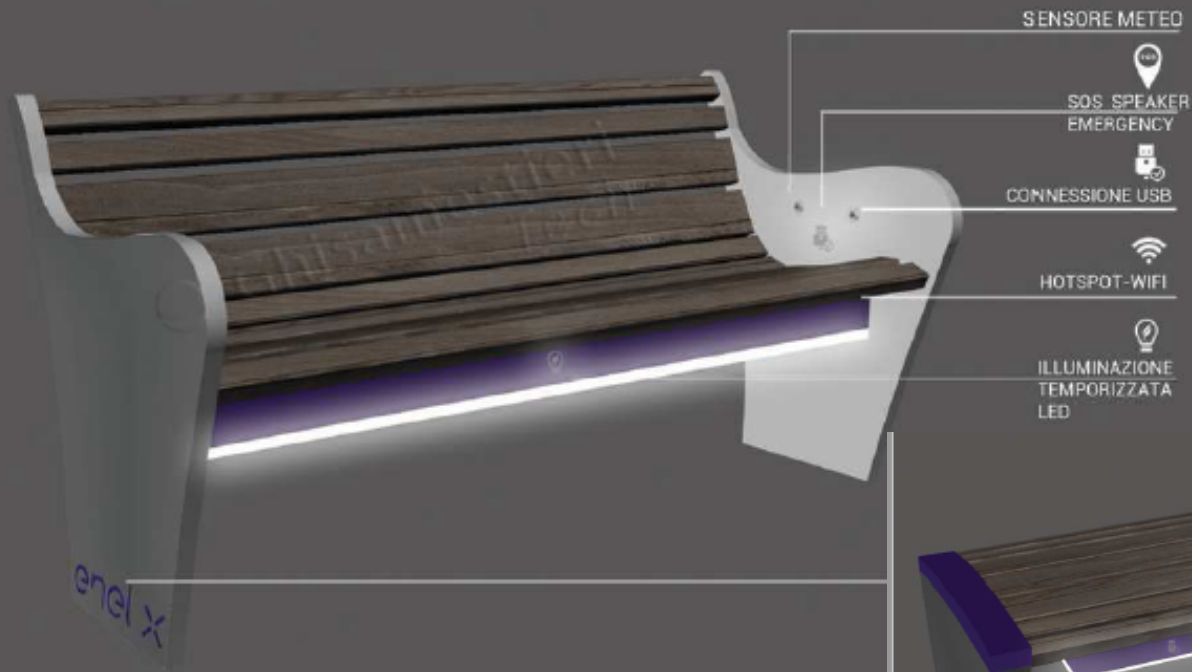
Enel X Juice Lamp



La Sfida della Smart-City Enel-X “eBench”

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Le infrastrutture urbane
diventano piattaforme



X City Platform

- Proprietary IoT Platform and Big Data Analytics Platform, allowing seamless integration of third-party subsystems to provide smart city services
- Single access point to multiple services, to provide cities with a unified platform for application integration and data analysis



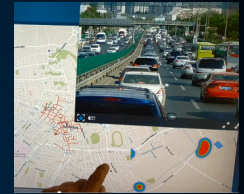
CONTROL ROOM ENEL X



Data visualization



Data Analytics



Real time monitoring

Services/Core Solutions



Services for the City

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Third Party Services

Citizen Touchpoints



Web portal



Mobile app



Digital signage

ENEL GLOBAL IOT PLATFORM



CONNECTED SENSORS



Grazie

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