

# e-Mobility

Connecting the Automotive and Electric Energy worlds

Caio Klasing Pandolfi

# Three main disruptive forces will transform how people and goods will move in the future

**SIEMENS**  
*Ingenuity for life*



**Electric Vehicles**



**Mobility as a Service**



**Autonomous Vehicles**



Disruptive Innovation is not new...

**SIEMENS**  
*Ingenuity for life*



13 years difference



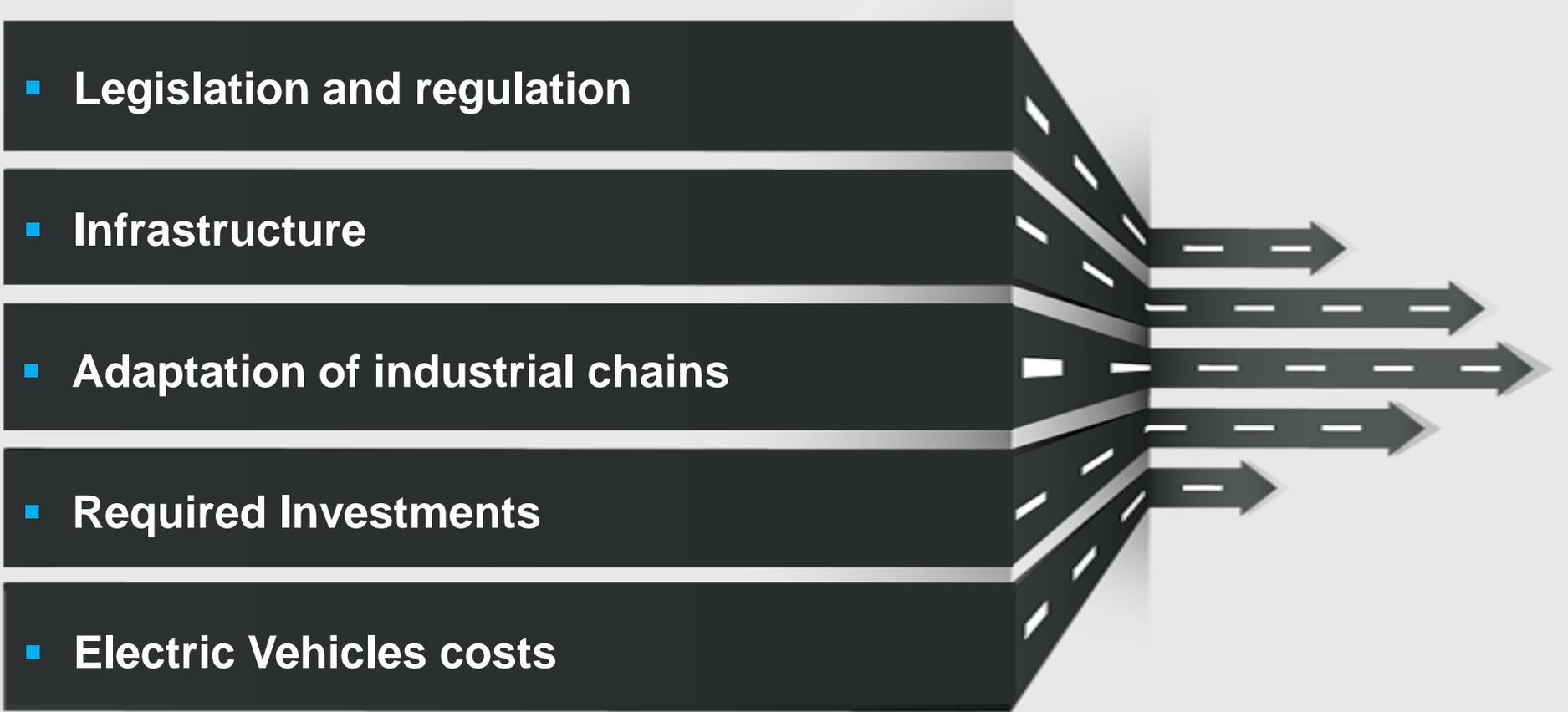
**Only one car**

NY City Easter Parade 1900

**Only one horse**

NY City Easter Parade 1913

The pace of e-Mobility adoption depend on advances in several dimensions.

- Legislation and regulation
  - Infrastructure
  - Adaptation of industrial chains
  - Required Investments
  - Electric Vehicles costs
- 

Siemens has an holistic view of e-mobility from vehicles to energy supply solutions

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**SIEMENS**



**Product**



**Productive process**

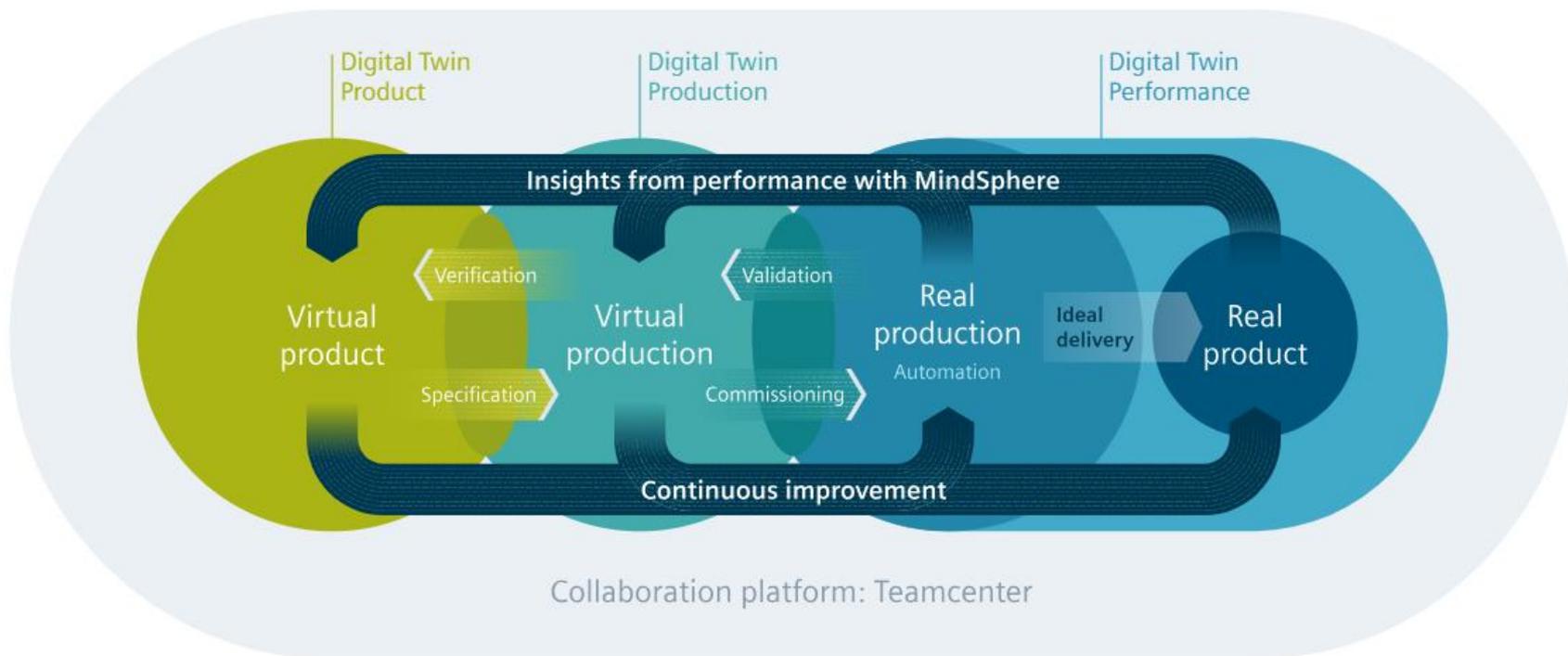


**E-mobility infrastructure**



**Energy generation and distribution**

# Digital Twins make e-car production more efficient



## The all digital electric city car

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### UNITI – SWEDEN

- Optimized development of the new car thanks to its digital twin
- Simulation and optimization of design and physical behavior in a complete virtual environment
- Production planning with Simcenter and Tecnomatix platforms

“THE REASON WE WANTED TO GO WITH SIEMENS ... IS THAT WHOLE DIGITAL BACK END [DIGITAL TWIN, PRODUCTION TWIN] THAT SIEMENS HAS IS ALSO CONNECTED TO THE ENERGY GRID GLOBALLY, AND ROADS AND CITIES GLOBALLY. IT’S NOT JUST THE DATA WE CREATE, IT’S THE NET DATA CREATED BY HUMANS THAT WE GET TO BE A PART OF.”

**LEWIS HORNE**  
**UNITI CEO**

# Core elements for electric vehicles such as batteries and motors supplied by technology companies

**SIEMENS**

*Engenhosidade para a vida*





E-Bus depot  
incl. opportunity  
charging



City & town  
street parking



Gas stations &  
truck stops



Enterprises  
& retailers



Operating center



Logistics depot  
charging



Parking garage  
& commercial real estate



Residential-home  
& multi-home

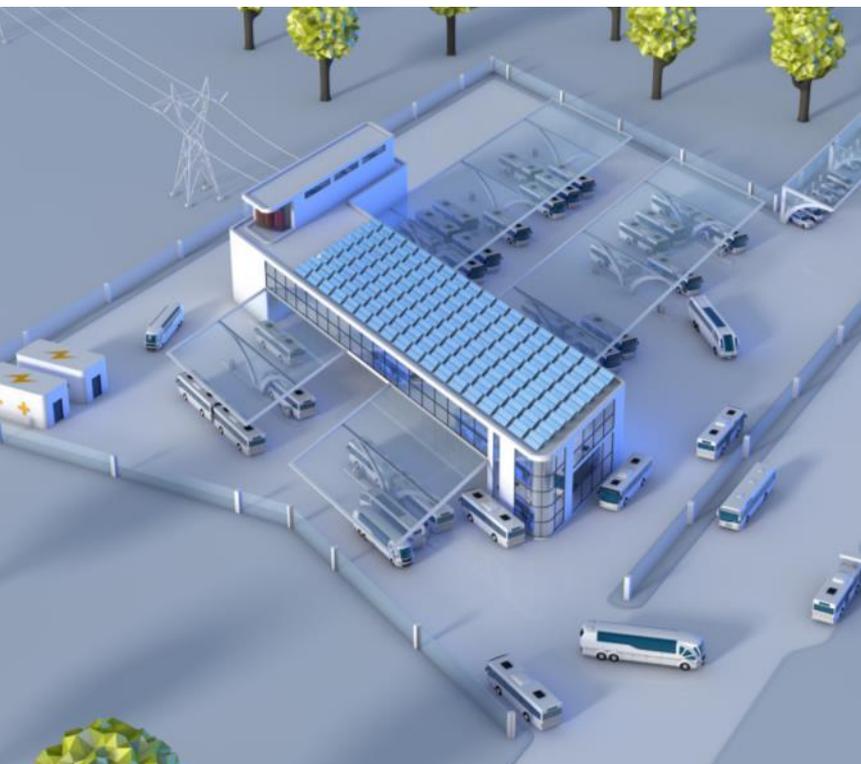


Highway transit  
charging



# An entire infrastructure to provide affordable, green and reliable energy will be necessary

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Power distribution



Flexible and modular grid access



Space optimized roof top or underground installed



MV & LV distribution on site "clean-air"



Busbar trunking system

Charging infrastructure



Charging poles – Plug-in or roof-mounted



Indoor pantograph



Fast charging stations outside

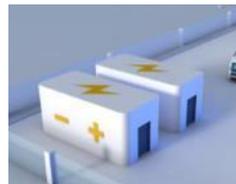


Integration of e-cars service fleet

Distributed Energy Systems and services



Renewable integration & micro-grid



Modular storage & second life



Monitoring & control SW



Consulting, operations & managed services



**Siemens helps combining the  
Automotive and Electric  
Energy worlds to innovate in e-  
Mobility**

# e-Mobility

Connecting the Automotive and Electric Energy worlds

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