NATIONAL & KAPODISTRIAN UNIVERSITY OF ATHENS

DIGITAL TWINS FOR EV & SMART GRIDS

SCAN lab
Software Centric & Autonomic Networking

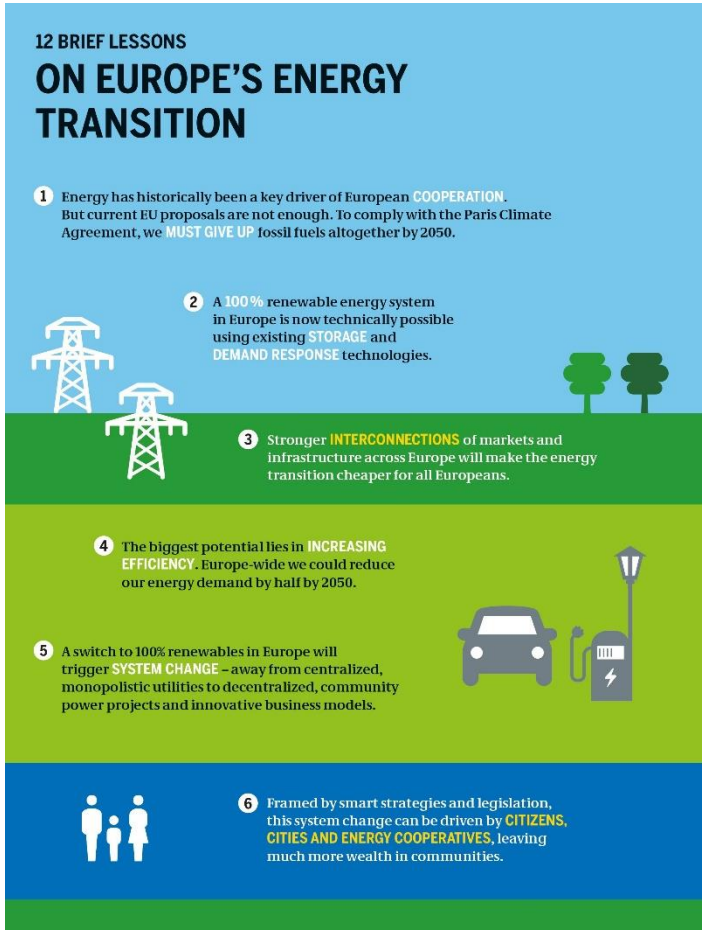
A. Professor Nancy Alonistioti (Head of SCAN LAB)

Phone: +302107275216

Email: nancy@di.uoa.gr

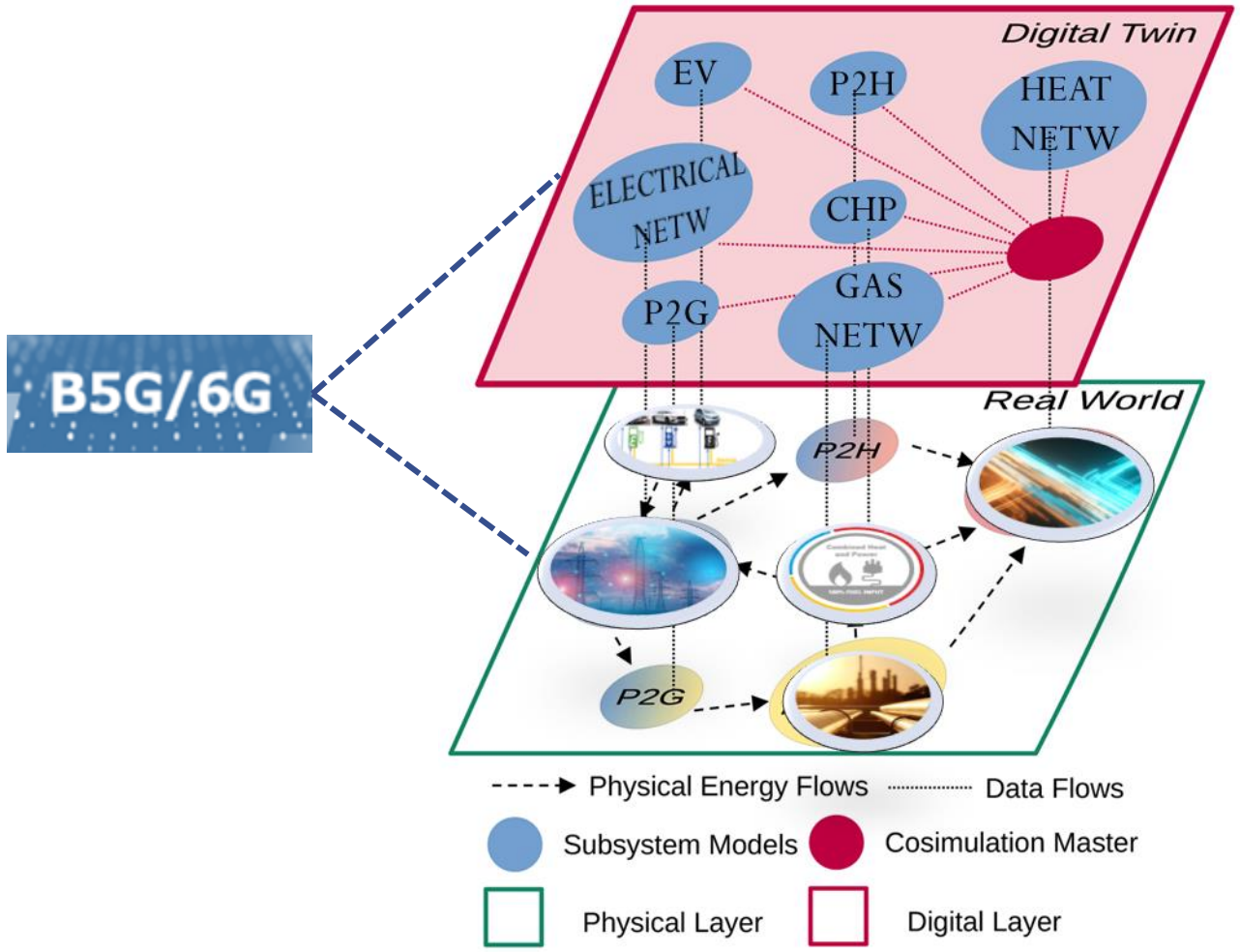
WEB: https://scan.di.uoa.gr/

EU GREEN DEAL – EV & SMART GRIDS

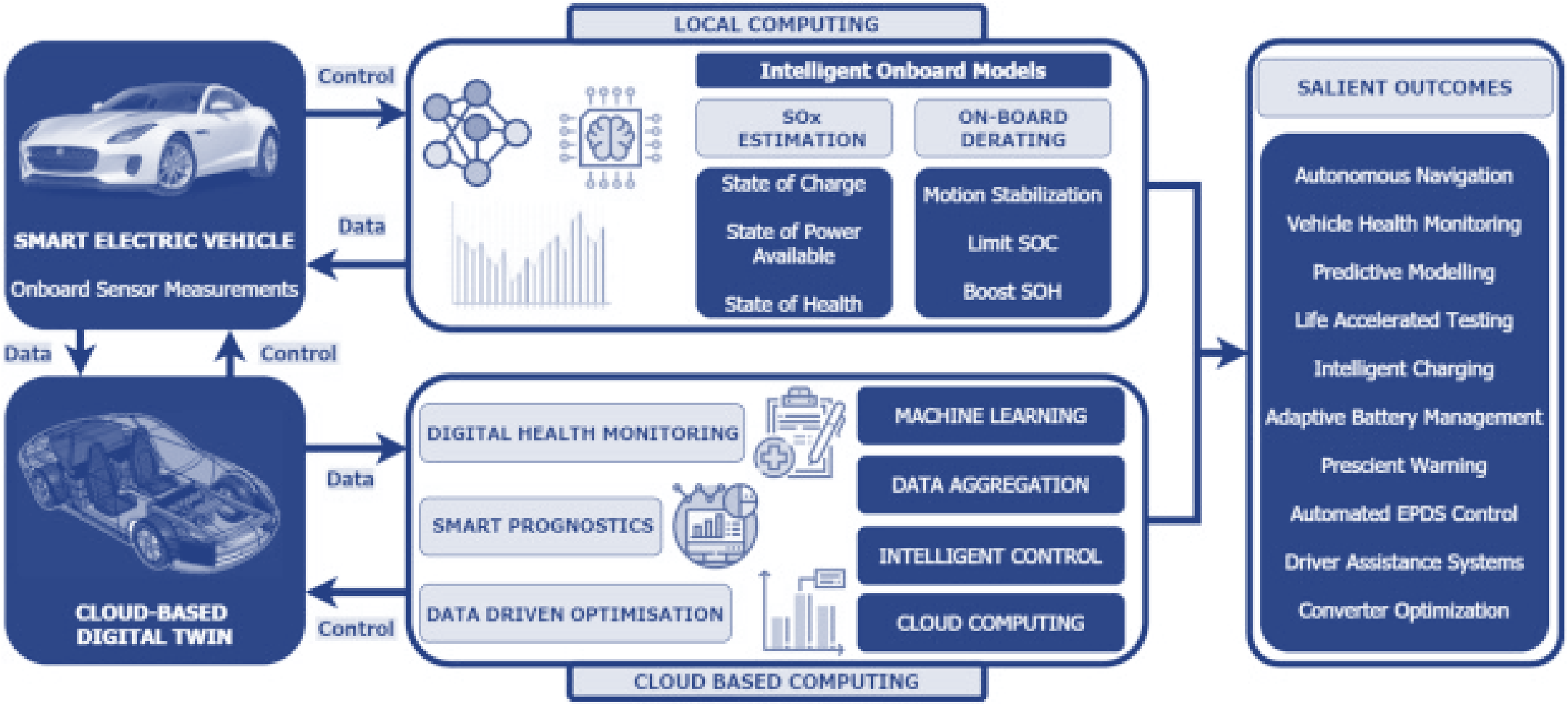


By Bartz/Stockmar, CC BY-SA 4.0, https://commons.wikimedia.org/w/index.php?curid=79393302

DIGITAL TWINS – ENERGY INDUSTRY



EV – DIGITAL TWIN



BENEFITS - DTs FOR SMART GRIDS AND EV

PLANNING

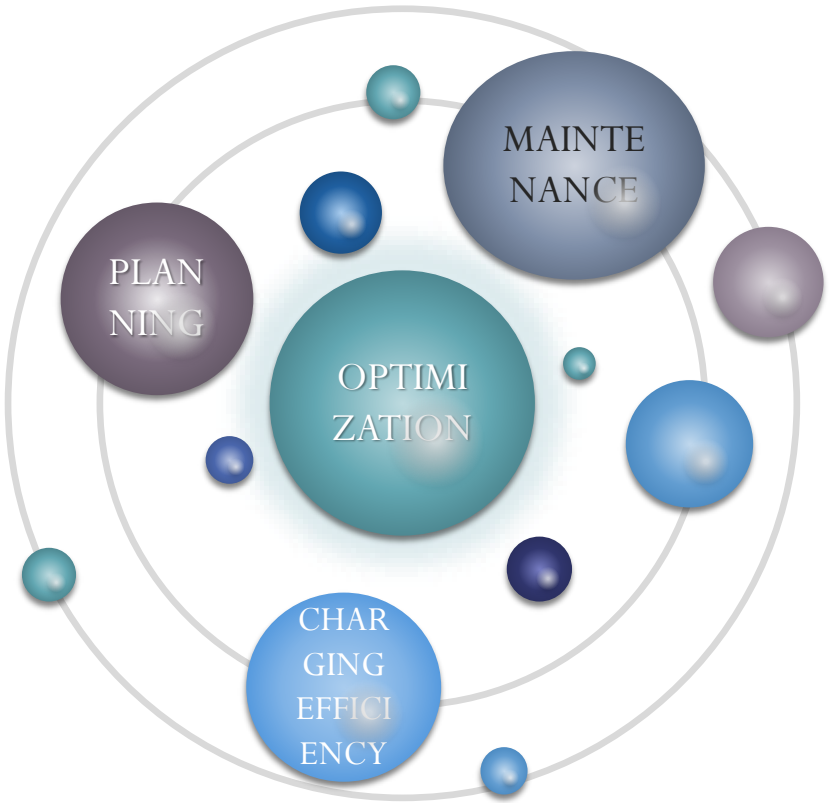
The mobility and distribution of EVs determine the charging demand and the load of power distribution grid. Then, dynamic traffic pattern of numerous interconnected EVs poses great impact on charging plans and charging infrastructure.

OPTIMIZATION

Optimize driving experience based on the availability and reachability of EV charging infrastructure. Energy consumption, charging capacity, charging frequency, and waiting time in queue

MAINTENANCE

Optimized maintenance, state update, predict repairs, .



CHARGING EFFICIENCY

Different EV navigation algorithms and charging algorithms of Internet of Vehicle can be evaluated in the dynamic simulation of the digital twins of the moving EVs and charging infrastructure.

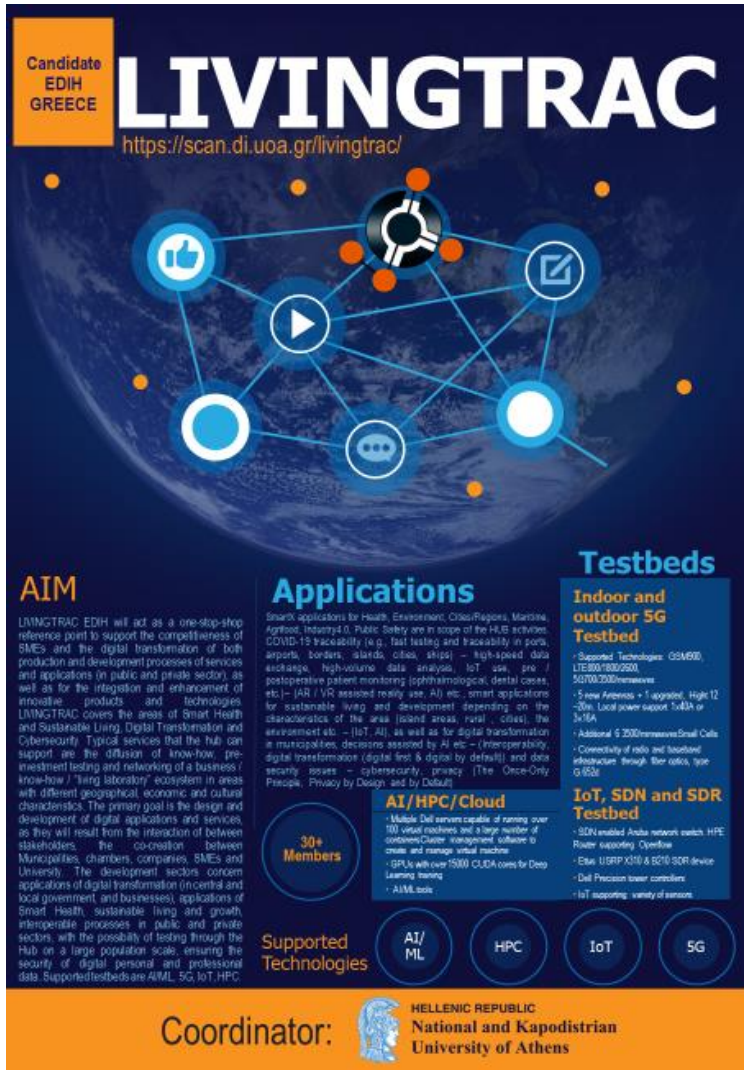
INTERDEPENDENCIES

Relations between the scheduled charging operation of EVs and the deployment of piles

MONITORING

EV and Grid monitoring for status updates.

DIGITAL INNOVATION HUB - LIVINGTRAC



LIVINGTRAC Members

- **National and Kapodistrian University of Athens (NKUA)**
  Department of Informatics and Telecommunications (DIT), Medical School (Pathology, Opthalmology etc. clinics of Attikon Hospital), Department of Physics, Dental School, Department of Economics and "ARCHIMEDES" Center for Research, innovation and Entrepreneurship.
- **Institute of Accelerating Systems & Applications (IASA)**
- **University of Piraeus Research Center (UPRC)**
  Laboratory of Digital Culture, Smart Cities, IoT and Advanced Digital Technologies & Services
- **University of the Aegean**
  Department of Information and Communication Systems Engineering, Information Systems Laboratory (ISL)
- **University of Thessaly**
  Department of Computer Science and Biomedical Informatics
- **National Observatory of Athens (NOA)**
- **City of Athens**
  IT Company / Municipality of Athens (DAEM)
- **Municipality of Piraeus**
- **Municipality of Lokroi**
- **Municipality of Didymoteicho**
- **Municipality of Orestiada**
- **Region of Central Greece**
- **Hellenic Federation of Enterprises (SEV)**
- **Piraeus Chamber of Handicrafts**
- **Chamber of Evros**
- **Economic Chamber of Greece**
- **National Transparency Authority (NTA)**
- **Ministry of Health**
- **Ministry of Citizens' Protection / Hellenic Police**
- **Hellenic Telecommunications Organisation S.A (OTE)**
  R & D Dept. (OTE/COSMOTE)
- **UNISYSTEMS S.A.**
- **HELLENIC LLOYD'S (LR)**
- **UNI-PHARMA S.A.**
- **Internet Business Hellas S.A.**
- **ΙΕΠΒΑ/ΕΑΑ -**
  Ινστιτούτο Ερευνών Περιβάλλοντος και Βιώσιμης Ανάπτυξης
- **Code.Hub**
- **NANOPLASMAS P.C.**
- **NANOMETRISIS P.C.**
- **MINDVIEW S.A.**
- **Open Technologies Alliance (GFOSS)**
- **IMPACT HUB ATHENS**
- **Greek Network EIP on AHA**
  European Innovation Partnership on Active and Healthy Ageing

one6G

TO LEARN MORE

(one6G)

info@one6G.org

one6G

@One6GGlobal

www.one6G.org

Thank you!

Contact
A. Professor Nancy Alonistioti (Head of SCAN LAB)

Phone: +302107275216

Email: nancy@di.uoa.gr

WEB: https://scan.di.uoa.gr/