

ENERGY MANAGEMENT SOLUTIONS EMPOWERED BY INTELLIGENT SYSTEMS

Luis Gomes
lfg@isep.ipp.pt

17/05/2022

FCT Fundação para a Ciência e a Tecnologia
MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E ENSINO SUPERIOR

NORTE2020
PORTUGAL

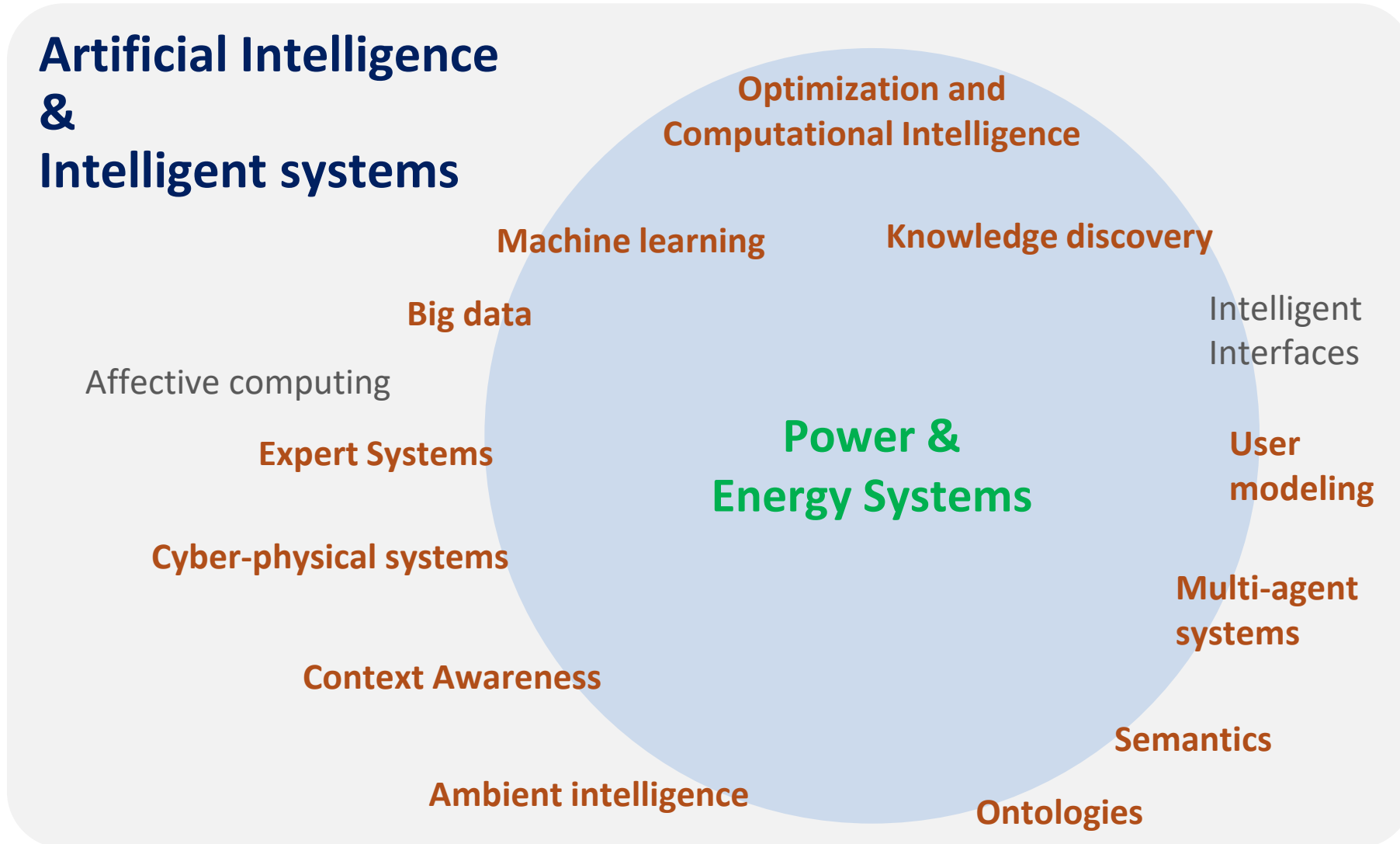
PORTUGAL
2020



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Energy union

The energy union will help to provide secure, affordable and clean energy for EU citizens and businesses.

The 2030 climate and energy framework

- a commitment to continue **reducing greenhouse gas emissions**, setting a reduction target of 40% by 2030 relative to 1990 levels
- a **renewable energy target of at least 27%** of energy consumption, with flexibility for member states to set national targets

2050 long-term strategy

The EU aims to be climate-neutral by 2050 – an economy with net-zero greenhouse gas emissions. This objective is at the heart of the [European Green Deal](#) { EN | ... } and in line with the EU's commitment to global climate action under the [Paris Agreement](#) { EN | ... }.

RECOMMENDATIONS

COMMISSION RECOMMENDATION (EU) 2016/1318

of 29 July 2016

on guidelines for the promotion of nearly zero-energy buildings and best practices to ensure that, by 2020, all new buildings are nearly zero-energy buildings

DIRECTIVES

DIRECTIVE (EU) 2019/944 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

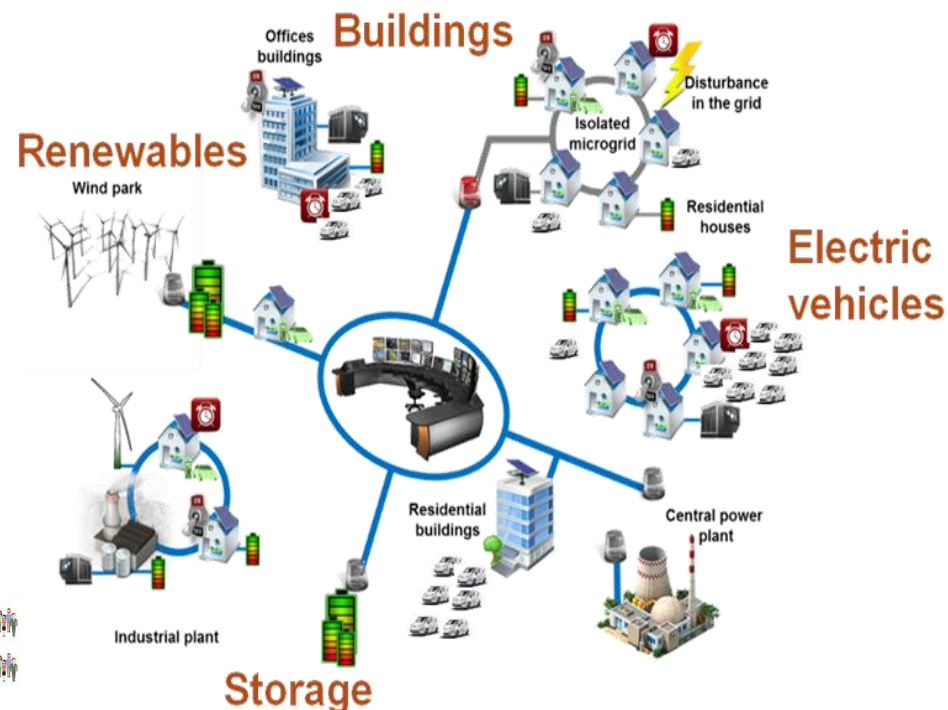
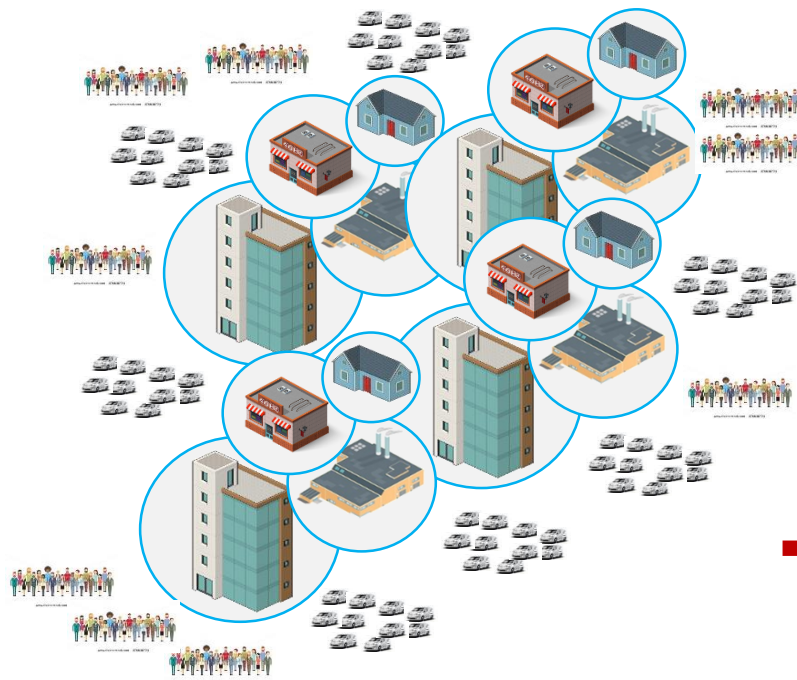
of 5 June 2019

on common rules for the internal market for electricity and amending Directive 2012/27/EU

Energy in the era of smart grids & microgrids

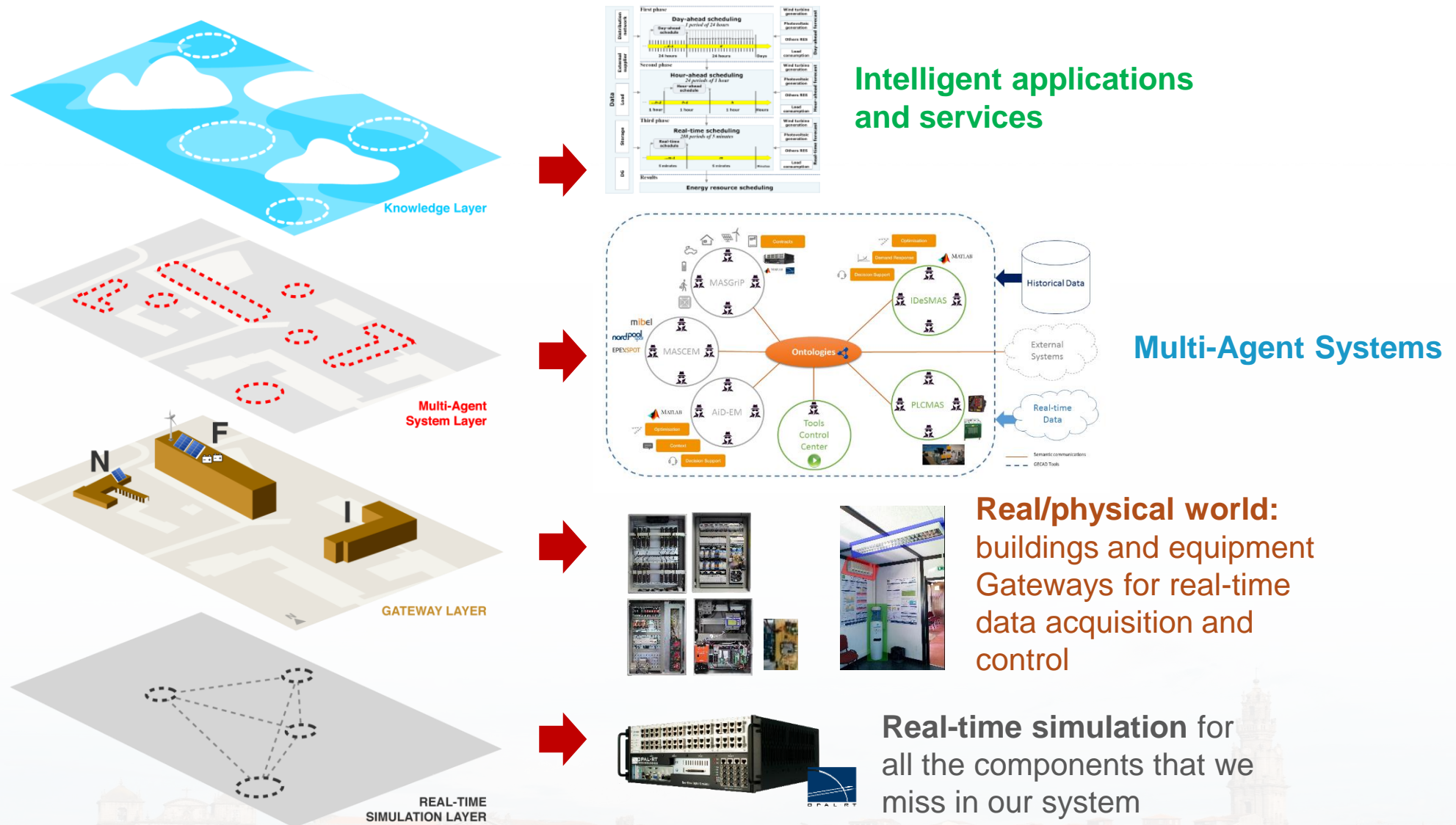
- Energy transactions
- Service provision

- Business models
- Contracts
- Tariffs



- Distributed decision making
 - Distributed intelligence
 - Players' profiles
-
- Real-time decision and action
 - Real-time power system analysis
 - Real-time simulation
 - Real-time decision support

MARTINE: Multi-Agent based Real-Time INfrastructure for Energy



GECAD – Simulation and emulation applications

Vale, Zita; Faria, Pedro; Abrishambaf, Omid; Gomes, Luis; Pinto, Tiago. 2021. **"MARTINE—A Platform for Real-Time Energy Management in Smart Grids"** Energies 14, no. 7: 1820. <https://doi.org/10.3390/en14071820>

Gomes, Luis; Sousa, Filipe; Vale, Zita. 2018. **"An Intelligent Smart Plug with Shared Knowledge Capabilities"** Sensors 18, no. 11: 3961. <https://doi.org/10.3390/s18113961>

Abrishambaf, Omid; Faria, Pedro; Gomes, Luis; Spínola, João; Vale, Zita; Corchado, Juan M. 2017. **"Implementation of a Real-Time Microgrid Simulation Platform Based on Centralized and Distributed Management"** Energies 10, no. 6: 806. <https://doi.org/10.3390/en10060806>



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