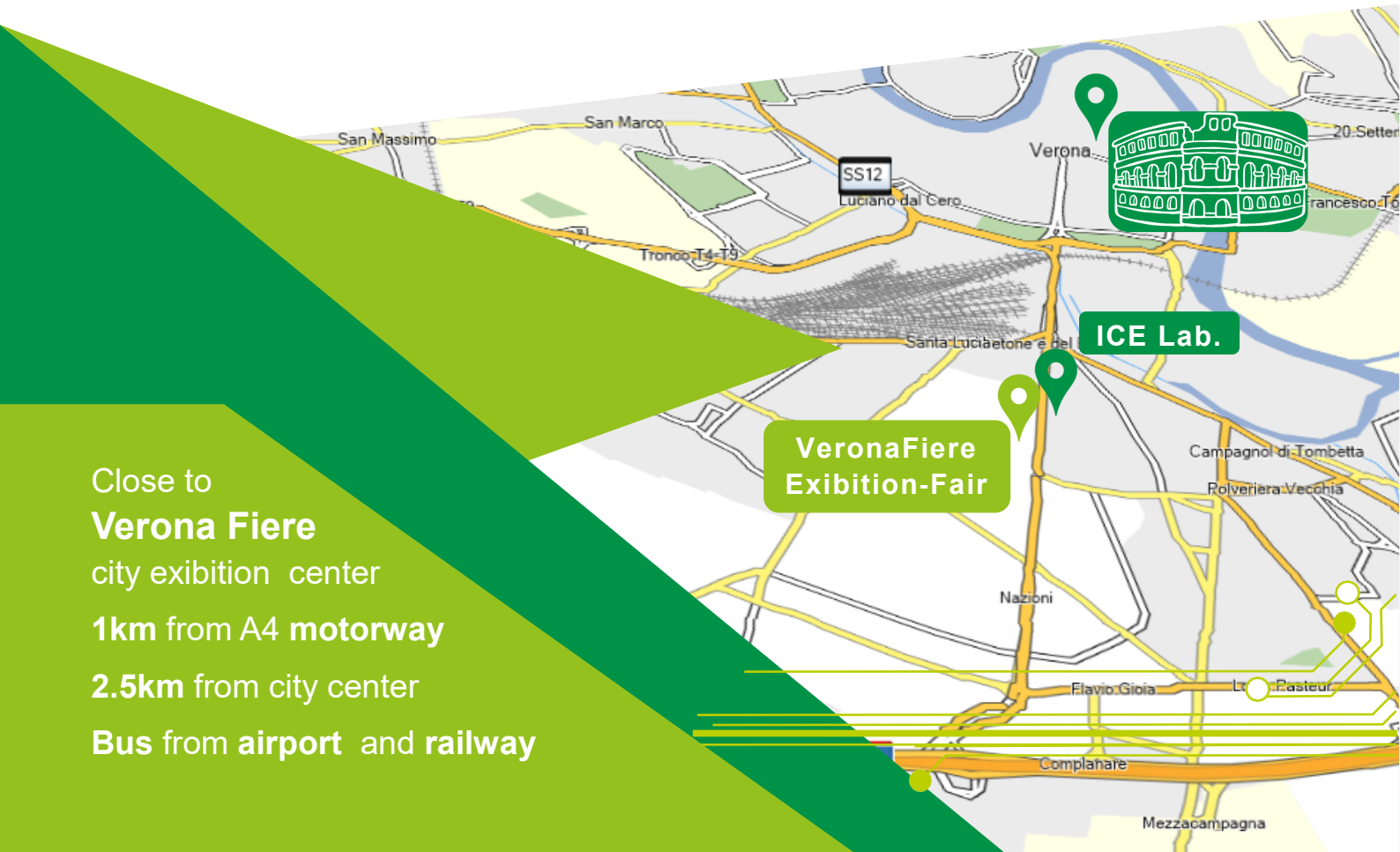
Industrial Computer Engineering Lab.

Industry 4.0 advanced laboratory for technology demonstration and cutting-edge research

- **Technological demonstrator** on display, close to city exibition center
- **Leading** market, **industrial** grade hardware and software
- **Research** enabled
- **Holistic** approach to **Industry 4.0**
- **Connected** with the University of Verona **Computational Platform**
- Plant simulation on **Digital Twin**
- **High speed**, dedicated **fiber** broadband connection
- **Cooperation** with local **companies**



Close to
Verona Fiere
city exibition center

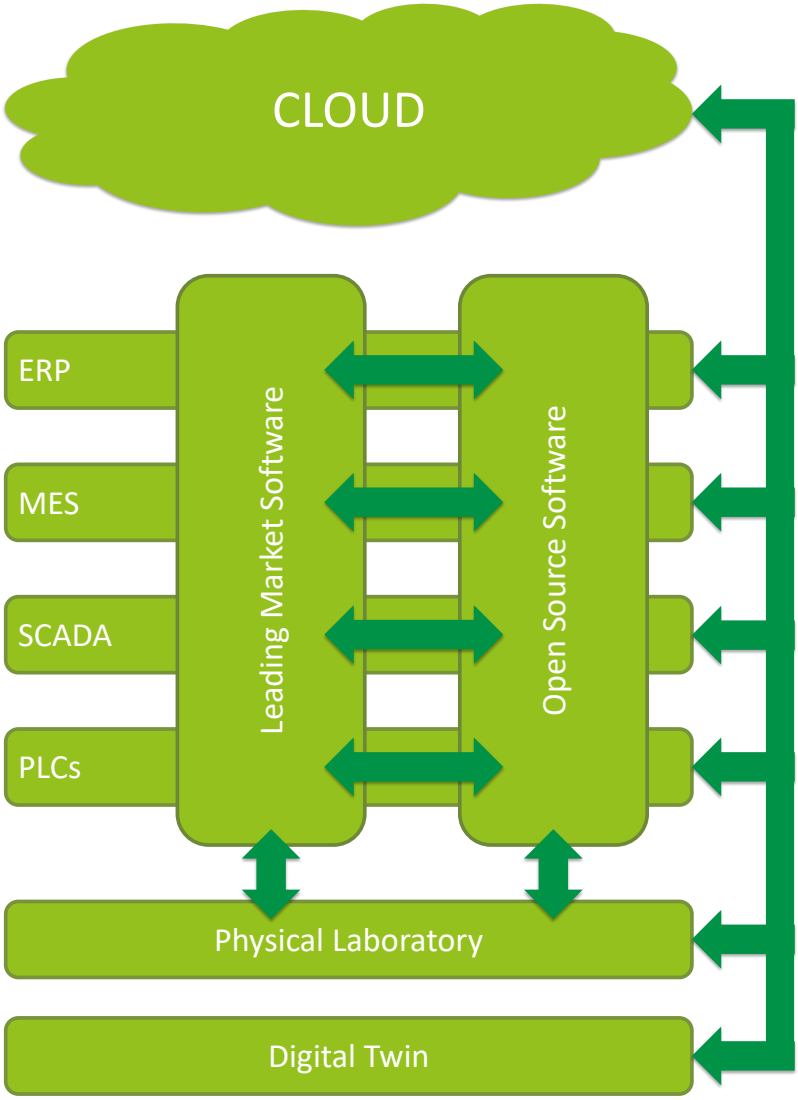
1km from A4 **motorway**

2.5km from city center

Bus from **airport** and **railway**

Laboratory Architecture

ICE Laboratory will be equipped with **state-of-the-practice**, **Industry 4.0 compliant** machinery. Subtractive manufacturing, assembly and disassembly, quality control are the phases common to many industries: ICE Laboratory will exploit these techniques by combining them with innovative approaches like 3D printing. All phases will be interconnected by a smart logistic system composed of a conveyor belt strongly integrated with mobile robots. A camera tracking system will cover the whole area providing safety by monitoring robots and operators positions. The packing station will pack the finished products that will be placed in particular trays of the vertical storage system. The laboratory is designed to be **easily extendable** with **new technologies** or integrated with **industry partner** systems.



A Complete Software Stack

ICE Laboratory will be controlled by a **modern software stack**, able to exploit the physical machines as well as possible. The adopted stack will contain **leading market** and **open source** software solutions. These two types of software can share data between each other and they are interchangeable at each layer, making the laboratory **suitable for both industry and research**.

A **Digital Twin** of the lab will be realized, while a completely integrated **cloud platform** will collect data from all the layers, make analysis and provide feedback to the plant. The necessary processing power will be provided by the University of Verona Computational Platform.

Opportunities

ICE Laboratory will represent a big opportunity for interested partners:

- access to the Computer Science Department **knowledge and support capabilities**
- allowing partners to **test new technologies in a controlled environment;**
- being **used as a showroom** to push new technologies in industry.

Dipartimenti di Eccellenza

ICE laboratory is born in the context of the excellence project “Informatica per Industria 4.0” won by the Computer Science Department of University of Verona and funded by the MIUR (Italian Ministry of Education, University and Research).
Two millions of euros have been funded for this project.

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