LASARIS: FUTURE PERSPECTIVES

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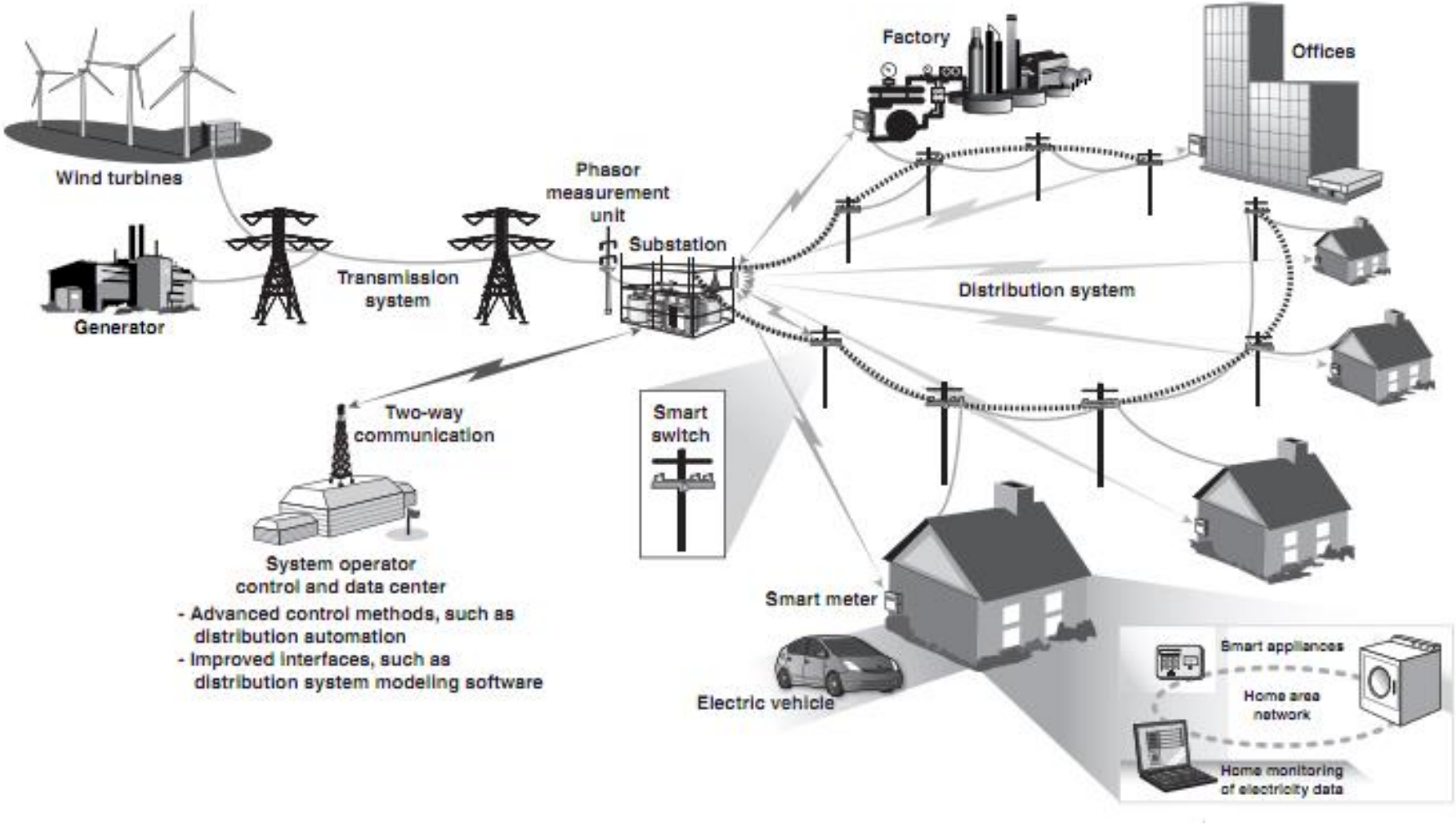
Critical IT infrastructures

https://www.smartcitiesworld.net/news/news/smart-cities-services-worth-225bn-by-2026-1618

Smart Grid infrastructure



What do we aim for?

- Infrastructure we can **rely on**
  - **Dependable IT infrastructure**
- It's not just about **security**
  - **Reliability**, **availability**, **safety**, **survivability** are of equal importance!
- There are two types of troubles:
  - **Intentional** and **unintentional**
- **Human element** is a good part of it
  - **Employees**, internal **IT admins**, **hackers**

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Towards dependable IT infrastructures

- **Steps towards dependable critical infrastructures**
  - Design guidelines
  - Simulation and analysis
  - Monitoring and control
  - Response management
- Some of them help you to **prevent** an attack/failure, some to **recognize** an attack, some to ensure **safety under** attack, some to **recover**, some the **forensics after** the attack
- **Design guidelines for dependability**
  - **Fault/Failure** – Reliability, Availability
  - **Vulnerability/Attack** – Security, Safety, Survivability

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Reliability/Availability

- **Fault avoidance**
  - **The development process** is organized so that faults in the system are detected and repaired before delivery to the customer.
  - **Verification and validation techniques** are used to discover and remove faults in a system before it is deployed.
- **Fault detection**
  - **Run-time techniques** to detect faults and failures.
- **Fault tolerance**
  - The system is designed so that **faults** in the delivered software **do not result in system failure**.

Security/Safety/Survivability

Survivability = system ability to deliver essential services whilst it is under attack or after part of it was damaged.

- **Resistance**
  - **Avoiding problems** by building capabilities into the system to resist attack.
- **Recognition**
  - **Detecting problems** by building capabilities into the system to detect attacks and assess the resultant damage.
- **Recovery**
  - Tolerating problems by building capabilities into the system to **deliver services whilst under attack**.

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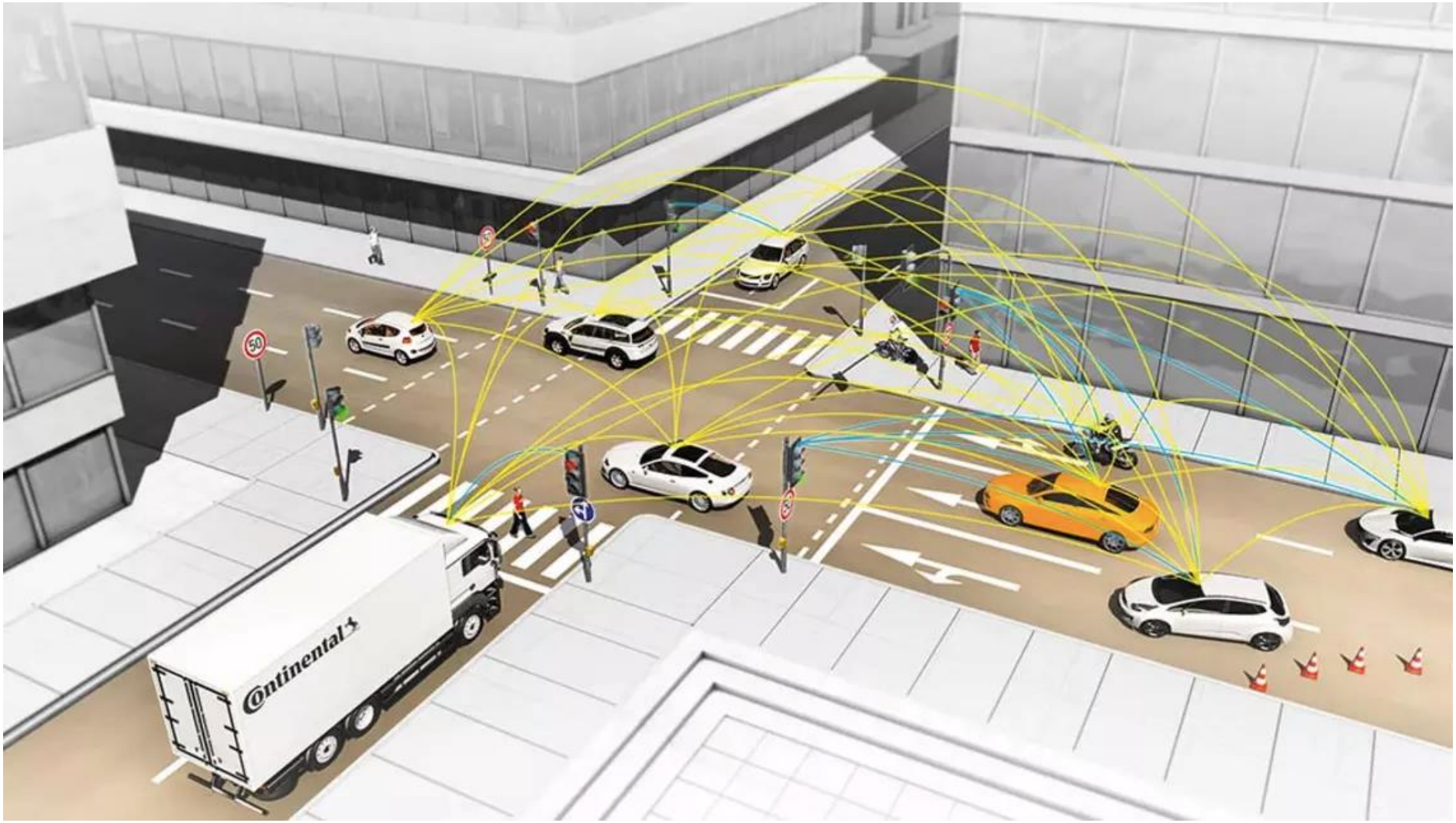
Future of critical infrastructures



Thank you for your attention!

- **Masaryk University (MU)**
  - Established in **1919**
  - **2nd largest** in Czechia
  - Around **35,000** students
- **Faculty of Informatics, MU**
  - Established in **1994**
  - **1st faculty of comp. science**
  - More than **2,000** students

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