

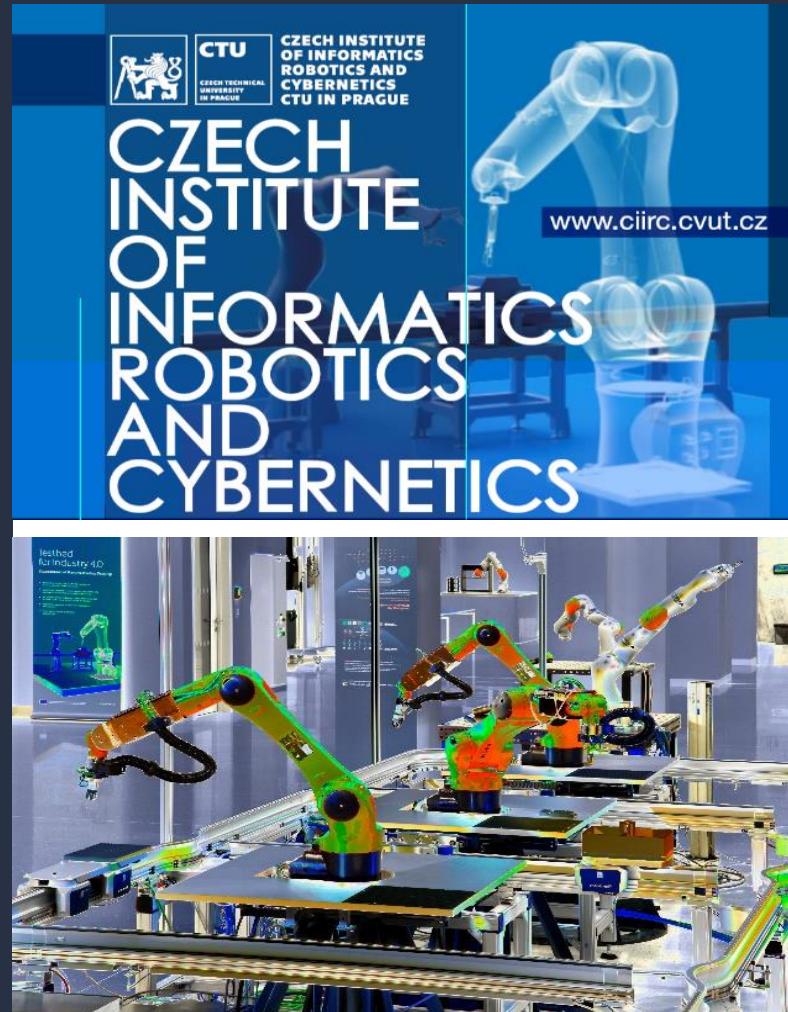
CENTER OF CITY OF THE FUTURE CIIRC

URBÁNNÍ REZILIENCE: ODOLNÁ MĚSTA BUDOUCNOSTI

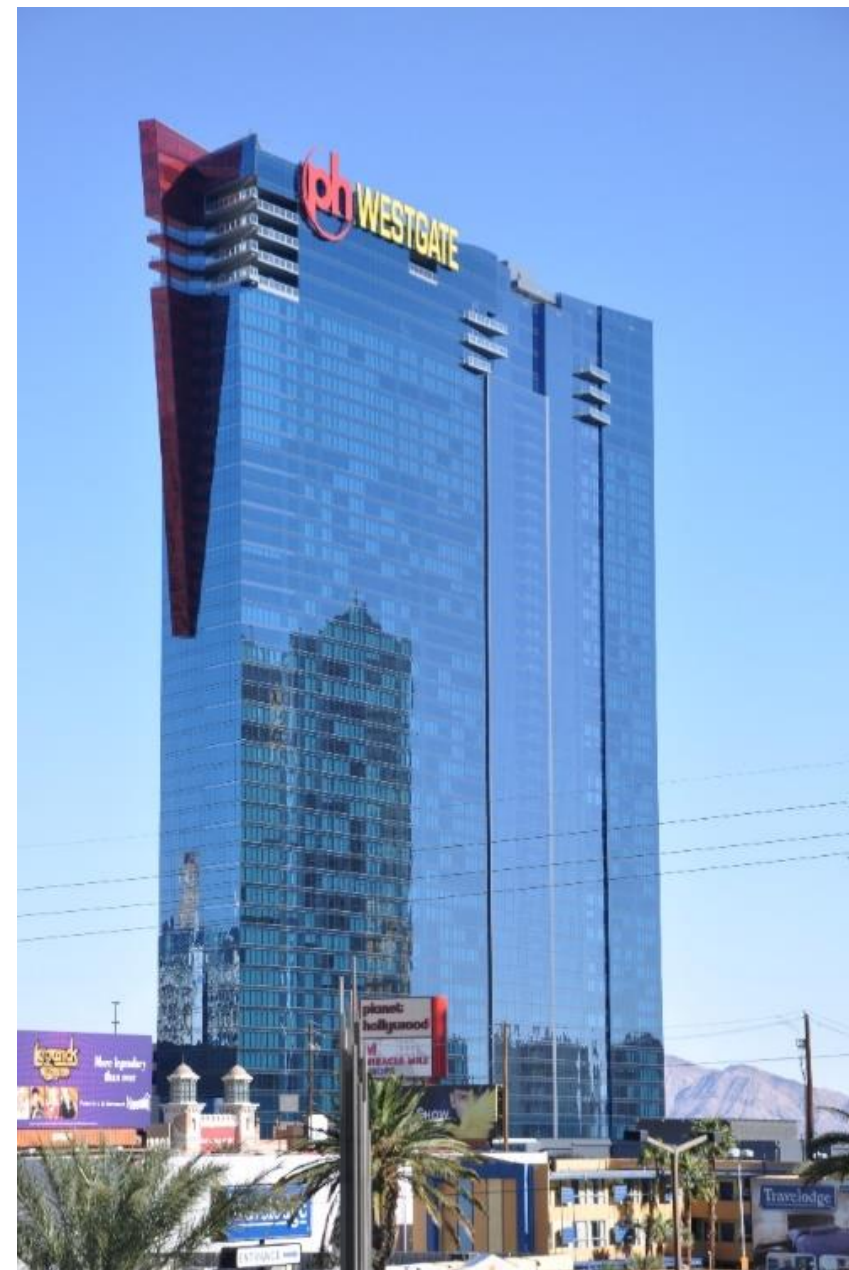
MICHAL POSTRÁNECKÝ

NOVÉ INTELIGENTNÍ TECHNOLOGIE - NOVÉ VÝZVY!

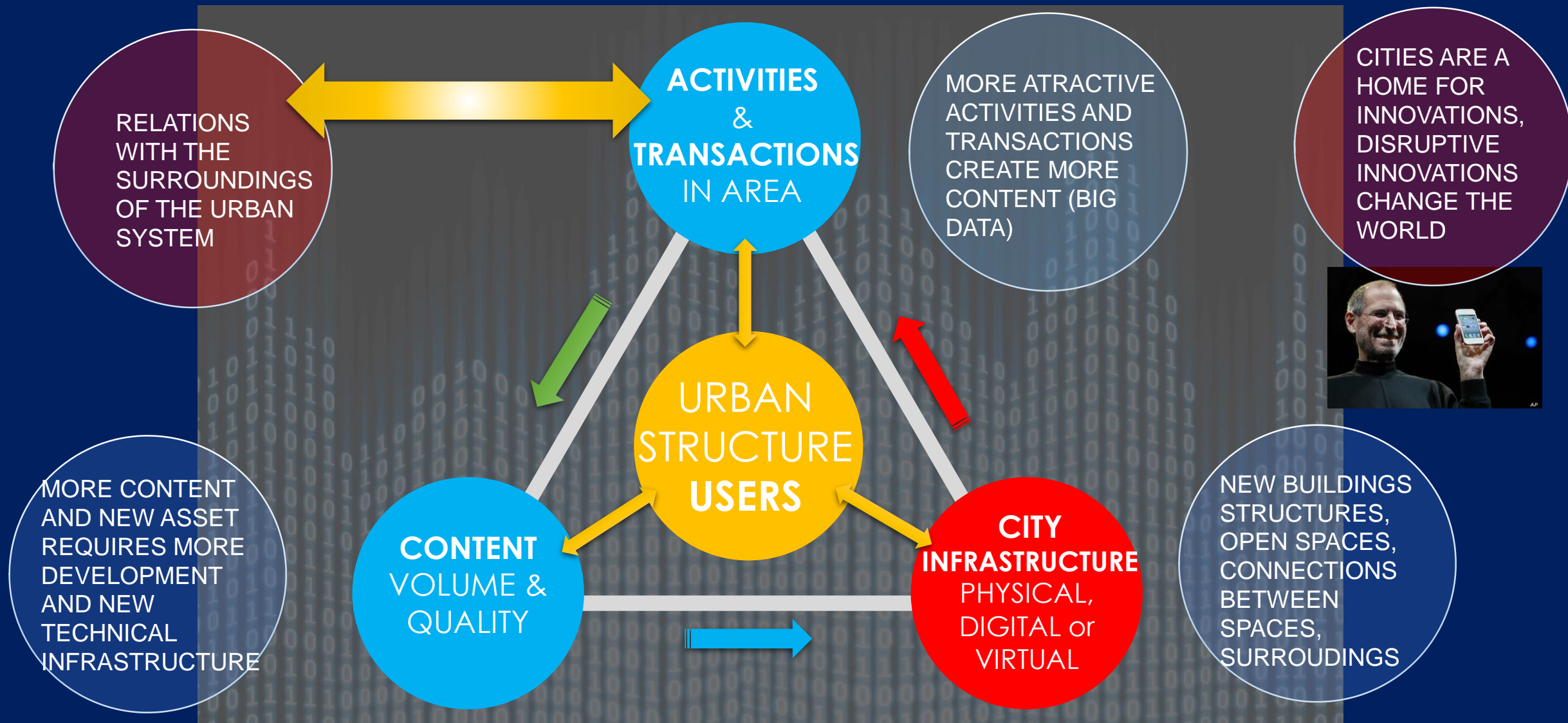
CCF - CIIRC CTU PRAGUE



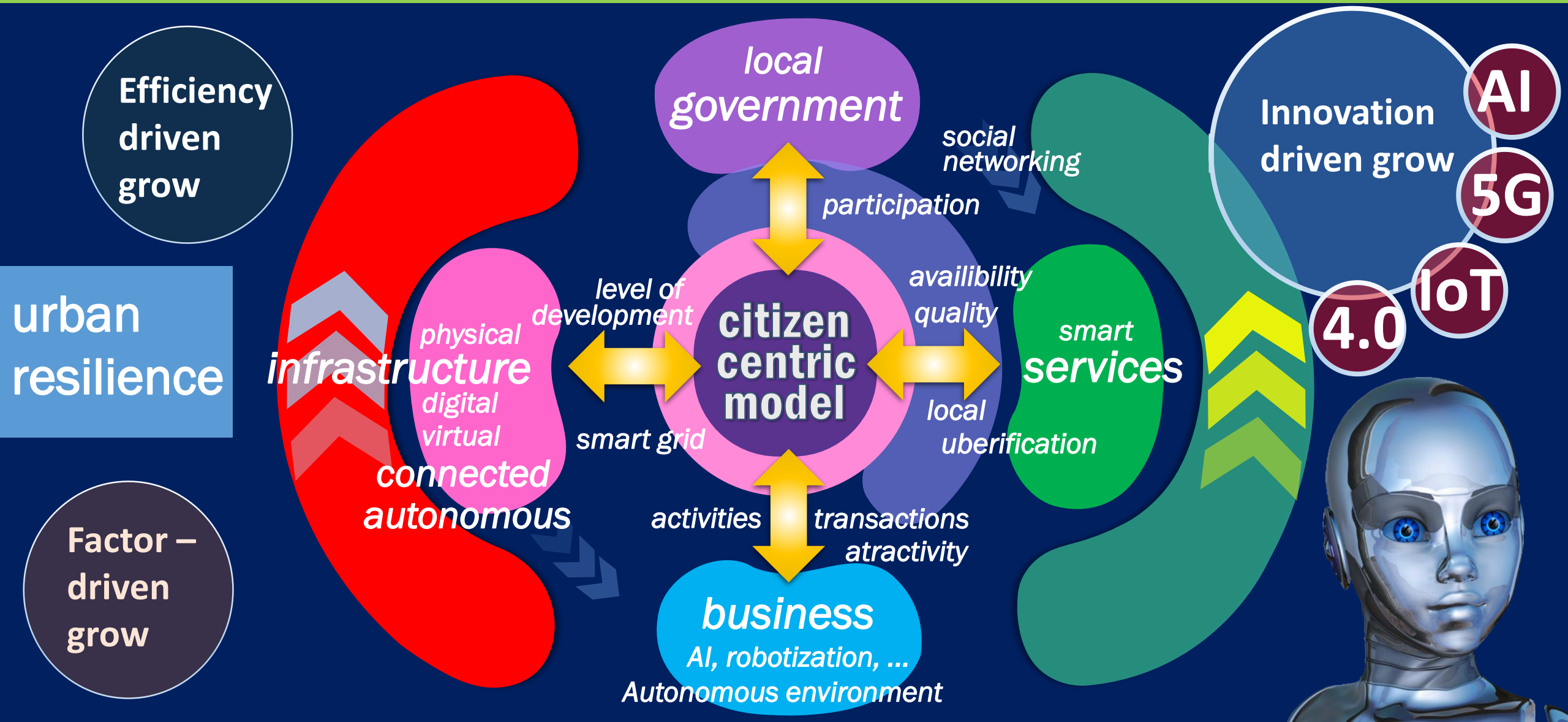
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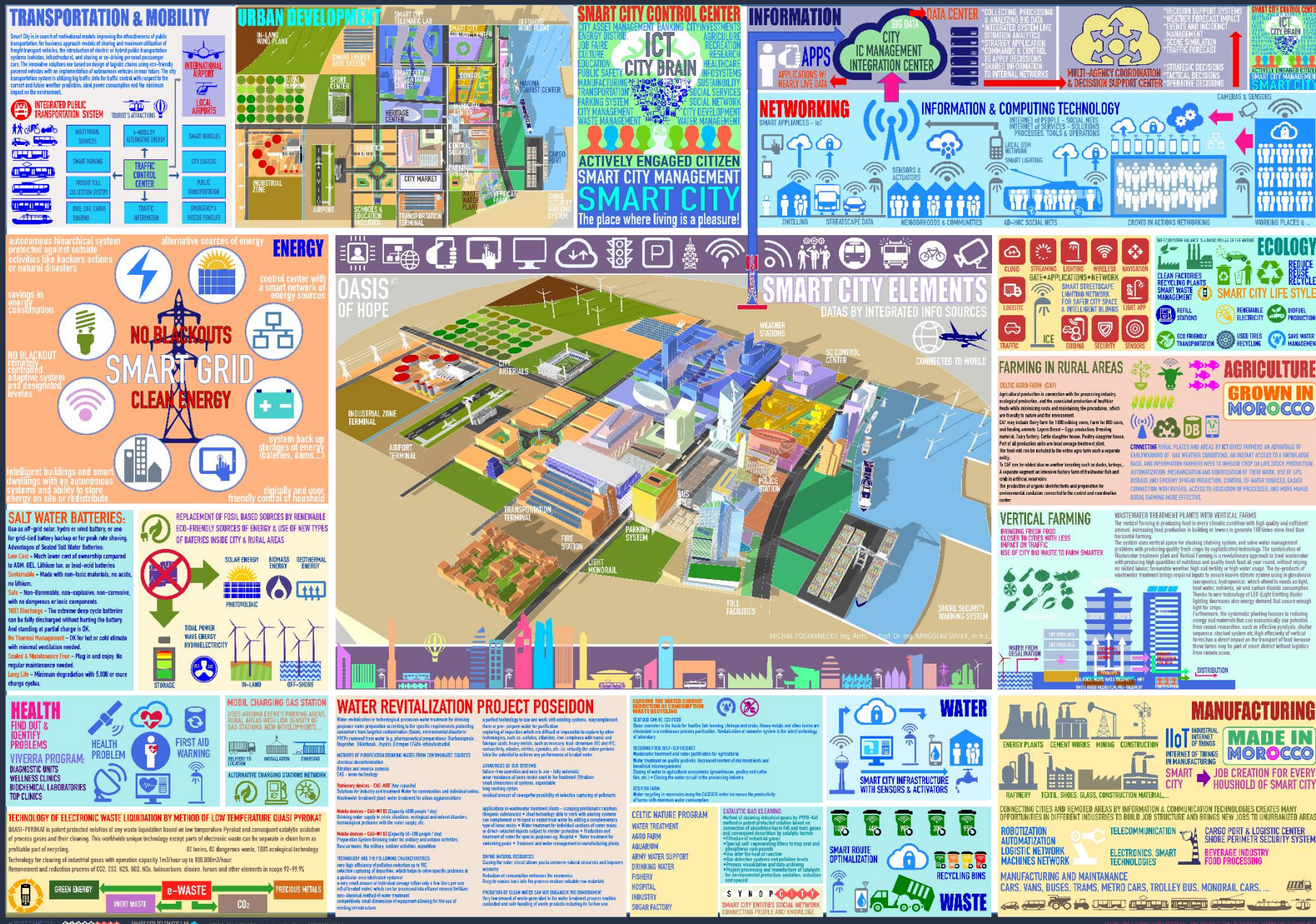


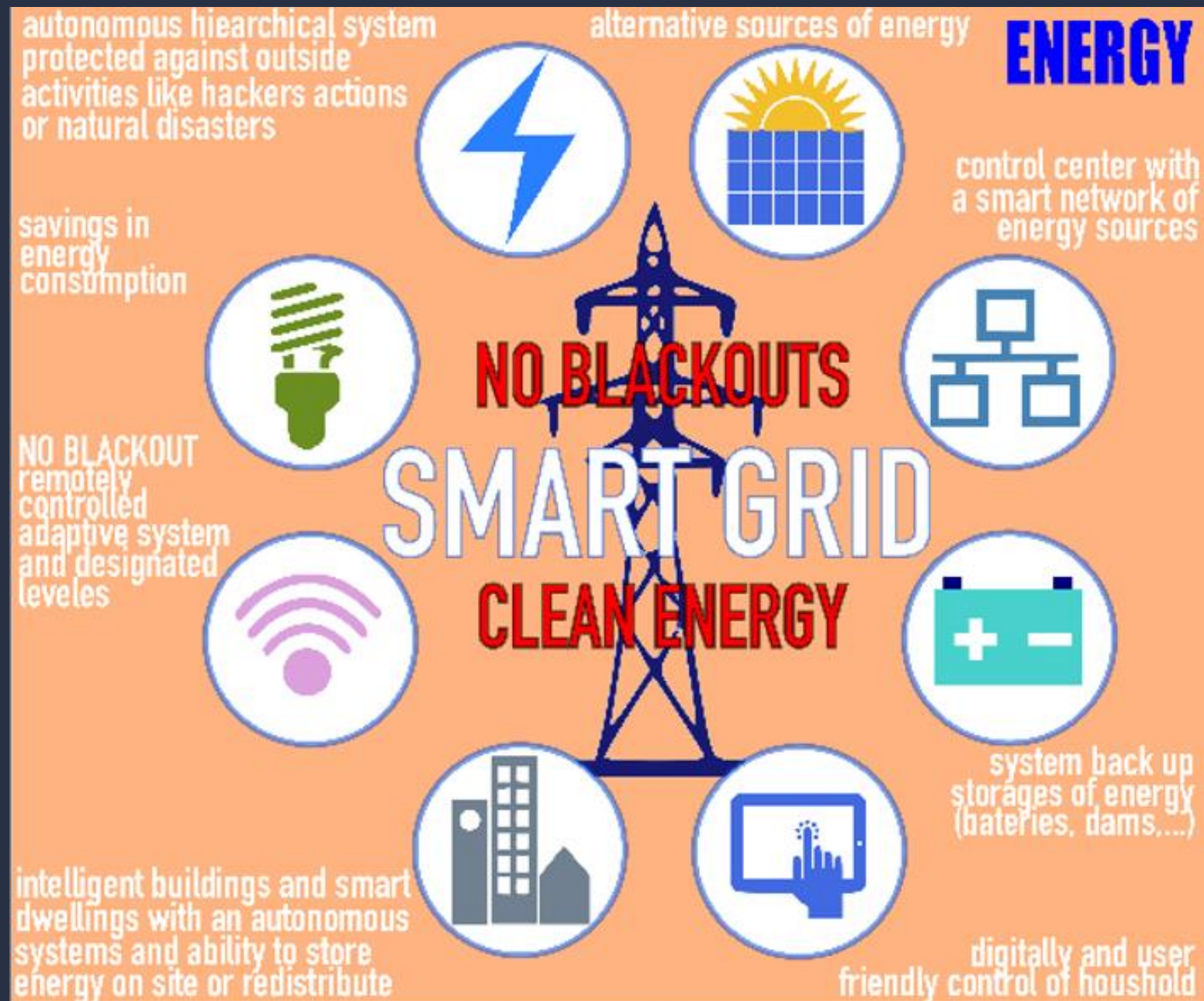
PODSTATA PŘIROZENÉHO ROZVOJE URBÁNNÍCH SÍDEL

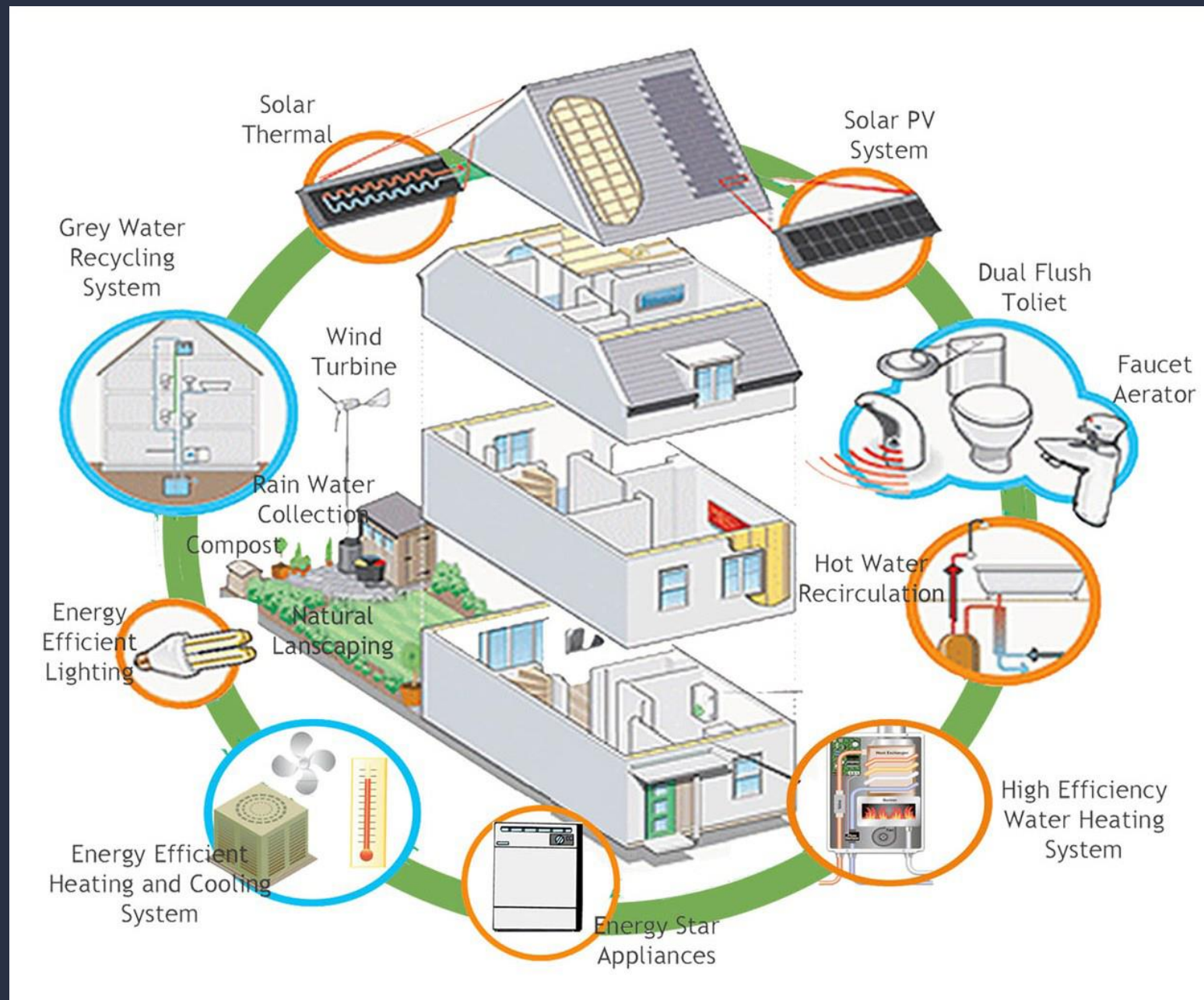


„CITIZEN CENTRIC“ MODEL MĚSTA









Building for a low-carbon future

Effective policies can lead to buildings and wider settlements that are climate resilient and use energy efficiently, so curbing the rise in greenhouse gas (GHG) emissions. There is potential for energy savings of 50–90% in existing and new buildings.

BUILDING-AS-USUAL

Buildings' energy use in developed countries is generally wasteful and inefficient. Developing countries risk locking into the same pattern as their economies and populations grow richer.

Demand Pressures

Under business-as-usual projections, use of energy in buildings globally could double or even triple by 2050. Drivers include billions of people acquiring adequate housing and access to electricity. More wealth, more urban dwellers and a higher global population will also raise demand.



Impacts and Risks

Many buildings are vulnerable to impacts of climate change. These include increased precipitation, thawing permafrost, and extreme weather-related events such as wildfires, severe storms and floods. Without investment in improved resilience, this vulnerability is destined to increase.



Warming and Energy Demand

Higher temperatures will drive changes in climate-related energy demand. In low-income countries, rising wealth will be the main driver of increasing energy demand, principally for air conditioning and transport.



Energy in the Home

Traditional large appliances account for most household electricity consumption, yet their share is falling fast. Electronic entertainment and communications equipment now account for more than 20% of residential electricity use in most countries.



KEY ISSUES

- ⚡ ENERGY INSECURITY
- 🌪️ EXTREME WEATHER
- 🔥 DROUGHT
- 🌡️ GLOBAL WARMING
- 👤 HUMAN BEHAVIOUR

Key Findings from the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (AR5) clim.cam.ac.uk/ipcc bple.eu gpcn.org wbcsd.org



In 2010, buildings accounted for 32% of global final energy use.



In 2010, buildings accounted for 19% of all GHG emissions.



CO₂ emissions in the building sector could double or triple by 2050.

BUILDING FOR THE FUTURE

Widespread implementation of best practices and technologies could see energy use in buildings stabilise or even fall by 2050. Many mitigation options promise multiple co-benefits.

Energy-Efficient Technology

- 1 High-performance building envelopes. Typically, with high-performance insulation and windows, and high indoor air quality.
- 2 Energy-efficient appliances, efficient lighting, and Heating, Ventilation and Air-Conditioning (HVAC).
- 3 Improved building automation and control systems that respond to changing conditions. 'Daylighting': Using smart meters and grids to modulate supply in real time.
- 4 Evaporative cooling and solar-powered desiccant dehumidification.

Average CO₂ reduction potential: 20–45% of baseline

System Infrastructure Efficiency

- 5 Know-how exists on retrofitting and how to build very low- and zero-energy buildings, often at little marginal investment cost or manageable payback times.
- 6 Passive building designs that minimise or eliminate the need for mechanical heating, cooling and ventilation.
- 7 Deep retrofits of existing buildings have brought 50–90% energy savings.
- 8 Integrated Design Processes prioritise energy performance-and-use factors through building design, construction and commissioning.

Average CO₂ reduction potential: 30–70% of baseline

Carbon Efficiency

- 9 At present, electricity is the main form of energy used for cooling and appliances, while fossil fuels are used for heating. Changing fuels and energy supply infrastructure to buildings will be needed to deliver large emissions cuts even if end-use demand falls.
- 10 More than 2 billion people currently lack access to modern energy carriers. The evolution of their energy provision will drive trends in buildings-related emissions.

Average CO₂ reduction potential: 20–45% of baseline

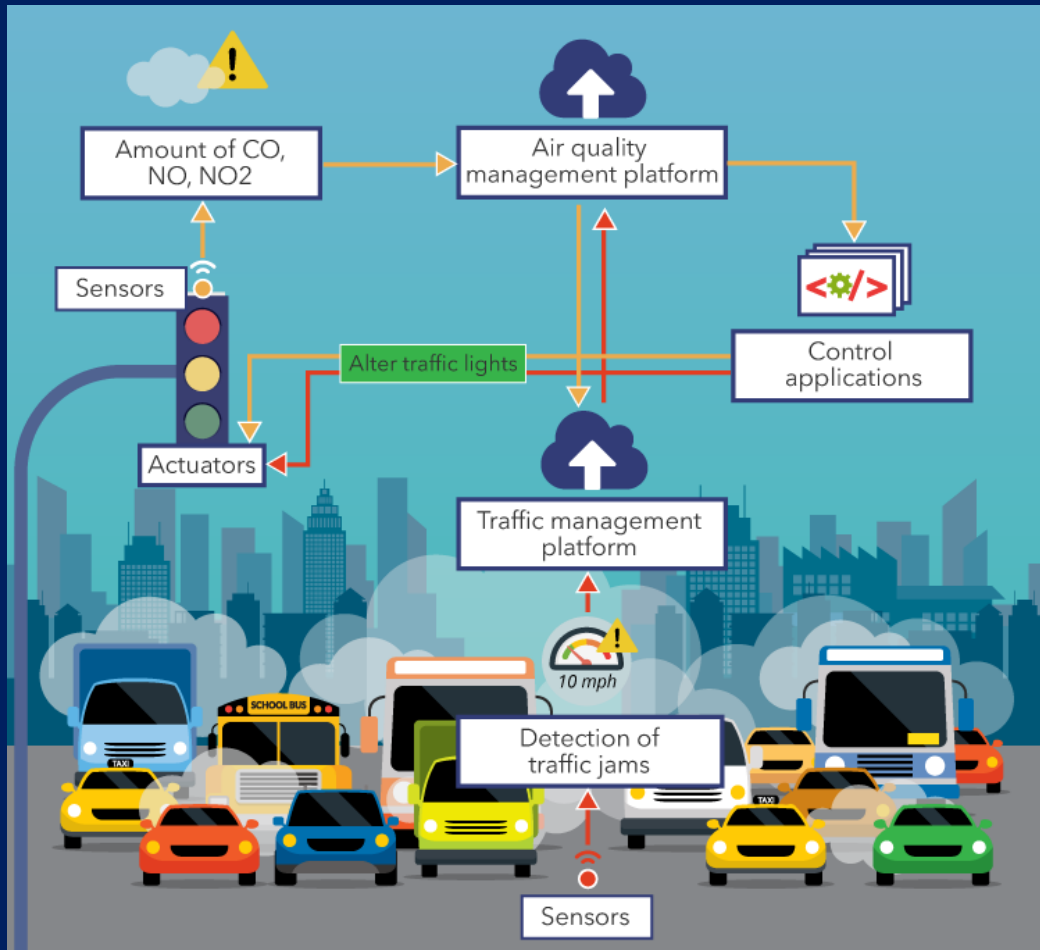
Service Demand Reduction

- 11 Energy use increases projected for buildings relate mainly to higher demand for energy services, driven by people moving out of poverty and changing patterns of consumption. Potential means to deliver demand reduction include carbon pricing, personal carbon trading, property taxation related to building CO₂ emissions, progressive appliance standards and building codes with absolute consumption limits.

Average CO₂ reduction potential: 20–40% of baseline

DIGITÁLNĚ PROPOJENÝ SVĚT – OPTIMALIZACE TOKŮ







Efficiency

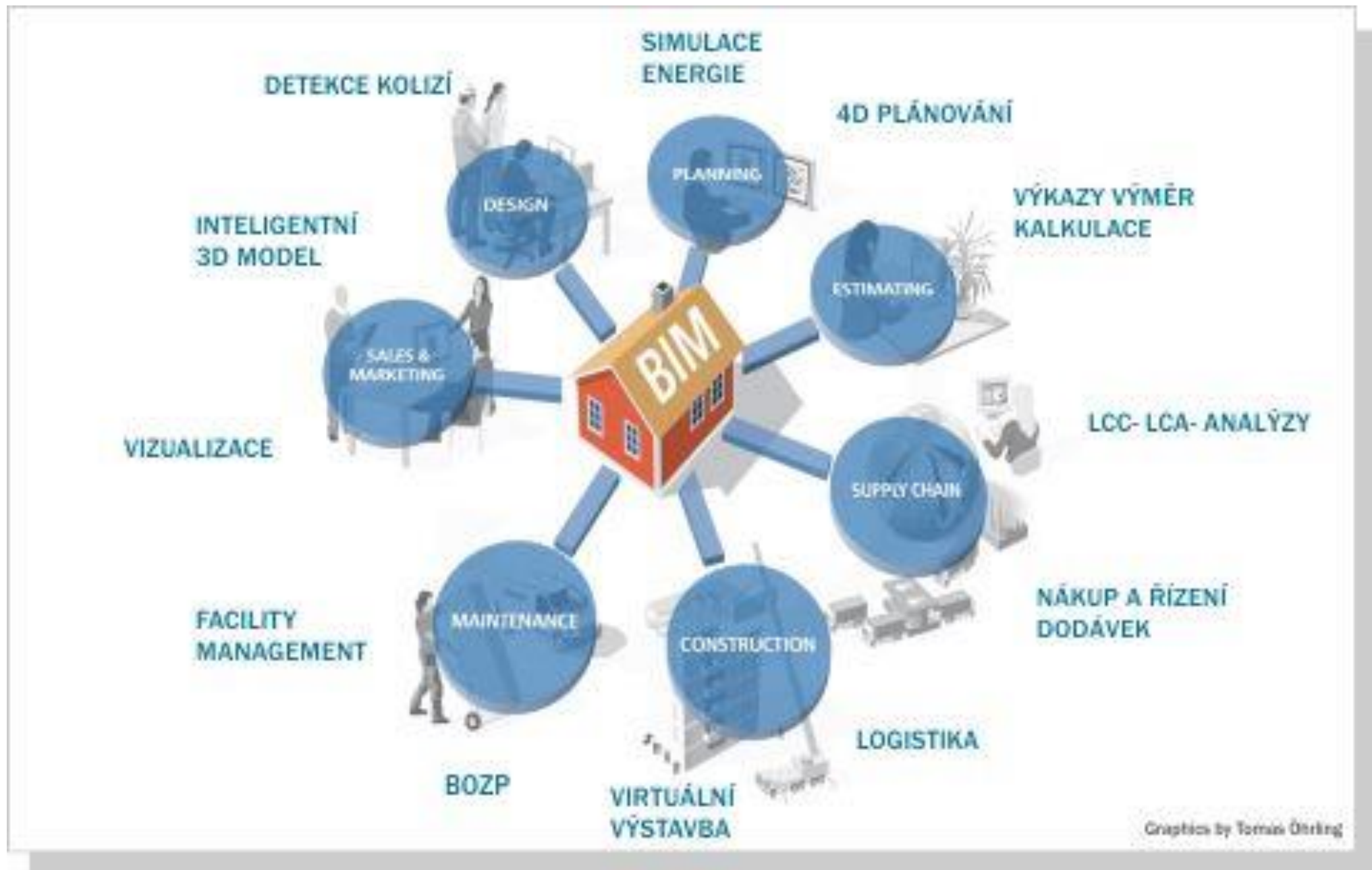
65 percent

63 percent

56

56

63 percent



PROJECT PHASES



The project team comes together at the earliest stage, improving accuracy of decisions. The rest of the process becomes more predictable, thus avoiding costly redesign work.



Collaboration between the architect, contractor, and engineers allows for better decision making, helping to improve quality and mitigate risk.



Precise virtual models are automatically part of the design, helping to reduce uncertainty in documents and interferences during construction.

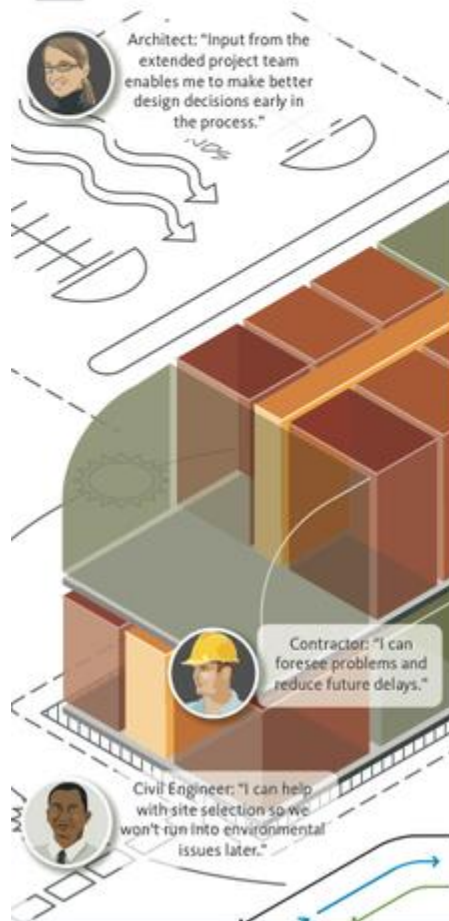


Because of careful early planning, team members are able to use materials efficiently, creating less waste. Change orders are minimized, and no operational revenue is lost. Construction can be completed on schedule and on budget.



Owners can enjoy better quality assurance on their completed project and are provided with a complete virtual building for operational and renovation purposes.

CONCEPTUALIZATION



DESIGN



IMPLEMENTATION DOCS

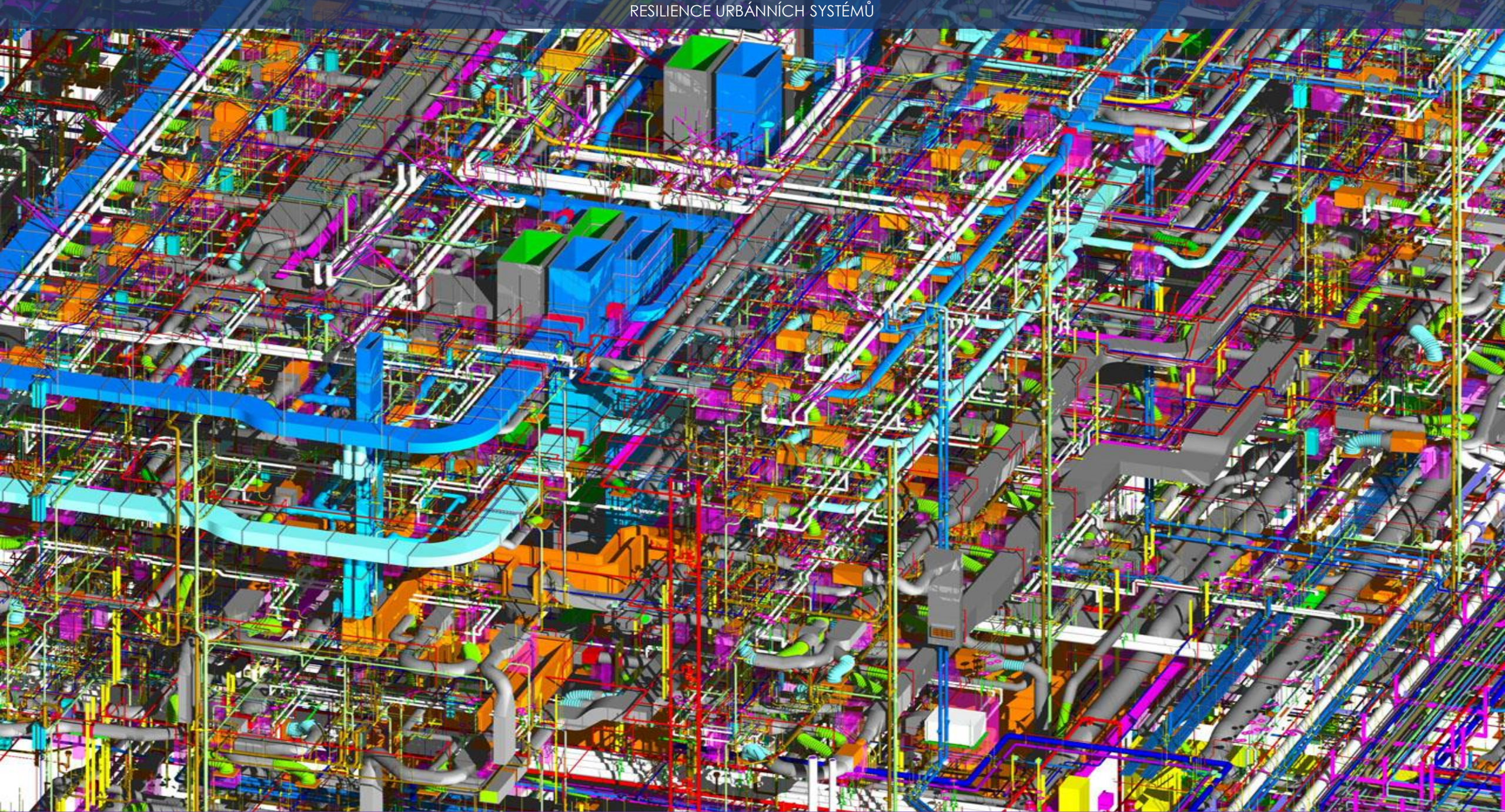


CONSTRUCTION



OWN / OPERATE







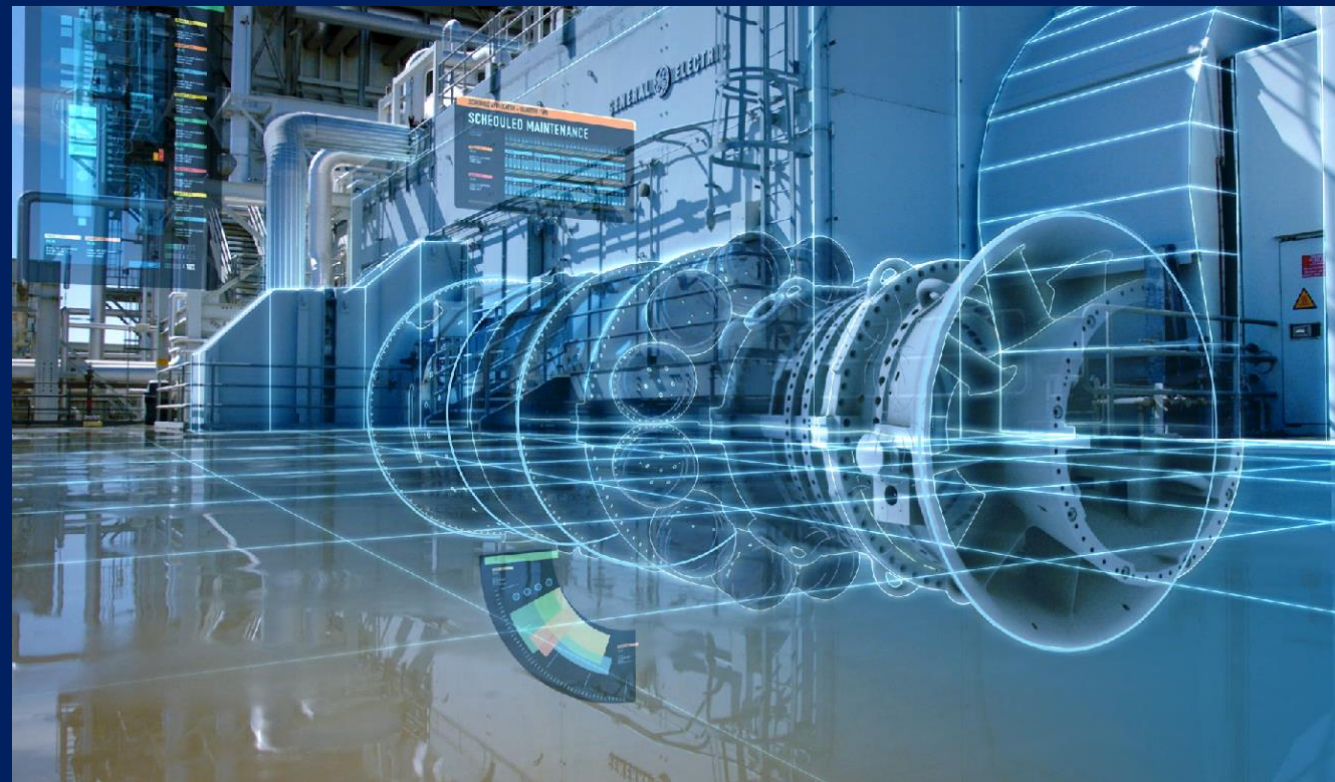
VIRTUÁLNÍ DVOJČE



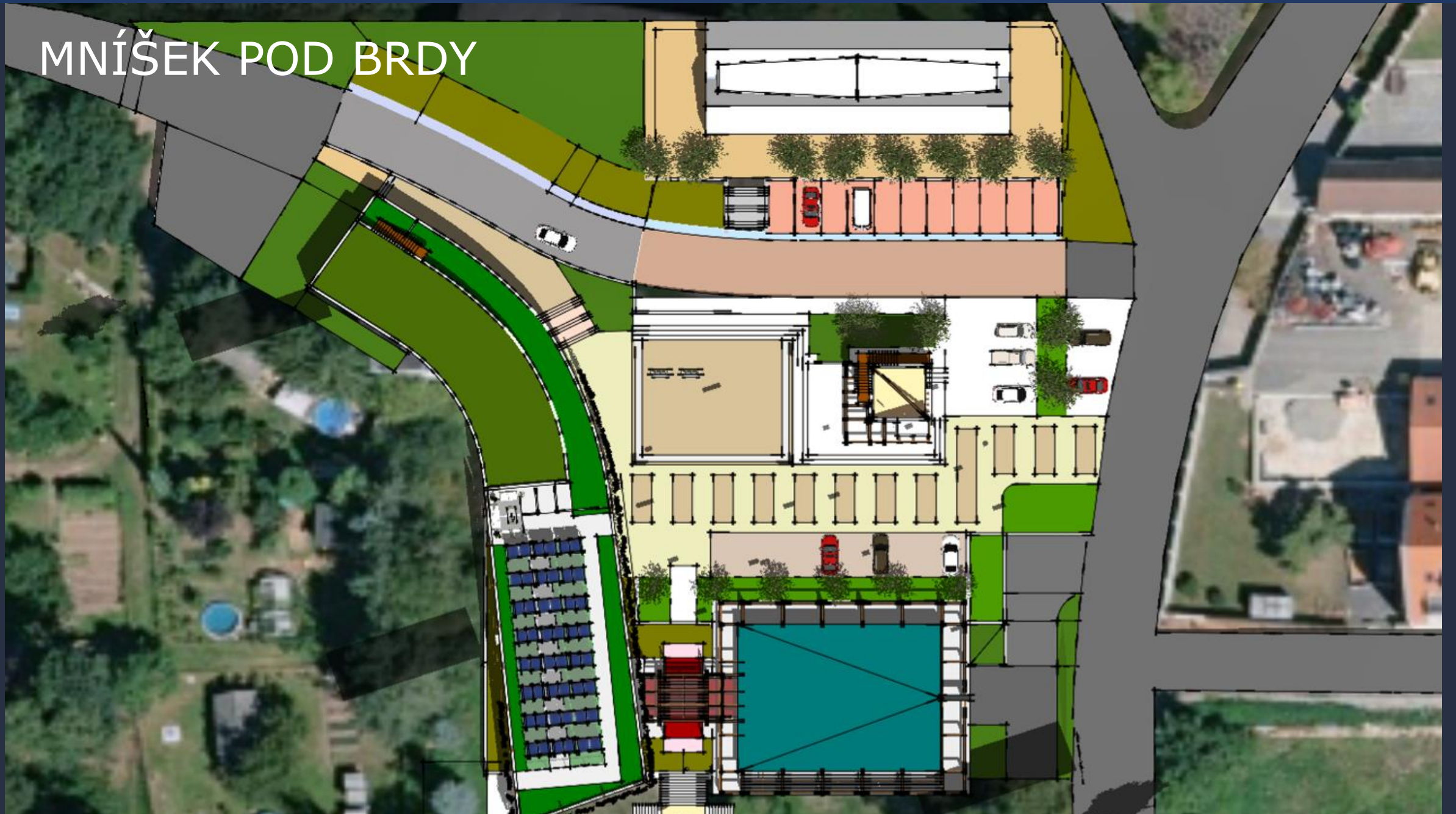
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NOVÉ MOŽNOSTI



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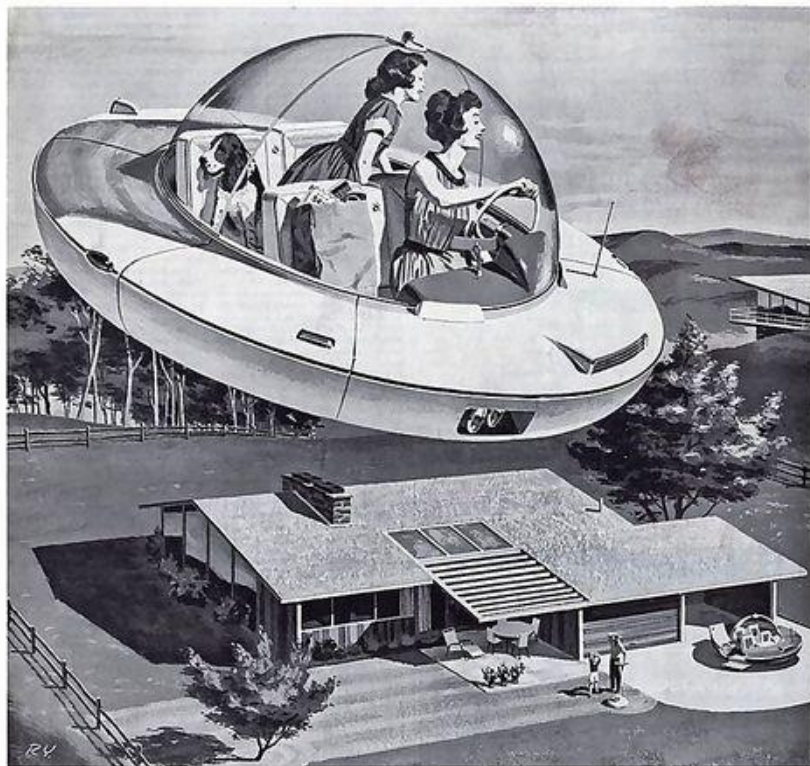


MNÍŠEK POD BRDY









YOUR PERSONAL "FLYING CARPET" Step into it, press a button, and off you go to market, to a friend's home, or to your job. Take off and land anywhere; no parking problems. Plug in to any electric outlet for recharging. They're working on it!

MORE POWER TO YOU!

America's independent light and power companies build for your new electric living

Tomorrow's higher standard of living will put electricity to work for you in ways still unheard of!

The time isn't too far off, the experts say, when you'll wash your dishes without soap or water—ultrasonic waves will do the job. Your beds will be made at the touch of a button. The kids' homework

will be made interesting and even exciting when they are able to dial a library book, a lecture or a classroom demonstration right into your home—with sound. (Some of this is happening already.)

To enjoy all this, you'll want a lot more electric power, and the independent electric companies of America are already building

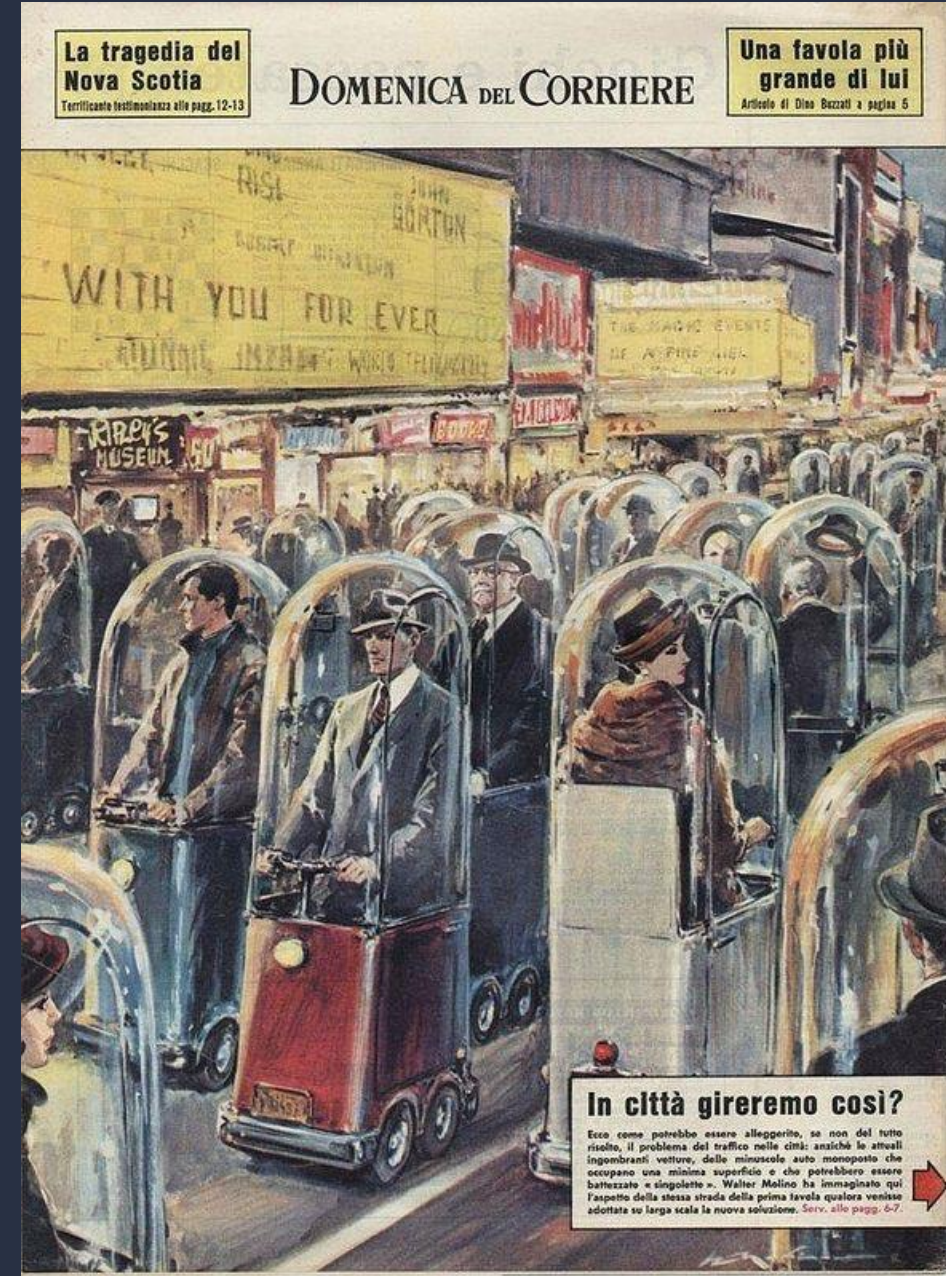
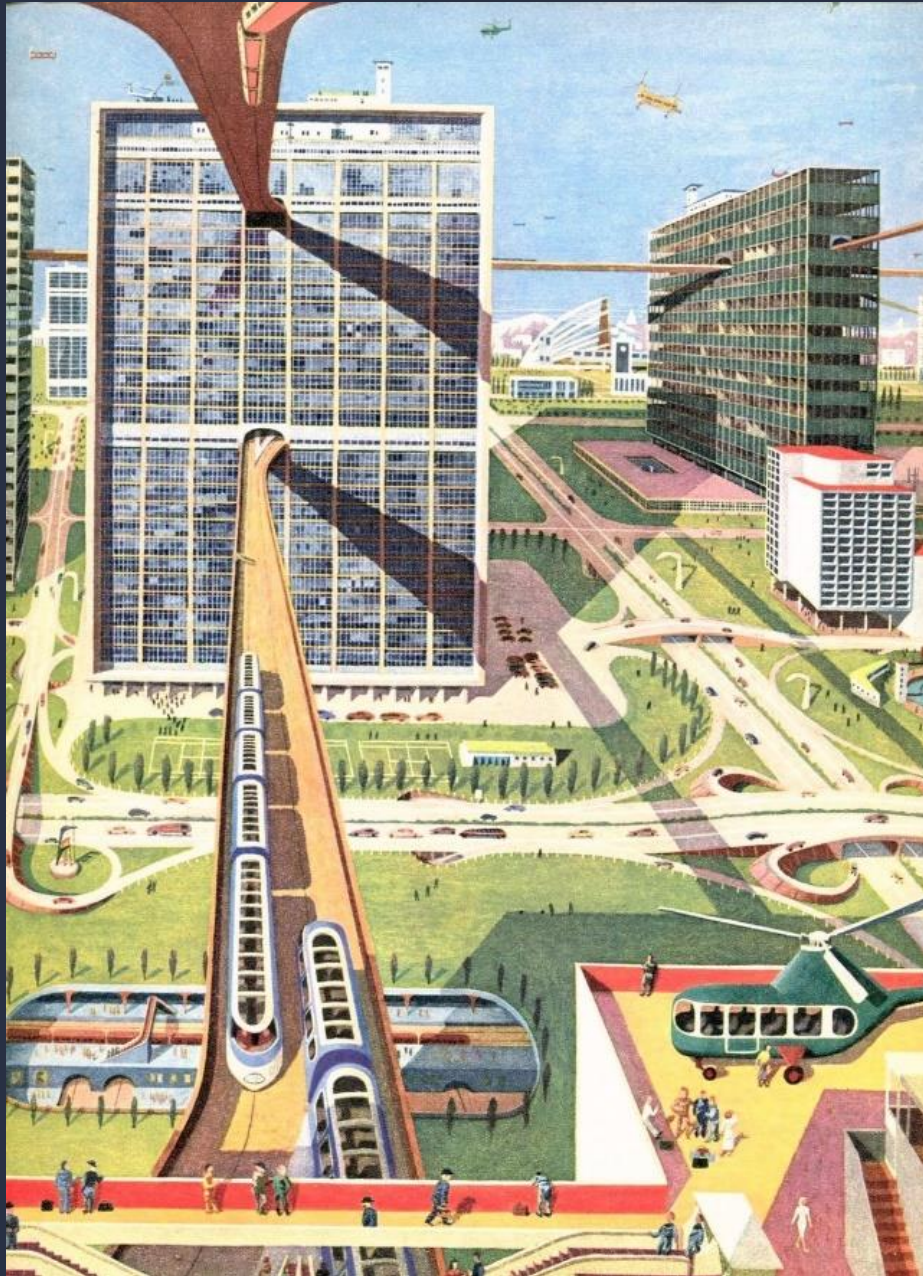
new plants and facilities to provide it. Right now these companies are building at the rate of \$5,000,000,000 a year, and planning to double the nation's supply of electricity in less than 10 years.

America has always had the best electric power service in the world. The electric companies are resolved to keep it that way.

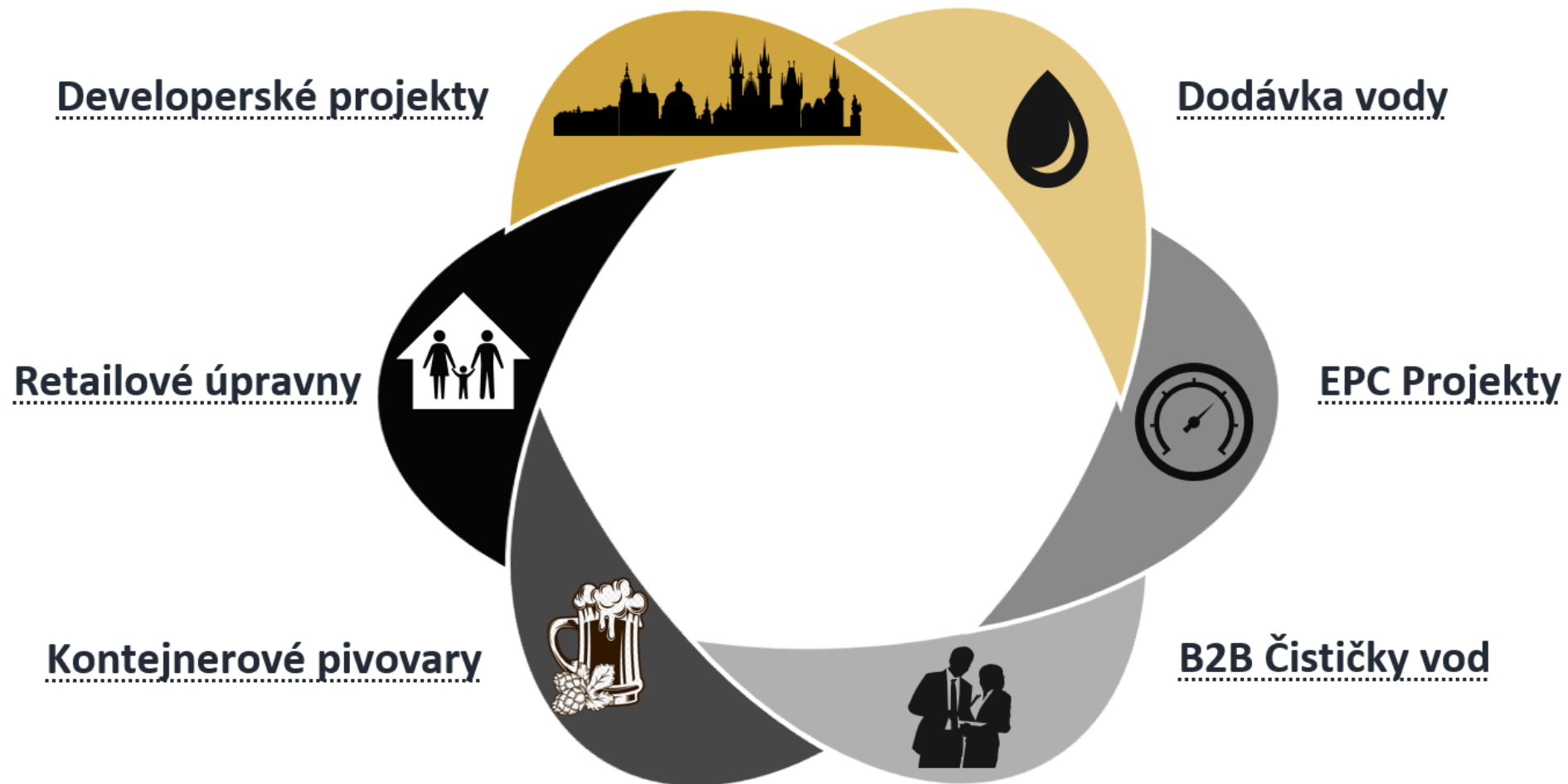
AMERICA'S INDEPENDENT ELECTRIC LIGHT AND POWER COMPANIES

Companies named as request through this magazine









FUTURE CITY ŽOFÍN 2020

MĚSTO BUDOUCNOSTI 2020
PROPOJENÉ A RESILIENTNÍ

