

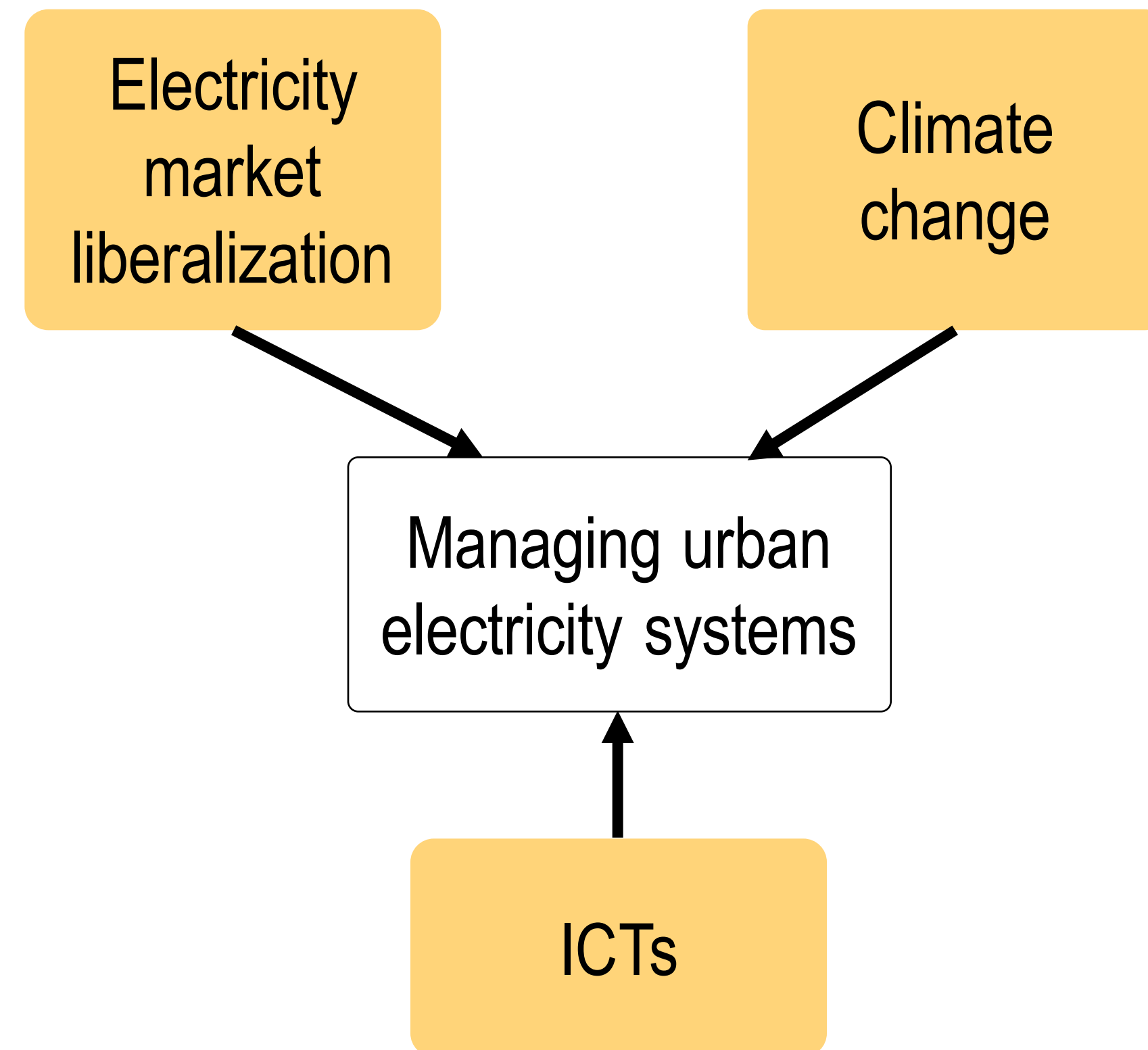
Block 3: Managing Urban Energy Infrastructures

4. Challenges and opportunities

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Session overview

- Challenges and opportunities to managing urban electricity systems arise from three different angles
- Each of these challenges affects the four management functions differently
- In this session, we will address three such challenges, namely:
 - Electricity markets liberalization
 - Environmental challenges, especially climate change
 - The Information and Communication Technologies (ICTs)



Electricity market liberalization

- In many countries electricity markets have been liberalized or are being liberalized (unbundled)
- Producers are now competing for customers

Electricity purchasing:

- Retail prices become competitive and customers switch
- Electricity purchasing must be professionalized
- Offer new energy services (incl. energy savings)

Grid management

- Increased complexity because of unbundling

Customer relations:

- Shrinking customer base (especially lucrative customers)
- Sometimes metering and billing is also liberalized
- Customers must now be treated differently and managed more actively
- Non-paying customers must be disconnected
- Social tariffs must be compensated

In order to reduce GHG emissions (and mitigate climate change),

- the overall consumption of fossil fuels (including for electricity production) must be reduced
- overall energy and electricity consumption must be reduced

Operations and maintenance:

- More intermittent production because of renewables (more balancing needed)

Grid development:

- Because of self-production grid reinforcements become necessary
- Less electricity consumption due to energy efficiency measures (grid costs)

Customer relations:

- Consumers also become producers (prosumers)
- Which business model for energy savings?

Energy purchasing:

- Pressure to purchase electricity from renewables

As seen in the first block, the ICTs ...

- Can make infrastructure usage more efficient
- Can involve the users into the management of urban infrastructures
- Can lead to new services

Operations and maintenance:

- Commercializing balancing energy
- Making system more resilient

Grid development:

- ICTs as a means to increase energy efficiency
- reduce the need for grid development

Customer relations:

- More flexible pricing
- Opportunity to offer new energy-related services (such as managing one's own electricity consumption)

Energy purchasing:

- Consumers become producers (at least of balancing energy)

Conclusion

- In this session we have seen how some new trends affect the traditional management functions of urban electricity systems.
- Let us now hear the point of view of a practitioner