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# Physical Internet-driven last mile delivery: Performance requirements across people, processes, and technology

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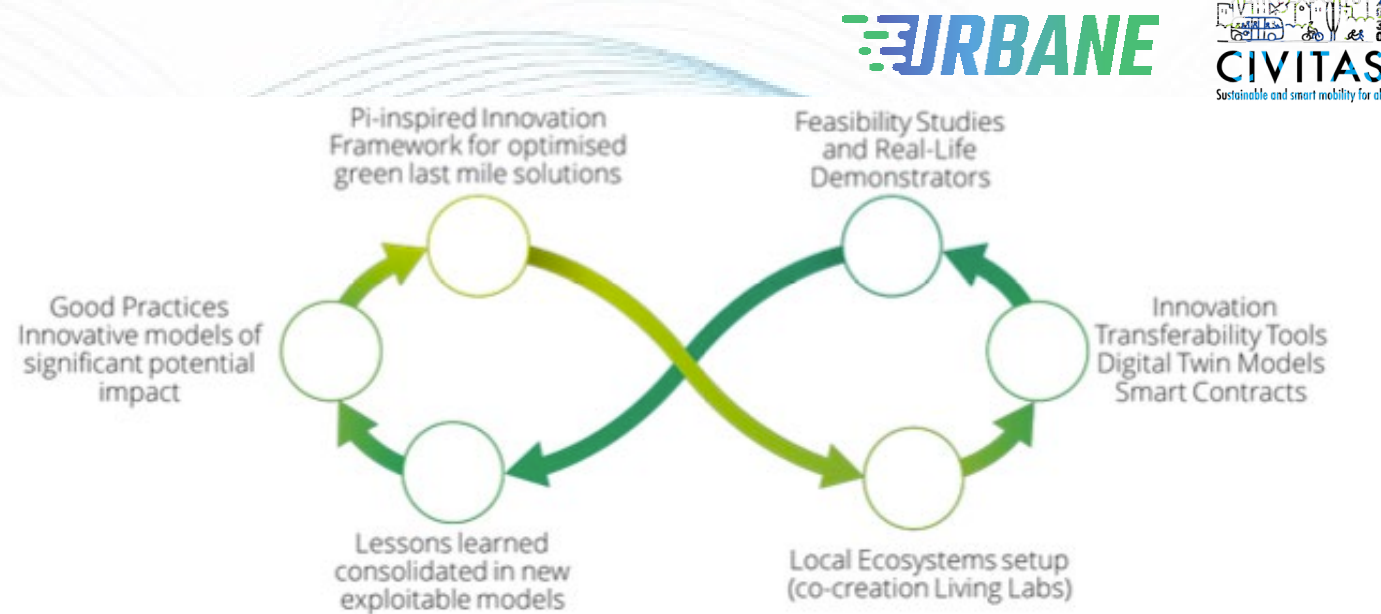
**alice** | Alliance for  
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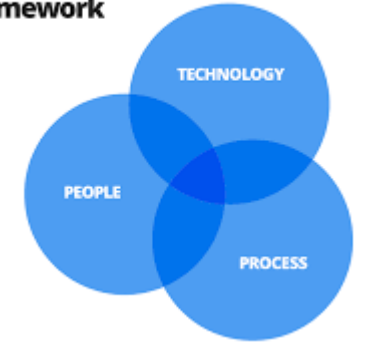


**Expanding the logistics Scope**

# Last Mile Delivery Challenges

- accounts for 40% of delivery costs
  - congested urban areas
  - dealing with traffic
  - finding appropriate parking
- is responsible for 20% of urban traffic
- e-commerce has made deliveries smaller and more frequent
- in-practice
  - idle capacity assets
  - poor use of modes
  - inadequate business systems





# about this research

## scope

- develop a theory-based framework for PI-driven LMD – **PPT Theory**
- analyse performance requirements from the perspective of PPT
  - people
  - process
  - technology
- literature review - ongoing work
- PI aspects to consider:
  - standardization of containers and protocols
  - logistics providers collaboration
  - ability to share resources

## approach

- identify the interactions of people, process, and technology to bring better performance outcomes in PI-driven LMD based on PPT Theory
- **systematic literature review** (SLR)
- 39 studies were considered after two screening stages
- **thematic analysis** was pursued to identify **requirements** according to the PPT framework
- **performance outcomes** were extracted through setting **propositions**

# findings - people

- understanding of new technologies and being able to use them effectively
- multiple aspects of skills require to be covered
- handling robotics and automation interactions
- customer-service skills
- appropriate training

## People

- IT and digital skills
- Availability of skilled workforce
- Adaptability to change
- Customer-service skills
- Health, safety, and security training



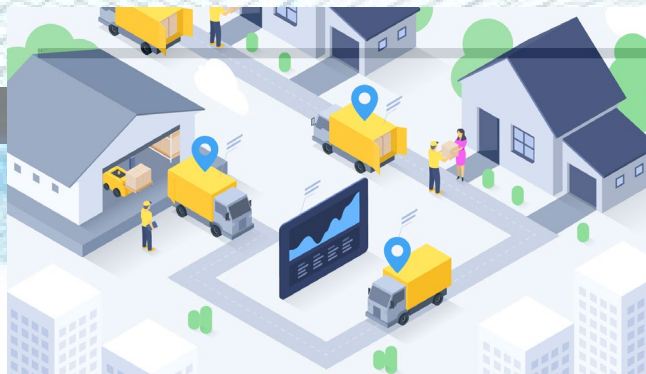


# findings - process

- process adaptation is different for B2B and B2C
- standardization of processes and data is key
- real-time tracking & monitoring drives smart decision making:
  - robustness/ flexibility
  - effectiveness
- **processes integration**
- multiple delivery channels
  - include drones, droids, autonomous robots
- comprehensive services
  - crowdsourcing, mobile parcel lockers

## Process

- Standardised processes and data exchanges
- Real-time tracking and monitoring
- Flexible delivery options
- Adopting new delivery services

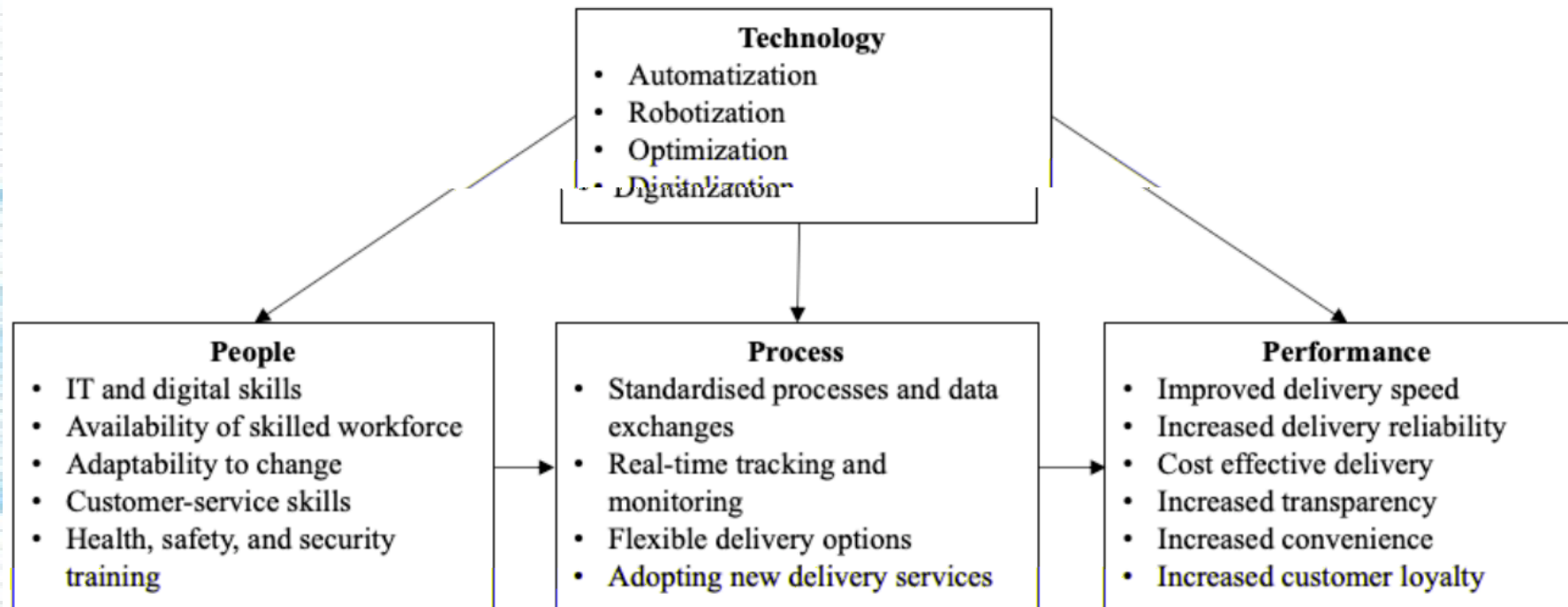




# findings - technology

- self-organizing logistics systems
  - reduction of tsyems

# findings - performance





# concluding remarks

- theory-based framework for PI-driven LMD performance requirements
- test research propositions in real-world case studies of URBANE via LLs
  - micro-consolidation
  - GPS/ monitoring capabilities
  - smart operational/ tactical decision making



# thank you!

<https://www.urbane-horizoneurope.eu>



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