A SYSTEMATIC LITERATURE REVIEW OF CHALLENGES IN URBAN LOGISTICS

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Outline

- Background
- Objective
- Research methodology
- Results
- Discussion
- Conclusion
Complex systems

- Medical
- Traffic
- Logistics
- Energy
- Home
- Production
Background

- **Urban Planning System**
  - Cars, trains, buses and pedestrians - the vivid fabric of modern cities’ transport networks.
  - Interdependence between modes of transport demands both a holistic perspective, focusing on the sum and not the parts
  - Collaboration between many stakeholders

- Focus so far on managerial, engineering techniques or technology

- However, the interactions between stakeholders is key for increasing the efficiency within complex systems (Rose et al., 2016; Stathopoulos et al., 2012; Österle et al., 2015).
Participatory design tools - SG and gamification
Research objective

- Identifying challenges of urban logistics
  - Managerial
  - Engineering techniques or technical aspects
  - Stakeholder engagement
Research methodology

- **Database selection**: Scopus, Web of Science and IEEE (from 2007-2017 (present))

- **The main keywords in the first search**: ‘urban logistics’ or ‘city logistics’.

- **Additional three main keywords**:
  - “urban logistics with challenges”
  - “management and technical challenges in urban logistics”
  - “stakeholders in urban logistics”

- **Paper classification** as shown in Figure 1
Paper classification

Figure 1  The paper classification flow diagram
Results

- Out of relevant 50 papers,
  - 25 papers referring to the management aspects
  - 25 relates to technic challenges.

<table>
<thead>
<tr>
<th>Database</th>
<th>Main keywords</th>
<th>With &quot;challenge&quot;</th>
<th>With ‘Management challenges’ and ‘Technical challenges’</th>
<th>With &quot;stakeholder&quot;</th>
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</thead>
<tbody>
<tr>
<td>Scopus</td>
<td>587&lt;br&gt;2007(16)/2016(107)/2017(8)</td>
<td>174</td>
<td>116</td>
<td>25&lt;br&gt;2011 (1)/2016 (8)</td>
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<td>Web of Science</td>
<td>526&lt;br&gt;2007(6)/2016 (140)/2017(0)</td>
<td>188</td>
<td>132</td>
<td>12&lt;br&gt;2009 (1)/2016 (3)</td>
</tr>
<tr>
<td>IEEE</td>
<td>312&lt;br&gt;2007(3)/2016(51)/2017(3)</td>
<td>120</td>
<td>25</td>
<td>16&lt;br&gt;2011 (3)/2016 (2)</td>
</tr>
</tbody>
</table>

**Of the 53 identified papers, 3 of them were replicates, so 50 papers are considered and reviewed.**
Management challenges related to urban logistics stakeholders

- Planning and policy in urban systems are affected by distribution activities of stakeholders.

- Stakeholders involvement in early state of urban area planning is essential for the success.

- The analysis of planning and finding methodology of interaction between public and private sectors is required.
Technical challenges related to urban logistics stakeholders

- Combining of governmental policies and company initiatives are accomplished by technological knowledge; mathematics, algorithm, and IT system.

- Agent-based simulations are applied to observe and evaluate behavior and interactions among stakeholders in urban areas.
Discussion

- To improve stakeholder interaction in all phases of a urban logistics system

- Implementation of supporting tools for collaboration among public and private stakeholders involvement in all phases of system life cycle.

- The understanding of the necessity of stakeholder involvement in all phases.
Conclusion

- **Currently, researches works on**
  - Simulation, Gamification and Participatory design approaches
  - Low rate implementation

- **Next steps, focusing on**
  - Interaction of different IT systems.
  - Increasing awareness of the necessity of collaboration and stakeholders involvement in all phases (Figure 2).

![Figure 2](Image)

Figure 2 The involvement of urban logistics stakeholders
Thank you for your attention!

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