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## **Opportunities and threats for city logistics development from a local authority perspective**

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### **Abstract**

**Aim/purpose** – The main purpose of the paper is the identification of opportunities and threats for city logistics development from a local authority perspective.

**Design/methodology/approach** – The paper presents the original results of surveys conducted among city logistics experts from all over the world and among representatives of twelve EU capital cities.

**Findings** – According to the study the most important opportunities for cities are stakeholders' willingness for cooperation, as well as a good and long cooperation with them. It shows that a local authority cannot introduce any solutions in the field of city logistics without cooperating with other stakeholders. Therefore, the lack of cooperation can be a threat. The other threat highlighted by the majority of studied cities is the lack of standards on data collections. Without information in real time on problems and activities undertaken by various stakeholders in the field of city logistics it is very difficult for strategic and tactical decisions to be made by a local authority.

**Research implications/limitations** – The most significant limitation of the research was the sample of respondents. Despite the fact that the questionnaire was sent to 28 EU capital cities only 12 out of them have completed and returned the questionnaire. A further problem arises from the lack of standards on collecting information on city logistics by cities. As a result of it many European cities do not collect this information or do it in a fragmentary way.

**Originality/value/contribution** – The research results introduced in the paper make a contribution to the theoretical and practical knowledge on city logistics development. It fills the gap related to the external factors affecting the development of city logistics. The author's concept of the framework for city logistics development with the inclusion of threats and opportunities and the set of questions can be a useful tool

for local authorities as well as enriching the theoretical background for city logistics strategic planning.

**Keywords:** city logistics development, local authority, opportunities and threats for city logistics development.

**JEL Classification:** O18, O38, R40, R58.

## 1. Introduction

The development of civilization, and consequently a significant increase in the number of people living in cities contributes to the growing problem of passenger and freight transport in cities. A number of major European cities are experiencing congestion problems caused by road transport and the situation may deteriorate even further in the coming years. This problem has also come to the attention of the European Union, which has developed a number of documents indicating the necessity to take measures to reduce pollution and congestion arising from increasing road transport in the city. In response to the emerging EU regulations in recent times, a number of European initiatives (Sugar, Bestfact, C-liege, Grass, Novelog, etc.), presenting the so-called good practices in the field of city logistics were introduced. The majority, however, are partially concentrated on the relevant solutions for freight transport and internal conditions related to their implementation. In the literature the lack of the holistic approach to city logistics can be also observed. Most papers refer only to freight transport neglecting the passenger one [Allen, Thorne & Browne 2007, pp. 4-80; Janjevic & Ndiaye 2014]. Gatta and Marcucci [2014] on the basis of literature review have identified five groups of high quality scientific papers in the field of city logistics: “(1) the maximization of efficiency and routing of freight vehicle, (2) regulations on UFT and the analysis of environmental impact, (3) the acquisition of data, (4) the analysis of disruption and (5) multi-agent modeling” [2014: 248]. Most papers concentrate on urban freight transport problems from the perspective of private stakeholders (i.e. transport companies) [Anand et al. 2012]. Only one group of papers identified above presents problems of city logistics arising from local authority (“regulations on UFT and the analysis of environmental impact”). This group of papers mainly focus on freight transport planning in a city hall [Lindholm & Behrends 2012; Lindholm & Ballantyne 2016; Russo & Comi 2016; Allen et al. 2015] and even if there are mentioned minor examples of opportunities and threats they are not thoroughly analyzed and relate only to freight transport [Lindholm 2010; Lindholm & Browne 2013; Taniguchi et al. 2016]. Therefore a thorough analysis of external factors (both

threats and opportunities) affecting the development of city logistics (both passenger and freight transport as well as all activities related to them) is still lacking. The knowledge of opportunities and threats facing city logistics from the perspective of local governments can significantly improve the action undertaken in this area.

The main purpose of the paper is the identification of opportunities and threats for city logistics development from a local authority perspective. In addition in the paper the authorial framework for city logistics development with the inclusion of threats and opportunities has been developed. The paper presents the original results of surveys conducted among international city logistics experts and among the representatives of twelve EU capital cities.

The paper is constructed as follows: in the first section the purpose and the content of the paper has been introduced. The second and third sections comprise a content of literature review on city logistics and problem statement. The following section presents the study results and the framework for city logistics development from the perspective of a local authority. The last sections present discussion and conclusions.

## **2. Literature review**

### **2.1. City logistics – various approaches**

City logistics is becoming increasingly popular since the Institute for City Logistics was established by prof. E. Taniguchi from Kyoto University in Japan. In the literature there is no widely accepted definition of city logistics. It can be observed that there are two trends in defining this term. The first one identifies this concept exclusively to all activities regarding urban freight transport and all services around it [Taniguchi et al. 2001; Benjelloun et al. 2009] while the second presents a more holistic approach to city logistics taking into account all activities regarding both passenger and freight (including waste) transport within a city and all services around it [Hesse 1992; Klatte 1992].

In the author's opinion the latter approach to the city logistics is more adequate taking into account negative effects caused by both passenger and freight transport. One of the most popular definitions of city logistics in Poland was presented by Szołtysek [2005, p. 93]. His definition mainly focuses on the organization of transport flow according to the city development aims and residents' requirements. The other definition introduced by Kiba-Janiak [2016] outlines the necessity of developing/reaching a compromise between city logistics

stakeholders in order to improve passenger and freight transport as well as decreasing cost and environmental degradation in a city. According to this definition, city logistics “include planning, implementing, coordinating and controlling processes taking place within the boundary of a given urban area and related to physical movement of people, goods and information related to them in a manner that will reduce costs and improve the quality of life obtained as a result of compromise between the differing requirements of stakeholders” [Kiba-Janiak 2016: 558]. In the literature many types of city logistics’ stakeholders are identified [Ogden 1992; Taniguchi & Tamagawa 2005; Russo & Comi 2011; Anand et al. 2012; Muñuzuri et al. 2012; Ballantyne, Lindholm & Whiteing 2013; Lindholm 2014]. Among the most frequently mentioned stakeholders of city logistics are: local government, citizens (consumers), transport companies (logistics), shippers, receivers and public transport operators. Each above-mentioned stakeholder has different expectations for city logistics [Witkowski & Kiba-Janiak 2014]. It causes many difficulties in introducing solutions for the improvement of passenger and freight transport. Therefore, in order to implement any city logistics solutions a coordinator is required.

According to the study conducted by Witkowski and Kiba-Janiak [2014] a local authority is one of the stakeholders who has a great ability to become a coordinator of city logistics measures’ implementation. It is the most important stakeholder for city logistics [Lindholm 2012] since one of its duties is traffic coordination in a city in order to improve the quality of life of residents.

## **2.2. Problems of city logistics from a local authority perspective**

The problem of congestion and environmental degradation caused by passenger and freight transport is observed in many European cities. This problem has been also observed by the European Commission, which published many documents related to city logistics. Among them are *Green Paper towards a new culture for urban mobility* [Commission of the European Communities 2007b], *Freight transport logistics action Plan* [Commission of the European Communities 2007a], *On the community strategy to reduce CO2 emissions from passenger cars and light commercial vehicles – 2007/2119 (INI)* [Communication from the Commission to the European Parliament 2013], *Action Plan on Urban Mobility* [European Commission 2015], *White Paper* [European Commission 2011] or *Together toward competitive and resource-efficient urban mobility* [European Commission 2013]. Despite the fact that this problem seems very important from the perspective of the European Union for many years city logistics was

mainly discussed from a narrow perspective of private stakeholders and singular projects undertaken by them [Gatta & Marcucci 2014; Schliwa et al. 2015]. Since the turn of the century some papers dedicated to city logistics from a local authority perspective have been published [Dablanc 2007; Lindholm 2012; Gammelgaard 2015]. The majority of these papers were related to the problem of urban freight transport for the local authority. The holistic approaches to city logistics (including passenger and freight transport) from a local authority perspective were presented in only a small number of papers [Witkowski & Kiba-Janiak 2014; Kiba-Janiak 2015]. However, in all of these papers similar problems of city logistics were identified. Research conducted by Lindholm [2012] shows that urban freight transport is not a priority in many Swedish cities. According to Lindholm [2010], this situation is even worse in the New Members States of the European Union (OMS). This conclusion was confirmed by Witkowski and Kiba-Janiak [2014], who conducted a survey in Polish cities with a county rights. According to this study many Polish cities concentrate only on public transport ignoring urban freight transport. In only 38% of studied cities are there working positions which partly realize tasks related to freight transport. The most popular solutions implemented in the field of freight transport in the majority of Polish cities are regulations on the access to the city center. According to Dablanc [2007], it derives from a traditional approach to freight transport by local authorities.

The problem of city logistics from a local authority perspective discussed in many papers is mostly related to the analysis of weaknesses deriving from the internal organization of the local authority [Lindholm 2012]. There are no publications which are focused on external factors, so called opportunities and threats, which may have an impact on city logistics development. Opportunities are all factors which derive from external circumstance of a local authority and have a positive impact on the development of city logistics. Threats, conversely, are those factors which also come from circumstances external to the local authority but have a negative impact on a city's logistics development. Without taking into account all of these factors local authority cannot properly develop city logistics. The awareness of opportunities can facilitate a successful implementation of measures related to passenger or freight transport. Bearing in mind such threats a local authority can protect the city against many mistakes or wrong decisions. The analysis of opportunities and threats for city logistics development can significantly support local authorities while developing a city logistics strategy and implementing passenger and freight transport measures.

### 3. Research method

The study presented in this paper was carried out in five stages:

**Stage 1. Identification of the research problem and research tools' development.** At this stage on the basis of the literature analysis two questionnaires were developed. The purpose of the first questionnaire was the identification and development of the list of Key Success Factors (KSF) and Key Failure Factors (KFF) on the basis of experts' opinions. The second questionnaire was constructed in order to analyze the importance of KSF for city logistic selected in the first study and to identify failures in this area. The second survey was directed to the representatives of local governments from selected capital cities in the European Union.

**Stage 2. Key Success Factors' identification and selection with the use of the Delphi method.** The first study was conducted among 20 researchers, mainly from Europe but also from Brazil and Australia, in two rounds. The selection of the researchers to the study was based on the experience and knowledge of scientists. The purpose of the study was to obtain a unified list of KSF and KFF. There were two rounds of the Delphi method in the period from October 2014 until January 2015. The detailed procedure of the Delphi research was described in the paper [Kiba-Janiak 2016]. As a result of this stage a list of key success factors and key failure factors from the perspective of various stakeholders has been obtained.

**Stage 3. Conducting surveys among local governments.** In the second study questionnaires were sent by email to the mayors of each EU capital cities and to the office of the city of Zurich. The study was conducted in the period from May 2015 until March 2016 and resulted in 12 completed questionnaires. As a result of the survey the significance of key success factors from the perspective of each local authority have been obtained. During the study the failures which have an impact on city logistics were also identified. In the same period focused interviews with representatives of local governments in Warsaw, London and Berlin were conducted. On the basis of these interviews opportunities and threats for city logistics as well as general information on city logistics development strategy have been obtained.

**Stage 4. Analysis of the obtained results.** At this stage, on the basis of both surveys, the final list of opportunities and threats for the development of city logistics was identified.

**Stage 5. Elaboration of the framework for the city logistics development** from the perspective of a local authority as well as a tool for monitoring the opportunities and threats affecting this area. The framework and the tool have been developed on the basis of interviews, desk research of analyzed cities, strategy development policies of analyzed cities (especially London, Berlin and Poland).

## 4. Research findings and discussion

### 4.1. External factors influencing city logistics development

As a result of the study conducted between experts and representatives of EU capital cities, the most significant key success factors and key failure factors were identified. To the group of the most important key success factors, among others, were classified:

- a long-term cooperation with stakeholders,
- inclusion targets for freight transport in a city strategy,
- the access to the logistics infrastructure,
- legal regulations, and
- the access to the funds, etc.

The group of the most significant key failure factors included, among others:

- the political background of the local authority,
- the lack of or insufficient funds,
- the lack of stakeholders’ willingness for cooperation with a local authority, and
- the lack of focus on city logistics from national government.

Both groups present external (arising from the circumstance – independent of local authority) and internal (dependent on local authority) key factors. The external key success factors can be understood as opportunities and analogously the external key failure factors as threats. Therefore, on the basis of the KSF and KFF the list of opportunities and threats has been identified (Table 1). This list presents only the most important and general factors and does not include particular circumstances of a city.

**Table 1.** Opportunities and threats for city logistics development from a local authority perspective

| Opportunities  | Threats  |
|--|--|
| <i>1</i>   | <i>2</i>   |
| O1. Access to the best practices of city logistics plans (e.g. freight transport plans).                       | T1. Lack of experienced experts in the field of city logistics planning in a region.             |
| O2. European Platform on Sustainable Urban Mobility Plans (tools such as: SUMP Self-Assessment Questionnaire). | T2. Insufficient funding system from government  |
| O3. Access to the experienced experts in the field of city logistics planning in a region.                     | T3. Not taking the local urban context into account in case of national or European legislation. |
| O4. Supporting city logistics policy from government.  | T4. Changes in regulations on European and national levels.                                      |
| O5. Stakeholders’ willingness for cooperation and data sharing with a local authority                          | T5. Lack of focus on city logistics from national government                                     |

**Table 1 cont.**

| <i>1</i>   | <i>2</i>   |
|--|--|
| O6. Many bottom up initiative for city logistics from stakeholders.  | T6. Political background – the members of city council are mostly non-experts in the city logistics.                                       |
| O7. Modern and friendly logistics infrastructure in terms of implementation of city logistics measures (e.g. infrastructure is not limited by very old buildings, narrow streets). | T7. Short-term of local authorities' office with the long-term effects of strategic objectives for city logistics.                         |
| O8. Long-term and good cooperation with city logistics stakeholders (eg. freight quality partnership)  | T8. Lack of willingness from stakeholders for cooperation with a local authority.  |
| O9. Introduction of standards on data collecting on city logistics by national government.   | T9. Poor communication and relationship between stakeholders.  |
| O10. EU or national projects, grants, program supporting funding the tool for the data collecting in the field of city logistics.  | T10. Seeing only own particular interest by city logistics stakeholders.   |
| O11. Wide range of sources for funding city logistics measures' implementation.  | T11. Poor and limited logistics infrastructure in terms of implementation of city logistics measures (very old buildings, narrow streets). |
| O12. Stakeholders' awareness of necessity of city logistics measures' implementation   | T12. Lack of standards on data collecting on city logistics on national and local level.   |
|  | T13. Lack of access to the experts with knowledge and experience on city logistics measures' implementation.                               |
|  | T14. Lack of good practices on particular city logistics measures' implementation.   |
|  | T15. Lack of data and quantified information on freight/passenger transport.   |
|  | T16. Lack of awareness and the need for communication behavioral change  |

Source: Based on conducted study.

According to the study (both surveys and interviews) the most important opportunities for cities are stakeholders' willingness for cooperation, as well as a good and long cooperation with them. It shows that a local authority, even though it is one of the most significant city logistics' stakeholders, cannot improve passenger and freight transport in a city without cooperating with other stakeholders. Therefore, the lack of cooperation can be a threat. If stakeholders are not opened for cooperation in the field of city logistics then it is very difficult or almost impossible to introduce some solutions in this field. The other threat highlighted by the most studied cities is the lack of standards on data collections. Without information in real time on problems and activities undertaken by various stakeholders in the field of city logistics it is very difficult for strategic and tactical decisions to be made by a local authority.

During the interview the problem of the lack of funds especially for implementing measures related to freight transport was also highlighted. In many cities freight transport is still treated as a 'private problem' not a 'public problem'.

## 4.2. Framework for city logistics development

Opportunities and threats introduced in Table 1 can appear at various stages of a city logistics development process. The framework for city logistics development from the perspective of a local authority, including opportunities, and threats has been introduced in Table 2. The framework includes ten levels and has been developed on the basis of a study and interviews conducted with representatives of local authorities in Berlin and London. In order to make the tool easier and more readable for each level a set of questions has been introduced. The framework description is combined with a study of the results conducted in twelve EU capital cities.

**Table 2.** Framework for city logistics development from the perspective of a local authority

| Title of the level  | Describing questions (selected)   | Opportunities  | Threats                    |
|---|---|----------------|----------------------------|
| <i>1</i>  | <i>2</i>  | <i>3</i>       | <i>4</i>                   |
| Formal and organizational potential for city logistics development  | <ul style="list-style-type: none"> <li>• Has a local authority a passenger and freight transport plan or a city logistics plan?</li> <li>• Has a local authority introduced any regulation related to city logistics?</li> </ul>  | O1; O2; O3; O4 | T1; T2; T3; T4; T5; T6; T7 |
| Introduction of semi-formalized or formalized long-term cooperation with stakeholders                             | <ul style="list-style-type: none"> <li>• Is a local government cooperating with city logistics stakeholders?</li> <li>• Is there freight quality (or city logistics) partnership in the city?</li> <li>• Are all groups of stakeholders involved in long term cooperation with the local authority?</li> </ul>                                  | O1; O5         | T8; T9; T10                |
| Identification of the level of city logistics development in a city   | <ul style="list-style-type: none"> <li>• How many city logistics projects has a local authority (as a leader or a member) implemented in a city?</li> <li>• Is there any monitoring and evaluating system for implemented measures in a city?</li> </ul>  | O6; O7; O8     | T11; T7; T5                |
| Identification and analysis of city logistics problems  | <ul style="list-style-type: none"> <li>• Are there any tools and methods of city logistics problems' analysis?</li> <li>• Are there any standards on data collecting on city logistics?</li> </ul>  | O5; O9; O10    | T8; T2; T12                |
| Analysis of stakeholders' requirements in terms of city logistics   | <ul style="list-style-type: none"> <li>• Are there any tools and methods of analysis of stakeholders' requirements in terms of city logistics?</li> <li>• What is the frequency of analysis of stakeholders' requirements?</li> </ul>   | O5             | T10; T8                    |
| Introduction of scenarios, which include measures for city logistics development in cooperation with stakeholders | <ul style="list-style-type: none"> <li>• Has a city developed scenarios for city logistics development?</li> <li>• What kind of methods were selected for the scenarios' development?</li> <li>• Has a local authority involved city logistics stakeholders in the scenarios' development?</li> <li>• Are those scenarios realistic?</li> </ul> | O5; O3; O1     | T8; T13; T14; T15          |

Table 2 cont.

| <i>1</i>  | <i>2</i>  | <i>3</i>        | <i>4</i>                  |
|---|---|-----------------|---------------------------|
| Ranking of the developed scenarios and measures included in each scenario                                       | <ul style="list-style-type: none"> <li>• Has a local authority developed the ranking of scenarios and measures for city logistics development?</li> <li>• Which scenarios and measures were placed in the top of the ranking?</li> <li>• What kind of criteria and methods were selected for the ranking development?</li> </ul>                    | O3; O5          | T13; T8; T6; T15          |
| Selection of a group of measures for city logistics development as a result of a consensus between stakeholders | <ul style="list-style-type: none"> <li>• What kind of measures were selected for city logistics development?</li> <li>• Has a local authority involved in the decision making process all groups of stakeholders?</li> <li>• What kind of criteria have been used in order to obtain a consensus between stakeholder?</li> </ul>                    | O5; O3; O1; O11 | T7; T8; T14; T2           |
| Development of the monitoring and evaluation tools and plan   | <ul style="list-style-type: none"> <li>• Has a local authority developed the monitoring and evaluation tools and plan?</li> <li>• Has a local authority in cooperation with stakeholders selected a responsible person (persons) for monitoring and evaluating measure implementation?</li> </ul>   | O3; O5          | T8; T9                    |
| Implementation, monitoring, promotion and continuous improvement of city logistics measures                     | <ul style="list-style-type: none"> <li>• Has a local authority in cooperation with stakeholders selected a leader of city logistics measure implementation?</li> <li>• Has a local authority introduced monitoring procedures during measures' implementation?</li> <li>• What kind of promotion tools are applied by a local authority?</li> </ul> | O11; O5; O12    | T2; T8; T15; T16; T11; T7 |

Source: Based on conducted study.

At the beginning of a city logistics development process a formal and organizational potential of a local authority in this field is required. This level refers mainly to long-term plans and regulations related to city logistics. According to the study 8 out of 12 local authorities developed a complex plan for city logistics including passenger and freight transport, 3 other cities are going to develop such a plan within a year and one city (Lisbon) is not going to do it. However, only 5 studied cities have developed a detailed plan for freight transport. It confirms opinions that many cities persist in ignoring freight transport in long term planning. A similar situation can be observed while analyzing working positions dedicated to urban freight transport. Departments dedicated to city logistics are present in only 2 cities. In not one of the studied cities is there a department responsible for freight transport. In most cities these tasks are performed by employees representing various departments such as: transport infrastructure department, transport planning department, transport and environment department, etc.

The formal and organizational potential of a local authority is the fundamental requirement for city logistics development. However, the long term cooperation with stakeholders seems to be significant also, according to the study conducted by Lindholm and Browne [2013]. Unfortunately, among the studied cities only Paris has implemented a long-term partnership with stakeholders. This form of cooperation can be helpful during the next level of the framework relating to the analysis of implemented projects. In the majority of analyzed cities regulations on spatial and time access conditions have been introduced. More sophisticated projects, which require significant funds, were implemented in a number of cities such as: Berlin, Paris, Helsinki and Zurich. In only two cities (in Berlin and Paris) were electric vehicles and night deliveries for urban freight transport introduced. Even those cities which have already implemented many innovative projects can face some problems related to passenger and freight transport. Therefore, the next level of the framework is a city logistics problem analysis. At this stage the access to data on passenger and freight transport is required. However, in the majority of studied cities it is a significant problem. Only three analyzed cities (Paris, Zurich and Helsinki) collect regularly (every five years) the data on freight transport (data on passenger transport are collected in most cities regularly). The other cities do not have access to this kind of data. It causes difficulties in analyzing city logistics problems which should be compared with stakeholders' requirements. The stakeholders' requirements can be analyzed during meetings organized within for example freight quality partnership (e.g. in London). On the basis of city logistics problems and stakeholders' requirements' an analysis of the alternative scenarios for city logistics development should be introduced. Each scenario should include a set of city logistics measures. In the further level of the framework the scenarios and measures can be ranked. In this stage the multi criteria decision making methods (MCDM) (AHP, Electre III/IV, Promethee) or multiple-objective non-linear mathematical programming problems' analysis such as LBS-Light Beam Search [Jaszkiewicz, Słowiński 1994] can be applied. On the basis of this ranking the scenario with relevant measures can be selected. In addition the appropriate tools should be developed for monitoring and evaluating those measures. The final level of the framework includes implementation, monitoring and continuous improvement of city logistics measures. The framework presented in Table 2 has been supplemented by opportunities and threats for city logistics development. They can be helpful for a local authority during the city logistics development process. The awareness of threats and opportunities can facilitate the city logistics development and mitigate or avoid external risk. In order to analyze opportunities and threats more thoroughly local authorities can assess their level of

significance and the impact on city logistics development in relation to each level of the framework. These two assessment values can be obtained on a scale from 1 to 5, where 1 represents low or lack of significance/impact and 5 very high significance/impact. On the basis of these two values a severity index can be obtained by multiplying these two values for each opportunity/threat. In addition a trend and probability for each opportunity and threat can be evaluated. There are three possibilities for trends: increasing, constant and decreasing. Probability can be calculated with the use of quantitative and qualitative methods on the scale 0 to 1, where 1 is certain or almost certain. This tool which is presented in Table 3 can be very useful for local authorities while developing passenger and freight transport. It is important that local authorities do not focus only on their strengths and weaknesses but also on opportunities and threats which arise from the environment.

**Table 3.** The tool for the assessment of opportunities and threats for city logistics development

| Title of the level of city logistics development | Opportunities ( $O_1 \dots O_m$ )/<br>/threats ( $T_1 \dots T_k$ ) | Significance (importance) of the particular opportunity/<br>/threat | Impact assessment of the opportunity/<br>/threat in terms of each level           | Severity index (weight value)  | Trend   | Probability                                |
|--|--|---|---|--|---|--|
| $L_1$  | $L_{1O1} \dots O_m$ to<br>$L_{nO1} \dots O_m$                      | $1 \leq L_{1O1} \dots O_m$ to<br>$L_{nO1} \dots O_m \leq 5$         | 1 – no impact<br>2 – insignificant impact   | Value of significance of the particular opportunity/<br>/threat multiplied by value impact assessment of the opportunity/<br>/threat | Increasing<br> | 0 – low probability                        |
| $L_n$  | $L_{1T1} \dots T_k$ to<br>$L_{nT1} \dots T_k$                      | $1 \leq L_{1T1} \dots T_k$ to<br>$L_{nT1} \dots T_k \leq 5$         | 3 – medium impact<br>4 – significant impact<br>5 – very high (significant) impact |  | Constant<br>   | 1 – very high probability (almost certain) |
|  |  |   |   |  | Decreasing<br> |  |

Source: Based on conducted study.

### 4.3. Discussion

The study conducted by the author shows that many cities in Europe continue to neglect problems of congestion and environmental degradation and do not include freight transport into the city strategic planning. The lack of a holistic approach to city logistics (including both passenger and freight transport) can be also observed in the literature [Lindholm 2010; Lindholm & Browne 2013; Lindholm & Ballantyne 2016; Taniguchi, Thompson & Yamada 2016]. There-

fore, even if there are minor examples of opportunities and threats for city logistics they relate only to freight transport. According to Lindholm's and Browne's study, one of the opportunities for urban freight transport development is a long term cooperation between a local authority and other stakeholders [Lindholm & Browne 2013]. In addition Lindholm, in her other work [Lindholm 2010], has also identified four external factors, which can influence urban freight transport planning, such as: a legal and institutional, financial, political and cultural, practical and technological ones. However, those factors were not analyzed thoroughly. Technological factors, especially big data systems and decision support systems, have been also noticed by Taniguchi et al. as a significant opportunity for urban freight transport [Taniguchi, Thompson & Yamada 2016].

The above mentioned examples show that there are many external factors, which can influence city logistics. The identification of opportunities and threats for city logistics' development can increase an awareness among stakeholders while developing city logistics strategy, implementing measures and as a result of it facilitate city logistics' development. According to Lindholm & Ballantyne [2016], successfully introduced city logistics to strategic planning requires involving elements of due diligence understood as a process of collecting and evaluating information regarding threats and opportunities [Lindholm & Ballantyne 2016]. Due diligence is especially required for thorough analysis of potential measures. It can better accommodate stakeholders' expectations in the field of city logistics, ensure better transfer of their knowledge and build trust among them [Lindholm & Ballantyne 2016]. However, this issue was still only mentioned to freight transport excluding passenger transport and other activities related to city logistics. In the author's opinion the holistic approach (including passenger and freight transport) to the identification of opportunities and threats is required.

## **5. Conclusions**

Many cities continue to ignore urban freight transport focusing mainly on passenger transport. Therefore, the policy in the field of city logistics in many cities across Europe needs to be changed. The study conducted by the author shows that there is a great diversity among EU capital cities in the field of city logistics development. Despite the fact that more local authorities are aware of the necessity of a holistic approach to city logistics development there are few cities which do it in practice. The research shows that the most significant differences between analyzed cities refer to city logistics projects implemented by, or

in cooperation with a local authority. This difference is especially observed in relation to freight transport. The cities where the highest number of projects were implemented are: Berlin and Vienna. These cities also implemented more advanced projects, e.g. the introduction of electric vehicles and cargo cycling in urban freight transport, building city distribution centers for collective delivery to the city center, which required greater investment costs and larger number of stakeholders' involvement. Therefore, both Berlin and Vienna can be also classified as benchmarks in the city logistics development especially for those cities which are the least developed in this field: Riga, Athens and Tallinn. However, the limited number of respondents in the research, do not show all the cities which can be benchmarks for city logistics development.

The development of city logistics requires from local authorities various activities related to strategic planning in cooperation with stakeholders.

The research results introduced in the paper make a contribution to the theoretical and practical knowledge on city logistics development. The author's concept of the framework for city logistics development with the inclusion of threats and opportunities and the set of questions can facilitate the process of planning and implementing city logistics measures. In addition, the authorial tool for the assessment of opportunities and threats for city logistics development allows for the calculation of a severity index for particular opportunity/threat in relation to each level of the framework. Bearing in mind knowledge about severity indexes and trends (increasing, constant and decreasing) local authorities which are related to them can avoid or mitigate risk arising from the environment. Both the framework and the tool has also enriched the theoretical background for city logistics strategic planning.

For the further research the author is planning to analyze more thoroughly other factors influencing city logistics development as well as to elaborate the concept for city logistics strategy, including procedures and tools.

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