

ANALYSIS OF SELECTED BARRIERS OF IMPLEMENTATIONS OF CITY LOGISTICS PROJECTS

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Summary

City logistics is the remedy to the problems of urban transport. But it turns out that in the implementation of projects występują barriers and problems. The following analysis presents the types of factors and areas that may pose a threat to the success of projects related to the wider city logistics.

Keywords

City logistics, barriers, logistics projects

1. Introduction

Civilizational changes and economic development influence the way settlements function. The growing popularity of an urban lifestyle, architectonic changes and urbanization, as well as the development of motorization which facilitates mobility are the factors mainly responsible for communication and logistical problems in contemporary cities. Transport inefficiency, congestion, often leads to communication paralysis, as well as wasted time on the part of commuters, and an increase of costs – including logistics costs. This, in turn, negatively affects the quality of life of residents as well as urban development and functioning potentials. Countermeasures must surely be taken to neutralize the aforementioned problems.

Urban logistics is a remedy for communication problems. Its tools and solutions along with the cooperation of beneficiaries and zoning planners for the better good of the city can lead to the elimination of communication difficulties and the creation of modern, user-friendly and ecological sites. Unfortunately, the conclusion that can be made based on previously implemented concepts is that perceptions and ideas do not always work, often cannot be implemented, or projects fail in the trial phase,

with no reasons being given for their failure. Without doubt urban logistics is extremely important for the development of contemporary cities, yet the reasons behind failed implementations should be identified, analyzed and classified. The criteria of choosing a city as a field of economic relations or place of residence require that the city fulfills investors' expectations and conditions. Inefficient communication routes, unfriendly and polluted cities are not attractive: the more urban logistic concepts are implemented in a city, the more urban logistics tools and instruments are utilized within city, the more attractive the city becomes to investors.

2. City logistics

Most city logistics definitions can be found amongst the works of German authors. This seems to be due to the diversity and number of implemented concepts and the fact that the first logistics-related endeavors were initiated in Germany in the 1980s. Cities and their residents are strictly connected which is why logistics concepts treat cities as social, urbanized terrains, economic trade centers, whose economic infrastructure should be wisely utilized [1], and managing a city as a logistics system should incorporate economic, ecological and social factors. The implementation of logistics concepts thus requires an interdisciplinary approach, and includes issues from a wide range of fields, as well as knowledge of logistic activities of related entities and an ability to foresee the consequences of project strategies on residents and the cities themselves. It can also be said that city logistics activities include [9]: planning, realization and control of the logistics flow: flow initiated outside and directed towards cities, flow initiated in cities and directed outside, flow passing through cities, flow within cities and correlated flow of information. From the theoretical perspective, in order to accept and thus implement urban logistics concepts and projects one must first become acquainted with the structure of economic and social relations within a given area. This includes the needs of residents and economic entities, goods entering into and leaving the city, connections between suppliers, intermediaries and merchants, forms of cooperation, number of transportation-related activities, and the specificity of a given region [6]. Once the abovementioned data is obtained, logistics concepts will be efficient, effective and economical. Yet, as can be de-

duced from observing other implemented projects, barriers standing in the way of project implementation should also be identified, and the knowledge, experiences and mistakes made by other cities utilized.

Based on the functional division of logistics systems made by H. Ch. Pohl [5] and the logistical division of cities outlined by J. Szołtysek [8], we can distinguish subsystems of the urban logistics system, which serve as urban logistics concepts: the subsystem of material goods transportation, individual and group transportation, transportation and storage of material goods and communal wastes, management of the flow of material goods and persons. A characteristic element of many German definitions is indicating the collaboration of entities participating in the process. This collaboration is extremely important, as understanding roles, advantages and costs of participation can lead to a concept's success. An element that links the definitions is synergy via interrelatedness [2]. This idea contains the essence of the creation of urban logistics systems, regardless of the scope of a given idea. Here the field of interest is the flow of goods, understood as the effective supply, storage and transport of material goods within a given city, and encompasses transportation methods suited to meet the needs of given products, product quantities, transportation time, and transportation distances, with regard to ecological and environmental factors [3]. In many cases it is a system of common, interrelated means [7], leading to the increase of transportation effectiveness within a given city (including the transportation of passengers). The definitions focus on supplying residents and institutions with goods and services using technological means and transportation systems, with the use of scientific planning methods and mathematical logic [4].

3. Identifying factors hindering the implementation of solutions

The first and most significant factor used to counteract urban logistics implementation obstacles is understanding its principles and area of impact. A common mistake is assuming that logistics can be used solely when planning the transport of loads. An argument used here is independence and freedom to choose means of transportation, route and time of travel. The argument is correct, yet it is possible to convince, suggest and solicit changes in transportation habits of residents, tourists

and other beneficiaries, using logic. The principals of urban logistics are based on activities undertaken for the common good in order to improve the living conditions in cities and are a source of solutions for passengers. Many solutions, especially those pertaining to infrastructure, are interrelated, and impact both residents and the transport of goods, perfecting both commuting quality and transportation flow. Telematics solutions can be used as an example, including changing signs which inform of difficulties on the road, traffic, accidents, and give information concerning alternative routes. It can thus be concluded that an obstacle in the way of urban logistics implementation is lack of awareness, lack of knowledge on the subject, traditional thinking, lack of logistical assessment of problems and unwillingness to change opinions concerning the matter. This type of approach is simple, does not require the application of any means or openness towards the implementation of new and modern solutions. The social aspect cannot thus be disregarded, no matter what the project entails, as projects are based on people and are created and implemented for them.

Project implementation can be hindered by avoidable and unavoidable factors. Hindering factors can be classified into four categories: legal, political / administrative, economic and social. Such foresight allows those implementing concepts to understand projects: and calculate implementation possibilities – partial, complex or restraint from implementation. Avoidable and unavoidable factors depend of project type, category and characteristics. They will be different for self-government bodies, different for company owners, and different in the case of public-private partnerships. Table 1 outlines these factors.

Both identification and avoidability vary from project to project. Projects initiated and financed by private companies may be hindered to a larger extent by legal norms or administrative limitations: concepts will thus have to be modified to meet norms or certain elements will have to be eliminated. Self-government bodies will have larger problems dealing with economic barriers.

As these entities utilize public funds it will be much more problematical to find arguments for the necessity to implement a given project.

Table 1. Avoidable and unavoidable factors limiting the implementation of urban logistics concepts

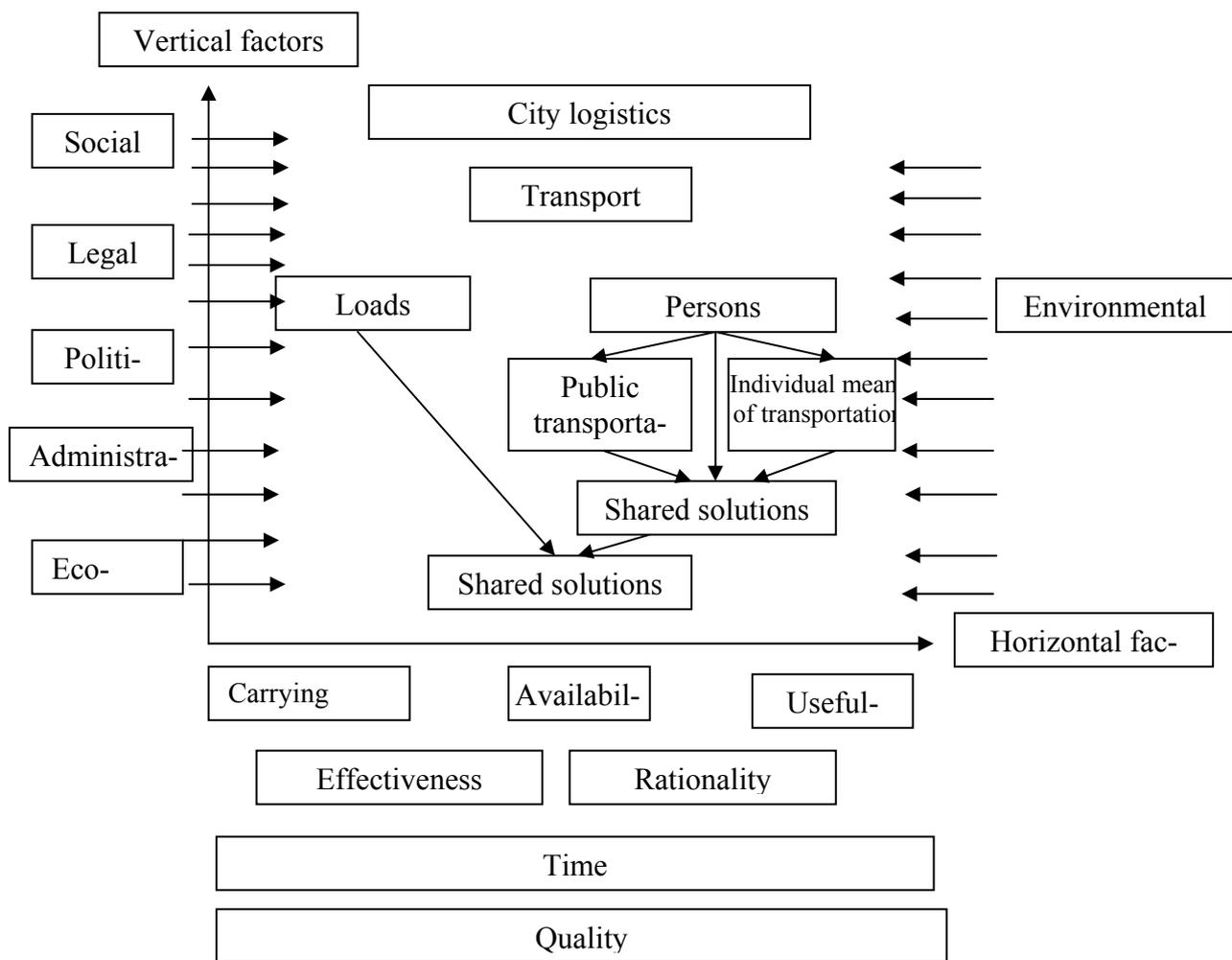
Criterion	Social	Political / administrative	Legal	Economic
Initiating unit				
Self-government authorities	Avoidable after consultations and through awareness of needs	Avoidable with the proper support of decision-makers, political willingness, acceptance of concepts and swift changes, as well as political support	Avoidable with modification / interpretation of legal regulations	Depending on the project: unavoidable during economic crises, lack of funding, avoidable with e.g. EU support
Business owners	Avoidable though limited by project finances, and relations between business owners participating and those not participating in concepts	Often unavoidable. Linked with lack of will to cooperate, bypassing objections of privileged entities, lack of political will to support business initiatives	Unavoidable to a large extent	Avoidable
Joint solutions	Avoidable	Avoidable	Avoidable	Avoidable

Source: author's own research

These elements cannot be fully avoided. Yet bypassing these obstacles is a task for project initiators. It can generally be concluded that the most advantageous solution would be the cooperation of both these entities. Each factor forming an obstacle can be bypassed. As indicated in Table 1, most limiting factors can be avoided under certain conditions.

Other factors standing in the way of project implementation are endogenous and exogenous factors, both horizontal and vertical. Based on this interpretation a hierarchy of obstacles can be created, or a hierarchy of elements facilitating the im-

plementation of urban logistics concepts. Horizontal obstacles will include: time, availability, effectiveness, quality, usefulness, economic factors, whilst vertical aspects effect (in general and from above) the presence of obstacles: these are political /administrative, legal, economic, environmental and social aspects. Transportation related obstacles are considered in Illustration 1. Classification of endogenous and exogenous obstacles is relatively easy, as these depend on the project itself. In projects initiated by public administration units endogenic barriers include: political and legal factors, whilst exogenous obstacles include social and economic factors.



In the case of projects initiated by economic entities, companies or employment groups formed in order to complete a given task, the situation can reverse itself, though not entirely. Interior factors can include economic aspects, abundance of funds and economic effects after implementation. Social obstacles can be both endogenous and exogenous, as organizations want to work on behalf of society – in ac-

cordance with the principals of substantiated development – yet society as the beneficiaries must accept solutions proposed by organizations. In the case of political, legal and administrative factors, there is no doubt that these are exogenous, as via the activities of administrative bodies urban logistics can be hindered or supported. The public initiative is yet to be considered, as actions aimed at improving the quality of the natural environment and the development of “clean” transportation. Public involvement can effectively initiate solutions and become an endogenous factor, facilitating urban logistics, yet it can also become a barriers.

In conclusion, avoidable barriers can be assessed as helpful elements, whilst unavoidable barriers will always hinder project implementation. Horizontal and vertical factors can also be classified as either helpful during the project implementation process, or can hinder the process.

4. Barriers and limitation matrix

Concepts, models or solutions can be categorized based on practical experiences. Distinguishing universal actions from dedicated actions and the possibility to echo actions indicates the potential and implementation possibilities of urban logistics. Obstacles cannot be underestimated. Positioning concepts enables an assessment of adaptation capabilities: the more universal a given solution is the more implementation possibilities it offers in cities. Universal actions include solutions implemented in most documented cases. Solutions linked with the expansion, reconstruction or efficiency of transportation infrastructure are universal solutions, dedicated modifications are linked solely with e.g. architectural specificity of towns. The concepts, ideas and implementations themselves do not vary from town to town. Such universal solutions will be positioned towards the top of the hierarchy, as the utilization of implemented solutions should not cause too many problems. Funds are the only obstacle here. Funds are necessary, whether we are analyzing the situation from the social, administrative or environmental perspective, and should not hinder urban logistics. Of course the more modern and advanced the technology the better (area and scope depend on the specificity of a given town), yet these projects are universal.

When considering concepts from a methodological perspective, it is necessary to indicate fields of conflict, as this is where our obstacles lie. An example of these fields can be the various forms of transportation sharing the same roads (i.e. passenger and load-carrying transportation). These forms will always be in conflict, as they are obliged to share the same infrastructure, yet there are systemic solutions which can eliminate most negative side-effects. These include restricting vehicles weighing over 3.5 tons from entering city limits – especially city centers (Bremen), entry only for vehicles participating in supporting urban logistics (Bremen, parts of Berlin and Munich), areas with low speed limits, restriction of hours during which trucks can enter cities (Munich), restricting passenger cars from entering city centers, fees for entry, P&R parking systems, combining parking passes with public communication passes (Berlin, Munich, Cologne, Hamburg, Freiburg). It is impossible to eliminate all traffic from cities, but there are tools which can sufficiently limit it. Fields of conflict can also be successfully eliminated via thought-through and implemented urban logistics concepts.

Systemic solutions are being successfully implemented in German cities, and should thus be used as examples to demonstrate what can be done to improve the situation on urban roads: Polish cities, unfortunately, must face problems linked with poor quality and insufficient infrastructure.

With German cities as examples, it is possible to create a matrix of obstacles and barriers, keeping in mind that although some concepts seemed beneficial in theory, in practice they did not always bring desired effects (Table 2).

By interpreting the definition of urban logistics and concrete, implemented projects, it is possible to create a hierarchy of problems, obstacles and limitations.

These are of importance for various project initiators, yet issues relating to limitations and problems often overlap, independently of the initiating party.

By analyzing implemented projects it is possible to avoid the mistakes made by other cities.

Table 2. Matrix of urban logistics implementation barriers

Obstacles / limitations	Obstacles in implementing urban logistics	Impact on:			Characteristics
		Self-government authorities	Private businesses	Public space users (tourists, residents)	
Social	YES	No	Sometimes	Yes (lack of popularity is linked with lack of implementation or acceptance)	Reluctance, lack of knowledge, lack of information on the subject, lack of awareness of the need to change, especially pertains to environmental changes and substantiated development principals, often solutions are not popular, i.e. fees for access to infrastructure
Legal	YES	Yes, (but there are adaptation possibilities)	Yes	Yes (can efficiently limit project implementation)	Out of date regulations, long legislative processes, bureaucracy
Political / administrative	YES	Yes	Yes (solution implementation depends)	Yes (especially in the context of)	Reluctance to change, term of

			on consent)	encouragement / participation of businesses)	office, fear of the consequences of unpopular solutions (political failure), necessity to spend funds on the popularization of solutions
Economic	YES	Yes (often difficult to bypass due to lack of funds)	Sometimes (eliminated if economic effects appear)	Yes, (if additional costs must be incurred)	No quick effects, high expenses, no guaranteed profits, possibility that only social benefits will ensue, solutions cannot fully be translated into economic effects

Source: author's own research

5. Conclusion

By interpreting the definition of urban logistics and concrete, implemented projects, it is possible to create a hierarchy of problems, obstacles and limitations. These are of importance for various project initiators, yet issues relating to limitations and problems often overlap, independently of the initiating party. By analyzing implemented projects it is possible to avoid the mistakes made by other cities. An analysis of projects implemented in German and Polish cities indicates that often projects which appear ideal and provide economic results for participants are unsuccessful.

There are many reasons for project failures, the most prominent of which are lack of understanding, lack of activity, lack of willingness and adequate interpretation of needs.

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