

## Flash deliveries: value adding business model or societal nightmare?

### *A qualitative research on the effects of flash delivery on the livability of Amsterdam*

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**Abstract** - Flash delivery is a new concept, which has experienced significant growth in a short period of time. In Amsterdam you can no longer avoid it: dark stores, flash deliverers on e-bikes and attractive advertisements - they are everywhere. However, little is known about the impact of this trend on the livability of the city. In this paper, the societal impacts of flash deliveries on defined livability criteria are estimated, and insight is provided into the policy implications of these expected impacts. A System Diagram is made as visualization of the concept and its effects. The impact estimations in the diagram are gathered through a literature study on mostly grey literature and extended and validated via expert interviews. Consequently, a focus group session with the municipality and independent consultants was organised to gain insights into possible policy options. This paper concludes that the impact of flash deliveries can be large and possibly negative if not well regulated. However, there are prioritized policy instruments that have the potential to improve the impact of flash deliveries on the livability of cities.

**Keywords** - *Flash delivery, e-grocery, livability, innovation implementation, policy instruments*

#### A.1 INTRODUCTION

In the online grocery segment there are remarkable growth trends going on. Companies claim to deliver groceries within 10 minutes at their customer homes [2021, 2021; Getir, 2021; Ltd., 2021; B.V., 2021]. This super-fast grocery delivery, also called 'flash delivery', is a hype among millennials in the big cities of Europe [Bronzwaer and van Verschuer, 2021]. It is an attractive market to new and technology-driven players, while being a threat to the incumbents in the more traditional non-delivery food, grocery and hospitality industry [Seghezzi et al., 2021]. It is a useful, fast service for those who have forgotten an ingredient while cooking, have no beer at home during a football game, or simply don't feel like going to the supermarket themselves. In order to deliver groceries to a customer home in such short notice, dark stores are required. This has been subjected to controversy in both the public opinion as the press, as nuisance is caused in neighborhoods regularly [Hoeks, 2021; Beijen, 2021].

Based on these signals, a motion is created that state extra research should be done towards the effects of flash deliveries as it remains unclear what the specific effects of this new trend are on the livability of cities [Ijmker et al., 2021]. Also, the motion emphasizes the lack of regulation so far. Given all this commotion and haziness, a lack of literature and research on this topic, and expressions of municipalities for more knowledge on this topic [Ijmker et al., 2021], it is important to do research on the societal impacts of flash deliveries on the livability of cities, and how municipalities can react best to these developments.

##### A.1.1 Research objective

The objective of this research is therefore, to fill this knowledge gap by performing explorative research on the effects of and necessity to regulate on flash delivery based on the livability criteria of cities. This research will pioneer in creating scientific research on this

topic. To achieve the goal described, the main research question is constructed:

*“What are the effects of flash deliveries on the livability of cities? And which policy options can be used to improve the balance between the negative and positive societal impacts?”*

To answer this question, a set of livability criteria are defined to see which societal impacts are most relevant for a livable city. The impact of flash delivery on these criteria is visualized in a holistic overview. Based on this, policy options are gathered and analysed to balance the negative and positive societal impacts. All together, this research can serve as framework for municipalities and retailers on how to respond and work with this new phenomenon in the future.

## A.2 METHODOLOGY

As mentioned, an explorative, qualitative approach is used. A qualitative approach fits the objective best, as it helps to 1) describe a situation including its possible causes, solutions, potential risks, uncertainties, hypotheses and constraints, 2) understand small details on circular causality, and 3) show the dynamic system. In addition, due to a lack of quantitative data, as it considers a new concept, qualitative research suits best.

The first research step includes literature study to define the livability criteria for Amsterdam, as literature shows that livability appears to be interpreted differently within different contexts [Thorborg et al., 2006]. The living environment is multidimensional, whereby the interpretation may differ per (scientific) discipline. It is recommended to make choices in the breadth and depth of what is meant by quality of life (i.e., what is included and what is not) and to be explicit about this [Thorborg et al., 2006]. Hereafter,

the state-of-art of flash delivery in Amsterdam is explored via (grey) literature as well.

The second research step uses qualitative system dynamics to compile all societal impacts of flash delivery known in literature. System dynamics is a method that extends beyond conventional domain of systems approach to large-scale complex engineering problems [Tang and Vijay, 2001]. It deals with interaction of various elements of a system in time and thereby provides insights into the dynamic behavior of systems over time. This dynamic behavior explains delays and feedback in the system. As the research objective of this research is broad and complex, this tool is suitable to offer a comprehensive overview of the existing mechanisms.

Semi-structured interviews are used to expand and validate the effects of flash deliveries found in literature and visualised in a conceptual system diagram. In total eight interviews were held with thirteen experts including independent experts and employees of the city of Amsterdam. Based on these interviews, it was checked whether the initial system diagram based on literature study is correct, complete and matches the practice. New insights were gathered and a final aggregated framework could be made.

The third research step include a focus group with the municipality to discuss suitable policy options for flash deliveries to secure the livability of Amsterdam. As the essential purpose of a focus group research is to identify a range of perspectives on a research topic [Hennink, 2013], and to gain rich, detailed data [Carey and Asbury, 2016] it suits this research step best. During the focus group there were no right or wrong answers, therefore interesting policy options came to mind. Based on these options a discussion started on the impact and feasibility of these options, which led to relevant insights.

The full research approach is shown in figure A.1.

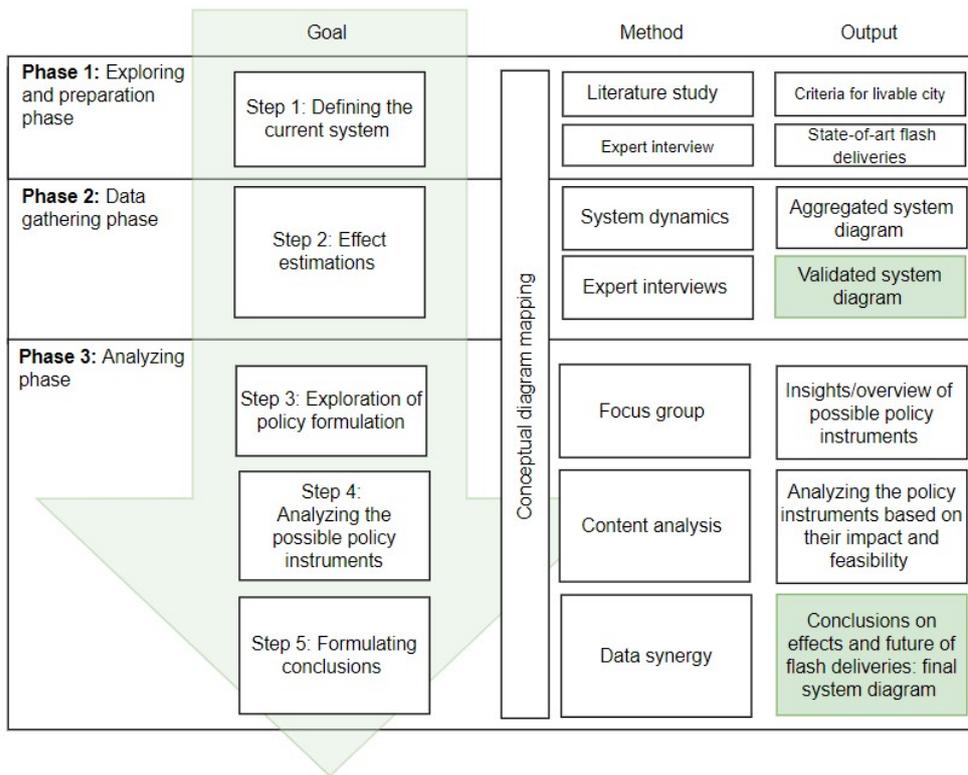


Figure A.1: Research Approach

## A.3 RESULTS

The first analysis resulted in a set of livability criteria, shown in figure A.2. These criteria are used as criteria to measure the societal impact of flash deliveries on. Based on the literature study, the state-of-art of flash deliveries in Amsterdam could be defined as well. These analysis show that there are 31 dark stores and approximately 2.800 deliverers in Amsterdam. In addition, 26% of the population made use of the flash delivery services already in 2021. More than half of the population in big cities is considering the service.

The results of the qualitative system dynamics are shown in figure A.3. From this framework, based on literature and insights from thirteen experts, it could be learned that flash deliveries have mainly impact on the transport system, the public space and on social interaction within the city. Most of the impacts are negative. Based on this, it seems interesting to explore possible policy instruments for the municipality to respond accordingly.

The focus group held resulted into an overview of 27 possible policy instruments to use. These instruments are analysed based on two criteria. First, the impact of each instrument on the livability criteria are determined by following the aggregated frame-

work. The degree of impact could not be taken into consideration, as this could not be substantiated scientifically. Secondly, the feasibility of each instrument is determined based on time and resources required for implementation. Based on both criteria, all instruments could be divided into four quadrants. The most relevant quadrant included the prioritized instruments with high impact and high feasibility. These prioritized instruments are (in random order): 1) compulsory e-bike training, including certificate for successful participants before being able to work as deliverer, 2) Relocate or assign the locations of dark stores, 3) Ban new dark stores from establishing, and 4) Start (moral) discussion within the municipality, and between flash delivery companies and the municipality, and 5) Combine delivery trips with other targets groups, e.g. deliver medicines in same trip to improve the social relevance.

The first prioritized instrument could solve negative effects in the transport system. Instrument two and three, could solve the negative impacts on the public space in the city. Instrument four and five could help to improve the social relevance of the concept and could start the moral discussion within the municipality and between the municipality and the flash deliverers to set clear limits about what kind of city they want to be and

what the desired amount of convenience is. Important note on these prioritized instruments is that separately they are not able to balance all negative and positive societal impacts. Together they might balance all societal impacts. However, according to [Howlett, 1991, 2009; Howlett and Wellstead, 2011] more analysis are done to see if instruments can be used simultaneously, without e.g. counterproductive side effects.

## A.4 CONCLUSION

All in all, this research shows that besides the convenience flash delivery offers, the concept also has negative societal impact on the livability of cities when not regulated. Based on the amount of negative impact on the livability criteria, the concept may lead to a societal nightmare without regulation. As the negative effects are mostly related to the transport system and public space, these areas are the best place to intervene as municipality. For the effects on the social system, it first needs to become clear what the moral limits are convenience in the city. The five prioritized instruments suggested, could help decrease the negative effects and improve the social relevance of the concept. This could change the concept from a societal nightmare into a value adding business model.

## A.5 DISCUSSION

This research triggers and challenges further research and discussion. For example, what if there will be looked further than only regulations or restrictions? If the municipality start to collaborate with these innovative tech companies? This is not researched in this paper, but could be an interesting option as well as flash deliverers gather a lot of relevant data about the inhabitants of Amsterdam. This data could be used for the municipality to help build their online landscape. In addition, these flash deliverers strive for a certain degree of convenience. But, what if this degree of convenience is not desired? What if the perfect amount of convenience in a city is already achieved? Or maybe there is a broader picture behind the flash deliverers. Since the companies have a major impact on e.g. the news, social interaction, economics, society, they may also chase for a fundamental change in the economic foundation of a

city. These thoughts and discussion could go on and on, and further research is required to create scientific research to hold on to.

### A.5.1 Recommendations for further research

Besides before mentioned thoughts on further research some concrete suggestions are be made as well. It would be useful to conduct a similar research again in one or more years' time. When the disruptive characteristic of the market has become more stable, and the flash delivery companies have been in operation for longer, more specific and reliable conclusions can be drawn on the effects of flash deliveries. Alternatively, a quantitative study based on data could be valuable to objectively substantiate the effectiveness of potential policy instruments for flash deliveries.

In addition, there are still many other unexplored parts on the topic. To best of the author's knowledge, some interesting not yet researched topics are 1) the competition between on-demand e-grocery and on-demand food delivery, 2) a comparison between earlier market disruptions and the market disruption of flash deliveries, and 3) the impact of the used promotions on the adaption rate. All these recommendations for further research are relevant for scientific literature as well as for society.

### A.5.2 Recommendations for policy makers and retailers

For the municipality of Amsterdam, it is recommend to start further research on analyzing the prioritized instruments retrieved in this research. This is relevant, as it is concluded that flash deliveries impact livability criteria negatively and the municipality is responsible for guaranteeing the livability of the city. Additionally, it is recommend to start a moral discussion to better represent the city when a similar situation arise and to keep the framework up-to-date.

For retailers, it is recommend to consider social relevance while making any adjustments in their concept. From the findings it can be learned that public perceptions are influenced by it, which could decrease the amount of orders placed. Also, it is recommended to be open to moral discussions with the municipality. By understanding each other better, a future proof business model can be created.

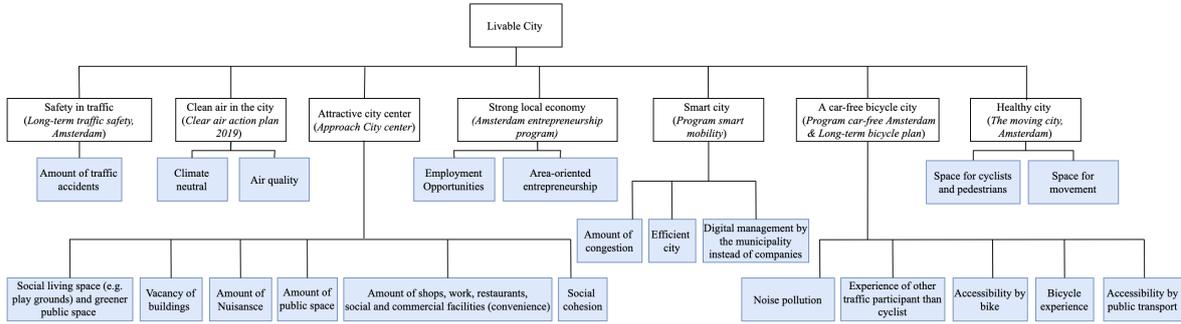


Figure A.2: Livability criteria for Amsterdam

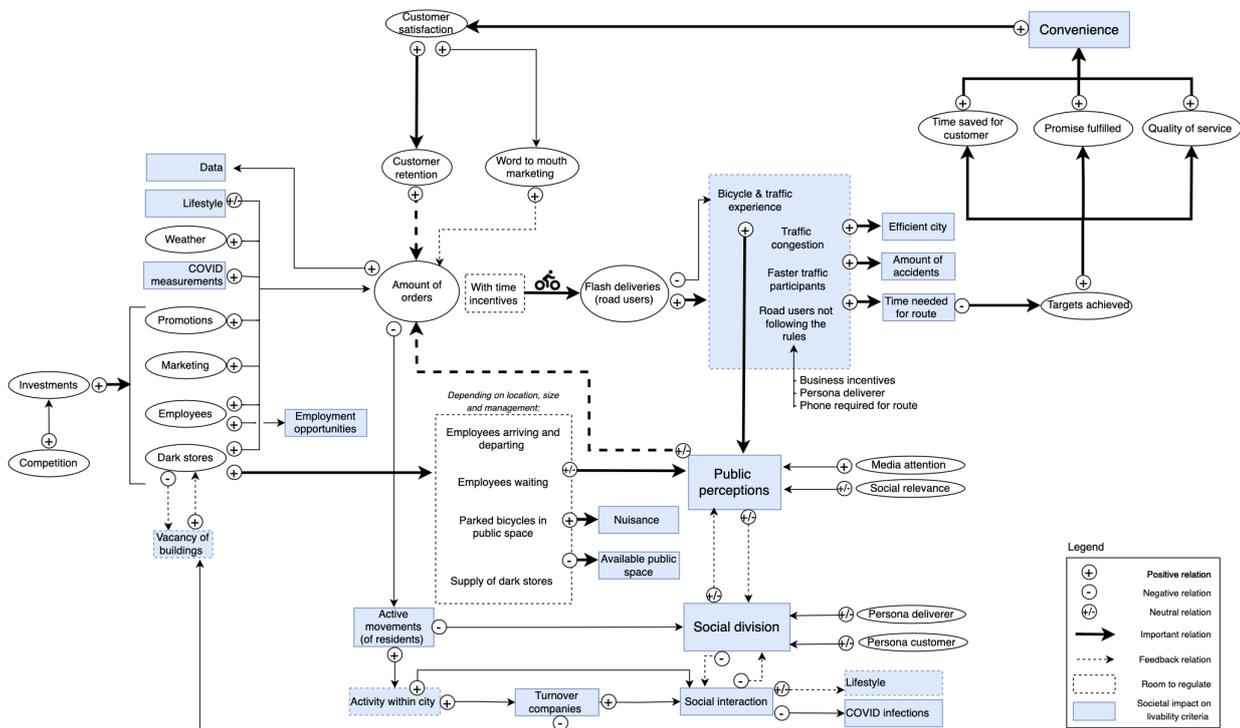


Figure A.3: Final System Diagram



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