Chapter 11
FriendFreight:
Leveraging Real-Time Location Information for a Sustainable Community-Based Goods Delivery Service

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ABSTRACT

The relatively new ability to rapidly transfer digital information to people as they move through cities opens up exciting possibilities for services that alleviate some of the issues that dense urban centers face. This chapter examines the potential for one such service – named FriendFreight – to reduce some of the negative effects of goods transportation in cities. FriendFreight operates through exploiting the real-time location information of people and goods and the ability for members of a community to deliver items for others while moving through the city themselves. It aims to lower the number of 'unnecessary trips' that people make to obtain some small goods - groceries, books, documents and dry-cleaning - and reduce what we define as travel demand in the city. However, the success of such a service relies not only on accessing real time location information but also on an understanding of how and why people might deliver goods for each other. Thus, this chapter explores two things: how incentives, trust and reciprocity can be built in services that harness digital information; and how the feasibility of a service like FriendFreight can be established given a particular real world context - Copenhagen and bicycles. Through this, the authors show that access to real-time location and movement information can open up innovative ways of tackling problems in cities from the 'bottom-up' but that essential to this is the nurturing of trust between users of the service. They also demonstrate that it is possible to achieve a significant reduction in travel demand through using FriendFreight for certain types of goods in the context of Copenhagen.

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Figure 1. Common images of dormant freight capacity

INTRODUCTION

There exists an untapped resource in cities: the 'freight capacity' of the vehicles that we use to move around during our daily routes. Our own bodies are the simplest example of a vehicle with 'freight capacity' and we use them for carrying the items that facilitate our daily lives. Similarly, the baskets and racks on bicycles, the trunks and backseats of cars and the storage boxes on motorcycles have an inherent ability to transport items. However, for most of us, most of the time we move around carrying nothing but *pockets of air* in these containers and the *potential* to carry things should the need arise. (Figure 1)

While during our daily routines we are moving large amounts of empty space back and forth, there are teams of people in delivery companies that are dedicated to moving freight across cities. Given the sheer scale of intra-city logistics needs, some small goods such as groceries, books, documents, and dry-cleaning are nearly always likely to be headed in the same direction and to the same general location as we are.

Until recently, there was no way to utilize the available freight capacity of private vehicles to facilitate the movement of small goods in a city. However, the technical constraints for pinpointing people and goods are rapidly disappearing. In terms of people, stringent regulations on location requirements for emergency calls on the 3G network, such as those required by North America's FCC has meant that as of 2003 in 67% of cases mobiles must be able to be located to the nearest 50 meters (using handset-based positioning) and to the nearest 100 meters (for network-based positioning) (Adams, Ashwell, & Baxter, 2003). These types of regulations – although technically difficult at first – have had the additional benefit of creating a stable platform for all sorts of reasonably priced (or free) location based consumer services. Additionally, with real-time inventory software becoming available in stores and the sales of smart phones with applications that allow you to quickly locate the items you need, locating goods that require delivery is becoming easier. Thus, an opportunity now exists: to coordinate the journeys of people and the untapped freight capacity of their personal vehicles with the delivery trajectories of goods.

In this chapter we propose a scenario for a service – what we name FriendFreight – that can take advantage of the dormant freight capacity of one type of vehicle, bicycles, in order to deliver small goods to others in the city of Copenhagen. The aim of the service is to reduce the number of 'unnecessary trips' that people make to obtain some everyday items and in turn to lessen what we define as *travel demand* in the city. This results in a reduction in the amount of energy expended by

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