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Document Version
Final published version

Published in:
Proceedings of the Ninth International Conference on City Logistics

DOI:
10.1016/j.trpro.2016.02.032

Publication date:
2016

Available online at www.sciencedirect.com

ScienceDirect

Transportation Research Procedia 12 (2016) 787 – 799

Transportation Research Procedia

www.elsevier.com/locate/procedia

The 9th International Conference on City Logistics, Tenerife, Canary Islands (Spain), 17-19 June 2015

Value co-creation in the interface between city logistics provider and in-store processes

Britta Gammelgaard, Christina B.G.Andersen, Jesper Aastrup*

Department of Operations Management, Copenhagen Business School, Solbjerg Pldas 3, 2000 Frederiksberg C, Denmark

Abstract

This paper develops a framework for understanding how city logistics service co-creates value with users. The users' perspective in city logistics research is limited, and value added services are rarely emphasized. The framework developed is based on literature on value in business markets, and in-store processes. Two case stores and their use of city logistics demonstrate how value is co-created when changes in delivery patterns and value added services affect especially the use of store employees. Further, we show that there is a barrier to the co-creation of value when services get close to core activities in-store operations.

Peer-review under responsibility of the organising committee of the 9th International Conference on City Logistics

Keywords: Value co-creation; In-store processes; value-added logistics; UCC

1. Introduction

City logistics based on Urban Consolidation Centres (UCC) have been tested in many European cities (Browne et al, 2005); often without the success that stakeholders expected and wished for. One reason for this may be that projects have not emphasized the needs of users. As a business model for city logistics is presently lacking (Pålsson, 2014), this paper seeks to contribute to such a model by emphasizing how city logistics providers potentially co-create value with users.

* Corresponding author. Tel.: +45 3815 28; fax: +45 3815 2440.
E-mail address: bg.om@cbs.dk

Peer-review under responsibility of the organising committee of the 9th International Conference on City Logistics
doi:10.1016/j.trpro.2016.02.032

This paper deals with the possible business benefits and value drivers of stores as users of city logistics. City logistics users have been a rarely treated actor group in city logistics literature. Users of UCCs represent an important stakeholder as they, according to e.g. van Rooijen and Quak, (2008) can choose whether or not delivery in cities has to be made via a UCC. Thus, *benefits for users* is a mechanism for attracting necessary freight volumes for UCC based systems. However, only few contributions outline possible value adding services from UCCs (e.g. Browne et al, 2005; van Roijen & Quak, 2008; Aastrup et al., 2012), and only a few contributions take a users' perspective (e.g. Hvass & Teilmann, 2012; Pålsson, 2014, Hofenk, 2012), and no-one the interface between logistics service provider and store. The value adding processes in city logistics schemes seem to be poorly understood.

In this paper we therefore analyze value drivers for stores from using city logistics services. We address both the value of the basic delivery parameters as well possible value adding services. Theories of value in business markets, co-creation of value and models of in-store logistics and operations will be applied to get this deeper understanding of the interface between city logistics service provider and store/consignee and therefore how value is co-created.

The purpose of this paper is to develop and exemplify a framework for understanding how activities and services can add value for users and consignees in city logistics schemes based on UCCs. This is captured in the research questions below:

- How do value adding services co-create value in the interface between city logistics provider activities and in-store processes?
- How value adding services affect in-store processes and resources? Which benefits and sacrifices are perceived by users from these activities?

Section two introduces city logistics literature addressing UCCs and the users' perspective. Section three develops a framework of potential UCC based value drivers for stores using city logistics. Section four presents the findings from two case stores, both users of city logistics services in Copenhagen. Section five and six discuss the findings and conclude the paper.

2. City Logistics and value adding services

City logistics is about having an urban geographical perspective on the supply and distribution chains generating traffic activity in cities, and to regulate, organize and consolidate those activities, i.e. a destination perspective (van Rooijen and Quak, 2008). City logistics can be defined as *"all co-ordinated measures comprising logistic collection and delivery activities of logistic service providers in urban areas…"* (BESTUFS, 2007).

The definition of city logistics does not necessarily imply the use of consolidation centres. However, this research will address city logistics schemes based UCCs. The basics of a UCC is to separate the distribution activities in and out of the urban area from the distribution activities to and from the urban area. We use the term UCC as*: "a logistics facility that is situated in relatively close proximity to the geographic area …. from which consolidated deliveries are carried out within that area. A range of other value-added logistics and retail services can also be provided at the UCC."* (Browne et al, 2005).

The potential gains typically addressed is environmental and social benefits as result of factors such as reduction in vehicle trips in the city, fewer trucks, better utilization and consolidation of vehicles (Browne et al, 2005; BESTUFS, 2007; Quak, 2008). The raison d'etre of UCC schemes lies in activities of *consolidation and transshipment* also crucial in the definition above. Through consolidation activities the number of vehicles in the city can be reduced, and through transshipment the freight will be transferred to vehicles more expedient for city distribution, e.g. lighter/smaller vehicles, vehicles using alternative fuels or perhaps bicycles.

Besides the two crucial activities of transshipment and consolidation, a third element in the definition above is the possibility of supplying value added retail and logistics activities from the UCC. Consolidation and transshipment activities address how to carry out given distribution activities in a more efficient manner when it comes to cost as well as externalities. The value adding activities, on the other hand, address benefits for users that such a city logistics scheme can provide, and they open up for a possibility of reconfiguring logistics activities (Halldorsson, 2002).

These value adding activities have been a crucial part of the city logistics scheme of Binnenstadservice existing in nine cities in the Netherlands (van Rooijen and Quak, 2008). This scheme has been the model for starting up a city logistics scheme in Copenhagen that interacts with the stores studied in this paper. Binnenstadservice took a starting point in the needs of the consignees and their need for simplicity in delivery patterns and value added services. The users of Binnenstadservice simply inform all their suppliers to deliver at the address of the Binnenstadservice UCC instead of at the store address (van Rooijen & Quak, 2008), thus enabling driving into the city with higher consolidation rates and fewer drop points. The business model of Binnenstadservice can be seen as a combination of: 1) a drop consolidation where different deliveries to the same store are consolidated at the UCC so that the user only receive one delivery per day, and 2) a program of value added activities in addition to the basic delivery services.

These value adding services as well as the value they create for users have only been dealt with sparsely in the city logistics literature, and this paper is an attempt to address this gap.

3. A framework for co-creating value between store and city logistics provider

This section develops a framework for understanding the value that is potentially co-created between a city logistics provider and a local store as a user. The first part elaborates on the concept of value in business markets. The second part conceptualizes in-store processes, and finally the third part links potential value added activities from city logistics to this conceptualization of the store.

3.1. Value in business markets

The concept of value has a central role in marketing related fields. It is seen as the essence of the marketing process (Holbrook, 1994; Tzokas and Saren, 1999); as a vital part of relationships marketing (Ravald and Grönroos, 1996; Tzokas and Saren, 1999), and an important constituent of competitive advantages (Woodruff, 1997; Anderson and Narus, 1998).

Value in business markets can be defined as *"the trade-off between the multiple benefits and sacrifices of a supplier's offering, as perceived by key decision makers in the organization, and taking into consideration the available alternative"* (Ulaga and Chacour, 2001, p. 530). One core element of value is *preference* (Holbrook, 1994). Value is in its basic capacity a judgement in which perceived benefits are traded off against perceived sacrifices (e.g. Zeithaml, 1988; Payne and Holt, 1999). Also central in the definition is the *subjective* dimension of individual perceptions making up value. Furthermore value is *relative* (Holbrook, 1994), in the definition above against competing offers and specific use situations.

Lindgreen and Wynstra (2005) distinguish between value of goods and services and value of buyer-seller relationships. The first perspective sees value from a transactional approach, i.e. the value of what is actually exchanged. The second perspective emphasizes that value of a buyer-seller relationship may exceed what is actually exchanged.

One research stream on *value in business relationships* has identified and classified value drivers in relationships (e.g. Lapierre, 2000; Simpson et al, 2001; Ulaga and Eggert, 2006). Ulaga (2003) comes up with the most extensive framework. He identifies eight relationship value drivers: product quality, service support, delivery, supplier know-how, time-to-market, personal interaction, direct product cost and process cost. Another research stream of *value in business relationships* views value as a result of interactive and co-creation processes (e.g. Wikström, 1996: Tzokas and Saren, 1999). Normann and Ramirez (1993) analyze how activities of different actors are part of each other's value chains, and phrases the term value constellations. Tzokas and Saren (1997) applies Porter's value chain framework to illustrate how value is created in linkages between firms and consumers value chains. In 2004, Vargo and Lusch (2004) introduced the term service dominant logic. Two of the fundamental premises of the service dominant logic are that value must be understood in use, not exchange, and that value is always co-created. We will, however, use the term 'relationship platforms' from Tzokas and Saren (1997). Linking value chain activities between parties represent the mechanisms through which value is co-created. From this, 'relationships platforms' should be identified between partners as areas of activities or processes that can contribute to the value co-creation process. *"Identify areas (activities) which can be used as 'relationship platforms' between the supplier and the customer…… each of these systems have developed its own mechanisms (activities) for value creation, the value*

chain relationship suggests that these can work synergistically ….. Competitive advantage for a firm lies in its ability to summon and orchestrate the two systems into synergistic value discourse and effort…" (Tzokas and Saren, 1997, p. 115).

Hence, value as a trade-off between perceived benefits and sacrifices must be understood relative to users' value systems and the possible relationship platforms. We will elaborate on the value systems of users in city logistics next by addressing in-store operations from previous research.

3.2. Conceptualizing in-store operations

Research on in-store logistics processes and operations is sparse (Kuhn and Sternbeck, 2013; Trautrims et al, 2009), and only little attention has been directed to opening up "the store as a black box", i.e. conceptualizing the store as a subsystem in the supply chain (Aastrup and Kotzab, 2010). However, a growing body of literature is emerging.

A number of studies have been analyzing retail productivity as a ratio of input and output. This research use different techniques (DEA, MANOVA, regressions) for analyzing the input-output relations. Inputs dealt with are labor, capital, space, number of stores and different cost elements (e.g. De Jorge, 2008; Thomas et al, 1998).. Output studied are sales/turnover, profits/results and customer satisfaction/service level (e.g. Thomas et al, 1998; Reiner et al, 2013). The store is still largely treated as a 'black-box'.

In the early 00'es Raman et al (2001a and 2001b) refer to store execution as the missing link in retail operations (2001a) or the Achilles' heel of supply chain management (2001b). The major execution problems lie in inaccurate inventory records and misplaced items. These execution problems explain differences between stores with similar characteristics such as demand profiles, size, management and IT systems. Underlying drivers identified are: 1) store processes, 2) increasing variety in assortments and higher inventory levels, and 3) high employee turnover (Raman et al 2001a; Nachtmann et al, 2010; DeHoratius and Raman, 2008; Ton and Raman, 2010).

Literature on OOS (out-of-stock) also deal with in-store issues (e.g. Corsten and Gruen, 2003; ECR Europe, 2003, Aastrup and Kotzab, 2010). The link to in-store operations lies in a reported high percentage of OOS situations being caused by in-store reasons (e.g. Corsten and Gruen, 2003; Fernie and Grant, 2008). Store ordering processes and store replenishment from backroom have been reported as major causes of OOS (e.g. Aastrup and Kotzab, 2009). Management levers have been dealt with in numerous of these contributions addressing issues of management attention, measuring, store replenishment, inventory accuracy, management of space and assortment, and management of store employees (Corsten and Gruen, 2003; ECR Europe, 2003; Aastrup and Kotzab, 2010; McKinnon et al, 2007).

Motivated by this emphasis on OOS and shelf replenishment, Kotzab and Teller (2005) conceptualize in-store logistics processes. Their framework contains in-store physical and replenishment processes from receipt of products to the shelf, from shelf to cash register and further to consumption. The framework is organized around a subdivision of the stores physical layout into sales room and backroom. The model contains the following processes: 1) Delivery/receipt, 2) Transport I to the backroom facilities, 3) Storage I, inventory in back store area, 4) Transport II to the shelf, 5) Handling/storage II, shelf filling and merchandise presentation, 6) Processing of purchase transactions, 7) Reorder and inventory control, 8) Disposal/recycling. Transport III, from shelf/sales area or backroom facilities to the end user home can be added to the original model in the case of store based home delivery. Trautrims et al (2010) reapply the framework in two case studies, a grocery retailer and a Do-It-Yourself (DIY) retailer respectively, and make minor adjustments to the model. Reiner et al (2013) apply DEA modeling in-store processes and simulates the effect on outcome variables of turnover, service level on shelf and recycling.

Recent contributions by Hübner and Kuhn (2012), Kuhn and Sternbeck (2013) and Sternbeck and Kuhn (2014) add a new angle termed *'integrative retail logistics'*. While research has emerged that opens up 'the black box', research addressing the process interdependencies between store level and the remaining logistics system is lacking. Kuhn and Sternbeck (2013) and Sternbeck and Kuhn (2013) look at the retail network consisting of distribution center, transportation and store as subsystems. Kuhn and Sternbeck (2013) analyze grocery retailing and identify: 1) order packaging unit, 2) store delivery pattern, 3) Store replenishment lead time, 4) Store delivery arrival times and arrival time windows, and 5) roll-cage sequencing and loading carriers as activities having effect across the subsystem boundaries, i.e. relationship platforms (Tzokas and Saren, 1997).

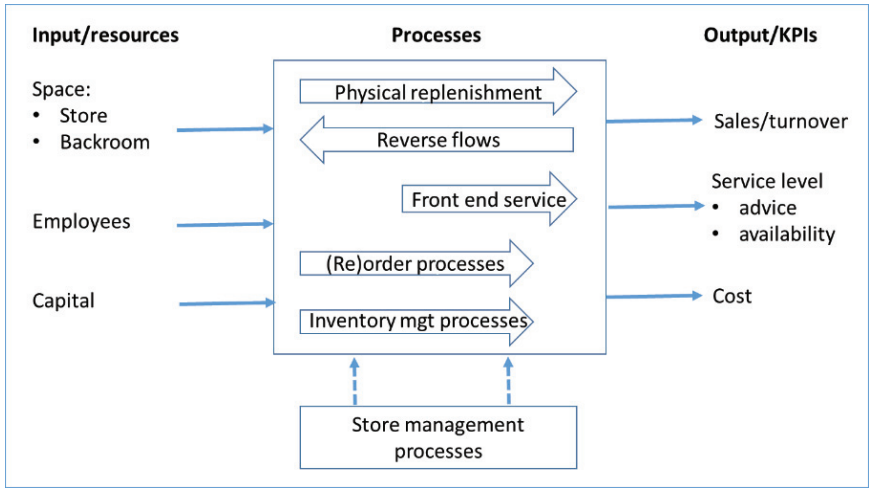


Fig. 1. A framework of in-store operations

Hence, an emerging literature has opened up the 'black box' of in-store operations. In order to address the possible co-creation of value between city logistics provider and store as a city logistics user, we draw on this literature to identify what Tzokas and Saren (1997) termed relationship platforms. Fig. 1 conceptualizes relationship platforms in relation to store operations (Abassi and Johnsson, 2012; Gammelgaard and Prockl, 2012). The structure of the framework is inspired in particular by Reiner et al (2013), Kotzab and Teller (2005) as well as input and output variables from retail productivity studies.

The next section identifies different value added activities from city logistics literature, and looks into how they can serve as relationship platforms thus potentially co-creating value for stores.

3.3. A framework for value drivers of a UCC based city logistics scheme

Literature on city logistics dealing with value adding services from UCC based solutions is relatively scarce. Browne et al (2005) and Allen and Browne (2010) divide the tasks into stockholding activities and pre-retail activities also including returns and inventory management. In van Rooijen & Quak (2008) storage, home deliveries, return logistics of package materials and e-commerce are mentioned. Similarly, Dablanc & Rodrigue (2009) shortly mention reverse logistics and home deliveries as potential city logistics services. The BESTUFS project addresses (BESTUFS, 2007; BESTUFS, 2006) local buffer stock, product quality and quantity checks, price tagging, inventory monitoring, information collection and analysis, return goods and return package materials as well as home deliveries and serving as a pick up point. A characteristic of this literature is that it identifies possible services but does not address the users' perspective on these.

Based on previous research and industry experiences, Aastrup et al (2012) divide value-added services into the following areas: stockholding, pre-tail activities, order processes/inventory control, help at delivery, return logistics, home deliveries/last mile solution.

Stockholding at the UCC is an often applied value adding service in city logistics schemes. The store or user is offered UCC for holding stock for a shorter or longer time period. This can be used to even out deliveries or as a local buffer stock if the store´s back room facility is limited. The UCC therefore potentially links to the processes of physical replenishment (especially storage I and storage II), order processes and inventory management processes. The use of such services can influence space usage in the store and by evening out deliveries it can affect store management processes and the use of employees.

Pre-retail activities could also be part of a city logistics scheme. It could be the incoming control of goods, price tagging or making products ready for shelves. This removes activities taking up space and time in the store to

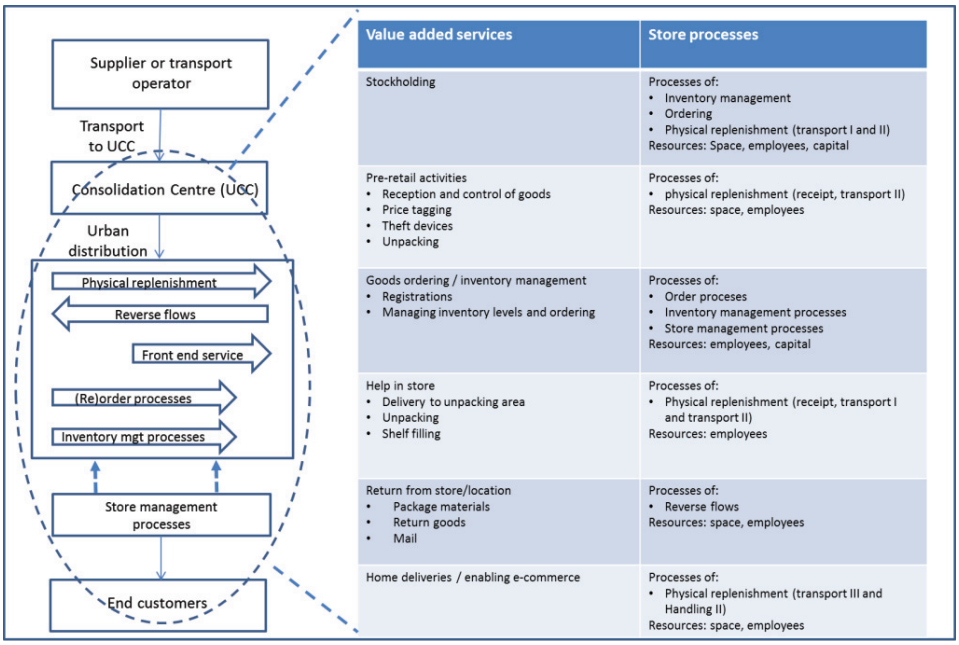
thereby make these available for other purposes, e.g. customer service (Browne et al, 2005; Allen and Browne, 2010; BESTUFS, 2007).

A third type of value adding service is outsourcing the actual inventory and order management and other planning tasks. It could be the more limited task of registering stock movements and keeping track of stock records. A step further would be to take over order processes e.g. replenishing the stock held at the UCC. However, here the city logistics scheme takes over a core domain for many stores. This could provide better transparency about stock and flow of goods (Browne et al, 2005).

A range of activities taking place in the delivery situation can also be part of the services. Unloading goods at the right place, helping getting them to the receiving area, helping with unpacking the goods and perhaps even filling the goods on shelves could be services provided. This refers to physical processes in the receiving, transport and handling processes. The benefits for users would once again be removing some activities from store personnel that could be used on better purposes.

A problem for users and consignees could be returning package materials or goods. This is often done in separate systems at a considerable cost. It could be package materials, returned damaged goods or, inspired be the Binnenstadservice (van Rooijen and Quack, 2008) it could be normal mail. These return flows could meaningfully be handled when the driver is at the store with deliveries, thus affecting the store's physical reverse flows. As a last service type, home deliveries and e-commerce solutions (BESTUFS, 2007) should be mentioned. This will enable users to provide service benefits to their customers, for instance home deliveries to their customers, and it could be a relatively easy way to handle their e-commerce shipments, thus interfering with transport III processes.

Fig. 2 provides a more extended overview of these services as well as the store processes and resources they potentially interact with.



Value added services	Store processes
Stockholding	Processes of: • Inventory management • Ordering • Physical replenishment (transport I and II) Resources: Space, employees, capital
Pre-retail activities • Reception and control of goods • Price tagging • Theft devices • Unpacking	Processes of: • physical replenishment (receipt, transport II) Resources: space, employees
Goods ordering / inventory management • Registrations • Managing inventory levels and ordering	Processes of: • Order proceses • Inventory management processes • Store management processes Resources: employees, capital
Help in store • Delivery to unpacking area • Unpacking • Shelf filling	Processes of: • Physical replenishment (receipt, transport I and transport II) Resources: employees
Return from store/location • Package materials • Return goods • Mail	Processes of: • Reverse flows Resources: space, employees
Home deliveries / enabling e-commerce	Processes of: • Physical replenishment (transport III and Handling II) Resources: space, employees

Fig. 2. Linking value added services in city logistics to in-store processes

3.4. Methodology

This study is building on earlier cases of potential users of city logistics services (Aastrup et al, 2012). The two cases studied here both use the drop consolidation model originally developed by Binnenstadservice. According to Yin (2009) a case is *"an empirical enquiry that investigates a contemporary phenomenon within its real-life context*

when the boundaries between phenomenon and context are not clearly evident". Similarly, Meredith (1998) emphasizes the natural settings of the entities making up the case *"but without experimental controls or manipulation"*.

In accordance with Eisenhardt (1989), the aim of the case study is support theoretical development in an abductive research process (Kovács and Spens, 2005). The purpose of this paper is to develop a model of in-store processes linking to value added services from city logistics providers, and to "test" this model to specific users of city logistics but also to take new knowledge from the empirical setting to potentially further develop the theoretically deduced model (Fig. 2).

Data is gathered via open-ended qualitative interviews. In-depth interviews with owners in the case stores have been carried through. Each interview lasted for about one hour with additional round tours on the premises. The interview guide was designed with a starting point in the theoretical framework. The overall purpose with the interviews was to understand the change in delivery patterns and in-store processes caused by the use of a city logistics service provider and the value perceived by decision makers.

The interviews were transcribed and analyzed by the research team. The cases were analyzed individually based on the framework, and a comparison of insights from the two case stores was made. Findings are presented next.

4. Findings from case stores

The two cases are in the early phases as users of city logistics service. The two cases are different in their use of city logistics and are compared after analyzing them individually.

4.1. Games and Karusella

The first case user is the two stores of Games and Karrusella. They are physically located in relation to Copenhagen's central pedestrian area. Games is a store specialized in games and certain hobby items, while Karrusella is a store with children's toys, clothes, accessories etc. They have the same owner and share backroom facilities and infrastructure. The two stores in Copenhagen act as central inventory hub as well as pick center for the internet store.

Before using city logistics. Games/Karrusella has about 150 foreign and 200 Danish suppliers. One main transport firm is used for the import from US, Asia and Europe as well as the internal transport from Copenhagen to Aarhus, whereas the Danish deliveries mainly are taken care of by the suppliers. This resulted on average in about eight deliveries every day varying from few packages to several pallets.

The store receives the goods in a backyard area having an entrance to the backroom facilities being located in the basement below the stores in ground floor. From receipt of the goods an employee registers the goods in the inventory management system, unpack the items and place them into the basement inventory (transport I and storage I). Transport II, shelf filling and merchandise presentation is done by front end employees in between servicing customers.

From the shelf it is self-service and the shoppers take care of transport III. Handling II and Transport II in the case of shipments to Aarhus and internet orders is done also from the basement inventory. Handling II activities in the basement inventory with picking internet orders is carried out by both the inventory responsible, by front end employees as well as the owners themselves.

The order and inventory management processes are carried out by the owners and a few core employees. It is based on an inventory management system integrating order placement, inventory recording and reorder points. Empty pallets and package materials are kept in the basement area and returned in separate systems for all stores in this particular area of the pedestrian street. Hence, the central resources applied in operating this store are: 1) Space, basement backroom area as well as ground floor store area; 2) Employees largely having separate responsibilities for different parts of the store processes of replenishment, front end service and order and inventory management; 3) capital tied up in stock holding; and 4) the order and inventory management system.

The primary disadvantage of the pre- city logistics system was the many daily deliveries, as well as a lack of knowledge about number of deliveries, size of deliveries and arrival time. The deliveries came in from early morning

(9 or 10 am) to late afternoon (5 pm). The major problem was the planning and use of employee resources (i.e. store management). They need to be taken out of their daily practices and it represented a cause of stress in the store operations. Furthermore, Games and Karusella met many new drivers. These were unfamiliar with the stores and often unloaded and delivered the goods wrong places. The stores´ is to the basement facilities through a backyard, but many drivers not knowing the stores dropped off the goods in the store, thus disrupting employees and customers.

Changing to city logistics. From 2012 Games and Karusella changed to city logistics. They largely use the basic delivery services and to a small degree the value added services. All suppliers were required to deliver to the address of the UCC. The city logistics provider receives, checks the goods, repacks them and delivers them to the stores once a day around 11am. Delivery is made by one of two drivers notifying Games/Karusella about amount of goods and exact time of delivery. Goods arriving at UCC are being signed for by the city logistics provider after immediate inspection. Normally, all products are being delivered same day to the store, but occasionally goods are kept in the UCC for shorter or longer periods if it is not suitable for the store to receive them.

At delivery, the goods are dropped off in the backyard at the entrance to the basement facilities. Here extra service is added by the drivers as they monitor the goods until an employee can receive them in the basement facilities, and they help transporting the goods down in the basement: *"….the service, it is almost unimaginable…. Just up to Christmas we did not have any elevator down to the basement for three months … It is unique and it is fantastic that they have this attitude towards them being a provider of a service….it is more than what you expect"*.

Hence, it is largely the processes of delivery/receipt and to a certain degree transport I of the physical replenishment activities that is directly affected by using the city logistics provider. Two things are emphasized: 1) the service mindedness of the drivers and 2) the fact that Games and Karusella receives only one delivery at a well-known time. *"We use our backroom employee much better and much more efficient now, as earlier he constantly had to be taken out of what he was doing, and that is just not as efficient"*. Hence, planning and using the employee resource in a more stable, reliable and efficient manner is perceived as the major benefit from the change.

Value added services. Largely, the stores are only using the delivery services. In the interview we addressed different value added services as potential developments of the interaction with the city logistics provider. Stockholding was to a minor degree used. During communication between city logistics provider and the stores it is coordinated whether the stores wanted all the goods delivered or whether they wanted to smooth out the deliveries for the purpose of using store employees better.

Besides the signing for receiving the goods and the overall immediate inspection of the goods no pre-retail activities are part of the interaction. Ordering and inventory management processes are not part of the interaction, either. These processes are considered core activities of the store operation and activities where specific knowledge of the goods, suppliers, prices etc. is required. Return logistics is an obvious area of interaction between the stores and the city logistics provider. The stores however are part of an agreement covering a group of stores in the specific area. Thus, reverse flows are not an area of activities with interaction presently.

Help in store on the other hand is a major part of the interaction. The service at delivery mentioned earlier affects and eases up the store processes of receipt and transport I, it indirectly affects front end service, and it affects the store management processes. Generally, it is seen as providing better working conditions for store employees.

Internet deliveries or deliveries to Aarhus (transport II) could be part of the interaction, either as taking care of the transport from the basement facilities, or holding the inventory and handling the pick and pack activities at the UCC (i.e. handling II activities). The handling II activities are highly valued by the store owners. It provides activities that can create variation in the employees work activities as well as being activities that can be carried out when the store is less busy (thus enabling better usage of employees). An area, however, that could be an extension of the interaction could be local transport II and III. Games and Karusella are pleased with the solutions used presently with transport and delivery in relation to the Aarhus stores and internet deliveries. However, an area mentioned could be local internet deliveries made in the Copenhagen area, thus replacing transport III activities presently carried out by the Postal services.

4.2. Apair

The second case user is Apair. Apair is an exclusive shoe shop that strives to be in the highest end of the fashion. Apair has two stores. One situated among other high-end stores in Copenhagen's central pedestrian area. The second store is situated in the airport of Copenhagen.

Before using city logistics. Apair has about 50 suppliers and production of their own brand in Italy. The main suppliers are in Italy. Shoes are also imported from Portugal and France. In addition they have a few Danish suppliers. One main forwarding company handles all incoming transport. From the warehouse of the forwarding company, the shipments are delivered with different carriers to the stores. In the airport the goods are delivered at a special goods delivery point. From this point, another company handles the internal shipments in the airport. Apair pays separately for this service, which they are obliged to use.

The store receives the goods uncoordinated, but as through a good relation to the forwarding company Apair is to some extend able to decide, when and how they want the goods to be delivered. Once the carriers arrive with the shipments, 95 % of them deliver the shipment inside the store but occasionally also outside in front of the store. *"We are always happy to receive the goods…but there is never any contact with the drivers… they just throw it"*.

Apair has their backroom facility in the basement of the city center store where they unpack the goods. The airport store has stock in the backroom facilities in basement below the store. Internet deliveries are primarily picked and packed in the city center store as they hold a larger stock. Apair uses pluck lists and registration of last pair sold to fill up the shelves in the shop. Transport II (to the shelf), shelf filing and merchandise presentation is done by front end employees solving this task in between servicing customers.

The ordering and inventory management processes is carried out by the owner as well as a few core employees. It is based on an inventory management system. The stock held is high as they have to place big orders from their suppliers. They perceive the tied up capital in the inventory as necessary. Empty pallets and package materials are disposed in a container in the street. Apair pays to have access to and empty the container.

The central resources applied in operating the stores are perceived to be employees and their time spent. Home deliveries were made by daily trips to the post office by sales employees. The major disadvantaged was the planning and use of employee resources. The employees had to leave their sales activities and would miss sales provision.

Changing to city logistics. From 2013 Apair has changed all their internet deliveries and other outgoing shipment (transport II), such as return shipments, to be handled by the city logistics provider. The city logistics provider is able to do pick up in the morning, at noon or late in the afternoon. *"Once he [Driver] even picked up one shipment at my [Owner] home, because it was important"*. If it is needed they also do pick-up at the office facility of Apair situated in another area of Copenhagen. After pick-up the shipments out of the Copenhagen area are registered and passed on to the Postal Service. The city logistics provider sends the track and trace number to Apair so they are able to locate the shipment or confirm delivery if needed. Shipments to customers in the area of greater Copenhagen are often delivered personally by the driver the same day. Apair expresses their great appreciation of the service mindedness of drivers. *"They are always very friendly, positive and happy and they want to make it work….The girls [employees] are so happy about it. Before they had to go to the post office themselves"*.

In general Apair describes the following activities as being directly affected by the use of the city logistics provider: *"it makes it easier. They [the employees] are very happy… they perceive it is a luxury that the parcels [internet deliveries] are picked up…"* Indirectly the service level of the shop, experienced by both the employees and the customers, seems to be improved by the use of the city logistics provider. In regards of resource used there has been a positive effect on the saved time, better planning and less preoccupations on the internet deliveries.

There has been an increase in customer service and customer satisfaction with the use of city logistics. If they were not using the city logistics service, they would have to pay for pick-up directly from the Danish Postal Service and they would not necessarily get the same daily pick-ups, which would lead to space problems with outgoing shipments filling up the space in the store.

The main sacrifice of using city logistics is the price. Using the service is an extra cost, but the non-economic gains are perceived as larger than the costs.

Value added services. Apair is only using the city logistics provider for outgoing shipments, i.e. transport II/home delivery. In the interview we addressed the potential of other value added services.

Apair pointed out that it would be very convenient if the city logistics provider could do the pick-up of shipment in the airport store as well. Also, they could do express deliveries between the airport store and the store in the city center, for time saving purposes.

In principle, Apair would also like to use the UCC for the incoming shipments, but they do not want to pay the additional price for using the UCC. *"For the time being I [Owner] cannot afford to spend so much more… it is already pretty expensive for me with the transport"*. Most of the incoming shipments are prepaid by the shipper. Hence using the city logistics provider would be an extra cost to Apair. Return logistics could also be a value adding service to the store. The primary challenge would be again the price. Stockholding could be a possible value adding service but would require express deliveries whenever a pair of shoes is needed in the store. External stockholding would also require an open inventory system to be used by the city logistics provider. Both in regards of stockholding and picking and packing of internet deliveries from a UCC Apair points out that their products are very unique and require a great deal of special knowledge. Often there is a specialized dialogue with the customer in connection with web orders. This would be difficult to handle for an external service provider.

4.3. Cross-case comparison of perceived benefits and co-creation of value

The *basic delivery services* based on a consolidation of the deliveries to the individual stores represent the service for Games and Karusella. Using the service leads to an extra monetary cost, however the perceived additional benefits outweigh these. These benefits are created as delivery patterns and reliability affect the in-store processes of receiving the goods, the transport I processes, the store management processes, and disruptions of store operations in general. This change in delivery services would entail benefits as well for Apair as perceived by the owner. However, in this case the perceived benefits do not outweigh the perceived sacrifice of the additional cost.

The *additional help/services in relation to delivery* received by Games and Karusella are perceived as a value adding element as well. This is part of the additional monetary cost but still the benefits in relation to store operations (receipt and transport I) and how it affects the employees' work flow still outweighs the extra cost.

Returns from stores and parts of internet deliveries (i.e. return flows and transport II and III) is the major activity bought by Apair. This is perceived as beneficial as it saves time for store employees to be used on front end service instead. There is no monetary saving, but time is saved among employees leading to fewer interruptions of store processes of service.

Stockholding is partly used by Games/Karusella using it short term for smoothing out deliveries (affecting receipt and transport I and handling/storage I and the use of the employee resource), and using it for long term purposes of saving space.

The *service mindedness* of the drivers is mentioned and highly appreciated in both cases. This aspect is not directly captured by the theoretical framework and it is difficult to conceptualize how this affects store operations. However, both case studies emphasized this to a degree that needs mentioning here as a perceived benefit from using the city logistics provider.

Internet handling activities of picking and packing and *order and inventory management* processes in both stores came too close to what was considered core activities of the store requiring special knowledge of assortments, terms of buying etc. The perceived sacrifice of losing control of such crucial store processes simply outweighed any potential benefit. This also indicates a limitation to the potential co-creation platforms between city logistics provider and user/store.

Even though the two cases are limited in their use of city logistics at this early phase, the two cases reveal that potential value co-creation happens when the activities of the city logistics provider meshes with in-store processes and their use of in-store resources.

5. Discussion

In city logistics literature, users have mainly been seen as passive recipients of goods. Value added services has been a part of UCC definitions since 2005 (Browne et al, 2005) but has rarely been studied from the user´s

perspective. The emergence of the Binnenstad model and the thrust of the destination perspective (van Rooijen and Quak, 2008) are, however, advocates of a stronger emphasis on user´s value and the interfaces with city logistics systems. This paper demonstrates that users are affected by delivery patterns provided by city logistics providers as well as other services. The Binnenstad model´s emphasis on value for its end users serves as an empirical example of how thinking in terms of value for users can be used as a mechanism for attracting flows for city logistics systems and for creating income for the city logistics system. This paper is a conceptual contribution to this potential aspect of the business model of city logistics. The framework developed provides a means towards greater understanding of users, how city logistics services can create value for them and therefore reaching an understanding of the incentives of this important stakeholder group. Furthermore, the framework helps providers in city logistics to rethink how they can add further value to their receivers through re-engineering of and integrating processes of the users and city logistics providers.

6. Conclusion

The theory of co-creation of value has gained increasingly popular since Vargo and Lusch (2004) coined the term service dominant logic. This paper applies Vargo and Lusch's sixth fundamental premise, i.e. that the customer is always a co-creator of value, and provides a perspective to approach this in the context of retail stores and a city logistics service provider. This paper has developed a framework based on the term relationship platforms (Tzokas and Saren, 1997) as well as literature on in-store processes and value added services from city logistics.

The empirical findings demonstrate the usefulness of the framework as an analytical tool for understanding value for users. The case studies have documented how delivery patterns and value adding services affect in-store operations, especially in the area of store management and employee resources but also to some extent in relation to space usage. Meshing with these resources in store operations is where potential co-creation of value from city logistics services emerges.

The perceived benefits experienced are mainly more efficient use of store employees and ease of managing store labor. The perceived sacrifices and barriers for further use of city logistics services are the additional cost of the services as well as a perceived loss of control of core activities. It demonstrates that city logistics providers are facing a barrier in relation to activities perceived too close to their core business. Thus, an implication is to start with the simple activities in the periphery of the store activities and then working towards more central activities.

Acknowledgements

The paper has received support from Trafikstyrelsen (the Danish Transport Authority).

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