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## Innovations in e-grocery and logistics solutions for cities

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### Abstract

Offering products via the internet is affecting the traditional “bricks and mortar” retail structure. But, as selling online products is not successful for all types of articles, not all retail branches are affected similarly by internet sales. Groceries are still a niche in online trading but are expected to grow fast. In this article, we want to compare France and Germany, where the rise of e-grocery has arrived almost at the same time although with considerable differences. We focus on innovative concepts in e-grocery as well as their consequences on transport and logistics.

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### 1. Introduction

Today we have widespread internet access in most countries, 76% in Europe (ITU 2014), which makes it possible to get in contact with each other easily. That also applies for communication between companies and people. The accessibility of reaching people via the internet is further advantaged with growing smartphone penetration. The internet offers the possibility for retailers to get in closer contact with consumers. Furthermore, it offers not only the opportunity of sharing information, but also of adding another distribution channel. Many retailers make use of it and, by adding another distribution channel, become cross-channel<sup>†</sup> retailers. But also other filière-players use the internet

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<sup>†</sup> also known as multichannel (sales channels are independent) or omnichannel retail (all sales channels are integrated)

to sell their products. Consequently, these days there is almost nothing which cannot be ordered online. Even groceries are making their debut and can be ordered online.

Besides the United Kingdom (UK), France and Germany are the largest European distance selling markets, worth respectively €63.4 billion and €51.1 billion, of which about 54% refer to goods and 46% to services (Ecommerce Europe, 2014). These countries are also the three biggest European food markets with €183bn for France (2013), €175bn for Germany (2013) and £175.5bn for the UK (IGD, 2014). Food online sales compared to total sales are relatively small but are expected to double by 2016 (cf. table 1). While in 2011 only 4.5 million people in Europe stated that they have ordered food online at least once, about 15 million stated that in 2014.

Table 1. Current turnover and forecast in online food retailing for selected countries. Source: IGD, 2013.

Country	2012 (€ bn)	2016 (€ bn)
UK	7.1	13.7
France	5.0	10.6
Germany	1.1	2.5
Netherlands	0.6	1.6
Switzerland	0.7	1.1

#### *A short look at e-grocery development*

The sustainable online grocery development in France and Germany started later than in the UK, where an offer of e-grocery by “traditional supermarkets” started at the beginning of the year 2000 (Linder and Rennhak, 2012). At this time Ocado and Tesco introduced e-groceries in the UK, and all major UK grocers followed around 2006 (O’Farrel, 2014). Therefore the UK can be seen as the European pioneer in e-grocery. At the beginning of the year 2000 online shopping for food was also marketed heavily in other European countries. But companies had more start up difficulties there. Many companies were quite optimistic and invested in e-groceries, e.g. Otto in Germany or Telemarket in France. But after only a short time, most e-groceries stores closed down (including Telemarket and Otto). As it turned out, these companies were ahead of their times. Besides slow internet connections which probably made the internet ordering/shopping inconvenient and time-consuming, also the high logistics costs were likely another reason for the lack of success. As reasons for their failure, failed companies claimed their problems were mainly high storage costs, picking and logistics costs, and the complex delivery requirements for fresh food, especially for the last mile segment. Another reason for the developmental disruptions could be that internet access was not as dense as today and people only began little by little to shop online. Then, only a few years later, when the internet found its way into everyday life, some companies restarted their efforts.

As the different size of turnover shows (cf. table 1), e-grocery plays out in every country differently. We also find different e-grocery concepts favoured in different countries. Accordingly, there is no one-size-fits-all approach for online food retailing. “Click and collect” (CC) and “home deliveries” (HD) are the two main possibilities which can be distinguished. But within these two possibilities, retailers try to find more innovative solutions to differentiate themselves from other e-retailers.

#### *Aim of the present paper*

In this article, we want to compare France and Germany, where e-grocery was introduced almost at the same time but varies in its form and speed of development. The two neighbouring countries have different commercial and sales structures for food. Looking at grocery shops, differences in size of stores, in selling concepts, and in offered assortment (e.g. frozen food stores, popular in France and scarce in Germany) are to be found (Seidel et al. 2014). Furthermore, the types of retail formats are dissimilar: discounters dominate the German food market in the number of points of sale (POS). With a total turnover of €62.1bn, which represents 44% of the grocery market share, discounters have also the highest turnover of all formats (USDA Foreign Agriculture Service, 2012). In contrast, discounters in France hold a market share of only around 10% (Bosshammer, 2011) and the highest share of food

turnover is generated by large hyper and supermarkets. A difference in consumer behaviour can also be considered: German households spend around 11% of their total consumer spending on food and non-alcoholic drinks whereas French people spent around 13.5% (BVE, 2012). Differences occur also regarding food e-commerce. As mentioned above, all major food retailers in France and the UK offer e-groceries at least via one way (CC or HD) whereas in Germany only a few food retailers offer e-groceries.

In France, where e-groceries are mainly offered in combination with “Drives” (a “click and collect” form of online shopping with access primarily by car, also known as “Click & Drive”), e-grocery was introduced around 2004 with the opening of Auchan’s Chronodrives. The greatest success of the Drive-concept was in 2012, when the number of Drives exploded from 1,000 in 2011 to 1,700 in 2012. Today all French major actors of the food retail sector have entered the e-grocery market, mostly in combination with Drives. This development is also reflected by the number of Drives (cf. table 2). In 2014, with about 2,110 more Drive sites than hypermarkets (2,022) can be found in France (DGE, 2014).

Table 2. Drive characteristics in France. Source: DGE, 2014.

Type of Drive	Number	Number of customers (in thousands)
“Picking” (Drive next to supermarkets, no storage)	1,446	332
“Déporté” (Drive with dark store, with storage)	421	989
“Accolé” (Drive next to supermarkets with storage at site)	223	722
Total	2,110	2,042

In Germany, a revival of e-grocery started around 2009 when Rewe set up a drive-through concept in Cologne. A new impetus to the German online food market was then added when Amazon announced they will soon start to enter the food market by selling groceries online. Many companies hope by offering e-grocery before Amazon, and thereby being part of the early movers, they will succeed to stay in the market or to be at least one step ahead of Amazon. This strategy was successful in the US, where US retailers who moved early won market share in the longer term. In the US, Amazon, with about 22,000 customers, is the biggest provider of e-fresh food (Rudarakanchana, 2014).

To be successful in the “new market” e-grocery, dealers try a lot of innovative concepts, on which we shall focus our attention. As an additional step of the technological innovation process, we consider, as suggested by Raul Green and Michel Hy (2002), use of the internet a powerful component in redefining supplier-retailer relationships. In this context the following questions arise: Who actually offers e-groceries? Why are these actors interested in e-grocery? What are the constraints and what are the opportunities for e-grocers? Is logistics a constraint or a driver for the success of online fresh food?

Most literature spotlights consumer preferences and/or behaviour, whereas comparably few consider logistics, e.g. Huebner et. al (2014). Others like Vanelslander et al. (2013) consider the most commonly used supply chain (SC) and analyse these in terms of optimising logistics costs. We consider that the logistics issue is essential and, following the work of Hesse (2002), Paché (2002) or Kessous (2001), we think that e-grocery will sustain and extend market shares by controlling logistics.

By analysing innovative e-grocery concepts which stand out from other food online offers, we want to explore how logistics requirements are considered. Thereby, the term “innovative” involves two dimensions for us. First, we shall examine new players that are trying to enter the food market and who have not been in contact with consumers before, known as “filière players”, or providers that have not handled food before. Second, we shall look at marketing concepts that stand out from other e-grocers’ concepts. The present begins by reviewing different solutions for fresh food and analysing them in the context of the following five points: Institutional context (including law), economic context (level of competition), actors involved in e-grocery, spatial context, and consumer patterns. The review is based on recent scientific publications and professional literature. Moreover, online press, press releases and homepages of several online grocery offers as well as annual reports have been gathered and analysed. Additionally, short interviews with different e-grocers in France and Germany were conducted. Building on this, the next section proposes an analysis of the framework conditions, as well as of the drivers and constraints, particularly regarding the role of logistics, of

the e-grocer concepts. The last section discusses the results in light of current territorial factors underlying the observed evolutions.

## 2. Innovative solutions in e-grocery in France and Germany

In our research we identified eight innovative concepts in France and Germany. The concepts are analysed in view of socio-economic and spatial contexts which explain significant differences in the development of e-grocery in each country.

### 2.1 Different contexts for the development of e-grocery

#### *Institutional Context*

The institutional framework conditions of e-grocery are mainly the same as for “normal” supermarkets. From a general point of view, there are no special laws, subsidy legislation or support from cities or municipalities that promote the establishment of e-grocers in Germany. However, France introduced a specific law to regulate commercial activities. Since the law of modernisation of the economy (LME) was introduced in 2008, retail trade projects with a sales area reached at least 1,000m<sup>2</sup> (from creation or extension) requiring an authorisation of commercial exploitation (AEC). Since March 28<sup>th</sup>, 2014 this obligation applies also for Drives (ALUR Law). Still in France, we can find forms of sponsors when the Chambers of Agriculture encourages farmers to develop Drives with the label “bienvenue à la ferme”. There are 54 farmer Drives with this label in France.

A general law which applies for all type of groceries but gains a special importance in the context of business to consumer (B2C) food deliveries is the regulation regarding cold supply chains. Small shipments therefore need complex treatment for different kind of products, e.g. splitting the consignment into separate boxes. The EU regulations on food hygiene (EC) no. 852/2004 and no. 853/2005, including the management system HACCP (Hazard Analysis and Critical Control Points), define the framework for the organisation of transport for fresh products.

#### *Economic context*

With respect to the competitive food market and their high market share, the “bricks and mortar” stores form the main competitors for all e-grocers. Besides these stores, other e-grocers form the competitive framework for all e-grocers.

There are different reasons for companies to invest in e-groceries. In regards to the stagnation of hypermarkets in France, the internet offers the possibility of reigniting growth in sales (Picot-Coupey et al 2009). The aim of strengthening consumer loyalty may be another reason why an online sales channel is offered by retailers (Schramm-Klein, 2003). For other “filière-players” and start-ups, e-grocery offers the possibility of entering the food market without setting up a branch network.

But it has to be noted that framework conditions such as small margins and high logistics requirements, e.g. for products which are sensitive in handling, complicate a market entry. As a result, e-grocery often turns out to be unprofitable. The early years in e-grocery development are therefore very dynamic, with changing players, as not all providers manage to make profits. One example is Ocado, one of the most successful British e-grocers, who took 15 years before being able to record figures in the black (LZnet, 2015).

#### *Actors involved*

Besides traditional (bricks and mortar) food retailers, the internet offers new opportunities for other stakeholders within the food supply chain (producers, wholesalers, service providers) to enter the grocery market by getting in direct contact with consumers. But also pure internet players and new start-ups try to enter the food market by offering food online.

By our desktop research we found more than 90 providers each in France and Germany who offer groceries via internet. As mentioned above, Drives are especially successful in France, although home deliveries (HD) are also frequently offered and used. The providers who offer Drives are mainly multichannel-retailers. By the implementation of Drives they mostly fall back on their existing branch network.

In a comparative analysis of French and German e-grocery providers, it is conspicuous that in France, mainly the “filière players” use e-commerce to diversify their offer and sell their products directly to consumers. In Germany, beside the “filière players”, who often specialise in a specific assortment, we find many individual initiatives and start-ups outside the food industry which enter the online food market and are often supported by transport service providers. One German transport and logistics service provider, *DHL*, even offers e-grocery.

Small and medium-sized food retailers rarely offer their products via the internet. In cases where they offer e-groceries, they are supported by actors specialised in e-marketing and online selling as well as by transport service providers.

Generally it can be stated that besides new players on the B2C food market, new relationships between “filière players” are also evolving. As a consequence, relations in supply chain are also changing (see 3.2).

#### *Spatial context*

Most online offers for food are accessible in cities, with big urban areas which present a large catchment area being clearly favoured (Paris, Ruhr area, Berlin). The locations of Drives are mainly located in the outskirts of cities close to working places or traffic nodes. They are often affiliated to already existing stores but are also placed at new sites, e.g. a dark store. These dark stores are retail outlets or distribution centres that provide food exclusively for online shopping. It is noteworthy that French retailers offer e-groceries nationwide, with home deliveries mainly offered in city centres, and Drives mainly in rural areas and outskirts.

In Germany retailers are still experimenting with different offers, searching for the right offer to address customers via internet. The small number of Drives (< 20) offered in a few urban areas are more reminiscent of a test phase and witnesses that the “click and collect” concept does not really work so far. The HD concept, apparently more attractive for German consumers, is therefore the most offered e-grocery delivery form. As long as home deliveries are offered close to locations of multichannel retailers, deliveries are often done by retailers’ own distributors, whereas in remote areas deliveries are made via postal services such as *DHL* or *UPS*. Pure internet players mainly rely on service providers for B2C deliveries.

#### *Consumer Patterns*

According to Bovensiepen et al. (2014), 87% of German consumers buy groceries solely in shops. The reasons why and when consumers shop groceries online has been considered in many papers (e.g. Picot-Coupey, 2009; Plachetta and Röttig, 2012; Farag, 2006, 2003, *etc.*) and it is clear that changes in consumer shopping is a material factor in redefining supply (Moati, 2009; Filser et al., 2001). Widespread internet access, which is increasing with growing smartphone penetration, facilitates the access of retailers’ online concepts for consumers. In 2012, smartphone penetration of more than 50% in France and Germany was documented (Schindler, 2013). Since then a further increasing has been recorded. Initial studies show that continued growth in smartphone penetration involves a shift in internet user behaviour. As a result changes in the way consumers’ access internet services have been recorded. Users are able to be always connected and have instant access to different kind of services (Ericson, 2014). Besides searching for information and checking emails, buying online has become one of the most significant online activities.

A great number of people are looking for opportunities to save time in everyday routines, grocery shopping can be one of them. Online grocers and multi-channel retailers try to adapt themselves to this development. Aiming, for example, at employed parents, e-grocers place their Drives in business areas to attract customers during the journey between their working places and homes.

When the question is posed as to how many per cent of consumers shop for food online, different answers and figures can be found. But it is sure that consumers in the UK and France shop more regularly for food online than Germans. Whether this is more related to the wider offer of online grocery in UK and France to consumer behaviour or is rather a result of both is not clear yet. But experience to date shows that food shopping via the internet does not replace but often complements traditional shopping. An interesting aspect in e-grocery shopping which cropped up in our interviews is that purchase baskets of online groceries tend to be bigger than the purchase baskets bought in shop. This might be an indication that customer expectations are different from one shopping channel to another.

## **2.2 Identified innovative concepts**

During our research we identified eight innovative concepts which differentiated themselves from other e-grocers, in terms of concept offer or actors involved. The analysed concepts are illustrated in Table 3.

Table 3. Innovative solutions compared

Name	Location	Special characteristics
Bonduelle Bienvenue (since 2012)	Villeneuve d'Ascq (Lille region)	Send a food brand without supermarket intermediary
Diadiscount.com (2014-2015)	4 stores in Paris	Discounter Use of chilled lockers
Monmarché.fr (since 2007)	Paris region first and all over France	Direct selling wholesaler-consumer
Arcimbo (since 2013)	Villeparisis (Paris region)	Fresh-produce Drive associated with a standard Drive
Venteprivée Miam Miam (since 2012)	All over France	A general pure player that tests the sale of fresh products
allyouneed.de (since 2012)	No stores only HD delivery German wide,	Initially transport and logistics service provider More products than many POS
Kochhaus.de (since 2010)	11 stores HD German wide	Recipes with delegated products
Emmas Enkel (since 2011)	Stores and HD in 4 urban areas	Corner shop culture combined with ITC

The e-grocers in Germany presented here are mainly start-ups, whereby *allyouneed.de* has a special status as this concept is strongly supported by the transport and logistics service provider *DHL*, who is also the main shareholder of this concept. In France no service provider has so far been involved in online food retailing; all have been “filière players”.

*Auchan*, one of the leading food retailers in France, is one of the early movers in French e-grocery with its *Chronodrive*. In February 2013, *Auchan* decided to start a new concept named *Acrimbo*, to compensate for weak sales in fresh food of the Drive format. *Acrimbo* is a store dedicated to fresh products, primarily organic and labelled products, which is geographically associated with a Drive. *Acrimbo* offers click and collect and direct sales. Home delivery, which was originally proposed, was discontinued. Another innovative concept for fresh products is provided by *Dia*, a European hard-discounter. The company, which is mainly located in the inner cities rather than on greenfield locations and therefore has difficulties to attach Drives to its stores, introduced an e-grocery service via chilled lockers. The lockers are offered at four POS in Paris. Products ordered online can be collected in store. The French pure player *Vente-privée* has also engaged in the sale of fresh products with its concept *Vente-Privée Miam Miam* and attributes itself to short food supply chains. Two other innovations attract our attention because they constitute a real change of organisational model: *Bonduelle Bienvenue* and *Monmarché.fr*, which respectively show how industrial agribusiness and wholesalers are trying to get into the e-grocery market.

*Bonduelle* is a French company producing processed vegetables. *Bonduelle* products are sold through traditional distribution channels (supermarkets, mini-markets) and through catering circuits (restaurants, institutional food service). With *Bonduelle Bienvenue* and e-commerce, the company can sell directly to the end consumers without any intermediary. The store is designed like a showroom for the entire product range. The aim of the company is to develop this type of store close to *Bonduelle* factories all over France. Another example that shows that e-commerce is a way to remove intermediaries is *Monmarché.fr*, e-grocery offered directly by the *Rungis* wholesalers. The *Rungis* International Market is the principal market of Paris, and it is the largest wholesale food market in the world. Through

the new sales channel via the internet, this market, initially dedicated for professionals, is also opened to end-consumers.

All analysed German innovative concepts offer a fresh food assortment; moreover, two of them offer a full assortment. The one who limits its offer to fresh and dry food is *Kochhaus*. This multichannel retailer has assessed the competitive German food market by selling food via a special concept. Food is only offered in combination with recipes. When recipes are chosen, all required ingredients are provided. The intended target group consists of gourmets, curious hobby cooks and employed persons with limited time who have a desire for healthy or balanced meals and are interested in new cooking recipes. The concept of selling food on the basis of a recipe basis was initially offered via stores but is now also available online. In the meanwhile seven German online start-ups have followed suit and also offer this concept. The concepts of the eight providers differ in the ordering process, with or without subscriptions. But the biggest distinctive feature is if the delivery service is a national or regional offer. The concepts of all recipe-food players are quite similar but differ in one point: the origin of products. Whereas some receive their products mainly from (local) producers, others source their products also from supermarket chains. One may have thought that these differences can be attributed to their spatial presence, so that in case of a nationwide offer it is easier to rely on a German-wide supermarket chain rather than to build up a nationwide network with producers. But as our researches showed in these cases, the reverse is true.

The entrepreneurs of *Emmas Enkel* developed an e-food-retailing concept where the corner shop culture ('Tante Emma Laden') is connected with all advantages of an online shop. The primary focus of this concept is to put the service aspect for consumers in the foreground. Customers have different options to buy their food: in a store at the counter or to order via a tablet in the store, to order at home, via telephone or via smart phone on the move. Beside the different ordering proposition, different ways of how the customer can gain his products are also offered. The orders may be packed ready to collect at the store or delivered to the customer's home. To make this service possible, the store differs from normal retailers' points of sale (POS) by having a bigger storage site than the sales area at the POS. The company currently works without its own warehouses, all products are directly delivered to the shop. The enterprise, which is currently in an expanding phase, was recently joined by *Metro Group*. It is remarkable that last mile deliveries are recognised in-house as an important part of the selling concept. The founders therefore prefer to make their deliveries to consumers with their own staff rather than to outsource the service.

The last innovative concept which should be introduced here is the concept of *Allyouneed.com*. This start-up, which was founded in 2012, is 90% owned by *DHL*. *DHL*, which already had a lot of experience in shipping food products from countries of production to major clients in Europe, also decided to position itself in food deliveries in the last mile segment. Therefore *DHL* is the first transport and logistics service providers who ventures to the sale of food. In addition to selling of products also all deliveries to consumers are made by *DHL*. The therefore enterprise widened its logistics concept to make an end-to-end supply chain for food possible. As the assortment of about 20,000 products includes also fruits and vegetables, the vehicle fleet was extended with refrigerated vehicles.

Our studies showed that the marketing concept to reach customers was usually prioritised. Accordingly, logistics implementations were considered only as a second thought.

### 3. Consequences for transport and logistics

As explained above, most online offers for food are mainly accessible in cities. There is, however, an important difference between France and Germany. The success of Drives of French retailers allows the majority of the French population to have access to e-grocery. Home deliveries are more developed in Germany, which may explain the importance of *DHL*'s role in the development of e-groceries offers. The constraints and the investments in the last mile vary from one option to another; this also applies for the organisation of the supply chain.

#### 3.1 Home delivery or Drive?

After the decision has been taken to offer groceries online, the next decision to be taken is how to get the products to the consumer. Even though there is much space for diversity there are mainly two options, HD or Drive (*cf.* table 4).

With HD, providers have to decide if they make the deliveries themselves or if they work with a service provider. As making HD themselves means a lot of personnel, acquisition, and maintenance costs, many e-grocers decide to cooperate with logistics service providers (LSP). But also LSP are not only confronted with pre-packed and palletised food but often with the requirement to take care of and/or to package food by themselves. Therefore buildings, vehicles, cargo agents and employees must comply with the requirements of food law, which is especially of importance for cold chains (food safety).

Even if food is already packed for transport, requirements differ for other non-food products. The various products must be treated differently on their way to the end consumer, regarding sensitive handling for some products or cooling where necessary; goods therefore have to be packed in separate boxes. Furthermore, all fresh products need special storage, and rapid handling and transport. Furthermore, the shift from day to hour deliveries offered by most e-grocers constitutes an increase of logistics complexity.

Table 4. Sales and logistics strategies for e-grocery. Source : own elaboration.

Sales Strategy	Delicatessen	One product	Market place	Partial range	Partial range	Entire Range	Entire range
Examples	Gourmondo Comtessedubarry	M muesli Fromages	Oekokiste Laruchequiditoui	Edeka24	Chronodrive	Rewe. Auchandrive	Allyouneed Super-u
Concept	Generally dry products not available in supermarket	personalised / local products	Same type of products of different producers or sellers offered via one platform	Dry products ordered online and delivered to consumers' home	Supermarket offers a selection of their products online	Products ordered online are ready for pick-up by customer (full assortment)	Products ordered online and delivered to consumers' home (full assortment)
Outbound logistics	HD or pick-up points (PP)	HD	HD or PP	HD	Drive	Drive	HD
logistics requirements	Few technical requirements for fulfilment and transport	Few technical requirements for fulfilment and transport	Few technical requirements for transport or in terms of PP pick-up by consumers	Few technical requirements for fulfilment and transport	pick-up in POS or dark store	High fulfilment requirements	High fulfilment requirements

*Increase in fulfilment and logistics requirements*



In summary, home delivery causes a lot of efforts and costs. As it is frequently unprofitable, some retailers stopped deliveries after a short time, as did, for example, Arcimbo. Other grocers do not even find logistics service providers who offer HD. These grocers are forced to switch to another delivery concept. Diadiscount is one example of a retailer who did not find a service provider for HD and had no equipment for doing HD themselves. As a result chilled boxes for picking orders up at retail branches were developed and offered as an alternative concept. This case shows that even if logistics are not prioritised when it is planned to introduce e-grocery, it can have a big effect on the implementation.

More attractive for HD are delivery solutions with only minor effects on logistics. As long as the same type of product is given, transport is easier to implement, even for hand-sensitive food. An example of the assembling of same kind of products is the concept of the delivery of boxes with only fruits and vegetables.

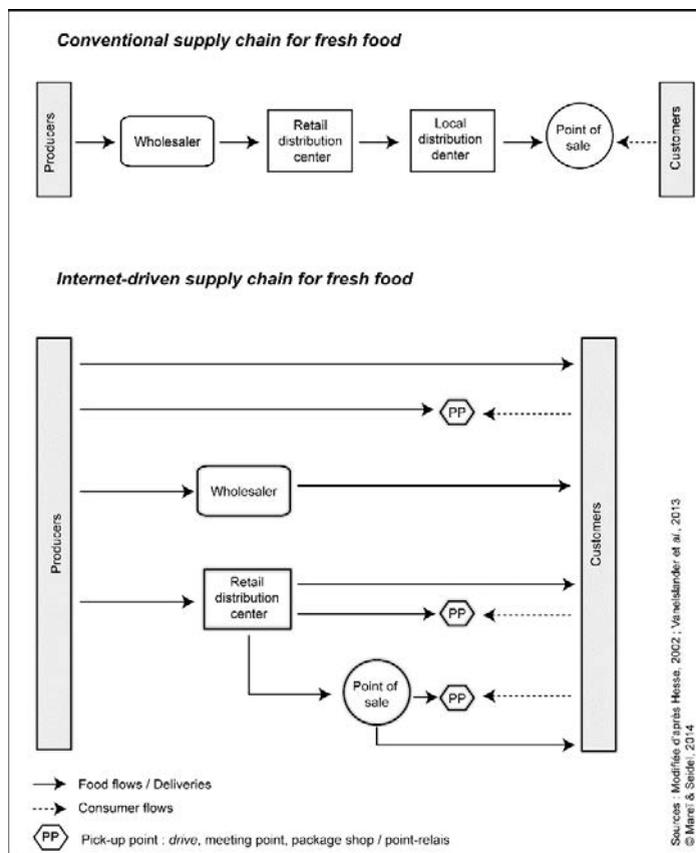
A concept where food safety does not affect the delivery is the store-based "click-and-collect" service like drive. This way of providing products to consumers is interesting as it only means additional costs for picking up goods in store or warehouse (dark store), high delivery costs are avoided. This may explain the success of Drives and all forms of pick up points (farmer drives, meeting points,) and why especially French e-grocers rely on this delivery possibility when offering products online.

### 3.2 Changes in supply chain

The direct selling of food from producers to consumers is not a new development. The possibility of buying food via regional markets, via catalogues (e.g. *bofrost*) or direct at the farm existed before. But the internet enhances the direct access to the consumer. For the deliveries (last mile) to consumers, new stakeholders, mainly SP, have to be involved. In this case, the direct deliveries to consumers mean two changes in supply chains: new actors involved (LSP) and a rise of additional supply chains (not only conventional SC from producer to wholesaler or to retailer but also from producers to consumers, see Figure 1). Furthermore, e-commerce offers other actors involved in food supply chains the opportunity to offer food directly to consumers. This causes changes in relations between suppliers, distributors and consumers (Figure 1), so that the changes in supply chains are about two main things: new actors are directly involved in the food B2C market (producer or wholesaler) and, directly related to this, intermediaries are skipped. In cases where pure online players offer food to consumers, it means that new intermediaries enter the food SC.

Cross-channel retailers have different opportunities from where the delivery to the consumers starts. As long as the amount of orders is manageable via their stores, most retailers' deliveries start from their POS. Another opportunity is delivery from warehouses which are suited for the pick-up process for small shipments. The warehouses suited for pick-up process can be affiliated to already existing warehouses or be located near the catchment area. Supply chains of cross channel retailers change mainly in the last mile segment. Therefore the additional sales channel often means an additional supply channel. As long as the last mile is done by a service provider and not by the retailer itself, a new stakeholder is involved in this last mile segment.

Figure 1. From conventional supply chain to internet-driven supply chain for fresh food



#### 4. Conclusion and discussion

More and more companies offer e-groceries for various reasons. For one thing, it offers the possibility of a market entry, some (producers, wholesalers) see the possibility of widening their sales by adding additional customer groups, other companies want to secure their leading market position or see the possibility of enlarging their market share. Our interviews showed that the growth of e-grocery is currently more about strengthening customers' loyalty and gaining market share rather than a question of economic gains. This can also be seen in the French market where e-grocers do not make much profit with Drives and managers explain that making a profit is in this context not of utmost priority. However, we can see that Drives are the main tool for French e-grocers in their B2C relationship as they crisscross the country.

Which form of e-grocery is offered can be mainly related to the type of e-grocers, the type of existing branch networks and the areas where the e-grocery service is offered. The main objective and biggest challenge for e-grocers is still – as regards the question as how to get the groceries to consumers – the logistics and transport issue. Thereby, home deliveries are problematic due to the last mile and are the most challenging part of e-grocery. One opportunity, at least for German e-grocers, could be the development of a service provider specialised in last mile food deliveries. Being able to refer to an already existing logistics network would facilitate delivery to consumers. Above all, a great deal of extra work for deliveries is the moving from days to hours, and that is particularly true for fresh food, which requires close attention for storage and transport. As a result it is still to be assumed that logistics will decide the future of food online sale. Regarding effects on supply chains, three different kinds of changes were recorded in internet-driven supply chains: new actors get involved, new relations between actors occur, and additional supply methods are registered. One effect on cities in France and partly in Germany is the higher visibility of delivery services: daily, more and more delivery vehicles branded with the name of online grocers or the big service providers for food, such as Star's service in France, can be seen. As a consequence, the issue of freight transport is made more visible by e-grocers in large cities. With regard to a further increase of home deliveries, the question of managing flows and road sharing become more essential in urban planning. Furthermore, an increase in e-grocery could be reflected in grocers' resettlement location policy and so become interesting for urban development policy. More broadly, e-commerce confronts cities with storage questions, with poor availability of land next to cities, and also with the daily management of e-commerce flows with logistics issues.

Looking at the consumer side, the adoption is currently in an initial stage, whereby a bigger utilisation of e-groceries by French consumers can be recorded. The authors expect that with a further manifestation of daily internet use and a further incorporation in daily routines, the willingness to buy food online could increase. A prerequisite is that e-grocers manage to take consumer demands into account by offering simple ordering processes and guarantee speed and reliability of deliveries. Nevertheless, buying products online may remain complementary to physical food purchase.

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