

LOGISTICAL CHALLENGES AND POTENTIALS IN MULTI-CHANNEL FOOD RETAILING & DISTRIBUTION

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Abstract

Manufacturer's concepts for direct supply to food retailers have already been replaced in the 1970s by establishment of logistical supply networks and concepts. The development of IT-based enterprise resource planning systems and the design of efficient networks of stores consequently led to higher availability and improved service levels for consumers. Although the management of logistics costs always remains challenging within existing supply processes, e-commerce adds another new challenge. Existing goods supply processes in store-based retailing will be complemented by additional goods flows from online sales, in future. Studies increasingly show the relevance of multi-channel retailing: consumers' loyalty rises, unless additional information and distribution options in food retailing are available online. However, food retailers in Austria only recently start opening online distribution channels by providing deliveries of food and hygiene items in own dedicated web-shops. Reasons for that corresponding restraint are diverse: (i) very high store density, (ii) high level of consumer satisfaction with current store-based concepts and (iii) the not yet fully developed handling of logistical procedures and infrastructure in food online processing (e.g. packaging, cooling, etc.). It is necessary to adapt existing supply processes in food retailing to be able to handle the „last-mile“ cost- and time-efficient. The main aspect in terms of these challenges for efficiently logistics processing in online retailing is the creation of optimum synergies with existing supply processes. In the underlying research, a derived holistic view of various requirements of distribution structures identifies corresponding potential: the role of end consumers in the network is as considered as the predominant process structures and possible last-mile concepts for online distribution in Austrian food retailing. A resulting two-stage potential-rating regards the consumer side as well as retailer-side aspects in order to determine the important economic dimensions and logistics capabilities of different supply concepts.

Key words: retail supply, distribution, logistics concepts, online retail

1. INTRODUCTION

Online sales revenues from digital grocery shopping in our economy and our daily lives do not belong to the past any longer. An offered web-service on top of traditional stationary food retailing is the next evolutionary step in this industry sector. Grocery retailers modify their strategies: they incorporate the growth of internet penetration in order to develop online shopping with ready pick-up or free shipping options. As shoppers look for more opportunities, they are more likely to have the choice to purchase their grocery products – as they already do it with books or software – online, as well. The way consumers shop online is influenced by social media channels, on which humans are stimulated and incentivized through product promotion and information, by now. A fact, that retailers are expected to react on (Strang, 2013, p. 32-35). The e-commerce, exactly the one topic that incorporates these major developments in grocery retail operations, therefore causes an innovative

process of noticing, adapting and changing an additional channel for retailers, to offer and distribute products to end consumers. There, e-commerce accompanies a big business-to-consumer development – in many industry sectors and consequently also within the grocery industry. And when talking about the electronic commerce, it is further beyond (i) consumer's acquisition of information or (ii) retailer's transmission of marketing messages: it is about buying and selling via the internet next to traditional stationary retailing (Burt/Sparks, 2003, p. 275-276). Several food retailers offer online services, as dedicated web-shops, in more or less limited form while others serve with consumer oriented order processing for in-store pick up or home delivery services. In order to gain economies of scale, retailers are challenged with the build-up of the necessary process infrastructure, sales and delivery concepts both on the traditional and online value stream (Murphy, 2007, p. 947-948). Whilst mentioned concepts of online order-based food distribution to consumer's doors in certain countries (e.g. US, UK, France, The Netherlands, etc.) show progress for some time already, online food retailing in Austria is in its early stages. Recent developments of e-business models in the food retailing industry in Austria go further than experimenting with online-based sale processes. Regional retailers are about to apply their grocery sector experiences for the establishment of new communication channels, sales-streams and fulfilment processes. Different organizational modes combined with a multi-channel strategy in food retailing, open up a new market and yield to both new value streams and new consumer groups within the grocery sector.

2. METHODOLOGY & BACKGROUND

2.1. Methodical approach

This research covers the mentioned food retail distribution process on a regional perspective in Austria. The relevant structural and organizational measures in adapting traditional and existing logistics processes in food retailing with online-food retail streams are investigated in the following methodical sequence: (1) identification of traditional retail distribution processes, (2) definition of requirements and influencing factors for online retail distribution, (3) elaboration of online retail distribution options and (4) description of retailer's and end consumer's specifics including projection of trends.

Presented data are derived from both literature research and qualitative data collection through workshops with involved practitioners and food retail industry specialists among an Austrian expert circle. Especially in terms of an applied research methodology, that cooperative approach allows both researchers and industry stakeholders to commonly analyze and discuss possible options for process modification and integration in grocery distribution. Diverse aspects and obtainable variants referring the potential of existing food retailing processes have been elaborated to boost development in the online/e-commerce value stream within the Austrian grocery sector.

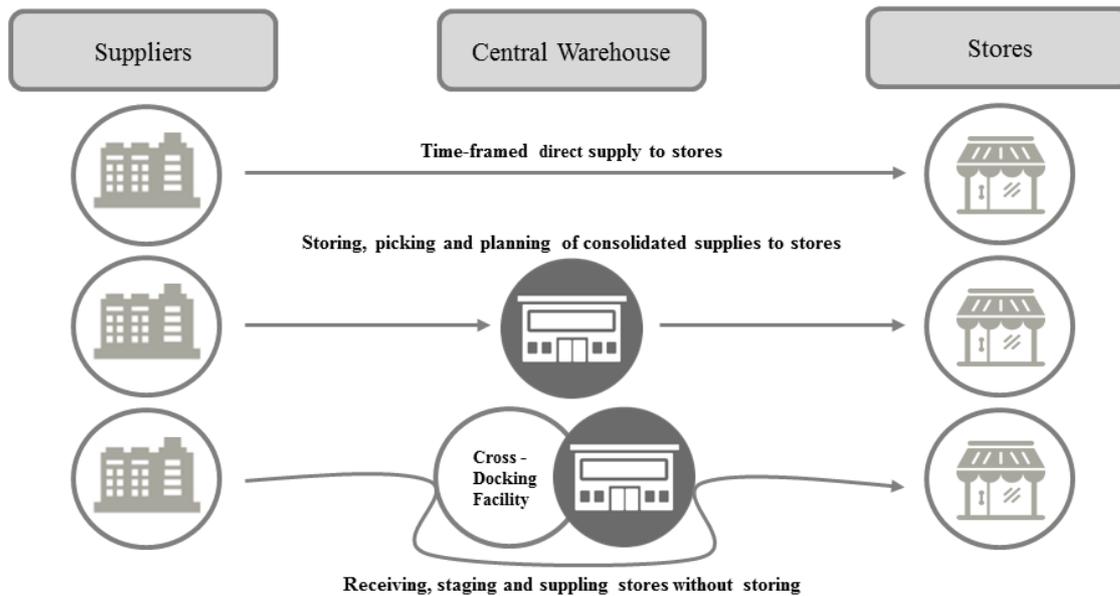
2.2. Traditional retail distribution processes

Today's consumers often take it for granted to have products available for purchase in stores all the time, as fresh as expected, right after launch-date as well as in sufficient quantity. Considering the mentioned e-commerce development, the same attitude towards food products quality and availability will expect no change. Consumers will demand full product availability and soon extensively supply in terms of home delivery services (Ferne/Sparks, 2004, p. 2-5).

Considering traditional retailing and the established logistics and distribution processes, requirements that come from high e-commerce demands which require, that supply or logistics systems (that deliver goods from the industry to warehouses and stores for consumption) are to be transformed or at least to be extended. Retailers focus on process development especially in secondary distribution (stores are supplied from warehouses), by channeling an increasing transport volume through DCs (distribution centers) and supporting logistical operations through the use of ICT (Information and Communication Technology). Reduced inventory at every level and improved efficiency in transport utilization, handling and packaging are central results of that strategic progress (Ferne/Sparks, 2004, p. 3-5).

Taking existing traditional retail distribution processes under consideration, a set-up of additional online food retail processes for fulfilling consumer demands is closely linked with a main established basis of processes (e.g. direct supply, central warehouse supply or cross docking – see figure 1).

Figure 1 Traditional Retail Distribution Processes



Source: own figure based on literature sources

2.2.1. Direct Supply

In direct supply, the control of the goods-flow is done by the manufacturers, as they coordinate deliveries to stores in accordance with time frames specified by the retailers (Bretzke, 2010, p. 380). The concept is mainly suitable for fast moving products with large order volumes, or if the supplier sells a broad and deep product range in the store, since there is the chance for high transport capacity utilization. Furthermore, it is suitable for perishable goods, that have to be delivered to the stores quickly, as well as for high-priced items that would result in high capital tied-up. In addition, this kind of distribution process would be worth considering if the goods require the use of special means of transport (e.g. container) due to their specifics (Laurent, 1996, p. 206; Thonemann et al., 2005, p. 77). The coordination costs for deliveries to stores can be uncomfortably high, in case the number of coordinating transport routes increases. Basically, all suppliers and CEP (courier express parcel) service providers must have sufficient high logistics expertise to coordinate distribution processes to the stores. However, this is not always the case in practice. Flexibility regarding demand fluctuations is limited because the supply frequency is lower than for the central warehouse concept (Stölze 2004, p. 68 & 71).

2.2.2. Central warehouse supply

Complexity in supply networks can be significantly reduced by consolidation of goods and information flows. A reduced number of transport relations that needs to be managed, is one reason leading to this effect. In earlier times, relations between several suppliers and as much stores had to be coordinated which resulted in high numbers of distribution connections to be coordinated. With a central warehouse concept, transport relations can be reduced. Suppliers ship all goods to a central warehouse. After consolidation of goods, the transport is carried out with a minimum of vehicles to stores. The concept results in a reduced number of deliveries and further to a reduction of logistical activities in the stores (Hertel/Zentes/Schramm-Klein, 2011, p. 172; Liebmann/Zentes, 2001, p. 638).

2.2.3. Cross Docking

Total logistics costs can be reduced through efficient cross docking (either "single-stage" or "multiple-stage" cross docking), since in most cases less storage space is required within central warehouse premises. Furthermore, the process costs can be reduced through the elimination of warehousing processes. In addition, inventory costs are avoided because stock levels are kept by the manufacturer. Demand fluctuations in stores can - similar to the central warehouse concept - be out-balanced one below the other. Furthermore, the cross docking approach requires less investment, as storing procedures (as well as additional storage technology) at the transition point is indispensable. In addition, there will be a consolidation of goods flows in the on carriage/last mile, resulting in less ramp contacts at the stores. Due to the efficient delivery, no stocks need to be kept in the stores (Hofer, 2009, p. 149; Placzek, 2007, p. 137).

In the grocery sector in general, the interlinkage between existing and new mentioned processes is of high priority in terms of cost- and time-efficient processing. With regard to mentioned existing supply processes in stationary food retailing in general, several linked requirements and potentials of distribution concepts for handling e-commerce need to be considered. The aim for developing facts for a common process for distribution processes joining both, (1) stationary retailing and (2) e-commerce streams, where synergies in operating both channels can be realized.

2.3. Requirements and influencing factors in terms of online retail distribution

When considering e-commerce demands as a new value stream in food retailing, requirements for adapting existing supply processes in food retailing for incorporating online retail distribution are two folded: on the one hand, (1) relevant process options, in connection to existing distribution in food retailing, need to be identified; (2) the criteria on the retailer's and the end consumer's side also need to be given strong consideration (Schramm-Klein/Morschett, 2005, p. 6-9; Ehrlich, 2011, p. 43).

As valid for both, internet consumers and stationary retail consumers, the end consumer requirements mainly include delivery time, freshness of products, shipping costs, the shopping procedure and convenience factors. In contrast to that, the retailers look more precisely on investment costs, process infrastructure (including stock levels), process adaptations and synergies (including time and personal resources) and handling times (Emrich, 2009, p. 57-61).

With a regional economic view of the Austrian grocery sector, additional influencing factors on both sides: the (i) total turnover in Austrian grocery, (ii) number of stores with e-commerce facilities, (iii) assortment policy in food online concepts (iv) available time for residents (v) monthly budget of private households (vi) payment ability for grocery products, completes a broad consideration of requirements and influences on the based e-commerce development.

When relevant process options and specifications for online retail distribution are shown and evaluated (see chapter 3 – Findings & Results), the retailer's as well as the end consumer's specifics and influencing factors are put into the context with potentials and trends in food distribution processes.

3. FINDINGS & RESULTS

3.1. Online retail distribution options

Based on the above mentioned traditional retail distribution processes, an exchange and preparation workshop with involved practitioners and industry experts (based on stated distribution models from an A.T. Kearney study, 2012, p. 3) resulted in conceivable options for distributing online ordered grocery goods; the methodical approach yielded to two "direct delivery" and two "click & collect" types of distribution:

PoS picking & direct delivery

According to consumer orders, goods are picked at the store (point of sale) by PoS-staff and distributed as home delivery. Delivery could be effected by CEP service providers or PoS-staff.

DC or „Online-DC“ picking & direct delivery

Picked goods at the DC or „Online-DC“ (newly built DC with precise requirements for the specific online food retailing processes) are distributed as a home delivery. Delivery could be effected by CEP service provider or by PoS-staff alternatively. Due to expected high distances between central warehouse and consumer's home addresses, delivery ought to be handled by a parcel service efficiently – e.g. when considering order bundling.

PoS picking & Pick-up (“click & collect” option 1)

Picked goods at the PoS are provided in given pick-up stations for collection by the end consumers. The retailer can determine whether the pick-up is possible at any time or only after shop-opening hours.

„Online-DC“ picking & Pick-up („click & collect“ option 2)

Picked goods at the “online-DC” are provided in given pick-up stations at the “online-DC” for collection. This service concept can be offered 24 hours a day, in case where the pick-up station access system is suitable or staff is available for physical handover.

While “click & collect”-concepts are considered to be the retailer's easiest entry opportunity into online food retailing business, the more challenging are “direct delivery”-concepts (with which field trials in an ongoing retail research project in Austria deals with), not least because of certain prerequisites in processing and margin modelling.

3.2. Retailer's and end consumer's specifics

Challenges in online retail distribution are further dependent on existing specifics of parties involved:

The consumer-side specifics incorporate facts that are very important for consumers in today's e-commerce business. Those can be divided into specifics either for online consumers or for consumers in stationary food retail. The "delivery time" (time span between order and delivery or availability of the products at the point of sale or at the pick-up station) and the "freshness of the products" rank among the most important criteria for online consumers. "Shipping costs", "shopping procedures" (whether consumers can shop undisturbed and smooth) and "convenience factors" complete consumers' attitudes. Product availability is important for both consumer groups and most often taken for granted.

Identified retailer-side specifics are of economic importance regarding implementation or adaption of multi-channel food retailing. Therefore, that requires first and foremost "investments", as they proportional cause higher risk for the retailer. In case of failing in the e-commerce business, the high investments in infrastructure by the retailer can cause severe liquidity problems or even bankruptcy. Further factors contain necessary "process adaptations" (linked with substantially high time and personal resources), the realization of "potential synergies" (at best contributing significantly to cost reduction) or finally, the "picking efficiency" are economically most relevant cost drivers for the grocery retailing company.

Table 1 Rating of Online Retail Distribution Options compared with Stakeholder's Specifics

Distribution Option \ Retailer's & Consumer's Specifics	PoS & direct delivery	DC or Online-DC & direct delivery	PoS & Pick-up (click & collect 1)	Online-DC & Pick-up (click & collect 2)
C / delivery time	+	+	~	~
C / freshness of products	+	+	~	~
C / shipping costs	+	+	-	-
C / shopping procedures	+	+	~	~
C / convenience factors	+	+	~	~
R / investments	~	~	~	~
R / process adaptations	+	~	~	~
R / potentials synergies	~	~	-	~
R / picking efficiency	-	+	-	+

Source: own research based on qualitative workshop data

Table 1 shows a process rating in terms comparing given stakeholder specifics with potential *impact* and *necessity* ("+" rather high, "~" medium, "-" rather low), in each respective constellation. It is recognizable that the "direct delivery"-concepts have high impact on the consumer specifics, as direct/home delivery process touches end consumers' shopping habits in a more decisive manner than the "click & collect"-options. Any new "DC"-option is characterized by high investments but high potential picking efficiency and process/synergy potential, especially in case of adapting an existing DC for e-commerce processes. Furthermore, "click & collect"-concepts stand for low risk – as they have only medium impact on consumer specifics – but are more uncertain for the retailer-side, especially regarding process adaptations and potential synergies with existing operations.

In contrast to the particular distribution level, a broader view on the economic sector, as stated above, results in the following: Table 2 unfolds additional influencing factors and their rating in terms of *impact* ("+" strong, "~" medium, "-" low/no effect") on identified distribution options in online food retailing.

Figure 2 Rating of Additional Influencing Factors in Online Food Retailing

Influencing factor... \ ... effect on...	Total turnover in Austrian grocery	Number of stores with e-commerce facilities	Assortment policy in food online concepts	Available time for residents	Monthly budget of private households	Payment ability for grocery products
Total turnover in Austrian grocery	-	-	-	-	-	-
Number of stores with e-commerce facilities	+	-	+	~	-	-
Assortment policy in food online concepts	+	~	-	~	-	~
Available time for residents	-	~	~	-	+	+
Monthly budget of private households	+	-	+	-	-	+
Payment ability for grocery products	+	-	-	-	-	-

Source: own research based on qualitative workshop data

The higher the monthly budget of private household, the more probability for higher value spent on grocery products. This is partly related to the payment ability for food, with an equivalent rise in food retail sales for a higher total turnover in the regional grocery market. The number of “e-food-stores” as well as the assortment policies stand for an additional sales channel in the food retail sector and do mainly – but not negligible – influence total grocery turnovers. Finally, available time for residents affects private household budgets and the payment ability (assuming: more working times imply a rise in income).

As the resulting two-stage potential-rating evolved through practitioners and specialist workshops and include assumptions regarding development and dependencies between certain factors on the Austrian food retail market. Yet, the presented effect ratings have shown interesting impacts in course of planning high-performing distribution processes for the online food market segment.

4. CONCLUSION

Due to recent changes in consumer attitudes towards e-commerce business models, the focus in the food retail sector has shifted from serving end consumers in traditional stores to offering additional distribution options in connection with online sales. There is much potential to change stationary grocery business practices and its distribution system. However, the dimensions on the process level when adapting changes are yet uncertain. Online retail distribution options – apart from those shown above – will vary geographically, corporately and on a logistics level. Aside from the logistical point of view, a consideration of economic factors allowed a brief insight into relevant aspects on market potentials for the Austrian online grocery business. That resulted in the two-stage potential-rating regarding retailer’s and end consumer aspects on the given topic.

Inefficiencies and the relatively high delivery costs faced by consumers as well as retailers in terms of purchasing and selling grocery goods online, are of high priority. A key issue in terms of e-commerce development in food retailing concepts is the satisfactory completion of consumers’ online purchases. Consumers will always expect an inexpensive, quick, reliable and convenient delivery of purchased products.

A study by McKinsey & Company indicates a strategic and operative logistics concept as the most decisive aspect in developing online food retailing. Increasing sales volumes and demand fluctuations due to an additional e-commerce value stream require managerial tasks to ensure goods availability. A specific logistics structure is the basis and more important than any other communication or marketing strategy (McKinsey & Company, 2013, p. 24-30). In addition to that, convenience and reliability are central aspects for e-commerce consumers. Process quality and price levels, which are strongly influenced by the logistics concept quality, are considered as the most decisive aspects.

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