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MAKING SUPPLY CHAINS YOUR COMPETITIVE ADVANTAGE!

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How e-retailing can influence your logistics?

A white paper on e-fulfillment

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Preface

No doubt the Internet is very important to corporations and to consumers alike. It offers us a life style we can all appreciate very much. I dare to say that our generation and certainly our children are so addicted that we can't live without this technology. Imagine when we want to get information about a company or a product which we intend to buy; we surf to the most popular search engine "Google" and in a couple of seconds we receive plenty of links. Two decades ago, we lost half a day for the same search for information. The Internet makes our life much easier and effective.

But, the Internet is not a given for everyone, although Internet penetration rates have increased across Europe over the last couple of years. Increasing numbers of firms and households are connected to the Internet and more business is being done online. According to Eurostat data, more than 60% of households in the EU 27 have access to the Internet. However, big national differences still exist.

All the marketing-driven companies in different industries, especially the retail sector in general, are extremely aware that the Internet will play a very important role in the way that they conduct their daily businesses in the coming years. They will use the Internet even more to explore new market places, to grow in market share, to deliver customized services and products and so on. In addition, the retail sector has the advantage of having a direct connection with its loyal customers. They can quickly identify market needs in order to respond immediately to the market changes and challenges. We might say that the fast growing Internet-use by the end-customer, one of those market changes, pushes the retailer to think seriously about his current business models and how to best deal with it. The Internet is absolutely one of the most significant catalyst of the last decade which is transforming the traditional retail business to another level. New business models and new relationships between suppliers, retailers and consumers have been created.

The Internet is not only a branding and information channel but also a very lucrative revenue generating channel. The retailer used to have a website, mostly as an information delivery channel and because competitors had a website as well. Now the same websites have become very user-friendly, well designed and have been extended with a webshop-application to serve the retailer's e-customers 24 -7.

Nowadays, more and more customers with disposable incomes, but little time, are doing more of their shopping across the Internet. The expectations are that the demand for goods and services online will continue to grow as the consumers become more familiar with the e-shopping culture.

In Europe, the potential in this area is still large, but it is also growing enormously; yet even so, there are only a few established players which have a solid and clear answer to their customers' needs. A tremendous battle is brewing over this valuable territory. Established European retailers have the products, the brands and the customer base, but are still struggling on how to fit it into their existing distribution models. This is not as easy as it seems.

This white paper is intended to help you to understand how e-retailing, as a new sales channel, can impact the logistic component of your business when the related business processes are not adjusted. A fancy, good looking webshop with an enormous amount of tabs is absolutely not enough! Moreover, it can cost you your loyal customers!
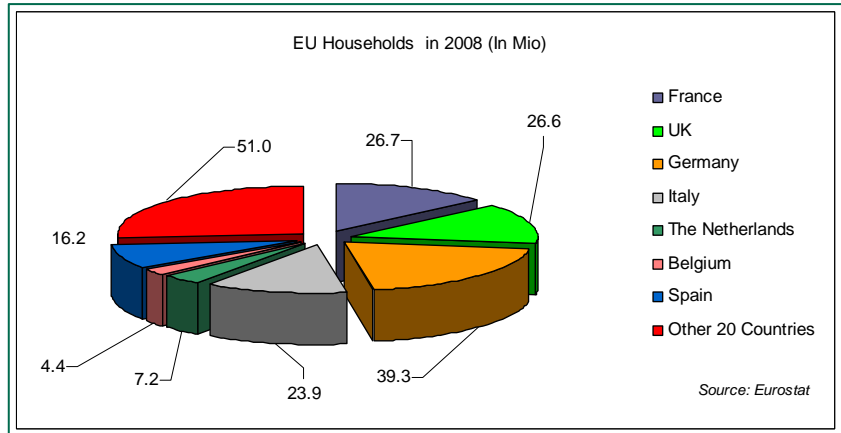
1.Online shopping is a booming business

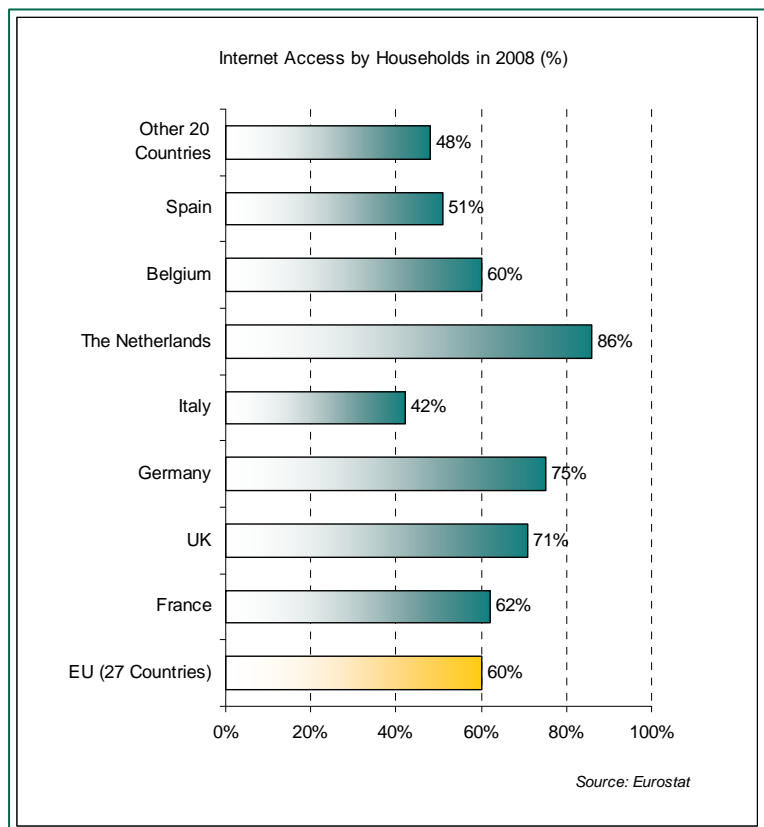## 1.1 Internet access is the basics

We can't deny that consumer spending via the Internet is growing extremely fast and the expectations for the coming years are spectacular. But, if we want to buy our products via the Internet, we need to at least have access to the World Wide Web.

Today, the EU counts 27 member states with a GDP of ca. € 11,200 billion and almost 500 million inhabitants spread over ca. 195 million households. To give you an idea, just four states (UK, France, Italy and Germany) are represent 60% of the households in the EU, the other 40% is spread over the other 23 states.

EU Households in 2008 (In Mio)

France
UK
Germany
Italy
The Netherlands
Belgium
Spain
Other 20 Countries

Source: Eurostat

Within this EU-area, only 60% of the EU households have Internet access, which is too low considering that we live in a digital century. The Netherlands is a real frontrunner with 86% followed by Germany and the UK with respectively 75% and 71%. Italy, Spain and some other countries (e.g. Bulgaria, Greece, Poland, Romania, etc., part of the "other 20 countries") score below the EU average.

It seems that there is still a long way to go before everyone has Internet access. On the other hand, this Internet access less group of 40% is a nice potential for the future.

Internet Access by Households in 2008 (%)

Country	Access
Other 20 Countries	48%
Spain	51%
Belgium	60%
The Netherlands	86%
Italy	42%
Germany	75%
UK	71%
France	62%
EU (27 Countries)	60%

Source: Eurostat

1.2 What is the e-consumer like

The European e-consumer is not only exploring the Internet for leisure aims but also for enhancing and managing his or her daily lifestyle:

- More than half of European Internet users are online every single day.
- Three quarters are using the Internet during their evenings.
- More than half of Europeans are on the web during the weekends.

Flexibility and freedom are key words for today's e-consumer. Because the Internet offers that ease-of-life, the consumer is very keen on increasing certain activities by means of the Internet:

- Almost three quarters (73%) of European Internet users stay more frequently in touch with their family and friends.
- 54% have booked more holidays or made travel arrangements.
- Almost half (46%) are able to manage their finances better now.

In addition they cite that the Internet has provided them with a greater choice of products and services and important information resources.
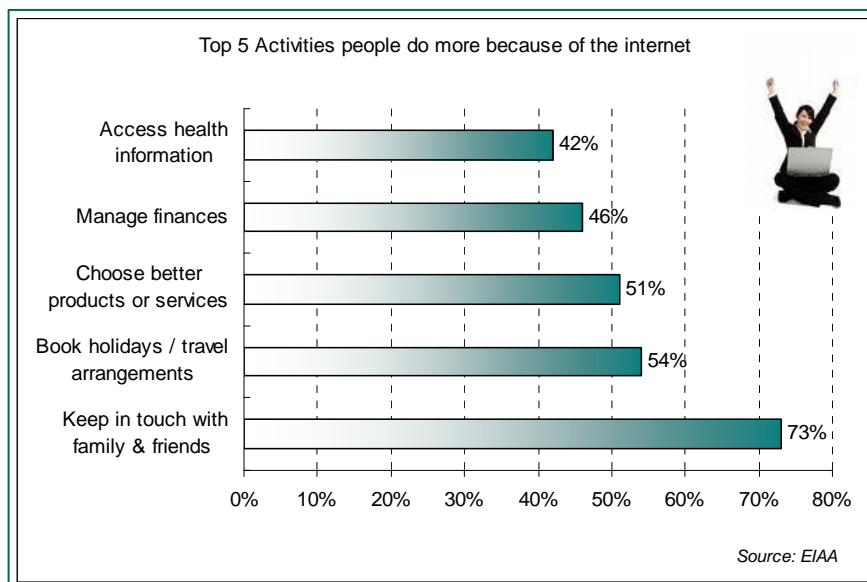
While several surveys have predicted that Internet popularity is expanding amongst the 16-24's ages and the older generation, we see that a wider range of Europeans are using the Internet to deepen and diversify their online experiences. It is today's 25-34 year old age group that seems to be collectively driving recent growth. Time spent online has risen amongst this age group (from 13 hours in 2007 up to 14). 36% of this age group is spending 16 hours or more online each week and almost two thirds are online daily. And last but not least, this group has money to spend.

1.3 The influence of the Internet on the customer's purchase behaviour

Ca. 40% of the European online shoppers changed their purchase decision about which brand to buy based on online research. British e-shoppers are the most likely to be influenced by information on the Internet (49%) while Italians are the least likely to change their minds (27%).

Besides, ca. 60% of online shoppers report that websites of A-brands are an important source of information for researching or considering products and services. Search engines are considered more useful than personal recommendations. 6 out of 10 e-shoppers find price comparison websites very useful and they consult customer website reviews to help them choose.

% who changed their mind about what brand to purchase after internet research

Source: EIAA
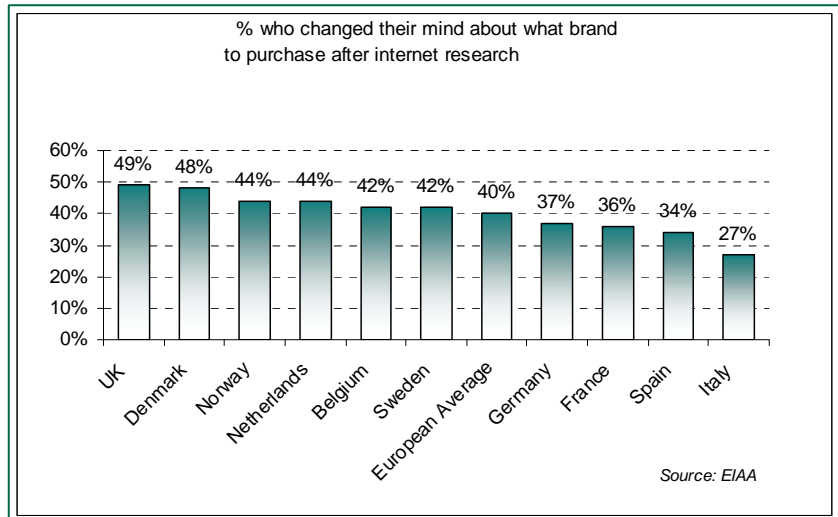
Nearly 45% of European Internet users do a small online-research of a product before buying it in a store. The main reasons for buying in store are: a desire to see and touch the item (57%), followed by not wanting to pay shipping costs (28%), it would be easier to return a product bought offline (27%), having more information before buying (26%) and having the product immediately (21%).

1.4 Sky is the limit

Nearly one third of the individuals in the EU 27 shopped on the Internet in 2008, an increase of 12% within 4 years which had a revenue of ca. €136 billion, and it is forecasted to grow to approx. €186 billion in 2013.

This growth is due to a mix of factors: from the consumer point-of-view, increase of Internet exploration because of more and a better Internet connectivity (broadband), a wide variety of payment options and higher confidence in online security.

Besides, the retailer will offer more and better delivery options, more user friendly websites and free shipping because of rising competition.


Source: Forrester
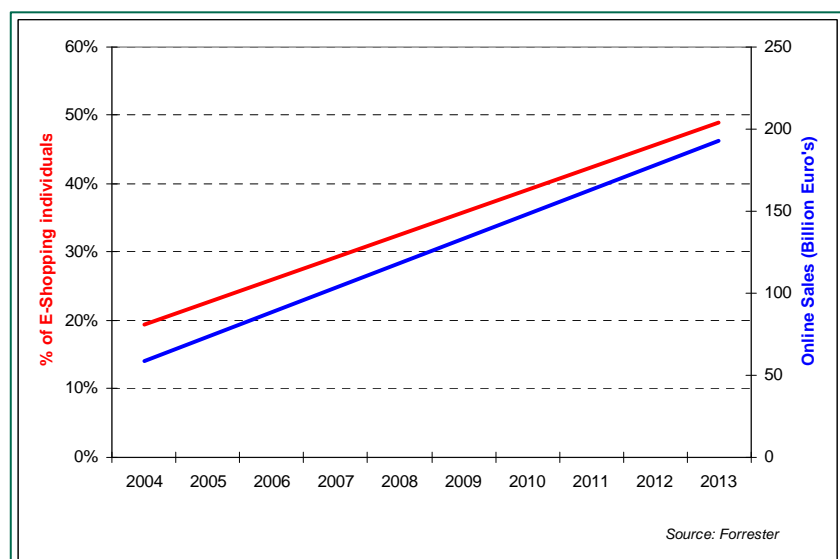
The ease, choice and price are no longer the key-words which attract the consumer to buy via the Internet. Those have become basic conditions. What is more imperative? The e-retailer must offer more and better services, customer management and audience engagement.

The European online retail market is not a single and homogenous market but a collection of local markets with different points in their developments. In the EU 27, just 32% of all individuals have ordered products or services via the Internet while more than half (56%) of the European individuals are using the Internet frequently (at least once a week). This means that just 57% of the European Internet users are shopping from time to time via the Internet. What about the rest of the Internet users?

We see that there is a huge potential where the consumer can be convinced to prefer the Internet as a complementary purchase channel. The mature online retail markets like Germany, UK and The Netherlands are the real front runners within the EU 27. Nevertheless only 67% of the Dutch Internet users are not only actively browsing on the web but also make purchases on the web as compared to 77% of the German Internet users, conceding that the Dutch people are using the Internet more often (83%). The U.K. is relatively the leader on the online retail market in Europe with more than 80% of its Internet users buying online regularly.

The Nordics (Sweden, Finland and Denmark) also have a high share of e-shoppers (between 50%-60% of population) in their countries. The Italians, the Spanish and the Belgians are less eager to buy products via the Internet.

Source: Eurostat
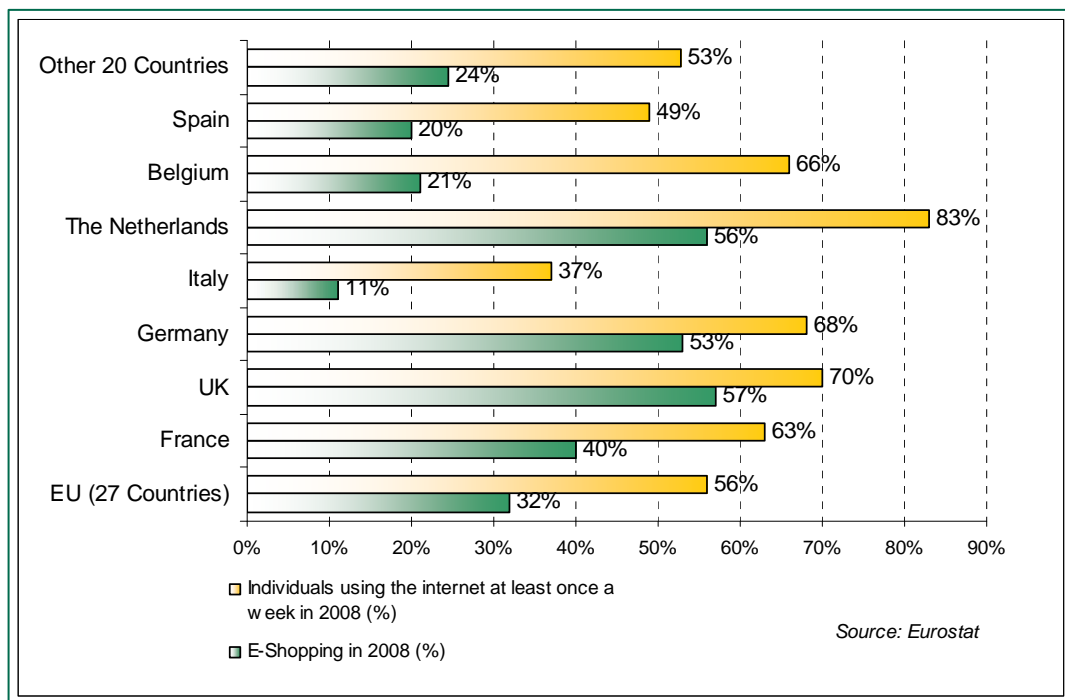
Actually, everything can be bought via the Internet, but what is the consumer mostly buying? The most popular online purchases are travel tickets (54%), closely followed by gifts for holidays (42%), books (40%), concert/theatre/festival tickets (38%), clothes (33%) and electronic goods (33%). When we go into detail according to the gender differences, we see that female shoppers are focusing on clothes (40% vs. 27% of men) and on holidays arrangements (46% vs. 38% of men) while the male goes for electronic goods (39% vs. 27% of women) and CDs (25% vs. 20% of women).
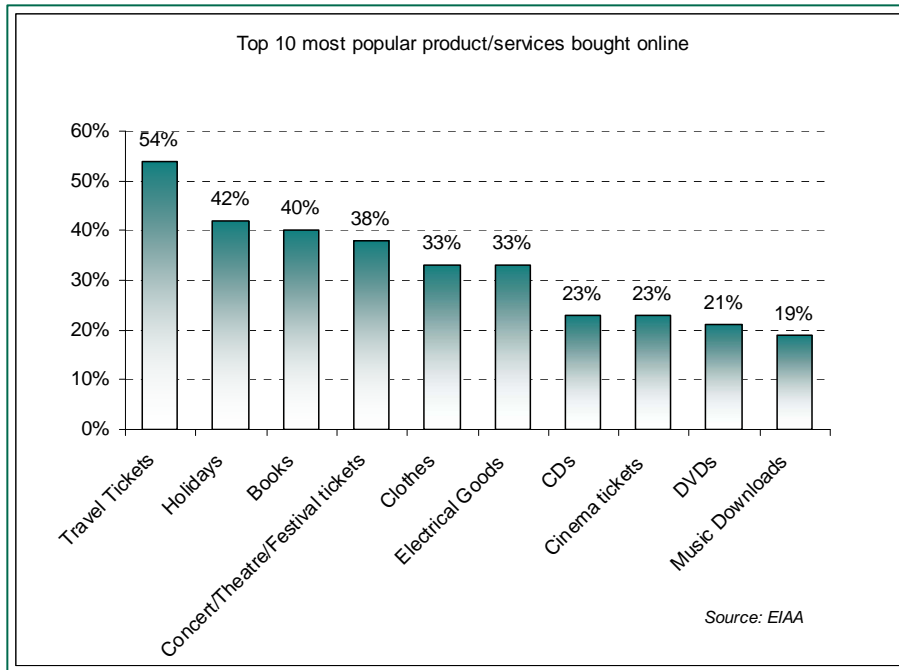
The penetration rates will rise quickly, especially in categories and services that can be delivered via the web. Indeed, online fulfillment will pose a serious threat to those who rely on traditional retail models and will create opportunities for those who own the content.

Top 10 most popular product/services bought online

Product/Service	Percentage
Travel Tickets	54%
Holidays	42%
Books	40%
Concert/Theatre/Festival tickets	38%
Clothes	33%
Electrical Goods	33%
CDs	23%
Cinema tickets	23%
DVDs	21%
Music Downloads	19%

Source: EIAA

For many EU-consumers, providing personal data to an "invisible" third party is an alien and unwelcome feeling. Hence, almost half of European online consumers pay for their online orders by cash on delivery or request to be invoiced. Ca. 12% of individuals in the EU 27 haven't ordered goods or services over the Internet because of worries about providing credit card or personal details online. These security and privacy concerns were most common in Spain (27%), Finland (26%) and Cyprus (20%). There are, however, positive signs emerging.

2. Multichannel or just webshopping

2.1 Internet within a multi-channel concept

Multi-channel retailing presents significant opportunities for retailers. The Internet is becoming a crucial component of an increasingly multi-channel purchasing process. The most basic form of multi-channel retailing is research online and buy in-store. This is already familiar to most retail customers. Ca. 65% of the retail customers are already shopping this way.

By the end of the '90, a lot of offline retail companies had developed a nice website which was later extended with a basic webshop. They strongly believed that a website with a webshop was one of the perfect tools to make more money because it provided them the means from that point on to extend their reach to customers over the entire world. Fortunately, they quickly came to the conclusion that a webshop was not the only add-on needed to achieve greater revenue and market share. Therefore, more effort was needed.

From the customer's point of view, shopping via the Internet has quite some advantages that transcends just purchases for books, CD's or travel arrangements.

The main common advantages are:

- *Availability and accessibility:* the penetration rate of the Internet access is increasing because of more and better network infrastructures, to include the emerging markets in the EU. The possibility for e-shopping is becoming available for more EU-households. Besides, an e-shop has in fact no closing hours.
- *Direct communication possibilities:* the supplier can react immediately on potential needs of the customer. The supplier can propose interesting promotions, product options, detailed product information and comparison and so on. Insights into customer needs can be captured by analysing historical purchasing profiles of those customers.
- *Cost savings:* the intermediary, especially wholesalers, in the supply chain can be deleted. The margins of the wholesalers, import duties and VAT can be minimized or even deleted by shopping via the Internet, which in turn can make the product cheaper than buying it in a store. In addition, supplier and price comparisons can be done easily and quickly, which can also increase the cost savings as well.
- *Convenience for the customer:* the customer places an order via the Internet and a few hours or days later he or she receives the products at home or he or she picks it up at certain delivery point (fuel station, shop, logistics service provider, Kiala service point, etc.).
- *Time spent:* the customer spends less time to buy the product.

Unfortunately, not all of these advantages can always be realized one hundred percent of the time. For instance there isn't always great savings in time spent and the prices are not always significantly cheaper. Besides, it is not always a guarantee that promised lead-times and delivery reliability are kept. There are still topics to be improved to convince the non-believers that e-shopping is really worthwhile.

2.2 Clicks & Bricks retailers versus Clicks retailers

Today, there is still a great divide between the offline and online retailers in Europe.

The Clicks & Bricks retailers and the Clicks retailers represent different retailing perspectives. The multi-channel retailers or the so called "Clicks & Bricks retailers" typically represent the incumbent retailers which operate both physical and virtual sales channels. The "Clicks retailers" are those which operate only via online sales channels.

Currently, Clicks & Bricks retailers in Europe hold two third of the market. One third is lost to Clicks retailers. It might be that the Clicks group will increase their market share even further.

Increasingly, Clicks & Bricks and the Clicks retailers are realizing that both worlds can and do add value for the customer. They are learning from one another and are migrating successful practices from one channel to the other. Retailers are increasingly operating in both worlds and taking a Clicks & Bricks approach that combines the best of each channel.

While the online world offers flexibility, broad assortment, customization and convenience, the offline world add the human dimension, supports impulse shopping and provides the physical presence that consumers also crave in a shopping experience. Meanwhile, there are also Clicks retailers that are recognising the value of a "physical shop". This has led to several Clicks retailers partnering with or acquiring traditional retailers to establish this physical presence in order to expand faster and gain the advantage of an offline presence.

While the Clicks & Bricks combines the best of online and offline worlds, it is an approach that favours traditional retailers with an established store presence and known brand. European retailers need to capitalize on this advantage by creating an online channel that complements their offline operations. Some cannibalisation of their offline outlets will occur, but the ultimate rewards of being in both worlds will outweigh any short-term losses.

3. One size fits all

3.1 Logistics rules and not the fancy website

The big issue is not the website, certainly the website must be user-friendly and up-to-date, but what about the logistics?

A few months ago, I ordered via a website two lamps and related lights. I paid the amount and a few minutes later I received an order confirmation in my mailbox. Additionally, the order confirmation contained: the delivery costs, the estimated delivery date and how I wanted to be delivered (at home or at a certain delivery point). The delivery costs were of course based on the desired delivery time and delivery point. I preferred a cash-on-delivery at home with a lead-time of five days, I was not really in a hurry.

Well, almost three weeks later I received a part of my order (1 lamp). Two weeks later, I got the rest of the order, but I paid for a service level that was promised, namely the whole order in five days which was absolutely not the case. For me it was not the first time that I had ordered products via the Internet. Imagine if it was my first e-shopping experience, well I assume that it would have been my first and last. But what happened, why was my order split into 2 deliveries, and why didn't they meet the initially promised lead-time?

The main cause for why the service of the company was, may I put it mildly, terrible, was that it had none of its own inventory. The company was dependent on the supplier's inventory levels. The supplier's stock levels were not transparent to the company which subsequently led to the service level becoming very unreliable.

A website with up-to-date information is the basics and important, but the logistics network supporting it is crucial!

3.2 A logistics network is not a fixed concept forever

A company that intends to serve their end-customers via the Internet with its existing logistics network has an enormous challenge in order to meet high customer service expectations with relative low costs.

Due to the different fulfillment characteristics of e-retailing against traditional (offline) retailing, traditional logistics networks are being radically transformed. E-retailing is demanding an agile, high-velocity, accurate and customized approach to logistics services. The typical e-customer is an unknown entity who orders products on an individual basis according to impulse, seasonal demand, price and convenience. An e-retailer must be able to customize an individual order and to ship it directly to the buyer anywhere in the world. Besides, tracking the critical information of the shipped products at any given time along the supply chain, handling customer inquiries and product returns as even offering gift wrapping must be served at "ten" times the speed and at a lower cost compared to traditional shipping and fulfillments.

The major characteristics of e-retailing, which demands new reliable logistics concepts, are:
- Smaller order sizes (mostly single-line with single piece orders) per customer, but larger number of small parcels or packages due to a larger number of online-buyers making direct orders which are mostly unknown;

- End-customers' orders are much more unpredictable and unstable than in a B2B environment;
- Dealing with promotion orders which require adapted fulfillment processes in the distribution centres;
- Availability of a larger product assortment than in traditional off-line stores;
- Inventory management and owner shipment is based on supply chain connectivity and visibility;
- Combining of (fresh) food products with limited expiry dates and non-food products in one e-order asks mostly additional activities like consolidation, (re)packing and cross docking;
- Origins and destinations of shipments are more widely dispersed;
- Customers have high expectations about quality of services and demand fast delivery of shipments;
- Substantial larger returns-flows to the supplier than in traditional trade;
- Higher demand for on-line shipment tracking information;
- Bigger focus on personalized marketing, which creates demand for customized delivery and post-transaction customer services;
- Higher complexity level in e-fulfilling of international orders than in traditional trade;
- The emergence of demand for on-line processing of shipments, including cargo booking, bills of lading/airway bills, freight payment, rate quotation, landed price calculations and tariff management;

These fundamental characteristics of the e-retail business have led to a complete shift in the e-logistics landscape. New logistics insights are required regarding to the distribution processes, inventory management strategies, warehousing concepts, planning, working methods, etc.. The idea that "One size fits all", or in other words that one fixed logistics network model is applicable for all types of distribution structures, will ultimately result in losing money and market share. So, the more the company's website attracts e-orders from the end-customers, the more the existing logistics networks has to be evaluated and possibly redesigned.

3.3 What should this logistics network look like?

It depends on the company's strategy. In fact, we can distinguish three types of Internet companies that deliver products to the consumers via internet.
- *Company Type 1 – The Clicks & Bricks:* these companies have their own physical assets (own warehouses, own inventory and own shops). They use the Internet as an additional sales channel along with their physical infrastructure.
- *Company Type 2 – The Clicks with own assets:* These companies deliver their customers only via the Internet. They have their own warehouses with their own inventories.
- *Company Type 3 – The Clicks with no assets:* These kinds of Internet companies also only deliver customers via the Internet like type 2, yet they have no warehouse and no inventories. They operate as an intermediary between suppliers and customers. This concept is also called "drop-shipping".

And what about the order fulfillment possibilities or opportunities when a company decides to use the Internet as an extra sales channel, especially for companies with just offline distribution structures?

		Company Type		
		Company Type 1	*Company Type 2*	*Company Type 3*
Possibilities	Order picking & delivering from the stores	X		X
	Order picking & delivering from an existing DC for stores	X		
	Order picking & delivering from a dedicated DC for internet orders	X	X	
	Outsourcing of order fulfillment	X	X	X

First possibility: Order picking and delivering from the existing shops
This alternative can be applicable for companies of type 1 and 3. Companies of type 3 (no assets) could collaborate with independent offline stores or franchisers. But, there are also some easily perceptible disadvantages: stores don't have the most optimized infrastructure and working methods concerning the collection process for customer orders. For example, the fast moving products in a supermarket (e.g. bread and milk) are generally not available in the same row or area. Besides, the products on the shelves at eye-level are not the fast- movers but the products instead with the highest margin.

In this alternative, the Internet orders are collected by the crew of the supermarket themselves. In the early afternoon, when all shelves are replenished, the crew can collect those e-orders. The risk is that their regular shoppers might be disturbed during shopping and the expected service level can get worse.

After being collected, the e-orders must be packed for delivery as requested. Normally, the e-customer can choose from several delivery options: the e-customer can choose to pick-up his order at the store. Another option is that the order will be delivered at home or to a certain pick-up point.

This fulfillment option for e-orders require very limited investments, but is only cost-effective for small number of Internet orders (mostly advisable for start-up of e-businesses).

Second possibility: Order picking and delivering from the regular distribution centre(s)
This option is useful for companies of type 1. This option is in general not a good solution. Actually, the distribution centres (DC's) are designed for collecting orders for their stores and not for e-orders from end-customers. The main reasons why different logistics processes must be taken into account are:

- *Different order profile:* The order profile of those stores is totally different than the e-orders from end-customers. These store-orders are in general much larger (more order lines per order and more units per order line) than e-orders from the end-customers. The products in the DC's are mostly stored on pallets in pallet racking systems within long aisles. The orders for the stores are picked into one or more trolleys. Each order is at least one trolley depending on store-size. Besides, the minimum order quantities for store-orders is on case-level and e-orders is on piece-level.
- *Unpredictability:* orders for stores are more or less predictable based on historical data which can not be said of e-orders coming from end-customers.
- *Different picking methodology:* Collecting the store-orders is mostly done order-by-order while collecting e-orders (small orders) should be executed on batch-level (several orders with same items, routing, product characteristics are collected within a batch); therefore, a sorting/consolidation process is required.
- *Packing process:* Internet orders for end-customers must be packed. This is a new process that initially was not part of the DC-process.

In general we can say that the internal processes, storage systems, handling systems, information systems used in a regular DC for the store-orders are not really suitable for the fulfillment of the e-orders. Although these constraints, this option can be a good solution for a limited number of e-orders. Big advantage is that this solution require relative small investments. But when the volume of the e-orders shall increase, this option will become a less-efficient solution.

Third possibility: Order picking and delivering from a distribution centre for Internet-orders
This concept is suitable for type 1 and 2. Such a DC is well designed for picking, packing and shipping of small internet-orders. Optimal storage and handling systems (like case flow systems, lift systems, mini-load, pick-to-light, put-to-light, etc.) are used in order to keep high performances and minimize logistics costs. In general, picking into shipping boxes is common to reduce handling. Delivering or transportation is mostly outsourced to carriers with best integrated information system which is not always the cheapest party.

For large regions a hub-and-spoke model is one of the best distribution networks. This means that full truck loads are first transported to a hub (of a logistics service provider) where the lading will be passed over to other transportation modes like smaller vans. Those vans will perform "the last mile". The big disadvantage of this concept is the high investments to build up such a DC-structure with new processes. This investments are only justified when a high volume of e-orders is reached.

Fourth possibility: Outsourcing of order fulfillment
This concept is suitable for all company types. There are some definite arguments in favour of outsourcing. When distribution is not a company's core business, outsourcing can help a company to grow and keeping the focus on its mission-critical activities. Businesses that outsource e-fulfillment can deploy sites quickly, with a minimum of capital investments, while maintaining the confidence that customers will receive the level of service they expect. By outsourcing, an e-business is able to plug into the third-party's infrastructure, which should be robust enough to handle the increased activity.
Outsourcing also alleviates the need to hire internal logistics and fulfillment staff, and to build and equip expensive warehouses. Third-party providers have the advantage of capturing and processing the details of thousands of transactions.

The quantity of data can be very useful for trending and improving sales and customer service. In fact, a new type of third-party providers, Logistics Visibility Providers (LVPs), specialized in capturing, cleansing, verifying and analyzing the data from all other logistics service providers in order to facilitate supply chain visibility.

There are also some distinct disadvantages like losing the control and specific knowledge and expertise on logistics processes. Although outsourcing of the logistics by a service provider, the company is still responsible for the service to the customer. The truth is that only a few logistics service providers have figured out how to organize e-commerce business on end-customer level well.

Of course, all these possibilities have pro's and con's: companies of type 1, with an existing store-infrastructure are able to deliver from their stores. This means that the full product assortment must be available in the stores. The advantage is that such a concept does not need high investments. Cannibalization of regular sales is not excluded.

Companies of type 2 or 3 operate only via Internet. When volumes of e-orders increase, the logistics part must be adjusted to be profitable.

Outsourcing could be a solution and is applicable for all company types. Low investments is the main advantage but the risk to loose logistics control end expertise is realistic which makes a company in a certain way dependent.

Possibilities	+	-
Order collecting & delivering from the stores	- Low investments - Easy to set up such operation for companies that already have stores - Small response time	- Stores are not designed for effecient order picking - Additional processes are needed - Lower service for regular customers - Cannibalization of regular sales
Order collecting & delivering from an existing DC for stores	- Relative low investments - Easy to set up such operation for companies that already have a DC for delivering their stores	- DC for replenishing store is not designed for internet orders - Full internet assortment must be available in DC - Picking on piece-level - High distances for picking - Cannibalization of regular sales
Order collecting & delivering from a dedicated DC for internet orders	- Optimal layout - Economy of scales	- Higher investments, new distribution concept - Full assortment must be available - Cannibalization of regular sales
Outsourcing of order fulfilment	- Focus on core business - Low investments - Execution by experts - No hiring of personnel - Economy of scales	- Loss of control and knowledge - Full assortment must be available - Cannibalization of regular sales

3.4 A dedicated Internet DC for end-customers

How should the Internet DC be built up? There is no rule or recipe in general, but different solutions are possible, mainly depending on order size, order profile, assortment, customer requirements and so on.

An Internet DC starts initially on a small level with the ambition to grow. In fact, this is a slow but smart strategy with relative low risks. Big investments are not necessary for uncertain operations. Although, sometimes it is quite difficult to transform a small running operation into a larger one with a minimum of risks. It often needs other storage and handling and/or picking systems, new or adjusted IT-systems, etc..

In addition, mechanized solutions and customized information systems can only be justified for sufficient large volumes (fixed costs can be ventilated over the order lines or units). But choosing for more mechanization results mostly in limiting flexibility; nevertheless, it can generate headcount savings (especially direct labour).

Outsourcing of the e-fulfillment to a logistics service provider (LSP) could be a solution to minimize or to eliminate the initial investments (building & installations, tenant improvements, equipment, etc.), but don't undervalue the initial project costs (mostly one-off-costs) to start up the operations. Besides, LSP's prefer high flexibility levels, which means that mechanization solutions are mostly not proposed by them unless the contact period is long enough (>5 years) and the fixed costs are covered.

But whether or not choosing for outsourcing, the traditional issue in warehouse design includes the selection of a proper storage and picking methodology, the choice of appropriate handling equipment, and the optimal warehouse layout. Order picking costs account for the largest part of warehousing operating costs. This is even more true in e-fulfillment operations, which typically involve small pick quantities from a large number of items. Items normally are stored in different storage systems depending on product fit, turnover rate and functionality: automated replenishments from bulky pallet locations (AS/RS) to smaller pick locations (mini-load systems or similar storage systems) where picking is done. Those small items can also be stored in case flows with integrated pick-to-light system.

Split-case or piece-picking are common picking methods in this kind of environments. These are relatively more labour-consuming than case or pallet picking. A regular picking process also exists of walking or driving to a pick location. Walking or driving is in fact a
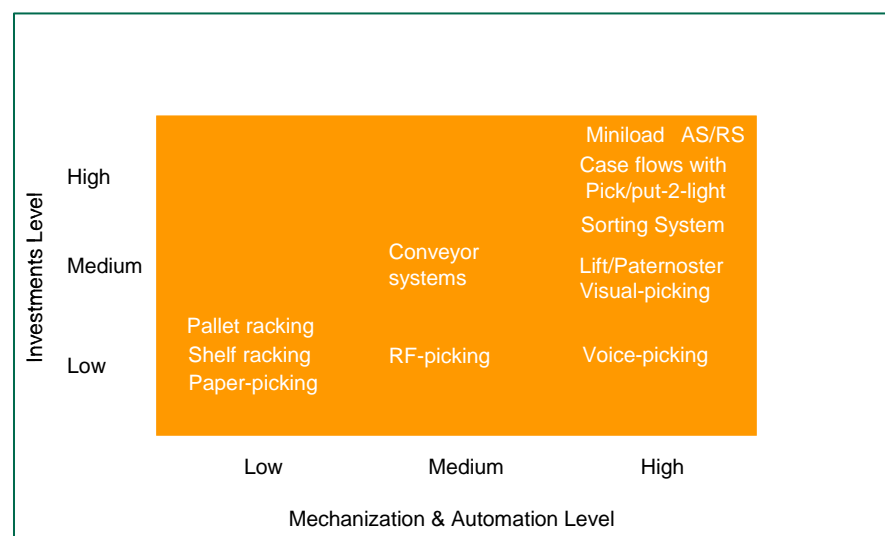
non-value adding time-consuming process that could be minimized by integrating conveyor systems (goods-2-man systems) which can transport items or orders through the different warehouse zones. Disadvantage is that flexibility is very limited now.

In a e-commerce environment, picking quality is highly important since the assembled order is delivered directly to the end-customer. Picking quality can be supported by advanced picking technologies, such as radio frequency terminals (RF), wireless voice or visual technologies, and pick/put-to-light systems supported by a Warehouse Management System (WMS). After picking, the orders must be packed. This kind of activities are mostly customized since the orders (also labour-consuming process) are delivered directly to end-customer. However, viability of the corresponding investments requires high order volumes.

The picking, packing and shipping of products to the end-customer is a normal process, but don't forget that one of the disadvantages of Internet sales is the huge return-flow. This can go up to 20% of the regular sales volume or even more, especially for the apparel retailers (ca. 45% of their orders are returned). The question is where to handle this enormous return flow: at the Internet DC or setting up another appropriate operation only for returns? The answer is quite simple: a dedicated operations for return-flows is only cost-effective for e-businesses with large return-flows (e.g. fashion). Besides, a return-process can only be justified for products with high margins.

The goods that are returned by the customer are mostly put into all kind of packaging materials and packaging sizes and mostly with missing order/shipping information which leads to many frustrated searching acts. Anyway, this is also reflected in the warehouse design. Therefore a well defined return-process is key to keeping this non-value adding cost as low as possible.

Obviously, a large fraction of the returned products is essentially as good as new and can therefore be resold. However, this requires a systematic process for feeding returns back into saleable inventory, possibly after inspection or cleaning the goods. This non-value adding process must be allocated somewhere within the (shipping) price, that's for sure!

3.5 Delivery service like room service?

On the delivery side, short-term planning concerns the actual transportation of the goods to the customer. This closely depends on the chosen delivery concept. In the case of in-store pick-up, 'transportation' may be limited to moving the goods to a check-out counter. Combining shipments with regular store replenishments may yield economies of scale. Home-delivery implies a more extensive operation. Cost-efficient processing of small transaction sizes is a major challenge. Especially in the case of low-value items, such as groceries, transportation costs are a key determinant of the business viability. Hub-and-spoke networks provide a common way to create economies of scale while expanding geographical coverage.

Dedicated home delivery, as opposed to e.g. delivery by mail, requires the planning of appropriate transportation routes. The degree of routing flexibility and thus transportation efficiency closely depends on the delivery service design, notably on the offered delivery time-windows.

In e-retailing business, new routing schedules have to be planned more frequently (usually daily or twice a day) than in a traditional B2B environment because many e-retailing orders are impulse buys whereas B2B purchases are often repetitive. Therefore end-customers exhibit a greater need for quick-response dynamic vehicle dispatching systems than B2B environments.

As any company, Internet sellers need to design their product offering. In their case, this includes the choice of the offered delivery service, which is an important determinant of customer satisfaction.

From a customer service perspective, concepts for bridging the 'last mile' to the customer can be divided into customer pick-up versus (home) delivery. The latter can be further subdivided into attended and unattended delivery.

1. Home delivery:

While unattended delivery increases delivery flexibility, this concept is only applicable for products that can be safely deposited, e.g., in the customer's mailbox. The well-known example of U.S. online grocer Streamline illustrates the difficulty of extending unattended delivery to more sensitive product categories. Streamline went bankrupt after being unable to earn back its investments of providing customers with refrigerated reception boxes.

For attended home delivery, a company and its customer need to agree on a delivery time window. The length of this window and its timing during the day are important aspects of the customer's perceived service. The same goes for the delivery lead time, i.e. order placement and delivery. At the same time, all of these factors have an immediate impact on the seller's delivery costs. Striking the right balance between cost and service is challenging, in particular in highly competitive environments, such as the grocery market.

Internet sales are facing particularly high return rates since customers cannot try and feel the product beforehand. Costs of return handling, which include bridging the expensive 'last mile' for a second time, can easily eradicate the economic viability of an online channel. Therefore, designing an efficient return processes is of prime importance.

2. Customer pick-up:

Traditional sales channels offer many potential synergies for the marketing of an Internet channel. In particular, a well-established brand name helps build trust with the customer, which is essential for online sales. The presence of a traditional distribution structure also yields additional options for the delivery service design in e-fulfillment. Physical store pick-up points are a fairly common alternative to customer home delivery. Online orders are picked and packed in a store where the customers can then pick them up, possibly via a dedicated pick-up lane. In this approach it is the customer who bridges the crucial 'last mile'. Other advantages of a pick-up structure include low capital investments and possible carry-over effects on in-store sales.

The presence of a physical distribution structure can be particularly beneficial for return handling. Most multi-channel retailers offer online consumers the option to return products via offline stores. This approach not only helps reduce return handling costs but it is also greatly valued by the customers.

4.Conclusion

We see that the Internet access for the households in the EU27 is well represented only for a small number of countries. However, there is still a huge potential of new e-customers. We expect that the e-shopping culture, given the digital century that we are living in, will grow enormously in the coming years. More and more companies are aware of the Internet's role as an additional sales channel but aren't quite sure how to organize the logistics back-office?

Before you start to explore all kinds of sales activities via the Internet, please be aware that logistics (your back-office) is critical to your success. A good looking website is absolutely not enough. It must be supported with an efficient logistics infrastructure. That's the basics! It's not that easy as it seems, certainly for those Clicks retailers which don't own assets (no warehouses and no inventories) and/or have limited visibility into their supplier's inventory levels. Mostly, they use the so called "drop-shipping" concept. In that case supply chain connectivity between the different IT-systems is a business rule number one. The other type of companies, namely the Clicks & Bricks retailers that also aim to operate along the Internet, have their own assets (warehouses and inventories). From an in-house e-fulfillment point of view, the Bricks retailers have a relatively easier job to start e-retailing business because they already possess an exiting distribution infrastructure and available products on stock to deliver.
From an outsourcing perspective, warehousing and/or distribution activities could be operated by a logistics service provider, the question is whether or not outsourcing is part of the overall company strategy. Outsourcing can at least minimize initial investments like building and equipment requirements. In this case, all company types have more or less the same level of difficulties to operate an e-commerce business.

Room service or not?
It depends on the customer's choice. If i.e a client of a hotel chooses for room service, he normally gets a quick delivered service he asked for. If we expect a same treatment on a logistics level, it is more than normal that additional services, like home delivery, must be charged. But, the promised services (the right products against the agreed conditions and price) must be respected which is currently not always the case. The customer pays for room service, but gets sometimes a lower service level than the standard service levels.

Be focused!
The e-customer will always go for the best quality as compared to the lowest price and best service. If you don't meet the customer's expectations, he or she will go somewhere else. More over, the customer is better informed about your competitors than you think. If we assume that the quality level and price of your products are very competitive and the e-customer knows it, he or she will go for the best service. But what is service for him or her? Service is delivering the right product and the right amount in the right packaging mode within the right time-frame, preferably as soon as possible. Now we enter the area where you can make the difference and that's with logistics. You only can deliver your e-customers the expected service levels if you succeed in developing the best and most cost-effective logistics network. Therefore "One size fits all" is not the solution.

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6.About the author and Groenewout

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