Haute École
Groupe ICHEC - ISC St-Louis – ISFSC

Enseignement supérieur de type long de niveau universitaire

What are the limits and the future of e-commerce?

The challenge of same-day delivery:

Amazon case study.

Thesis submitted by

Leslie BINDELS

To obtain the diploma of

Master in International Business

Academic year 2016 - 2017

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« SUMMARY OF THE THESIS »

Since 1995, e-commerce is an environment that is constantly changing and upgrading due to continuous developments of technologies and innovations. At the same time, consumer behaviors and expectations are also evolving. Companies battle against each other to win a greater share of the pie.

In this paper, I will firstly define the concept and the different types of e-commerce and analyze the advantages this new business model has to offer in order to focus on the different trends that are shaping the way we shop today. After having analyzed the topic more in depth, it seemed thought-provoking to pay attention to questions such as: What technologies will have a transformative influence on our way of shopping, and what technologies are just hype? How will the e-commerce value chain evolve, and what impact will this have on online and physical retail?

As far as customers' expectations are evolving into a seamless shopping experience across an increasing range of connected devices, in which immediacy and convenience are paramount, a proactive customer service and support, and free or very low-cost delivery anytime and anywhere, are coming to the fore.

As the shift from brick and mortar to online retail continues, I found interesting to focus on the challenges of managing last mile delivery.

Indeed, faster and cheaper delivery has become a real competitive advantage. In a near future, retail winners will be those who will bring goods to consumers in the fastest and most cost-efficiently way. The largest players will invest new technological solutions to manage their own delivery systems in order to gain differentiation.

Amazon, a trailblazer in this domain, is already moving toward this scenario with its one-hour delivery service that is offered as part of its subscription-based Amazon Prime premium service.

However, same-day deliveries can present several problems and challenges such as the different systems of the numerous service providers with whom e-commerce businesses are working with, the need for transparency to satisfy the humans' desire to know, understand and anticipate everything, and a frictionless delivery experience that helps streamline efficiency and cut costs.

This work therefore covers the different limits and challenges e-commerce businesses will encounter in the near future and the opportunities companies can seize when embracing new technologies and innovations in their business model, like Amazon.

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GENERAL INTRODUCTION

The world of e-commerce is undergoing an unprecedented wave of innovation. Today, online shopping means having the freedom to shop when and where we want and gives all people the same selection, independently of what people do and where they live. Besides having revolutionized how customers shop, e-commerce has also changed their expectations, becoming higher and higher, especially for the delivery of goods that has to be fast and reliable and the shopping experience that has to be as pleasant as convenient.

During the last decade, we have seen many stores closing, due to the expansion of e-commerce: record stores have been replaced by iTunes and Shopify, you can buy and read your magazines and newspapers directly through your mobile devices, etc. Indeed, our shopping world is changing and several disruptive innovations are getting ahead. The world's largest retailers, including Amazon, is nurturing this vision and experimenting with innovative delivery concepts.

Same-day delivery has become a challenge for many retailers, which build their competitive advantage on it. Indeed, the fulfillment, delivery, returns and post-purchase services, called the last mile, is under tough competition. Being the only direct link between the e-commerce supply chain and the customer, it represents the company, the brand, the reputation, and also the lasting memory reflecting the overall shopping experience for the client. The e-shoppers being now hyper connected, they can rapidly bad review a business through the social media, for example.

Being interested in that field and those recent innovations, I focused my work on the following problematic: ***What are the limits and the future of e-commerce?*** From the digitalization of several industries to the development of delivery app, the future of e-commerce is ripe for growth and innovation. The logistics of the e-commerce being one of the main part of it, and being at the center of several recent innovations, we will consider more deeply ***the challenge of same-day delivery***. Can same-day delivery really become a standard delivery option for the masses, or will it merely remain an option for a limited number of impatient consumers with deep pockets? At what costs firms can fulfill this option?

This paper is divided in four parts. I will firstly focus on the definition of e-commerce, its advantages and drawbacks and where e-commerce stands statistically speaking. Then, I will focus on the new connected customers' behaviors, the different ways they proceed e-transactions and the technologies impacting the buying experience. In the third part, we will

study the different delivery options, the importance of the logistics and the latest technological innovations, which could benefit from same-day deliveries. Finally, I will develop a case study about Amazon, the online e-commerce giant, who's a pioneer in the last mile delivery.

CHAPTER 1: THE E-COMMERCE

1. Definition of e-commerce

1.1. What is e-commerce?

Firstly, it seems important to define the main concepts of this paper, even if it sounds familiar to most people.

We could simply define *e-commerce*[1] either by « the business of buying and selling goods and services on the Internet. » (Cambridge University Press, 2017) or by « the use of the Internet, the Web, and apps to transact business. More formally, digitally enabled commercial transactions between and among organizations and individuals. » (Laudon and Guercio Traver, 2013, p.50).

Moreover, Laudon and Guercio Traver present eight interesting features of e-commerce technology, enabling us to deeply understand this concept that challenges the way we are traditionally thinking about business.

Figure 1: The eight features of e-commerce technology. Source: Laudon and Traver, 2013.

[1] see Glossary

1) First of all, e-commerce allows a firm to do business everywhere and at all times, that's what they call **ubiquity**. Thanks to e-commerce technology, we are now able to shop from anywhere and whenever we want. We aren't restricted to a physical place anymore. We name it the *online marketplace*[2] (see the point 1.2. below). (Laudon and Guercio Traver, 2013, p.50) (UK Essays, 2016)

2) Therefore, it « permits commercial transactions to cross cultural, regional and national boundaries » (Laudon and Guercio Traver, 2013, p.51) allowing a business to extend the total number of users or customers to, potentially, the size of the world's online adult population. E-commerce technology allows **a global reach**. (UK Essays, 2016)

3) In order to exchange commercial transactions all over the world, this technology has to present **universal standards**, which are not present in all traditional commercial schemes. (UK Essays, 2016)

4) Furthermore, e-commerce has the possibility to offer significantly more information **richness** than any other traditional media (printing presses, radio, television). Indeed, thanks to its interactivity, it can adjust its message to each individual customer. (Laudon and Guercio Traver, 2013, p.54) (UK Essays, 2016)

5) In addition, it will enable the business to build « a two-way communication between merchant and consumer » increasing the **interactivity** between the two parties. (Laudon and Guercio Traver, 2013, p.55) (UK Essays, 2016)

6) Moreover, « e-commerce technologies (…) increase the **information density** – the total amount and quality of information available to all market participants, consumers, and merchants alike. » (Laudon and Guercio Traver, 2013, p.55) Therefore, « accuracy and timeliness of the information technology increases greatly, information is more useful, more important than ever. » (UK Essays, 2016) Nonetheless, it permits the businesses to know better its customers and to segment the market. Thus, they can create niche markets where price discrimination can take place. (Laudon and Guercio Traver, 2013, p.55)

7) Besides, the segmentation allows the companies to target specific customers with precise needs, wants and behaviors by adjusting their marketing message to a person's name, interests, and past purchases to a specific individual. (Laudon and Guercio Traver, 2013, p.55) (UK Essays, 2016) That's what they call **personalization**. Also, it allows for **customization**. The seller can change the product or service based on a consumer's preferences or previous conduct. (Laudon and Guercio Traver, 2013, p.56) (UK Essays, 2016)

[2] see Glossary

8) Finally, e-commerce technologies are also a **social technology** by having « evolved to be much more social by allowing users to create and share content with a worldwide community. » (Laudon and Guercio Traver, 2013, p.56)

Today, the Internet provides « a unique, many-to-many model of mass communication. » (Laudon and Guercio Traver, 2013, p.56), which is composed of eight main characteristics summarized in the scheme above.

1.2. What is the difference between e-commerce and an online marketplace?

Nevertheless, we shouldn't confound e-commerce trend with a particular *online marketplace*, which is a website allowing customers to find products coming from several vendors (from numerous locations). (Big Commerce, 2014) We also call it a *platform*[3]. Nonetheless, platform is a more technical term describing « a series of software technologies that allows interested merchants to build and host a digital storefront soliciting a specific set of products or services. (…) A number of e-commerce platform providers typically take care of the programming background for business owners. » (BigCommerce, 2014) For example, Amazon is an online marketplace. (Ezako, 2017)

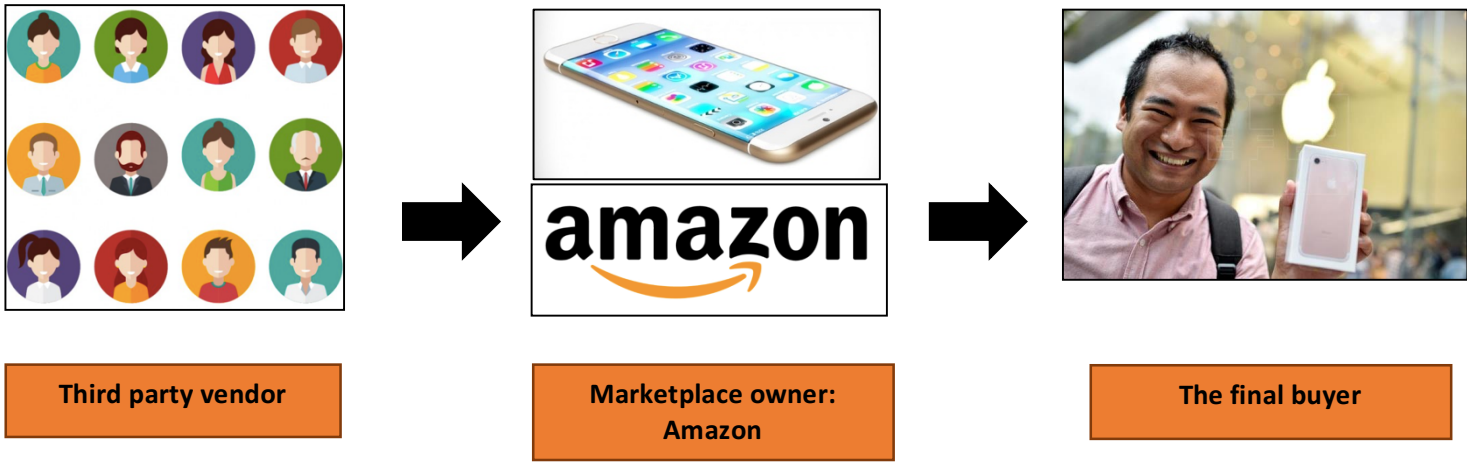


Figure 2: How Amazon is working? Sources: Agencia EFE, 2016. Amazon, 2017. Forbes, 2016. Freepik, 2017.

The owner of the marketplace is accountable for attracting customers. Moreover, he (or she) keeps tracks of money transactions. The third-party seller, in our example Amazon, will deal with the manufacturing and the shipping of the bought goods. (Ezako, 2017)

[3] see Glossary

It is important for every business to use an adapted platform. To do so, they generally analyze the *Search Engine Optimization (SEO)*[4] of each platform. « SEO is a methodology of strategies, techniques and tactics used to increase the number of visitors to a website by obtaining a high-ranking placement in the search results page of a search engine (SERP) - including Google, Bing, Yahoo and other search engines. » (Webopedia, 2017) As far as 44% of online purchases start with an online research, it's important to choose a platform that will make your website appear as relevant as possible to the keywords that the prospective customers will be using. (Ecommerce Platforms, 2017)

For example, if I type "Plasma TVs for sale" on Google, I obtain the follow websites.

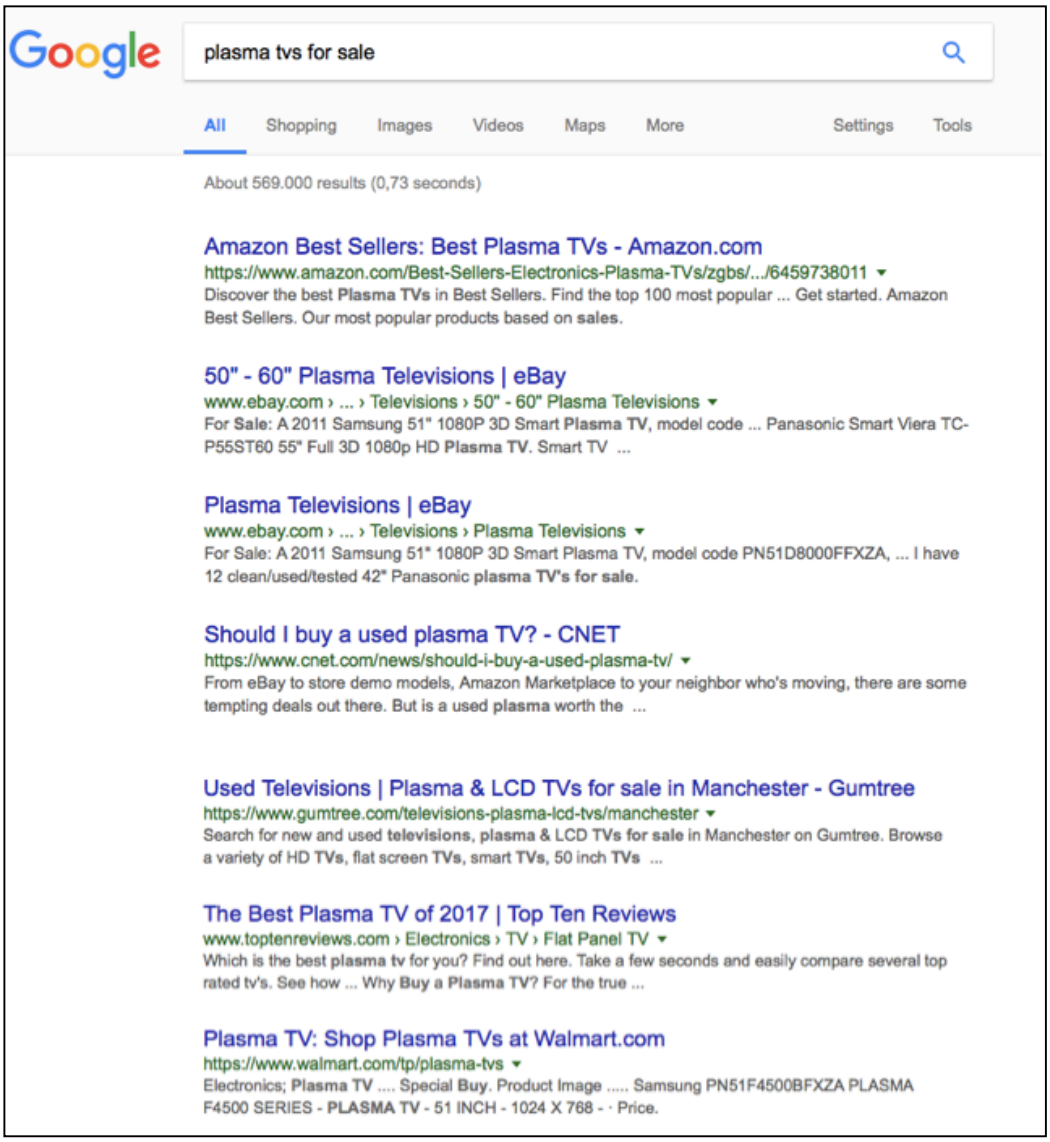


Figure 3: Searching of "Plasma TVs for sale" on the Search Engine Google.

[4] see Glossary

Amazon is in first position, followed by eBay. Gumtree.com is an online classified and community website, more known in the UK. (Gumtree.com, 2017) Still, on the first page when we are looking for a plasma TV on Google. Maybe this could be explained by the fact that in May 2005, Gumtree was acquired by eBay's group, giving it a better SEO. (Gumtree.com, 2017)

According to Richman Danny (2017), a good way of knowing which *Shopping Cart*[5] platform to use is to evaluate them against a list of Search Engine Ranking Factors. Moz, a SEO consulting company have listed those factors (which are quite technical). (Moz, 2016)

SEO FEATURE	FEATURE EXPLANATION	FEATURE WEIGHTING	MAGENTO	WOOCOMMERCE	SHOPIFY	BIGCOMMERCE
			Magento	WOOCOMMERCE	shopify	Bigcommerce
Independent Navigation Links		10	✓	✓	✓	✓
Independent Page Titles		10	✓	✓	✓	✓
Independent Page URLs		9	✓	✓	✓	✓
Independent Meta Descriptions		9	✓	✓	✓	✓
Independent Image ALT Tags		3	✓	✓	✓	✓
Independent H1 Headings		7	✓	✓	✓	Custom
TOTAL SCORE		100	100	98	98	91

Figure 4: Which is the Best E-commerce Platform for SEO? Source: Richman, 2017.

Above, the figure presents a comparison for four platforms of six of those factors with a feature weighting and a total score of them. (Richman, 2017) (see APPENDIX n°1: *Which is the Best E-commerce Platform for SEO?*) Thanks to this, a business will be able to choose its perfect platform. (Richman, 2017)

[5] see Glossary

To coming back to the difference of e-commerce and an online marketplace, we should admit that there are many differences between those two concepts. There main ones are summarized in the table below:

	E-commerce store	**Online Marketplace**
Number of sellers	One seller.	Multiple sellers.
Investment	It requires more time and money. The inventory costs money.	It requires less time and money. Businesses can get started very fast. But the costs to launch an online marketplace are as high as for a quality e-commerce website.
Functionality and Extensibility	The seller has to take care of the store functionality but it can be further extended to add more functionality.	The marketplace provides the whole pack of functionality for sellers and buyers interactions but it's quite limited; only the basics are required.
Maintenance	More	Less
Customization	Possibility	Not a possibility
Reach	Very limited	Wider audience across geographies
Search Engine Optimization (SEO)	Have to be done: tough	Already done: widely known, high number of visits
Customer Acquisition Cost	Higher: have to build customer trust from scratch.	Lower: Customer trusts in a brand built for years.
Branding	Flexibility to control all the aspects of the brand.	Limited brand visibility: a positive or negative experience is often associated

		with the online marketplace and not the brand.
Competition	The customers have to go the extra mile to compare the product price with the competitors.	The online marketplace gives a price (and features) comparison.
Margins	No commission to share.	A commission must be paid on every sale.
Customer relationship	Very important and can require a lot of commitment from an e-commerce website.	They play more «a mediator role».
Customer Data	Businesses own the customer data.	No access
Security and policies	Has its own specific policies.	Usually offers customer and buyer protection programs.
Inventory	Usually have products in stock somewhere but also use *drop shipping*[6] as an option.	Seller may use drop shipping, thus having no products in his physical stock. But the inventory on an online marketplace will be much larger, which will be better for the customers to find what they are looking for.
Financial Risks	Has to constantly invest in stock that may never sell.	They don't buy any products, so they take less financial risks.

Table 1: Comparison between e-commerce and an online marketplace. Sources: IZBERG, 2017. i95Dev, 2016. Mobilunity, 2016.

[6] see Glossary

Therefore, an online marketplace is not a replacement for e-commerce but it augments the offering (Ezako, 2017): you will found more products of the same type. For example, if you are looking for a plasma TV, you will have large choice of products from numerous brands on the same platform (Ezako, 2017) (here, Amazon):

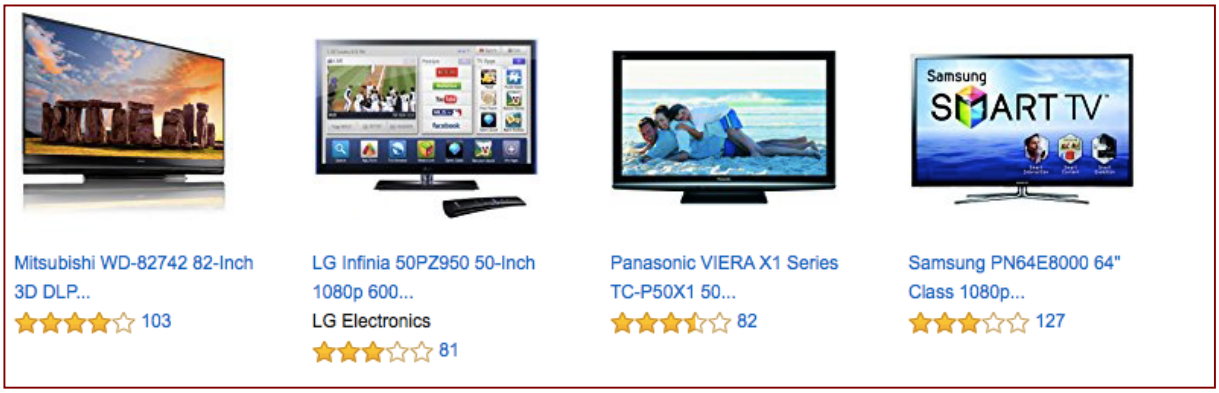


Figure 5: Plasma TVs comparison on Amazon website. Source: Amazon, 2017.

Among the Top 20 French e-commerce sites, nine are marketplaces: eBay, Amazon, PriceMinister, Cdiscount, Fnac, Pixmania, Rue du Commerce, Brand Alley and La Redoute. The marketplaces are real accelerators of distribution for e-merchants and brands and facilitate international development. (Neteven, 2013)

According to Cat Smeaton (2016), « online marketplaces will continue their growth to become market leaders, since they provide so many benefits to both customers and retailers in e-commerce. » (Smeaton, 2016)

1.3. What is the difference between e-commerce and e-business?

After having made the difference between the concept of e-commerce and a concrete online marketplace, let's quickly review the working distinction between *e-business*[7] and e-commerce in order to precisely feel the idea of e-commerce.

[7] see Glossary

« E-business (…) is the conduct of business processes on the Internet. These electronic business processes include buying and selling products, supplies and services; servicing customers; processing payments; managing production control; collaborating with business partners; sharing information; running automated employee services; recruiting; and more. » (TechTarget, 2017) IBM was the first company to use this term, by which we can clearly understand that it encompasses e-commerce but it goes further. It doesn't only deal with the customers, but also with « a range of functions and services, ranging from the development of intranets and extranets to e-service, the provision of services and tasks over the Internet by application service providers. » (TechTarget, 2017)

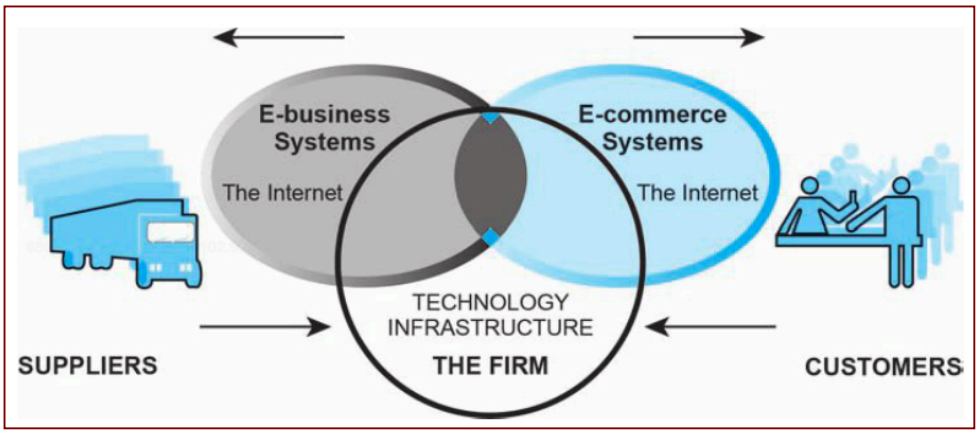


Figure 6: The difference between e-commerce and e-business. Source: Laudon and Guercio Traver, 2013.

By the illustration above, we can clearly perceive the distinction between the two terms. On the left side, with the suppliers, there isn't any commercial transactions on which the firm is going to make benefits. Nevertheless, the company can have online inventory control mechanisms that are a component of e-business. (Laudon and Guercio Traver, 2013, p.50) On the right side, when the corporation sells goods (or services) through the Internet to their customers, they will make money on it and it's therefore relevant to call it e-commerce. (Laudon and Guercio Traver, 2013, p.50) The common point of these two phenomena is the Internet but e-commerce is only relevant when there is a benefit perspective.

1.4. Different types of e-commerce

There are six main types of e-commerce differentiated by their nature of the market relationship.

1) **Business-to-Consumer (B2C) e-commerce** is the most common one and it's characterized by « online businesses selling to individual consumers. » (Khurana, 2016) (Laudon and Guercio Traver, 2013, p.59). Amazon is a perfect example for this type of e-commerce.
2) On contrary, **Business-to-Business (B2B) e-commerce** is « online businesses selling to other businesses. » (Laudon and Guercio Traver, 2013, p.60) As far as both participants are businesses, the volume and value of B2B e-commerce can be huge. (Khurana, 2016) Moreover, in a typical supply chain, there are many B2B transactions involving sub-components and raw materials. Classically, manufacturers selling to distributors and wholesalers selling to retailers. (Eyerys, 2017)
3) Thirdly, **Consumer-to-Consumer (C2C) e-commerce** provides a way for consumers to sell to other consumers. For example, eBay enables a lambda person to sell his (or her) iPhone to another individual. (Laudon and Guercio Traver, 2013, p.60) (Khurana, 2016)
4) **Social e-commerce** was born with the growth of social networks and online social relationships. (Laudon and Guercio Traver, 2013, p.61) Today, Facebook dominates as a source of social traffic and sales some industries such as photography, sports, and pet supplies by nearly 95%. (Shopify, 2017) (see APPENDIX n°2: *Percentage of social orders originating from Facebook (by industry)*) Besides, an average of 85% of all e-commerce orders from social media come from Facebook. (Shopify, 2017) It may also be mentioned as social e-commerce website Twitter, Pinterest, Reddit, and Youtube. (Shopify, 2017)
5) In addition to that, the appearance of mobile phones allows the « use of the mobile devices to enable online transactions » (Laudon and Guercio Traver, 2013, p.62), which we call **Mobile e-commerce or M-commerce**. « Nowadays, web designers are trying to optimize website so they can easily view on mobile phones and to allow the use of this model. » (Shopify, 2017) We can mention, as mobile commerce products and services that are available: mobile ticketing, mobile vouchers, coupons and loyalty cards and mobile banking. (Shopify, 2017)
6) Finally, we can distinguish **Local e-commerce**, which « is a form of e-commerce that is focused on engaging the consumer based on his or her current geographic location. » (Laudon and Guercio Traver, 2013, p.62) For example, Yelp and TripAdvisor are local e-

commerce websites enabling people to find a restaurant or a hotel near their current location. (Ghaffary, 2013)

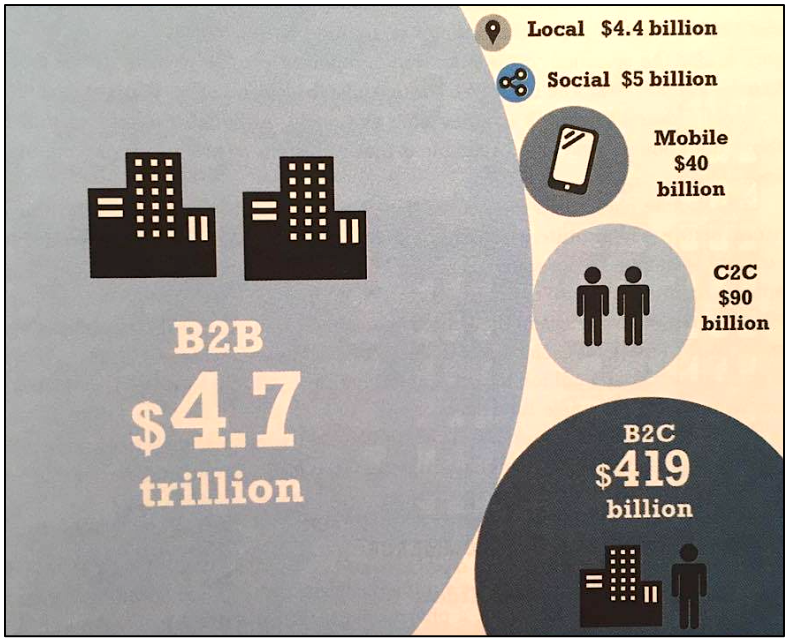


Figure 7: The relative size of different types of e-commerce. Source: Laudon and Guercio Traver, 2013.

On the representation above, it can be seen that B2B e-commerce stays the most important one with B2C e-commerce. Nevertheless, it seems that the social, mobile and local e-commerce are in expansion even if they stay relatively small compared to traditional e-commerce. (Laudon and Guercio Traver, 2013, p.62)

Today, we often use the term *SoLoMo*[8], which is an acronym for Social + Local + Mobile, referring to a new marketing approach. As far as consumers are getting more social and defined by their mobility, marketers need to have an integrated strategy by "walking in a customer's shoes" and identifying « where the customer experience isn't up to par. » (Cision US, 2013) We will come back further on this marketing strategy (see Chapter 2, point 2.4.).

Those different types of e-commerce show us that there are several ways of buying (and selling) products and services through the Internet, the apps, and the social networks.

As far as several types of e-commerce exist, we can present **various types of online marketplaces**. For example, Customer-to-Customer (C2C) marketplaces « are focused on building communities on buyers and sellers whereas Business-to-Business-to-Customer (B2B2C) offer a common selling platform for smaller business to sell their goods. » (Ezako, 2017, para.4)

[8] see Glossary

1.5. Major Business-to-Consumer (B2C) Models

It seemed important to describe the different B2C e-commerce business models in order to perceive the case of Amazon that will be developed in the case study. Indeed, as far as the business model is « a set of planned activities designed to result in a profit in a market place » (Laudon and Guercio Traver, 2013, p.316), it will allow us to understand what and how the company planned to be profitable. In this paper, we will focus on e-commerce business models that « aim to use and leverage the unique qualities of the Internet, the Web, and the mobile platform. » (Laudon and Guercio Traver, 2013, p.316).

Undoubtedly, determining how to compete on the market is an important decision and it can significantly shape the future of the business in which you are and dictate several key business decisions. You can choose to practice low **prices** like Walmart[9] who is known for its discount strategy, you could compete on **quality**, which means having a superior or better-made product like Dbrand[10] does. Nevertheless, you can also focus on the delivery of a superior customer **service**, such as Zappos[11] or differentiate your company by providing **additional value** to your customers. For Richard Lazazzera, learning centers and installations guides would be great examples. Lastly, he describes the option of **selection** for which Amazon is doing a great job. « However, just because massive companies have large selections doesn't mean you can compete on this. It simple means you'll have to compete on the largest selection in a very niche category. » (Lazazzera, 2015)

That being said, I will briefly go through the seven different B2C business models. Nonetheless, as it has been said before, I will only focus in this paper on the Business-to-Consumer models because we will further study the changes of the behavior of the customer itself, as a physical person like you and me and not as a company.

1) Firstly, the **E-tailer** business model focus on the sales of goods as its revenue model: it's an « online version of retail store, where customers can shop at any hour of the day or night without leaving their home or office. » (Laudon and Guercio Traver, 2013, p.331) A physical store can also exist but it's not necessary the case. For example: Amazon, iTunes, Walmart, etc.

[9] Walmart is an American multinational retailing firm that operates as a chain of hypermarkets, discount department stores, and grocery stores. (Walmart Stores Inc., 2017)
[10] Dbrand is the leader is mobile customization. It distributes skins, wraps and decals for mobile phones. (Dbrand, 2017)
[11] Zappos.com is an online shoe and clothing shop based in Las Vegas, US. Amazon has acquired this company in 2009. (Zappos.com, 2009)

2) On the contrary, a company could only sell services through the Internet and it would be classified as a **Service Provider** business model.

3) Then, you have the **Community Provider** and the **Content Provider** business models, which both are based on advertising, subscription fees and/or affiliate referral fees to make profit. The difference between those two is that the first one is basically a social network such as Facebook and the second one regroup information and entertainment providers like CNN.com or CBSSports.com.

4) In a similar way, we have the **Portal model**, which « offers an integrated package of content, content-search, and social network services » (Laudon and Guercio Traver, 2013, p.331) and which based itself on advertising and subscription and transaction fees as well. Yahoo and Google are founded on this model.

5) Finally, you have the **Transaction Broker** and the **Market creator** models. Both have a revenue model based on transaction fees but the first one is a processor of online sale transactions such as travel agents, for example Expedia or Hotel.com. The second one, brings sellers and buyers on the same market, such as eBay. (Laudon and Guercio Traver, 2013, p.331)

As far as we are going to study the case of Amazon, it seems interesting to see where this company is in terms of business models. According to Laudon and Guercio Traver, Amazon could be classified as a E-tailer or a Market Creator business model. (Laudon and Guercio Traver, 2013, p.331)

1.6. Origins and Growth of e-commerce: a brief history

As far as we are going to study the future and the limits of e-commerce, it seems relevant to briefly review the past of this modern phenomenon. We can divide the history of e-commerce into three periods.

First, the **invention** of this concept began around ***1995*** with the ".com" boom (Barone, 2014, para.1) and the use of the Web to promote products, and until ***2000*** it was « a period of explosive growth and extraordinary innovation » (Laudon and Guercio Traver, 2013, p.68). Thanks to the Internet, businesses started selling quite simple retail goods through the Web.

Tom Barone, who's the head of eBay Enterprise North America Operations business have said that « This was the period that saw the launch of e-commerce pure plays and new business models like eBay Marketplaces and PayPal. » (Barone, 2014, para.2)

As highlighted as ones of the main features of e-commerce, the transparency of the information and the personalization of the advertising became at this time a reality. To the extent that each consumer could compare the prices, the quality and all other information about the product, the intermediaries between the producers and the consumers became irrelevant because they couldn't raise their costs whereas adding little value anymore. That's what Laudon and Guercio Traver call in their book the *disintermediation*[12]. Moreover, they define the *friction-free commerce*[13], which is « a vision of commerce in which information is equally distributed, transaction costs are low, prices can be dynamically adjusted to reflect actual demand, intermediaries decline, and unfair competitive advantages are eliminated. » (Laudon and Guercio Traver, 2013, p.70)

Then, we can point out a period of **consolidation *between 2001 and 2006***, during which e-commerce has begun to include more complex services such as travel and financial services. Furthermore, the companies' Web policy started to integrate a broader "Web presence" including more than just Web sites: e-mail, display, and search engine campaigns; multiple Web sites for each product; and the building of some limited community feedback facilities. (Laudon and Guercio Traver, 2013, p.71-72)

« As a result, e-commerce became an important new channel for established retailers; and over the time, brands also got involved in selling direct to consumers. » (Barone, 2014, para.4)

Finally, ***since 2007 and until now***, we have known a phase of **reinvention** thanks to the introduction of iPhone, tablet and social media. According to Tom Barone, we are today « in a world where customers are truly hyper connected, demanding revolutionary commerce experiences while becoming more challenging to reach (…). » (Barone, 2014, para.5) That's why, as previously said, the SoLoMo marketing approach is becoming increasingly important. (Cision US, 2013)

Indeed, everybody has quickly adopted mobile devices as well as the social networks (especially Facebook), which allowed e-commerce to expand to local goods and services. (Laudon and Guercio Traver, 2013, p.72) « Firm's online policies expand in the attempt to build a digital presence that surrounds the online consumer with coordinated marketing messages based on their social network memberships, use of search engines and Web browsers, and even their personal e-mail messages, social networks, the mobile platform, and local commerce. This

[12] see Glossary
[13] see Glossary

period is as much a sociological phenomenon as it is a technological or business $phenomenon. » (Laudon and Guercio Traver, 2013, p.72)

Over the years, e-commerce hasn't stop to grow, making every year more money for the economy. It's clearly mostly a « stunning technological success (…). » (Laudon and Guercio Traver, 2013, p.72) According to Laudon and Guercio Traver, « with enhancements and strengthening (…), it is clear that e-commerce's digital infrastructure is solid enough to sustain significant growth in e-commerce during the next decade. » (Laudon and Guercio Traver, 2013, p.72)

According to other experts and authors, e-commerce still presents several limitations. Let's study the possible limits of this recent phenomenon: can it last and be successful forever for every business and every consumer?

2. Advantages of the e-commerce

After having read several sources, we can list several advantages for the buyers and the sellers. Being a great online shopping addict, I'm totally convinced of the different benefits of this new trend.

Firstly, we do not always have the time during the working hours to go shopping especially as the shops generally open at 10:00 a.m. and close at 7:00 p.m. in Belgium (Openingsuren.info, 2015) from Monday till Saturday (Expatica Communications BV, 2017). E-commerce is eliminating the limitation of store-timing: stores are open all the time, you can shop **whenever you want and from where you want**. (Khurana, 2016) In addition, people who lives further from the center of the city where the shops are located will more easily and more often buy through e-commerce. Moreover, you don't need to stand in queues to pay your articles. **You save time**.

According to Ajeet Khurana (2016), the fact that many shopping search engines offer the opportunity to the users to **compare prices** between competitors pleases the customers who can find the best price. Indeed, when you are shopping around, you would not go to five different stores to see if they sell the sweater you like cheaper while through the Internet it will only take you a few clicks to look at five different sites. Nevertheless, « while buyers love this, sellers find it too restrictive as many of them get filtered out of the consumer's consideration set. » (Khurana, 2016, para.3)

As a main advantage, we can also point out the quantity of choices that we have, thanks to e-commerce: « Since there are no shelf size or store size limitations, e-commerce businesses are able to list many different items. » (Khurana, 2016, para.10)

For the sellers, the main advantage is the **cost overheads saved** on the absence of need of a physical store. Many businesses don't build any because it's more profitable to only sell through the Internet. Nonetheless, several customers think that this **lack of personal touch** is a disadvantage. (Khurana, 2016) Also, the sellers haven't any chance to convince you, to advice you, and to make you buy an article. Therefore, they can miss some sales.

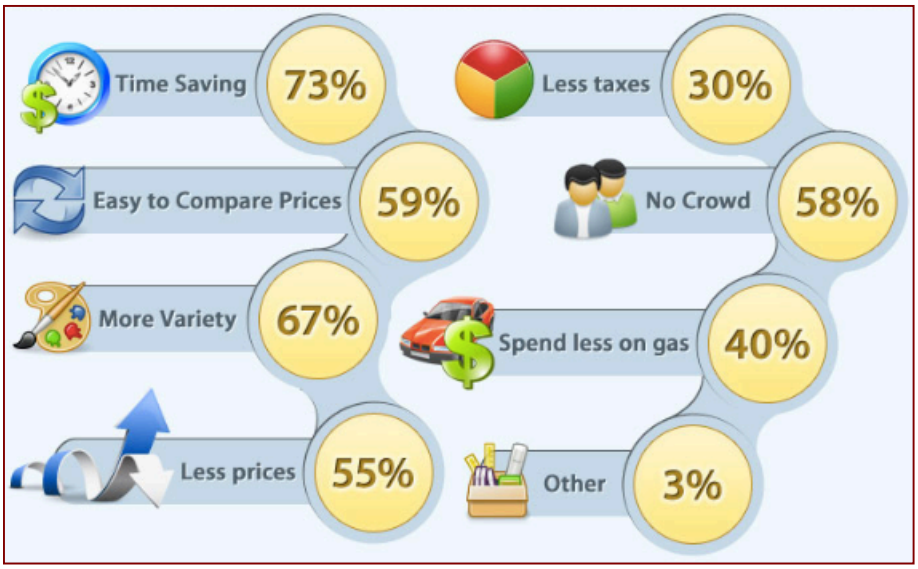


Figure 8: Why consumer prefer shopping online? Source: Weinstein, 2013.

If we take the statistics presented by Mary Weinstein in her article, they reflect more or less the same main advantages, as we can see on the figure 8 above. (Weinstein, 2013)

In the many advantages of e-commerce, we can also highlight a superior **customization** thanks to the use of « cookies and other methods of monitoring a consumer's behavior (…) » (Khurana, 2016, para.26), the absence of need to handle currency notes and to manage the cash. As far as « the electronic payments leave **a stronger trail** » (Khurana, 2016, para.27), it helps the company and the tax authority as well. (Khurana, 2016, para.27).

Furthermore, because « e-commerce processes are automated to a large extent, **fewer employees** are required for lower-end jobs [sellers in the physical store]. [Therefore,] human resources can be used more effectively for higher-level functions. » (Khurana, 2016, para.32)

3. Issues in e-commerce

In this point, I will review different obvious issues that e-commerce presents nowadays. Indeed, most businesses have now accepted e-commerce as a new way of interacting with their customers but still, it doesn't work well all the time and several clients remain reluctant. (Dontigney, 2017)

One of the main concern of the users is the **security**. According to a survey commissioned by the CA Security Council (CASC) (2015), among 670 U.S. 18 years old or older e-commerce users, 100% have already been a victim of cybercrime or knew family and friends who have already had one. (CASC, 2015) This is mainly due to a lack of attentiveness from the users towards certain aspects of online security: they leave their tablet devices unprotected or they have compromised passwords, many of them use any free Wi-Fi regardless its security, others have had their identity stolen or lost, their online accounts hacked, or even their personal items or photos stolen. (CASC, 2015) In the same field, the **lack of privacy** can discourage customers to shop online. Indeed, numerous websites are likely to illegally collect statistics on consumers without their permission. (Money Matters, 2017) Finally, many people dread **credit card fraud**. (Khurana, 2016, para.12)

Another important limitation of e-commerce is the **limited interaction**. As it has been said before, e-commerce doesn't require a physical store. Nevertheless, the customers don't build any relationships with any seller and their experience something quicker and more sterile. For example, when a customer buys clothes on an e-shop, he (or she) won't have any advices from the seller about the size. (Khurana, 2016, para.3) Moreover, the client won't have any chance to **try, feel, hear, taste, smell or touch the product** before the purchase. (Khurana, 2016, para.5)

More pragmatically, e-commerce requires an **Internet access device and an Internet connection**. (Khurana, 2016, para.7-8) In January 2017, there were 3,773 billion of Internet users worldwide. (Kemp, 2017) And as far as the total population amounts to 7,476 million of people, it represents an *Internet penetration*[14] of 50%. (Kemp, 2017) In other words, it means that still more or less 50% of the population doesn't use or doesn't have access to the Internet, even if it seems too much in regards that our world seems hyper connected today. (HostingFacts.com, 2016) (Kemp, 2017) However, since January 2016, it represents a growth of 354 million of people, this is to say an increase of 10%. (Kemp, 2017) As reported by the group "We Are Social",

[14] see Glossary

Oceania and Central Asia are the two regions with the least Internet users in January 2017, respectively 28 and 33 million of people. (Kemp, 2017) If we consider the Internet penetration, the weakest ones are in Africa (29%) and South Asia (33%). (Kemp, 2017) According to a study from McKinsey & Company (ITJobs, 2015), most people that are still not connected to the Internet are located in Myanmar, Ethiopia, Tanzania, Bangladesh, Pakistan, India, Indonesia, Thailand, Iran, Nigeria, Mexico and Vietnam. (see APPENDICES n°3-4: *Internet use: regional overview and Map of Internet penetration by region*)

Furthermore, **the delay of goods** seems to be a main disadvantage of e-commerce. Expect for certain products as digital goods, like the last single of Ed Sheeran, it's often quicker to go to the shop to buy what we need or want than order it on the website. (Khurana, 2016, para.3) In the second chapter, we will highlight the fact that the consumers are becoming increasingly impatient and how it shapes the new business models of the firms.

Finally, e-commerce also allows **illicit purchases**. Through the *Dark Web*[15], which « refers specifically to a collection of websites that exist on an encrypted network and cannot be found by using traditional search engines or visited by using traditional browsers. » (Egan, 2017) Today we are able to buy illegal drugs (mostly MDMA, ecstasy, marijuana and cocaine), non-drugs such as fake IDs, and prescription drugs like Xanax[16]. (The Economist, 2016) (see APPENDIX n°5: *The dark web*)

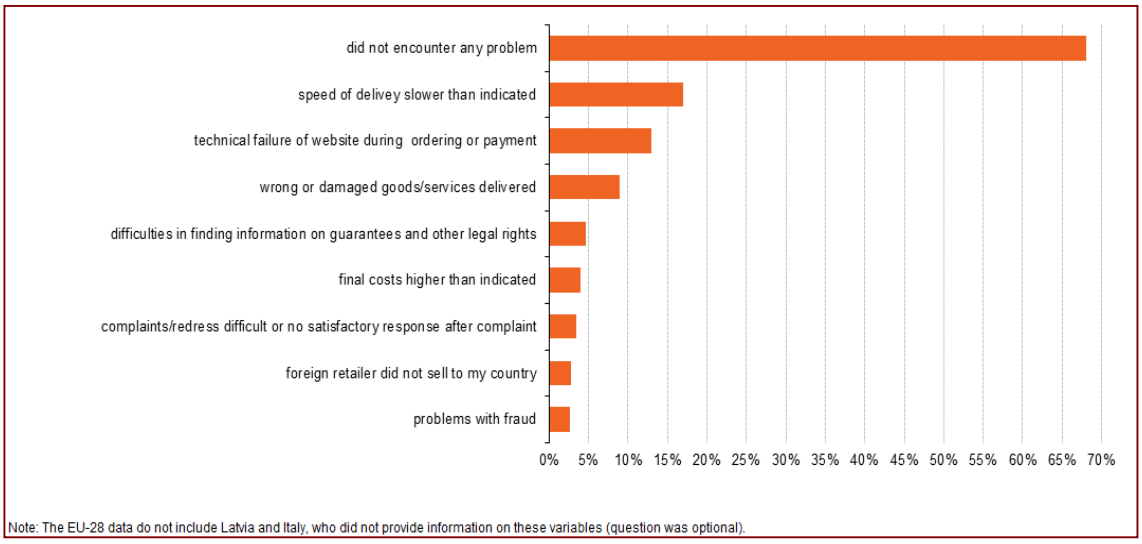


Figure 9: Problems encountered when buying over the Internet, EU-28, 2016 (% of individuals who bought or ordered goods or services over the Internet for private use in the previous 12 months). Source: Eurostat, 2017.

[15] see Glossary
[16] Medication for anxiety and depression. (The Economist, 2016)

Nonetheless, according to Eurostat (2017) (see figure 9), most of the people in Europe (about 67,5%) didn't encounter any problem during their shopping online. But the main issue highlighted by the customers is the deliveries' speed, which seems to be slower than indicated. Technical failures of the website during the ordering or the payment and wrong or damaged goods or services delivered come in second and third position. Lastly, difficulties in finding information on guarantees and other legal rights, final costs that are higher than indicated, complaints/redress difficult or no satisfactory response after a complaint, foreign retailer that doesn't sell to the desired country and problems with fraud represent less than 5%. (Eurostat, 2017)

4. The e-commerce today

Before going further, let's present the situation of the e-commerce today. Indeed, it seems important to know where it stands today in terms of profitability and how it has evolved but also to find out where e-commerce is the most present in the European Union and in the World.

The data are mostly provided by Eurostat (2017), which is the statistical office of the European Union. Concerning the data about the World, they are coming from diversified reliable sources. Firstly, let's review EU's numbers.

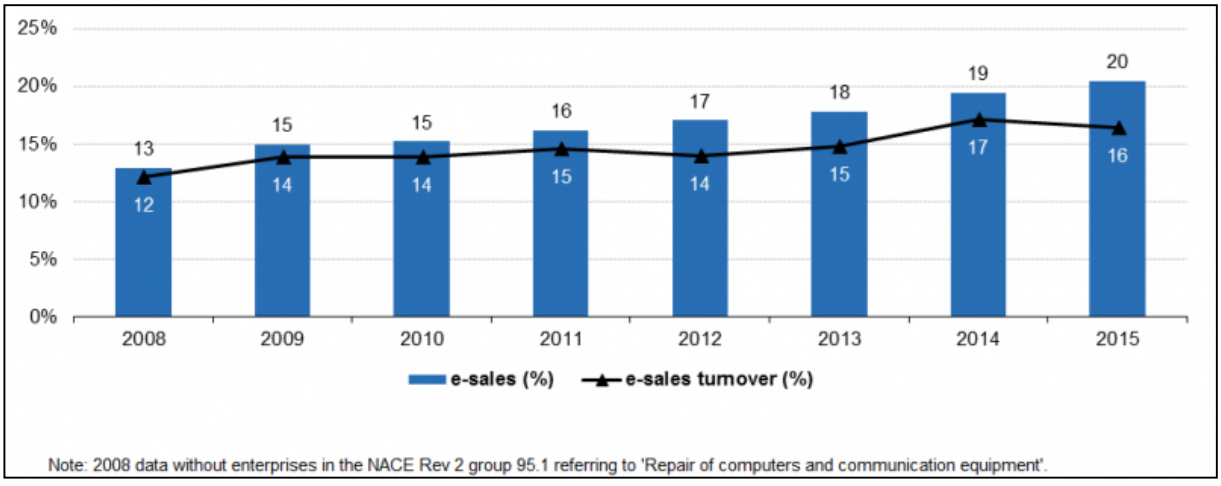


Figure 10: E-sales and turnover from e-sales, 2008 to 2015, EU-28 (% enterprises, % total turnover). Source: Eurostat, 2017.

We can see on the graph above (see figure 10) that e-sales and their turnover are steadily increasing since 2008 in EU with a slight decrease of the e-sales turnover between 2014 and

2015. Indeed, the share of turnover from e-sales is around 16 % in 2015 whereas it was around 17% in 2014. (Eurostat, 2017)

Besides, the Ecommerce Foundation, an independent non-profit organization (Ecommerce Foundation, 2017) evaluates the European e-commerce market (for the goods and services) to 505,1 billion dollars in 2015. (Ecommerce Foundation, 2016)

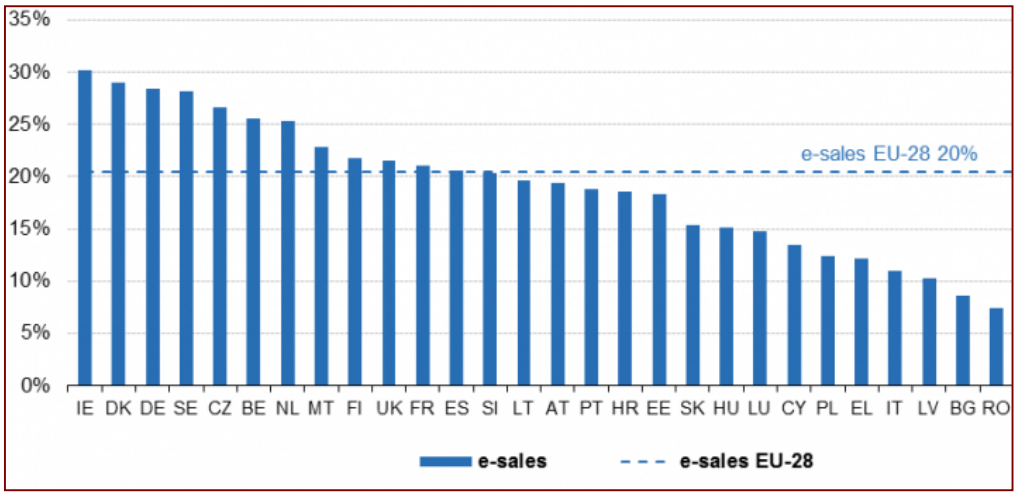


Figure 11: E-sales, 2015 (% enterprises). Source: Eurostat, 2017.

If we consider the e-sales in percentage broken down by European countries, in 2015, we can see that Ireland is in pole position with 30%, followed by Denmark with 29% and Germany and Sweden with 28%. Romania is the worst one with 7% of e-sales. (Eurostat, 2017) (see figure 11)

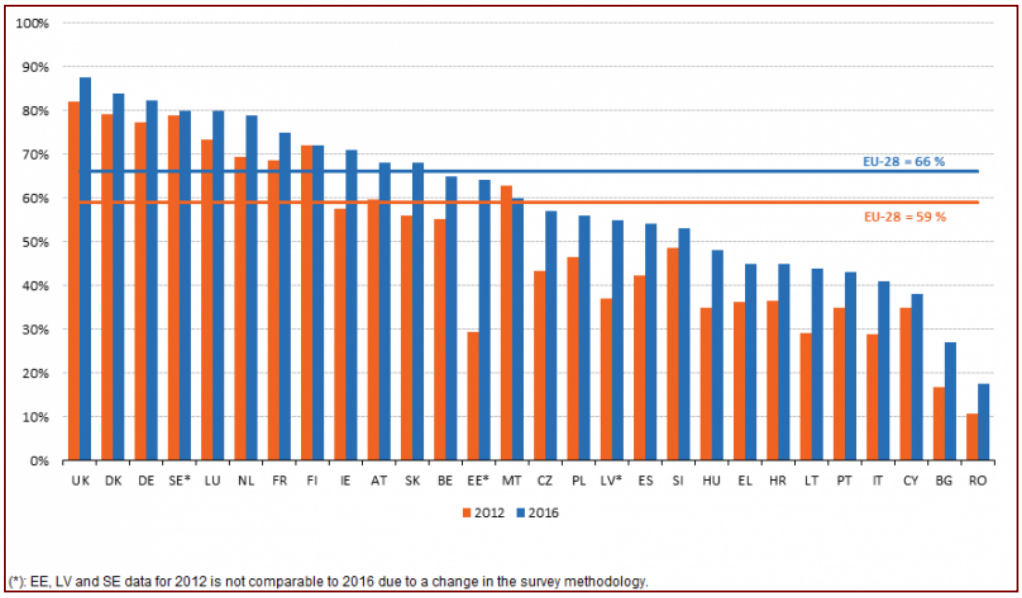


Figure 12: Internet users who bought or ordered goods or services for private use over the Internet in the previous 12 months, 2012 and 2016 (% of Internet users). Source: Eurostat, 2017.

Concerning the repartition of the number of e-shopper in the European countries, they made a comparison between 2012 (in orange) and 2016 (in blue) (see figure 12). It's the United Kingdom with 87% that's in first position (over eight in ten Internet users), followed by Denmark with 84% and Germany with 82%. (Eurostat, 2017) Contrariwise, « fewer than 40% had shopped online in Cyprus (38%), Bulgaria (27%) and Romania (18%). The largest (more than 10 percentage points) increases between 2012 and 2016 were recorded in Lithuania, the Czech Republic, Ireland, Hungary, Spain, Italy and Slovakia. » (Eurostat, 2017) Basically, we can see a rise from 59% to 66% of the number of Internet users who bought or ordered goods or services for private use over the Internet in the European Union. (Eurostat, 2017)

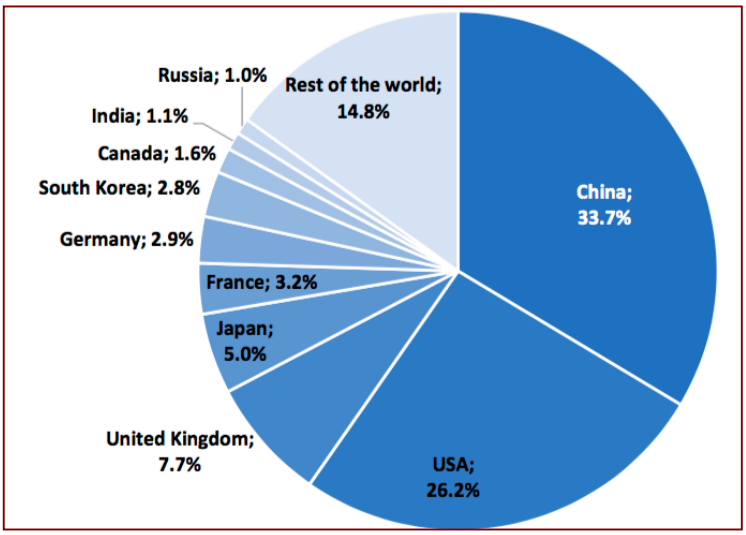


Figure 13: Top 10 countries share of global B2C e-commerce market. Source: Ecommerce Foundation, 2016.

Thanks to the graph above (see figure 13), we can see « the share of each top 10 country in the global B2C e-commerce market of 2015. (…) China was the world's largest e- commerce market, with a share of 33.7%. The US ranked second with 26.2%, followed by the UK (7.7%) and Japan (5.0%). » (Ecommerce Foundation, 2016)

Nonetheless, the United States are often considered as a timely market for the European e-commerce because of its growing economy, the euro going down and finally because they have the biggest online population in the World. Although the US is one of the most competitive market worldwide, it's composed of consumers whose expectations significantly differ from those of the Europeans and it is quite important to well understand and perceive them (see Chapter 3). The specificity of this market is also its linguistic homogeneity, enabling a business to access to about 90% of the American population thanks to the English marketing online. Therefore, you must know how to present and sell your product(s) and/or service(s) on this

market. (McDonald, 2015) Nevertheless, the European market stays an interesting market with some 240 million of e-consumers. (Figari, 2012)

On the other side, « retail e-commerce sales—which include products and services (…) ordered via the Internet over any device—will reach $1.915 trillion in 2016, accounting for 8.7% of total retail spending worldwide. » (eMarketer Inc., 2016) According to the group "We Are Social", the total value of global e-commerce market indeed reached $1.915 trillion in 2016. (Kemp, 2017)

The international e-commerce is expanding more and more for three main reasons according to the survey *Metapack* made by *ResearchNow* (quoted by Gratadour, 2015, p.6): availability, price and better access to specific brand products. Therefore, the geography of international e-commerce draws a new commercial cartography, so far relatively independent of the traditional distribution. It is particularly clear thanks to market leaders like Amazon who plays a precursory role in global e-commerce because it has directly considered its market as global. (Gratadour, 2015)

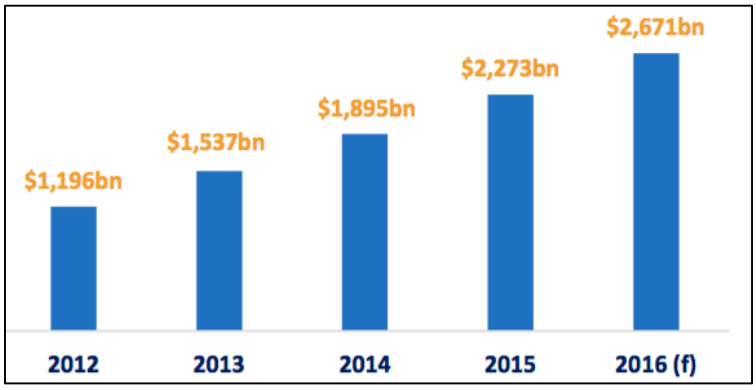


Figure 14: Total online sales of goods and services of countries covered between 2012 and 2016. Source: Ecommerce Foundation, 2016.

The Ecommerce Foundation has revealed a steady increase of the global B2C e-commerce sales since 2010. (Ecommerce Foundation, 2016) (see figure 14)

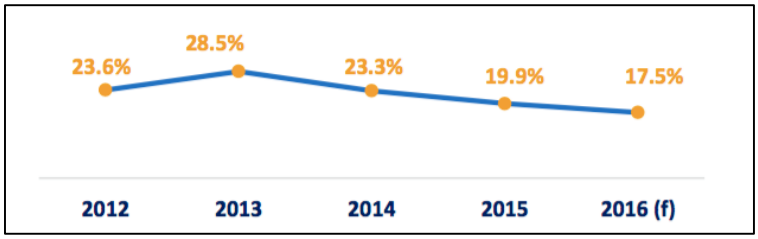


Figure 15: Percentage change in B2C e-commerce turnover of countries covered between 2012 and 2016. Source: Ecommerce Foundation, 2016.

Furthermore, as we can see on the figure 15, « the growth rate has been quite consistent over the last few years. » (Ecommerce Foundation, 2016) However, they forecast in their report a surge of 17,5% between 2015 and 2016, reaching a turnover of 2.671 billion of dollars in 2016 for the global B2C e-commerce. (Ecommerce Foundation, 2016) « Even though this growth rate is still significant, this decrease can be seen as a first sign of the global B2C e-commerce market becoming more mature. » (Ecommerce Foundation, 2016) Moreover, they precise that 62% of the sales are goods whereas 32% are services.

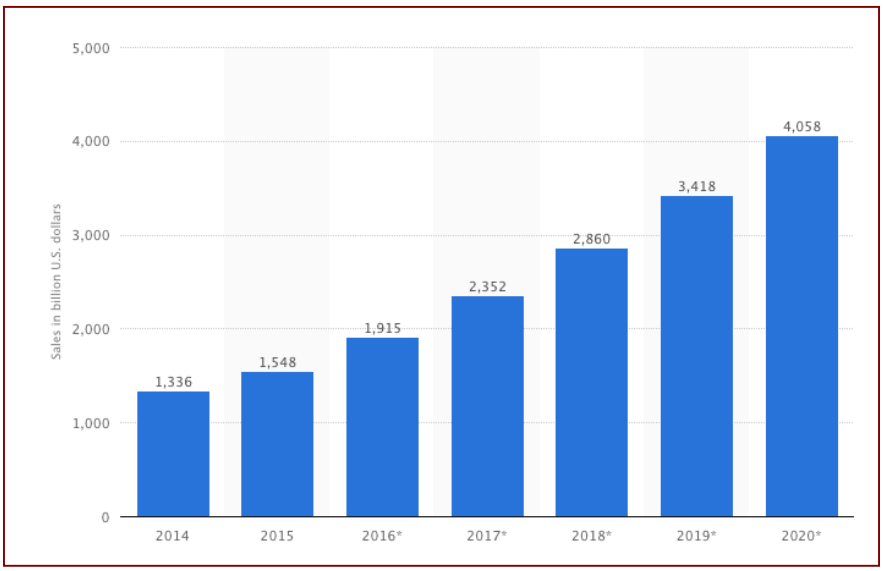


Figure 16: Retail e-commerce sales worldwide from 2014 to 2020 (in billion U.S. dollars). Source: Statista, 2017.

Besides, Statista, a leading statistics companies on the Internet (Statista, 2017), has given « information on retail e-commerce sales worldwide from 2014 to 2020 [see figure 16]. In 2015, retail e-commerce sales worldwide amounted to 1.55 trillion US dollars and e-retail revenues are projected to grow to 3.4 trillion US dollars in 2019. » (Statista, 2017)

However, we should highlight the fact that e-commerce is growing fast but it only represents 7% of all retail sales. « *Brick and mortar*[17] is still a dominant player (…). » (Puri, 2015)

[17] see Glossary

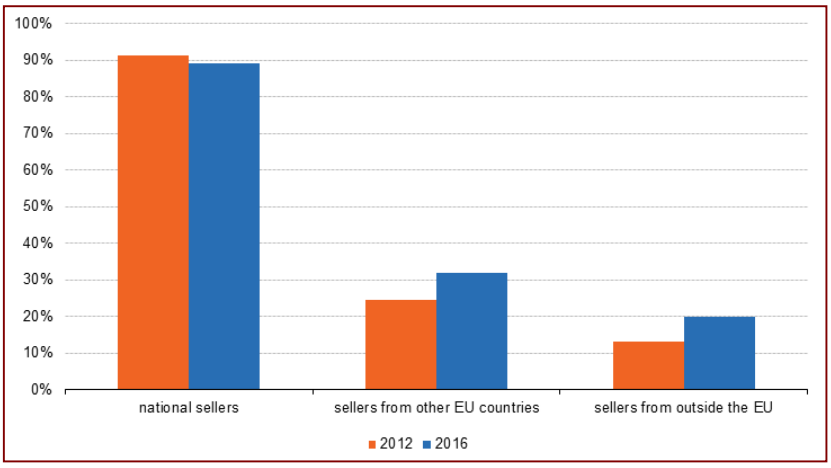


Figure 17: National and cross-border purchases by e-shoppers, EU-28, 2012 and 2016 (% of individuals who bought or ordered goods or services over the Internet for private in the previous 12 months). Source: Eurostat, 2017.

Finally, we can highlight thanks to the figure 17 that most of the e-shoppers (89%) made online purchases from sellers in their own country. « Cross-border online purchases can be an indicator of the smooth functioning of the single market for e-commerce and the extent to which consumers make use of wider choices and lower prices. » (Eurostat, 2017)

We can see on the figure 17 that the sellers from other countries (inside and outside EU) is relatively low compared to national sellers. According to a survey conducted by Oxatis-KPMG in 2015 with 2,500 e-merchants based in France, the United Kingdom and Spain, e-businesses export mainly to countries bordering France. The study shows that the language and logistics are still barriers for e-traders who wish to expand internationally. Marketing, customer relations, means of payment, regulation and taxation are also challenges that e-merchants face in order to deliver their customers abroad. (Affre, 2016)

Although a concrete business plan is necessary, with a conscious analysis of the readiness of the business before going global (Heinen, 2016), the "MOCI, Moniteur du Commerce International" (International Trade Monitor) describe seven steps/advices to follow to expand your business at the international stage.

1) **Choose the right markets**: the US, the UK and Germany are the most important markets but they aren't simple because the consumers' expectations are very high. Moreover, these are mature and expensive markets, according to Jean Rémi Gratadour, delegate general of the Association of the digital economy. Spain, Italy and Poland are also growth markets, even if they are smaller. China, Turkey and Brazil are emerging markets that offer significant growth

potential but are riskier. (Giraud, 2012) However, Cat Smeaton (2016) predicts « that China will continue to grow at the highest rate, since the Chinese market is still relatively new to e-commerce (…). » (Smeaton, 2016)

2) **Build your strategy in function of the type of product**: the growth varies according to the category of the products. Although the medias and entertaining sectors are already sold on the Internet, you won't see a lot of maintenance and food products online. (Giraud, 2012) Moreover, based on a product gap analysis, every business should take the necessary steps to make their offering ready to achieve high-impact product differentiation. For instance, they should pay attention to government- and industry specific regulations to ensure that compliance and certifications are obtained if needed. (Evans, 2015)

3) **Know the targeted consumers' behaviors**: as it has been said before, the comportment of the customers evolves generally rapidly and it differs from countries (see Chapter 2). (Giraud, 2012) (Lecocq, 2016)

4) **Find the good logistic solution**: the company can decide to enjoy an online marketplace or the direct injection or the offset stock or making a mix of them (see Chapter 3). (Giraud, 2012)

5) **Choose the right transporter**: the firm has to consider a local logistics and distribution network according to several criteria's such as the quality of the service, the capacity of providing elements of the following. Who will sell the product(s) and how will it get to the customers? (Giraud, 2012) (Evans, 2015) We will see in the third chapter that it exists several options to deliver its products rapidly and cost-efficiently (see Chapter 3, point 2).

6) **Provide a good management of the returns**: otherwise it can cost a lot of money. (Giraud, 2012) Furthermore, they are likely to be a vector for improving customer satisfaction. (Siguiche, 2016) (see Chapter 3, point 3.6.)

7) **Predict the e-marketing costs:** building an integrated strategy in line with the different local characteristics of the customers, has a direct impact on the supply chain and therefore on the costs related to this process. In consequence, it's important to estimate the different e-marketing costs. (Giraud, 2012)

CHAPTER 2: NEW CUSTOMERS' BEHAVIORS

1. Today's statistics

In this second chapter, we will focus on the customer, his habits in terms of purchases, his typical behavior, his wants and needs. Therefore, it seems important to first focus on the statistics about the e-shoppers. The data are mostly provided by Eurostat, which is the statistical office of the European Union. Concerning the data about the world, they are coming from diversified reliable sources.

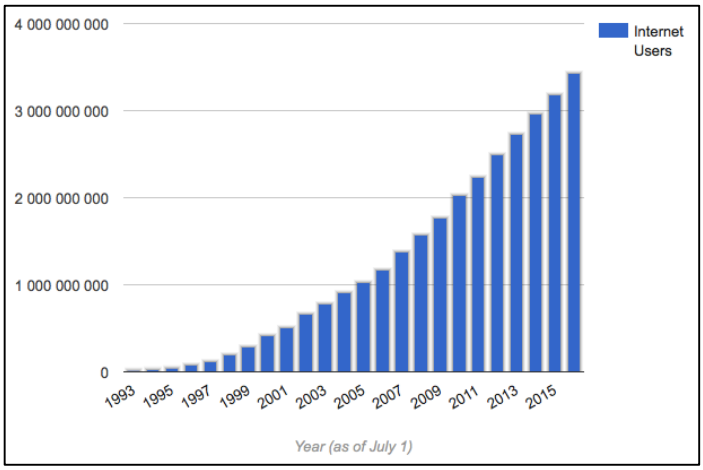


Figure 18: Internet Users in the World from 1993 till 2017.

Source: InternetLiveStats.com, 2017.

Year	Internet Users**	Penetration (% of Pop)	World Population	Non-Users (Internetless)	1Y User Change	1Y User Change	World Pop. Change
2016*	**3,424,971,237**	46.1 %	7,432,663,275	4,007,692,038	7.5 %	238,975,082	1.13 %
2015*	**3,185,996,155**	43.4 %	7,349,472,099	4,163,475,944	7.8 %	229,610,586	1.15 %
2014	**2,956,385,569**	40.7 %	7,265,785,946	4,309,400,377	8.4 %	227,957,462	1.17 %
2013	**2,728,428,107**	38 %	7,181,715,139	4,453,287,032	9.4 %	233,691,859	1.19 %
2012	**2,494,736,248**	35.1 %	7,097,500,453	4,602,764,205	11.8 %	262,778,889	1.2 %
2011	**2,231,957,359**	31.8 %	7,013,427,052	4,781,469,693	10.3 %	208,754,385	1.21 %
2010	**2,023,202,974**	29.2 %	6,929,725,043	4,906,522,069	14.5 %	256,799,160	1.22 %
2009	**1,766,403,814**	25.8 %	6,846,479,521	5,080,075,707	12.1 %	191,336,294	1.22 %
2008	**1,575,067,520**	23.3 %	6,763,732,879	5,188,665,359	14.7 %	201,840,532	1.23 %
2007	**1,373,226,988**	20.6 %	6,681,607,320	5,308,380,332	18.1 %	210,310,170	1.23 %
2006	**1,162,916,818**	17.6 %	6,600,220,247	5,437,303,429	12.9 %	132,815,529	1.24 %
2005	**1,030,101,289**	15.8 %	6,519,635,850	5,489,534,561	12.8 %	116,773,518	1.24 %
2004	**913,327,771**	14.2 %	6,439,842,408	5,526,514,637	16.9 %	131,891,788	1.24 %
2003	**781,435,983**	12.3 %	6,360,764,684	5,579,328,701	17.5 %	116,370,969	1.25 %
2002	**665,065,014**	10.6 %	6,282,301,767	5,617,236,753	32.4 %	162,772,769	1.26 %
2001	**502,292,245**	8.1 %	6,204,310,739	5,702,018,494	21.1 %	87,497,288	1.27 %
2000	**414,794,957**	6.8 %	6,126,622,121	5,711,827,164	47.3 %	133,257,305	1.28 %

* estimate for July 1, 2016

Table 2: Internet Users in the World from 1993 till 2017.

Source: InternetLiveStats.com, 2017.

Firstly, we can see on the figure 18 and through the table 2 that the Internet penetration has exponentially increased since 1993. (InternetLiveStats.com, 2017) And has it has been exposed in the previous chapter, in January 2017, there were 3,773 billion of Internet users worldwide. (Kemp, 2017)

Secondly, the group "We Are Social" reported the time spent by the users on the Internet. (see APPENDIX n°6: *Time spent on the Internet, by country*) The Philippines are the region with the highest amount of time spent on the Internet, which is 8 hours and 59 minutes a day (05:23 through laptop/desktop and 03:36 through mobile device), whereas Japan is listed as the one with the lowest time, this is to say 4 hours and 6 minutes a day. (Kemp, 2017)

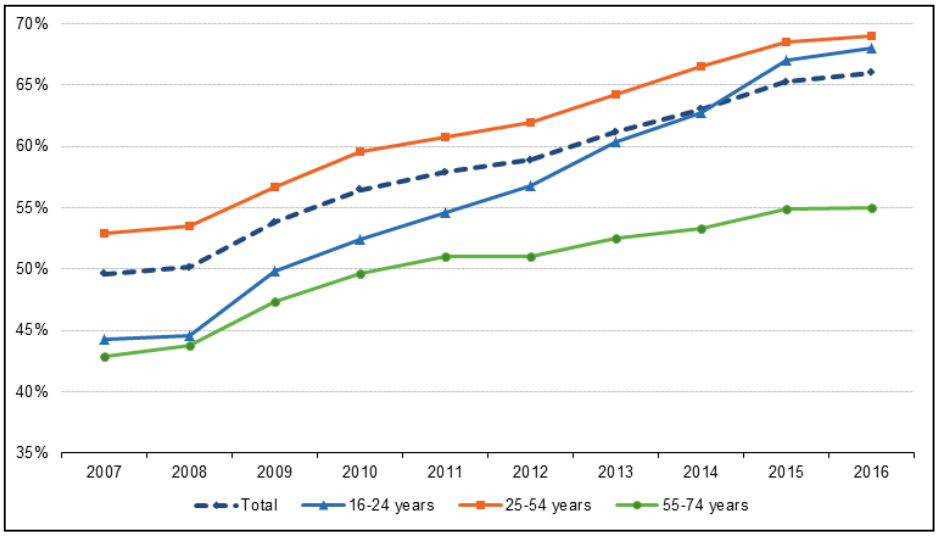


Figure 19: Internet users who bought or ordered goods or services for private use over the Internet in the previous 12 months by age groups, EU-28, 2007-2016 (% of Internet users). Source: Eurostat, 2017.

Moreover, during the 12 months during which the survey has been made, two thirds of the Internet users, in Europe, made online purchases (see figure 19). Globally, the number of customers who bought or ordered good or service for their private use is increasing since 2007. Nevertheless, the 16-24 and 25-54 age groups have a higher proportion to grow. (Eurostat, 2017)

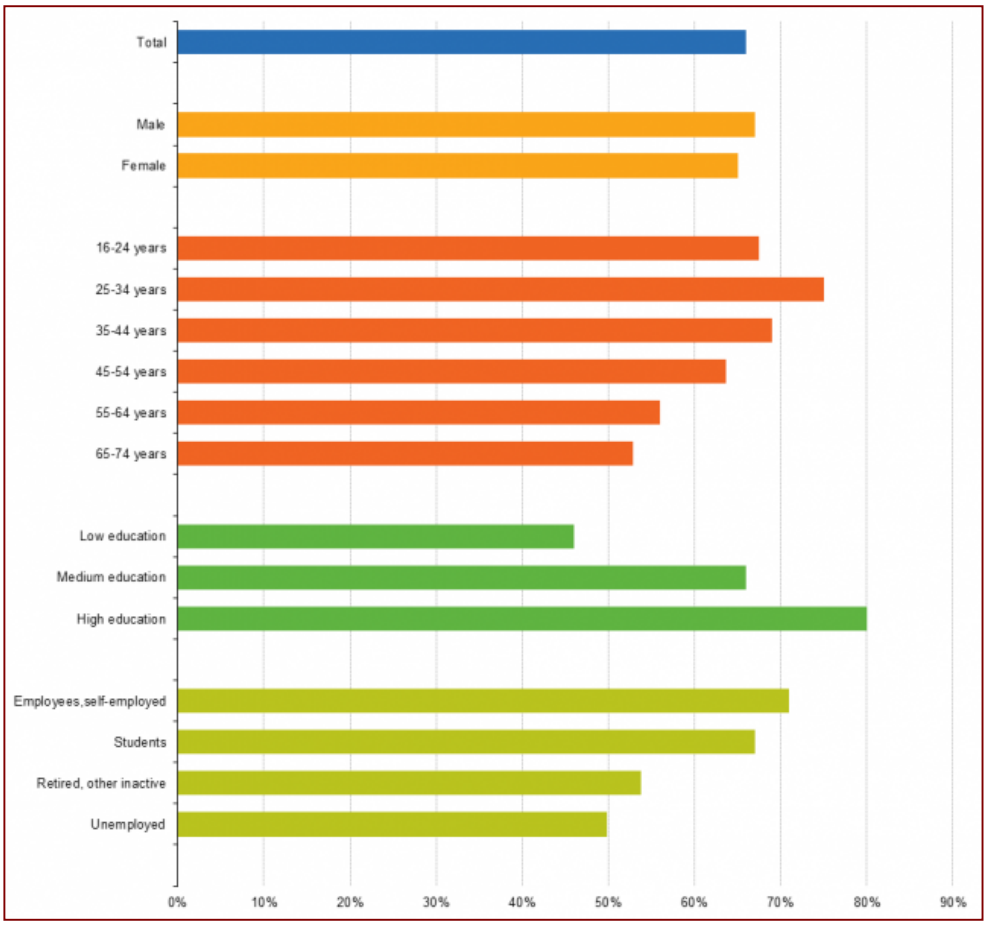


Figure 20: Internet users who bought or ordered goods or services for private use over the Internet in the previous 12 months, EU-28, 2016 (% of Internet users). Source: Eurostat, 2017.

In addition to that, we can see on the chart above (see figure 20) that almost as many women as men buy online. Besides, it seems that people with a higher education as well as the employees and the self-employed are more susceptible to order goods or services over the Internet. (Eurostat, 2017)

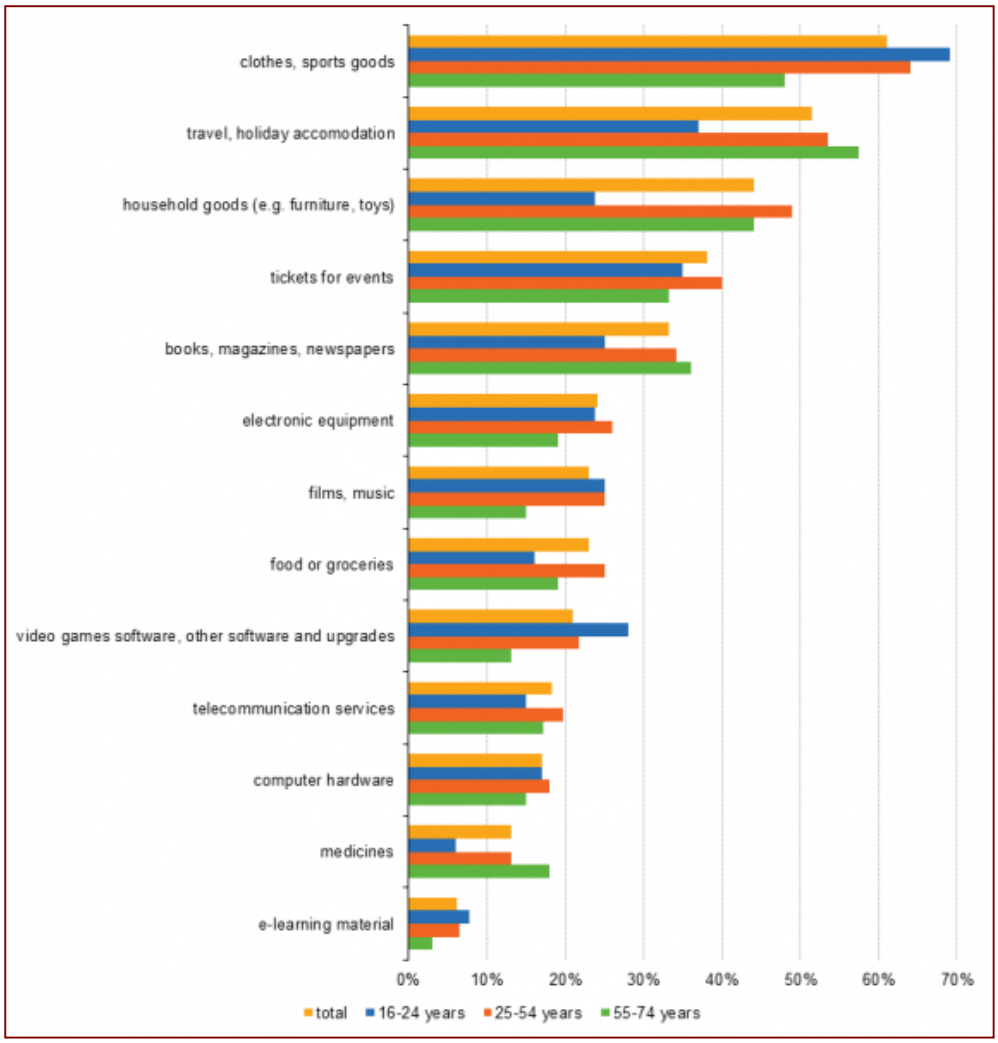


Figure 21: Online purchases, EU28, 2016 (% of individuals who bought or ordered goods or services over the Internet for private use in the previous 12 months). Source: Eurostat, 2017.

But what are they buying? The most popular type of goods and services purchased online in the EU was clothes and sport goods (61 % of e-buyers), followed by travel and holiday accommodation (52 %) and household goods (44%). Tickets for events account only for 38%, and the books, magazines and newspapers for 33%. Less than one in five Internet users bought telecommunication services (18%), computer hardware (17%), medicines (13%) and e-learning material (6%). (Eurostat, 2017) (see figure 21)

E-shoppers aged 16-24 were the top age group when it came to clothes and sports goods purchases (69 %), those aged 25-54 in buying household goods (49 %) and the older age group (55-74) in online purchases of travel and holiday accommodation (57 %). (Eurostat, 2017) (see figure 21)

Nevertheless, according to Cat Smeaton (2016), « the biggest growth will take place in the food and beverage space » because only 1% of these sales in the US take place online. « However,

that 1% amounted to $7.9 billion in 2015 – meaning that the overall value of the food and beverage market is $790 billion. » (Smeaton, 2016) According to the figure 21, food or groceries account for less than 25% for all ages. (Eurostat, 2017) On the contrary, other categories, such as consumer electronics, are reaching their limits. (Smeaton, 2016)

2. Trends that are changing how we shop

Since 1900 and the age of manufacturing, we went through different sources of dominances: the age of distribution, the age of information, and today, we are in the middle of the age of the customer. The companies should reinvent themselves to systematically understand and serve increasingly powerful customers. (Bossuyt, 2016) Today, the e-shoppers have access to highly detailed specifications, competitive comparisons, reviews from other buyers, etc. which are making them empowered buyers. (Bossuyt, 2016) The customers, its behaviors and its expectations are changing but not only. (Criteo, 2016) The marketplaces, the data storage technology, the marketing function, the business models and the technologies have also evolved. (Bossuyt, 2016) (Criteo, 2016)

2.1. The customer

We can highlight numerous changes that are challenges and opportunities for the e-commerce:

1) **Individualization**: People are always on their phone, their tablet or their laptop, making them cut off from the real world even if they are connected to the virtual social world. (Bossuyt, 2016)

2) **Time scarcity**: Today we have to be busy to be good, and we want everything in hand quickly. (Bossuyt, 2016)

3) **No tolerance for lower services**: Customers' expectations are higher than before and there is no room for bad customer service. (Bossuyt, 2016) According to WHATFIX (2015), 17% of the customers would leave businesses after a single service messed up and 78% of people don't complete a purchase because of poor service. (WHATFIX, 2015) (see APPENDIX n°7: *Poor customer service*)

4) **Information availability**: When the customer comes into the shop, he or she has already checked all the details on the Internet and has all necessary information. The seller has a little time to convince the customer to buy the product. (Bossuyt, 2016)

5) **Decline in customer loyalty**: The consumers don't care about the improvement of the service they are receiving from the same shop or company, they use 'best-in-class' companies as a benchmark. Besides, everything is now transparent, making it easy to find a better offer somewhere else. (Van Belleghem, 2014)

6) **Increasing use of the social media**: According to Kemp (2017), in January 2017 the global average of the social media penetration was 37%, North America presenting the highest rate (66%) whereas Central Asia the lowest one (7%). (Kemp, 2017) (see APPENDIX n°8: *Social media penetration, by region*) If we consider the active users of key global social platforms, based on the most recently published monthly active user accounts for each platform, in millions, the most important ones are Facebook (and Facebook Messenger) (with 1,871 million active users), followed by YouTube (1,000 million active users), QZone (with 632 million active users), Instagram (with 600 million active users), Tumbler (with 550 million active users) and Twitter (with 317 million active users). (Kemp, 2017) (see APPENDIX n°9: *Active users of key global social platforms*) The increasing use of the social media can have several impacts on businesses. People are quicker complaining on Yelp or Trip Advisor or even on the Facebook's page of a restaurant they didn't like, posting on Twitter for the long time they had to wait before receiving a parcel from Amazon. Therefore, the social media forced the companies to react, much more than if you were just sending a complain letter or if you would stop being a customer. It's generally hard to cope with it. (Bossuyt, 2016) However, Felim McGrath, the Trends Manager at GlobalWebIndex believes that social media will be a driving force encouraging online shopping. Some of the world's biggest social networks, such as Facebook, Twitter, YouTube, Instagram and Pinterest, have already tested and introduced commerce options, acting as the middle-men between buyers and brands. According to him, « the networks themselves have a clear interest in pushing this trend, both to increase engagement with their platforms and to open up healthy new revenue streams. » (Ord, 2016) Finally, « the Ovum report (…) predicts that the need for people to document their experiences on social media will motivate retailers to increasingly align not only their brand but also the shopping experience itself to this consumer desire for encounters worth sharing. » (Criteo, 2016)

7) **Digital accessibility:** As it has been said in the previous point, mobile phones use is growing. Thanks to this digital accessibility, « consumers have access to more buying opportunities than ever before. » (Puri, 2015) In consequence, small players have more opportunities with lower barriers to enter the market. (Puri, 2015) In addition, it seems an interesting market with the growth that it presents (see Chapter 1, point 1.4.). Nevertheless, it can be a threat for e-commerce leaders.

8) **Geolocalisation:** Geolocation is a set of techniques and processes that establish the degree of geographical proximity between users or consumers and their usual places of movement and purchase of goods and services. As mentioned above, there has been an increase in the mobility of individuals and goods in recent years, a constant updating of data collected and a compatibility with connected devices (Smartphone, tablet, etc.). This is why the geolocation tools enabling a high-performance navigation are very successful today. (Brun, 2017)

In regard with those changes, we can observe on one side that « e-commerce consumer today is largely driven by **price and convenience**. » (Criteo, 2016) In a near future, immediacy and convenience will be key aspects but a « proactive customer service and support, and free or very low-cost delivery anytime, anywhere will be the main expectations of the buyers. » (Criteo, 2016) Moreover, they won't accept any gap between the "fit and feel" of what they see and what they get. (Criteo, 2016)

On another side, consumers want an environment where « **shopping is an experience** in its own right » (Criteo, 2016), mixing the online and the real world « to enhance and differentiate the brand's value proposition of the company. » (Criteo, 2016) In the Ovum's report, they develop an interesting example: « In 2015, Victoria's Secret encouraged shoppers to take selfies in front of displays and show them to sales assistants in return for a free gift – and hopefully share their selfies/experiences with friends. » (Criteo, 2016) The integration of the social media with in-store retails is a good way for the firms to provide genuine delight and value, especially in our over-connected world. (Criteo, 2016)

Finally, two trends have emerged with the rise of online commerce: ROPO (Research Online, Purchase Offline) or *webrooming*[18] and *showrooming*[19], also called web-to-store and store-to-web. The border between the Internet and physical outlets no longer exists and consumers are

[18] see Glossary
[19] see Glossary

looking for the most convenient purchase channel to make a purchase (Paragon Group, 2017) (we will come back on the cross-device transactions in the point 4 of this chapter).

On one hand, « **web-to-store** describes the behavior of Internet users who look for information on the web before going out to a shop to make the purchase. » (Herscovic, 2012) This approach makes it possible to combine the advantages of the Internet and those of the physical outlets. For example, consumers avoid some of the barriers in online commerce (for instance, delivery charges and delivery times) while taking advantage of the good sides of physical outlets, such as the ability to touch and try the products. These consumers are informed about the price, the location of shops and opening hours, as well as the availability of products or promotions available and arrive in stores with a pre-defined purchase. (Paragon Group, 2017)

On the other hand, some consumers have taken a reverse behavior, looking for information in-store before ordering online from their computers, smartphones or tablets. (Paragon, 2017) **Store-to-web** is therefore the set of practices that aims to return the customer to the e-commerce site of the company for the purchase of a product that is not or no more available in the point of sale. (Bathelot, 2016) The challenge for companies is to attract the consumer to the point of sale and to find it on its own e-commerce platform to finalize the purchase. This can be achieved by integrating digital elements into the store, facilitating access to the online site of the brand inside the point of sale. (Paragon Group, 2017)

As a result, every business should pay attention to both trends. It is essential to optimize them in order to satisfy the prospects and create an uninterrupted customer experience, incorporating the different channels to better meet the needs and expectations of consumers. Web-to-store and Store-to-web strategies need to be complementary, whether it is to drive consumers to the e-commerce site or to the point of sale (Paragon Group, 2017) without creating a gap between the online and offline. (Shopify, 2017)

For instance, Sephora opened a fully digitized store in Paris. You are first welcomed by two robots who, with a pre-recorded speech, invite customers to take their digital card (a card that will follow you throughout your experience in the store) and wish you a good shopping. The store is equipped with numerous screens to view the online catalog or to have more information on the features and characteristics of a product found in store. You can either directly buy the products that are available in store or being delivered at home. In addition to the usual products and services, you also have a selfie-screen to immortalize with your friends your passage in store and phone chargers are available during your shopping. Finally, a screen is provided at the

store's exit to select samples you want. Thus, Sephora is a good example of a company that provide **a unique shopping experience** in a "store of tomorrow". (Liberge, 2015)

On another side, **pop-up shops** can also provide an effective answer to this potential problematic by using during a short period a physical space to « create a long term, lasting impression with potential customers. A pop-up shop allows you to communicate your brand's promise to your customers through the use of a unique and engaging physical environment while creating an immersive shopping experience » (Shopify, 2017) that wouldn't have been possible through your online channels. (Shopify, 2017)

In a nutshell, as far as there is no more boundaries between e-commerce and physical stores, businesses should consider cross-canal solutions. Recently, we have seen many online retailers opening retail stores and inversely, to provide the best consumer experience as possible. (Shopify, 2017) We will see in the third chapter that it could also be an interesting solution for same-day deliveries. (Hausmann, Herrmann, Krause and Netzer, 2014) For instance, the online giant Amazon has opened its first physical Amazon Books store in Seattle in 2015, following experiments with pop up stores. (Criteo, 2016)

2.2. The marketplaces

The marketplaces have also changed. (Bossuyt, 2016) (Criteo, 2016) We can highlight three main evolutions:

1) **Fragmented markets**: the characteristics of each customers have become different, creating a great opportunity for the niche players. (Bossuyt, 2016) Traditionally and theoretically, we used to segment the market according to geographic (world, region, city size, density, climate, etc.), demographic (age, gender, family size or cycle, income, education, religion, generation, nationality, etc.), psychographic (social class, lifestyle, personality) or behavioural (occasions, benefits, user status, etc.) variables. (Lecocq, 2016) Nevertheless, the « consumers exhibit hybrid purchasing behaviour today (…) [and] they increasingly move between segments (…) This fluidity means that the boundaries between segments will blur. » (Criteo, 2016)

   For example, blue-collar workers were among the first purchasers of flat screen television sets because it was cheaper for them to buy this product than to go to the theatre. Also, some lower income groups still buy premium or luxury products or accessories as status

products and high income groups shop at discount supermarkets such as Aldi. The income is not always predictive. (Lecocq, 2016)

In consequence, instead of following old-school, prescriptive and ineffective segmentation models, businesses should « take a far more sophisticated, creative approach to segmentation that is [rather] based on context (…). » (Criteo, 2016)

2) **Intensified competition:** On one hand, an online marketplace such as Amazon gives price and features comparison whereas the customers will have to go the extra mile to make comparison when they are shopping on an online webstore. (Izberg, 2017) (i95Dev, 2016) Moreover, even if the customers are purchasing in front shops, they often use their smartphones to compare prices and products reviews. (Agrawal, 2016) Therefore, the businesses with the lower prices and the better values will often win a competitive advantage. Besides, we also have developed the fact that the customers aren't much loyal anymore and they are quickly moving from a brand to another one if they are unsatisfied. (Van Belleghem, 2014) (WHATFIX, 2015) (see APPENDIX n°7: *Poor customer service*) Therefore, the e-market is quite competitive and even more intensified with the arrival of niche players (Bossuyt, 2016).

3) **Difficult differentiation**: The features of the product itself aren't enough anymore to differentiate a company from another. Firms seek competitive advantages through closer, service-focused relationships. (Bossuyt, 2016) As far as the competition is getting more intense, companies have to differentiate themselves and, as we have seen previously, the customer expect a better customer-driver and personalized shopping experience online. Nonetheless, the e-commerce market is nowadays dominated by electronics, toys, books, clothes, etc. that have almost saturated the market. (Agrawal, 2016) Therefore, there is a gap in the e-market for other sales categories such as the food and beverage, allowing a better product differentiation. (Agrawal, 2016) (see figure 21)

To briefly summarize, businesses have to pay attention to those three evolutions: they should make a more sophisticated and based on context segmentation, and create a strong competitive advantage through an effective differentiation to handle a more intensified competition.

2.3. Data storage technology

Today, there are tons of possibilities to get information on shopper behaviour, preferences, needs and wants. (Bossuyt, 2016) According to Criteo[20] (2016), over the next 10 years: « There will be more digital services, platforms and devices than ever before capable of generating data insights, including social media and messaging apps, location-based services, and online and mobile payments. » (Criteo, 2016)

Thanks to those data, a very deep insight about the customers is possible and consequently they become more predictable. (Bossuyt, 2016) It will allow companies to move from a two-dimensional view to a **tree-dimensional customer perspective**, contextually relevant. Every business need to have a complete 360° view on its customers, in the most extensive way as possible: about their demographic data (What gender and age is our customers? Where do they live? Etc.), their local conditions (What is the weather like? What is the local transport status? Etc.), their location (Where is the person at this moment? How often do they visit the location? Etc.), their health and emotional state (What sport is our customer engaged with? Are they tired or rather agitated? Etc.), their purchasing behaviour (What did they buy and how often? How did they pay? Etc.) and the type of device(s) and connection they are using. (Criteo, 2016) (see APPENDIX n°10: *3-D Customer perspective*) This « will drive the evolution of predictive analytics, giving retailers models that will help them determine consumers' likely future actions and needs. » (Criteo, 2016)

But sometimes, having too much data is also a challenge. (Bossuyt, 2016)

On one hand, **the quality of the data** is a key point. « Poor data quality is the primary reason for 40% of all business initiatives failing to achieve their targeted benefits (…). It has been found that data quality problems cost 10% of the total revenue. The staff of an organization spends 25% of its time in handling customer complaints caused by erratic data, fixing incorrect data, finding missing data, and clarifying data that doesn't make any sense. » (Span Global Services,2014) To make sure that you have good data, you can go through three steps which the acronym is A.C.E. (Bossuyt, 2016):

[20] Criteo is « the global leader in digital performance advertising in a few short years » (Criteo, 2017)

1) **Audit**: Define the quality of your current data: Is it complete? Is it accurate? Are there duplications?
2) **Clean:** Structure the data, standardize the data, eliminate the doubles and update the data if it's necessary.
3) **Enrich**: To finally know more about your prospects and customers.

On the other hand, more the customers are giving information to companies, more they expect a high level of **convenience** and **personalization**. Besides, they will require « more **control** and agency over the breadth and depth of what is shared and the entities with whom the information is being shared. » (Criteo, 2016)

2.4. Marketing functions

After having developed the evolution of the customers' behavior and expectations, the marketplaces, and the data storage technology, we can highlight four new main trends occurring in the marketing functions.

1) **Channel multiplication**: You can communicate with the customers through 10 times more channels than during last years: text, mobile web, social networks, news feeds, website, online mentions, ads television, email, in-store experiences, etc. In consequence, it becomes difficult for the marketer to be sure to communicate through the right marketing channel. Moreover, every *touchpoint*[21] is important and they all need to be linked to provide an effective shopping experience. (Bossuyt, 2016) As a result, businesses should consider *cross-channel marketing*[22], which is the utilization of more than one form of digital media to get the message out, as one of the main keys to the growth of e-commerce. (Agrawal, 2016)

2) **Different marketing model that are more customer-centric**: We aren't talking about the 4Ps (Product, Price, Place and Promotion) anymore, not even the 7Ps (Product, Price, Place, Promotion, People, Process and Physical Evidence) but the 7Cs: Customer/Consumer, Cost, Convenience, Communication, Caring, Co-ordinated, Confirmation. We must understand that it goes further than the theoretical marketing. The marketing strategy isn't

[21] see Glossary
[22] see Glossary

organizational focused anymore but well customer-centric. As previously said, companies need to have a 360° view on their customers. (Bossuyt, 2016)

3) **From outbound marketing to inbound marketing**: Whereas « outbound marketing attempts to initiate a conversation about a product or service by rapidly spreading word of its existence through a variety of traditional marketing methods » (Marketing-Schools.org, 2012), the « inbound marketing is a strategy that utilizes many forms of pull marketing – content marketing, blogs, events, SEO, social media and more – to create brand awareness and attract new business, (…) earns the attention of customers and makes the company easy to be found. » (Marketo, 2017) Businesses try to attract customers rather than interrupt them. (Bossuyt, 2016)

4) **Mobile advertising**: On one side, Ovum report claims that mobile advertising is already part of the digital advertising mix and that it will become the dominant channel for most brands. On the other side, the same report develops the fact that mobile will also soon be the dominant channel for loyalty rewards and programs. It will enable more interactivity and engagement than traditional program. (Criteo, 2016)

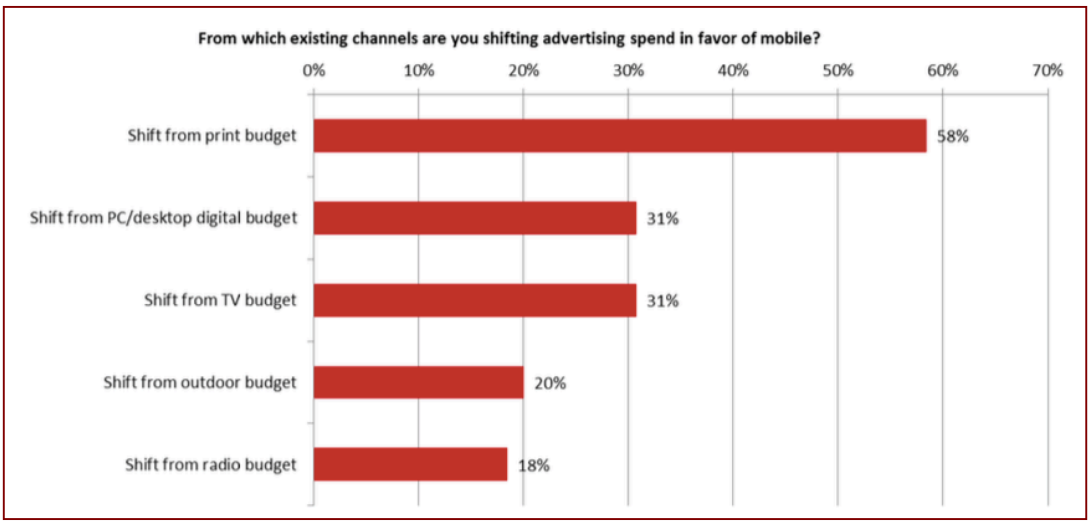


Figure 22: Mobile advertising spend driven by substitution from other channels. Source: Criteo, 2016.

On the figure 22, we can see that « a key trend driving the growth in mobile advertising is substitution from other channels, and we expect this to accelerate. » (Criteo, 2016) 58% of businesses are shifting from print budget, 31% from PC/desktop digital budget, 31% from TV

budget, 20% from outdoor budget and 18% from radio budget to mobile advertising budget. (Criteo, 2016)

In short, traditional marketing is dead. We should focus on our customer, not on the company or the product(s) or service(s) we are selling. For that, each firm need a clear vision of its buyers, across all levels, channels and departments. (Bossuyt, 2016) Moreover, as far as technologies are evolving, advertising strategies have to evolve as well.

We can then come back on the new marketing approach SoLoMo. Indeed, as far as technologies are evolving, marketers should improve their marketing strategy. « SoLoMo, short for social-local-mobile, refers to a more mobile-centric version of the addition of local entries to search engine results. SoLoMo emerged as a result of the growing popularity of smartphones, and provides greater local precision to search engine results than what's available via a PC. » (Technopedia, 2017)

« An example of SoLoMo integration would be a social mobile app that is aware of your physical location and that you can interact with from your mobile device, both to input information (check-ins, posts, status updates, ratings and reviews, etc.) and to receive information (store hours, products and services, ratings and reviews, coupons and promotions of nearby businesses). » (Gulden, 2013) For instance: Foursquare and Yelp. (TechTarget, 2017)

Through this type of strategy, consumers feel connected to the brand and businesses can benefit from an increased loyalty of their clients. This spirit of collaboration, co-creation and innovation can effectively turn into a win-win situation. (Cision, 2013)

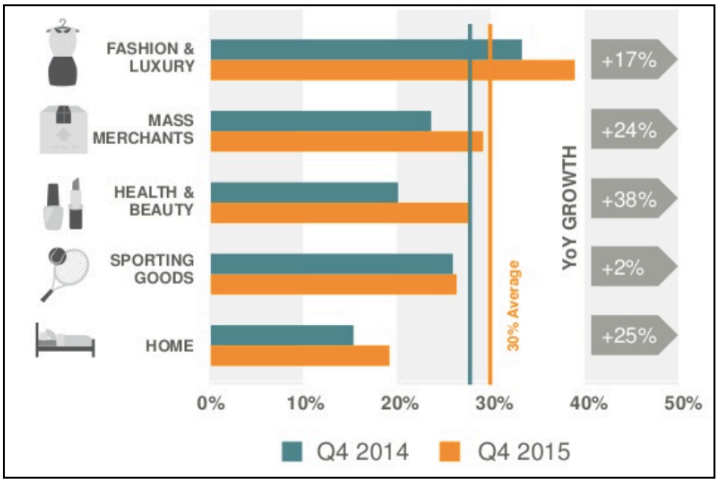
3. M-Commerce

The dynamics of online sales is increasingly driven by the surge in **mobile sales**. That's why the future will pass through mobile-commerce or m-commerce (see Chapter 1 point 1.4.). In January 2017, there were 4,92 billion of mobile users (unique individuals) worldwide, which represents a mobile penetration (unique users vs. total population) of 66%. (Kemp, 2017) Consumers are now connected permanently, they can search and buy where and when they want. It is therefore a major challenge but also a great opportunity for innovative entrepreneurs. (Fevad, 2013)

Criteo made an analysis of the shopping data from the fourth quarter of 2015 to demonstrate that « mobile is an established channel for retail transactions in a world where mobile devices are the center of the connected consumer. » (Criteo, 2016)

On the figure 23, we can see that mobile transactions represents 30% of the retail e-commerce transactions, 15% more than the same quartile the year before. (Criteo, 2016)

Figure 23: U.S. Mobile share of retail e-commerce transactions. Source: Criteo, 2016.



Among these businesses, the over-performers are the fashion and luxury companies, the mass merchants, and the health and beauty firms. These latter saw the largest rise in mobile share year-over-year (38%). (Criteo, 2016) (see figure 24)

Figure 24: U.S. Mobile share of e-commerce transactions by sub-vertical. Source: Criteo, 2016.

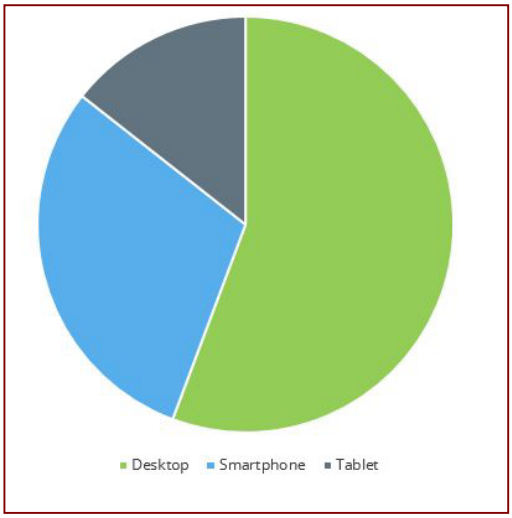


Figure 26: Percentage of total US e-commerce traffic. Source: Smeaton, 2016.

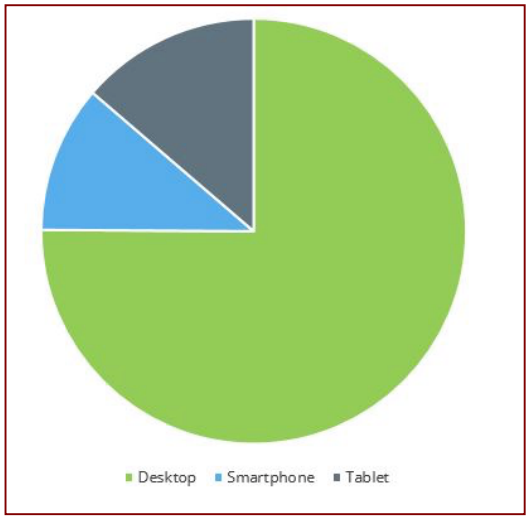


Figure 25: Percentage of total US e-commerce revenue. Source: Smeaton, 2016.

Nevertheless, according to the graphs above (see figures 25-26), the customers still prefer to shop on computers and tablets rather than on mobile phones. Indeed, we can understand that even if the smartphones represent 29,9% of the US e-commerce traffic, it only accounts for 11,2% of the US e-commerce revenue. (Smeaton, 2016) The reason could be the screen size and a problem of visualization. However, Smeaton (2016) « we believe[s] that mobile e-commerce will continue to grow, and the development of new technology will make it easier for customers to shop on their mobile phones. This will allow mobile revenue will rise to a figure more proportionate to mobile traffic. » (Smeaton, 2016)

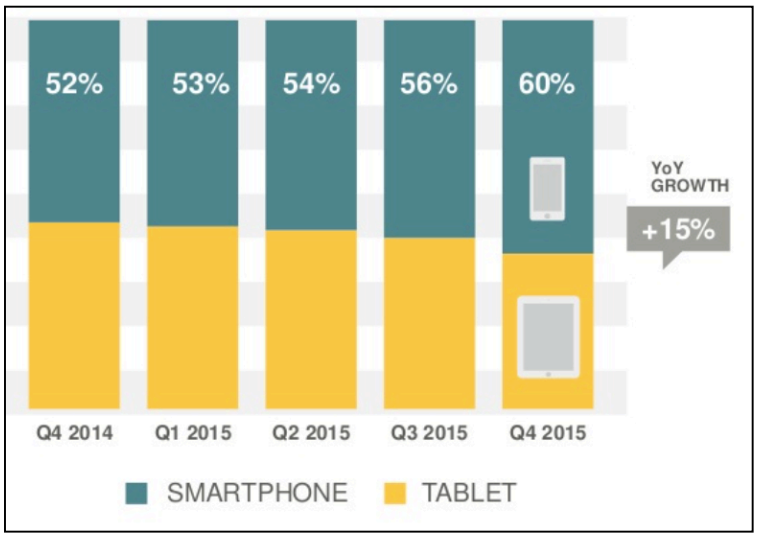


Figure 27: U.S. Retail mobile transaction share, by device (% total). Source: Criteo, 2016.

Still, there is a significant increase of the smartphone's share of mobile transactions (15% year-over-year) as we can see on the figure 27. (Criteo, 2016)

The group "We Are Social" has reported that, in January 2017, the laptops and desktops accounted for 45% of the share of web traffic, whereas mobile phones represented 50%, tablet devices 5% and other devices (PlayStations for instance) 0,12%. (Kemp, 2017) Nonetheless, if we consider the year-over-year change, the mobile phones present an increase of 30%, while the laptops and desktops a decrease of 20%. (Kemp, 2017)

According to Criteo's analysis, « the combination of better transaction channels, ubiquity, more phone models with big bright screens and fast wireless broadband is giving retailers better options for displaying their good on mobile devices – ultimately leading to more transactions. (…) These developments are turning the smartphone into a platform that can support the whole

shopping journey, from product search and discovery, to comparisons, recommendations and payments. » (Criteo, 2016)

***« Mobile is becoming an integral part of the shopping experience. »* (Criteo, 2016)**

4. Cross-Device Transactions and App development

As far as the customers are always connected, they are using many devices to shop online: they take a multi-device path to purchase. (Geeks and Com', 2013) Most « people are moving between devices, from the web to mobile apps, before turning into paying customers. » (Shopify, 2017)

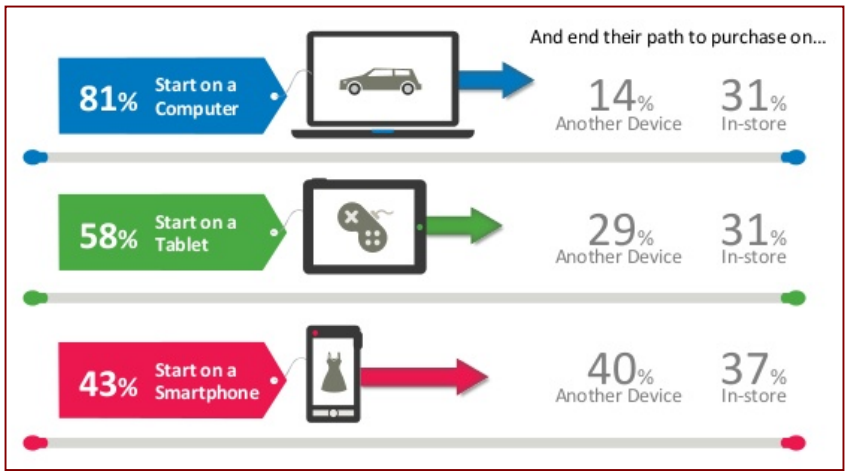


Figure 28: Consumers take a multi-device path to purchase. Source: Geeks and Com', 2013.

As we can see on the figure 28, 81% of the buyers start on a computer, 14% of them continue on another device and 31% of them complete their purchase in-store. 58% start on a table and 43% on a smartphone. (Geeks and Com', 2013) « (…) To truly measure the effectiveness of a digital campaign, tracking cross device behavior is imperative. » (Geeks and Com', 2013) It's a big challenge for the company to deliver apps, websites, etc. that provide the same experience as a front store. Furthermore, there are different type of those tools such as Apple and Android for which the development is totally different. (Bossuyt, 2016)

According to the figures 25 and 26 (Smeaton, 2016), it seems that the clients are finalizing their purchases on their computer or their tablet, more than on their mobile phone. However, on the

figure 26 (Criteo, 2016), we conclude that the mobile transactions are significantly increasing and that businesses should integrate this device transaction type in their strategy.

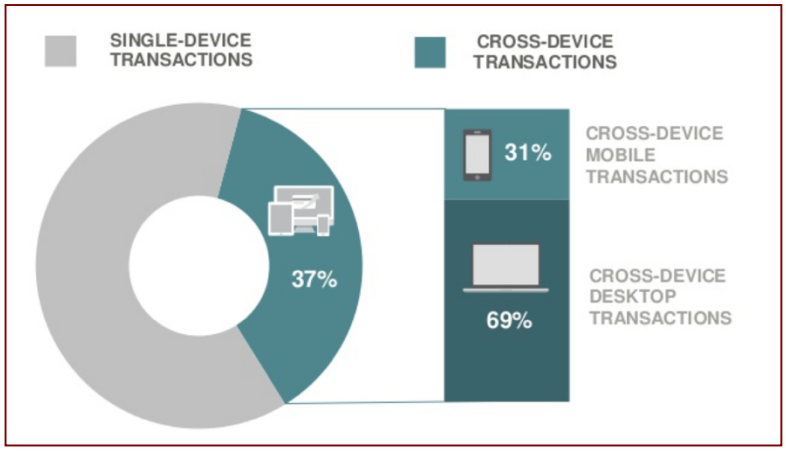


Figure 29: Cross-Device Share of Retail Transactions and Mobile Share of Cross-Device Transactions, Q4 2015. Source: Criteo, 2016.

Almost two fifth (37%) of the transactions happened across multiple devices or channels in the last quartile of 2015. (Criteo, 2016) As we can see on the previous graph (see figure 29), « within cross-device transactions, mobile accounted for 31% » (Criteo, 2016) whereas desktop transactions accounted for 69%. (Criteo, 2016)

Therefore, « due to the proliferation of wearable devices and technology, the consumer journey (…) will increasingly look like a pretzel that twists, turns and loops back on itself. (…) It is a fluid movement that (…) will be even harder for retailers to keep up with or predict because it will include a growing number of devices and touchpoints. » (Criteo, 2016)

What is even more interesting is that « retailers whose apps focus on providing shoppers relevant and useful products and remove barriers to purchase drive a higher share of transactions than mobile web. » (Criteo, 2016)

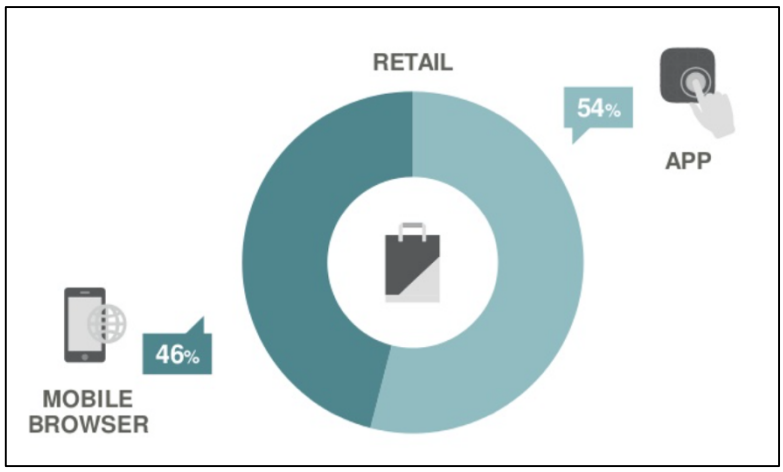


Figure 30: Global App vs. Browser Share of Mobile Transactions, Q4 2015.

Source: Criteo, 2016.

We can understand with the figure 30 that the purchases made with the apps represent 54% whereas with mobile browsers it accounts for 46%, for the same quartile. (Criteo, 2016)

To clearly understand this fact, we can detail the global retail *conversion funnel*[23] for the mobile browser on one side and the app on the other side (see figure 31).

« A conversion funnel is the term that describes the steps in a consumer's journey to purchasing an item from an e-commerce website. The shape of a funnel represents the gradual decline in the number of customers who reach each step. » (BigCommerce, 2017)

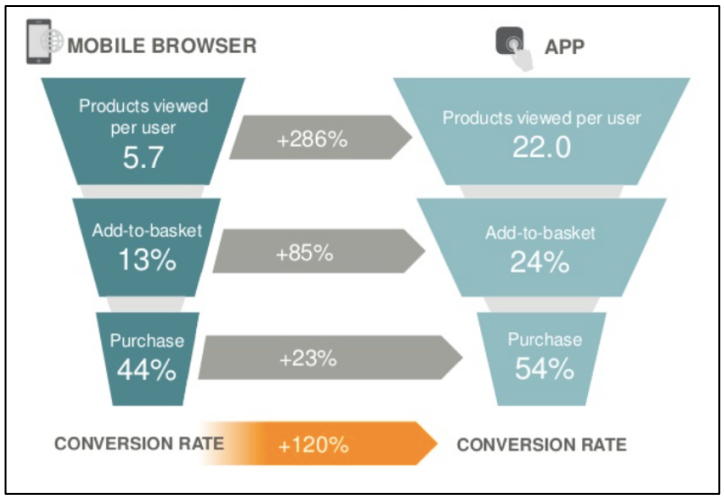


Figure 31: Global Retail Conversion Funnel, by Channel. Source: Criteo, 2016.

On the figure 31, we clearly see that the funnel for the app is wider at every step than for the mobile browser: 5,7 products are viewed per user in a mobile browser against 22 products in an app (286% more). After having consulted the goods in which they are interested in, only 13% of the customers are adding it to their basket in a mobile browser against 24% in the app (85% more). Finally, the last step and the most important one is the purchase: shoppers are 23% more to complete their purchase in an app than in a mobile browser. (Criteo, 2016)

An important point to highlight here is *the conversation rate*[24]. « A conversion rate is the percentage of visits to a website that end in a purchase. This acquisition is called a conversion because it measures how many site visitors converted their page view into a purchase. » (BigCommerce, 2017) Here, the conversation rate is 120% higher when the customers are shopping in an app than in a mobile browser. (Criteo, 2016)

[23] see Glossary
[24] see Glossary

The conversion funnels are often used in marketing and customer management because they help companies to clarify the best paths to getting a user to complete a sale. (Criteo, 2016) (Lecocq, 2016) Every business should look at the best possible actions to which they should attach value in order to focus their marketing spending and resources on those that offer the strongest return. (Shopify, 2017)

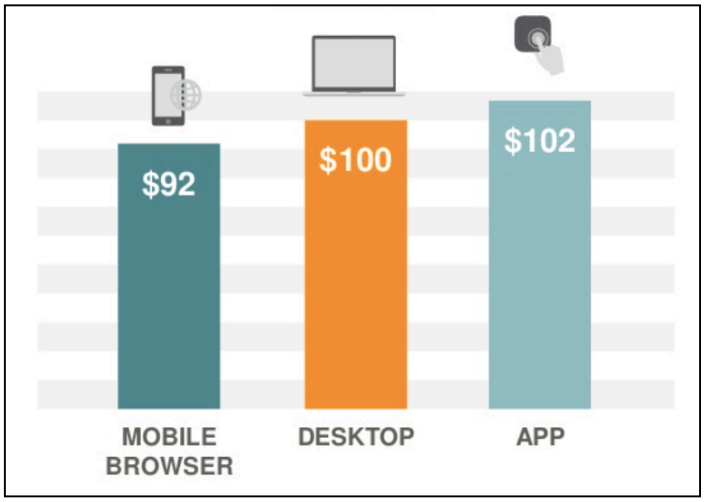


Figure 32: Global Retail Average Order Value Index, by Channel (vs Desktop). Source: Criteo, 2016.

Moreover, Criteo (2016) found out thanks to their analysis that the apps also bring more revenue per transaction (see figure 32): the apps accounted for $102 against $100 for the desktop and $92 for the mobile browser. (Criteo, 2016)

Lastly, through the app, the businesses are able to better target the customers according to their buying history and browsing behavior, which is more effective than the generic targeting signals on mobile and desktop websites. (Criteo, 2016) Indeed, « in the context of wearable devices, native applications are most likely to be a more effective advertising channel. » (Criteo 2016) We will see this further in the following point.

To sum up, in view of the previous results, businesses should focus on developing convenient and effective app, enabling e-shoppers to complete easily their purchase, whenever they want and when they want from their mobile phones. Besides, as said previously, companies should develop its presence and its marketing strategy across every channel. (Agrawal, 2016)

5. Emerging web technologies

As it has been said before, the online experience still lacks several « basic virtues embodied by the in-store shopping experience. (…) Most online sites begin without any offsetting strategies that could give buyers an equivalent online experience », something more human. (Pozin, 2016) The only thing that online shops used to remember was the customers' name and the last article they bought. Sometimes, they offer additional goods they may interest them, making them nothing more than an electronic catalog. (Pozin, 2016)

Today, thanks to many innovative and dynamic web technologies, businesses are able to surprise you, to convince you to buy a precise item by « sweetening the deal or lowering the price. » (Pozin, 2016)

For example, the ***user-specific promotions***[25] is « a custom-tailored experience that can remember your preferences, gauge your level of interest in a certain item, and make dynamic adjustments to the price and options. » (Pozin, 2016) Therefore, if you go on a website checking a TV that interests you but you don't buy it and you go back on the same webstore few days later, if the TV is marked down 20 percent "for today only", you will feel like you are getting a deal and you will probably purchase it. (Pozin, 2016)

This is still different from the *mass customization*[26], which describes « the ability to offer more tailored, personalized products and services, but in a way that such products and services can still be produced and delivered with cost-efficiency and at scale » (Criteo, 2016), such as on Nike website, you can personalize the sneakers by choosing from hundreds of colours. (Lecocq, 2016) (see APPENDIX n°11: *Mass customization on Nike website*) As far as the personalization of each product or service to a customer has huge cost implications, mass customization is more and more implemented in different industries. (Criteo, 2016)

Another example is ***the targeted advertising***[27]. « A targeted ad, in online marketing, is an advertisement that is served to a specific audience, which could be a particular demographic, a group or an individual. » (TechTarget, 2017) This technique is largely used by the social medias, and overall by Facebook. As far as there are « over 1.86 billion monthly active Facebook users » (Zephoria, 2017), you can almost reach everybody, any group of people, thanks to advertising

[25] see Glossary
[26] see Glossary
[27] see Glossary

on Facebook. (Pittman, 2016) Nonetheless, it seems more valuable to target the people that could be interested in the items that you sell. In consequence, Facebook ads are targeted according to your profile information such as your age, your education, your location or your interests but also depending on the pages that you liked or shared. (Social Ads Tool, 2017) Besides, today the targeting happens online but also offline, which means that « Facebook can actually track most of your online activity… what you purchase, what you read, etc. » (Pittman, 2016)

In addition to that, we have seen that the goods sold online are becoming more and more complicated compared to the books, for example, that were sold at the beginning. Furthermore, the customers haven't the chance to experience, see, smell, taste, etc. the items. Therefore, the visualization of the products on the screens and the description of it become primary. That's why « for the near future, **product videos** will be the first approach that gains mass adoption. » (Smeaton, 2016)

In a nutshell, « emerging web technologies allow the retailer to interact with customers in much the same way as they would in a store. By becoming better acquainted with the customer and tailoring the experience to the shopper's personal taste, retailers can present products of interest and avoid wasting time on things that hold no interest. » (Pozin, 2016)

6. Disruptive technologies impacting the online buying experience

In addition to web technologies described above, there are several other key technologies that will have profound impact on the online buying experience and the customers' behavior within the coming years. (Agrawal, 2016) I will describe here two of them: *Near Field Communication*[28] (NFC) and *augmented reality*[29], the next platform revolution. (Ord, 2016)

6.1. Near Field Communication (NFC)

« NFC stands for "Near Field Communication" and, as the name implies, it enables short range communication [of small amounts of data] between compatible devices. This requires at least one transmitting device, and another to receive the signal » (Triggs, 2017) but it doesn't

[28] see Glossary
[29] see Glossary

necessitate any Internet connection. « It's easy, fast and works automagically. » (Faulkner, 2015) This new method of wireless data transfer evolved from radio frequency identification (RFID) tech. No pairing code is needed to link up (Faulkner, 2015), and it uses inductive coupling, allowing faster connectivity (it takes less than one tenth of a second to establish a connection between two devices). (Trigg, 2017)

This innovation has already raised opportunities for e-commerce in mobile payments: « Samsung Pay, Android Pay, and even Apple Pay for iOS all utilize NFC technology. » (Triggs, 2017) Today, you simple hold your phone close to the contactless payment terminal and instantly, like swiping a credit card, the payment will be completed. It enables businesses to grab unique info on frequent shopper loyalty cards, library card, business cards and the like that could be contained and transmitted simply via NFC. In the near future, NFC chips stocked inside credit cards for contactless payments will replace every card in a wallet. (Faulkner, 2015) « Moreover, the use of mobile NFC for payments reduces the need for cash and plastic cards, leading to cost and time savings. » (GSMA, 2017) But is nothing new.

Undeniably, other applications for e-commerce are emerging. Indeed, « that kind of transaction has the chance to be a real game-changer in the e-commerce space. » (Savitz, 2013) It allows clients to try on or sample the products in stores, quickly scan and buy the items they want, and have them delivered to the place their want within a day. (Savitz, 2013) Another use is the NFC tags in front of every product on the shop shelves, as Casino, a French supermarket has already experienced. The clients only have to touch their own phones to the tag to check the product information or add the goods in their mobile app's basket, which allows for physical checkout. This solution is handy and cheaper than handheld scanners already used in several supermarkets. However, it isn't a real time-saver for the customers and product information already appear on the item itself. But it likely provides a fun interaction between e-commerce merchants and the consumer, which can enhance the customer experience. (Davis, 2014)

NFC technology could also be used by stores to send shoppers personalized information and offers thanks to a quick touch of NFC handset against a reader to check-in at the entry of a store and the same scenario can be imagined at the check-out to redeem vouchers and collect loyalty points. (GSMA, 2017)

According to Spencer Spinelli, Director of Emerging Media at Google, « NFC could be the future of e-commerce and a link between mobile and improved brand experience for consumers. » (Kochhar, 2017)

6.2. Augmented reality (AR)

Augmented reality is a technology enriching the real world thanks to the integration of digital information and media with the user's environment. « Unlike *virtual reality*[30], which creates a totally artificial environment, » (Rouse, 2017) augmented reality turns the existing environment around you into a digital interface by placing virtual object in the real world, in real-time. (Augment, 2017) (Rouse, 2017) It can be seen through a wide variety of experiences such as 3D models and videos, overlaying in real-time the camera view of your smartphone, tablet, PC or connected glasses. (Augment, 2017)

Regarding e-commerce, integrate augmented reality in its business model appears as a huge opportunity to well up-end and upgrade the shopping experience. (Chen, 2017)

A major disadvantage for customers of e-commerce, as previously mentioned, is the incapacity to know if the product will fit or not. In this context, AR technology enables customers to view besides the in-depth information available online (reviews, related products and price), the actual physical product and it « offers shoppers the confidence that may motivate purchasing decisions. » (Chen, 2017)

Furthermore, this innovation provides customers « with an in-store shopping experience, regardless of their location. » (Chen, 2017) For example, IKEA who has already integrated this new technology, allows its clients to superimpose 3D objects shown to scale in various spaces, helping them to envision how pieces of furniture might look in their homes. (Chen, 2017)

As a result, augmented reality has the potential to remove uncertainty from the buying online process and deliver personalized services thanks to digital customization, if retailers bring this technology into the real world. (Chen, 2017)

Moreover, « one of the key drivers for augmented reality being used by online stores is increasing the conversion rate. Generally, retailers do much better when a consumer walks into their physical store locations compared with Internet shopping, because there is no human connection. » (Ord, 2016)

In a nutshell, as said earlier, « the major shortcoming with online shopping to date has been the instant gratification that comes with in-store shopping and the ease with which consumers can get their hands on products in real time. As new technologies such as Near Field

[30] see Glossary

Communications [and augmented reality] emerge, that advantage for traditional retailing may shift. » (Savitz, 2013) Therefore, every business should take into account all the opportunities those innovations are offering in order to create a real "event" shopping experience in an interactive, highly engaging online environment. Indeed, « such disruptive technologies will have a huge impact on e-commerce going forward » (Agrawal, 2016) and businesses need to adapt their model to this change in consumer behavior coming from new technologies that simplify customers' lives to enhance and differentiate its brand's value proposition. (Ord, 2016)

CHAPTER 3: THE DELIVERY AND THE IMPORTANCE OF THE LOGISTIC

As developed in the previous chapter, the empowered customer of today has high expectations regarding time to delivery and the overall delivery experience. As we have seen on the figure 9, deliveries speed, which seems to be slower than indicated by the retailers, is the main issue highlighted by e-shoppers. (Eurostat, 2017) That has forced online retailers to change their traditional supply chain and invest in new technological solutions to manage their delivery operations. (Cohen, 2016)

« The great success of e-commerce is based primarily on the convenience factor. It all has to be "simple and easy". » (DHL, 2016) According to two surveys commissioned by DHL, the global market leader in the logistic industry (DHL, 2016), in 2015, « a major factor for sustainable success in the e-commerce sector is the customer's satisfaction with the parcel dispatch. » (DHL, 2016)

However, the online shopping can be as easy as convenient, for most customers, their act of purchasing will only end when their hold the bought goods in their hands. They expect a delivery service that will provide their parcel to come to them, when and where it suits them. (DHL, 2016) « The receipt of the parcel must fit into their daily routine, and proceed as smoothly as possible with minimized effort. » (DHL, 2016) The fundamental change of customers' expectations from delivery services presents unique challenges for full service on the *last mile delivery*[31] - « defined as the movement of goods from a transportation hub to the final delivery destination » (Datex Corporation, 2017) -, which becomes an important competitive factor in e-commerce. (Cohen, 2016) (DHL, 2016) Indeed, « same-day delivery is a game changer because it combines the immediate product availability of retail with the convenience of ordering from home. » (Hausmann, Herrmann, Krause and Netzer, 2014)

Furthermore, according to Joerss, Schröder, Neuhaus, Klink and Mann (2016), « currently subject to significant disruption, last mile delivery, especially of parcels, is getting a great deal of attention in the media and from investors (…). » (Joerss, Schröder, Neuhaus, Klink and Mann, 2016) This is due to the high cost of global parcel delivery; excluding pickup, *line-haul*[32], and

[31] see Glossary
[32] see Glossary

sorting it amounts to about 70 billion of euros. Besides, it seems that China, Germany and the US account for more than 40% of this market. (Joerss, Schröder, Neuhaus, Klink and Mann, 2016) In this third chapter, I will first review the results of those two surveys, concerning the customers' preferences about the different phases of parcel shipment, from the ordering process to the parcel delivery and the parcel receipt. Then, I will describe the three main operating models fulfilling the logistics need to deliver the products the same day as the ordering, as expected by the customers. Thirdly, I will develop the main challenges that last mile delivery presents. Lastly, I will review several technological disruptions and innovations that could change the game of same-day delivery.

1. From the online order to parcel receipt

Deliveries involve three main entities: the customers, the merchants, and the delivery providers, each with their own set of expectations and challenges. However, « customers have an increasingly complex set of expectations regarding the speed, flexibility, security, and cost of delivery. » (Hau, Chen, Gillai and Rammohan, 2016)

1.1. Multiple options in the checkout process

Even if the product range, the value for money, the design and functionality of e-commerce websites are important factors for a thriving online business, the surveys reveal that over 59% of the e-shoppers check carefully the shipping options before ordering, namely the shipping costs and the parcel provider. 68% of the customers are pleased to be able to choose the delivery date. The flexibility and the convenience being important aspects to the customers, being able to indicate the delivery time is a plus for 78% of the respondents. (DHL, 2016)

1.2. Touchpoints within the delivery process

Moreover, « precise, comprehensive information about the delivery process play a big role in customer satisfaction » (DHL, 2016): most of them want to receive email notifications by online shops for the shipping confirmation with a probable delivery date, that would also contain a direct link to shipment tracking, the name of the parcel provider and the parcel number. Indeed,

as far as an open communication is important for customers, « the parcel notification is a very important way of making customers feel well informed. » (DHL, 2016)

Even if emails are the most important channel for shipping confirmation, 96% of the e-shoppers considerer a user-friendly, well designed and easy to handle parcel provider's app to be an important channel for tracking their shipments' status update. (DLH, 2016)

1.3. Delivery and its options

« A Voxware survey involving 600 consumers examined delivery expectations when purchasing online. According to the survey, 62% of respondents were less likely to shop with a retailer if an item wasn't delivered within two days of the date promised. 68% of respondents said their expectations for on-time delivery were higher during the holiday shopping season. The survey also revealed that 43% of respondents expected delivery within three to four days, while another 40% expected delivery within five to six days. (…) Voxware concluded that many consumers would abandon shopping with a retailer online and in the store with just one error or delay. (…) With consumer expectations increasing along with the increase in online shopping, efficient, timely and accurate delivery are more crucial than ever. » (Mitchell's NY, 2016)

The classic delivery option is still popular: 77% of the respondents prefer to be delivered at home. When they are absent, a trusted neighbor remains the preferred delivery option for most people, followed by a specified deposit location on their own property (a garage or a terrace, for example), and then a private parcel box[33]. (DHL, 2016) *Parcel boxes* are the counterpart of mailboxes, only for parcels and they can be permanently installed on the property of the recipient or they can be fixed to the door as a folding box, and 29% of the online shoppers want to use it. (DHL, 2016)

Furthermore, 54% of the e-shoppers want their parcels to be sent to post offices or *parcel shops*[34], which « are collection points for parcels from logistic companies. Many of these contact points are actually kiosks or petrol stations that have longer opening hours (…). » (DHL, 2016) So, customers are free to pick up their purchased good when they want. (DHL, 2016)

[33] see Glossary
[34] see Glossary

The ordered product is also a factor on which will depend the desired delivery place: 33% prefer to personally receive high-priced products, 24% desire that food and perishable goods come into their own hands fresh and 22% would select a home delivery for large, heavy or bulky parcels, as far as it's more restrictive to carry them. (DHL, 2016)

According to the surveyors, besides the fact that all users are very pleased with a quick and punctual receipt of undamaged goods, a friendly and familiar deliverer helps to produce a positive customer experience. (DHL, 2016)

Even if these innovations developments are not widely available, they clearly show the trend towards a highly-individualized delivery, emphasizing mobility and flexibility. (DHL, 2016)

Finally, let's review the results of a comprehensive survey conducted by Joerss, Schröder, Neuhaus, Klink and Mann (2016), with more than 4,700 respondents in China, Germany, and the US, to understand consumer's relative preferences for different delivery options, including their willingness to pay.

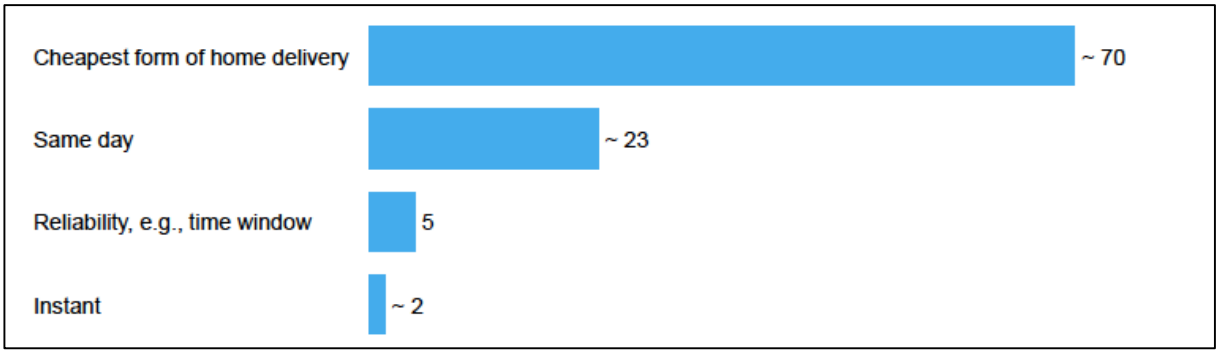


Figure 33: Share of consumers choosing different delivery options. Source: Joerss, Schröder, Neuhaus, Klink and Mann, 2016.

On the figure 33 above, we can see that despite increasing demand for same-day and instant delivery, 70% of the respondents prefer the cheapest form of home delivery, whereas 23% would choose same- day delivery. Reliability and instant delivery are less important to the customers. Therefore, we can say that for most consumers, price remains the key decision criterion and low-cost alternative to same-day or instant delivery will continue to play a major role. (Joerss, Schröder, Neuhaus, Klink and Mann, 2016)

2. Same-day delivery: the next evolutionary step in parcel logistics

As previously viewed, although the convenience of e-commerce is the basis of its success, the immediacy of bricks-and-mortar stores becomes a compelling value proposition for e-shoppers. That's why « same-day delivery has the potential to fundamentally change the way we shop. » (Hausmann, Herrmann, Krause and Netzer, 2014).

Beside alternative pickup and delivery options described above, rapidity is the main push in the intensive evolution of the service offering towards greater convenience. Today, « next-day or two-day delivery is the industry standard in all developed countries, but the next evolutionary step is affordable same-day delivery. » (Hausmann, Herrmann, Krause and Netzer, 2014)

Of course, the opportunities ahead are huge but « logistics providers need to position themselves for the upcoming transformation, and adapt their existing networks accordingly. » (Hausmann, Herrmann, Krause and Netzer, 2014) Although the creation of this type of delivery network comes at high cost and require a more sophisticated asset and capability base, some have taken on the challenge and started creating networks capable of providing same-day delivery services at scale. (Hausmann, Herrmann, Krause and Netzer, 2014)

According to a survey conducted by McKinsey, there are three operating models to fulfill the logistics need to deliver the products the same day as the ordering: (Hausmann, Herrmann, Krause and Netzer, 2014) (Cuvelliez, 2016)

1) Through ***the traditional parcel logistics providers***[35], with an additional delivery wave.
2) Through ***broker platforms***[36] that provide access to the right existing partner to deliver the order at the time and place needed.
3) ***Multichannel retailers***[37] can organize themselves internally same-day deliveries.

I will know detail those three archetypes identified in this context.

[35] see Glossary
[36] see Glossary
[37] see Glossary

2.1. Traditional parcel logistics providers

DHL (2016) already focuses on convenience factors such as delivery options, flexible delivery timing and speed (see point 1.3. of this chapter).

Today, the infrastructure and processes of the traditional parcel logistics providers such as DHL are optimized for next-day delivery, via a *hub-and-spoke system*[38] with overnight sorting and fixed delivery routes. To offer same-day delivery, they will have to enhance existing assets and capabilities to provide flexible intraday pickup and delivery with a maximum of one transition point. (Hausmann, Herrmann, Krause and Netzer, 2014) « From a theoretical standpoint, the most promising approach is the introduction of an evening delivery wave. However, any time window needs to be large enough to ensure that sufficient parcel volume is economically viable. » (Hausmann, Herrmann, Krause and Netzer, 2014)

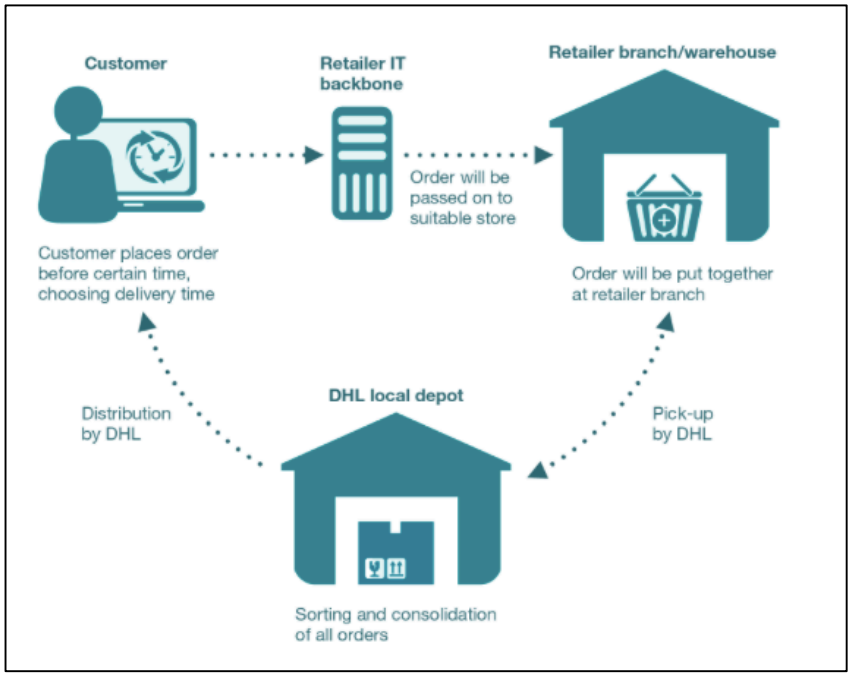


Figure 34: DHL pilot in several German cities (Berlin, Cologne, Munich, and the Ruhr area) offering online and multichannel retailers a scheduled same-day delivery option. Source: Hausmann, Herrmann, Krause and Netzer, 2014.

Here is an example of how existing assets can be exploited: DHL is offering online and multichannel retailers a scheduled same-day delivery option. Customers can choose the delivery time and they have to place their order before a certain time. (Hausmann, Herrmann, Krause and Netzer, 2014)

[38] see Glossary

After being passed on to suitable store through the *retailer IT backbone*[39], order will be put together at the merchant warehouse. The shipments are picked-up, sorted, consolidated, and then distributed to the customers from a single local depot with partly automated sorting. Even if the volume is still very small, this logistics provider is able to produce the service at a lower cost than the retailers themselves can. (Hausmann, Herrmann, Krause and Netzer, 2014)

2.2. Brokers of courier capacity

Seeing that conventional city couriers that can deliver same-day are too many and too small, a new type of player is entering the market to make their existing capacity accessible for retailers. Those technology start-ups develop broker platforms to aggregate and orchestrate existing logistics capacity to build flexible courier networks. Thanks to them, e-businesses integrated with this platform will be able to offer same-day delivery as an additional option in the checkout process of their e-shops. Each order will be assigned to a courier who will pick up and deliver the order within the same day. (Hausmann, Herrmann, Krause and Netzer, 2014)

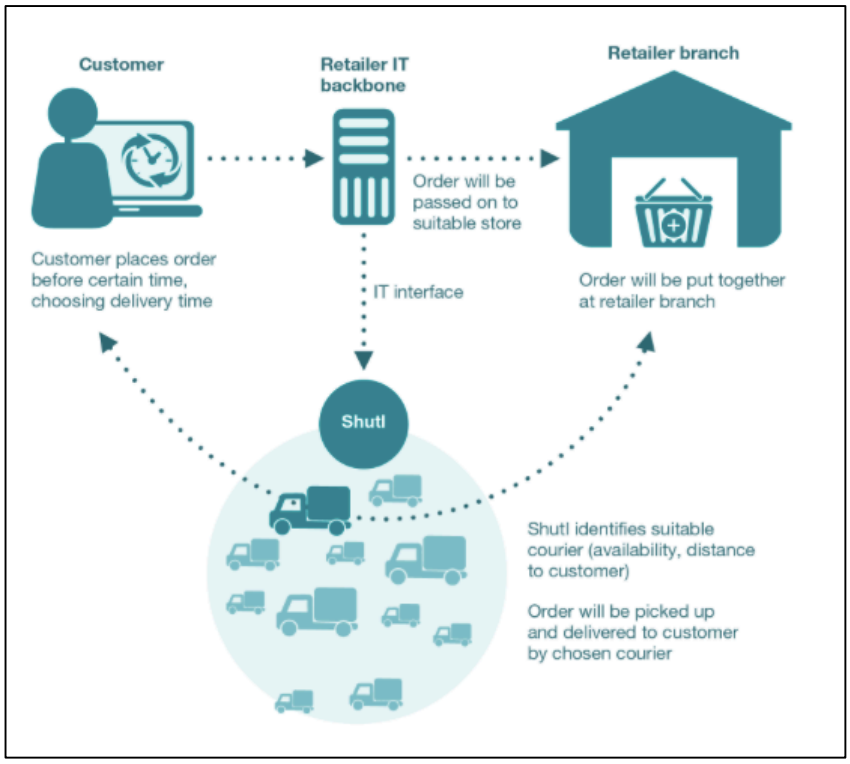


Figure 35: Shutl and its broker platform building a flexible courier network. Source: Hausmann, Herrmann, Krause and Netzer, 2014.

[39] see Glossary

For example, Shutl, is a London-based company, found in 2008, offering a rapid (in 90 minutes or less!) fulfillment service by closing the gap between connecting online retailers with fragmented local couriers (Shutl, 2017). By managing well its platform, this technology start-up achieved a significant scale in the UK: 30.000 shipments per day and covering most urbanized areas. (Hausmann, Herrmann, Krause and Netzer, 2014) As far as eBay has acquired Shutl in 2013 (Butcher, 2013), this latter expands now the same-day delivery efforts in the United States, which is even more urbanized. (Hausmann, Herrmann, Krause and Netzer, 2014)

According to the CEO of Shutl, « point-to-point delivery using a flexible courier network is less costly than hub-and-spoke systems for distances of less than 15 km » (Hausmann, Herrmann, Krause and Netzer, 2014) such as traditional parcel logistic providers such as DHL are using. The delivery's price depends on the time required and the distance between stops. Therefore, « with sufficient liquidity in the system and an increasing pickup factor » (Hausmann, Herrmann, Krause and Netzer, 2014), the delivery costs are lower than the cheapest subcontractors. Besides, the more retailers integrate with the platform, the higher liquidity for couriers, enabling them to best optimize their capacity utilization. (Hausmann, Herrmann, Krause and Netzer, 2014)

Furthermore, being an independent distribution channel allow this kind of company to avoid channel conflicts. Nevertheless, the retailers have to handle « the absence of enforce quality standards and guaranteed delivery. » (Hausmann, Herrmann, Krause and Netzer, 2014)

2.3. Multichannel retailers building their own delivery fleets

Some large retailers have enough online purchases per day to invest in their own same-day delivery network, enabling them to have a total control over the entire process. Contrarily to an integration to a broker platform, they are able to provide themselves the specifics required. Namely for the grocery retailers, for which the products have « special transport prerequisites, such as cooling, freshness expectations, and transportation in non-conveyable shopping bags. » (Hausmann, Herrmann, Krause and Netzer, 2014)

As far as less volume can be aggregated, retailers making their own deliveries operate at higher costs than multi-users platforms, then more cost efficient thanks to their operations at scale. For grocery delivery, the costs will be even more important because of a small-size basket and low margins. (Hausmann, Herrmann, Krause and Netzer, 2014)

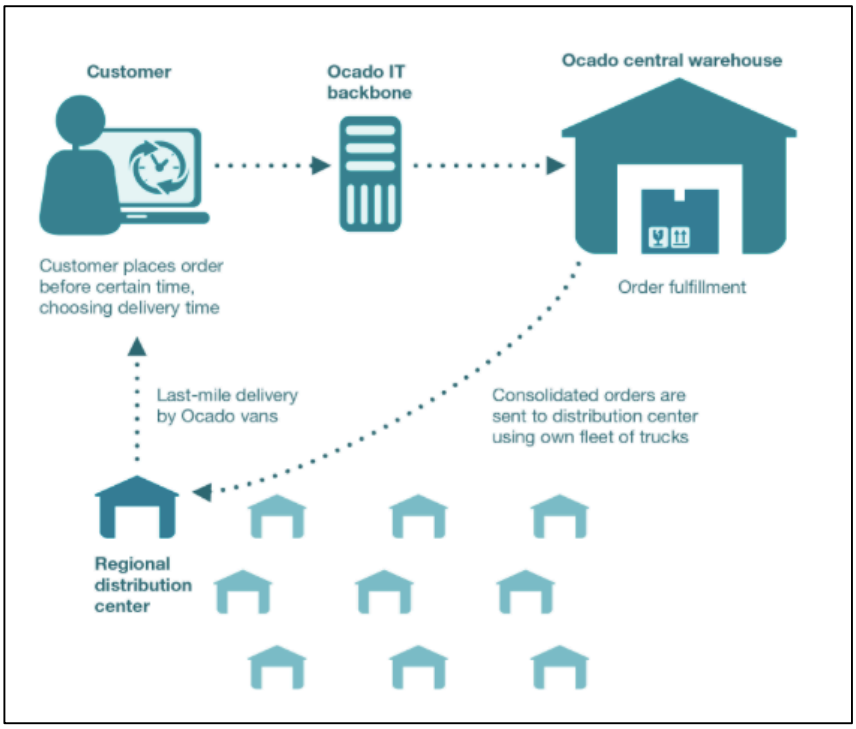


Figure 36: Ocado Group ensuring its own delivery network. Source: Hausmann, Herrmann, Krause and Netzer, 2014.

For instance, Ocado is a British online supermarket, without any chain of stores, which does all home deliveries from its warehouses and run its own last mile operations. (Ocado Group, 2017) « Same-day delivery is currently only available in selected areas, as the limited shipment volume per geographic unit and reliance upon the central warehouse does not permit broad service coverage. » (Hausmann, Herrmann, Krause and Netzer, 2014)

3. The challenges of last mile delivery

The first thing companies has to analyze it's if their customers are actively asking for the last mile delivery service and if they really need this in order to get ahead. (Nicasio, 2017)

If the answer is yes, last mile delivery can present many opportunities for online businesses, but several retailers will face a dilemma: they want to fulfill customers' expectations and get orderings as fast as possible but many don't have the resources or capital and the capabilities necessary to develop such a service. (Krasny, 2014)

Here, several challenges online businesses will need to overcome and prerequisites that need to be fulfilled if they want to outperform last mile delivery service:

3.1. The costs

« In a (…) representative survey conducted by McKinsey in Germany, France, Sweden, and the UK, 50% of the respondents indicated that they would be willing to pay same-day delivery costs of EUR 6 to 7 for a EUR 59 purchase. » (Hausmann, Herrmann, Krause and Netzer, 2014) (see figure 37)

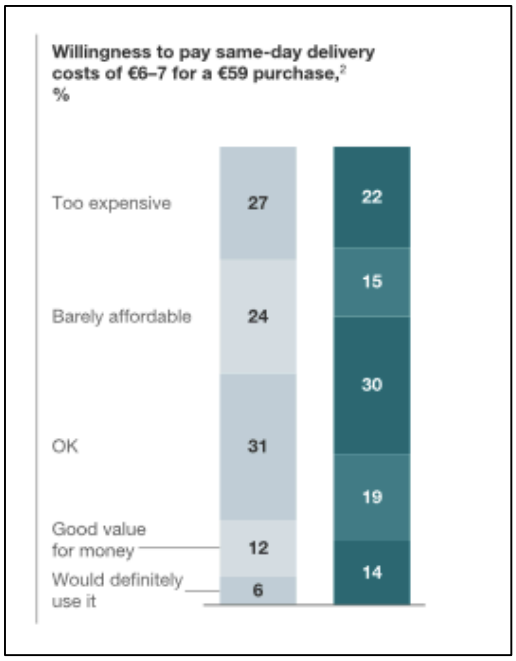


Figure 37: Willingness to pay for same-day delivery costs €6-7 for a €59 purchase, %.

Source: Hausmann, Herrmann, Krause and Netzer, 2014.

But still, many customers are unwilling to pay any extra additional charges because they consider delivery as a must-have service that should be free. (Localz, 2016) Let's remind that we have seen through the figure 33 that for most consumers, price remains the key decision criterion. (Joerss, Schröder, Neuhaus, Klink and Mann, 2016)

Jerry Storch, CEO of Hudson's Bay Company, point out the fact that the supply chain costs incurred by free shipping for same-day delivery is three times higher than a store-based model. (Craparotta, 2016)

Therefore, retailers need to cut delivery costs as much as possible (Localz, 2016) and to be cost-effective, the service of last mile delivery need to be correctly implemented (Nicasio, 2017) if

businesses don’t want their promise of same-day delivery leads to financial ruin. (Craparotta, 2016)

Although grocery products have special transport prerequisites such as cooling, freshness expectations, etc. (Hausmann, Herrmann, Krause and Netzer, 2014), « cost concerns aren't limited to the grocery sector, which has to deal with perishable items and a large number of non-standardized products. » (Blair, 2017)

According to Cohen Raanan (2016), the Founder & CEO of MobileMax, 28% of the total delivery cost to a business comes from the last mile delivery.

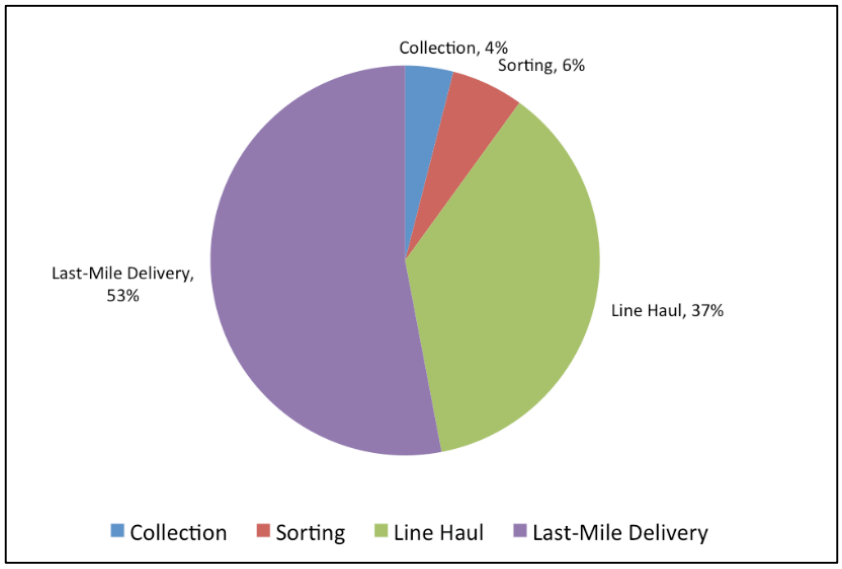


Figure 38: Home Delivery Logistics Costs. Source: Millar, 2017.

More precisely, Mark Millar, the author of Global Supply Chain Ecosystems, claims that « the “Last-Mile” element of the home-delivery model represents more than 50 per cent of the total logistics cost (…). » (Millar, 2017) Besides, traffic congestion in urban areas, distance in remote areas, and practical issues such as or incorrect address details, hard to locate locations, no-one home to accept delivery, lack of nearby parking, elevators out of service and many other hurdles, add time and cost, negatively impacting the economics. (Millar, 2017)

Above, we have seen three operating models that fulfill the logistics need to deliver the products the same day as the ordering. For each of them, it seems obvious that large shipment volumes are essential to allow each of them to reduce their costs significantly. (Hausmann, Herrmann, Krause and Netzer, 2014) « While courier networks can only reach higher consolidation on a vehicle level, parcel logistics providers can also reduce costs via process automation. However,

last mile providers can only scale their operations if the retailer has adequate interfaces. » (Hausmann, Herrmann, Krause and Netzer, 2014)

As a result, businesses are scaling back their generous shipping and return policies as a cost-cutting measure (Blair, 2017) and to maximize efficiency when processing and delivering shipments, there are considering several other options. (Nicasio, 2017) For example, they can « devise a way to "batch" same-day delivery orders so you're not shipping low volumes of merchandise multiple times a day. » (Nicasio, 2017) Another effective way to offset cost to make same-day deliveries worthful is to set a minimum order price. (Localz, 2016) (Nicasio, 2017) For instance, Victoria Secret offer free delivery from a 65€ purchase. (see APPENDIX n°12: *Free delivery from a 65€ Victoria Secret purchase*) Other retailers are « bundling free shipping with a subscription fee that serves as an ongoing revenue stream » (Blair, 2017) such as Amazon Prime does (see Chapter 4, point 2.1.).

Another solution to decrease theses costs is to allow customers to pick up their order at a nearby physical location (Craporatta, 2016) and consider providing free options like *click-and-collect*[40] (Localz, 2016) and parcel locker systems (DHL, 2016). Indeed, 76% of DHL's survey respondents believe that parcel shops and lockers are located nearby and easy to reach. (DHL, 2016)

« For retailers with an existing brick-and-mortar, it's relatively simple » (Craporatta, 2016), but for the other e-businesses, these options are interesting to reduce last mile delivery costs while meeting customers' expectations for convenience.

On the one hand, **click-and-collect** option allow customers to collect their order from another convenient location such as post offices, gas stations, or convenience stores such as Seven Eleven, while enabling retailers to ship several individual orders in bulk to a single delivery point. (Millar, 2017) This could be a great solution as far as 54% of the e-shoppers are choosing this option to pick their order up whenever they want, as previously mentioned. (DHL, 2016) « Thus, in addition to more efficient and cost effective logistics, this provides greater consumer convenience. » (Millar, 2017)

[40] see Glossary

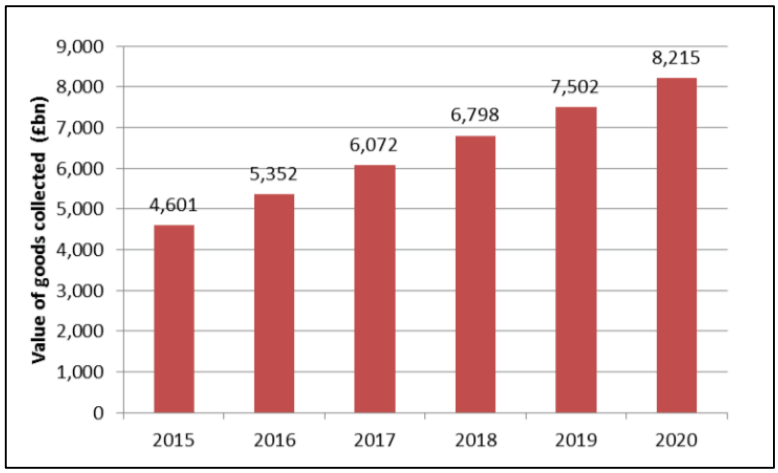


Figure 39: UK click-and-collect market: Value of goods collected.

Source: Criteo, 2016.

According to the Ovum report (2016), today, the UK is the most advanced market for click-and-collect models and « the value of goods collected in store is expected to rise by 78 percent by 2020 (…) » (Criteo, 2016), as we can see on the figure 39.

On the other hand, **parcel locker systems** are largely established today. (DHL, 2016) They are unmanned installations offering secure self-pick-up solution around the clock, located at convenient public places like car parks, railway offices or subway stations. Lockers can only be opened thanks to an access code, which is sent to the appropriated customer through the customer's mobile device. (DHL, 2016) (Millar, 2017) In addition to customer's convenience, this option allows businesses to make multiple deliveries simultaneously to the same single location. (Millar, 2017) According to a survey, parcel locker systems reached the highest satisfaction rate of 94% of all the alternative delivery options. (DHL, 2016)

3.2. Countries infrastructure

Of course, we have seen that the company's logistics is the main point to succeed in last mile delivery services. Businesses should implement it in areas they can easily cover in function of their existing stores (if they have ones) and warehouses location and where the customers' demand is high enough. (Nicasio, 2017)

Also, a good infrastructure is needed to avoid more time and costs coming from issues such as city traffic jam in the urban areas and longer journeys in the remote zones, that will impact the business economics. (Singh, 2016)

3.3. Inventories real-time overview

Vendors generally hold inventories in several locations, including distribution centers and brick-and-mortar stores (if they have ones). (Hau, Chen, Gillai and Rammohan, 2016)

As it has been said, online businesses will have to invest in their IT infrastructure to deliver the goods the same day as the ordering. They also need an IT model enabling them to keep track of all the orders and the status of each parcel. (Hausmann, Herrmann, Krause and Netzer, 2014) (Localz, 2016)

Therefore, to be able to pack and dispatch shipments as soon as the online orders are accepted (Localz, 2016), businesses should use platforms that provide integrated inventory management to fulfill orders faster, and potentially at a lower cost. (Hau, Chen, Gillai and Rammohan, 2016) On one side, quick and efficient inventory management will make inventory in all locations available to all customers, so they are provided with more accurate information regarding product availability and expected delivery time. On the other side, it can inform the logistic provider where and when they can pick up the shipment. (Hausmann, Herrmann, Krause and Netzer, 2014)

3.4. Transparency

As we have seen throughout this paper, customers change the way they communicate and shop, as technology evolves. Last mile delivery is also affected by technology innovation and retailers need to stay on top of the latest technology to stay competitive. (Localz, 2016)

Besides the fact customers like being able to check the product availability, they also value transparent communication during the whole delivery process. « Customers know about the smarts of mobile apps and push messaging » (Localz, 2016) and 96% of the e-shoppers considerer it has very important. (DLH, 2016)

Today, several tools and technologies exist to enable retailers and delivery providers to offer information regarding expected date and time, alert customers when their order is available for pickup or when it has been shipped to the desired location. Location technologies as tracking codes to orders allow customers to know exactly where the driver and a specific order are in real-time. (Localz, 2016) (Visually, 2017). They also can be used to directly communicate with delivery companies to customize the delivery based on their constraints and preferences. (Hau,

Chen, Gillai and Rammohan, 2016) « Customers get used to these new innovations and then expect them as part of every delivery experience. » (Localz, 2016)

3.5. Staffing

Building a same-day delivery model and the establishment of new procedures requires also workforce able to carry out this service. (Nicasio, 2017) Businesses should analyze if they are going to hire new people focusing on the same-day orderings or if existing employees will take care of it, without compromising their actual tasks. Then, investing time and money in educating your staff about this program will be a key. Each department will have to communicate and work together to satisfy customers' expectations. (Nicasio, 2017)

3.6. Handling returns

As far as the last mile is a « Two-Way Street » (Blair, 2017), handling the returns matters too. Actually, « 74% of UK customers consider a good returns service important when deciding where to shop » (Localz, 2016). For instance, ASOS offers free returns to a variety of locations within seven days of receiving an order. (ASOS, 2017) (see APPENDIX n°13: *ASOS offering free returns*) « With the rise of e-commerce, both return rates and overall return volumes have grown tremendously. According to UPS, on January 5, 2017, 1.3 million packages were shipped back to U.S. retailers (…). [Concerning] online retailers selling apparel, shoes and accessories, their return rates can run 30% to 40%. That means one in three items going out the door is coming back. » (Blair, 2017)

Offering free returns of online orders allow customers to not worry about the fitting or the exactitude of the items (Localz, 2016), but it presents another challenge for e-businesses because it generates additional costs and it complicates the process of inventory management. (Blair, 2017) (Localz, 2016)

Retailers need to consider carefully many factors: on one side, if the goods can be resold and reintegrate into active inventory and on the other side, how to reimburse the customers: with a refund, store credit or another item if the return was due to a defective product. Moreover, they need to take loss prevention costs against returns fraud into account. (Blair, 2017)

A return means that something didn't work for the customer. Therefore, businesses should make returns a more positive experience, in the view of retaining the customer, mainly in today's highly competitive retail environment. (Blair, 2017)

Nevertheless, the clients often complaints about delays in getting their money back, inconsistencies in return processes and the "arts and crafts" aspect of doing returns. (Blair, 2017)

As a result, « the startup company Happy Returns is attempting to relieve returns pain points for both shoppers and retailers. (…) [They have opened "Return Bars" providing] a network of physical locations where online shoppers can return items in person. (…) Happy Returns collects a per-return fee and handles the customer interaction and ships the aggregated return items back to the retailers. (…) [In other words,] e-businesses essentially outsource a portion of their returns and gain economies of scale. » (Blair, 2017) In addition to that, they save money on return shipping and deal with fewer call into their customer support line. (Blair, 2017)

According to DHL (2016), 44% of online businesses believe that fast and uncomplicated delivery also decreases the return rate « because, the faster customers hold their goods in their hands, the lower the risk that they will revoke their purchase decision. » (DHL, 2016)

To summarize, overcoming these same-day delivery challenges is a huge undertaking, but if the company sees a great opportunity in it, it's quite worthy. (Nicasio, 2017) Businesses need to be sure that their customers are willing to have this service before diving into the logistical, financial, and HR challenges that come with it, otherwise they should analyze what motivate their customers to choose their business over the competitors. Fast delivery is a key but providing customers with good and transparent communication, as well as a range of delivery options, through user-friendly and easy mobile apps, are important too. (Localz, 2016) Furthermore, handling well the item returns will allow business to decrease its costs. To do so, we have seen that companies should invest in integrated management software to manage inventories and in location technologies as tracking codes to fulfill clients' need of knowing where their order is. In the next chapter, we will see three disruptive innovations that could allow e-business to increase the delivery rapidity and decrease its costs.

« The last mile challenge can be a tough problem. But by diversifying how you handle delivery to that market, you can provide a higher level of customer satisfaction, limit your shipping expenses, and grow your business. » (Craparotta, 2016) Also, a cross-canal approach will enable on one side, online retailers to benefit from reduced delivery times thanks to closer product access than stationary retailers and on the other side, « bricks-and-mortar retailers in turn have a unique opportunity to combine their existing local infrastructure with an e-commerce channel to offer same-day delivery on a broad scale. » (Hausmann, Herrmann, Krause and Netzer, 2014)

4. Technological disruptions and innovations in last mile delivery

In this last point, I will review three technological disruptions and innovations that could change the delivery challenge by making it cost-efficient and quicker. However, we will consider also the drawbacks for each of them.

4.1. Drones

Delivery drones[41], unmanned aerial devices remotely monitored by an operator, would in the future allow businesses to deliver packages more efficiently and more quickly. This technological innovation will be sent out from distribution centers and directly fly to the delivery addresses provided. (Shopify, 2017)

Using a delivery drone, presents numerous advantages in the context of same-day deliveries. The key advantage is of course the speed. As far as drones aren't compelled by road infrastructure and traffic, they can deliver shipments faster than a traditional vehicle. Besides, they can easily cross difficult terrain and obstacles on the ground, and fly over areas with poor infrastructure, enabling them to take a shorter route to deliver orders. Finally, they pollute less the atmosphere than delivery trucks riding on the roads. This is being said, it seems obvious that many delivery providers such as DHL, Amazon and Google have already tested this new delivery way. (Hau, Chen, Gillai and Rammohan, 2016)

Therefore, « drones can provide a cost advantage because low-volume remote locations usually represent an expensive component of standard delivery networks, and they may also require a

[41] see Glossary

non-standard infrastructure tailored to regional specificities. » (Hau, Chen, Gillai and Rammohan, 2016) Also, drones eliminate the costs of human labour. (Wang, 2016)

However, drones still present many limitations: small shipping capacity, global-positioning-system (GPS) data can be unprecise, which can affect the shipment drop-off (wrong delivery location, inappropriate zone of the delivery location such as a swimming pool), but also drones can be considered as an intruder when flying over the airspace above a private property or even being dreaded for causing injuries. Given that, regulations are strict and operating costs could be increased by high insurance costs for drone systems. (Hau, Chen, Gillai and Rammohan, 2016)

Source: Levin and Soper, 2016.

As stated by Dan Wang, the content manager of Flexport, a freight forwarding and customs brokerage company based in San Francisco, the economics of last mile delivery are driven by two factors: *route density*[42] and *drop size*[43]. « Route density is the number of drop offs you can make on a delivery route, often called a "*milk-run*[44]" in industry parlance. Drop-size is the number of parcels per stop on the milk run. If you make lots of deliveries over a short period of time or distance, the cost per delivery will be low. Likewise, if you drop off lots of parcels at the same location, the cost per parcel will be low. Drones perform poorly on both economic aspects of last mile delivery. The current prototypes that companies have unveiled usually carry just one package, and after the drone makes its delivery, it has to fly all the way back to its homebase to recharge its batteries and pick up the next package. » (Wang, 2016) It seems quite inefficient compared to the daily average 120 stops of delivery trucks. (Wang, 2016)

But according to Hau, Chen, Gillai and Rammohan (2016), if « the technological limitations are resolved, regulatory restrictions are relaxed, and public concerns around safety and privacy are addressed and minimized, drones could have a significant impact on the landscape of last mile delivery » (Hau, Chen, Gillai and Rammohan, 2016) in an environmentally friendly way, enabling retailers to satisfy the customers' expectations of fast delivery. (Hau, Chen, Gillai and Rammohan, 2016) Even if drones are restricted to limited delivery distance and parcel size, the

[42] see Glossary
[43] see Glossary
[44] see Glossary

market potential is high as far as they provide a convenient solution for rapid delivery of urgently needed items, « to remote or hard-to-reach locations. » (Hau, Chen, Gillai and Rammohan, 2016)

Moreover, individual customers could own their drones for personal product transport and send them to the shops to fetch their orders, if the costs to own and operate a highly functional drone becomes sufficiently low. (Hau, Chen, Gillai and Rammohan, 2016)

Nevertheless, according to Ovum Report (2016), the use of drones (…) for delivery will not be widespread by 2026, largely due to security and safety issues. (Criteo, 2016)

4.2. Delivery robots[45]

Another technological innovation that could disrupt delivery services is robots. On the contrary of the drones, « robots are designed to travel on pedestrian and bike lanes at low speeds of about 4 miles per hour[46]. » (Hau, Chen, Gillai and Rammohan, 2016) They can currently carry a load between 9 and 45 kilograms and short-distance deliveries can be made within 5 to 30 minutes from a local hub or retail outlet, in relatively affluent and uncrowded residential zones, gated communities, assisted-living facilities, and campuses. Typically, they will be used for delivering small parcels, groceries or laundry, for example. Robots are designed to either return to the local hub after each delivery or carry multiple deliveries, each located in a separate locked department. (Hau, Chen, Gillai and Rammohan, 2016)

Source: Robinson, 2016.

As it has been developed in previous points, the customers are satisfied with precise and comprehensive information about the delivery process. Real-time mobile app developed to track robots' location is then a plus for the customer experience. Furthermore, the app will enable the clients to schedule the delivery and unlock the goods upon arrival. (Hau, Chen, Gillai and Rammohan, 2016)

[45] see Glossary
[46] About 6 kilometer per hour

Robots have many advantages as well. Firstly, as the drones, they can satisfy « customers' desire for speedy delivery and the flexibility of choosing a convenient delivery time. » (Hau, Chen, Gillai and Rammohan, 2016) They are also respectful of the environment as they are carbon-emission free. (Hau, Chen, Gillai and Rammohan, 2016) Thirdly, they are quite safe for other users of roads and bicycle paths because they use « GPS, sensors, and cameras for navigation, stopping for an obstacle or pedestrian in its path. [Besides,] some models can travel up and down curbs and small stairs. (…) [Also,] robots (…) have microphones for two-way communication. If a thief posed a threat, the human operator at a control center could scare the thief away via a speaker and call the police. » (Hau, Chen, Gillai and Rammohan, 2016)

In addition to the advantages that delivery robots share with drones, this technological innovation has a higher shipping capacity enabling larger deliveries to several customers in a same area and the different compartments locked with an individual access code ensure customers to only get the products belonging to them. Unlike the drones, there isn't any private properties issue. Moreover, as far as they are earthbound, the technology required to monitor and operate the robots is less sophisticated, and it doesn't require any driver, which decrease its costs. (Hau, Chen, Gillai and Rammohan, 2016)

« Delivery robots are also creating a new category of jobs because neither company's model is fully autonomous – yet. (…) [Robot's companies] employ chaperones who walk behind the robots, answering questions from the public and intervening if disaster strikes. The robots also have remote operators who can take control if necessary. » (Wong, 2017)

As reported by Matt Delaney, one of Marble's three co-founders, a company developing delivery robots, « drones simply don't make sense for urban environments (…) [and] robots [are] "the only sane solution". He argued that delivery robots could improve quality of life for people like his grandfather, who lost his driver's license and has to hire someone for tasks like picking up prescriptions at the pharmacy. » (Wong, 2017)

Regarding its advantages and drawbacks, many deliveries could be done by delivery robots: stores (groceries and restaurants, for example) could invest in its own fleet of robots, or they can outsource to a robot delivery company. Intermediary companies could also offer deliveries via this disruptive innovation. We could also imagine a future in which customers would have their own robot to go shopping for them. (Hau, Chen, Gillai and Rammohan, 2016)

Nonetheless, robots « have a shorter range when compared with drones. (…) And since (…) [they] are designed to share the sidewalk with pedestrians, there may be limitations as to their

numbers. They may also not be able to operate in crowded areas. » (Hau, Chen, Gillai and Rammohan, 2016)

Although Matt Delaney claims that robots are being programmed to behave with "courtesy" to pedestrians, deliveries robots could be not appreciated by all the citizens, not ready to jostle for space. (Wong, 2017) In accordance to this, Nicole Ferrara, executive director of pedestrian advocacy group Walk San Francisco, who wants to ban robots from the sidewalk, blames « the privatization of the public right that robots could imply. (…) [She also] argued that walking has social, health and economic benefits, while robots could pose a hazard to senior citizens and people with disabilities » (Wong, 2017) and robots could imply a scenario of desocialization: « People live in urban centers not because they want to sit at home in their house and have their toothbrush delivered to their door, but because they have a pharmacy around the corner that they can walk to. » (Wong, 2017)

Besides, Renia Ehrenfeucht, a University of New Mexico professor and the co-author of *Sidewalks: Conflict and Negotiation over Public Space*, highlights that « the introduction of robots to the streetscape might require a reimagining of the available space, possibly with a designated lane for robots. » (Wong, 2017)

4.3. Driverless / Autonomous cars[47]

A third disruptive innovation seen as a key transportation mode of the future is the driverless, autonomous cars. « Self-driving vehicles have been defined as vehicles in which operation occurs without direct driver input to control the steering, acceleration, and braking, according to the National Highway Traffic Safety Administration. » (DHL Trend Research, 2014) It doesn't require any constant monitoring from the driver but there is still somebody present in the car. Nonetheless, today totally autonomous cars able to move safely from A to B without anyone on board at all isn't a distant vision anymore. (DHL Trend Research, 2014)

Several technologies companies and carmakers are already working on it: Google, Apple, Uber, Volvo, Tesla, General Motors, Nissan, Renault and more. (Hau, Chen, Gillai and Rammohan, 2016)

[47] see Glossary

Source: Sagan, 2015.

« Self-driving cars use multiple technological innovations to figure out where they are, what's around them, and what they should do to safely reach their destination: as we can see on the figure in the APPENDIX n°14: *Situational analysis using various different sensors*, (…) light detection and ranging devices, as well as cameras, radars, and sensors, provide a 360-degree view of the surrounding environment and help the vehicle "see" other vehicles, pedestrians, and other objects around it, as well as road signs and traffic lights. [However, they still need] further development, and their price will have to scale down before they can be used commercially. » (Hau, Chen, Gillai and Rammohan, 2016)

As far as driverless cars become more and more hype, and as more and more people adopt this new method of transportation, investing in this disruptive technology should be an advantage in the future. (DHL Trend Research, 2014)

Firstly, self-driving cars can significantly improve safety road by decreasing the number of car accidents mostly provoked by the drivers. Researches emphasize that « autonomous systems make better and faster decisions than humans (…) [and that] self-driving vehicles will always monitor and adapt to varying traffic and weather conditions, and will avoid obstacles in the road, doing all this with more diligence, speed, and safety than human drivers. » (DHL Trend Research, 2014)

Secondly, this new type of cars will reduce traffic, and thanks to a vehicle-to-vehicle communication, « autonomous systems can set high speeds and intelligently avoid busy routes » (DHL Trend Research, 2014), implying higher efficiency. (DHL Trend Research, 2014)

Also, they make commute time more productive and less stressful. (Hau, Chen, Gillai and Rammohan, 2016) The driver, if there is one, becomes a passenger, allowing to rest and enjoy other activities during the journey. « This also makes self-driving vehicles a very attractive form

of transportation for the elderly, underage, people with physical disabilities, and even the intoxicated. » (DHL Trend Research, 2014)

Furthermore, as far as they are expected to reduce the total number of car on the roads, and with fuel efficiency achieved by optimized driving and by convoying, their environmental impact will be more positive. (DHL Trend Research, 2014) (Hau, Chen, Gillai and Rammohan, 2016)

Regarding its impact on the last mile delivery market, they also provide fast delivery service (if well-scheduled), longer hours of operations, providing greater flexibility in delivery times and an increased operational efficiency. (Hau, Chen, Gillai and Rammohan, 2016)

As the robots, separated and secure compartments, unlocked with an access code, guarantee the clients to receive the ordering that belongs to them. But contrarily to this previous innovation, autonomous cars are intended to be used in dense urban areas, enabling them to deliver to remote areas. Besides, they aren't constrained by factor such as driver fatigue, making long-distance deliveries easier. (Hau, Chen, Gillai and Rammohan, 2016) « They will be able to travel 24/7 without requiring driver rest time and – compared with today's driving – could achieve overall cost reductions (…). » (DHL Trend Research, 2014)

Nevertheless, challenges such as the creation and the maintenance of very detailed maps covering entire countries and government regulations, need to be taken into account. The driverless cars' high cost is a hurdle as well. Even if it could decrease in the coming years, its actual price is evaluated to more than $300.000. (Hau, Chen, Gillai and Rammohan, 2016)

« Liability insurance rules will also need to evolve and take into consideration such aspects of driverless vehicle operations as the reduction in the number of crashes, the severity of the crashes that do occur, as well as who is responsible for any fatalities or damages associated with such crashes. Once driverless vehicles become more popular, supporting infrastructure may also need to be developed. » (Hau, Chen, Gillai and Rammohan, 2016)

Therefore, it could take several more years before this technology becomes regulatory approved and widely available. (Hau, Chen, Gillai and Rammohan, 2016) According to Ovum Report (2016), the use of driverless car for delivery will not be widespread by 2026, largely due to security and safety issues, as the drones. (Criteo, 2016)

Those three technological disruptions will disrupt and improve business models as well as creating new delivery models. Indeed, drones, robots and driverless cars will likely gain adoption for last mile delivery in the near future. New deliveries companies using those technologies will

grab these opportunities and enter the market. They also could be used by traditional parcel logistic providers such as FedEx and UPS, brokers of courier capacity acting as an intermediary, as well as multichannel retailers building their own delivery fleets like Amazon has already began (see Chapter 4). However, they face technological challenges and those markets will grow once new regulations will be issued and as the economic continue to improve. In addition to that, advantages and limitations depicted above will have to be carefully considered (see APPENDIX n°15: *Summary table of technological disruption in last mile delivery*): customers' trust and public acceptance, technology advances, affordability, speed and flexibility, and more. (Hau, Chen, Gillai and Rammohan, 2016)

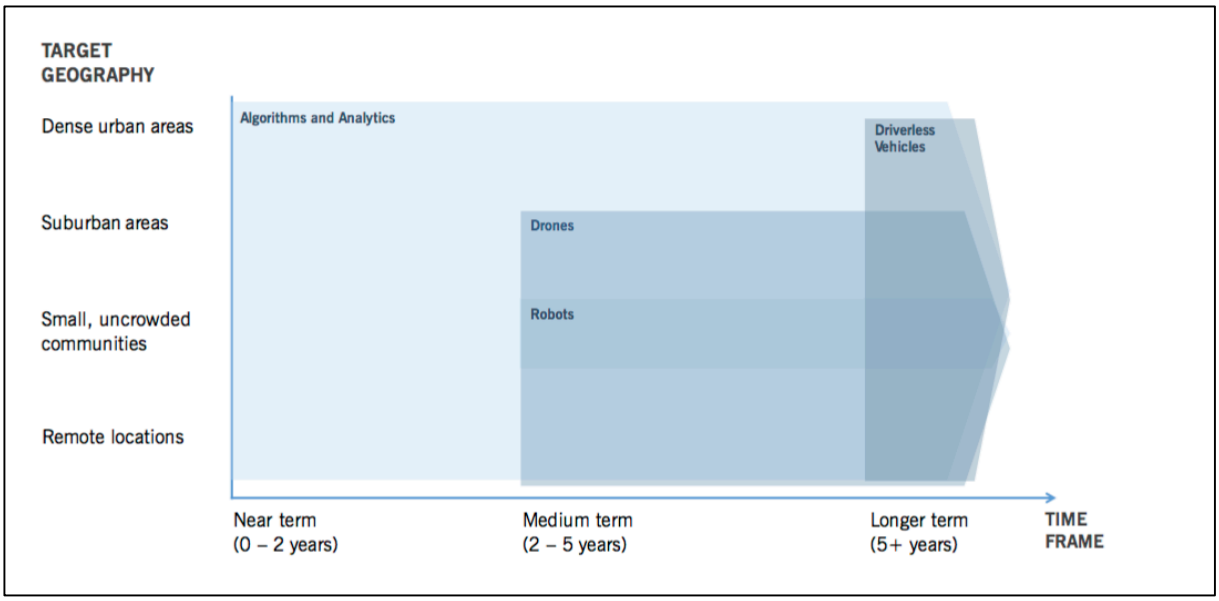


Figure 40: Delivery technologies: main geographies and projected timeline for adoption. Source: Hau, Chen, Gillai and Rammohan, 2016.

According to Hau, Chen, Gillai and Rammohan (2016), the drones and the robots will be deployed at medium term (between two and five years) in suburban, small, uncrowned and remote areas, whereas the driverless cars will take more time to enter the market but will be available in all type of zones (more than five years) (see figure 40).

Finally, « the growing importance of the last mile has attracted the attention of innovative companies, including *sharing economy*[48] models such as Uber (…). » (Blair, 2017) They offer a different solution to the customers by giving them the flexibility to schedule the delivery at their convenience, instead of what suits the courier firm, generally for a compelling fee of about $5.

[48] see Glossary

(Blair, 2017) Partnerships with this kind of companies allow businesses to cost-effectively extend their reach into the physical world. (Blair, 2017) Even if these « disruptive solution show promise, it's unclear whether they will be able to scale up to meet retailer's growing needs. » (Blair, 2017)

CHAPTER 4: AMAZON CASE STUDY

Amazon.com, also called Amazon, is an American electronic commerce and cloud computing company founded on July 5, 1994, by Jeff Bezos and based in Seattle, Washington. Today, this firm is one of the giant of the e-commerce and to understand the unique challenges it presents for last mile delivery, Amazon is a perfect example. (Cohen, 2016)

In this chapter, I will first briefly depict Amazon's history and evolution. Then, I will present the main subsidiaries it has developed. Finally, we will focus on the different challenges it has to face and the delivery solutions the firm has considered.

1. Brief history and evolution of Amazon

Amazon is one of the first large companies to sell goods over the Internet. As we mentioned earlier, Amazon played a precursory role in global e-commerce because it has directly considered its market as global. (Gratadour, 2015) At the beginning, Amazon started out as an online bookstore. Quickly, it diversified its offer by adding other items such as DVDs, music, video games, electronics and clothing. (Schneider, 2017) Since its starts, the « founder Jeff Bezos had a vision for the company's explosive growth and e-commerce domination. He knew from the very beginning that he wanted Amazon to be "an everything store." » (D'Onfro, 2014) By the way, Amazon was named after the world's biggest river to reflect the scale of this great ambition of an online marketplace stocking and selling anything and everything, to anyone everywhere in the world. (Alpe, 2015) (Kowalczyk, 2016) (The Economist, 2014) Moreover, the logo's arrow linking the A-Z shows the same intention. (Hayes, 2015)

Source: Amazon, 2017.

The company clearly succeeded in popularizing online shopping, especially thanks to its customer-centric vision and its desire « to take advantage of any opportunity that present itself to the company during a time of unprecedented technological revolution. » (Schneider, 2017) Indeed, Amazon serves its customers through its retail websites and « focuses on selection, price and convenience. (…) [The company allows customers to access its websites directly and through its mobile websites and applications. » (Reuters, 2017)

In 1997, Amazon listed on the NASDAQ stock exchange. (Hayes, 2015) Concerning its profitability, as far as the firm regularly posted quarterly losses, it has been a concern for shareholders. Nevertheless, Bezos focuses rather on investing into new areas to make the business grows and evolves, than on short-term profitability. (Alpe, 2015) (The Economist, 2014) Indeed, they have invested in several huge projects: Amazon Prime Instant Video, the Amazon Fire phone, and the Amazon Cloud Drive. (Alpe, 2015) It goes without saying that Amazon has perceive its first smartphone more as an « an ingenious shopping platform and a way of gathering data about people in order to make even more accurate product recommendations » (The Economist, 2014) than a communication device. (The Economist, 2014)

Therefore, we can say that Amazon has been one of the pioneer of e-commerce. But not only. It also have spawned a whole new industry by developing a new model for *cloud computing*[49] and its cloud services have been used by many startups such as Netflix, Instagram, Pinterest, Spotify and Airbnb. (The Economist, 2014)

Today, Amazon is one of the largest Internet companies. More precisely, in May 2016, the firm was the second one with the biggest market value worldwide, after Google (see figure 41).

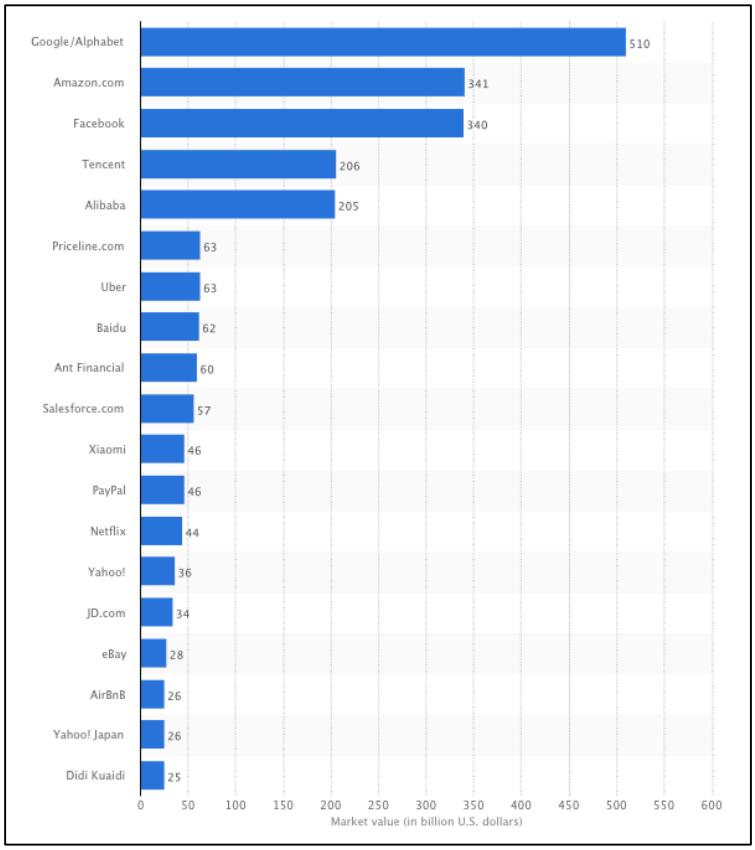


Figure 41: Market capitalization of the largest internet companies worldwide as of May 2017 (in billion U.S. dollars).

Source: Statista, 2017.

[49] see Glossary

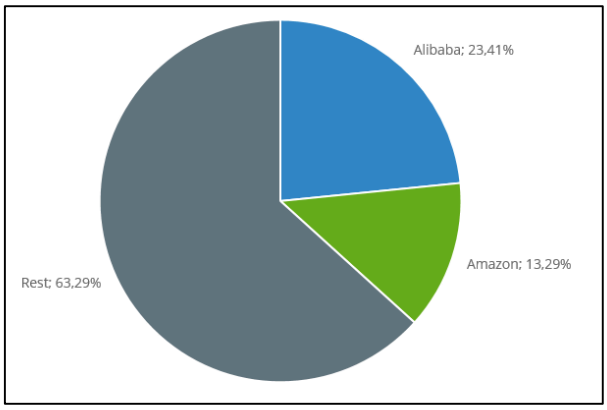


Figure 42: Global Ecommerce Market Share 2015. Source: Smeaton, 2016.

If we consider the global e-commerce market share in 2015, according to Smeaton (2016), Amazon was the second biggest one, with 13,29%, after Alibaba with 23,41%. (Smeaton, 2016) (see figure 42)

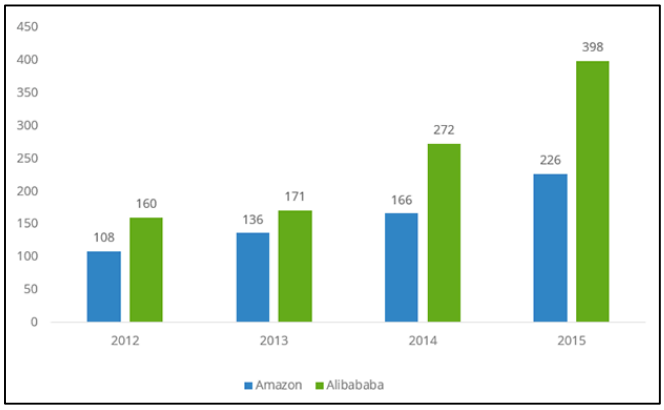


Figure 43: Gross Merchandise Value between 2012 and 2015 in billion USD for Amazon and Alibaba. Source: Smeaton, 2016.

Regarding the *gross merchandise value*[50], it has evolved for both retailer giants between 2012 and 2015. However, Alibaba shows a greater increase. (Smeaton, 2016) (see figure 43)

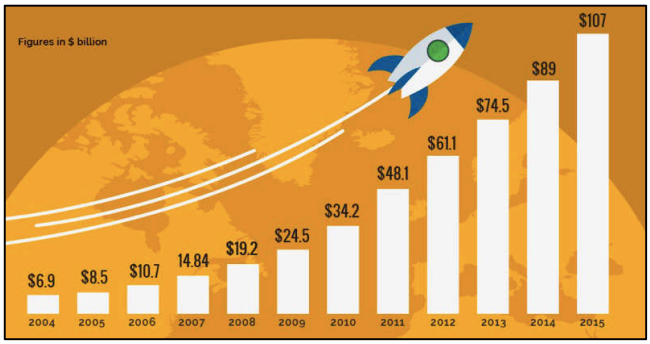


Figure 44: Amazon's growth. Figures in $ billion. Source: Kowalczyk, 2016.

[50] see Glossary

Since its start, Amazon hasn't stop growing. The figure 44 above depicts the business' growth, in billion of dollars since 2004 till 2015. Whereas in 2004 Amazon's value amounted to $6.9 billion, in 2015 it reached a $107 value. (Kowalczyk, 2016) Its value increased also thanks to many acquisitions such as Zappos in 2009, an online shoes business and Twitch in 2014, a video platform for video games. (Kowalczyk, 2016)

Figure 45: Amazon.com, Inc. NASDAQ – Stock Market Value on April 28th 2017. Source: Google Finance, 2017.

« Amazon recently passed Facebook to become the fourth-largest US company based on stock market value. » (Ord, 2016) Thanks to the figure above (see figure 45), we can see that the stock market value has evolved positively for 5 years (Google Finance, 2017) and according to Rob Sanderson, Managing Director, Senior Research Analyst at MKM Partners, Amazon will be the largest US company by 2020, thanks to its significant position in two of the largest growth opportunities sector, which are online retail and cloud computing. « Amazon is securing a quickly growing slice of a quickly growing pie. » (Ord, 2016)

As of early 2017, Amazon had nearly 269,000 employees worldwide. (Schneider, 2017)

2. Amazon's network

Figure 46: Amazon's network. Source: Kowalczyk, 2016.

As previously said, Amazon is a business that has rather invested in its growth and evolution, by developing a whole network, taking advantage of innovations and making interesting acquisitions. Above, the figure 46 shows different subsidiaries Amazon has created. Through the different services Amazon is offering, they increase the customers' shopping experience and fulfill their high expectations. Here are the main ones.

2.1. Amazon Prime

In 2005, Amazon created Amazon Prime, a membership program giving shoppers a few distinct advantages, namely access to streaming video, music, e-books, free shipping, faster deliveries (one- or two-day shipping on most items) and a variety of other Amazon-specific services and deals, for an annual fee of $99 or $10.99 per month. (Hayes, 2015) (Honorof, 2017) (Reuters, 2017)

amazon Prime

Source: Amazon, 2017.

According to a report, about one in five US adults are Amazon Prime members, each of them spending an annual average of about $1.100 with Amazon (not including the annual fee) whereas non-members spend on average $600 per year. (Agrawal, 2016)

Included in this registration:

- **Prime Video**: Gives unlimited streaming of movies and TV episodes as well as the possibilities to add video subscriptions to many streaming entertainment channels. (Amazon, 2017) (Honorof, 2017)
- **Prime Music**: Gives unlimited, ad-free access to hundreds of curated Prime Playlists, personalized Prime Stations and more than a million songs and albums. (Amazon, 2017) (Honorof, 2017)
- **Prime Photos**: It offers secure and unlimited photo storage and 5 GB of storage for videos and documents in Amazon Cloud Drive. (Amazon, 2017) (Honorof, 2017)
- **Prime Student:** In addition to all the advantages of Prime, students can get specific deals. They can benefit of a free six-month trial of Amazon Prime Student and after that, the membership makes them eligible to receive 50% off Amazon Prime, for four years or until graduation, whichever comes first. (Amazon, 2017) (Honorof, 2017)
- **Prime Pantry**: Prime Pantry allow Prime members to shop for groceries, household products and pet care items in everyday package sizes. (Amazon, 2017) (Honorof, 2017) Amazon supplies shoppers with a virtual "Pantry Box" they can fill up with Pantry-eligible items, which have a Prime Pantry label. (Lee, 2016)
- **Prime Now**: Prime Now is an app for iOS and Android devices and a website that promises free delivery of select items from local stores within 2 hours in select cities. For instance, in New York City you can now get delivery of beer, wine and spirits from Westside Market, Union Square Wines and Vintage Grape. Chicago, Los Angeles and Baltimore also participate in this program. » (Honorof, 2017) On the contrary of Prime Pantry, Amazon sells and delivers fresh and frozen food via its Prime Now subscription. (Butler, 2016)
- **Prime Early Access Lightning Deals**: It allows shoppers to get 30-minute early access to Lightning Deals, available while supplies last. (Amazon, 2017) (Honorof, 2017)
- **Kindle First**: This program gives members the advantage to download for free one Kindle First title each month, a month before its official release date. (Amazon, 2017) (Honorof, 2017)
- **Thursday Night NFL Games**: « Amazon will broadcast 10 NFL Thursday night games exclusively to Amazon Prime members during the 2017 season. » (Honorof, 2017)
- **Amazon Elements**: Access to Amazon's own line of everyday essentials. (Honorof, 2017)
- **Amazon Households**: Allows two adults and up to four children to share digital Amazon content. Besides, two adults in the same household can share a number of Amazon Prime

benefits, including two-day shipping, streaming video and access to the Kindle Lending Library. (Honorof, 2017)

- **Twitch Prime:** Gives access to the game-stream broadcast service completely ad-free plus monthly in-game bonuses and exclusives emotes and badges for chat and profiles. (Honorof, 2017)

2.2. Amazon Fresh

Amazon succeed in grabbing opportunities. It has seen the gap in the market for other sales categories than electronics, toys, books, etc. and start selling food and beverages through Amazon Fresh. (Agrawal, 2016) (Giraud, 2012)

Amazon Fresh « allow[s] customers to shop for fresh groceries online, like dairy, meat, fruits and vegetables, as wells as prepared meals, health and beauty products, pet supplies, baby products, and other household goods. There are over 95,000 different items available all of which can be delivered same-day if the order is placed by 10.00 a.m. or next-day if ordered later. To purchase an AmazonFresh membership, customers have to subscribe to "Prime Fresh" which is an upgraded Prime membership that offers all the advantages of Prime but costs $299 per year. The service is available in Boston, Seattle, Northern California, New York metro, Northern New Jersey, Philadelphia metro, Stamford, CT, and Baltimore. » (Agrawal, 2016)

Source: Amazon, 2017.

According to Ajay Kavan, vice-president of Amazon Fresh, the key to the success of this service is a combination of low prices, vast selection and fast delivery. Indeed, prices on selected items are intended to be slightly cheaper than at the major grocers. (Butler, 2016)

In the beginning of April 2017, Amazon announced its latest initiative in grocery: Amazon Fresh pickup service allowing shoppers to place an order online and pick it up in as little as 15 minutes from a drive-in kiosk. For the moment, the company is testing it in two locations in Seattle only opened to Amazon's employees but they expect to be soon ready to expand it to the public. (Bowman, 2017)

2.3. Amazon Home Services

Launched in March 2015, « the platform helps customers shop for professional help from more than 700 service categories. » (Agrawal, 2016) In other words, Amazon Home Services is « a marketplace where customers can request repair work and personal lessons from service providers in their area. » (Geuss, 2015) The value proposition is that individual contractors offer their services such as assembling a bed or drum lessons, which are rated by customers and backed by Amazon. (Geuss, 2015)

Source: Chicago'D, 2015.

However, even if "Home Services" customer orders have grown more than 20% per month since its launch in 2015 (Agrawal, 2016), it is not available in many areas. As we can see in the APPENDIX n°16: *Home Services Amazon US Coverage*, US Home Services coverage is still light.

2.4. Amazon Go

In 2016, Amazon announced the introduction of a "Just Walk Out" shopping experience, the world's most advanced shopping technology through its new brick-and-mortar physical store. (Amazon, 2016) (Betters, 2016) We have seen in the previous chapter how much the customers' shopping experience is important and the disadvantage of not seeing, tasting or touching products in real through online shopping. (Khurana, 2016) Therefore, thanks to Amazon Go, the online giant remedies to these drawbacks, by allowing customers buying their goods in person through a pleasant experience: they simply walk in, pick out what they want and need, and walk out. There are no lines, no cashier, no checkout. (Amazon, 2016) (Alba, 2016) (Betters, 2016)

Source: Alba, 2016.

The real-world grocery store works with the Amazon Go app, enabling the customers to enter, grap the products they want and go. It uses « the same types of technologies found in self-

driving cars, such as computer vision, sensor fusion, and *deep learning* [51]» (Better, 2016) as well as *artificial intelligence*[52], which detects when products are taken or replaced on the shelves and keeps track of the purchases in a virtual cart. In addition to that, this new kind of store uses NFC tags in front of every product on the shelves, enabling the customers to check the product information or add the goods in their mobile app's basket, which allows for physical checkout. When leaving the store, Amazon charge the shopper's account and send him (or her) a receipt. (Amazon, 2016) (Betters, 2016) (Davis, 2014)

Amazon planned to open it early 2017. Nonetheless, they seem to need more time to address some technological issues. Namely, the sensors wouldn't be able to track more than about 20 people in the store at the same time and lacks accuracy, which breaks down the purchasing process. Therefore, Amazon « will not open the marketplaces until the technology is more sophisticated. » (Reisinger, 2017)

3. Amazon's last mile deliveries

In the chapter 3, we have developed the different challenges that e-commerce presents for last mile delivery. Above, we explained that Amazon, willing answer customers' high expectations, invested in several innovations and takes initiative to provide the best delivery solutions, which makes them a first choice for many of their customers. As a result, Amazon is a perfect case study to consider for the challenge of last mile delivery. (Cohen, 2016) (Smeaton, 2016) Indeed, on one side the shipping costs are the first and bigger expense of Amazon and on the other side, they struggle often on delivering items in times due to the high volume of purchases. (Cohen, 2016) According to Rao (2017), Amazon spends billions of dollars each quarter on shipping. « In its last quarterly earnings [2016] report, Amazon revealed that its shipping costs grew 43 percent compared to the same period one year (…) [before], to reach $1.7 billion. » (Alba, 2016)

« Today, the market for same-day delivery is moving toward the next stage of development. Following its pledge to be a truly customer-centric organization, Amazon, (…) is actively promoting same-day delivery, and has already introduce the service in several cities. » (Hausmann, Herrmann, Krause and Netzer, 2014).

[51] see Glossary
[52] see Glossary

As far as several competitors are taking new initiatives to compete with Amazon's delivery service, such as Walmart partnering with Uber to offer fast delivery, and Alibaba having same-day delivery on its agenda (Hausmann, Herrmann, Krause and Netzer, 2014), Amazon is developing new delivery options. (Lewis, 2016) Indeed, « in a world of hyper-competition, its plan to launch a global shipping and logistics operation certainly indicates Amazon's understanding of the power of *vertical integration*[53] and owning one's total value chain. Since speed, convenience and the lowest possible prices define the core strengths of Amazon's business model, having ownership or control of all elements in its value chain is required to deliver those benefits. » (Lewis, 2016)

In this third point, we will focus on the evolution of Amazon's supply chain management as well as the main disruptive innovations they have developed so far, in parallel of those developed in the point four of the third chapter. (Smeaton, 2016)

3.1. Amazon's supply chain management

Although Amazon owes its success to have always been thinking outside the box, their ability of doing basic things extremely well and it began by managing its supply chain perfectly and effectively, has been key to its success. (Burnson, 2017) (Fraser, 2016) Actually, it's a firm that is increasingly becoming a logistics company (Fraser, 2016), « ensuring that it can get millions of items to customers at the right price and faster than anyone else. » (Burnson, 2017)

One of the most important thing they have handle is to strategically place their distribution centers, which are closer and closer to metropolitan areas. (Fraser, 2016) It has created an extensive logistics network, which includes « fulfillment centers, regional sortation centers, delivery stations and Prime Now Hubs. The hubs are centers in large metro areas that are stocked with popular items for Prime Now customers. Both the sortation centers and delivery stations are smaller facilities designed to aggregate boxes for fast delivery. Amazon has about 180 warehouses and can deliver its own packages in roughly 30 major metro areas. » (Loeb, 2016)

[53] see Glossary

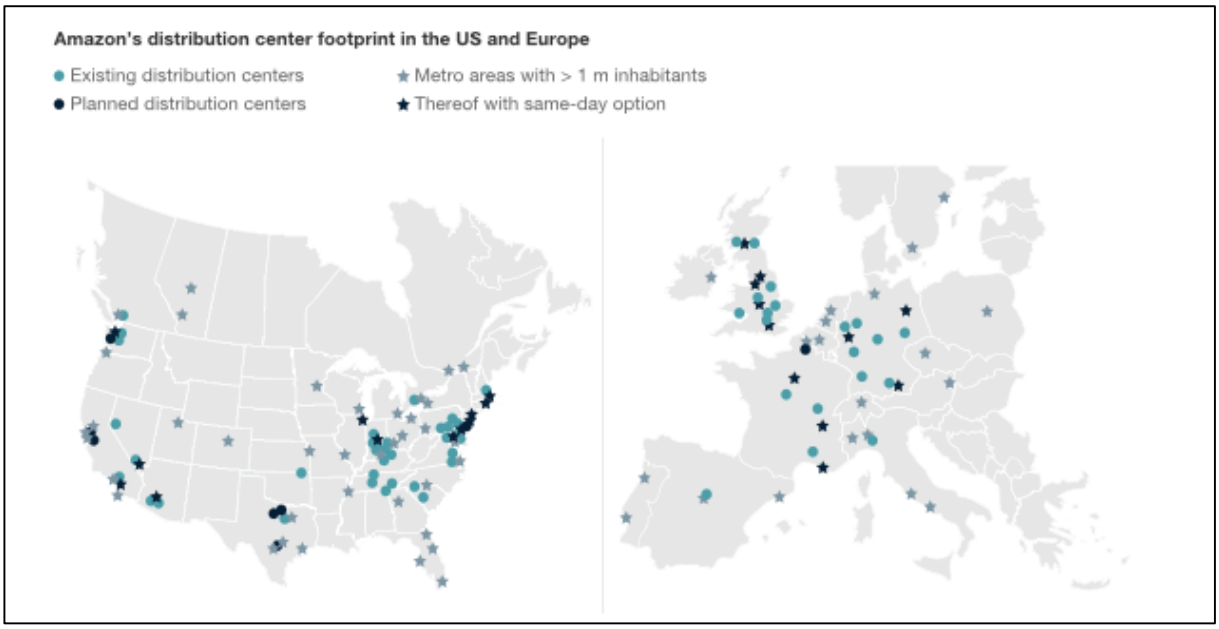


Figure 47: Amazon investing in decentralized warehouses. Source: Hausmann, Herrmann, Krause and Netzer, 2014.

Besides, they invested in decentralized warehouses, as we can see on the figure 47, to establish next-day as standard and make same-day an option for many of their items. (Hausmann, Herrmann, Krause and Netzer, 2014)

Amazon's warehouses « are divided into 5 storage areas: Library prime storage - Books and magazine, Case flow prime storage - Broken case and high demand, Pallet prime storage - Full case and high demand, Random storage - Smaller items and modern demand and Reserve storage - Low demand/irregular shaped products. » (Fraser, 2016)

3.2. Amazon's robotic

Besides expanding their warehouses network, Amazon acquired in 2012 a provider of robotic and automated warehouse solution, Kiva, rebranded in 2015 as Amazon Robotics. (Burnson, 2017) (Shead, 2017) « These automated robots can pick, pack and sort shipments, all without the need of human assistance » (Burnson, 2017), which helps Amazon to become more efficient and its warehouses to be more productive. (Shead, 2017) In 2016, it increased its army of warehouse robots of 50%, that is to say 45.000 robots across 20 fulfillment centers, working alongside 230.000 people. (Liberatore, 2017) (Shead, 2017)

These orange robots can run at 8 km/h and carry 317 kilograms' parcels. (Shead, 2017) They are battery-powered and need to be charged every hour for just 5 minutes. (Liberatore, 2017) The robots travel on the underneath shelves, enabling them to be stacked closely together and allowing the warehouse to hold more goods. (Liberatore, 2017) Amazon also uses another type of robots, a yellow stationary bot, capable of moving pallets of inventory and loading up to 1.360 kg. (Liberatore, 2017) (Shead, 2017)

Source: Shead, 2017.

According to Deutsche Bank, « if Kiva robots are dispatched to the rest of the 110 Amazon warehouses, the tech giant could save almost $2.5 billion (…). However, since it takes $15-$20 million to install robots in each warehouse, the one-time savings is expected to be closer to $800 million. (Bhattacharya, 2016)

Nevertheless, as robots become capable of doing things workers usually do, people worry about job loss due to automation. (Ramirez, 2017) Indeed, « a recent report released by the McKinsey Global Institute estimated that 49 percent of job activities could currently be fully automated—that equates to 1.1 billion workers globally. » (Ramirez, 2017)

However, this shouldn't be a fear for several reasons. Firstly, « robots can only operate in a controlled environment, performing regular and predictable tasks. » (Ramirez, 2017) They can transport and lift the parcels but Amazon still needs workers to select and pack the correct items. Secondly, robotics' costs is still higher than hire people able to do the same things. (Ramirez, 2017) « (…) right now Amazon's robot-to-human balance is clearly in employees' favor. (…) [Indeed,] the company's Q4 2016 earnings report included the announcement that it plans to create more than 100,000 new full-time, full-benefit jobs in the US over the next 18 months. New jobs will be based across the country and will include various types of experience, education, and skill levels. (…) [As a result, we can say that] automation can take jobs away, but sometimes it can create them too. » (Ramirez, 2017)

3.3. Amazon Prime Air Drones

In the chapter three, we explained how drones are working, their advantages and drawbacks. As far as businesses could use drones to increase the small items delivery speed while being cost-efficient and respectful of the environment (Hau, Chen, Gillai and Rammohan, 2016), Amazon stated in 2013 its intention to delivery parcel with drones (Hayes, 2015) (Oswald, 2017) and it has been operating a pilot drone delivery program since 2014 (Burnson, 2017). Although test have begun, an exact release date has to be confirmed. (Johnson, 2017)

Amazon Prime Air drones are looking like a helicopter of weight of about 25 kg, taking off and landing vertically and flying horizontally at an altitude of 100 meters and a speed of 100kph. They are working on a dozen different drone designed for use in different environments and for different package sizes. Nevertheless, as it has been said before, the range of drone delivery will be about 24 km (Burnson, 2017) and they will have to return to their base after each delivery for recharging. Moreover, they have a weight limit of about 2 kg. As a result, they are not intended to be used for every order but only for emergencies and for little items. (Johnson, 2017)

Figure 48: A helipad in your garden. Source: Johnson, 2017.

To be delivered by drone, you will need a private landing area, a landing pad « to help guide the drone in and acts as a smooth, safe place for the machine to deposit its payload. » (Johnson, 2017) Therefore, it could be problematic to receive your orders through drones for people living in flats. Also, you need to live near a distribution center to enjoy this new delivery way. (Johnson, 2017) Even if Amazon is investing in a decentralized warehouses network (Hausmann, Herrmann, Krause and Netzer, 2014), there are only locations in 24 states (US), most of which are coastal (Oswald, 2017).

Furthermore, thanks to integrated cameras, sensors, GPS, and sophisticated navigation tools, drones will be able to avoid birds, and other airborne obstructions. (Johnson, 2017) « In an interview with Yahoo in January 2016, project spokesperson Paul Misener said the company was continuing work on automated collision avoidance technologies, as well as noise reduction. » (Oswald, 2017)

The first drone delivery happens in December 2016 in Cambridge, England. Amazon expanded this service in this area thanks to a favorable regulatory environment created by U.K. authorities. (Agrawal, 2016) (Oswald, 2017) In March 2017, at MARS[54] conference, Amazon made the demonstration of the first drone delivery of an item of about 2 kg, by an online retailer's autonomous own software on the U.S. soil, outside of Amazon's private property. (Glaser, 2017) (Vincent, 2017)

In February 2017, « the U.S. Patent and Trademark Office granted (…) Amazon a patent for a method to guide packages released from drones safely to the ground. The patent suggests Amazon is considering keeping its drones high above customers' homes, an approach that could be more efficient and safe. (…) The patent also describes how Amazon's drones would use magnets, parachutes or spring coils to release the delivery while in mid-flight. Once the package is released, the drone would then monitor the descending box to make sure it's dropping properly onto the desired landing patch. » (McFarland, 2017)

Concerning the costs of drone delivery, they would be more effective and cheaper than ground delivery. (DeMarco, 2017) « One estimate suggests that Prime Air could cost Amazon only 88 cents per delivery. If Amazon charges customers $1 for drone delivery, the company could earn a 50 percent return on investment. If you have Amazon Prime already, drone delivery may even be a free option. One survey suggests that 32 percent of consumers would be willing to pay more than $20 for one-hour drone delivery. » (DeMarco, 2017)

Briefly, you won't have to wait three to five business days for a delivery. Drones will offer deliveries within 30 minutes. (Johnson, 2017) Consequently, « with faster, cheaper, and efficient delivery, the Amazon Prime Air drone delivery service is undoubtedly a game-changer for e-commerce. » (Agrawal, 2016) However, even if the technology is there, Amazon is facing some regulatory hurdles. Indeed, to make it broadly available in the U.S., Amazon has to « wait for the Federal Aviation Administration [(FAA)] to craft rules about how to fly over populated areas and beyond the line of sight of the operator » (Glaser, 2017), which could take years. (Glaser, 2017)

[54] « MARS stands for machine learning, automation, robotics and space exploration. » (Glaser, 2017)

Also, Amazon wants to demonstrate the safety of this operation. (Burnson, 2017) (Johnson, 2017) According to Ed Oswald (2017), « as for a timeline, it looks like we will have to wait until as late as 2020, if not later, for large-scale availability. » (Oswald, 2017) Nonetheless, customers seem to be already preparing for it and « 66 percent of consumers believe they will experience their first drone delivery within the next five years. » (DeMarco, 2017)

3.4. Amazon's own fleet

Although third-party logistics providers such as UPS and FedEx offer many advantages (see Chapter 3 point 2.1.), there aren't well equipped to manage same-day deliveries. Therefore, in addition to its own drone's fleet deployment, Amazon has begun to insourcing distribution in order to more heavily rely on its own fleet of delivery trucks and ships as well as planes (see point 3.5. of this chapter) and expand its network of shipping options to fulfill same-day deliveries. (Burnson, 2017) (Palladino, 2016) (Rao, 2017)

On one side, they purchased 4.000 semi-truck trailers to speed up delivery times and lower costs. (Palladino, 2016) (Rocco, 2017)

Source: Del Rey, 2015.

Amazon will rather use them to carry items from one fulfillment center to another, and between fulfillment centers and sort centers, where they organize orderings by zip code, than to deliver parcels to customers. Although the firm see this investment as an additional capacity, it will still rely on its trucking partners to move goods within its warehouse network and on UPS and FedEx for package delivery to customer doors. (Del Rey, 2015)

Besides, Amazon delivers groceries in some cities in its own Amazon Fresh trucks. (Del Rey, 2015)

Source: Woodward, 2013.

On the other side, they bought an entire shipping company, Colis Prive and they announced the firm was planning on becoming a full-fledged shipping company. (Cohen, 2016) At the end of 2015, Amazon received a license from both U.S. government and the Chinese Ministry of Commerce « to act as a freight forwarder for ocean container shipping. (…) [Therefore, they can] buy space on container ships at wholesale rates and resell at retail rates (…). » (Bentley, 2017) The launch of its ocean freight shipping operation allows Amazon to transport items from China to the U.S., two of the world's largest markets while cutting out competitors. (Bentley, 2017) (Palladino, 2016)

Furthermore, the online retailer developed a project named "Dragon Boat", « intended to aggressively expand Amazon's global fulfillment capabilities. It framed a global delivery network controlling the flow of goods from factories in China and India, all the way to customers' doorsteps in New York, Atlanta and London. » (Lewis, 2016)

Finally, it launched "Global Supply Chain by Amazon" in 2016, described as a « revolutionary system that will automate the entire international supply chain and eliminate much of the legacy waste associated with document handling and freight booking. (…) [This project has the aim to make Amazon] « the hub of the logistics and distribution industries, disintermediating not only shippers like FedEx, UPS and DHL, but thousands of middlemen handling paperwork and cargo associated with transnational trade. » (Lewis, 2016)

3.5. Amazon One – Prime Air

As we have said, Amazon is further vertically integrating its business, building its own shipping network. (Rao, 2016) And it doesn't stop at drone deliveries and new shipment options. They started in 2016 working with two aircraft companies (Atlas and Air Transport Services Group), which provide the firm enough shipping capacity for peak periods such as Christmas and flexibility for normal operations. (Frommer, 2016) The partnership includes the use of planes, crew and maintenance. Both operators have already leased 20 planes. (Rao, 2016) Several cargo planes are already in service, for both shipments to customers and to move goods between Amazon's facilities. (Frommer, 2016)

Therefore, you will now see Boeing 767 cargo jets with Amazon name on its underside, Prime Air logo on its sides and the Amazon smile logo on its tail, in the sky. (Chapman, 2016)

Source: Chapman, 2016.

The key advantages with owning its own shipping network are lower costs and avoidance of delays caused by multinational shipping companies with whom Amazon is currently working such as UPS, the U.S. Postal Service, and FedEx. (Rao, 2016) Indeed, Amazon has already had issues with the reliability of air freight services in 2013, and has to offer refunds to customers who received Christmas orders late after bad weather and an increase in online shopping, which caused delays for its suppliers UPS and FedEx. (Chapman, 2016)

Moreover, Dave Clark, senior vice president of worldwide operations at Amazon claims that « creating an air transportation network is expanding our capacity to ensure great delivery speeds for our Prime members for years to come. » (Chapman, 2016)

Recently, Amazon announced it will construct a new air cargo center at Cincinnati/Northern Kentucky Airport in Hebron, Kentucky that will shelter its cargo airplanes. (Palladino, 2017) Dave Clark explained that they chose Hebron because of its « large, skilled work force, centralized location with great connectivity to our nearby fulfillment locations, and an excellent quality of living for employees. » (Hensel, 2017) This hub, showing again the serious effort of the company to better control its delivery process, will costs about $1.5 billion. (Palladino, 2017) In addition, it will create over 2.000 jobs. (Palladino, 2017)

3.6. Amazon's driverless cars

Because the rise of the shipping and delivery costs is one of the main challenge for Amazon, this business is constantly thinking about new ways to cut costs, be fast and innovating. In addition to their effective supply chain management, trucks, planes and drones own fleet, they are also developing plans to use self-driving cars in their delivery strategy. (Palladino, 2017) In 2016, Amazon formed a team of about a dozen employees to capitalize on driverless technology, as part of its bigger ambition to expand its own retail and logistics operations and to carry more of its items itself. (Higgins and Stevens, 2017) (Palladino, 2017) (Rao, 2017) (Rocco, 2017)

Undeniably, autonomous cars have the potential to shake up the business of delivering packages to customers, cutting down the amount of time and money Amazon needs to fulfill orders. (Rocco, 2017) This type of vehicle doesn't have the same time restrictions that human do: it could take the half time for the same delivery journey. (Palladino, 2017)

According to the American Trucking Association, trucks transport 10 billion tons of freight each year in the U.S., which represents 70% of all items shipped across the country. (Alba, 2016) Nevertheless, it seems that there is a lack of about 48.000 truck drivers and the average age is quite high (63 years old). (Alba, 2016) That's why, according to a report from The Wall Street Journal, Amazon is particularly interested in autonomous trucks. (Palladino, 2017)

However, Amazon doesn't plan to develop and build up its own driverless trucks or cars but rather use technologies that already exists. (Palladino, 2017) (Rocco, 2017) Again, Amazon demonstrates what it does best: « figuring out how it can use upcoming and existing technology to make its systems more efficient (and save money in the process). » (Palladino, 2017)

Furthermore, Amazon is recruiting research scientists for its Amazon Robotics division to work further "future mobility and transportation systems". It already has secured a patent for a technology system that guides autonomous vehicles on roads (Rao, 2017) (Rocco, 2017) and « that manages a very specific aspect of the self-driving experience: How autonomous cars navigate reversible lanes, [which] indicate a change in direction of traffic with an overhead signal, making it a potential disaster zone for self-driving cars that haven't yet been programmed to understand those signals. (…) The patent also indicates that the roadway management system will help "assign" lanes to autonomous vehicles depending on where the vehicle is going and what would best alleviate traffic. » (Bhuiyan, 2017) (see APPENDIX n°17: *Amazon's patent: How autonomous cars navigate reversible lanes?)*

Nonetheless, « there's no word on how advanced Amazon's driverless vehicle efforts are at this stage, or how packages delivered by autonomous cars would be transported from the vehicle to customers' doorsteps. » (Johnson, 2017)

Finally, even if Amazon hasn't made any comment yet on this, it seems that the firm is also trying to Uberize the way it coordinates truck shipments by developing a mobile app able to find available trucks and matching them with available shipments. (Alba, 2016) According to Ryan Petersen, « the CEO of Flexport, a company that helps businesses organize their shipping efforts through trucks as well as ships and trains, (…) much of the trucking industry depends on brokers that take about a 15 percent cut to match drivers and shipments. » (Alba, 2016) As a result, it

could « bring some added efficiency to the shipping market and help deal with growing driver deficit. » (Alba, 2016)

To conclude this last chapter, we can clearly say that « Amazon's genius lies in the global infrastructure it has built to move goods from place to place. This includes massive fulfillment centers that stretch around the planet; an army of warehouse robots; and hundreds of thousands of human couriers and warehouse workers. The company also runs its own fleet of trailer-trucks, flies its own cargo planes, and it's working to build drones that can deliver packages to your door. » (Alba, 2016) That makes Amazon « a driving force behind last mile competition across the entire retail industry. » (Blair, 2017)

Even if it could be seen extreme for some people, there are the more cost-effective and convenient strategies Amazon found to fight the constant battle against rising shipping costs as well as fulfill customers' high expectations. (Alba, 2016) Thanks to the decrease of its current reliance on third-party logistics providers, Amazon takes over its delivery operations and cut the risks of delays caused by these companies. (Rao, 2016)

However, although Amazon is a dominant e-commerce player in the consumer electronics and books markets, the next question is whether the retail giant will be able to lead the market in other product sectors and keep domination in e-commerce, or if independent retailers will maintain their share of the online market. Indeed, « it would seem that niche players and new market entrants will continue to play an important role for customers in offering new and innovative solutions to serve customers in ways that market leaders are not. » (Smeaton, 2016)

GENERAL CONCLUSION

To answer the problematic of this paper ***What are the limits and the future of e-commerce? The challenge of same-day delivery***, I would have several recommendations for online businesses.

Firstly, it's true that e-commerce has become one of the largest industry, showing fast-growth this last years. But although it presents enormous opportunity for the sector to grow and for new dominant players to outpace industry leaders, if a business wants to stay in the race, in our competitive world, it has to be innovative and willing to fulfill customers' high expectations.

Secondly, thanks to new technologies such as Near Field Communications and augmented reality, e-commerce businesses can overcome the disadvantages of online shopping and may take advantage of traditional retailers. In addition to that, customers are now hyper connected and buy more and more through mobile devices. Therefore, every business should consider all the opportunities technological innovations are offering in order to create a real shopping experience in an interactive, highly engaging online environment. For example, companies should optimize in-store experiences with connections between online and offline world and both strategies web-to-store (webrooming) and store-to-web (showrooming) should be complementary, just as Sephora has recently done. Besides, their website and app should be developed to be as convenient as interactive for the customers. As a result, businesses need to adapt their model to this change in consumer behavior coming from new technologies that simplify customers' lives to enhance and differentiate its brand's value proposition.

Thirdly, to overcome the challenge of same-day delivery and succeed in last mile, any type of logistics provider whether traditional parcel logistics providers, brokers of courier capacity or multichannel retailers building their own delivery fleets, will need to consider every option to decrease its costs. Drones, robots and driverless cars will disrupt and improve business models as well as creating new delivery models. Nevertheless, new deliveries companies using those technologies will grab these opportunities and enter the market. Therefore, besides facing technological challenges and regulations hurdles concerning those innovations, existing businesses will have to manage tough competition.

Amazon has taken the challenge and it did it quite well. By its vertical integration, through the development of its supply chain management and the building of its own shipping network, as well as the acquirement of a robotic company, the development of its own fleet of drones and

trucks, and its partnerships with two airlines, it becomes a real logistic company. Besides, it is cost-effective and it fulfills same-day deliveries' expectations.

Fortunately, Amazon did not put all its eggs in one basket. This firm built a whole network and now it tackles the food market with Amazon Fresh and it is creating its own Amazon Go supermarket.

However, in the future, Amazon will also have to face strong competition. As a result, it will always have to fulfill higher and higher customers' expectations, in a cost-effective and convenient way, to maintain or increase its domination in e-commerce and its shares of the online market. Indeed, the retailers that will thrive will be the ones that allow customers to shop when, how and where they want to. This requires significant investment in technology and logistics and will be a struggle for smaller physical-heritage retailers, many of which will be squeezed out. Start-up retailers will come from a tech-savvy, Internet-first standpoint and will be better equipped to develop an omnibrand strategy. (Criteo, 2016)

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GLOSSARY

- **Artificial intelligence (AI):** « Artificial intelligence is the simulation of human intelligence processes by machines, especially computer systems. These processes include learning (the acquisition of information and rules for using the information), reasoning (using the rules to reach approximate or definite conclusions), and self-correction. Particular applications of AI include expert systems, speech recognition and machine vision. » (Rouse, 2017)

- **Augmented reality (AR)**: is a technology enriching the real world thanks to the integration of digital information and media with the user's environment. Augmented reality turns the existing environment around you into a digital interface by placing virtual object in the real world, in real-time. (Augment, 2017) (Rouse, 2017)

- **Brick-and-mortar**: « existing as a physical building, especially a shop, rather than doing business only on the internet. » (Cambridge University Press, 2017)

- **Broker** (platform): A broker is « a company that arranges for the truck transportation of cargo belonging to others, utilizing for-hire carriers to provide the actual truck transportation. However, the broker does not assume responsibility for the cargo and usually does not take possession of the cargo. » (Descartes, 2017) They create broker platforms to aggregate and orchestrate existing logistics capacity to build flexible courier networks. (Hausmann, Herrmann, Krause and Netzer, 2014)

- **Click-and-collect**: « Click and collect is the process by which the consumer orders online (click) and collects his merchandise at a local store. It is a compromise between online and in-store shopping. » (ABC-netmarketing, 2012)

- **Cloud computing**: « Cloud computing is a general term for the delivery of hosted services over the internet. Cloud computing enables companies to consume a compute resource, such as a virtual machine (VMs), storage or an application, as a utility -- just like electricity -- rather than having to build and maintain computing infrastructures in house. » (Rouse, 2017)

- **Conversion funnel:** « A conversion funnel is the term that describes the steps in a consumer's journey to purchasing an item from an e-commerce website. The shape of a funnel represents the gradual decline in the number of customers who reach each step. » (BigCommerce, 2017)

- **Conversion rate**: « A conversion rate is the percentage of visits to a website that end in a purchase. This acquisition is called a conversion because it measures how many site visitors converted their page view into a purchase. » (BigCommerce, 2017)

- **Cross-channel marketing**: « As the name suggests, cross-channel marketing incorporates all of the different touch points in the customer journey and treats them as a whole, rather than separate entities. This enables you to reach out to customers across multiple touchpoints, including: email, paid social media, google ads, display retargeting, push notifications (web- or app-based), SMS, direct mail, on-site and in-store. » (Davies, 2017)

- **Dark Web**: « (…) A collection of websites that exist on an encrypted network and cannot be found by using traditional search engines or visited by using traditional browsers. » (Egan, 2017)

- **Deep learning:** « An artificial intelligence function that imitates the workings of the human brain in processing data and creating patterns for use in decision making. Deep learning is a subset of machine learning in Artificial Intelligence (AI) that has networks which are capable of learning unsupervised from data that is unstructured or unlabeled. » (Investopedia, 2017)

- **Delivery drone**: « A drone, in a technological context, is an unmanned aircraft. Drones are more formally known as unmanned aerial vehicles (UAVs) or unmanned aircraft systems (UASes). Essentially, a drone is a flying robot. The aircrafts may be remotely controlled or can fly autonomously through software-controlled flight plans in their embedded systems working in conjunction with onboard sensors and GPS. » (Rouse, 2017)

- **Delivery robots**: A robot is « a machine controlled by a computer that is used to perform jobs automatically. » (Cambridge University Press, 2017) Here, the job to be done is parcel delivery.

- **Disintermediation**: « Disintermediation is giving the user or the consumer direct access to information that otherwise would require a mediator, such as a salesperson, a librarian, or a lawyer. Observers of the Internet and the World Wide Web note that these new technologies give users the power to look up medical, legal information, travel, or comparative product data directly, in some cases removing the need for the mediator (doctor, lawyer, salesperson) or at the very least changing the relationship between the user and the product or service provider. » (TechTarget, 2017)

- **Driverless / Autonomous car**: « A driverless car (sometimes called a self-driving car, an automated car or an autonomous vehicle) is a robotic vehicle that is designed to travel between destinations without a human operator. To qualify as fully autonomous, a vehicle must be able to navigate without human intervention to a predetermined destination over roads that have not been adapted for its use. » (Rouse, 2017)

- **Dropshipping**: « Dropshipping is a retail fulfillment method where a store doesn't keep the products it sells in stock. Instead, when a store sells a product, it purchases the item from a third party and has it shipped directly to the customer. As a result, the merchant never sees or handles the product. The biggest difference between dropshipping and the standard retail model is that the selling merchant doesn't stock or own inventory. Instead, the merchant purchases inventory as needed from a third party – usually a wholesaler or manufacturer – to fulfill orders. » (Shopify, 2017)

- **Drop size**: « Drop-size is the number of parcels per stop on the milk run. » (Wang, 2016)

- **E-business**: « E-business (…) is the conduct of business processes on the Internet. These electronic business processes include buying and selling products, supplies and services; servicing customers; processing payments; managing production control; collaborating with business partners; sharing information; running automated employee services; recruiting; and more. » (TechTarget, 2017)

- **E-commerce**: E-commerce is « the use of the Internet, the Web, and apps to transact business. More formally, digitally enabled commercial transactions between and among organizations and individuals. » (Laudon and Guercio Traver, 2013, p.50)

- **Friction-free commerce**: It is « a vision of commerce in which information is equally distributed, transaction costs are low, prices can be dynamically adjusted to reflect actual demand, intermediaries decline, and unfair competitive advantages are eliminated. » (Laudon and Guercio Traver, 2013, p.70)

- **Gross merchandise value**: « Gross merchandise value is the total value of merchandise sold over a given period of time through a customer to customer exchange site. It is a measure of the growth of the business, or use of the site to sell merchandise owned by others. Gross merchandise value is one element of an e-commerce site's performance, since the revenue of the business will be a function of gross merchandise sold and fees charged, and it is most useful as a comparative measure over time, such as current quarter value versus previous quarter value. » (Investopedia, 2017)

- **Hub-and-spoke system**: « Aircraft deployment method in which a carrier designates one or more strategically located cities as hubs to which its larger aircraft bring most of its (…) cargo through many scheduled flights. The (…) cargo are then taken to their respective destinations by smaller aircraft belonging to the same carrier or smaller (commuter or feeder) airlines under a codesharing arrangement. » (WebFinance Inc., 2017)

- **Internet Penetration**: Internet penetration « (…) means the portion of the population that has access to the Internet. » (IGI Global, 2017)

- **Last mile delivery**: Last mile delivery can be « defined as the movement of goods from a transportation hub to the final delivery destination. » (Datex Corporation, 2017) The "last mile" of retail includes fulfillment, delivery, returns and post-purchase services. (Millar, 2017)

- **Line-haul**: « Movement of cargo between two major cities or ports, specially those more than about 1,500 kilometers or 1,000 miles apart. » (WebFinance Inc., 2017)

- **Mass customization**: Mass customization « is the process through which firms interact one-to-one with masses of customers to design products and services tailor-made to individual needs, such as on Nike website, you can personalize the sneakers by choosing from hundreds of colours. » (Lecocq, 2016)

- **Milk-run**: A delivery route is often called a “milk-run” in industry parlance. (Wang, 2016)

- **Multichannel retailing/retailer**: « Multi-channel retailing is a marketing strategy that offers your customers a choice of ways to buy products. A true multi-channel strategy covers purchases from a store, purchases from a website, telephone ordering, mail orders, interactive television, catalog ordering and comparison shopping sites. The aim of a multi-channel retailing strategy is to maximize revenue and loyalty by offering your customers choice and convenience. » (Linton, 2017)

- **NFC**: « NFC stands for “Near Field Communication” and, as the name implies, it enables short range communication [of small amounts of data] between compatible devices. This requires at least one transmitting device, and another to receive the signal » (Triggs, 2017) but it doesn’t necessitate any Internet connection. « It's easy, fast and works automagically. » (Faulkner, 2015)

- **Online marketplace**: An online marketplace is a website allowing customers to find products coming from several vendors (from numerous locations). (BigCommerce, 2014)

- **Parcel box**: Parcel boxes are the counterpart of mailboxes. « This is the quickest way to drop off your franked parcels in a secure manner. You will find it easily at the Post Office or in the self-service area. Not only will you avoid queues, but you will also often have access outside normal opening hours. » (Bpost, 2015) « The parcel box allows deliveries of larger items when you are not home. No more trips to the post office or cards through your door. Initially, the lid is left unlocked so the lid can be lifted. When the delivery is made, the lock is manually turned by the delivery man and the box is then locked. » (Amazon.com, 2017)

- **Parcel shop**: Parcel shops « are collection points for parcels from logistic companies. Many of these contact points are actually kiosks or petrol stations that have longer opening hours (…). » (DHL, 2016) So, customers are free to pick up their purchased good when they want. (DHL, 2016)

- **Platform**: Platform is a more technical term describing « a series of software technologies that allows interested merchants to build and host a digital storefront soliciting a specific set of products or services. » (BigCommerce, 2014)

- **Retail (IT) backbone**: According to Retail Backbone, a company specialized in retail IT backbone: « Retail Backbone is driven by the fundamental idea that technology should enable you to manage your retail operations faster, better, and smarter. It automates many of the daily tasks that would otherwise need to be done manually by employees, and allows your business to expand and reach a larger audience without paying for additional staff. Deployment is simple: Retail Backbone is an entirely web-based solution. It requires no installation on your server or desktop, and provides full functionality from any web-connected device. » (Retail Backbone, 2016)

- **Route density**: « Route density is the number of drop offs you can make on a delivery route, often called a "milk-run" in industry parlance. » (Wang, 2016)

- **Search Engine Optimization (SEO)**: « Search engine optimization is a methodology of strategies, techniques and tactics used to increase the amount of visitors to a website by obtaining a high-ranking placement in the search results page of a search engine (SERP) - including Google, Bing, Yahoo and other search engines. » (Webopedia, 2017)

- **Sharing economy**: « A sharing economy is an economic model in which individuals are able to borrow or rent assets owned by someone else. The sharing economy model is most likely to be used when the price of a particular asset is high and the asset is not fully utilized all the time. » (Investopedia, 2017)

- **Shopping Cart**: « On a Web site that sells products or services online, the shopping cart is a common metaphor (from the original grocery store shopping cart) for the catalog or other pages where a user reads and makes selections. Typically, the user checks off any products or services that are being ordered and then, when finished ordering, indicates that and proceeds to a page where the total order is placed and confirmed. The programming that provides a Web site with the ability to build a catalog and its associated database and to integrate pages into its site that provide users the ability to shop is known as shopping cart software. » (TechTarget, 2017)

- **Showrooming**: also called store-to-web strategy, it is the contrary behavior of webrooming. The customer first looks for information in-store before ordering online from its computer, smartphone or tablet. (Paragon, 2017) It is therefore the set of practices that aims to return

the customer to the e-commerce site of the company for the purchase of a product that is not or no more available in the point of sale. (Bathelot, 2016)

- **SoLoMo**: « SoLoMo, short for social-local-mobile, refers to a more mobile-centric version of the addition of local entries to search engine results. SoLoMo emerged as a result of the growing popularity of smartphones, and provides greater local precision to search engine results than what's available via a PC. » (Technopedia, 2017)

- **Targeted advertising**: « A targeted ad, in online marketing, is an advertisement that is served to a specific audience, which could be a particular demographic, a group or an individual. » (TechTarget, 2017)

- **Touchpoint**: « A point of contact or interaction, especially between a business and its customers or consumers. » (Oxford University Press, 2017)

- **Traditional parcel logistics provider** or Third-Party Logistics (3PL): « A person who solely receives, holds, or otherwise transports a consumer product in the ordinary course of business but who does not take title to the product. (…) [We could also definite it by] (…) businesses that provide one or many of a variety of logistics-related services. Types of services would include public warehousing, contract warehousing, transportation management, distribution management, freight consolidation. » (Robinson, 2013)

- **User-specific promotions**: is « a custom-tailored experience that can remember your preferences, gauge your level of interest in a certain item, and make dynamic adjustments to the price and options. » (Pozin, 2016)

- **Vertical integration**: « Vertical integration is a strategy where a company expands its business operations into different steps on the same production path, such as when a manufacturer owns its supplier and/or distributor. Vertical integration can help companies reduce costs and improve efficiencies by decreasing transportation expenses and reducing turnaround time, among other advantages. However, sometimes it is more effective for a company to rely on the established expertise and economies of scale of other vendors rather than trying to become vertically integrated. » (Investopedia, 2017)

- **Virtual reality (VR):** « Virtual reality is an artificial environment that is created with software and presented to the user in such a way that the user suspends belief and accepts it as a real environment. On a computer, virtual reality is primarily experienced through two of the five senses: sight and sound. » (TechTarget, 2017)

- **Webrooming**: also called ROPO (Research Online, Purchase Offline) and web-to-store strategy, it « describes the behavior of Internet users who look for information on the web before going out to a shop to make the purchase. » (Herscovic, 2012) This approach makes it possible to combine the advantages of the Internet and those of the physical outlets. (Paragon Group, 2017)