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**WHEN SOME NEGATIVE
FEEDBACK INCREASES PROFITS:
THE EXPERIENCE GIFT INDUSTRY CASE**

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INTRODUCTION & SUMMARY

THE REASON OF MY DISSERTATION – The purpose of this dissertation is to study the experience gift sector, with a special focus on the quality of the product offered by firms in this industry. In order to achieve this goal, we focus on a major player in the sector, Smartbox. The analysis of its business model and the literature are helpful in enhancing our ability to develop a model capable of predicting and explaining the company's strategic choices on the quality offered.

FIRST CHAPTER – SMARTBOX PRESENTATION – This chapter presents the analysis of the company, showing its positioning and competitive advantage. The history of the firm, its market presence and its economic results are analysed. In particular, a peculiar composition of the company's revenues has emerged from the financial statements study: the firm can count on both the commissions on the boxes sold and on the proceeds earned from the unused boxes. The final goal is to enhance the comprehension of the firm and its business model, in order to draw conclusions regarding its ability to sustain its results and positioning in the future.

SECOND CHAPTER – LITERATURE REVIEW –The dissertation proceeds presenting the most relevant literature to shed light on the current knowledge regarding the experience gift industry and the platforms working as a bridge between providers and consumers. The first section of this chapter presents the literature on the coupon industry, with its researches findings and the models thus far developed. The second section extends the research, presenting a sum of the major studies regarding other platforms, in order to enhance the dept of our analysis.

THIRD CHAPTER – THE MODEL – The final chapter presents our model, based on the different revenue streams identified through the company's financial statements analysis and, therefore, deriving from the analysis presented in the previous chapters. The model is first presented in its basic form, which can better introduce the model and its fundamental characteristics and mechanisms. The analysis leads to the conclusion that, depending on the conditions met in the market, the firm may find more profitable offering not only a high quality, but also a medium quality or even a low quality. Then, the model is presented in its generalized form, a more complex version better able to capture the market reality faced by the firm. In this scenario, the company may find more profitable offering not only a high quality, but also a medium-high quality or a medium quality. In case the medium-high quality is the most profitable choice, the company is required to change the quality offered, diminishing it over time. In each version the analysis is carried out through model presentation, results presentation, comparative statics of the results and an economic analysis of the outcome found, and results analysis through a numerical example.

SMARTBOX PRESENTATION

1.1 Introduction

The first chapter will focus on the analysis of the company, presenting its position and competitive advantage. In order to do this, we will analyse the history of the firm, its market presence today and its economic results, trying to draw conclusions regarding its ability to sustain its results and position in the markets in the future.

1.2 Market analysis

Smartbox offers customers ready-to-use boxes which encase experiences. These experiences are usually bought as a gift to friends, family or employees.

The offer presents a distinctive mix of characteristics which belong to different sectors:

- The type of experiences offered, which are typical of the tourism sector;
- The occasion of use, which is typical of the gift sector.

This hybridization requires the management of two networks: on the one hand the providers' network, typical of the tourism sector, and on the other hand the distribution network, which uses instruments typical of the gift sector (ManagerItalia, 2015).

1.2.1 The tourism sector

In the last decade the tourism sector worldwide has experienced a remarkable growth, doubling in size over the last fourteen years. This is even more significant if it is considered that the growth has not been steady, growing on a double-digit pace at the end of the 2000s and experiencing a decrease during the years of the financial crisis.

The projections for 2018 suggest that the worldwide turnover of the sector will register 1,420 billion US dollars turnover, with a 6% growth on a yearly basis (Osservatorio Innovazione Digitale nel Turismo, 2017).

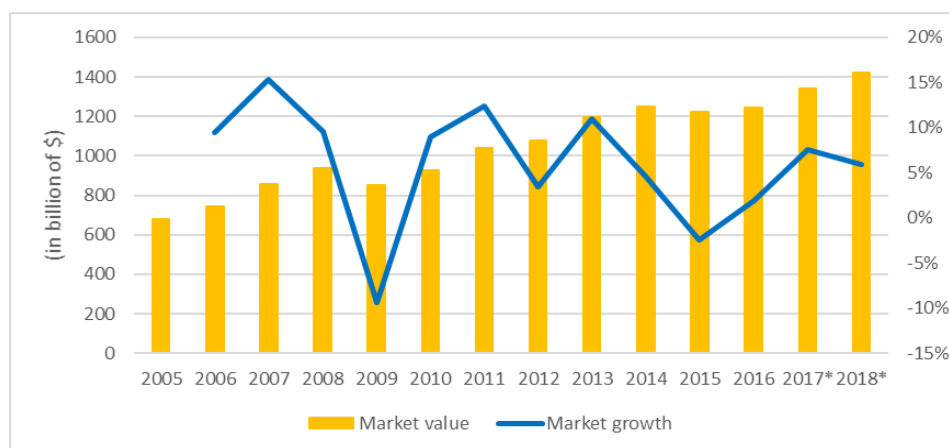


Figure 1: Worldwide tourism sector turnover and growth in 2005-2018

Source: Personal elaboration from Osservatorio Innovazione Digitale nel Turismo data

In the Italian market, the projections for 2018 suggest that the total sector turnover will reach 58.3 billion euros, following a positive trend that brought the sector to increase its turnover of more than 13% over the last five years, with a CAGR of 2.66%.

It is possible to further breakdown the total sector turnover into the channels used to convey the expense: traditional and digital. The traditional channels convey the majority of the turnover, accounting for 76% of the expense in 2018. Nonetheless, its incidence is reducing over time: the growth, even if present, is following a slower pace compared with the digital sector and does not top the 5%. The digital channels accounts for 24% of the expense in 2018, with a turnover of 14.2 billion euros. Its incidence is increasing over time, with a double-digit growth shown in most of the years.

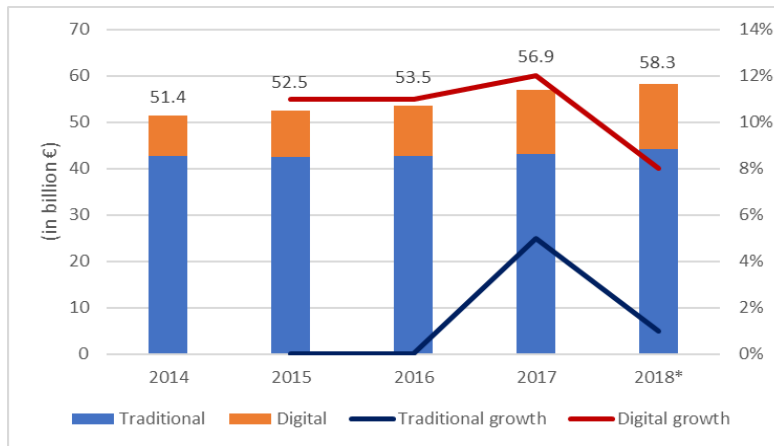


Figure 2: Italian tourism sector turnover and growth in 2014-2018

Source: Personal elaboration from Osservatorio Innovazione Digitale nel Turismo data

Moreover, it is possible to further breakdown the digital tourism sector turnover according to the type of expense: transportation, accommodation and packages.

The transportation sector accounts for more than the 60% of the total digital turnover. Nonetheless, even if its amount has been increasing due to the digital sector increase, its incidence has been reducing over the last five years. The accommodation sector accounts for almost the 30% of the sector and presents a steady growth. Finally, the packages sector, which in 2018 is projected to account for the 10% of the sector, is the fastest growing sector, with a 22% growth over the last five years.

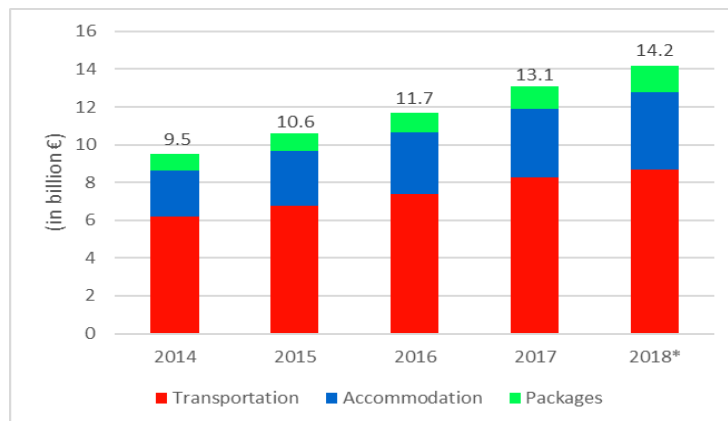


Figure 3: Italian digital tourism sector turnover in 2014-2018

Source: Personal elaboration from Osservatorio Innovazione Digitale nel Turismo data

1.2.2 The gift card sector

The gift sector is a dynamic sector, highly influenced by seasonality and the specific geographic market considered. In order to simplify the analysis and keeping in mind Smartbox's markets and its positioning, a specific subsector of the gift sector is here presented and analysed, the gift card sector.

In the next decade the gift card sector worldwide is expected to experience a steady growth, growing at around 6% yearly growth every year till 2025.

The projections for 2018 suggest that the worldwide turnover of the sector will register 339 billion US dollars turnover, while in 2025 the total turnover is expected to reach 510 billion US dollars (QY Research Groups, 2018).

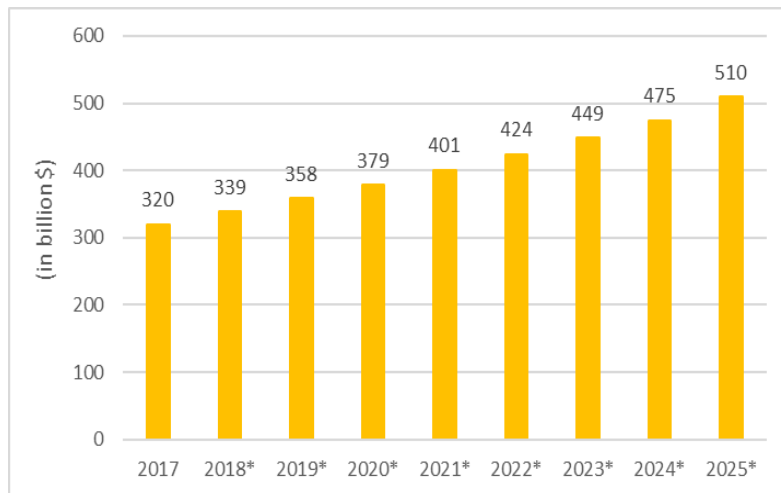


Figure 4: Worldwide gift card sector turnover projections in 2017-2025

Source: Personal elaboration from QY Research Groups data

Moreover, it is possible to breakdown the gift card sector turnover according to the geographic region: North America is the major market, accounting for the 45% of the global market, Europe follows with the 26% of the total turnover, while the rest of the world, combined, accounts for the remaining 29% (PR Newswire, 2018).

In the Italian market, the total gift card sector turnover in 2017 has reached 26 million US dollars (Allied Market Research, 2018). In 2025 the projections suggest that the total sector turnover will reach 84 million euros, following a positive trend that will bring the sector to increase its turnover with a CAGR of 14.09%.

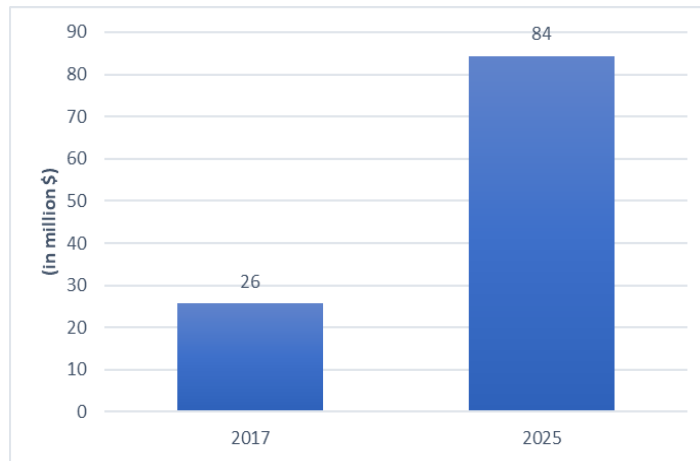


Figure 5: Italian gift card sector turnover projections in 2017-2025

Source: Personal elaboration from Allied Market Research data

The brief analysis here presented shows how Smartbox is located at the intersection of two growing sectors, which, both at worldwide level and European level, are expected to be capable of accommodating further company growth.

1.3 Smartbox

Smartbox is the European leader in the experience gifts industry, accounting for half of the continent's turnover in the sector (Gist.it, 2017).

The history of the company starts in 2003, when its founder, Pierre-Edouard Stérin, launched the concept of the gift boxes in the French market. The company was born from a Belgian franchise made possible thanks to Philippe Deneef, previously founder of Weekendesk, an online travel agency. In just four years the company grew enough to be able to buy its franchisor.

In 2007 the company was renamed as Smart & Co, with its major brand being called Smartbox, as it is known today.

In 2012 the company moved its headquarter in Dublin and decided to withdraw from the Japanese, Canadian and Australian markets in order to focus on its presence online and in the United States (Duriez, 2012). Following this strategy, in the same year Smartbox launched two new offers online: Smartprivé, a private sales site for entertainment, and the e-box, the first paperless gift box (Fauconnier, 2012).

The company has been growing steadily since 2007, both through acquisitions and through organic growth.

As regards the acquisitions, the company has bought eight brands over in the last decade (Gist.it, 2017):

- Bongo, through the acquisition of the homonym Belgian company in 2007;
- Red Letter Days, through the acquisition of the English company Buyagift in 2009;
- Cadeauxbox, through the acquisition of the homonym Belgian company in 2010;
- La Vida Es Bella, through the acquisition of the homonym Spanish company in 2012;
- Dakotabox, through the acquisition of the homonym French company in 2015;
- Emozione 3, through the acquisition of the Italian company Wish Days in 2016;
- Odisseias, through the acquisition of the homonym Portuguese company in 2017.

Through its brands, the company is present today in eleven European countries: Belgium, Denmark, France, Ireland, Italy, the Netherlands, Portugal, Spain, Sweden and Switzerland, the United Kingdom (Smartbox, 2019). It is interesting to notice how the company has earned the highest market share in eight of those national markets: Belgium, Denmark, France, Italy, Portugal, Spain, Switzerland and the United Kingdom (Gist.it, 2017).

As regards the organic growth, the company is present today in nine European countries through the brand Smartbox: Belgium, Denmark, France, Ireland, Italy, the Netherlands, Spain, Sweden and Switzerland. In each country it offers a different number of experiences, tailored for meeting local customers' tastes. The number of experiences offered differs from country to country, from the 111,000 offered in France to the 1,200 offered in Ireland (Smartbox, 2019).

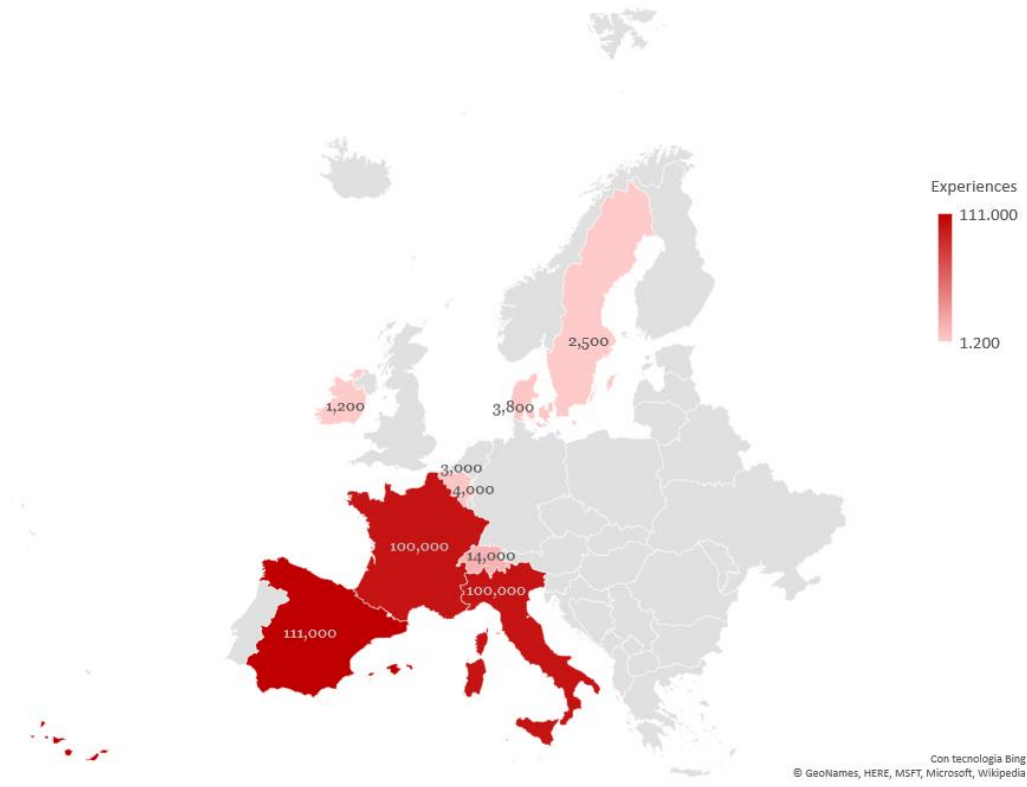


Figure 6: Smartbox's number of experiences provided in Europe

Source: Personal elaboration from the company websites data

As the figure above suggests, the company's presence is stronger in France, Italy and Spain. The number of boxes available in each country changes accordingly, with 616 available in France, 318 in Italy and 251 in Spain (Smartbox, 2019).

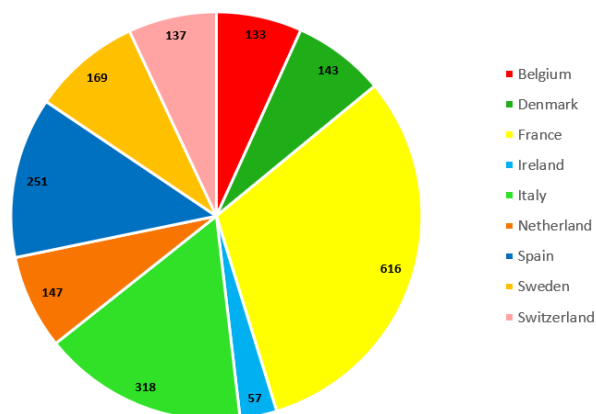


Figure 7: Smartbox's number of boxes provided in Europe

Source: Personal elaboration from the company data

1.3.1 The product

The customer buying a box obtains access to a vast array of partner structures, which they or, most often, the person the gift is given to, can choose among. The boxes are arranged in different themes, in order to better meet costumers' different tastes and needs: getaways, gourmet, pampering adventure and multi-thematic.

The price is paid by the customer at the moment in which the box is acquired, online or offline. It differs from the discounted models used by companies like Groupon, as a full price is required.

After the box has been redeemed, the partner structure requires the payment from Smartbox, which consist in the box face value net of the payment of a double-digit commission fee owned to the company. The commission ranges between 25% and 30% and it is not passed to the customer (Les Echos, 2011). This is possible as some structures can thus gain customers even out of season, key success factor in the ho.re.ca. structures open during the whole year. Moreover, the commission fee is said to be often covered by customers spending beyond the value of their voucher, as underlined by Smartbox's CEO, John Perkins (Cogley, 2018).

The partners do not face any other cost to join the platform and can obtain significant advantages from a marketing perspective. This is especially true for those firms that do not have a marketing budget. As underlined by the CEO: "We're a marketing platform for all these establishments. Most of these establishments can't pay for advertising, they can't pay for TV, they can't pay for radio" (Cogley, 2018).

Moreover, the time gap between the moment in which the product is purchased and the moment in which the repayment is required by the partner generates a negative working capital (Les Echos, 2011). As products are purchased on average six months before their use, the negative working capital can generate positive investment interest for several months, providing another source of income.

Finally, the unused boxes represent a net gain for the company, as the price has been paid by the customer already, but no structure requires a payment back. At least 5% to 10% of the product is unused, a non-use rate 10 times higher compared to restaurant

vouchers (Les Echos, 2011). We will further discuss this remarkable high percentage and the company's choice that lead to this situation in the financial statements analysis and in the theoretical model sections.

1.3.2 Group structure

The group widespread presence in the European market is achieved through the significant number of companies that the group incorporates: overall, the group is made up by 38 companies.

Most of these companies are representatives of the group presence in a given national market, either as a subsidiary set up through the greenfield investment method, as in the case of Smartbox Group Italy s.r.l., or as a subsidiary acquired through the brownfield investment method, as in the case of Wishdays s.r.l..

These companies are coordinated by Smartbox Group Limited, which owns the majority of the shares in each company. In the cases of Smartbox Group Italy and Wishdays, the holding owns the 100% of the shares.

Smartbox Group Limited is 100% owned by Smartbox Group Company Limited, which, in turn, is 100% owned by the holding TopCo.

Finally, B.A.D. 21, with its 97% of TopCo's shares owned, bears the major interest in the company. B.A.D. 21 is directly owned by Pierre Edouard Sterin, one of the founders and owners of the group.

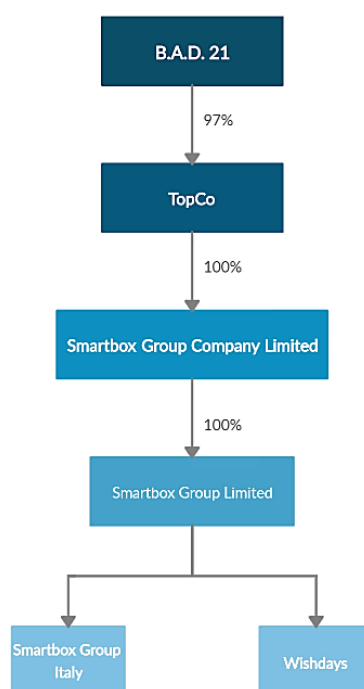


Figure 8: Smartbox's group structure (simplified)

Source: Personal elaboration from AIDA data

1.4 Focus on the Italian market

The Italian market represents the 20% of the overall European gift experiences market (Gist.it, 2017).

In Italy, Smartbox operates through two brands, Smartbox and Emozione 3. Through its brands, the company has reached 81.2% market share in Italy in 2016, with 800,000 boxes sold through the brand Smartbox and 250,000 sold through the brand Emozione 3.

Today the main competitors in the Italian market are:

- The Italian branch of the French company Wonderbox;
- The Italian branch of the French company Regalbox;
- Box For You, the experience gift promoted by the Italian publisher Mondadori;
- Boscolo Gift, the experience gift promoted by the Italian travel agency Boscolo;
- Alpitour Webox. the experience gift promoted by the Italian tour operator Alpitour.

Also Weekendsk used to play a minor role in the market but exited in 2015, due to its poor performance.

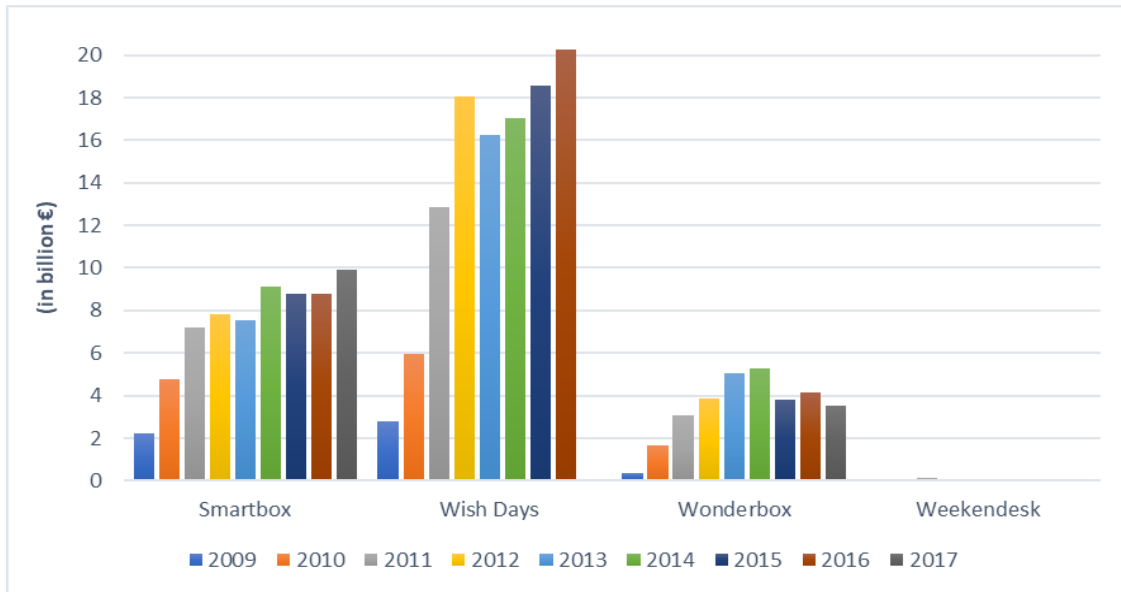


Figure 9: Smartbox’s, Wish Days’, Wonderbox’s and Weekendsk’s revenues in the Italian market in 2009-2017

Source: Personal elaboration from AIDA data

1.4.1 Smartbox

The brand Smartbox offers 318 boxes, divided in five themes, according to the activity proposed (Smartbox, 2019). The major, Soggiorni, accounts for more than a half of the total offer, with 162 proposals, divided between one-night hotel stays, two-night hotel stays, European hotel stays and gastronomic stays.

Multiattività, with its 61 proposals, represents the second most present offer. Sport e Svago follows with 36 products offered, followed by Gourmet, with 33, and Benessere, with 26.

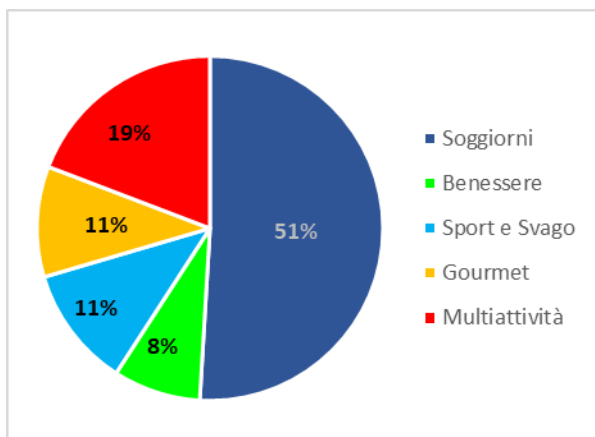


Figure 10: Smartbox’s offer in Italy
Source: Personal elaboration from the company website data

The offer can also be categorised according to the price range. The prices vary a lot, with the most expensive activity presenting a price of 799.90 € and the cheapest activity presenting a price of 24.90€.

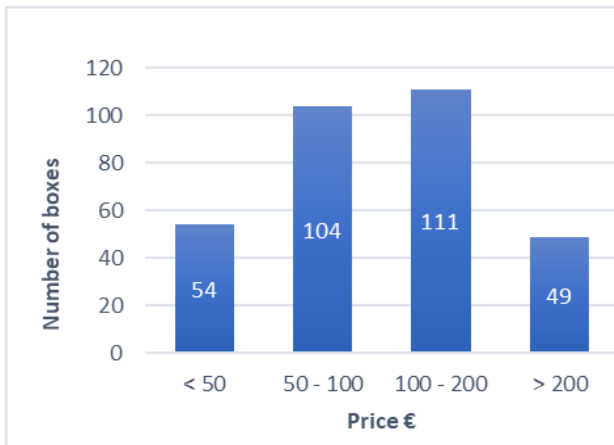


Figure 11: Smartbox's prices in Italy
Source: Personal elaboration from the company website data

1.4.2 Emozione 3

Similarly to the brand Smartbox, the brand Emozione 3 offers 63 boxes, divided in five themes, according to the activity proposed (Smartbox, 2019). The major, Soggiorni, accounts for more than a half of the total offer, with 37 proposals, divided between one-night hotel stays, two-night hotel stays, European hotel stays and gastronomic stays. Multitema, with its 12 proposals, represents the second most present offer. Gourmet follows with 6 products offered, followed by Sport, with 5, and Benessere, with 3.

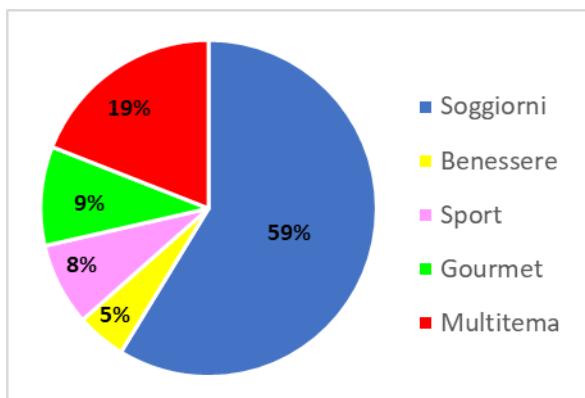


Figure 12: Emozione 3's offer in Italy
Source: Personal elaboration from the company website data

The offer can also be categorised according to the price range. The prices vary a lot, with the most expensive activity presenting a price of 229.90 € and the cheapest activity presenting a price of 24.90€.

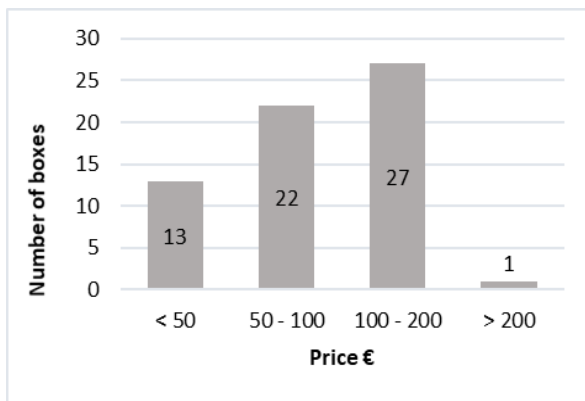


Figure 13: Emozione 3's prices in Italy
Source: Personal elaboration from the company website data

As the graphs show, the offer in the Italian market is quite homogeneous across the company brands, both according to themes and to price ranges.

1.5 Business model

A business model canva describes how a company creates, delivers and captures value, through nine building blocks: customer segments, value proposition, channels, customer relationships, revenue streams, key resources, key activities, key partnerships and cost structure (Osterwalder and Pigneur, 2009).

The business model canva can be applied to analyse Smartbox's business model:

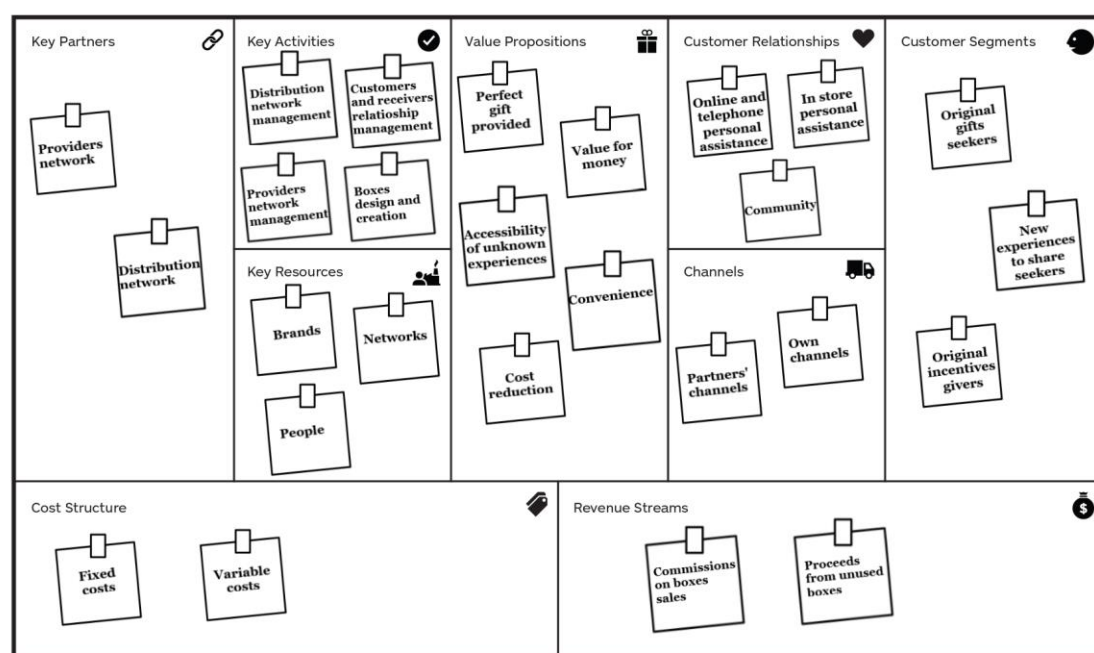


Figure 14: Smartbox's business model canva

Source: Personal elaboration

Customer segments

Smartbox operates in a segmented market, with customers presenting different needs and therefore requiring different value propositions.

Customers can be arranged into two major groups: individuals and companies.

The group of individuals is composed of singular customers who are looking for a product to be consumed within their small circle of friends and family. Depending on the usage of product, a further distinction can be made (Business Model Foundry AG, no date):

- Individuals who are looking for original gifts;
- Individuals who are looking for experiences to share.

The former is often the case of close friends while the latter is often found in couples.

The group of **companies** is composed by firms that are looking for **original incentives** to include in their compensation packages.

The above classification had been made considering Smartbox's customers. It should not be forgotten that these buyers are, in most cases, not the final users of the product.

Value proposition

The most important characteristic of the product proposed is the chance of giving the receiver the possibility to customise the gift and to decide which experience to try among a vast array of possibilities. A distinctive mix of elements reflects the value thus created:

- Getting the job done, as it **provides the perfect gift**, giving the high customization chances;
- **Value for money**, as it is sometimes possible to get good deals, paying a lower price than what would have been payed if the experience had been booked directly through the provider's channels;
- **Accessibility**, as it makes some previously **unknown experiences** available;
- **Convenience**, as it is a gift easy to find on the market, both online and offline;
- **Cost reduction**, as it reduces the costs associated with looking for a perfectly tailored gift.

The receiver of the gift is given further value-adding elements (ManagerItalia, 2015):

- Chance of choosing which experience to try out and the most suitable time;
- An online platform to manage the booking request;
- After sale assistance.

Channels

The channels, a mix of **own** and **partners' channels**, are used both to communicate and to distribute the offer.

Smartbox's own channels consist in its websites and its social medias.

The company owns different websites, reflecting the nine different brands currently in its portfolio. The major brand website, www.smartbox.com, is used both as a distribution channel and as a communication platform to present its offer, showing packages and reporting reviews. The website gives customer the chance of buying the product online, either as a physical box to be delivered at home or as a downloadable e-box.

The social media change according to the brand as well, with Facebook and Instagram being the brand Smartbox's social medias.

The vast array of partners the company can count on is made up by the big organized distribution, travel agencies, affiliated websites and authorized retailers, specialized in the boxes themes.

The major partners in the Italian market are: Bennet, Carrefour, Coin, Comet, Es-selunga, Euronics, Feltrinelli, Finper, GEO, Giunti al Punto, Mediaworld, Mondadori, Rinascente, Trony, Unieuro/SGM and Welcome Travel Group. These partners' channels provide both distribution, as the product is sold in the stores, and communication, as dedicated, easily recognizable stands are found inside the stores, with the sales force available to give all the information needed.

Customer relationships

Customer relationships are nurtured through:

- **Personal assistance** delivered **in store** through the partner's sales force;
- **Personal assistance** delivered **online** and via **telephone** through the company's own sales force;
- **Communities** fostered on the company's web sites and its social medias.

The relationships with the customers are strengthened through the high brands recognition, the customer retention obtained through newsletters and promotions and the after sales support provided. Strong relationships are nurtured with the receivers as well, through further after sales support.

Revenue streams

The revenue streams consist in the boxes sales, may those be the physical boxes or the e-boxes. Therefore, the revenue streams consist in assets sales.

The boxes sale can be further divided into two main categories:

- Commissions on boxes sales,

- Proceeds from unused boxes.

We will discuss the difference and consequences for the company in details in the financial statements analysis and in the theoretical model sections.

The price is set through the list price, a fixed menu pricing method which consists in fixing the price in advance for each individual product.

The price paid by the consumer is the sum of the company's revenue and the partners' commissions, which consist in the provider's commission and in the distributor's commission.

Key resources

The key resources employed are physical, intellectual and human:

- The distribution and the partners **networks** compose the physical resources;
- The portfolio of **brands** composes the intellectual resources, along with the proprietary knowledge and the customer databases;
- The **people** working for designing and creating the boxes and providing the after sales support compose the human resources.

Key activities

The fundamental activities performed are boxes design and creation, providers' network management, distribution network management and customers and receivers relationship management. In further detail:

- **Boxes design and creation** require defining experiences, prices, partners involved and packaging. This activity is performed by a dedicated function, called product development, as it is considered a key activity for the firm's success.
- **Providers network management** requires selecting the most suitable partners and manage the relationships with them. This activity is particularly complex as providers belong to different industries and present different needs and requests.

- **Distribution network management** requires selecting and managing the relationship with the most suitable distributors. This activity is fundamental as a key characteristic of the product is its availability, online and in the stores.
- **Customers and receivers relationship management**, diversified according to the role played by each stakeholders' category.

Key partnerships

The key partnerships are developed with providers and distributors and are a mix of strategic alliances and buyer-supplier relationships.

The **providers network** is made up by 16,000 partners in the Italian market and a total of 40,000 partners in Europe (Smartbox.com, 2019). Among the providers' advantages are: the increased visibility, the wider market available and the additional revenues, net of Smartbox's commission.

The **distribution network** is made up by 6,000 partners in the Italian market and a total of 18,000 partners in Europe (Smartbox.com, 2019). The distribution network counts the 16 major partners previously listed, the big organised distribution and various web sites, which can be linked to the company's web site, earning the partner's site a 10% commission on the related sales.

Cost structure

The cost structure is defined by:

- **Fixed costs**, linked to the company's own human resource, such as the people working for the finance, marketing and customer care departments;
- **Variable costs**, linked to the networks management.

1.5.1 Value proposition canva

The value proposition canva is a tool developed by Peter Thomson (2013) in response to the 2012's Osterwalder's Value proposition designer, an update of the Business model canva.

This tool can be applied to Smartbox in order to shed lights to elements of its value proposition and its customer segments that were not previously analysed in detail.

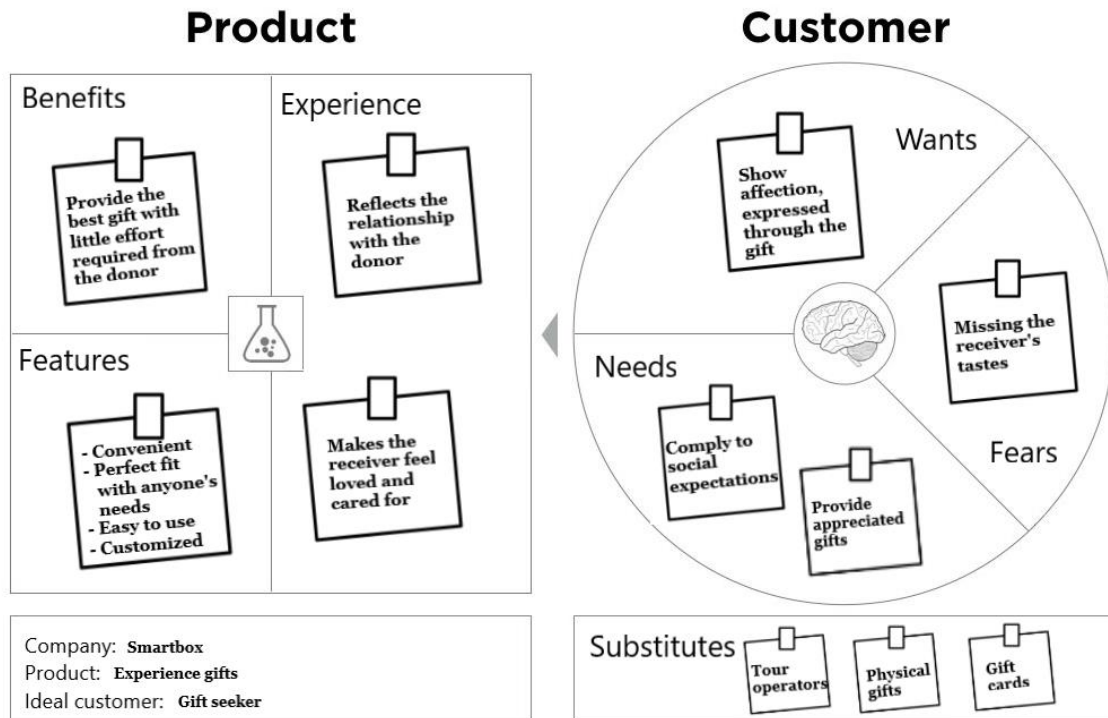


Figure 15: Smartbox's value proposition canva

Source: Personal elaboration

On the one hand, the tool presents the product section, showing features and benefits, commonly used in marketing, with the addition of experience, typical of design thinking (Thomson, 2013).

The **benefits** reflect what the product is capable of doing for the customers, as increasing pleasure or decreasing pain. It is the core of the value proposition.

The benefits of Smartbox are the possibility of providing the best gift with little effort required from the donor's side.

The **features** are the product attributes, the factual description of the way in which the product works.

Smartbox's products are:

- Convenient, as they are easy to find online and offline;

- A perfect fit with anyone's needs, as the receivers can choose their favourite experience among a vast array of possibilities;
- Easy to use, as they are ready-to-use packages;
- Customised, as the final experience choice is left to the receiver.

The **experience** is the way in which the customer feels, given the purchase. It represents the emotional reasons behind the purchase.

Smartbox's products reflects the bond between the customer and the receiver, making the latter feel loved and cared for.

On the other hand, the tool presents the customer section, showing wants, needs and fears, typical of the psychology research.

The **wants** are the list of desires that the customer wishes to be, to do or to have. They are the emotional drivers of the decision making.

Smartbox's customers want to show affection to a partner, a family member or a friend, which is achieved through the gift.

The **needs** are the rational necessities that the customer needs to get done. They also may not be conscious, as in the case of the latent needs.

Smartbox's customers need to comply to social expectations and they need to provide an appreciated gift.

The **fears** are the dread of making mistakes, missing out or suffer losses. The inertia of the status quo often plays a major role, driven by the pain of switching.

Smartbox's customers fear missing the receiver's tastes, giving unpleasant gifts.

Finally, the tool presents the **substitutes**, which are other firms' products that can meet the customer's wants, needs and fears in a comparative or better way.

Smartbox's substitutes are tour operators' offers, physical gifts and gift cards.

1.6 Financial statements analysis

We now proceed with the analysis of the group's financial statements. In order to analyse the group's results in detail, we first propose the results of the group as a whole and then focus on the analysis of the financial statements of some of the companies compos-

ing the group. In particular, we will focus our attention on the European holding Smartbox Group Limited and in its parent company Smartbox Group Company Limited. Finally, we will focus on the Italian market, analysing Smartbox Group Italy s.r.l's financial statements.

1.6.1 Group economic results

In the fiscal year spanning between April 2016 and April 2017 the group's revenues reached 480 million of euros. This considerable achievement looks even more tremendous if the estimation of the total European turnover is taken into consideration: the whole industry counted one billion revenues in the same period, making Smartbox Group the first European player in the sector, accounting for almost half of the total revenues (Gist.it, 2017).

The company can boast a 11% growth on annual basis, overcoming the 10% previous year's growth (Kennedy, 2017).

During the same period, the company sold 6.5 million products (Smartbox.com, 2019), almost half of the European total sales, which counted for 14 million pieces sold (Daily online, 2017).

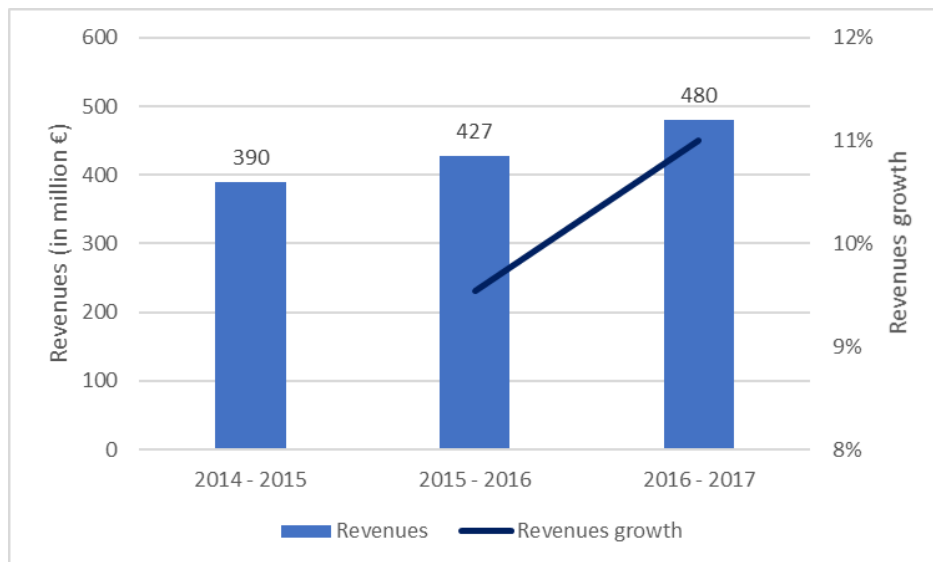


Figure 16: Smartbox Group economic results in 2014-2017

Source: Personal elaboration from Gist.it and Silicon Republic data

These exceptional results should be analysed more in details, in order to underline the drivers behind this success and to define whether or not these results will be sustainable. For this reason, we proceed with the analysis of Smartbox Group Limited's financial statements, as the European holding's financial results can unveil the reasons behind the group success.

1.6.2 Smartbox Group Limited

Smartbox Group Limited's financial statements present two key elements that require further attention: the revenues and their composition, and the EBIT and the comparison of its amount with the net income.

Revenues

Smartbox Group Limited has recorded 186.7 million euros revenues in the 2017-2018 fiscal year, with a 7% yearly growth (Smartbox Group Limited Annual Report and Financial Statements, 2018). The European holding did not reach the double digits growth boasted by the group in the same period. Nonetheless, it accounted alone for more than the 40% of the total group turnover in the fiscal year 2016-2017.

In the last fiscal year, the company has earned a net profit of 18.6 million euros, with an impressive 63% yearly growth.

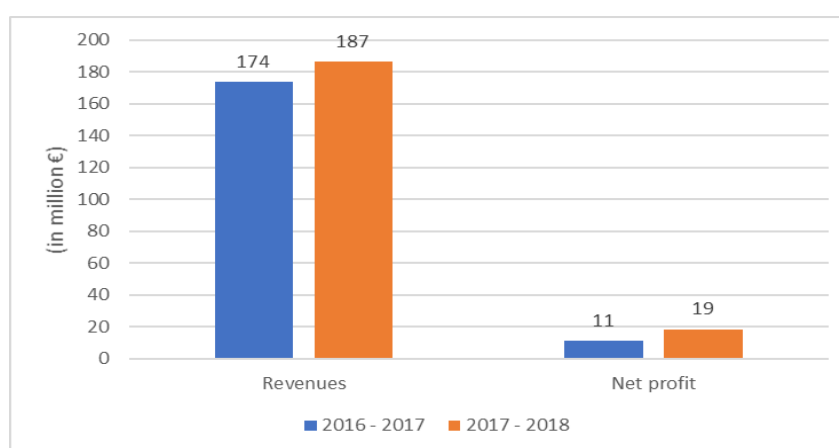


Figure 17: Smartbox Group Limited's revenues and net profit in 2016-2018

Source: Personal elaboration from Smartbox Group Limited's financial statements data

As reported in the company's financial statements, the revenues can be broken down into two main categories (Smartbox Group Limited Annual Report and Financial Statements, 2018, p.14):

- Commissions on experience gift sales,
- Proceeds from unused gift experiences.

Commissions on experience gift sales are revenues earned as the percentage of the face value of each product sold that the company claims as a remuneration for its network management activity. The company records this commission at the time in which the gift experience is sold to the purchaser. It is the core business of the firm.

Proceeds from unused gift experiences are revenues earned if the purchaser buys a product that will not be later used. These revenues are calculated based on observed historical consumer behaviour, with required adjustments being recognized directly at the voice "revenue" when identified.

The latter source of revenues is, in our opinion, the most interesting, as the company is capable of earning more profits from a product that let the customer, or in most cases the receiver, down than from a well-performing product.

Unfortunately, the company has not disclosed the incidence of the latter revenue stream on the total revenues in the last financial statements. Nonetheless, as previously mentioned, a 2011's disclosure states that this percentage used to range from 5% to 10% (Les Echos, 2011).

We think that it would be interesting to further investigate whether this percentage still applies today or if the proceeds deriving from unused gift experiences have greater impact on the company's profitability nowadays.

EBIT

In the 2017-2018 fiscal year, Smartbox Group Limited has earned a net profit of 18.6 million euros, while its EBIT reached 14.5 million euros.

An EBIT lower than the net profit is quite uncommon and requires further investigation, especially considering that this peculiarity was not present in the previous' year financial statements.

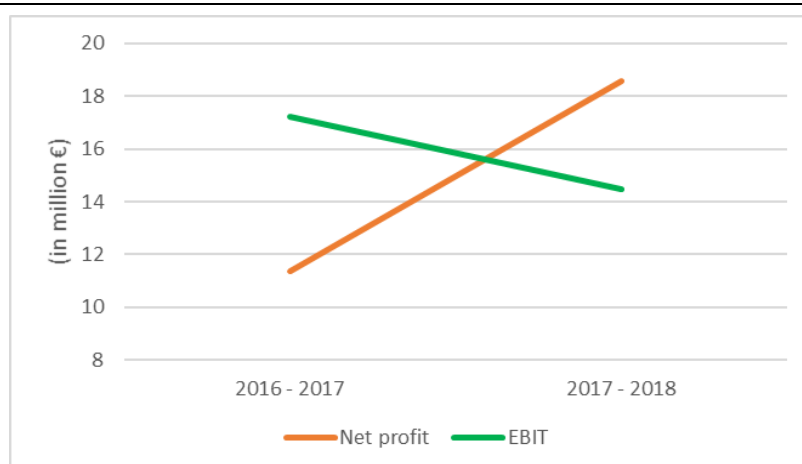


Figure 18: Smartbox Group Limited's net profit and EBIT in 2016-2018

Source: Personal elaboration from Smartbox Group Limited's financial statements data

The explanation of this phenomenon requires a mix of elements:

- The absence of debts toward financial institutions,
- A negative working capital,
- Subsidiaries' dividends paid.

The company is able to fully sustain its business through its equity, avoiding borrowings from financial institutions. The major reason behind this possibility is to be found in its negative working capital, as the company collects the customers' payment months before the service providers requires their payments. The high dividends paid by its subsidiaries also play a major role. Nonetheless, the shares ownership requires periodical impairment test, which can significantly reduce the net profit. The impairment of financial assets is the main responsible for an EBIT higher than the net profit in the 2016-2017 fiscal year.

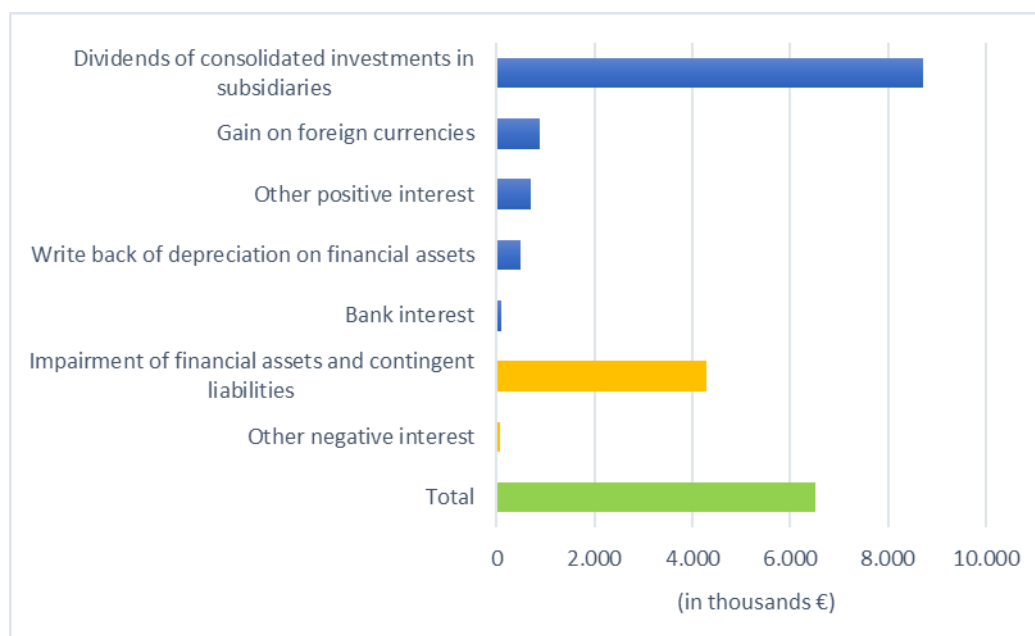


Figure 19: Smartbox Group Limited's finance income and finance costs in 2017-2018

Source: Personal elaboration from Smartbox Group Limited's financial statements data

We proceed with the analysis of Smartbox Group Company Limited's financial statements, in order to analyse whether these drivers are also to be found in Smartbox Group Limited's parent company.

1.6.3 Smartbox Group Company Limited

Smartbox Group Company Limited's financial statements present similar characteristics to its subsidiary's financial statements, exacerbating some aspects related to the finance income.

In the 2017-2018 fiscal year, Smartbox Group Company Limited has recorded 41.1 million euros revenues, with an 8% yearly growth (Smartbox Group Company Limited Annual Report and Financial Statements, 2018).

In the last fiscal year, the company has earned a net profit of 17.1 million euros, showing an apparently worryingly -69% yearly decrease. Nonetheless, this decrease is not to be attributed to a worse performance in the core business but rather to the extraordinary finance income earned by the parent company in the previous fiscal year. This is also shown by the EBIT constantly and extensively lower than the net profit.

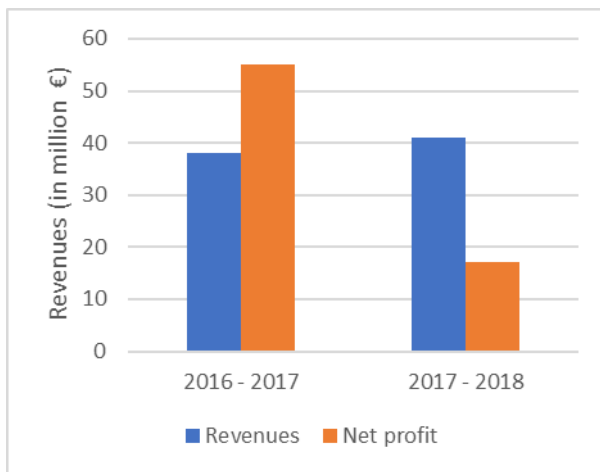


Figure 20: Smartbox Group Company Limited's revenues and net profit in 2016-2018

Source: Personal elaboration from Smartbox Group Company Limited's financial statements data

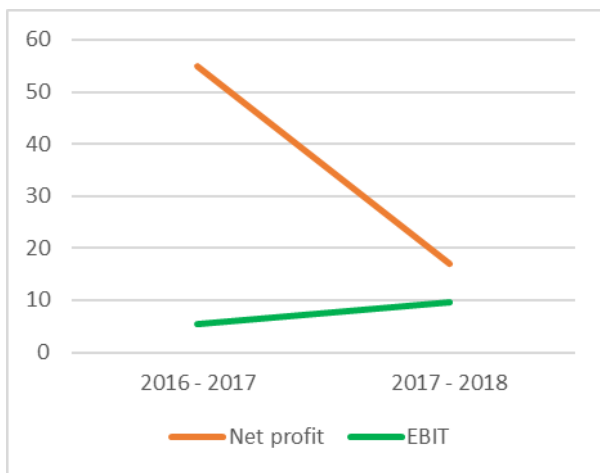


Figure 21: Smartbox Group Company Limited's EBIT and net profit in 2016-2018

Source: Personal elaboration from Smartbox Group Company Limited's financial statements data

The reason behind this situation is to be found in the composition of the finance income and, in particular, in the high dividends paid by Smartbox Group Limited to its parent company in the fiscal year 2016-2017.

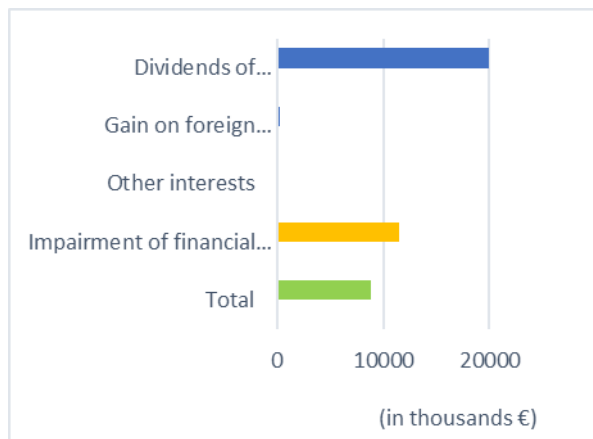


Figure 22: Smartbox Group Company Limited's finance cost and income in 2017-2018

Source: Personal elaboration from Smartbox Group Company Limited's financial statements data

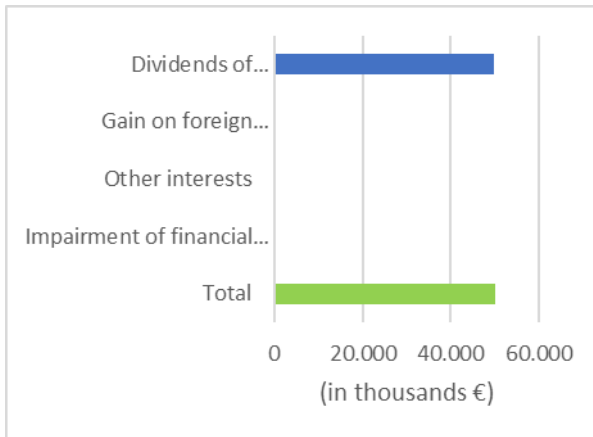


Figure 23: Smartbox Group Company Limited's finance costs and income in 2016-2017

Source: Personal elaboration from Smartbox Group Company Limited's financial statements data

1.6.4 Smartbox Group Italy s.r.l.

Finally, we proceed with the analysis of the Italian subsidiary's financial statements. In the 2017-2018 fiscal year Smartbox Group Italy s.r.l. has recorded 9.9 million euros revenues, with a 13% yearly growth, overcoming the double digits growth boasted by the group in the same period. Since 2008, the company has showed an extensive but uneven growth, growing massively in the first years of activity and subsequently reducing its growth pace. Today the company seems to be accelerating its growth pace again.

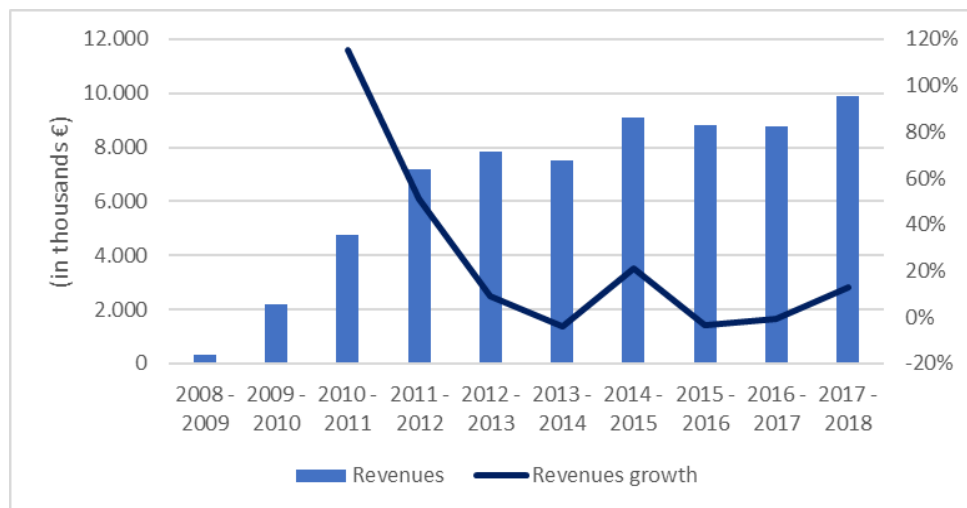


Figure 24: Smartbox Group Italy s.r.l.'s revenues and growth in 2008-2018

Source: Personal elaboration from AIDA data

In the last fiscal year, the company has registered a loss of 508 thousand euros. Nonetheless, this loss seems to be related to this particular year of activity, as no previous loss has been recorded in the previous ten years of activity.

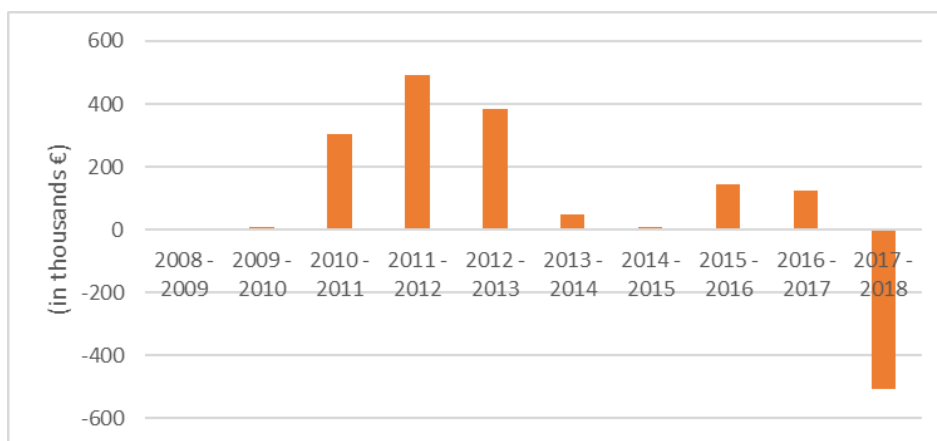


Figure 25: Smartbox Group Italy s.r.l.'s net profits and losses in 2008-2018

Source: Personal elaboration from AIDA data

The comparison of the net profit with the EBIT shows that, on the contrary of what resulted in the parent's company financial statements data, the EBIT is steadily higher.

Two key elements can be considered the main reasons behind this difference:

- The company cannot count on the payment of dividends from any subsidiary;
- Even if the company does not finance itself through borrowings from financial institutions, it still presents some financial expenses.

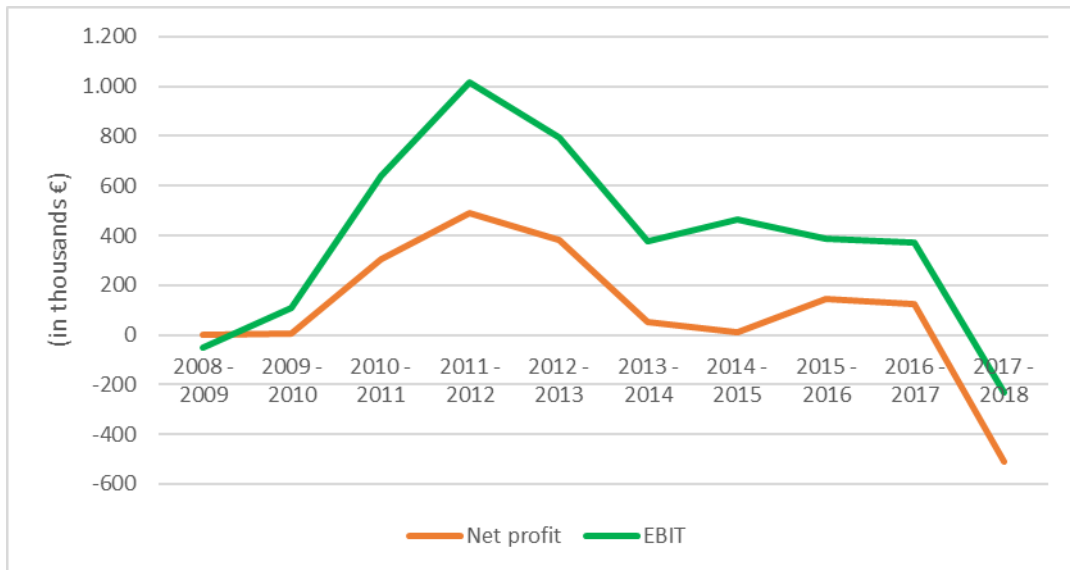


Figure 26: Smartbox Group Italy s.r.l.'s net profits and EBITs in 2008-2018

Source: Personal elaboration from AIDA data

Overall, the Italian subsidiary's financial statements data presents a similar configuration to its parent company in terms of composition of its revenues while there is a significant difference in the composition of its net profit, due to difference in finance income and finance costs.

Attachment 1: Smartbox Group Limited's balance sheet

Smartbox Group Limited

Annual Report and Financial Statements 2018

STATEMENT OF FINANCIAL POSITION

as at 30 April 2018

	Notes	April 2017 €000's	April 2018 €000's
Non Current Assets			
Intangible assets	6	72,833	79,275
Plant and equipment	7	11,529	12,739
Investments in subsidiaries	8	89,226	97,269
Non-current financial assets	9	0	26,618
Total Non Current Assets		173,588	215,901
Current Assets			
Cash and cash equivalents	10	72,065	51,727
Inventories	11	6,549	5,486
Current financial assets	12	25,760	19,554
Trade and other receivables	13	32,346	24,469
Income taxes and VAT	15	4,102	1,943
Total Current Assets		140,822	103,179
Total Assets		314,410	319,080
Equity & Liabilities			
Equity attributable to the owners of the company			
Ordinary Share capital	17	10	10
Retained earnings		49,794	48,356
Total Equity		49,804	48,366
Liabilities			
Current liabilities			
Trade and other payables	14	262,072	270,714
Income taxes and VAT	15	2,534	0
Total Current Liabilities		264,605	270,714
Total Equity & Liabilities		314,410	319,080

Attachment 2: Smartbox Group Limited's income statement

Smartbox Group Limited

Annual Report and Financial Statements 2018

STATEMENT OF COMPREHENSIVE INCOME

For the financial year ended 30 April 2018 in 000's

	Notes	April 2017 € 000's	April 2018 € 000's
Revenue		174,030	186,681
Cost of goods sold		(9,524)	(10,966)
Selling expenses		(103,825)	(104,592)
Administrative expenses		(42,593)	(56,157)
Recurring Operating income		18,088	14,966
Non-recurring operating expenses	1	(860)	(498)
Operating income on ordinary activities before interest		17,228	14,468
Finance income	2	12,511	10,863
Finance costs	2	(15,869)	(4,351)
Profit on ordinary activities before taxation		13,870	20,980
Tax on profit on ordinary activities	5	(2,508)	(2,418)
Profit and total comprehensive income for the financial year		11,362	18,562

Attachment 3: Smartbox Group Limited's note 2

2 Finance Income & Costs

	April 2017 € 000's	April 2018 € 000's
Finance income		
Dividends of consolidated investments in subsidiaries (i)	11,600	8,707
Other interest	911	694
Bank interest	0	100
Gain on foreign currencies	0	872
Write back of depreciation on financial assets	0	490
	12,511	10,863
Finance costs		
Impairment of financial assets (ii)	(15,600)	(4,275)
Loss on foreign currencies	(269)	0
Other interest	0	(76)
	(15,869)	(4,351)

(i) Dividends are from the subsidiaries Buyagift Plc UK and Wishdays Italy.

(ii) Impairment of financial assets are for the impairment of shares of Wishdays and Dakota following the transfer of activity in the last financial year.

Attachment 4: Smartbox Group Company Limited's balance sheet

Smartbox Group Company Limited

Annual Report and Financial Statements 2018

STATEMENT OF FINANCIAL POSITION

as at 30 April 2018

	Notes	April 2017 €000's	April 2018 €000's
Non Current Assets			
Intangible assets	5	450	450
Plant and equipment	6	76	30
Non current financial assets	7	0	0
Investments in subsidiaries	8	7,017	4,017
		<u>7,542</u>	<u>4,497</u>
Current Assets			
Cash and cash equivalents	9	56,567	50,473
Inventories	10	1,974	2,085
Trade and other receivables	11	5,614	9,033
Income taxes and VAT	13	0	150
Total current assets		<u>64,154</u>	<u>61,741</u>
Total Assets		<u>71,697</u>	<u>66,238</u>
Equity & Liabilities			
Equity attributable to the owners of the company			
Ordinary share capital	15	20	20
Share premium		59,749	59,749
Retained earnings		(47,746)	(56,662)
Total Equity		<u>12,023</u>	<u>3,107</u>
Liabilities			
Non Current Liabilities			
Long term provisions	16	0	1,948
Total non current liabilities		<u>0</u>	<u>1,948</u>
Current liabilities			
Trade and other payables	12	59,253	60,664
Income taxes and VAT	13	420	519
Total current liabilities		<u>59,673</u>	<u>61,183</u>
Total liabilities		<u>59,673</u>	<u>63,131</u>
Total Equity & Liabilities		<u>71,697</u>	<u>66,238</u>

Attachment 5: Smartbox Group Company Limited's income statement

Smartbox Group Company Limited Annual Report and Financial Statements 2018

STATEMENT OF COMPREHENSIVE INCOME

For the financial year ended 30 April 2018 in 000's

	Notes	April 2017 €000's	April 2018 €000's
Revenue		38,064	41,095
Cost of goods sold		(2,856)	(1,935)
Selling expenses		(25,110)	(23,959)
Administrative expenses		(4,559)	(5,650)
Recurring Operating income		5,538	9,551
Non-recurring operating income (expenses)		0	(32)
Operating income on ordinary activities before Interest		5,538	9,519
Finance income	1	50,187	20,244
Finance costs	1	0	(11,435)
Profit on ordinary activities before taxation	2	55,725	18,328
Tax on profit on ordinary activities	4	(725)	(1,244)
Profit and total comprehensive income for the financial year		55,000	17,084

Attachment 6: Smartbox Group Company Limited's note 1

Smartbox Group Company Limited Annual Report and Financial Statements 2018

NOTES TO THE FINANCIAL STATEMENTS

1 Finance income & costs

	April 2017 €000's	April 2018 €000's
Finance income		
Dividends of consolidated investments in subsidiaries(i)	49,995	20,000
Gain on foreign currencies	144	194
Other interest	48	50
	50,187	20,244
Finance costs		
Impairment of financial assets and contingent Liabilities (ii)	0	(11,435)
	0	(11,435)

(i) Dividend is from the subsidiary Smartbox Group Limited, a company incorporated in Ireland.

(ii) It relates to the investments in Smartbox Group Belgium NV and Bellevue Denmark.

1.7 Conclusions

In this first chapter, we have presented the analysis of the firm, trying to unveil the major drivers behind its economic results. Through the analysis of its financial statements, we have discovered a peculiar revenues structure that we think deserves further investigation. Therefore, we will address this issue and carry on the investigation in the theoretical model presented in chapter three.

Our analysis now proceeds in the next chapter, with the review of the relevant literature.

LITERATURE REVIEW

2.1 Introduction

In this chapter we will analyse the most relevant literature in order to shed light on the current knowledge regarding the experience gift industry and the extended world of the platforms working as a bridge between providers of touristic offers and consumers.

In order to do this, this chapter will be composed of two parts.

In the first part, we will present the literature regarding the coupon industry, underlying the researches findings and the models so far developed.

In the second part, we will extend our research, presenting a sum of the major studies regarding other platforms, which, through their findings, could provide suggestions to the experience gift industry and help us deepening our analysis.

2.2 Literature on the experience gift industry

In this first section we will introduce the most relevant literature regarding the experience gift industry. The paragraph will present three models: an experience-gift-giving behavioural model, which examines the behavioural processes involved in selecting, exchanging and consuming gifts; a marketing approach model, which focuses on the marketing information system driving the experience enhancement and an information gathering model, which focuses on the information needs and potential information gaps.

Every model is presented by itself through its major characteristics and key findings.

2.2.1 Experience-gift-giving behavioural model

Clarke (2008) is the first author to propose a model of experience-gift-giving behaviour. The model examines the behavioural processes involved in selecting, exchanging and consuming gifts that are composed by experiences, underlying the differences that the choice of intangible gifts involves. The model is built from a marketing perspective and captures the notions for experience gift in temporal sequence. Its major characteristics and strength are:

- It is grounded in empirical evidence;
- It is flexible and able to adapt to different experience gift types;
- It supports different decision styles and recognises the importance of involving gift decisions beyond the traditional donor-recipient target;
- It is not bound to a consumption pattern, as both immediate and delayed consumption are supported;
- It involves single experience gift and experience gift series;
- It supports family and group influences;
- It involves the traditional service characteristics of intangibility, perishability, inseparability and variability.

The model is divided into three sections: decision-making process, exchange and post-exchange/consumption/postconsumption.

The decision-making process

In the gift-giving literature, occasion, donor and relationship, and their intertwined influences are often represented. The occasion is usually linked to either problem recognition or donor's realisation of the appropriateness of a gift, with the donor presenting both agnostic and altruistic characteristics.

Nonetheless, new emerging recipients' lifestyles and the existence of recipient with uncommon or unknown tastes encourages the usage of experience goods. Online information and alternatives evaluation are enabled by the intangibility of the experience: the Internet is used for gathering product details and examining product prices, features and value for money.

Many experience gifts are planned as a surprise, with extended decision-making unit (DMU) emerging and working as an accomplice, providing additional advice regarding the fit of the alternatives to the recipient's schedule, while also shielding the recipient from any knowledge of gift.

There are three types of experience gifts available:

- A straight commercial experience, which can be purchased from an experience, leisure, tourism or hospitality provider;
- A hand-crafted experience, which is specifically tailored to the recipient and is uniquely created by the donor;
- A modified commercial experience, which lays in the middle.

Planning, creation and purchase follow, while financial, time and personal effort are spent as donor's sacrifices, with the latter two likely to be evaluated by the recipient as above the former. Moreover, a group of donors may nominate a project manager to coordinate the activities.

There is a continuum that describes donors' behaviour: at one extreme, plotters can be found, while discussers lay at the other extreme. The maximization of the recipient's surprise is the goal, which is seen as particularly important for the plotters, as also underlined as the studies on the perfect gift (Belk, cited in Clarke 2008) On the contrary, the discussers openly plan with the recipient, in order to minimize risk both from the financial and the psychological points of view. The majority of the donors prefer to reveal some details to the receiver, thus validating the thesis of a continuum as the preferred decision style.

The exchange

The experience is donated at the point of the exchange, which does not automatically require the donor's attendance.

Experience gifts differ from the generic gift-giving theory (Hendry, cited in Clarke 2008) in wrapping strategies. Five possible strategies are available:

- Special card/envelope, which offers little disguise, being associated with money and vouchers;
- Box, which deflects the recipient's attention until the voucher is disclosed;

- Physical surrogate, which is a physical item directly associated with the experience;
- Russian doll, which is found when a physical surrogate is placed in a box, thus extending the revelation period;
- Tangible co-ordinates, which are material goods accessorizing the experience and providing physicality when the gift exchange is verbal.

Every wrapping strategy provides a tangible articulation for the intangible experience.

When the experience begins immediately upon exchange, a further option is a “follow me” strategy, which integrates immediate consumption with surprise and involves activities, location and co-participants.

Post-exchange/consumption/post-consumption

Experiences that will be consumed in the future often require some post-exchange planning, which may involve ongoing effort, not only from the donor’s side, but also from the recipient’s. Nonetheless, if the recipient perceives their own sacrifice as greater than donor’s, the gift appreciation and its meaning may be diminished. The costs associated with the participation and gift enjoyment may make the experience gift an unwanted burden.

Post-exchange anxiety and anticipation are common emotions for both donor and recipient. The donor may stimulate anticipation through a decoy strategy, giving the recipient hints of things to bring along, with most of the chosen items selected for camouflage. This strategy works just like the “follow me” strategy, building in a widespread element of surprise. Recipient sacrifice is also found in the instantaneous consumption of experience gifts. Each experience gift incorporates travel elements. Moreover, the experience gift could be unfolded in a series of repeated events. There are four types of consumer participation:

- Donor as participant, where the donor actively takes part in the activity, deepening the relationship bond, while also allowing the donor to retain some of the control;
- Donor as spectator, where the donor accompanies the recipient but does not take part in the experience, still retaining some control;
- Significant other(s), where the donor is not present during the experience consumption, but invited companions join the experience.

- Co-consumers, where the recipient enjoys the experience with previously unknown co-consumers, making this the riskiest type of participation.

Additional gifts donated during experience consumption are quite common.

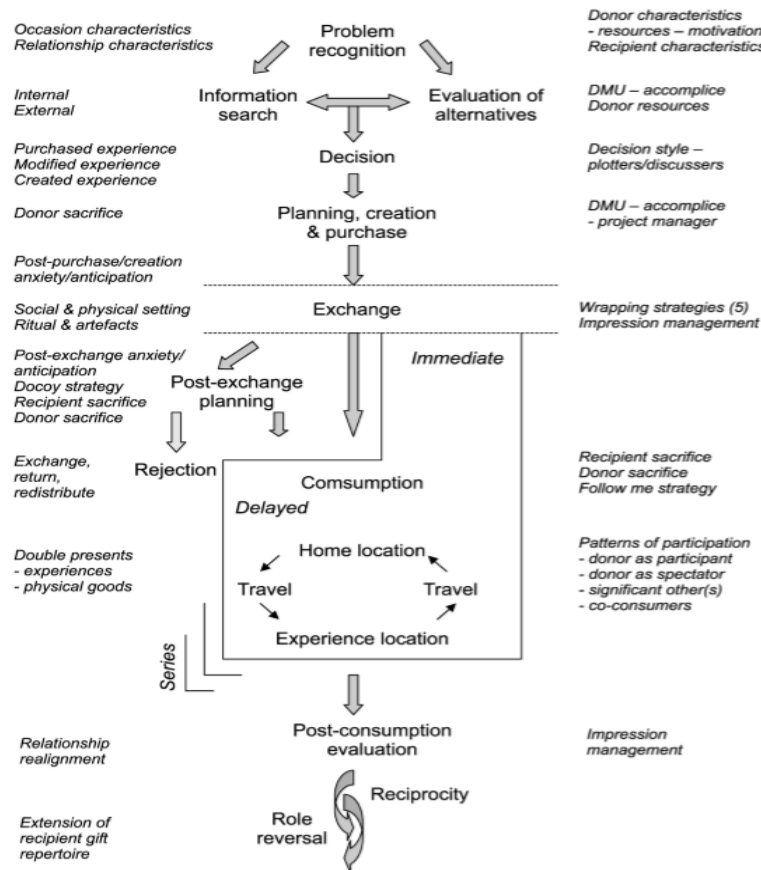


Figure 27: Experience-gift-giving behavioural model

Source: Clarke (2008)

2.2.2 Marketing approach model

Pencarelli and Forlani (2018) present a model on the experience gift sector following a marketing approach. The research, originating from the Wish Days case study, suggests that marketing policies adopted by experience gift companies are characterized by networking and emotional engagement.

The assumption underneath the model lays in the relations between supply and demand, which are seen in a theatrical perspective, with the producers acting as “directors of the experience”, appointed to make the experience as memorable as possible, in order to in-

crease the maximum chargeable price (Pine and Gilmore, cited in Pencarelli and Forlani 2018).

In the model, the focus is on the marketing information system, which drives constructing and enhancing process of the experience. The target group must be chosen keeping in mind how some people are more attracted by such experiences. For this reason, the usage of behavioural segmentation is appropriate. In particular, customers may be seeking:

- Experiences involving primarily their mind or experiences involving primarily their body;
- Experiences centred on the self or experiences based on sociality;
- Experiences entailing customers' active or passive roles.

The contents of the offer can be analysed through four points of view: contents of the experience, programme for the experience, the chosen subject for implementation and supporting services. As regards the contents of the experience, it is fundamental to focus on everything capable of pleasuring the customer, studying their “strategic experiential modules” (Schmitt, cited in Pencarelli and Forlani 2018), remembering how: sense is connected to sensory experiences, feel is connected to affective experiences, think is connected to learning experiences, act is connected to physical experience and relate is connected to social experiences.

A relevant risk is losing impact with the passing of time. It is possible to address this threat by:

- Frequently reviewing the experience range;
- Using varied experience catalogues;
- Offering unique experiences;
- Leveraging on surprise effects;
- Deepening customer participation;
- Adding useful service elements;
- Evolving toward the transformation business.

The aspects of who, how and where are closely interrelated. Experiences are either produced in a single location by internal staff or in multiple locations through a network of providers, which increases the overall complexity. Managing customer interaction is

fundamental, both regarding the interactions between customers and staff and the interactions among the consumers. The setting is another part of the what, which includes location and atmosphere where the experience is provided.

Another important factor in value creation is the cohesion of the process, the why of the model, which is represented by providers' positioning and company culture.

Finally, communication and value indicators must reduce the perceived customers' risk, which can be achieved through foretastes and social network word of mouth.

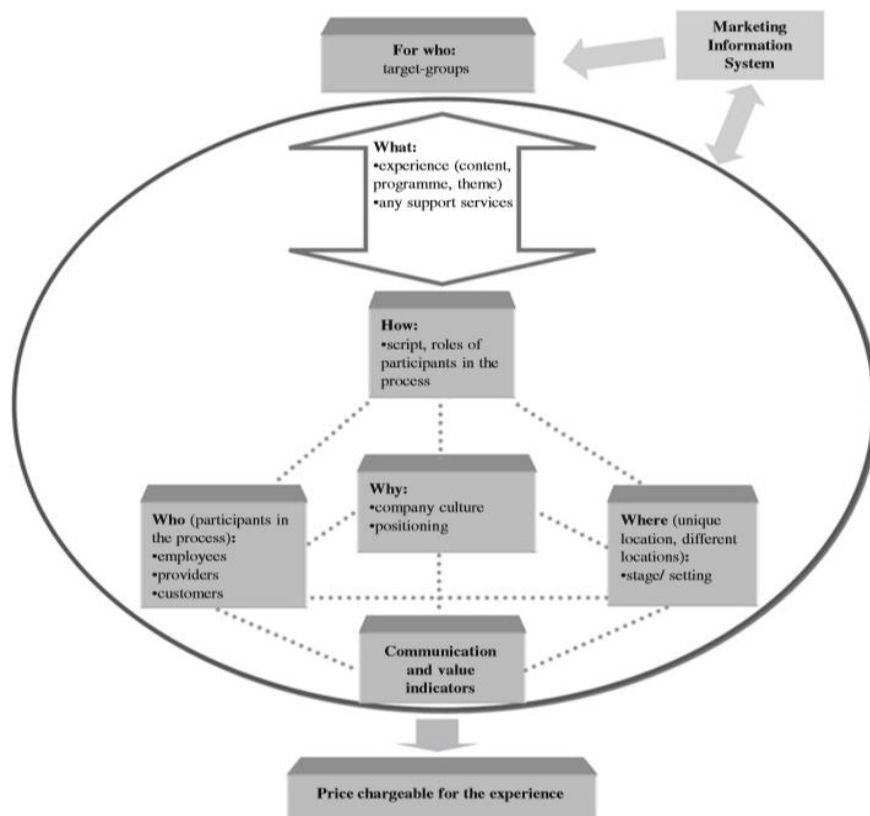


Figure 28: Marketing approach model

Source: Pencarelli and Forlani (2018)

2.2.3 Information gathering model

Baron and Mathieu (2010) investigate experience gift sellers presenting a model focusing on their information gathering process. In particular, they focus on their information needs and potential information gaps, discussing solutions tailored to reach information consistency and a greater Information System integration.

The authors highlight how the global processes have enhanced the difficulty in gathering information and further study two aspects related to this phenomenon: technical traceability and information retrieval, and the potential difficulties faced in driving the information back.

Information disruptions

It is through the gather of needed information that the platform can achieve operational management and enhance new product launching. For this reason, the problems linked to information lack must be solved. A classic type of information gap is linked to how the product is distributed through the intermediaries, who may not transfer all the information about the customers, as this piece of information is confidential. Information transfer may also be costly, both in terms of time and in terms of Information System investment, thus increasing the difficulties met. The voucher circulation structure permits to gather information either through the service providers or through the distributors. Nonetheless, the platform may not be aware of which retailer sold a specific box nor the customer who bought the box. Voucher codification and orders allotment per store may increase the information obtained, informing the platforms on where the box was purchased. Nonetheless, the purchaser remains unknown. Another type of information gap is linked to how the product is meant to be gifted: due to the product category, the final user is unknown.

Moreover, not only the Information System is built on a variety of actors, but also a wide number of each type of actor is available, with particular reference to the distribution stage. The box may be held in and circulate through six levels:

- From platform to distributor,
- From distributor to retailer,
- From retailer to purchaser,
- From purchaser to consumer,
- From consumer to service provider.

Moving to the next level conveys a large number of potential receivers. The difficulty lays in the multiple potential nodes and in the information chain partition, which can enhance the chances of losing track of a given box.

Technical traceability and information retrieval

The step linking purchaser and beneficiary is the most difficult step, as there is no technical link between them. Another quite challenging step is the link between a retailer and a particular purchaser. Even if obtaining information about the purchaser is technically feasible through the usage of store cards, this information is not easy to gather, as it relies on the retailer, who has little incentive to oblige. The tracing process itself is not easy at any stage, given the considerable number of nodes involved and the likelihood of having weak nodes in different stages during the distribution.

Information retrieval presents similar difficulties. If gathering information about which distributors receives a given box is simple, as the platform does this job itself, gathering information about where the distributor sends that particular box is more complicated, as it depends on the agreement. The distributor should keep track of this information and pass it to the platform. Obtaining information about the purchase itself is complicated, since the tracing is often incomplete and costly. Moreover, linking the purchaser with the beneficiary is complex. Finally, consumer information may be obtained through the service provider, who must collect the voucher and send them back to the platforms to get the payment.

Coping with information gaps

The concept of interoperability between systems and enterprises (Bauer et al., cited in Baron and Mathieu 2010) is applied to cope with potential information gaps to obtain information completeness and consistency.

It is possible to build a dedicated central system where actors connect or are connected. The main advantages lay in the flexibility thus obtained and in the easier ongoing management. Moreover, the information is naturally centralized.

System reliability requires information to flow easily into the system. Part of the information is easily obtained through the vouchers: they enable to retrieve information on where it was sold and consumed, the consumption date and the provider selected. Nonetheless, further information must be collected, such as a list of the alternative providers for each box and their characteristics, and the signature dates of the contracts with the

providers, necessary for determining renewal dates and new possibilities. Automatic search could also be organized to scrutinize competitors' offers and prices, in order to identify discrepancies and opportunities. Nonetheless, the most difficult piece of information to gather regards the relationship between purchaser and consumer: incentives must be created to stimulate these actors to contact the central system. These incentives could be promotional or compulsory: in the latter case the reservation procedure would require the beneficiary to get in touch to validate the reservation process, enabling the platform to gather information. This could also reduce platform dependency on the retailers' network. The most difficult actor to connect with is the purchaser, since they have very little incentive to get in touch with the centralized Information System. They can only be known through the information passed by the retailer and through the information disclosed by the beneficiary.

2.3 Literature on the providers

In this section we will introduce the most relevant literature regarding the firms providing the services. The paragraph will present the advantages that the platforms offer, the profitability thus obtained and its drivers, the sustainability of the campaigns and the major issues faced. Every topic is presented through a multi-firm approach, presenting the topic in the light of the results found in different studies regarding different firms. The firms involved are Groupon, its competitors, TripAdvisor and online travel agencies. Moreover, findings on the coupon industry as a whole are presented.

2.3.1 Advantages

The research regarding the advantages that platforms offer to the providers is vast. In the following section, we present some studies covering this topic, focusing our attention on the research regarding the advantages provided by Groupon, and OTAs and TripAdvisor.

Groupon

An important contribution in this literature stream is provided by Edelman, Jaffe and Kominers (2014), who focus their attention on the coupon platform Groupon and the advantages offered to its partners.

The study underlines how the usage of discount vouchers offer two major advantages:

- Price discrimination,
- Advertising effect.

Price discrimination refers to the possibility of offering different prices to different consumer segments. This strategy is profitable if the consumer segment which the coupons are offered to is more price-sensitive than the rest of the population. Therefore, the target customers are low-value consumers who currently are not part of the firm's customers.

Advertising effects refer to the exposure to new customers and the online "buzz" thus obtained. From this point of view, vouchers serve to inform consumers about the existence of the firms and the details of their offers. This strategy is profitable if the firm initially shows a sufficiently low recognition among future full-price customers. Therefore, the firms should target consumers who are similar to their existing customers, preferring high-value customers.

Given the differences found among the target customers, the authors wonder whether a single voucher service can be enough to satisfy these diverse firm objectives.

OTAs and TripAdvisor

Other important researches on the topic are provided by Raguseo, Neirotti, and Paolucci, (2017) who focus their study on the actors providing infomediation between end customers and providers. These actors are, on the one hand, review aggregators of travel-related contents, such as platforms like TripAdvisor and Trivago and, on the other hand, online travel agencies (OTAs) such as Booking.com and Expedia.

For the providers, it is fundamental to cooperate with these partners as OTAs and review aggregators, reducing customers' search costs and increasing competition among hotels, are becoming critical players. Therefore, online visibility on these platforms is no longer a choice but rather a competitive necessity.

2.3.2 Are the platforms profitable for the providers?

Another fundamental issue analysed regards whether the providers face substantial advantage in using the partners' firm network for spreading their offers. The answer is still not univocal, with different perspectives showing contrasting results. In the following section, we present the most relevant literature covering this topic.

Groupon

Edelman, Jaffe and Kominers (2014) underline how coupons are profitable if, through the discount, they manage to attract new customers. These customers must be attracted by the discount only at the beginning, while they must be capable of and interested in paying the full price in the future. Therefore, their willingness to pay must not only exceed the discounted price but also the full price. Moreover, the use of coupons is more likely to increase profitability, all else equal, if the customers who are using that service have valuations substantially lower than the other customers'.

On the contrary, long-term customers should not be involved, as the discounts would not increase the client base but only decrease profits.

Trying to balance between new customer acquisition and the risk of reducing profitability by including regular customers is underlined as the challenge the providers must face and win.

Moreover, Dholakia (2011a) focuses his research on small and medium-sized businesses, underlining how these businesses constitute the majority of the partners for social promotion sites. For this reason, the success of these sites depends, in the long run, on the repetition of the promotions on the platforms. The willingness to recommend the platform to other providers is also underlined as a key factor. From the providers' point of view, the viability of repeated promotions is possible only if the coupons can enhance the firms' profitability.

Therefore, the incidence in the providers' profitability is underlined as the key element determining the success of the collaboration.

OTAs and TripAdvisor

Raguseo, Neirotti and Paolucci (2017) underline how hotels should leverage on the online visibility obtained through the OTAs rather than focusing on enhancing their online reputation gained on online review platforms such as TripAdvisor. The reason behind this finding is linked to the higher bargaining power that the presence on multiple OTAs ensure. Therefore, the providers are able to enhance their sales revenue and their operating profitability if they manage to choose the right partners and platforms, which are underlined to be the OTAs.

2.3.3 Profitability conditions

A fundamental component of many studies is the research over the conditions impacting on profitability enhancement. In the following section we present the different perspectives proposed by the most relevant literature covering this field.

Groupon

Edelman, Jaffe and Kominers (2014) highlight five good practises that providers should implement in order to maximize their coupons profitability.

Firstly, firms should discourage or disallow customers from purchasing multiple discount vouchers. Unfortunately, as consumers often try to create multiple accounts to bypass this rule, firms face considerable practical obstacles in the implementation of this restriction (Friedman and Resnick, cited in Edelman, Jaffe and Kominers 2014).

Secondly, firms should try to adjust prices in order to accommodate the vouchers use. The ability of only increasing the prices faced by the vouchers users is stressed as fundamental for the measure success. The reason behind this need is to be found in the necessity of, on the one hand, still being able to attract non-discounted purchasers and, on the other hand, to increase the prices for accommodating the discounts. Without this shrewdness, regular customers would be less likely to be attracted by the product, while voucher users would be less likely to return. Nonetheless, this approach has been heavily criticized by Groupon's customers, who faced the application of a similar strategy in 2011 and perceived it as a bad deal (Arrington, cited in Edelman, Jaffe and Kominers 2014).

Thirdly, firms should measure how many voucher-users decide to return as regular customers. As mentioned before, the coupon use is considered successful if it attracts future regular customers, who do not need to be incentive through a coupon. Therefore, being able to measure the percentage of returning vouchers-users as regular customers is fundamental and a good proxy of the success rate of the campaign. Unfortunately, even though credit card systems are easily able to track this information, most providers still lack the ability to run such analyses. Unlike many smaller-sided competitors, Groupon is currently able to track its vouchers, and new and returning customers.

Finally, as mentioned above, a firm could seek price discrimination or advertising in using the coupons. Depending on the desired result, two more pieces of advice should be followed:

- If the provider is seeking price discrimination, it should accept multiple repeated visits from a low-value consumer, provided that the consumer's net payment exceeds the marginal cost on each visit.
- If the provider is seeking advertising, a single visit using the discount should be allowed, hopefully followed by multiple full-price visits. In this case, it is also possible to discount even below the marginal cost, as subsequent repayment is foreseen. This granted, it is fundamental to limit voucher use to one-per-customer.

Therefore, the long-term success of the campaign requires clarity on service function, targeting and pricing.

Dholakia (2011a) identifies three profitability drivers and three features impacting on those drivers and capable of increasing or decreasing their impact.

The drivers are:

- New customer acquisition efficacy, as the price promotions reduce customers' risk through the reduction of the investment made in the product trial. In this way both the trial of new products among current customers and the trial of existing products among new customers are eased, with the latter being the focus of many social promotions.
- Spending beyond the coupon value, as the ability to stimulate customers' spending is often fundamental in promotions and sought by the providers, as also underlined

by Smartbox CEO (Cogley, 2018). Many Groupon promotions are run at loss, with the goal of attracting customers and have them spend beyond the coupon value.

- Repeat full-price purchase, as a price promotion is considered successful only if, after the new customer attraction through a compelling offer, it is capable of convincing them to repeat the purchases, with these customers becoming relational customers. This third driver is the most convincing for the providers, which accept a loss, at the moment in which the coupon is redeemed, in the light of future repeated purchases and consequent future profits.

As regards the features impacting on the drivers, the scholar, through the analysis of the effects of Groupon promotion characteristics on profitability drivers, underlines the attributes that are capable of increasing or decreasing their effect.

The three features are the face value of the coupon, the depth of the price discount and the offer redemption duration.

The face value of the coupon represents the total value of the product that can be bought using the coupon. The higher the face value, the greater the absolute value of the discount. For this characteristic, the percentage value of the discount is not taken into consideration. A greater face value increases consumers' perception of savings (Chandon et al., cited in Dholakia 2011a) and reduces customers' financial risk of purchase (Conchar et al., cited in Dholakia 2011a), attracting new customers. Nonetheless, the higher the face value, the higher the chance to approach the amount that the customer would normally spend in a single store visit, making the customer less likely to spend beyond the face value while redeeming it. In this way, the coupon usage would not necessarily increase the customer's overall spending in the store (Russell and Petersen, cited in Dholakia 2011a).

The depth of price discount represents the percentage discount offered off the face value.

Even if some studies underline that a greater discount implies a loss for the firm on the promotion (Porter, cited in Dholakia 2011a), other studies considering consumers' behaviours stress the beneficial effect of deep discounts. In particular, discount depth provokes a reduction in price expectations (Kalwani and Kim, cited in Dholakia 2011a) and in reference prices (Greenleaf, cited in Dholakia 2011a), thus increasing the offer appeal, with the effect being more pronounced for new customers, as the risk they face in

trying the product is higher (Lewis, cited in Dholakia 2011a). On the contrary, existing customers may be put off by deep discounts. Moreover, deeper discounts lower customers' price perceptions (Alba et al., cited in Dholakia 2011a) and, unlike face value, this encourages the spending also beyond the face value, as consumers perceive the good deal as an excuse to spend more than they normally would (Hardie, cited in Dholakia 2011a).

The offer redemption duration represents the time span in which the consumer can redeem the purchased coupon before it expires. Some studies underline how a longer offer redemption duration implies that the unredeemed coupons can act as potential liabilities that must be honoured at any time customers wish (Inman and McAlister, cited in Dholakia 2011a) and may negatively affect full-price sales during that time (Krishna and Zhang, 1999). Nonetheless, other studies considering consumers' behaviours stress the beneficial effect of a longer offer redemption duration, as it acts as a risk-mitigating mechanism, thus increasing promotion attractiveness for new customers. Furthermore, firms with low market shares may find a longer offer redemption duration even more beneficial, as it relaxes redemption pressure and possibly even attract new customers (Krishna and Zhang, 1999).

OTAs and TripAdvisor

Raguseo, Neirotti, and Paolucci (2017) focus on which platforms hotels should invest in in order to maximize their online visibility and the positive effects on profitability that this operation is supposed to induce. The results underline how managing various agreements with OTAs is the best solution, as it grants the hotels the chance of reducing their vulnerability: through a multi-partner approach, the hotels gain contractual power over the unilateral renegotiation of the commission fees that the OTAs often require. Moreover, this approach could be helpful in overcoming the geographical focalization that characterizes some OTAs, pursuing a broader and more focused presence in the markets.

The study also underlines how the aggregate metrics provided by TripAdvisor, such as visibility and customer responsiveness, are not relevant in increasing current customers' willingness to pay nor in attracting new customers. Therefore, OTAs are found to be more compelling in causing volume growth and in increasing occupancy rates, as they

tend to penetrate the market more deeply and are able to adopt dynamic pricing methods. For this reason, hotels are strongly advised on investing their resources through a variety of OTAs, keeping in mind the demand conditions.

Furthermore, Raguseo, Neirotti and Paolucci (2017) highlight that hotels should elaborate new strategies on review aggregator websites, in order to drive higher profit margins leveraging on consumer review. Hotels should stimulate customers in writing stories about their stay, going beyond the simple review and leveraging curiosity and word of mouth, thus attracting customers with similar characteristics to the one that have expressed high satisfaction.

Finally, the authors suggest that the results could be extended to other companies and industries that meet a global demand for experience goods, if the distance and the lack of knowledge and skills can limit the customers' abilities of assessing quality. If these conditions apply, producers must have the capabilities that enable them to exploit the Internet in order to not only penetrate new segments, but also defend their share of value from specialized Internet distributors, which should become quality guardians.

The coupon industry

Some studies are focused on the whole coupon phenomenon, presenting findings that could be extended to the majority of the firms that adopt this instrument, regardless of the industry these firms belong to.

The study proposed by Krishna and Zhang (1999) belongs to this stream of the literature, studying the duration that a coupon should have in order to maximize its profitability.

The results show that expiration dates can be used as a strategic variable in order to change the composition of the buyers.

An increased coupon duration boasts coupon redemption both for the brand itself and for its closest competing brand, reducing sales of regular products for both brands. For this reason, a brand with a relatively higher share of preference should adopt short-duration coupons. Nonetheless, a brand with a relatively lower share of preference should adopt long-duration coupons, in order to decrease redemption pressure and to increase its market share at the expenses of its closest competitor's expenses. Moreover, a

short coupon duration is more profitable if the percentage of customers redeeming in expiration-date order is preponderant.

Finally, there is a significant distinction between the trade-off faced in increasing coupon duration and the trade-off faced in increasing the face value of the coupon. If in the latter a greater loss suffered leads to a higher number of customers gained, in the former the coupon value is unchanged as the amount of noncoupon buyers decreases.

This decrease does not happen because consumers who used to purchase at full price are now purchasing at a discounted price, but rather happens because customers who used to purchase at full price are now purchasing the closest competitor's product at a discounted price.

2.3.4 Repeated purchases and sustainability

Another crucial aspect is the research regarding the sustainability of the profitability enhancements thus far obtained. In this stream of the literature, scholars focus their attention on repeated purchases as a proxy to determine the long-term success of the promotions and therefore their sustainability.

Groupon

Dholakia (2011a) points up that the success of a promotion can be measured through two performance indicators:

- whether the firm is willing to run another social promotional offer in the future,
- whether the firm is willing to recommend a social promotion to another business.

Both these performance indicators are a consequence of the promotion's profitability. These results can also be seen as an extension of the customer satisfaction research, which has proved strong links between consumer's satisfaction, and loyalty and recommendation intentions (Oliver, cited in Dholakia 2011a).

The author underlines how a high percentage of business owners, according to the first performance indicator, did not conduct a successful campaign: 42% of the overall respondents would not run another promotion. The percentage is reduced if the business

that run profitable promotions only are taken into consideration, with one in five not fitting the success indicator. The reason behind these results is supposed to be found in the nature of the customers thus attracted: social promotion users are not the relational customers necessary for the company's longer-term success, but rather "bargain hunters", extremely price sensitive customers whose transactional orientation puts the sustainability of these campaigns at risk. Nonetheless, it is important to remember that not every customer will fit these behaviour predictions.

As regards Groupon's competitors, their results tend to be less successful, with a higher percentage of customers not respecting the performance indicators of success mentioned above. The author stresses that the way in which these promotions are structured should be changed, in order to reduce the value granted to consumers and to increase the value granted to the firms.

Moreover, some problems are linked to the whole industry structure, rather than to Groupon itself. In the industry, two customers out of five are hesitant to repeat the purchase, while the providers' pool is relatively limited, with densely interconnected social networks able to quickly spread news of dissatisfactory results. For these reasons, the industry overall strategy should be rearranged.

The coupon industry

A research published by Lewis (2006) studies the relationship between customers acquisition promotions and customers asset value. In order to conduct the analyses, data is gathered regarding newspaper and online grocery sales, both stimulated with and without the use of coupons.

As regards the newspaper buyers' analysis, the results suggest that customers acquired through coupon promotions show a lower customer asset value. In particular, customers acquired through a 35% discount show approximately a 10% lower expected lifetime value than regularly acquired customers.

Moreover, in the long run the initial uncertainty cannot fully explain consumer behaviour, as the lower customer asset value of repeat buyers acquired through discounts indicates that factors beyond the initial uncertainty are also relevant, even if less important. This is held true if all uncertainty is resolved by the end of the introductory subscription period.

As regards the online grocer buyers' analysis, the results suggest that customers acquired through coupon promotions show a lower customer asset value. In particular, customers acquired through a \$10 discount show an average \$475 expected lifetime value, while regularly acquired customers show an average \$875 expected lifetime value.

Both of the analyses indicate that the effects of acquisition coupons cannot be reduced to the differences in the initial repurchase rates. Nonetheless, the magnitude of the effects varies significantly across the two categories, as, in the newspaper subscriber data, a small negative relationship between the discount and customer life-time value is found, while in the online grocer customer data, a substantial negative relationship is shown. These results can be explained through the differences in the two providers' pricing policies.

2.3.5 Issues

A final compelling element characterizing many studies is the research regarding the issues faced by the providers using the coupons. In the following section, we present the most relevant literature covering this topic.

Groupon

Edelman, Jaffe and Kominers (2014) indicate that a high number of business owners end up regretting running voucher promotions as not only voucher users do not often return as full price paying customers, but also regular customers begin to use coupons, reducing their profitability (Jessie, cited in Edelman, Jaffe and Kominers 2014).

Moreover, as services grow, firms reduce their ability in providing price discrimination: as more consumers use the coupons, voucher-users start to resemble average consumers. As a consequence, as the voucher usage grows, voucher-users become less and less likely to be consumers with lower valuations. Therefore, firms must count more on advertising effects rather than on price discrimination.

In another study, Dholakia (2011b) analyses profitability across the whole coupon industry. The results underline some issues that must be addressed to preserve the industry profitability:

- Only the 35.9% of deal users spends beyond the deal value and only 19.9% returns for a full-price purchase;
- Less than a half of the firms are willing to run another daily deal;
- The 72.8% of the businesses indicate openness to running a campaign in a different daily deal site;
- Only the 35.9% of restaurants and bars and the 41.5% of salons and spas would run another promotion.

These findings suggest that, in the near future, daily deal sites will have to settle for a lower share of the revenues.

Moreover, it will be harder to find viable partners, especially since there is little differentiation across the daily deal sites, making standing out from the others a lot harder.

OTAs and TripAdvisor

Raguseo, Neirotti, and Paolucci (2017) stress how hotels today must capture at least part of the economic value created by the new Internet intermediation mechanisms. This challenge requires finding a balance between the need of preserving their profit margin and pursuing sales growth, which can be achieved through a higher online visibility. On the one hand, smaller hotels can increase their revenues and their occupancy rates through new complementary assets fundamental in customer relationship management that they could not have developed on their own. On the other hand, the revenues increase may not turn out into a higher net profitability, as, not only the use of infomedia-tion reduces their market power, but also the commission paid to the OTAs reduce their unit profit margin rate. For small hotels, this challenge requires improving their visibility on the Internet while, at the same time, leveraging it to attract more profitable customers, which requires a change in the marketing competencies held. In particular, Internet presence through a corporate web site is no longer sufficient, as new mechanisms to communicate the product value are needed.

2.4 Conclusions

In this second chapter, we have presented the most relevant regarding the experience gift industry and the extended world of the platforms working as a bridge between customers and providers. Through the literature, we have deepened our knowledge of the experience gift industry and found interesting results about related industries, which can help us developing our model.

Our analysis now proceeds in the next chapter, with the presentation of our model

THE MODEL

3.1 Introduction

In this final chapter we present our model, which derives from the analysis presented in the previous chapters. In particular, the model is based on the different revenue streams that we have identified through Smartbox Group Limited's and Smartbox Group Company Limited's financial statements analysis.

The chapter is made up by five sections:

- Presentation of the model basic form, which will allow us to present the model in the most effective way;
- Results presentation;
- Comparative statics of the results;
- Results analysis through a numerical example;
- Some generalization of the model, which will allow us to enhance the model ability of representing the reality of the company.

3.2 Basic model

We hypothesize three players: Smartbox, buyers and experience gifts users.

Smartbox offers only one product, whose quality is set by Smartbox once and for all at the initial period. This assumption will help simplifying our model in this basic version. Nonetheless, it is a strong hypothesis, unlikely to be applied in the market reality faced by the company, since, as time passes by, the firm may need to readjust the quality offered in order to increase its customer base or to increase its margin. Later in this chap-

ter, we will relax this assumption and allow Smartbox to modify the quality of its product over time.

We denote the level of quality by q , which can be thought of as the fraction of high-quality hotels over the total amount of the hotels in the box, while $1 - q$ is the fraction of low-quality hotels. Therefore, $0 \leq q \leq 1$.

In every period except the first, period 0, buyers have perfect information regarding quality and decide if they wish to buy the product or not basing on whether the product quality meets their standards. If the buyers decide to buy the product, they hand it as a gift to the users.

Similarly, except in period 0, users have perfect information regarding quality and decide if they wish to use the product or not basing on whether the product quality meets their standards.

Users can either be satisfied or dissatisfied with the gift received:

- Satisfied potential users become actual users;
- Dissatisfied potential users become non-users.

Both buyers and users enjoy perfect information on quality level because in the previous period reviews were written and published online, which are available to them freely.

Buyers and users belong to different segments and, in the same period, an individual can only either be a buyer or a user or none of them.

The same scheme is repeated in every period. In each period:

- n potential buyers and n potential users are casually drawn within a population made up of N individuals.
- Potential buyers decide whether or not they wish to buy the box. There are four types of potential buyers:
 - Individuals who have never been a potential user in any of the previous periods;
 - Individuals who have been potential users in a previous period, have decided to use the experience gift and have been satisfied with the box after the usage;
 - Individuals who have been potential users in a previous period, have decided to use the experience gift and have been dissatisfied with the box after the usage;

- Individuals who have been potential users in a previous period and have decided not to use the experience gift.

The former three categories face this payoff function: $\pi_B = q - \bar{q}$. q represents the quality as mentioned above, while \bar{q} is an exogenous parameter, representing the quality that the buyers need to find in order to wish to buy the product.

We do not include the price in the payoff function, as we imagine that the buyers have already set aside an amount of money to buy a gift and therefore their only wish is to find a good quality gift.

In the case in which the potential buyer is an individual who have been a potential user in a previous period and have decided either not to use the experience gift or have been dissatisfied after the usage, the potential buyer will not buy the product, as it is considered unfit to their standard.

- Potential users face this utility function: $\pi_U = q - c$. q represents the quality as mentioned above, while c is an exogenous parameter, representing the costs associated with the usage of the package, such as transportation expenses to reach the holiday structure. Potential users decide to use the box only if the quality is higher than the costs they endure to enjoy such quality.

There are two types of potential users:

- α of the potential users face $\pi_U = q - c_H$, where c_H is a high cost of usage;
- $(1 - \alpha)$ of the potential users face $\pi_U = q - c_L$, where c_L is a low cost of usage.

We set $0 < \alpha < 1$, as α represents a fraction of the total potential users and $c_H > c_L$.

In the first period, $T = 0$, Smartbox enters the market. There are no previous periods of activity, therefore no reviews can be used to check the quality before buying or using the product. For this reason, all the potential buyers become actual buyers and all the potential users become actual users. Depending on the costs and the quality they face, some or all the users can be satisfied or dissatisfied. In this particular period only, the satisfaction can only be measured after the usage.

Smartbox maximizes its payoff through the choice of q . In this simplified version of the model, we hypothesize Smartbox can only choose q at $T = 0$. Smartbox faces this payoff function: $\pi_S = p\tilde{b}_t - t\tilde{u}_t$, where p is the price of the box, t is the commission paid to the service provider, b_t is the number of boxes bought and, therefore, the number of the actual buyers and u_t is the number of boxes used and, therefore, the number of actual users. The denomination \tilde{b}_t and \tilde{u}_t captures the expected values of b_t and u_t . Moreover, $\tilde{u}_t \leq \tilde{b}_t$, as a box can be used only if it has been bought.

Smartbox's profit is $\pi_S = p\tilde{b}_t - t\tilde{u}_t$ in each period. Smartbox's total profit is the sum of its profits in each period, discounted by the discount factor δ .

Smartbox faces a fundamental trade-off:

- On the one hand, it has interest in offering a low quality, in order to increase the spread between the boxes bought and the boxes used, as the former conveys a higher profit, as showed in the first chapter;
- On the other hand, it has interest in maximizing the boxes bought.

Smartbox's profits can be rewritten as: $\pi_S = (p - t)\tilde{b}_t + t(\tilde{b}_t - \tilde{u}_t)$.

Increasing $\tilde{b}_t - \tilde{u}_t$, the number of the non-users, in this period implies increasing the third category of potential buyers mentioned above, which will not buy the product and may put at risk the company's revenues in the future. As time passes by, the probability that a dissatisfied non-user is drawn as a potential buyer increases.

3.2.1 The composition of N and the trade-off

In this section, we analyse the composition of N in the various periods, with particular focus on how the profit maximization leads the company to decrease the set of potential buyers who are willing to become actual buyers.

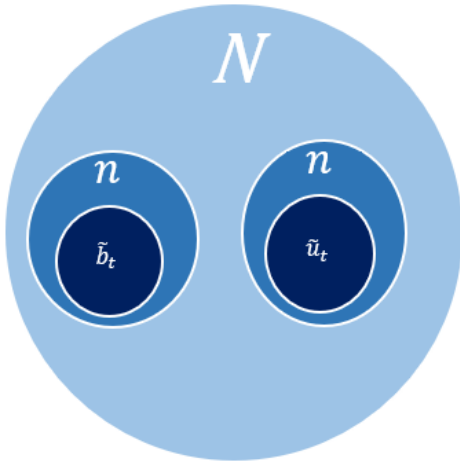


Figure 29: Relationship between N , n , \tilde{b}_t and \tilde{u}_t .

Source: Personal elaboration

In order to further simplify our model, we hypothesize a temporal horizon with a definite number of periods. In particular, we consider a three-period horizon: $T = 0$, $T = 1$ and $T = 2$. Given the limited scope considered, the discount factor δ is not considered necessary and, therefore, it is not included.

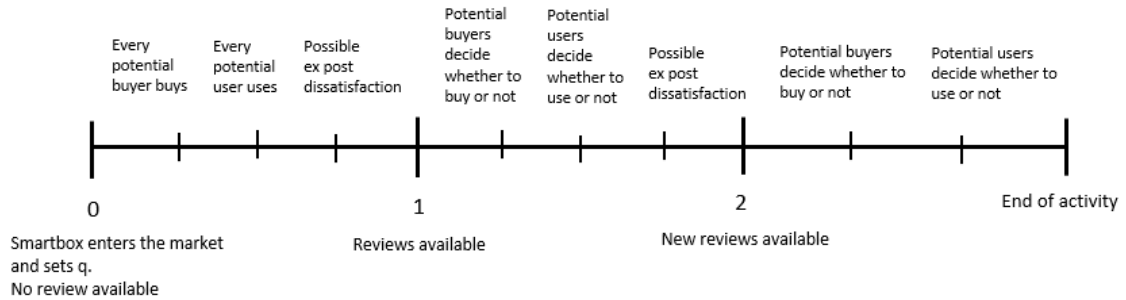


Figure 30: Simplified time horizon in the base model

Source: Personal elaboration

Notice that, whenever potential buyers/users are drawn, these draws are made without replacement. Therefore, in principle we should use the hypergeometric distribution. However, to simplify calculations, we will approximate the hypergeometric distribution with a binomial one. Such an approximation is the more accurate, the lower the number of draws (n) relative to the dimension of the population (N). As a consequence, the ex-

pected number of "successes" out of n draws will be simply equal to the product of n and the proportion of successes in the population.

In $T = 0$ all the potential buyers become actual buyers. Therefore, $b_0 = n$.

Moreover, all the potential users become actual users. Therefore, $u_0 = n$.

Furthermore, a percentage of the gift receivers may be dissatisfied with the gift. This amount is represented by \tilde{d}_0 .

n is randomly drawn from N , as set in our initial hypothesis. Consequently, potential buyers who may become actual buyers are drawn from N .

In $T = 1$, the population includes:

- Those users who were let down in the previous period. Since the expected number of dissatisfied-period-0 users is \tilde{d}_0 , the expected proportion of these individuals in the population is $\frac{\tilde{d}_0}{N}$;
- The remaining individuals who were not let down in the previous period, either because they did use the gift and were satisfied with it or simply because they did not receive any. The expected proportion of these individuals in the population is simply: $1 - \frac{\tilde{d}_0}{N}$.

Only a potential buyer drawn from the latter category would become an actual buyer. Therefore, the expected number of actual buyers in period 1 is equal to the fraction of the population who was not let down in the previous period multiplied by the number of individuals extracted in this period: $n \left(1 - \frac{\tilde{d}_0}{N}\right)$

Moreover, a percentage of the gift receivers may be dissatisfied with the gift in this period as well. This amount is represented by \tilde{d}_1 .

In $T = 2$, \tilde{b}_2 is drawn from a set which includes:

- The percentage of the population let down in the previous periods, which counts dissatisfied users in period 0 and in period 1, net of the probability of extracting the same individual in both scenarios: $\frac{\tilde{d}_0 + \tilde{d}_1 - n \frac{\tilde{d}_0}{N}}{N}$;
- The percentage of the population not let down in the previous periods: $1 - \frac{\tilde{d}_0 + \tilde{d}_1 - n \frac{\tilde{d}_0}{N}}{N}$.

Only a potential buyer drawn from the latter category would become an actual buyer. Therefore, the expected number of actual buyers in period 2 is equal to $n \left(1 - \frac{\tilde{d}_0 + \tilde{d}_1 - n \frac{\tilde{d}_0}{N}}{N} \right)$.

Moreover, a percentage of the gift receivers may be dissatisfied with the gift in this period as well. This amount is represented by \tilde{d}_2 .

Overtime, potential buyers that were dissatisfied in the previous stages decrease the set from which potential buyer interested in becoming actual buyers can be drawn.

This relationship captures the mechanism by which the set from which potential buyers who are interested in becoming actual buyers is reduced over time if the company also relies on dissatisfied non-users to increase its profit.

3.3 Results

We will now proceed our analysis identifying the best strategy Smartbox could adopt in order to maximize its profit. Given how Smartbox plays setting its optimum level of quality, we will analyse Smartbox's payoff in each period and determine the level of q which maximizes Smartbox's overall profits.

Smartbox's profits in each stage depends on:

-
- The expected number of potential buyers n that decide to buy the product and become actual buyers \tilde{b}_t ;
 - The expected number of potential users n that decide to use the product and become actual users \tilde{u}_t ;

The expected number dissatisfied users in the previous periods \tilde{d}_{t-1} .

Potential buyers' choice depends on their payoff function: $\pi_B = q - \bar{q}$:

- If $q \geq \bar{q} \rightarrow \pi_B \geq 0$, therefore all the potential buyers decide to buy the product.

Consequently, if there are no dissatisfied buyers from the previous periods, $\tilde{b}_t = n$.

In this case, Smartbox payoff function would become: $\pi_S = pb_t - tu_t$.

- If $q < \bar{q} \rightarrow \pi_B < 0$, therefore no potential buyers decide to buy the product. Consequently, $\tilde{b}_t = 0$.

In this case, Smartbox payoff function would become: $\pi_S = 0$.

The first scenario grants a higher payoff than the second, therefore Smartbox will set its quality level as $q \geq \bar{q}$.

Potential users' choice depends on their payoff function: $\pi_U = q - c$:

- α users face the payoff function $\pi_U = q - c_H$, who are willing to use the product if $q \geq c_H$, which implies $\pi_U \geq 0$;
- $(1 - \alpha)$ users face the payoff function $\pi_U = q - c_L$, who are willing to use the product if $q \geq c_L$, which implies $\pi_U \geq 0$.

The determination of the number of potential users who become actual users depends on the relationship between q , c_H and c_L .

Moreover, as shown above, the number of dissatisfied users in the previous periods impact on the set from which potential buyers who are willing to become actual buyers can be drawn. Therefore, the higher the number of dissatisfied users in the previous periods,

the lower the expected number of buyers in the current period. The determination of the number of dissatisfied users depends on the relationship between q , c_H and c_L .

Smartbox decides to enter the market in $T = 0$, with n potential buyers and n potential users drawn. As there are no previous periods of activity, neither the potential buyers nor the potential users can rely on online reviews to deduct the level of quality q . Every potential buyer decides to buy the product anyway and every potential user decides to use it. Therefore, $b_0 = n$ and $u_0 = n$.

Some of the period-0 users may end up being disappointed with the product: these are the users for whom the actual quality of the product is not worth paying the transportation or usage cost. This percentage results in:

- 0, if all the users face a quality higher than their standard. This condition is met if $q \geq c_H$;
- α , if some of the users face a quality higher than their standard. This condition is met if $c_L \leq q < c_H$;
- 1, if all the users face a quality lower than their standard. This condition is met if $q < c_L$.

At this stage, the amount of the expected dissatisfied users is \tilde{d}_0 .

Smartbox' profit in this period is: $\pi_S = pb_0 - tu_0$, which can be rewritten as $\pi_S = pn - tn$.

Simplifying: $\pi_{S_0} = (p - t)n$.

In $T = 1$, the n potential buyers and the n potential users drawn from the population can count on the online reviews left by former users to deduct the level of quality q . These potential buyers and potential users have perfect information on q .

Smartbox's profits at this stage depends on:

-
- The expected number of actual buyers \tilde{b}_1 , which can be rewritten as a function of the expected number dissatisfied users in the previous period \tilde{d}_0 : $\tilde{b}_1 = n \left(1 - \frac{\tilde{d}_0}{N}\right)$.
 - The expected number of actual users \tilde{u}_1 , which can be rewritten as a percentage of \tilde{b}_1 , which changes according to the level of q chosen.

At this stage, the amount of the expected dissatisfied users is \tilde{d}_1 .

Smartbox' profit in this period is: $\pi_{S_1} = p\tilde{b}_1 - t\tilde{u}_1$.

Similarly to the previous period, in $T = 2$, the n potential buyers and the n potential users drawn can count on the online reviews to deduct q . These potential buyers and potential users have perfect information on q .

Smartbox's profits at this stage depends on:

- The expected number of actual buyers \tilde{b}_2 , which can be rewritten as a function of the expected number dissatisfied users in the previous periods \tilde{d}_0 and \tilde{d}_1 :

$$\tilde{b}_2 = n \left(1 - \frac{\tilde{d}_0 + \tilde{d}_1 - n \frac{\tilde{d}_0}{N}}{N}\right).$$

- The expected number of actual users \tilde{u}_2 , which can be rewritten as a percentage of \tilde{b}_2 , which changes according to the level of q chosen.

Smartbox' profit in this period is: $\pi_{S_2} = p\tilde{b}_2 - t\tilde{u}_2$.

3.3.1 Analysis

Remembering how $c_H > c_L$, we now focus on the relationships between q , c_H and c_L , in order to determine Smartbox's payoff in each scenario and, consequently, being able to determine which the best strategy for Smartbox is.

$$q \geq c_H$$

This scenario implies that the company will set a high quality, in order to attract as many customers as possible, preferring a higher customer base to a higher marginality.

In $T = 0$, Smartbox's profit is determined by:

- Buyers: $b_0 = n$, as set in our hypothesis;
- Users: $u_0 = n$, as set in our hypothesis.

Moreover, expected dissatisfied users are: $\tilde{d}_0 = 0$.

Smartbox' profit in this period is: $\pi_{S_0} = pn - tn$, which can be simplified as:

$$\pi_{S_0} = (p - t)n.$$

In $T = 1$, if $q \geq c_H \rightarrow \pi_U \geq 0$ for every potential user, regardless of their cost structure. Therefore, all the potential users decide to use the product.

Consequently:

- Buyers: $b_1 = n$;
- Users: $u_1 = n$.

Moreover, expected dissatisfied users are: $\tilde{d}_1 = 0$.

Smartbox' profit in this period is: $\pi_{S_1} = pn - tn$, which can be simplified as:

$$\pi_{S_1} = (p - t)n.$$

In $T = 2$, if $q \geq c_H \rightarrow \pi_U \geq 0$ for every potential user, regardless of their cost structure. Therefore, all the potential users decide to use the product.

Consequently:

- Buyers: $b_2 = n$;

- Users: $u_2 = n$.

Smartbox' profit in this period is: $\pi_{S_2} = pn - tn$, which can be simplified as:

$$\pi_{S_2} = (p - t)n.$$

Smartbox's total profit is represented by: $\pi_S = \pi_{S_0} + \pi_{S_1} + \pi_{S_2}$.

Therefore: $\pi_S = (p - t)n + (p - t)n + (p - t)n$, which can be summed up as:

$$\pi_S = 3(p - t)n.$$

$$c_L \leq q < c_H$$

This scenario implies that the company will set a medium quality, in order to balance the need of attracting as many customers as possible with the need of enhancing its marginality.

In $T = 0$, Smartbox's profit is determined by:

- Buyers: $b_0 = n$, as set in our hypothesis;
- Users: $u_0 = n$, as set in our hypothesis.

Moreover, given the level of quality chosen, α users face $\pi_U < 0$, and are dissatisfied after the usage. Expected dissatisfied users are: $\tilde{d}_0 = \alpha n$.

Smartbox' profit in this period is: $\pi_{S_0} = pn - tn$, which can be simplified as:

$$\pi_{S_0} = (p - t)n.$$

In $T = 1$, potential users are divided into two categories:

- α users face $\pi_U < 0$, therefore these potential users decide not to use the product;
- $(1 - \alpha)$ users face $\pi_U \geq 0$, therefore these potential users decide to use the product.

Smartbox's profit is determined by:

- Buyers: $\tilde{b}_1 = n \left(1 - \frac{\alpha n}{N}\right)$;
- Users: $\tilde{u}_1 = (1 - \alpha)\tilde{b}_1$, which can be rewritten as:

$$\tilde{u}_1 = n(1 - \alpha) \left(1 - \frac{\alpha n}{N}\right).$$

Moreover, expected dissatisfied users are: $\tilde{d}_1 = \tilde{b}_1 - \tilde{u}_1$, which can be rewritten as:

$$\tilde{d}_1 = \alpha n \left(1 - \frac{\alpha n}{N}\right).$$

Smartbox' profit in this period is: $\pi_{S_1} = pn \left(1 - \frac{\alpha n}{N}\right) - tn(1 - \alpha) \left(1 - \frac{\alpha n}{N}\right)$, which can

be simplified as: $\pi_{S_1} = n \left(1 - \frac{\alpha n}{N}\right) [p - t(1 - \alpha)]$.

In $T = 2$, Smartbox's profit is determined by:

- Buyers: $\tilde{b}_2 = n \left(1 - \frac{\alpha n + \alpha n \left(1 - \frac{\alpha n}{N}\right) - n \frac{\alpha n}{N}}{N}\right)$, which can be rewritten as:

$$\tilde{b}_2 = n \left(1 - \frac{2\alpha n}{N} + \frac{\alpha^2 n^2}{N^2} + \frac{\alpha n^2}{N^2}\right).$$

- Users: $\tilde{u}_2 = (1 - \alpha)\tilde{b}_2$, which can be rewritten as:

$$\tilde{u}_2 = n(1 - \alpha) \left(1 - \frac{\alpha n + \alpha n \left(1 - \frac{\alpha n}{N}\right) - n \frac{\alpha n}{N}}{N}\right). \text{ It can further be simplified as:}$$

$$\tilde{u}_2 = n(1 - \alpha) \left(1 - \frac{2\alpha n}{N} + \frac{\alpha^2 n^2}{N^2} + \frac{\alpha n^2}{N^2}\right).$$

Smartbox' profit in this period is:

$\pi_{S_2} = pn \left(1 - \frac{2\alpha n}{N} + \frac{\alpha^2 n^2}{N^2} + \frac{\alpha n^2}{N^2}\right) - tn(1 - \alpha) \left(1 - \frac{2\alpha n}{N} + \frac{\alpha^2 n^2}{N^2} + \frac{\alpha n^2}{N^2}\right)$, which can be

simplified as: $\pi_{S_2} = n \left(1 - \frac{2\alpha n}{N} + \frac{\alpha^2 n^2}{N^2} + \frac{\alpha n^2}{N^2}\right) [p - t(1 - \alpha)]$.

Smartbox's total profit is represented by: $\pi_S = \pi_{S_0} + \pi_{S_1} + \pi_{S_2}$.

Therefore:

$$\pi_S = (p - t)n + n \left(1 - \frac{\alpha n}{N}\right) [p - t(1 - \alpha)] + n \left(1 - \frac{2\alpha n}{N} + \frac{\alpha^2 n^2}{N^2} + \frac{\alpha n^2}{N^2}\right) [p - t(1 - \alpha)].$$

$$q < c_L$$

This scenario implies that the company will set a low quality, in order to maximise its marginality, even if this choice implies a smaller and smaller customer base.

In $T = 0$, Smartbox's profit is determined by:

- Buyers: $b_0 = n$, as set in our hypothesis;
- Users: $u_0 = n$, as set in our hypothesis.

Moreover, all of the users face $\pi_U < 0$. Therefore, expected dissatisfied users are:

$$\tilde{d}_0 = n.$$

Smartbox' profit in this period is: $\pi_{S_0} = pn - tn$, which can be simplified as:

$$\pi_{S_0} = (p - t)n.$$

In $T = 1$, if $q < c_L \rightarrow \pi_U < 0$ for every potential user, regardless of their cost structure. Therefore, no potential user decides to use the product.

Consequently, Smartbox's profit is determined by:

- Buyers: $\tilde{b}_1 = n \left(1 - \frac{n}{N}\right)$;
- Users: $\tilde{u}_1 = 0$.

Expected dissatisfied users are: $\tilde{d}_1 = \tilde{b}_1 - \tilde{u}_1$, which can be rewritten as:

$$\tilde{d}_1 = n \left(1 - \frac{n}{N}\right).$$

Smartbox's profits is represented by: $\pi_{S_1} = pn \left(1 - \frac{n}{N}\right) - t0$, which can be rewritten as:

$$\pi_{S_1} = pn \left(1 - \frac{n}{N}\right).$$

In $T = 2$, Smartbox's profit is determined by:

- Buyers: $\tilde{b}_2 = n \left(1 - \frac{n+n\left(1-\frac{n}{N}\right)-n\frac{n}{N}}{N}\right)$, which can be rewritten as:

$$\tilde{b}_2 = n \left(1 - \frac{2n}{N} + \frac{2n^2}{N^2}\right).$$

- Users: $\tilde{u}_2 = 0$.

Smartbox' profit in this period is:

$$\pi_{S_2} = pn \left(1 - \frac{2n}{N} + \frac{2n^2}{N^2}\right) - t0, \text{ which can be simplified as: } \pi_{S_2} = pn \left(1 - \frac{2n}{N} + \frac{2n^2}{N^2}\right).$$

Smartbox's total profit is represented by: $\pi_S = \pi_{S_0} + \pi_{S_1} + \pi_{S_2}$.

$$\text{Therefore: } \pi_S = (p - t)n + pn \left(1 - \frac{n}{N}\right) + pn \left(1 - \frac{2n}{N} + \frac{2n^2}{N^2}\right).$$

3.4 Comparative statics

In this section we will compare Smartbox's payoff in the three previous scenarios, in order to determine the level of q selected by the company.

$c_L \leq q < c_H$ compared with $q \geq c_H$

Comparing $c_L \leq q < c_H$ with $q \geq c_H$ requires comparing the payoffs obtained in both scenarios. In order to carry out the analysis, we hypothesize that the payoff obtained setting $c_L \leq q < c_H$ is higher than the payoff obtained setting $q \geq c_H$. Therefore:

$$(p - t)n + n \left(1 - \frac{\alpha n}{N}\right) [p - t(1 - \alpha)] + n \left(1 - \frac{2\alpha n}{N} + \frac{\alpha^2 n^2}{N^2} + \frac{\alpha n^2}{N^2}\right) [p - t(1 - \alpha)] > (p - t)n + (p - t)n + (p - t)n$$

Keeping in mind how $n > 0$, as n represents a fraction of the population amount, we can rewrite the relationship as: $(p - t + t\alpha) \left(2 - \frac{3\alpha n}{N} + \frac{\alpha^2 n^2}{N^2} + \frac{\alpha n^2}{N^2}\right) - 2p + 2t > 0$.

To ease the calculation, we can rewrite the relationship as:

$$-\frac{3\alpha np}{N} + \frac{\alpha^2 n^2 p}{N^2} + \frac{\alpha n^2 p}{N^2} + \frac{3\alpha nt}{N} - \frac{\alpha n^2 t}{N^2} + 2t\alpha - \frac{3\alpha^2 nt}{N} + \frac{\alpha^3 n^2 t}{N^2} > 0.$$

Keeping in mind how $N > 0$, as N represents the population amount, we can rewrite the relationship as:

$$p(-3\alpha nN + \alpha^2 n^2 + \alpha n^2) - t(-3\alpha nN + \alpha n^2 - 2\alpha N^2 + 3\alpha^2 nN - \alpha^3 n^2) > 0.$$

Keeping in mind how $\alpha > 0$, as set in our hypothesis, the relationship can further be rewritten as: $pn(-3N + \alpha n + n) > t[-2N^2 - 3nN(1 - \alpha) + n^2(1 - \alpha^2)]$.

Finally, this can be simplified as:

$$pn[n(1 + \alpha) - 3N] > t[n^2(1 - \alpha^2) - 3nN(1 - \alpha) - 2N^2].$$

We would like to isolate the relationship $\frac{p}{t}$. In order to do this, we must determine:

- If $n[n(1 + \alpha) - 3N] > 0$;
- If $t > 0$.

The latter is simple, as t represents the providers' commission and is therefore positive by hypothesis.

The former requires a further check. As shown above, $n > 0$.

Therefore: $n(1 + \alpha) > 3N$, which implies: $N < n \frac{1+\alpha}{3}$.

As set in our hypothesis, $0 < \alpha < 1$, which requires $\frac{1}{3} < \frac{1+\alpha}{3} < \frac{2}{3}$.

Since n is a fraction of N , $N < n \frac{1+\alpha}{3}$ is impossible and, therefore:

$$n[n(1 + \alpha) - 3N] < 0.$$

Therefore, we can write the relationship as: $\frac{p}{t} < \frac{n^2(1-\alpha^2)-3nN(1-\alpha)-2N^2}{n[n(1+\alpha)-3N]}$.

Finally, it is also interesting to analyse the relationship $\frac{t}{p}$, which is represented as:

$$\frac{t}{p} > \frac{n[n(1+\alpha)-3N]}{n^2(1-\alpha^2)-3nN(1-\alpha)-2N^2}.$$

The last relationship underlines the condition that must be respected for $c_L \leq q < c_H$ to be a more convenient strategy for Smartbox than $q \geq c_H$.

$c_L \leq q < c_H$ compared with $q < c_L$

We now proceed with the comparison of $c_L \leq q < c_H$ with $q < c_L$.

Comparing $c_L \leq q < c_H$ with $q < c_L$ requires comparing the payoffs obtained in both scenarios. In order to carry out the analysis, we hypothesize that the payoff obtained setting $c_L \leq q < c_H$ is higher than the payoff obtained setting $q < c_L$. Therefore:

$$\begin{aligned} & (p - t)n + n \left(1 - \frac{\alpha n}{N}\right) [p - t(1 - \alpha)] + n \left(1 - \frac{2\alpha n}{N} + \frac{\alpha^2 n^2}{N^2} + \frac{\alpha n^2}{N^2}\right) [p - t(1 - \alpha)] \\ & > (p - t)n + pn \left(1 - \frac{n}{N}\right) + pn \left(1 - \frac{2n}{N} + \frac{2n^2}{N^2}\right). \end{aligned}$$

Keeping in mind how $n > 0$, as n represents a fraction of the population amount, we can rewrite the relationship as:

$$(p - t + t\alpha) \left(2 - \frac{3\alpha n}{N} + \frac{\alpha^2 n^2}{N^2} + \frac{\alpha n^2}{N^2}\right) > p \left(2 - \frac{3n}{N} + \frac{2n^2}{N^2}\right).$$

To ease the calculation, we can rewrite the relationship as:

$$-\frac{3\alpha np}{N} + \frac{\alpha^2 n^2 p}{N^2} + \frac{\alpha n^2 p}{N^2} + \frac{3\alpha np}{N} - \frac{2n^2 p}{N^2} > 2t - \frac{3\alpha nt}{N} + \frac{\alpha n^2 t}{N^2} - 2t\alpha + \frac{3\alpha^2 nt}{N} - \frac{\alpha^3 n^2 t}{N^2}.$$

Keeping in mind how $N > 0$, as N represents the population amount, we can rewrite the relationship as:

$$p(-3\alpha nN + \alpha^2 n^2 + \alpha n^2 + 3nN - 2n^2) > t(2N^2 - 3\alpha nN + \alpha n^2 - 2\alpha N^2 + 3\alpha^2 nN - \alpha^3 n^2)$$

Finally, this can be simplified as:

$$pn[\alpha n(1 + \alpha) + 3N(1 - \alpha) - 2n] > t(1 - \alpha)[2N^2 - 3\alpha nN + \alpha n^2(1 + \alpha)]$$

We would like to isolate the relationship $\frac{p}{t}$. In order to do this, we must determine:

- If $n[\alpha n(1 + \alpha) + 3N(1 - \alpha) - 2n] > 0$;
- If $t > 0$.

The latter is simple, as t represents the providers' commission and is therefore positive by hypothesis.

The former requires a further check. As shown above, $n > 0$.

Therefore: $3N(1 - \alpha) > 2n - \alpha n(1 + \alpha)$, which implies: $N > n \frac{2 - \alpha(1 + \alpha)}{3(1 - \alpha)}$.

As set in our hypothesis, $0 < \alpha < 1$, which requires $\frac{2 - \alpha(1 + \alpha)}{3(1 - \alpha)} < \frac{2}{3}$.

Since n is a fraction of N , $N > n \frac{2 - \alpha(1 + \alpha)}{3(1 - \alpha)}$ is always verified and, therefore:

$$n[\alpha n(1 + \alpha) + 3N(1 - \alpha) - 2n] > 0.$$

Therefore, we can write the relationship as: $\frac{p}{t} > \frac{(1 - \alpha)[2N^2 - 3\alpha nN + \alpha n^2(1 + \alpha)]}{n[\alpha n(1 + \alpha) + 3N(1 - \alpha) - 2n]}$.

Finally, it is also interesting to analyse the relationship $\frac{t}{p}$, which is represented as:

$$\frac{t}{p} < \frac{n[\alpha n(1+\alpha)+3N(1-\alpha)-2n]}{(1-\alpha)[2N^2-3\alpha nN+\alpha n^2(1+\alpha)]}$$

The last relationship underlines the condition that must be respected for $c_L \leq q < c_H$ to be a more convenient strategy for Smartbox than $q < c_L$.

Confronting this relationship with the one found above, we can conclude that $c_L \leq q < c_H$ is the most convenient strategy for Smartbox if:

$$\frac{n[n(1+\alpha)-3N]}{n^2(1-\alpha^2)-3nN(1-\alpha)-2N^2} < \frac{t}{p} < \frac{n[\alpha n(1+\alpha)+3N(1-\alpha)-2n]}{(1-\alpha)[2N^2-3\alpha nN+\alpha n^2(1+\alpha)]}$$

3.4.1 Findings

The strategies and the conditions thus far analysed can be summed up as:

<i>Condition</i>	<i>Strategy</i>
<i>Always</i>	$q \geq \bar{q}$
$\frac{t}{p} < \frac{n[n(1+\alpha)-3N]}{n^2(1-\alpha^2)-3nN(1-\alpha)-2N^2}$	$q \geq c_H$
$\frac{n[n(1+\alpha)-3N]}{n^2(1-\alpha^2)-3nN(1-\alpha)-2N^2} < \frac{t}{p} < \frac{n[\alpha n(1+\alpha)+3N(1-\alpha)-2n]}{(1-\alpha)[2N^2-3\alpha nN+\alpha n^2(1+\alpha)]}$	$c_L \leq q < c_H$
$\frac{t}{p} > \frac{n[\alpha n(1+\alpha)+3N(1-\alpha)-2n]}{(1-\alpha)[2N^2-3\alpha nN+\alpha n^2(1+\alpha)]}$	$q < c_L$

Table 1: Smartbox's strategies and conditions

Source: Personal elaboration

If $\frac{t}{p}$ is low, the best strategy for the company is offering a high-quality product. In this

scenario, the firm is offering a mix of experiences in high quality structures, therefore it can require a higher price without the risk of disappointing its customers.

Moreover, high quality providers may be better able to afford lower commissions, drawing $\frac{t}{p}$ down:

- As seen in the first chapter, they can exploit the platform provided by Smartbox as a marketing tool;
- As seen in the second chapter, offering a high quality for a low price may enhance their chances of attracting customers with a higher customer asset value.

If $\frac{t}{p}$ is high, the best strategy for the company is offering a low-quality product. In this

scenario, the firm is offering a mix of experiences in low quality structures, therefore it must require a lower price in order to avoid the risk of disappointing its customers.

Moreover, low quality providers may find it tougher to afford lower commissions, as they cannot count on the return of the users.

If $\frac{t}{p}$ is medium, the best strategy for the company is offering a medium-quality product,

balancing the two effects.

3.4.2 Results study

In this section we will focus on the study of what happens when n , N and α vary.

We can fix $N = 100$ and graphically represents our conditions, letting α and n vary. In this way, we obtain two curves, each one representing one condition. The area below the lowest curve represents the cases in which the company's best strategy is to offer a high-quality product. The area between the curves represents the cases in which the company's best strategy is offering a medium-quality product. The area above the high-

est curve represents the cases in which the company's best strategy is to offer a low-quality product.

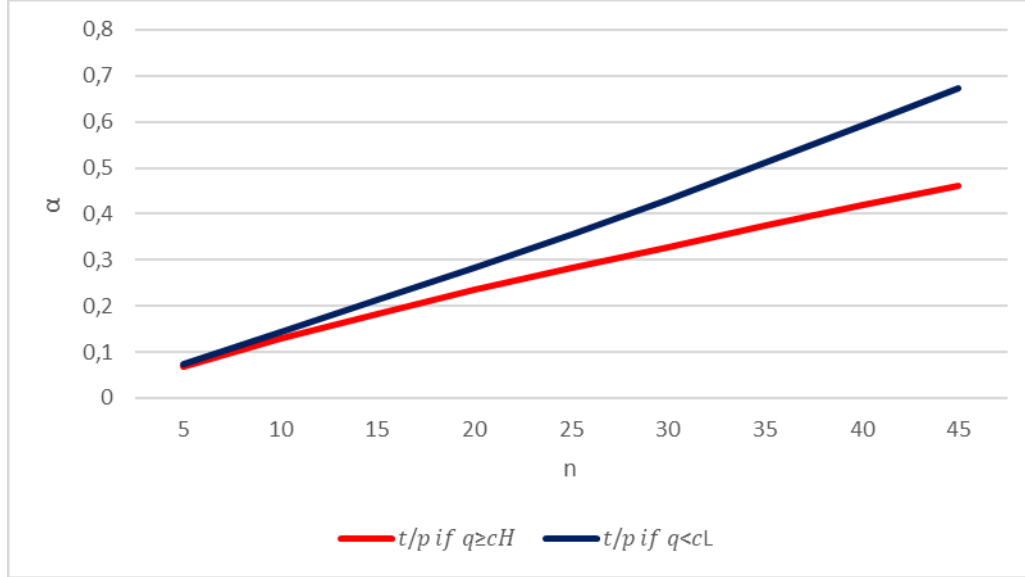


Figure 31: Graphic representation of the conditions in the basic model

Source: Personal elaboration

Moreover, to enhance our analysis, we will focus on the derivatives of

$$\frac{n[n(1+\alpha)-3N]}{n^2(1-\alpha^2)-3nN(1-\alpha)-2N^2} \text{ and } \frac{n[an(1+\alpha)+3N(1-\alpha)-2n]}{(1-\alpha)[2N^2-3anN+an^2(1+\alpha)]}$$

As regards the first relationship, its derivative is:

$$\frac{-3n[-2N^2 - 3nN(1 - \alpha) + n^2(1 - \alpha)^2] - n[n(1 + \alpha) - 3N][-4N - 3n(1 - \alpha)]}{[n^2(1 - \alpha^2) - 3nN(1 - \alpha) - 2N^2]^2}$$

It can be rewritten as:

$$\frac{-6nN^2 + 2n^2N(5 - \alpha)}{[n^2(1 - \alpha^2) - 3nN(1 - \alpha) - 2N^2]^2}$$

Using the graphic method to ease our calculation, we notice that:

- If n is small, the derivative is positive only if N is small in turn;
- As n increases, the cases in which the derivat is positive increase;

- α has a limited impact on the results: it only reduces the cases in which the derivative is positive if it assumes values close to 1.

These results underline how satisfying the first condition is quite straightforward.

As regards the second relationship, its derivative is:

$$\frac{3(1-\alpha)(1-\alpha)[2N^2 - 3\alpha nN(1-\alpha) + \alpha n^2(1+\alpha)] - n[\alpha n(1+\alpha) + 3N(1-\alpha) - 2n](1-\alpha)(4N - 3\alpha n)}{\{(1-\alpha)[2N^2 - 3\alpha nN + \alpha n^2(1+\alpha)]\}^2}$$

It can be rewritten as:

$$\frac{-6nN^2 + 4n^2N(\alpha + 2) - 3\alpha n^3}{[2N^2 - 3\alpha nN + \alpha n^2(1 + \alpha)]^2}$$

Using the graphic method to ease our calculation, we notice that:

- If n is very small, the derivative is negative;
- As n increases, the derivative tends to be positive;
- α has a limited impact on the results: if α increases, the values of the derivative increase, while the range in which it is positive does not increase significantly.

These results underline how satisfying the second condition is easier as n increases.

3.5 Results analysis through a numerical example

In this section, we test our findings through a numerical example, in order to verify if our results match against reasonable assumptions that can reflect the reality of the market faced by the company.

As seen above, $c_L \leq q < c_H$ is the most convenient strategy for Smartbox if:

$$\frac{n[n(1+\alpha) - 3N]}{n^2(1-\alpha^2) - 3nN(1-\alpha) - 2N^2} < \frac{t}{p} < \frac{n[\alpha n(1+\alpha) + 3N(1-\alpha) - 2n]}{(1-\alpha)[2N^2 - 3\alpha nN + \alpha n^2(1+\alpha)]}$$

In our model, $c_L \leq q < c_H$ represents a medium level of quality, reflecting an offer which is a mix of high-quality and low-quality providers. Similarly, $q \geq c_H$ represents a high level of quality, reflecting an offer which only includes high-quality providers,

while $q < c_L$ represents a low level of quality, reflecting an offer which only includes low-quality providers.

The values assigned must respect the conditions that we have so far set:

- $N, n \in \mathbb{N}$, as they respectively represent the total amount of the population and a fraction of the population;
- $N > 0, n > 0$;
- $N < n$, since n is a fraction of N
- $0 < \alpha < 1$, since α is a percentage of the population;
- $p > 0, t > 0$, as they respectively represent the price paid and the commission earned by the providers;
- $t \leq p$.

Keeping these conditions in mind, we hypothesize:

- N is equal to 100;
- n is equal to 10;
- α is equal to 20%.

The relationship $\frac{t}{p} < \frac{n[\alpha n(1+\alpha) + 3N(1-\alpha) - 2n]}{(1-\alpha)[2N^2 - 3\alpha nN + \alpha n^2(1+\alpha)]}$, graphically represented in *Figure 31*, re-

quires $\frac{t}{p} < 0.143$, while the relationship $\frac{t}{p} > \frac{n[n(1+\alpha) - 3N]}{n^2(1-\alpha^2) - 3nN(1-\alpha) - 2N^2}$, graphically repre-

sented in *Figure 32*, requires $\frac{t}{p} > 0.129$. Therefore:

$$0.129 < \frac{t}{p} < 0.143$$

$\frac{t}{p}$ represents the relationship between the commission earned by the providers and the

the price paid by the consumer, thus $\frac{t}{p} \leq 1$, as t is a fraction of p . Therefore,

$0.129 < \frac{t}{p} < 0.143$ respects the assumptions so far set.

Nonetheless, it is interesting to ask ourselves if this relationship makes sense from an economic perspective.

As regards the condition on the left, $\frac{t}{p} > 0.129$, it requires the commission to be set as more than 0.129 times the price. This would require, if the price was set as 100 US\$, a commission higher than 12.9 US\$. This condition seems reasonable and economically viable for the providers.

Consequently, $\frac{t}{p} > \frac{n[n(1+\alpha)-3N]}{n^2(1-\alpha^2)-3nN(1-\alpha)-2N^2}$ is a reasonable and economically viable condition.

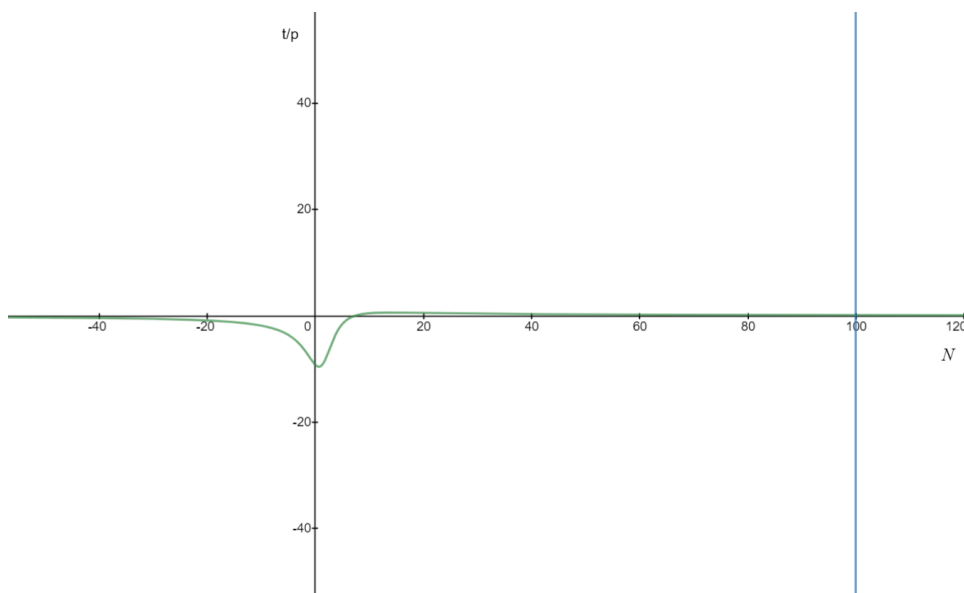


Figure 32: Graphic representation of the condition on the left

Source: Personal elaboration

As regards the condition on the right, $\frac{t}{p} < 0.143$, it requires the commission to be set as less than 0.143 times the price. This would require, if the price was set as 100 US\$, a

commission lower than 14.3 US\$. This condition does not seem viable for the providers. The reason behind this result is to be found in the time horizon considered: in a three-period horizon, the effect generated by the progressive reduction of the set from which potential buyers willing to become actual buyers due to previous periods' dissatisfied non-users are drawn is not strong enough to overcome the incentive that the increase of the dissatisfied non-users' profits presents.

In a real-world scenario, the multiple periods considered – potentially an infinite number of periods – would contrast this condition and make $q < c_L$ much less appealing of a strategy than $c_L \leq q < c_H$.

Consequently $\frac{t}{p} < \frac{n[\alpha n(1+\alpha)+3N(1-\alpha)-2n]}{(1-\alpha)[2N^2-3\alpha nN+\alpha n^2(1+\alpha)]}$ is a reasonable and economically viable

condition only in a time horizon with a reasonably high number of periods considered.

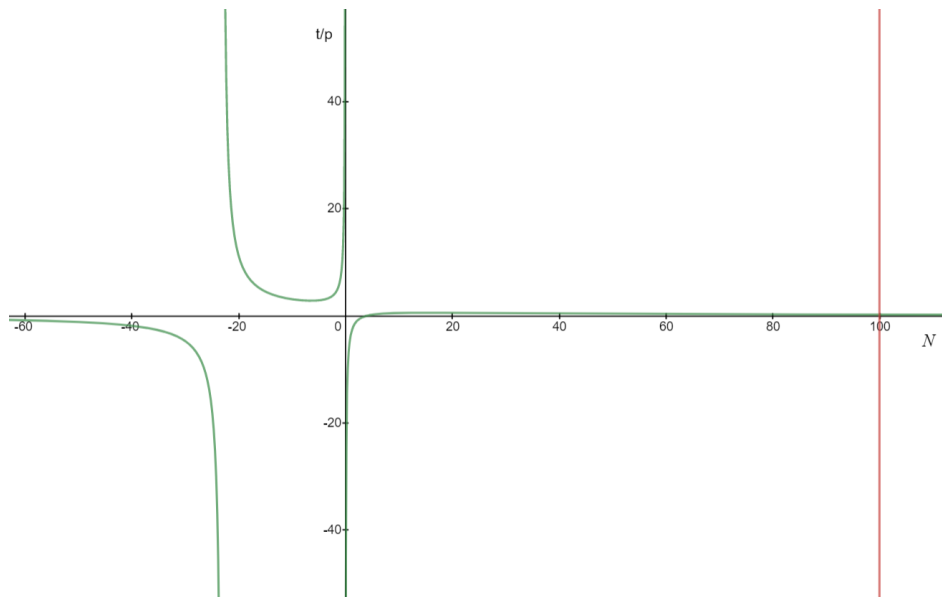


Figure 33: Graphic representation of the condition on the right

Source: Personal elaboration

3.5.1 Scenario analysis

We proceed with our analysis through a sensitivity analysis to shed light on the values that the above relationships assume if the values assigned to N , n and α change.

To ease the analysis, we fix the value of α and focus on how $\frac{t}{p}$ changes according to how N and n change.

Considering the relationship $\frac{t}{p} > \frac{n[n(1+\alpha)-3N]}{n^2(1-\alpha^2)-3nN(1-\alpha)-2N^2}$:

	1000	500	100	50	20
20	0,029	0,056	0,226	0,359	0,523
15	0,022	0,043	0,181	0,301	0,483
10	0,015	0,029	0,129	0,226	0,405
5	0,007	0,015	0,069	0,129	0,266
3	0,004	0,009	0,043	0,082	0,181

Table 2: t/p in $q < cH$ if $\alpha=20\%$

Source: Personal elaboration

	1000	500	100	50	20
20	0,029	0,057	0,238	0,387	0,545
15	0,022	0,043	0,189	0,321	0,520
10	0,015	0,029	0,133	0,238	0,439
5	0,007	0,015	0,071	0,133	0,282
3	0,004	0,009	0,043	0,084	0,189

Table 3: t/p in $q < cH$ if $\alpha=50\%$

Source: Personal elaboration

	1000	500	100	50	20
20	0,029	0,058	0,246	0,407	0,544
15	0,022	0,044	0,194	0,336	0,542
10	0,015	0,029	0,136	0,246	0,463
5	0,007	0,015	0,071	0,136	0,294
3	0,004	0,009	0,044	0,085	0,194

Table 4: t/p in $q < cH$ if $\alpha=70\%$

Source: Personal elaboration

Similarly to the previous results, the tables show that the values set to N and n have a great impact on the results:

- If $N = 20$ and $n = 15$, $\frac{t}{p} > 0.483$, which would require, if the price was set as 100 US\$, a commission higher than 48.3 US\$.
- If $N = 1000$ and $n = 5$, $\frac{t}{p} > 0.0074$, which would require, if the price was set as 100 US\$, a commission higher than 0.74 US\$.

- If $N = 61$ and $n = 1$, $\frac{t}{p} > 0.0240$, which would require, if the price was set as 100 US\$, a commission higher than 2.40 US\$, which is viable for the providers. These values are interesting as they reflect the actual values in the Italian market, expressed in millions.

On the contrary, even significant changes in α have little impact on the results.

Considering the relationship $\frac{t}{p} < \frac{n[an(1+\alpha)+3N(1-\alpha)-2n]}{(1-\alpha)[2N^2-3anN+an^2(1+\alpha)]}$:

	1000	500	100	50	20
20	0,030	0,059	0,271	0,472	0,488
15	0,022	0,044	0,209	0,381	0,601
10	0,015	0,030	0,143	0,271	0,540
5	0,007	0,015	0,073	0,143	0,328
3	0,004	0,009	0,044	0,088	0,209

Table 5: t/p in $q > cL$ if $\alpha=20\%$

Source: Personal elaboration

	1000	500	100	50	20
20	0,030	0,060	0,289	0,526	0,400
15	0,022	0,045	0,220	0,417	0,651
10	0,015	0,030	0,148	0,289	0,609
5	0,007	0,015	0,075	0,148	0,355
3	0,004	0,009	0,045	0,089	0,220

Table 6: t/p in $q > cL$ if $\alpha=50\%$

Source: Personal elaboration

	1000	500	100	50	20
20	0,030	0,060	0,302	0,569	0,275
15	0,023	0,045	0,227	0,445	0,668
10	0,015	0,030	0,152	0,302	0,661
5	0,008	0,015	0,075	0,152	0,375
3	0,005	0,009	0,045	0,091	0,227

Table 7: t/p in $q > cL$ if $\alpha=70\%$

Source: Personal elaboration

The tables show that the values assigned to N and n have a great impact on the results:

- If $N = 20$ and $n = 15$, $\frac{t}{p} < 0.601$, which would require, if the price was set as 100 US\$, a commission lower than 60.1 US\$, which seems more viable for the providers than the condition analysed above. The reason behind this finding is the extreme values assigned to N and n : n is set as 75% of N , which is too high to obtain sensible results, as we do not expect the product to be bought by the 75% of the whole population.
- If $N = 1000$ and $n = 5$, $\frac{t}{p} < 0.0075$, which would require, if the price was set as 100 US\$, a commission lower than 0.75 US\$, which is not viable for the providers. The reason behind this finding is the extreme values assigned to N and n : n is set as 0.15% of N , which is too low in a limited time-horizon example to obtain sensible results.
- If $N = 61$ and $n = 1$, $\frac{t}{p} < 0.0244$, which would require, if the price was set as 100 US\$, a commission lower than 2.44 US\$, which is not viable for the providers. These values, not available in the table above, are interesting as they reflect the actual values met by the company in the Italian market, expressed in millions. Similarly to the example presented above, the limited time-horizon considered makes this strategy economically unreasonable.

On the contrary, even significant changes in α have little impact on the results.

3.6 Generalization

In this last part of the chapter we will generalize our model, removing the assumption that requires the company to set an identical level of q in each stage.

In our generalized version of the model, at $T = 0$ the firm is called to set a level of q which applies in that period only. We call this level q_0 . In the following period, Smart-

box will set another level of q , called q_1 . q_1 is set independently from q_0 . Our focus will be on the choices made in $T = 0$ and in $T = 1$, as the consequences of the level of q set in $T = 2$ would affect the following period, which, as seen above, is beyond the time horizon considered.

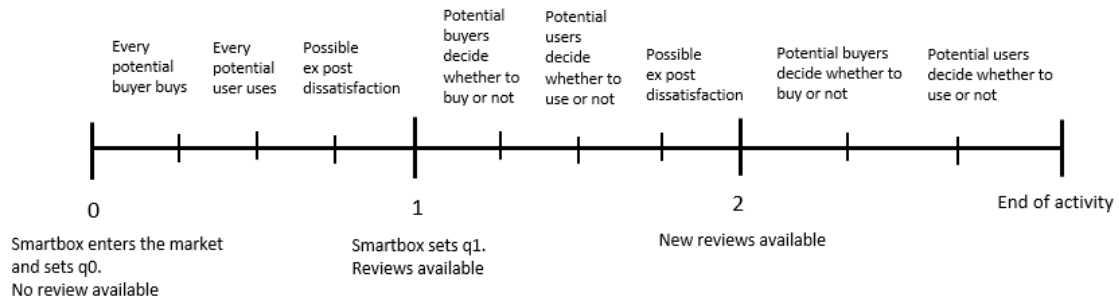


Figure 34: Simplified time horizon in the base model

Source: Personal elaboration

In this version of the model Smartbox will choose:

- At in $T = 0$, if the most profitable strategy is $q \geq c_H$, $c_L \leq q < c_H$ or $q < c_L$;
- At in $T = 1$, if the most profitable strategy is $q \geq c_H$, $c_L \leq q < c_H$ or $q < c_L$.

These two choices, combined, make room for nine cases.

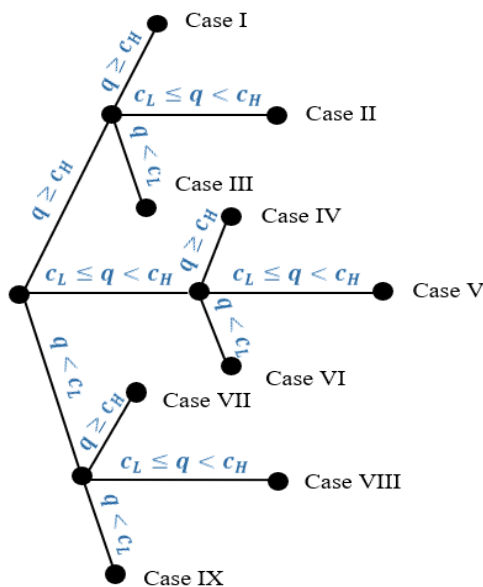


Figure 35: Viable cases in the generalized model

Source: Personal elaboration

Case I, case V and case IX represents the three cases analysed in the basic version of the model, where $q_0 = q_1$. In this section we will focus on $q_0 \neq q_1$.

Moreover, in order to make this generalize version of the model closer to the reality faced by the company and, therefore, make our model better able to predict the firm's choices, we introduce another hypothesis: Smartbox will not set $q < c_L$.

The reason is to be found in the market evidence: it is quite unlikely that no potential user will decide to use the box, which is a direct consequence of $q < c_L$.

As a consequence, only two cases should be analysed: case II and case IV.

We will now proceed analysing the profits that Smartbox would enjoy in each scenario and compare them in order to determine which the best strategy for Smartbox is.

Case II

In case II the company decides to set $c_L \leq q_0 < c_H$ and $q_1 \geq c_H$.

In $T = 0$, Smartbox's profit is determined by:

- Potential buyers: $b_0 = n$, as set in our hypothesis;
- Potential users: $u_0 = n$, as set in our hypothesis.

Moreover, expected dissatisfied users are: $\tilde{d}_0 = \alpha n$.

Smartbox' profit in this period is: $\pi_{S_0} = pn - tn$, which can be simplified as:

$$\pi_{S_0} = (p - t)n.$$

In $T = 1$, potential buyers and potential users rely on the level of q shown on the online reviews. Therefore, the choices made by potential buyers and potential users are based on the assumption that $c_L \leq q < c_H$ even if this no longer occurs.

Consequently:

- Potential buyers: $\tilde{b}_1 = n \left(1 - \frac{\alpha n}{N}\right)$;
- Potential users: $\tilde{u}_1 = n(1 - \alpha) \left(1 - \frac{\alpha n}{N}\right)$.

Moreover, expected dissatisfied users are: $\tilde{d}_1 = \alpha n \left(1 - \frac{\alpha n}{N}\right)$. \tilde{d}_1 has here a different meaning compared to \tilde{d}_0 :

- \tilde{d}_0 represents the dissatisfied non-users, therefore the users ex ante dissatisfied;
- \tilde{d}_1 represents the dissatisfied users, therefore the users ex post dissatisfied, as they did not use the box but wish they did.

Smartbox' profit in this period is: $\pi_{S_1} = pn \left(1 - \frac{\alpha n}{N}\right) - tn(1 - \alpha) \left(1 - \frac{\alpha n}{N}\right)$, which can be simplified as: $\pi_{S_1} = n \left(1 - \frac{\alpha n}{N}\right) [p - t(1 - \alpha)]$.

Similarly to the previous period, in $T = 2$ potential buyers and potential users rely on the level of q shown on the online reviews published in $T = 1$. Therefore, the choices made by potential buyers and potential users are based on the assumption that $q \geq c_H$, even if this may no longer occur.

In this period we introduce another hypothesis to deal with ex post dissatisfied users:

- If an individual belongs to \tilde{d}_1 but does not belong to \tilde{d}_0 , they will decide to buy the box, if drawn as a potential buyer;
- If an individual both belongs to \tilde{d}_1 and to \tilde{d}_0 , they will decide not to buy the box;
- If an individual belongs to \tilde{d}_0 but does not belong to \tilde{d}_1 , they will decide not to buy the box.

Therefore:

- Potential buyers: $\tilde{b}_2 = n \left(1 - \frac{\alpha n}{N}\right)$;
- Potential users: $\tilde{u}_2 = n \left(1 - \frac{\alpha n}{N}\right)$.

Smartbox' profit in this period is: $\pi_{S_2} = pn \left(1 - \frac{\alpha n}{N}\right) - tn \left(1 - \frac{\alpha n}{N}\right)$, which can be simplified as: $\pi_{S_2} = n(p - t) \left(1 - \frac{\alpha n}{N}\right)$.

Smartbox's total profit is represented by: $\pi_S = \pi_{S_0} + \pi_{S_1} + \pi_{S_2}$.

Therefore: $\pi_S = (p - t)n + n \left(1 - \frac{\alpha n}{N}\right) [p - t(1 - \alpha)] + n(p - t) \left(1 - \frac{\alpha n}{N}\right)$.

Case IV

In case IV the company decides to set $q_0 \geq c_H$ and $c_L \leq q_1 < c_H$.

In $T = 0$, Smartbox's profit is determined by:

- Potential buyers: $b_0 = n$, as set in our hypothesis;
- Potential users: $u_0 = n$, as set in our hypothesis.

Moreover, expected dissatisfied users are: $\tilde{d}_0 = 0$.

Smartbox' profit in this period is: $\pi_{S_0} = pn - tn$, which can be simplified as:

$$\pi_{S_0} = (p - t)n.$$

In $T = 1$, potential buyers and potential users rely on the level of q shown on the online reviews. Therefore, the choices made by potential buyers and potential users are based on the assumption that $q_1 \geq c_H$, even if this no longer occurs.

Consequently:

- Potential buyers: $\tilde{b}_1 = n$;

- Potential users: $\tilde{u}_1 = n$.

Moreover, expected dissatisfied users are: $\tilde{d}_1 = \alpha n$, as, ex post, some users wish they did not use the box, since the quality faced provided a negative payoff for them.

Smartbox' profit in this period is: $\pi_{S_1} = pn - tn$, which can be simplified as:

$$\pi_{S_1} = (p - t)n.$$

Similarly to the previous period, in $T = 2$ potential buyers and potential users rely on the level of q shown on the online reviews published in $T = 1$. Therefore, the choices made by potential buyers and potential users assume that $c_L \leq q < c_H$, even if, this may no longer occur.

- Potential buyers: $\tilde{b}_2 = n \left(1 - \frac{\alpha n}{N}\right)$;
- Potential users: $\tilde{u}_2 = n(1 - \alpha) \left(1 - \frac{\alpha n}{N}\right)$.
- Smartbox' profit in this period is: $\pi_{S_2} = n \left(1 - \frac{\alpha n}{N}\right) [p - t(1 - \alpha)]$.

Smartbox's total profit is represented by: $\pi_S = \pi_{S_0} + \pi_{S_1} + \pi_{S_2}$.

Therefore: $\pi_S = (p - t)n + (p - t)n + n \left(1 - \frac{\alpha n}{N}\right) [p - t(1 - \alpha)]$.

3.6.1 Comparative statics

In this section we will compare Smartbox's payoff in the previous scenarios, in order to determine the levels of q_0 and q_1 selected by the company.

Case II compared with case IV

Comparing the two cases requires comparing the payoffs obtained in both scenarios. In order to carry out the analysis, we hypothesize that the payoff obtained in case II is higher than the payoff obtained in case IV. Therefore:

$$(p - t)n + n \left(1 - \frac{\alpha n}{N}\right) [p - t(1 - \alpha)] +$$

$$n(p - t) \left(1 - \frac{\alpha n}{N}\right) > (p - t)n + (p - t)n + n \left(1 - \frac{\alpha n}{N}\right) [p - t(1 - \alpha)].$$

This relationship can be rewritten as: $1 - \frac{\alpha n}{N} > 1$.

Given the assumptions seen before, this relationship can never occur.

Since the payoff granted in case IV is higher than the payoff granted in case II, the company will always decide to set $q_0 \geq c_H$ and $c_L \leq q_1 < c_H$.

This implies that the company will set an initial high quality, in order to attract as many customers as possible. Moreover, increasing its customer base line is fundamental for the company in order to grow and overcome the breakeven point.

As the firm grows and more customers as earned, the need to grow is overcome by the need of increasing the margin and therefore the company relies more and more on the dissatisfied non-users. This choice represents in our generalized model the actual choice made by Smartbox.

We now proceed comparing the results obtained in the generalized model with the results obtained in the simplified model.

As seen before, we will not consider the case in which $q < c_L$, as its implications are unlikely to happen in the market.

Case IV compared with $q \geq c_H$

Comparing case IV with $q \leq c_H$ requires comparing the payoffs obtained in both scenarios. In order to carry out the analysis, we hypothesize that the payoff obtained in case IV is higher than the payoff obtained setting $q \geq c_H$. Therefore:

$$(p - t)n + (p - t)n + n \left(1 - \frac{\alpha n}{N}\right) [p - t(1 - \alpha)] > (p - t)n + (p - t)n + (p - t)n.$$

To ease the calculation, we can rewrite the relationship as:

$$p - t + t\alpha - \frac{\alpha np}{N} + \frac{\alpha nt}{N} - \frac{\alpha^2 nt}{N} > p - t.$$

Keeping in mind how $N > 0$, as N represents the population amount, we can rewrite the relationship as:

$$-\alpha np + t(\alpha N + \alpha n - \alpha^2 n) > 0.$$

Keeping in mind how $\alpha > 0$, as set in our hypothesis, the relationship can further be rewritten as: $-np > -t(N + n - \alpha n)$.

Keeping in mind how $n > 0$ and $t > 0$, we can rewrite the relationship as:

$$\frac{p}{t} < \frac{N - n + \alpha n}{n}.$$

Finally, it is also interesting to analyse the relationship $\frac{t}{p}$, which is represented as:

$$\frac{t}{p} > \frac{n}{N + n(1 - \alpha)}.$$

The last relationship underlines the condition that must be respected for $q_0 \geq c_H$, $c_L \leq q_1 < c_H$ to be a more convenient strategy for Smartbox than $q \geq c_H$.

Case IV compared with $c_L \leq q < c_H$

We now proceed with the comparison of case IV with $c_L \leq q < c_H$.

The comparison requires comparing the payoffs obtained in both scenarios. In order to carry out the analysis, we hypothesize that the payoff obtained in case IV is higher than the payoff obtained setting $c_L \leq q < c_H$. Therefore:

$$(p-t)n + (p-t)n + n\left(1 - \frac{\alpha n}{N}\right)[p-t(1-\alpha)] \\ > (p-t)n + n\left(1 - \frac{\alpha n}{N}\right)[p-t(1-\alpha)] + n\left(1 - \frac{2\alpha n}{N} + \frac{\alpha^2 n^2}{N^2} + \frac{\alpha n^2}{N^2}\right)[p-t(1-\alpha)].$$

To ease the calculation, we can rewrite the relationship as:

$$p-t > p - \frac{2\alpha np}{N} + \frac{\alpha^2 n^2 p}{N^2} + \frac{\alpha n^2 p}{N^2} - t + \frac{2\alpha nt}{N} - \frac{\alpha^2 n^2 t}{N^2} - \frac{\alpha n^2 t}{N^2} + t\alpha - \frac{2\alpha^2 nt}{N} + \frac{\alpha^3 n^2 t}{N^2} + \frac{\alpha^2 n^2 t}{N^2}$$

Keeping in mind how $N > 0$ and $\alpha > 0$, we can rewrite the relationship as:

$$-np[2N - n(1 + \alpha)] < -t[2nN - n^2 + N^2 - 2\alpha nN + \alpha^2 n^2].$$

We would like to isolate the relationship $\frac{p}{t}$. In order to do this, we must determine:

- If $n[2N - n(1 + \alpha)] > 0$;
- If $t > 0$.

The latter is simple, as t represents the providers' commission and is therefore positive by hypothesis.

The former requires a further check. As shown above, $n > 0$.

Therefore: $2N > n(1 + \alpha)$, which implies: $N > n \frac{(1+\alpha)}{2}$.

As set in our hypothesis, $0 < \alpha < 1$, which requires $\frac{1}{2} < \frac{(1+\alpha)}{2} < 1$.

Since n is a fraction of N , $N > n \frac{(1+\alpha)}{2}$ is always verified and, therefore:

$$n[2N - n(1 + \alpha)] > 0.$$

Therefore, we can write the relationship as: $\frac{p}{t} > \frac{N^2+2nN(1-\alpha)-n^2(1-\alpha^2)}{n[2N-n(1+\alpha)]}$.

Finally, it is also interesting to analyse the relationship $\frac{t}{p}$, which is represented as:

$$\frac{t}{p} < \frac{n[2N-n(1+\alpha)]}{N^2+2nN(1-\alpha)-n^2(1-\alpha^2)}$$

The last relationship underlines the condition that must be respected for to case IV be a more convenient strategy for Smartbox than $c_L \leq q < c_H$.

Confronting this relationship with the one found above, we can conclude that $q_0 \geq c_H$,

$c_L \leq q_1 < c_H$ is the most convenient strategy for Smartbox if:

$$\frac{n}{N+n(1-\alpha)} < \frac{t}{p} < \frac{n[2N-n(1+\alpha)]}{N^2+2nN(1-\alpha)-n^2(1-\alpha^2)}$$

3.6.2 Results study

In this section we will focus on the study of what happens when n , N and α vary.

We can fix $N = 100$ and graphically represents our conditions, letting α and n vary. In this way, we obtain two curves, each one representing one condition. The area below the lowest curve represents the cases in which the company's best strategy is to offer a high-quality product in both periods. The area between the curves represents the cases in which the company's best strategy is offering a high-quality product in the first period and a medium-quality product in the second period. The area above the highest curve represents the cases in which the company's best strategy is to offer a medium-quality product in both periods.

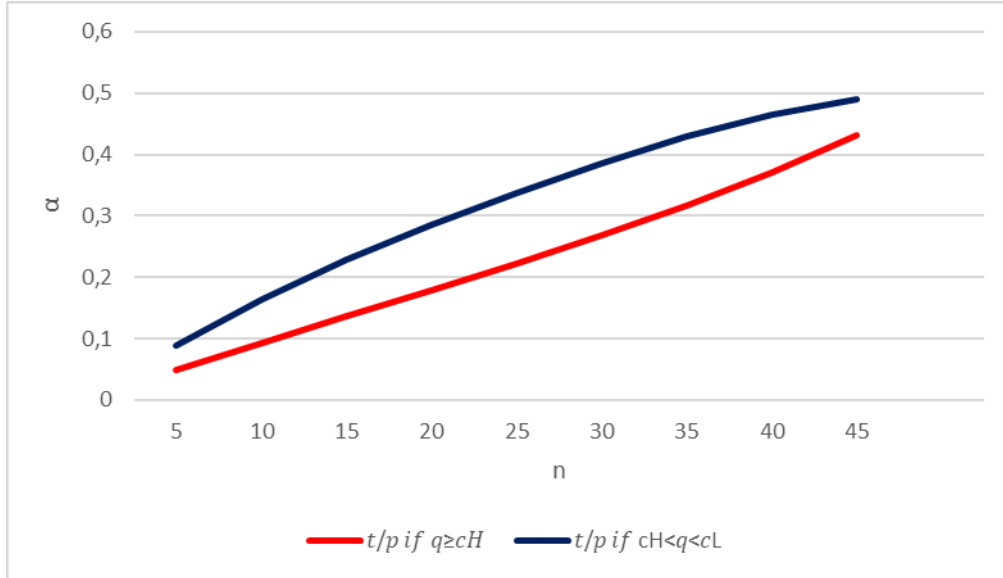


Figure 36: Graphic representation of the conditions in the basic model

Source: Personal elaboration

Moreover, to enhance our analysis, we will focus on the derivatives of $\frac{n}{N+n(1-\alpha)}$ and

$$\frac{n[2N-n(1+\alpha)]}{N^2+2nN(1-\alpha)-n^2(1-\alpha^2)}$$

As regards the first relationship, its derivative is:

$$\frac{-n}{[N+n(1-\alpha)]^2}$$

Using the graphic method to ease our calculation, we notice that:

- If n is small, the derivative is positive only if N is small in turn;
- As n increases, the cases in which the derivate is positive decrease;
- α increases the cases in which the derivative is positive if it assumes values close to 1, nonetheless, its impact is limited.

These results underline how satisfying the first condition is straightforward.

As regards the second relationship, its derivative is:

$$\frac{2n[N^2+2nN(1-\alpha)-n^2(1-\alpha^2)]-n[2N-n(1+\alpha)][2N+2n(1-\alpha)]}{[N^2+2nN(1-\alpha)-n^2(1-\alpha^2)]^2}$$

It can be rewritten as:

$$\frac{2n[-N^2 + nN(1 + \alpha) - n^2(1 - \alpha^2)]}{[N^2 + 2nN(1 - \alpha) - n^2(1 - \alpha^2)]^2}$$

Using the graphic method to ease our calculation, we notice that:

- If n is small, the derivative is positive only if N is small in turn;
- As n increases, the cases in which the derivate is positive sensibly increase;
- α increases the cases in which the derivative is positive if it assumes values close to 1.

These results underline how satisfying the second condition is easier as n and α increase.

3.6.3 Findings

The strategies and the conditions thus far analysed can be summed up as:

<i>Condition</i>	<i>Strategy</i>
<i>Always</i>	$q \geq \bar{q}$
$\frac{t}{p} < \frac{n}{N + n(1 - \alpha)}$	$q \geq c_H$
$\frac{n}{N + n(1 - \alpha)} < \frac{t}{p} < \frac{n[2N - n(1 + \alpha)]}{N^2 + 2nN(1 - \alpha) - n^2(1 - \alpha^2)}$	$q_0 \geq c_H,$ $c_L \leq q_1 < c_H$
$\frac{t}{p} > \frac{n[2N - n(1 + \alpha)]}{N^2 + 2nN(1 - \alpha) - n^2(1 - \alpha^2)}$	$c_L \leq q < c_H$

Table 8: Smartbox's strategies and conditions

Source: Personal elaboration

If $\frac{t}{p}$ is low, the best strategy for the company is offering a high-quality product in both periods. In this scenario, the firm is offering a mix of experiences in high quality structures, therefore it can require a higher price without the risk of disappointing its customers.

Moreover, high quality providers may be better able to afford lower commissions:

- They can exploit the platform provided by Smartbox as a marketing tool;
- Offering a high quality for a low price may enhance their chances of attracting customers with a higher customer asset value.

If $\frac{t}{p}$ is high, the best strategy for the company is offering a medium-quality product in both periods. In this scenario, the firm is offering a mix of experiences in low quality and high quality structures, therefore it must require a medium price in order to avoid the risk of disappointing its customers.

Moreover, the low quality providers in the mix may find it tougher to afford lower commissions, as they cannot count on the return of the users.

If $\frac{t}{p}$ is medium, the best strategy for the company is offering a high-quality product in the first period and a medium quality product in the second period, balancing the two effects.

3.6.4 Results analysis through a numerical example

In this section, we test our findings through a numerical example, in order to verify if our results match against reasonable assumptions that can reflect the reality of the market faced by the company.

As seen above, $q_0 \geq c_H$, $c_L \leq q_1 < c_H$ is the most convenient strategy for Smartbox if:

$$\frac{n}{N + n(1 - \alpha)} < \frac{t}{p} < \frac{n[2N - n(1 + \alpha)]}{N^2 + 2nN(1 - \alpha) - n^2(1 - \alpha^2)}$$

We hypothesize:

- N is equal to 100;
- n is equal to 10;
- α is equal to 20%.

The relationship $\frac{t}{p} < \frac{n[2N-n(1+\alpha)]}{N^2+2nN(1-\alpha)-n^2(1-\alpha^2)}$, graphically represented in *Figure 34*, requires

$\frac{t}{p} < 0.163$, while the relationship $\frac{t}{p} > \frac{n}{N+n(1-\alpha)}$, graphically represented in *Figure 35*,

requires $\frac{t}{p} > 0.093$. Therefore:

$$0.093 < \frac{t}{p} < 0.163$$

$\frac{t}{p} > 0.093$, it requires the commission to be set as more than 0.093 times the price. This

would require, if the price was set as 100 US\$, a commission higher than 9.3 US\$. This condition seems reasonable and economically viable for the providers.

Consequently, $\frac{t}{p} > \frac{n}{N+n(1-\alpha)}$ is a reasonable and economically viable condition.

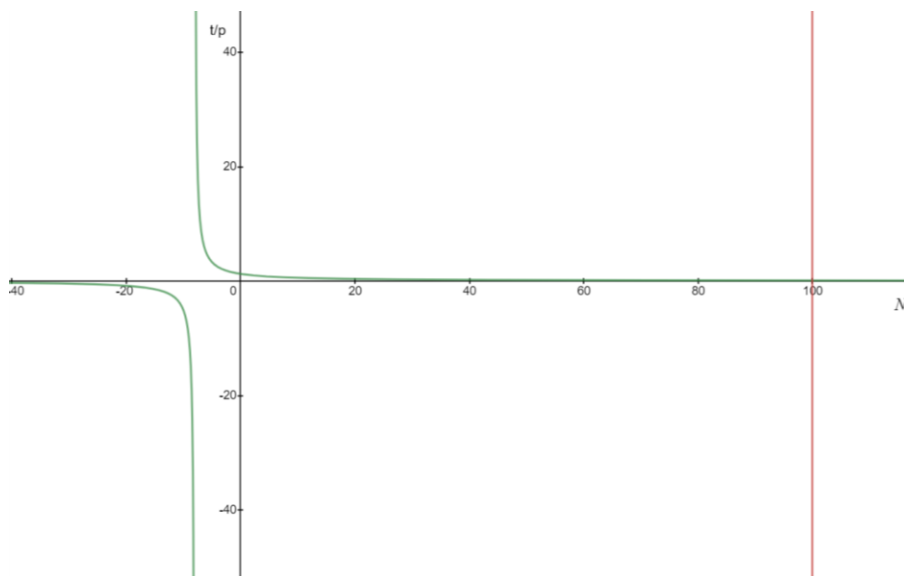


Figure 37: Graphic representation of the condition on the left in the generalized model

Source: Personal elaboration

As regards the condition on the right, $\frac{t}{p} < 0.163$, it requires the commission to be set as less than **0.163** times the price. This would require, if the price was set as 100 US\$, a commission lower than 16.3 US\$. This condition does not seem viable for the providers. Therefore, it is more profitable for the company to immediately present a medium quality rather than progressively reducing the quality. In the first case, the company decides to exploit the profits obtained through dissatisfied non-users'. In the second case the company decides to first attract as many customers as possible while entering the market and then reducing the quality in order to increase dissatisfied non-users' profits. In the limited time horizon considered, the first strategy offers a higher payoff than the second. The results may have been different if a broader time horizon were considered.

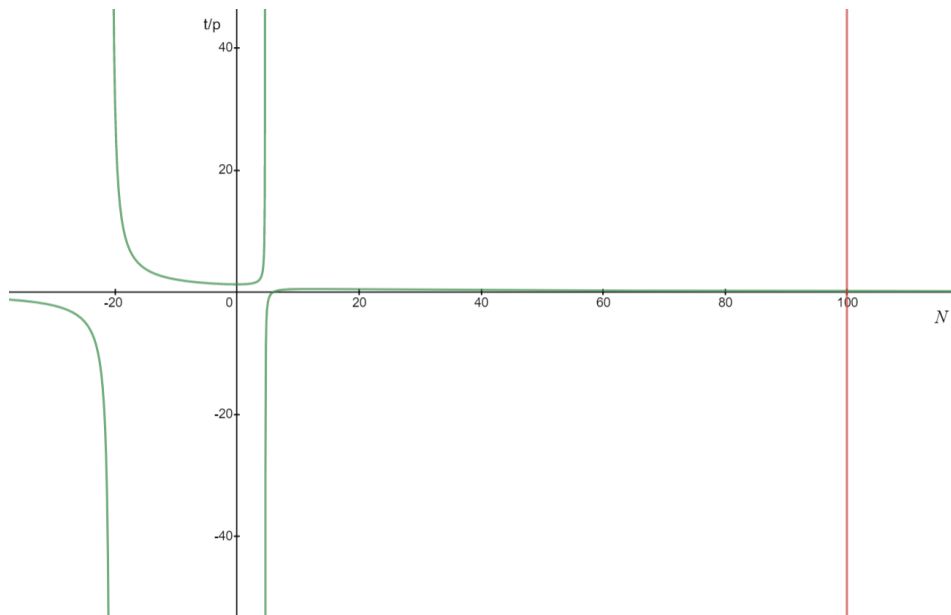


Figure 38: Graphic representation of the condition on the right in the generalized model

el

Source: Personal elaboration

3.6.5 Scenario analysis

We proceed with our analysis through a sensitivity analysis to shed light on the values that the above relationships assume if the values assigned to N , n and α change.

To ease the analysis, we fix the value of α and focus on how $\frac{t}{p}$ changes according to how N and n change.

Considering the relationship $\frac{t}{p} > \frac{n}{N+n(1-\alpha)}$:

	1000	500	100	50	20
20	0,020	0,039	0,172	0,303	0,556
15	0,015	0,029	0,134	0,242	0,469
10	0,010	0,020	0,093	0,172	0,357
5	0,005	0,010	0,048	0,093	0,208
3	0,003	0,006	0,029	0,057	0,134

Table 9: t/p in $q < cH$ if $\alpha=20\%$
in the generalized model

Source: Personal elaboration

	1000	500	100	50	20
20	0,020	0,039	0,182	0,333	0,667
15	0,015	0,030	0,140	0,261	0,545
10	0,010	0,020	0,095	0,182	0,400
5	0,005	0,010	0,049	0,095	0,222
3	0,003	0,006	0,030	0,058	0,140

Table 10: t/p in $q < cH$ if $\alpha=50\%$
in the generalized model

Source: Personal elaboration

	1000	500	100	50	20
20	0,020	0,040	0,189	0,357	0,769
15	0,015	0,030	0,144	0,275	0,612
10	0,010	0,020	0,097	0,189	0,435
5	0,005	0,010	0,049	0,097	0,233
3	0,003	0,006	0,030	0,059	0,144

Table 11: t/p in $q < cH$ if $\alpha=70\%$
in the generalized model

Source: Personal elaboration

Similarly to the previous results, the tables show that the values set to N and n have a great impact on the results:

- If $N = 20$ and $n = 15$, $\frac{t}{p} > 0.469$, which would require, if the price was set as 100 US\$, a commission higher than 46.9 US\$.
- If $N = 1000$ and $n = 5$, $\frac{t}{p} > 0.005$, which would require, if the price was set as 100 US\$, a commission higher than 0.5 US\$.

- If $N = 61$ and $n = 1$, $\frac{t}{p} > 0.016$, which would require, if the price was set as 100

US\$, a commission higher than 1.6 US\$, which is viable for the providers. These values are interesting as they reflect the actual values in the Italian market, expressed in millions.

On the contrary, even significant changes in α have little impact on the results.

Considering the relationship $\frac{t}{p} < \frac{n[2N-n(1+\alpha)]}{N^2+2nN(1-\alpha)-n^2(1-\alpha^2)}$:

	1000	500	100	50	20
20	0,038	0,073	0,275	0,409	0,488
15	0,029	0,056	0,224	0,353	0,497
10	0,020	0,038	0,163	0,275	0,449
5	0,010	0,020	0,090	0,163	0,317
3	0,006	0,012	0,056	0,106	0,224

Table 12: t/p in $cL < q < cH$ if $\alpha=20\%$ in the generalized model

Source: Personal elaboration

	1000	500	100	50	20
20	0,039	0,075	0,291	0,438	0,400
15	0,029	0,057	0,235	0,377	0,494
10	0,020	0,039	0,169	0,291	0,476
5	0,010	0,020	0,092	0,169	0,338
3	0,006	0,012	0,057	0,108	0,235

Table 13: t/p in $cL < q < cH$ if $\alpha=50\%$ in the generalized model

Source: Personal elaboration

	1000	500	100	50	20
20	0,039	0,076	0,302	0,456	0,275
15	0,029	0,057	0,243	0,394	0,467
10	0,020	0,039	0,173	0,302	0,490
5	0,010	0,020	0,093	0,173	0,352
3	0,006	0,012	0,057	0,110	0,243

Table 14: t/p in $cL < q < cH$ if $\alpha=70\%$ in the generalized model

Source: Personal elaboration

The tables show that the values assigned to N and n have a great impact on the results:

- If $N = 20$ and $n = 15$, $\frac{t}{p} < 0.497$, which would require, if the price was set as 100 US\$, a commission lower than 49.7 US\$, which seems more viable for the providers than the condition analysed above. The reason behind this finding is the extreme values assigned to N and n : n is set as 75% of N , which is too high to obtain sensible results, as we do not expect the product to be bought by the 75% of the whole population.
- If $N = 1000$ and $n = 5$, $\frac{t}{p} < 0.010$, which would require, if the price was set as 100 US\$, a commission lower than 0.10 US\$, which is not viable for the providers. The reason behind this finding is the extreme values assigned to N and n : n is set as 0.15% of N , which is too low in a limited time-horizon example to obtain sensible results.
- If $N = 61$ and $n = 1$, $\frac{t}{p} < 0.031$, which would require, if the price was set as 100 US\$, a commission lower than 3.1 US\$, which is not viable for the providers. These values reflect the actual values met by the company in the Italian market, expressed in millions. Similarly to the example presented above, the limited time-horizon considered makes this strategy economically unreasonable.

On the contrary, even significant changes in α have little impact on the results.

3.7 Conclusions

In this chapter we have presented our model, formulated according to the highlights made in the previous chapters.

The model sheds light on the best strategy for the company in different scenarios, proposing different optimum levels of quality offered according to different relationships between the commission paid and the price required.

Finally, in the next section, we will retrace the dissertation, highlighting its key elements and drawing our conclusions.

CONCLUSION

This dissertation focuses on the quality of the product offered by firms in the experience gift sector.

In order to carry out our analysis, we have selected Smartbox, a major player in the sector, as a model example. After a brief analysis of the tourism sector and the gift card sector, whose characteristics are often found in our industry of interest, we have concentrated on Smartbox, presenting its value proposition, its presence in the Italian market, its business model and its financial statements analysis. The latter element has provided a fundamental factor which our analysis would be based on: the company's revenues stream. In particular, its composition has caught our attention: the company can count not only on the commissions on the boxes sold, but also on the proceeds from unused boxes.

The dissertation has then continued with the analysis of the most relevant literature regarding not only the experience gift industry, but also the platforms connecting providers and consumers. For this reason, two literature branches were presented: the literature on the coupon industry and the major studies regarding other platforms.

Advertising effects, already nominated in the previous chapter, were analysed as part of the literature studied in the first branch, while customers asset value was analysed in the second branch. Both elements helped understanding the results found in our model.

The final chapter has presented our model, both in its basic form, which can better introduce its fundamental mechanisms, and in its generalized form, a more complex ver-

sion better able to capture market reality. The analysis leads to the conclusion that, depending on the conditions met in the market, the firm may find more profitable offering not only a high quality, but also a medium-high quality, a medium quality or even a low quality. Moreover, the firm may earn higher profits if it decreases the quality offered over time.

Comparing this result with the actual reviews left online by the company's customers and the receivers of the gifts, the mixed results found online, with the 4.2/5 stars average reviews left on Amazon and the 1/5 stars average reviews left on TripAdvisor, seem to confirm our findings.

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