Università Ca'Foscari Venezia

Master's Degree programme
in Accounting and Finance
curriculum Business Administration
Second Cycle (D.M. 270/2004)

Final thesis

REVENUE MANAGEMENT IN FOOD SERVICE INDUSTRY. THE CASE OF AIRFOOD ITALY

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Academic Year

2018 / 2019

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Introduction

This dissertation deals with revenue management in the context of food service. Based on the literature review and a case study, it aims to explore possible implementation of revenue management practices and performance measurement. Revenue management seeks to achieve profitability through handling mainly with prices and inventory, designing sales strategy to allocate all physical capacity possible (Kimes, 1989; Kimes & Chase, 1998; Kimes, 1999). This is possible since revenue management is generally applicable to those industries that has a cost structure mainly composed by fixed costs. Moreover, other key characteristics are perishable inventories and constrained physical capacity (Heo, 2013). Therefore, potential revenues are divided into packages that might be sold in a unique occasion and for a limited series as typical for service industry, where any unsold package has no other opportunity of being sold becoming a loss (Kimes, Choi, Chase, Ngozi, & Lee, 1998; Kimes & Thompson, 2004). For this reason, perspective has switched from an internal view to an external view as profitability should be achieved by allocating as much packages as possible in order to cover the larger amount of fixed costs possible, rather than focus mainly on margins and marginal cost as for industries that are mainly characterized by high variable costs. Therefore, companies who implement revenue management should be able to handle with demand. Thus, price management is a central issue on revenue management, as well as capacity management to increase revenue potential (Kimes & Chase, 1998).

Revenue management is a practice that moves away from the traditional internal view of management accounting practices. In fact, whether managerial accounting is driven by internal observation to achieve profitability, revenue management seeks profitability by focusing on management of market dynamics. Therefore, controller should switch perspective of control from an internal perspective to a market perspective. Controlling should, therefore, integrated with marketing practices to best manage market dynamics. This would allow companies to align controlling practices to strategic plan, thus, to business goals at all levels. Since revenue management tries to combine managerial accounting and marketing practices, it has been observed under strategic management accounting perspective in the first chapter (Akroyd, Frederick, & Harrison, 2013). In fact, before implementing revenue management competitor and customer should be carefully accounted to assess the potential demand of the business. In fact, designing the competitive

environment and defining potential customer of the business is central for determine the best pricing strategy to drive demand (Ravenna & Pandolfi, 2010). Moreover, service industry has the peculiarity of incorporating explicit and explicit unit of sale at the same time. Since explicit unit of sale is what the customer actually perceives as the object of transaction, it is used by companies for driving demand using product profitability practices through marketing mix and customization (Kimes, Choi, Chase, Ngozi, & Lee, 1998; Kimes & Chase, 1998).

Even though revenue management was born in airlines and hospitality industry, it might be implemented in all those industries who faces, high fixed costs, perishable inventory, fixed capacity, and segmentable demand (Akroyd, Frederick, & Harrison, 2013; Chang, Chen, & Xu, 2007; Smith, Leimkuhler, & Darrow, 1992). Therefore, it has been implemented in food service industry when hotels began opening their restaurant to the public as the same perspective was used for rooms performance measurement was suitable also for F&B department. This permitted diffusion of revenue management in the whole food service industry as a tool for responding to increasing competition arisen in the sector in the last decades.

Second chapter deals with the revenue management implementation in food service industry. However, only the key variables capacity, time, menu, price, and customer perception (Heo, 2013); have been discussed, since customer and competitor accounting have not relevant peculiarity within the sector. Notably, capacity management and time management have been discussed as variable for controlling the implicit unit of sale in food service industry: the seat. In fact, since food service industry is considered a service industry, the implicit unit of sale is the time a guest has been seated in the food service store. Thus, a sector with perishable inventory and, as will be discussed further, with semi-fixed capacity (Kimes, Choi, Chase, Ngozi, & Lee, 1998). By managing time and physical capacity, it is possible to increase revenue potential and, consequently, increasing profitability (Kimes & Chase, 1998). Then, explicit unit of sale is controlled with menu management as the menu items are effectively the units guest buy, being perceived as the object of transaction (Kimes, Choi, Chase, Ngozi, & Lee, 1998). Also, pricing practice that may fit with revenue management principles are discussed. Lastly, customer perception should be evaluated

while implementing revenue management in order to avoid that the practices are badly accepted by customer generating dissatisfaction (Kimes & Wirtz, 2003).

Business case method (Scapens, 1990) has been chosen for observing whether and how revenue management is implemented in a business reality. Hence, last section discusses the case of AirFood Italy, a company operating in the food service industry with more than fifty stores located in all part of Italy. Since the company is part of a group which operates in Travel Retail industry the stores are divided into four channels: railways, airports, motorways, and shopping mall. However, for the sake of simplicity, the case only analyses stores located in the airport that counts circa a third of total food and beverage stores as considered enough significative for the analysis. In the chapter is discussed whether and how the company implements revenue management practices.

Chapter 1   Revenue management

Revenue management is a practice which is becoming more and more relevant in management accounting research. This is because of the ability to synchronize marketing and management accounting practices. It leads operational activities, pricing, and inventories decision through a demand view in order to improve profitability though revenue maximization.

Revenue management was developed for airlines industry and hospitality in response of increasing competition. While it was developed for large businesses, revenue management practices have been adopted to an increasing number of small companies (Akroyd, Frederick, & Harrison, 2013). Revenue management is concerned with creating and managing service packages to maximise (Chang, Chen, & Xu, 2007) through price differentiation strategy, or in other words, revenue management is selling the right product to the right customer at the right time for the right price (Smith, Leimkuhler, & Darrow, 1992). Such industries seek revenue maximization since they are associated by fixed capacity and perishable inventories. Fixed capacity as either airlines and hotels have a fixed number of seats and rooms; perishable inventory as once a room or a seat is unsold represent a permanent loss with no other selling opportunity (Heo, 2013). As a result, revenue management used to change prices along time as well as asses when such fares should be kept or left. Moreover, in addition to pricing policies it encompasses also product configuration, and process management (Akroyd, Frederick, & Harrison, 2013). Business that implements revenue management might enjoy 2-5 per cent increase in revenues (Hanks, Cross, & Noland, 2002; Smith, Leimkuhler, & Darrow, 1992); for this reason, more and more companies across several industries are starting using revenue management as strategic tool for increasing profitability. In fact, revenue increases might have a decisive impact on investment strategies and financial policies as, whether correctly coordinated with cash flows, it would improve the financial performance of the company. Meaning that, for large companies it leads to a better financial position and, for small companies, more funds for investment since they have less access to credit (Damodaran & Roggi, 2015).

As management accounting, revenue management is concerned with decision making process. Particularly, decision making practices in revenue management comprises data

collection, data analysis and modelling, inventory controls, pricing policies (Shields, 2006; Talluri & van Ryzin, 2004). Data collection concerns data mining about habits, trends, and customer demand. Such data are gathered through ordinary instruments such as point-of-sale systems, barcodes, and websites. Accounting information might be recorded both by software packages and pen-and-paper. Then, such data should be analysed and processed in order to asses customer profitability and to find patterns of differential demand through forecasting and customer segmentation. Data analysis and modelling is supported by management accounting tools to identify which way might lead to revenue maximization. Inventory control concerns with technics to maximise revenue from available sources through management accounting techniques as theory of constraints, CRM, and capacity management. Pricing policies are based on demand insight by charging prices to insensitive segment and lowering prices to sensitive one. CRM techniques would support such decisions (Akroyd, Frederick, & Harrison, 2013).

Likewise, management accounting match with such techniques as main decision-making support process encompasses; information identification, recording, analysis, and reporting (Atrill, McLaney, Harvey, & Jenner, 2009). However, it emphasizes more on demand data and revenue improvement. In conclusion, it links marketing techniques together with accounting practices (Akroyd, Frederick, & Harrison, 2013) since it acts with a strategic management accounting approach linking management accounting with strategic accounting. Therefore, in order to implement revenue management, it should be investigated; competitor accounting, customer accounting, product profitability, and pricing.

1.1 Competitor accounting

Competitor accounting is a central issue in strategic management accounting. It helps companies to be aware on the competitive situation in order to carefully assess which position in the market should be held, thus which strategy undertake. Competitor accounting focuses on competitor observation to get which role company might play in the greater competitive context in a comparative way. Hence, competitive advantage can only be created by comparison to competitors as comparison can be clearly and precisely defined thanks to its predictability. Such comparisons are implicitly included in forecasts and

pricing; however, it is quite difficult to determine clearly the reason of any variation from forecast results (Ward, 1992). Therefore, it is crucial for managers to determine competitive environment in order to avoid critical consequences of wrong evaluation. Competitor accounting pass through two main steps; benchmarking that allows company learning from competitors and positioning that would lead to opportunities and threats identification.

1.1.1 Benchmarking

Benchmarking is defined as *"the search for industry best practices that will lead to superior performance"* (Camp, 1989), a continuous assessment of product, services, and best practices through comparison with key and main competitors recognised as leaders. Therefore, it tries to determine through which factors competitors have gained market share. Even though it looks like competitor's emulation it would be a tool that give the company useful advises, insights on which changes should be done, and which strategy should be pursued. Exist four dimensions of Benchmarking; internal, competitive, functional and generic (Camp, 1989). These can be defined as follows:

- *Competitive benchmarking* - comparison with a direct competitor,

- *Internal benchmarking* – seeking internally for best practices,

- *Functional benchmarking* – comparison with similar functions that leads the market,

- *Generic benchmarking* – comparison of best practices through different sectors.

While internal and functional benchmarking look at more specific information, competitive and generic benchmarking look more at competitors as whole. For this reason, competitive and generic benchmarking are considered more consistent in this analysis and called external benchmarking (ten Raa, 2009) for sake of simplicity, even though internal and functional benchmarking might be used anyway in determining competitive advantages. External benchmarking is applicable either to companies or to business units. It is based on the comparison of both financial and non-financial element.

According to Russell (1995), benchmarking could be implanted by a five steps process:

(1) Decide process for benchmarking

(2) Find companies to benchmark

(3) Gather data

(4) Analyse data and translate results into action plans

(5) Calibrate the plans as needed and restart the process

This simplified model demonstrated that benchmarking might be an easy and efficient method to implement (Russel, 1995). In the first step, should concentrate on the purpose and importance of benchmarking as well as what to benchmark. Second step focuses on the dimension of benchmarking such as sector and inter-sector analysis, and who should be benchmarked. In fact, only few key competitors should be analysed. Third step concerns with the research. Data could be gathered in both formal and informal way, what is crucial is the materiality and the homogeneity of data to preserve the quality of the analysis and to guarantee comparability. Steps four and five final steps in the benchmarking process. It is at this point that the results of the benchmarking plan are evaluated, selected, and implemented. Moreover, the whole benchmarking process is used as a continuous learning activity to improve the quality of the analysis since benchmarking is not a *una tantum* analysis, rather a cyclical process of research and development process for business strategy (Russel, 1995; Shirley, 2011).

1.1.2 Positioning

Once defined market segment and competitive environment is assessed, company should decide position in the market regarding such segments. Positioning concern with customer perception of the company and its products related to competitors. Therefore, positioning means to gain value from customer's perspective in order to be preferred over competitors. Correct positioning allows company's differentiation, then to achieve target segment effectively. Factors that foster positioning are; positioning against competitors, product and

services coherent with customers' needs, get correct resources to communicate and keep position in the market.

Figure 1: Placement process
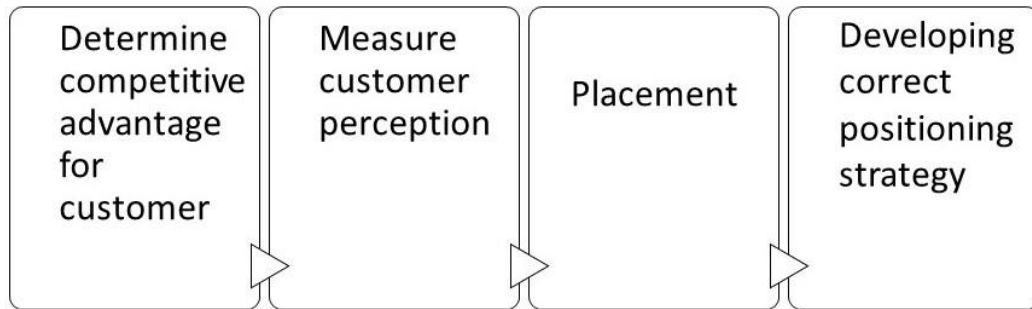
As shown in figure 1, positioning process consists in four fundamental steps:

- *Determine competitive advantage for customer* -First step is to identify which characteristic potential customers seek in a product. Even though characteristics vary among companies and sectors, some competitive advantages are common in all industries. Prices and service quality are attributes that mainly contributes to customer perception. Therefore, companies use such elements as perception levers to communicate supremacy over competitors. Moreover, other peculiar elements should be considered such as location, and service portfolio. Such elements are captured with feedback system through surveys and reviews.

- *Measure customer perception* - Once identified competitive advantages is necessary to measure how customer perceive products or services feature. Clearly, customer perception cannot be measured without a deep evaluation. A method used is benchmarking, where company compare own offering with competitors, and which is customers' opinion on competitors' offering. Then is possible to draft a so-called *perceptual map*. Perceptual map is a graph where two main competitive advantages are taken onto account; price and quality, or any other couple of variables that best represent competitive advantage. The graph (Figure 2) creates four quarter, that

represent company position in the segment; quarter 1 – leader, quarter 2 – advanced, quarter 3 – appropriate, and quarter 4 – outcast.

Figure 2: Perceptual map
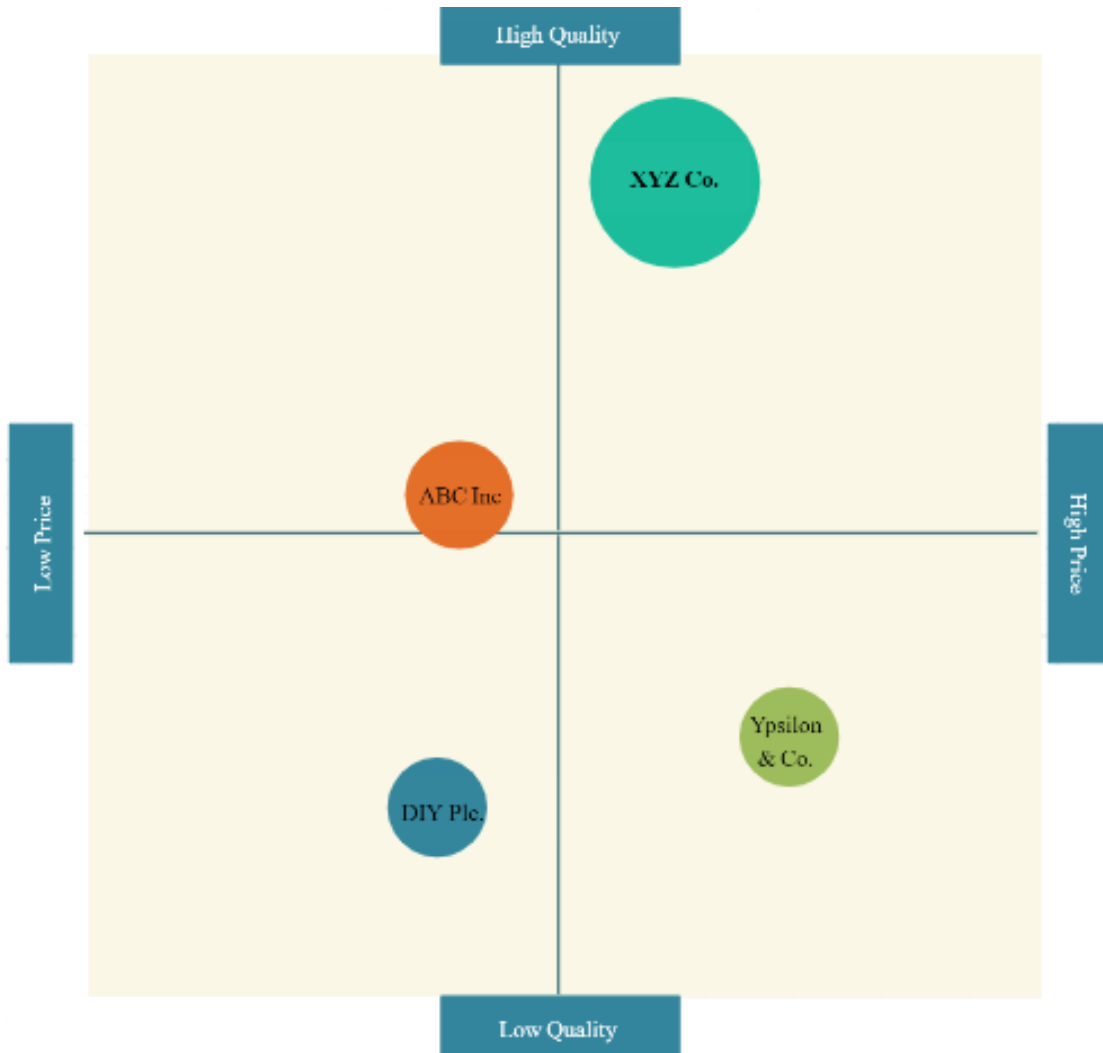
- *Placement* - Companies should choose which place occupy in the market. Perceptual map helps visualize where no companies are occupying a certain part in the segment. Thus, a company should target that position in the market in order to differentiate from competitors. Then, find the perfect marketing mix and communicate adequately to be perceive effectively by customers (Ravenna & Pandolfi, 2010).

- *Strategy* - Differentiation is an effective way to gain competitive advantage and strengthen positioning in the market. Differentiating means to be perceive as distinct from competitors. In this regard, so-called *Blue ocean strategy* help to differentiate effectively from competitors. Blue ocean strategy is a differentiation strategy that pursues to open a new market space and create new demand by capturing uncontested market. Kim & Mauborgne divide the market into; *red ocean* and *blue ocean*. Red oceans are all market spaces already overseen by other companies. Here, rivalry is fierce to grab a greater share of existing market, then lowering profits and growth opportunities. Due to the 'bloody' competition such situation has been described as red oceans. Blue oceans, instead, denote the unknown market space, then without competition. Hence profit and growth opportunity are high. In blue oceans, competition is not a relevant issue as it appears as an uncontaminated market share. In order to pursue a blue ocean strategy should be defined which feature could distinguish a company in a given sector, then create a brand-new mix of feature to cover an uncontested market share (Kim & Mauborgne, 2005). In the figure below blue ocean strategy canvas according to Kim & Mauborgne.

Figure 3: Blue ocean strategy canvas
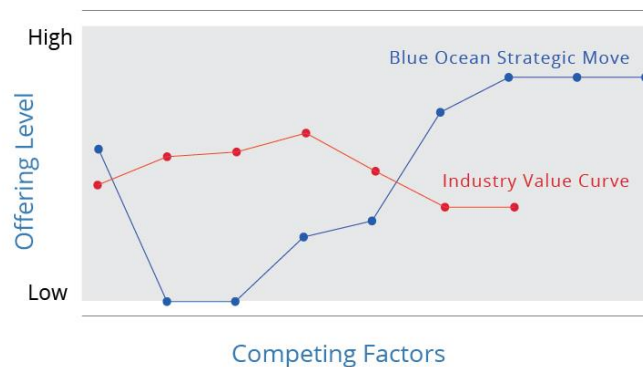
The canvas shows which feature a blue ocean company avoid or embrace in order to differentiate its package from industry. This enabled company to cover an uncontested market share and avoid competition.

To test the effectiveness of differentiation strategy, SWOT analysis may give a measure to the quality of the competitive advantage. SWOT analysis combine external factors, *Threats* and *Opportunities,* with internal factors, *Strengths* and *Weaknesses.* Internal factors are those where a company may intervene directly through achievable goals. External factors, instead, are those that should be forecasted and handled in order to subtract market share to competitors (Ravenna & Pandolfi, 2010).

1.2   Customer accounting

Correct application of revenue management requires information about products, customers and competition. Distinguishing distribution channel and group of customers might lead to different prices and product mix. However, the most impacting side is the level of customer service required by different groups or market segment as lower prices might be paired by cost saving generated by variation in customer service required by different customer groups. Hence, even though a group of customer has lower price level it might be even more profitable than top price level. Therefore, company's surround should be segmented into homogeneous group regarding specific market and competitors in order to address resources to customer grouping that are more profitable and retain resources to those areas that generate losses.

Any large organisation, small multi-product or multi-market businesses should provide the appropriate information by dividing its structure into strategic business units (SBUs). This would aim any SBUs to specific customers, and to compete against specific identifiable competitors as well as producing and selling a specified range of product. Hence, each SBU should represent a different range of corporate strategy to pursue. Indeed, in the increasingly competitive market the need to retain and develop existing customer is considered a critical success factor. This is traduced into strategic focus of expanding existing product portfolio to the existing customer base rather than expand customer base for the existing products (Ward, 1992).

_Figure 4__: Maximising value of existing customer_

Product

	Existing	New
Existing		→ Main strategic thrust
New		
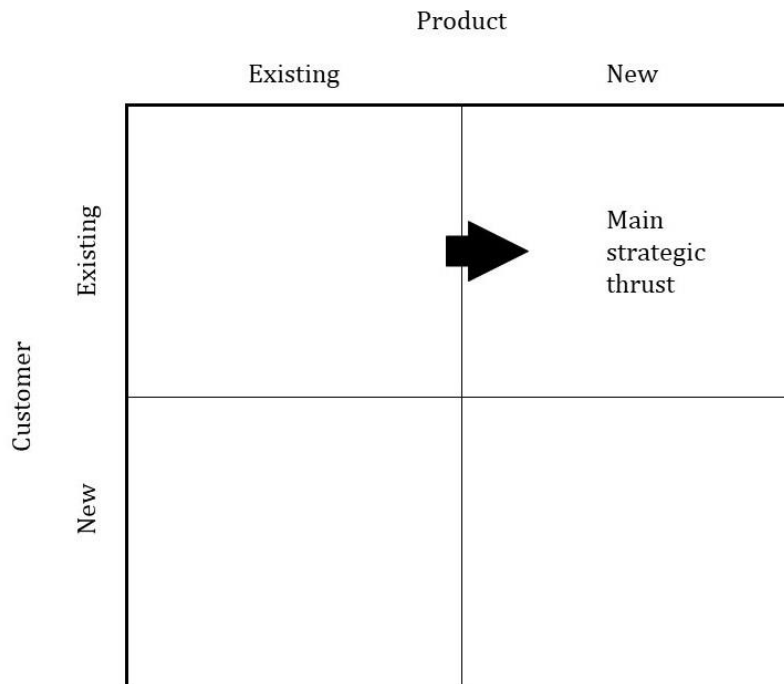
Customer

Source: Ward, K. (1992, p. 119).

1.2.1 Customer retention

Indeed, primary element is to retain the existing customer in order to create a loyal customer base for the business. In fact, increase in market share could be achieve in two ways; acquiring new customer and increasing revenues from existing customer. It is quite easy to achieve such goal in a growing market, as customers grow rapidly, competition is not that fierce, and, often, spending capacity increases. In stagnant market, where growth opportunities are little or nothing and competition is fierce, it is quite impossible to acquire new market shares. In such situation customer retention is a critical success factor. In fact, acquiring new customer is often an expensive process due to the huge marketing investment needed, while customer retention represents in that sense a cost saving. Therefore, benefit of enlarging range of product sold, as shown in figure 4, to existing customer results even larger in such perspective. In fact, as demonstrated by most successful companies, it is more likely that a loyal customer will increase purchasing of such range of product rather than buying the same product to other companies. Moreover, it is likely that companies with high turnover in the customer base will find problems in launching successfully new unrelated

products. However, it should not be looked at the relative cost effectiveness of the product range enlargement as introducing new product might lead to hidden or emerging costs that may have a dramatic impact on profitability. This might include also potential mismatch between customer expectation and level of quality. In fact, whether level of quality customer expect from company's new product is not attended it might lead to opposite outcomes. Under investment perspective should be avoid investment which implies increase fixed costs; then, additional product should be designed to exploit existing production capacity in order to employ operational costs more efficiently.

This strategy is not that direct, in fact, for many retailers and service business might be more critical. Firstly, such companies have less loyal customers as they simply use their product or service more casually and often disappear. This highlights the importance of assessing the degree of regular purchasing and, also, what factors contributes more to create loyalty among customers. However, such factors often have little to do with product portfolio and more with customer service and quality. Then it becomes more likely that selling similar positioned product will succeed in increasing sales more than enhancing product portfolio. In any case, an appropriate customer grouping is needed to lead at a correct customer accounting and allocate properly available resources as well as implement a price differentiation strategy (Ward, 1992).

1.2.2 Segmentation

Whatever corporate strategy is, revenue management should focus on market segmentation to correctly grouping customer into homogeneous groups in order to cover as much market share as possible and address correct product to right customer. Market segmentation is the division of the total market into smaller part, called segments, which encompass consumers group regarding their needs. In order to correctly identify each segment it should be divided customer according to; demographic and geographic origin, socio-economic background, psychographic profile, purchase behaviour, consumption behaviour, and any other element could allow to identify potential customer profile (Locane, 2009).

Once identified and grouped customer into segments, it is necessary to focus on some key aspects in order to translate theoretical representation into a usable tool. Hence, an effective segmentation should present;

- *Characterisation* – segments should be easily identifiable, namely market should present some intrinsic differences (e.g. price sensitivity) otherwise segmentation is likely to be a mere theoretical representation rather than a useful tool,

- *Measurability* – actual or expected demand should be shown in a dimension that is quantifiable (i.e. number of potential customers, average bill),

- *Accessibility* – customer should be reached with a precise marketing mix,

- *Economic relevance* – each segment should have an extent such that worth company's attention. Therefore, costs and revenues should be comparable with the other segment.

- *Satisfiability* – resources should be appropriate with segment's needs.

Figure 5: Demand segment
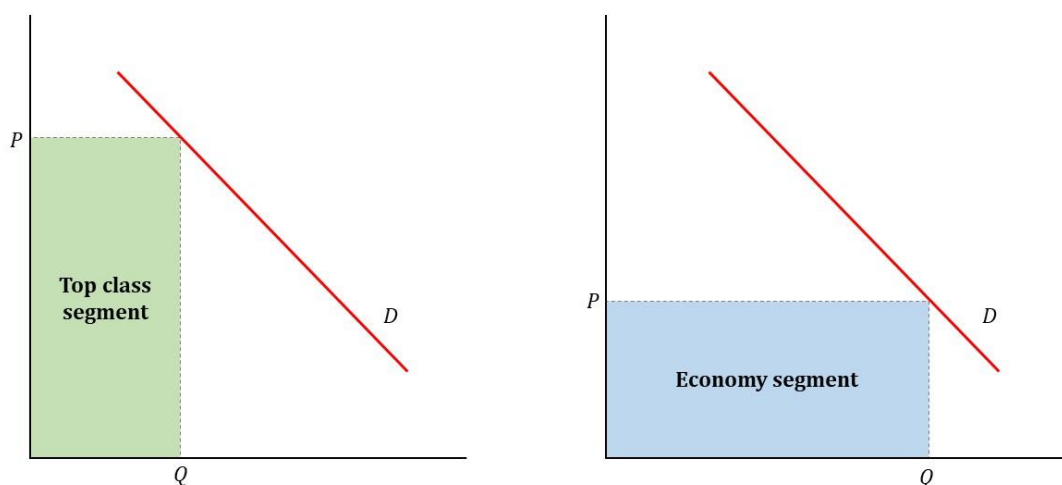
Source: Autor's elaboration

Figure 5 shows how segments are represented into demand curve. Each market segment corresponds to a certain marketing mix as it matches with different customer needs. What emerges is that companies have several groups of customers with similar characteristics (Ward, 1992). Therefore, it should be decided which segment company would aim in order to choose the correct marketing mix.

In this regard, three typical strategies are identified; differentiated marketing, non-differentiated marketing, concentrated marketing. In non-differentiated marketing (A), companies approach to entire set of customers rather than focusing to a specific segment, whereas companies which pursue differentiated marketing supply a limited set of products to identified segments. Therefore, it could be targeted either a specific segment (B1), specific product (B2), or a different product for each segment in order to differentiate effort (B3). Concentrated marketing (C) is a differentiated marketing radicalisation since it focuses on product designed for a single segment in the market (Figure 6) (Locane, 2009).

Figure 6: *Segmentation strategies*
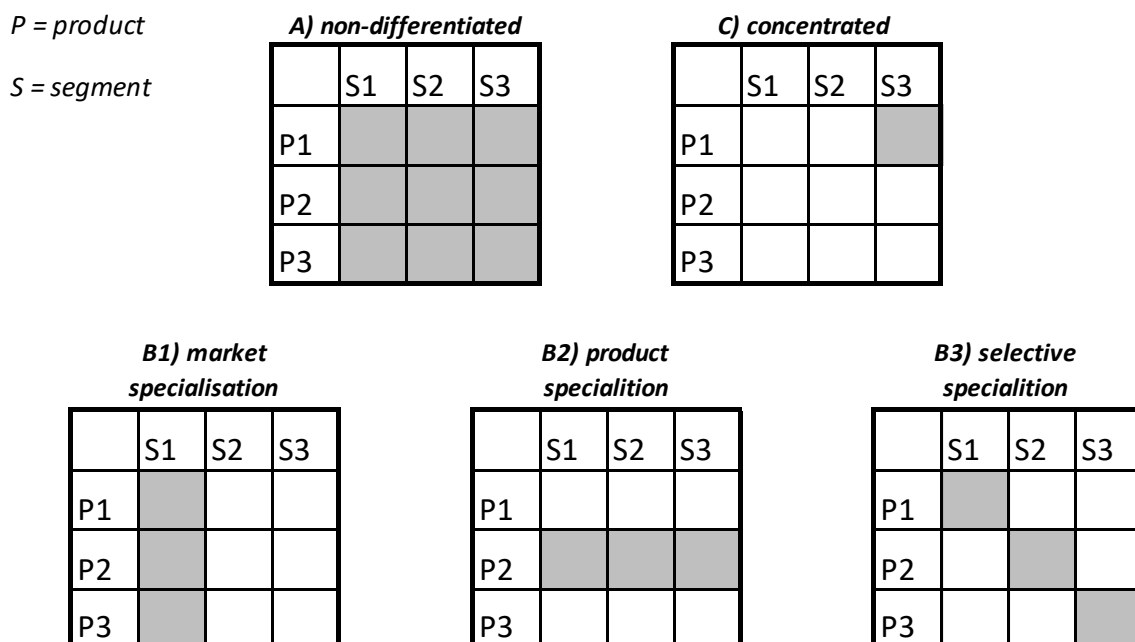
Source: Kotler P., Bowen J., Makens J. (2007)

Hence, segmentation is a powerful tool for companies that allows to group customer with similar characteristics. At the same time, it allows to keep companies' strategy consistent

with actual demand. Revenue management focuses on market segmentation since it tries to allocate all available resources exploiting the heterogeneity of demand.

In fact, market might be observed in both supply and demand side. Whether market is looked from a supply side it is likely to observe a product differentiation, namely the attempt of a company to have products markedly distinguishable by competitors. Whether market is observed from demand side is likely to observe segmentation as under this view is much more important to distinguish one customer or a group of customers from another in order to address product with correct feature. Segmentation and product differentiation might be employed simultaneously as applied in sequence in response to changing market conditions. Therefore, once identified customer groups and their preferences is clearer for a company which features a product should have in order to be better differentiated in a market. Thus, having a product much more addressable to target segment. This is in contrast with the traditional differentiation theory which was associated to the high standardisation of the product (Smith W. R., 1956).

1.2.3 Customer perception

Perception is the process by which a person may select, organize, and interpret sensations. Sensations are felt by sensory receptors (i.e. eyes, ears, nose, mouth, and skin) which are activated by external factors called stimulus as light, colour, odour, texture, and sound. This is concerned with selecting and organising sensations. The latter stage, interpretation, is focused on what gives meaning to raw sensations. Meaning of a sensation is related with people's unique biases, needs, and experiences that would aid in consumption decision-making. As Figure 7 shows, the three stages of exposure, attention, and interpretation make up the process of perception.

Figure 7: *Perception process*

Source: Kapoor, R., Madichie, N. O. (2012, p. 153)

- *Exposure* – It occurs when a stimulus is received by the range of sensory receptors sight, smell, hearing or touch.

- *Attention* – *"It refers to the extent to which processing activity is devoted to a particular stimulus"* (Kapoor & Madichie, 2012). People are generally in a state of sensory overload as exposed to more information than they can process. Therefore, consumers may be attracted by certain stimuli rather than others, or consciously ignore certain messages.

- *Interpretation* – It refers to the personal meaning assigned to a specific sensory stimulus. Meaning that, people differ the meanings they assign to their own stimuli. The set of belief, culture and experience generate the schema to which a person assign sensation meaning. Identifying and evoking the correct schema is crucial to determines what criteria consumers will use to evaluate company's outcomes.

Therefore, a person is firstly exposed to stimuli before giving any attention, then such stimulus is processed and interpreted according to a personal schema. Exposure detected by sensory receptors is then processed by the whole sensory systems. Levering on sensation input can play an important role in helping it stand out from competition, especially if the brand creates a unique association with the sensation. Today, products and services sensory experiences are acquiring much priority while choosing among products and/or brands. Therefore, sensory receptors should be used as levers to impact on customer perception as follow:

- *Smell* – Smell is able to stir up emotion, re-emerge memories or relieve stress as this sense is related to pleasure and well-being and is closely connected to emotions and memories.

- *Sound* - Sound is linked to emotions and feelings it impacts on brand experiences and interpretations. With sound a company may both creates a unique logo and evoke feelings to express its identity.

- *Taste* - Our taste receptors obviously contribute to our experience of many products. Changes in our culture also determine the tastes we find desirable. Thus, tastes are often object of glocalization.

- *Touch* - Touch can influence sales interactions as demonstrate by Britain's Asda who has removed the wrapping from several brands of toilet tissue to feel and compare textures. The result has been soaring sales and 50% increase in shelf space.

- *Vision* –Visual elements play a crucial role in advertising, store design, and packaging. They are used to communicate through the visual channel by product's colour, size, and styling. Colours may even influence our emotions more directly. Some colours create feelings of arousal and stimulate appetite, and others create more relaxing feelings. However, feelings and meaning of colours vary depends on cultural background. Meaning that, the same colour is interpreted differently among different cultures.

Nevertheless, people do not perceive same stimulus homogeneously as the same stimulus attract attention to some people rather than others and anyway different experiences among people makes different interpretation; then, also what people keep is a rather personal process. Therefore, perceptual process is developed in a sub-sequential process:

- *Selective attention* - people select or ignore most of information they face. This means that companies should strive to give correct input to customers in order to attract their attention.

- *Selective distortion* - simply means the discrepancies in the way people perceive the same stimulus even under common conditions and circumstances. In other words, people tend to interpret information on the base of their past experiences and beliefs. Therefore, a company should strive to understand the mindsets of consumers and which impact it has on the interpretations of any message or advertisement given by the firm.

- *Selective retention* – concerns to how consumers remember good or bad points about brands. Therefore, it would build up the final opinion on the brand itself.

Perception distortion

However, not all stimuli are prone to be captured by individuals due to so called sensory thresholds. Sensory thresholds are the lowest or highest intensity of a stimulus that can be correctly grasped and processed by sensory channel. Sensory thresholds might be either absolute or differential. On the one hand, the absolute threshold refers to the minimum amount of stimulation that can be detected on a specific sensory channel. The absolute threshold is an important consideration in the design of marketing stimuli. On the other hand, the differential threshold refers to the ability of a sensory system to detect changes or differences between two stimuli. The minimal difference we can detect between two stimuli is the barely noticeable difference (JND).

The ability of a consumer to detect a difference between two stimuli is relative, as demonstrated by Weber's law. Ernst Weber discovered that the amount of change required by the perceiver to notice a change is systematically related to the intensity of the original stimulus. In other words, the stronger the initial stimulus, the greater a change must be to be noticed. Indeed, the same discount in absolute terms will not produce the same effect among consumers. For example, a product that comes to 10 should be offered for sale for 8, so at a discount of 2. However, a product for sale for 1000 would not benefit from a mere discount of 2. In that, a retailer should mark it at 800 to achieve the same impact. Since the brain's ability to process information is limited, consumers are very selective about what they pay or don't pay attention to. So according to the perceptual selection process people only deal with a small part of the stimuli to which they are exposed. Consumers practice a form of *psychic economy*, collecting and choosing from the stimuli to avoid being overwhelmed.

The issue of when and if consumers will notice a difference between two stimuli is relevant to many marketing situations. Sometimes, a marketer may want to ensure that consumers notice a change, as when a retailer offers merchandise at a discount. In other situations, the marketer may want to downplay the fact that it has made a change, such as when a store raises a price, or a manufacturer reduces the size of a package.

Perception is influenced by both internal and external factors. Internal factors are related to personal factors such as experience. Within internal factors are encompassed other factors are linked to our perceptual filters, perception vigilance and perceptual defence. Perceptual filters influence whatever stimuli we decide to process, while vigilance is related to the chosen stimuli that make it through our perceptual filters. Perceptual vigilance is a form of perceptual defence. In other words, consumers block out all stimuli that might affect them in some way. This is often the case when a stimulus seems a threat in some way, and consequently being refused to process it; either decide to distort it to make it more acceptable.

Perception is also distorted over time. In fact, a stimulus might not be noted with same extent over time due to adaptation. Therefore, adaptation simply refers to the extent people continue to notice a stimulus over time. The process of adaptation occurs when consumers is so habituated to a stimulus that no longer pay attention to that. A habituate consumer requires then increasingly stronger doses of a stimulus in order to notice it. Adaptation might be caused by several factors. Duration and relevance might foster adaptation since systematic or unimportant stimuli are more prone to turn into habits. In the same way, exposure and intensity concern with sensory impact; the less the sensory impact is the higher is adaptation to a certain stimulus. Therefore, in order to increase sensitivity impact on customers it should be created a contrast to stand out product or service proposal. To create such contrast colours and size might be used as visual contrast. Also, position is prone to attract customer attention as eye span of customer is limited and only what is within their range of vision may attract attention. Lastly, novelty might increase sensory impact as it is perceived as unexpected. Novelty is not only concerned as something new, but also ads positioned in unconventional place might be perceived as novelty since there is less competition for attention.

Consumer image and marketing perception

Apparently, many marketing images have virtually no literal connection to actual products. Therefore, in order to better understand how consumers interpret the meanings of symbols, semiotics might be useful. Semiotics is the study of the correspondence between signs and symbols and their roles in how people assign meanings. Semiotics plays a crucial role in

understanding customer behaviour since consumers use products to express their social identities. Under semiotic view, every marketing message is composed by an object, a sign, and an interpretant. The object is product which the message focusses about. The sign is the visual representation of the meanings of the object. The interpretant is signifier of the sign. Signs can either resemble objects, connect to objects, or be conventionally tied to an object. According to Kapoor & Madichie (2012) icons, index and symbols might be conceptualised as follow:

- Icon - A sign that symbolise the product in some way,

- Index - A sign that is connected to a product because they share some property,

- Symbol - A sign that relates to a product by either conventional or agreed-on associations.

All feature discussed so far may affect customer perception of products and brands. In fact, brand perception comprises either symbolic or functional attributes. Product evaluation is often the result of what a certain product means rather than the product itself. Therefore, market positioning is also a matter of ability to a company to send effective signals to customer in order to attract their attention and being positively perceived.

Moreover, another factor that may affect customer perception is the risk each customer associates to a certain product. Risk might be functional whether associated to a concrete risk derived by the usage of a product experienced by a customer; as well as psychosocial whether associated to a more abstract and subjective nature. Under this conceptualisation Kapoor & Madichie (2012) have individuated five kind of risks including both objective and subjective nature:

- *Monetary and financial risk* - mostly associated with price sensitivity of a customer.

- *Functional risk* - related with performances.

- *Social risk* – related to self-esteem and confidence.

- *Psychological risk* – like social risk but more associated with social status.

- *Physical risk* - concerned with the aspect of physical vigour, health, and vitality.

Seeking information, continuing with the same brand, going by brand image, storing image, buying most expensive product, seeking reassurance. Risk may be perceived in any or all parts of the initial choice alternatives whether choice of product, brand, store or distribution channel. The perceived risk level is a product of the degree of uncertainty and the extent of the consequences that would result from a 'wrong' decision. According to Trent "the extent of the information initially available to the decision-maker impacts upon the level of risk perceived. Indeed, the demographic, economic and psychographic features of the consumer influence both the perceptions of risk and the risk reduction strategies adopted accordingly.

One effective way to determine how a product is perceived and, thus, located in the market is to construct a perceptual map by asking them what attributes are important for them and how they perceive competitors.

Figure 8: *Product perceptual map*

Source: Kapoor & Madichie (2012, p. 163)

As for companies, product perceptual map (Figure 8) is built on two key variables that are identified as crucial for customer. Such map might be an effective way for companies to arrive at the correct marketing mix that lead to product differentiation from competitors (Kapoor & Madichie, 2012).

1.3   Product profitability

There are many marketing models, the best known is the infamous model of 4P, also known as marketing mix. In other words, according to this model, there are 4 levers that might be used to achieve best value for product or service supplied.

The 4P model was theorized by Edmund Jerome McCarthy in the book *Basic Marketing. A Managerial Approach* in 1960. Fifty years is a long time, especially for a model that tries to provide tools for a subject, marketing, which has increasingly become a very multifaceted and ever-changing social process.

1.3.1   Marketing mix

McCarthy (1960) identifies 4 elements that can be used, even and especially in concert with each other, to achieve the company's goals; product, place, promotions, and price.

 Product

By analysing this item, you can identify all the strategies that affect the product or service as such. For example, line or range expansion strategies can help achieve business objectives. It may be helpful to try to answer the question: *How can I develop or modify my products or services? Can I decline my product depending on my customers?*

Place

Place is intended as a distribution or, in other words, as an access point to the product. Even the store can decide the success or failure of a good marketing project.

Promotions

Communication is often misunderstood as a synonym for marketing. Managing their own media is the challenge that every company is called upon to make itself known, transmit information, emotions and communicate the product.

Price

The price is certainly a very important lever especially regarding customer satisfaction. To realize this, just consider a very simple equation:

[1]

$$Satisfaction = Value - Price$$

In other words, any customer assigns a value to a product or service, which is a subjective value. This value is called *willingness-to-pay,* namely the higher price it is prone to pay for a given good or service. Clearly, any consumer is willing to pay for any price which is lower to its own willingness-to-pay, instead, it is not for any price which over its own willingness-to-pay. Whether this value is lower than the price required to purchase the product, the customer will be satisfied. However, it must be considered that the price contributes to the attribution of value as whether a price is too low, it can cause a product to lose appeal, even making potential customers suspicious.

In 1981 in the book *Marketing Strategies and Organizational Structures for Service Firms*, Booms and Bitner added another 3P. As per its title, the book deals with the marketing of the services, but this does not imply that the additional 3 levers cannot be contemplated even for the products.

Processes

It is all processes that involve the supply of a product, or the use of a service by the customer. *How is the purchase process managed in your company?* Production processes are also

important for marketing: if our structure follows the dictates of lean production, certainly cab be given a better service to the customer, being company preferred over the competitors.

Physical Evidence

It is the practical demonstration of product or service. Not only a try-and-buy, but also the welcome in a store, the security that the UI of an e-commerce manages to convey, the friendliness and preparation of the contact staff.

People

The markets are composed of people; therefore, conversation is needed as these people directly or indirectly affect the success of a marketing strategy. The moments of truth are precisely the moments of contact between the customer and the company and often these moments involve the presence of people as sales or customer service workers. In the end, if not directly mentioned by McCarthy (1960) and Booms & Bitner (1981) suppliers and partners are important in marketing management as networking is becoming more and more relevant in corporate value chain.

What emerges by marketing mix is that all 7 variables might be used by any organisation to achieve any organisation goal of satisfying customers' needs (Giovanelli, 2005). Customers' needs are rather personal and specific; thus, such goal is barely achievable employing a high standardisation to keep lower production costs. In fact, nowadays standardisation is being replaced by customisation due to increasing awareness of customer about quality, design, and features of product that leads to product that corresponds exactly to specific needs.

1.3.2 Customisation

Mass customisation would be the response at this trend. It means producing goods and services for several customer, which meet exactly the needs of each individual customer regarding certain product characteristics at a cost that roughly corresponds to mass production (Piller & Muller, 2004). This would highlight that mass customisation is not a one-size-fits-all solution, it would rather be the realisation of the creator of unlimited demand concept. According to Pine "*customers don't want choice. They want exactly what*

they want." (cited in ter Harmsel, 2012, p. 21). There exist four different types of mass customisation (Gilmore & Pine, 1997):

- *Collaborative customisation* – product is jointly designed by customer and company through a dialogue with individual customers to determine the precise features customers' needs (e.g. Product to order).

- *Adaptive customisation* - firms produce a standardised product which can be customised by the customer.

- *Transparent customisation* - Even though products are designed to fit individual customer, customer are not informed about customisation.

- *Cosmetic customisation* - standardised products are presented to different customers in unique ways. In this case is more a customised communication rather than a customised product.

In some cases, a single approach is enough. However, a mix of some or all the four approaches might be used to implement customisation strategy (Gilmore & Pine, 1997). Under a production perspective customisation can be defined as "building products to customer specifications using modular components to achieve economies of scale" (Duray, Ward, Milligan, & Berry, 2000). As a result, four mass customisation archetypes are identified:

- *Fabricators* – they involve customer in both design and fabrication stage of production cycle. Fabricators provide unique product with unique characteristics;

- *Involvers* –customers participate again in the process from design to fabrication, but product are assembled with existing modules;

- *Modularisers* - customer are involved to personalise modularity feature.

- *Assemblers* – producers exploit modularity to create a great variety of choices for customers.

Applicability of mass customisation in services is not explored as for the manufacturing industry. However, it is may provide value added also to service industry. Thanks to the services characteristics, mass customisation is even more feasible for service industry than customisation for goods. Firstly, "service differ from goods in their intangibility, heterogeneity, perishability, and inseparability of production and consumption" (Zeithaml, Parasuraman, & Berry, 1985). Moreover, services are delivered with direct involvement of customer. The employment of mass customisation implies analysis of main variables encompassed in customisation. In fact, a mass customisation strategy hinges over three principles:

Modularity

The basic concept is to take apart product and process into smaller modular parts and processes. This would allow to create small standardized elements that creates several performance levels and several unique options that may be delivered to customer. Limitation are given since elements are combination of processes, skills, and materials; therefore, taking apart the products the risk is to leave some intangible that might be created by the whole. Modularity in fact involves three dimensions:

- *Product modularity* – is focussed on manufactory side. It might involve components to be combines, added-on, or fitted to match specific requirements.

- *Process modularity* – it seeks to take apart whole process into independent sub processes to achieve flexibility customisation requires. It might be achieved by postponing processes once order is received, rearranging the sequence of generic and standard processes to place at last customisation.

- *Organisational modularity* – first issue in organisational is whether outsourcing or using organisational capabilities. This would allow to increase capacity flexibility in order to increase or decrease capacity as company needs. Outsourcing and partnerships are main solutions.

Figure 9: *Types of modularity for end customised product*

Component -sharing Modularity
Common components used in the design of a product. Products are uniquely designed around a base unit of common components
Example: Elevators

Component -swapping Modularity
Ability to switch options on a standard product. Modules are selected from a list of options to be added to a base product Example: Personal computers

Bus Modularity
Ability to add a module to an existing series, when one or more modules are added to an existing base. Example: Track lighting

Cut-to-Fit Modularity
Alters the dimensions of a module before combining it with other modules. Used where products have unique dimensions such as length, width, or height. Example: eyeglasses

Mix Modularity
Also similar to component swapping, but is distinguished by the fact that when combined, the modules lose their unique identity. Example: House paint

Sectional Modularity
Similar to component swapping, but focuses on arranging standard modules in a unique pattern. Example: Legos

Source: Ulrich, K. T., & Tung, K. (1991)

Different modularity concepts are summarized in figure 9. Modularity is main concept of customisation, therefore the compatibility among industries concerns the extent of how each dimension is used. In fact, for service industry, modularity is a mainly concern of processes and organisation as it generally delivers intangibles products. However, it does not change the main application it would rather identify main characteristic of the service to create a modular-based service. To create a modular-based service it should firstly identified service function and processes, develop a platform where customer can interact to customise, and at last determine a platform strategy to identify service functionality (ter Harmsel, 2012)

On-demand manufacturing

Prefabricated modules are finally assembled once the order is placed. This enhances knowledge about customer needs addressing a better designed outcome. Theoretically, it should lead to less product returns and obsolescence.

Customer co-design process

Customisation could be seen as the extremism of differentiation strategy as it is able to meet specific need of customer, thus being distinguishable from customers. To match such specific needs is necessary direct interaction of the customer with dedicated toolkit or co-design platform (ter Harmsel, 2012).

Modularity and customer integration are inseparable for succeeding of mass customisation. However, level of customer integration varies on the type of customisation being a critical factor for the uniqueness of the end outcome. This means that the earlier customer integration is introduced in the production stage, the greater is customisation level. Five different strategies exist depending on the stage at which customer began to be involved in the process; pure standardization, segmented standardization, customized standardization, tailored customization, and pure customization.

As a result, pure standardisation corresponds with the lowest customisation level as no al stages in the value chain are standardised rather than customised. On the other hand, when highest degree of customisation is accomplished when customers are involved since the beginning, having influence on the design process (ter Harmsel, 2012).

Figure 10: *Customisation stages*
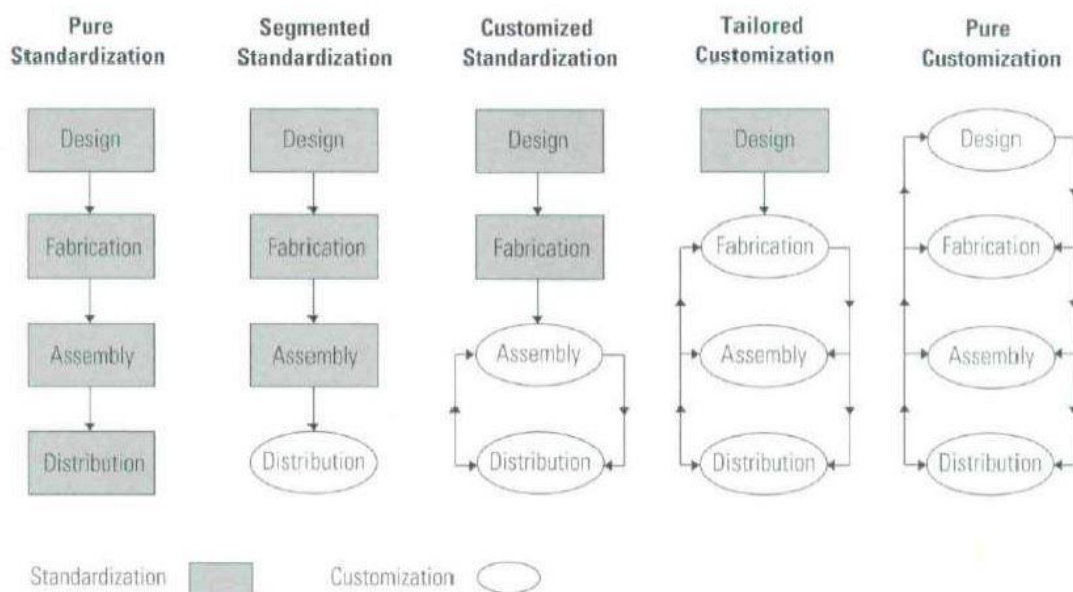
Source: Lampel, J., & Mintzberg, H. (1996, p. 24)

However, customer involvement is not a no cost process. In fact, it should be supported by adequate systems that enable customer interaction with appropriate integration in desired stages of co-creation (Figure 10). Nevertheless, this may allow the exploitation of *economies of integration*, namely potential savings generated by customer-supplier integration into production stage in three different ways; from the postponement of activities until an order is placed, integrating customer gives more precise information and market knowledge which increases the efficiency and effectiveness of market research and product development activities, lastly, customisation increases switching costs for customers as well as decrease effort for marketing campaign, thus, their cost.

As could be noted customisation levers on some variables proposed in marketing mix; product and process are the main issue while talking of customisation, especially for service industry. Physical evidence is explored issue as well since a customised product is directly designed by customer. People is maybe the most important issue within customisation as no customisation is possible without customer involvement and integration in the process. Also, promotion is rather important as a good communication is necessary in the customer involvement process. Lastly, place is embodied by the interface where customer has direct access for customising their process. The other variables, price, should not be forgotten.

1.4 Pricing

As suggested by economics teaching, revenues are product between prices and quantity sold, where price is given by the match between demand and supply. Therefore, as shown in figure 11, for any level of price there will be a corresponding level of quantity that might be sold. However, in real life the perfect level of quantity a supplier should offer the market and consumer asks to market is not that clearly defined. Any consumer valuates all known purchase possibility with an unconscious process. It expresses with monetary terms its own willingness-to-pay.

Any mismatch between demand and supply generate a surplus in demand or in supply. A demand surplus happens when supply is not able to satisfy the whole demand, then the willingness-to-pay is higher than prices. A supply surplus instead happens when suppliers are offering more than the quantity is actually asked by the market, then the willingness-to-

pay is lower than prices. Demand and supply surplus represent unexpressed market potential, then revenue losses (Ravenna & Pandolfi, 2010). Such losses might be avoided whether a company understand clearly which segments a company faces to and related willingness-to-pay in order to customise offering and meet customer needs. As a result, revenues in a mass-market strategy will be the product between price and quantity, with segmentation instead it will be the sum of the quantity sold for the price at which is sold in a specific segment.

Figure 11: Price diversification strategy
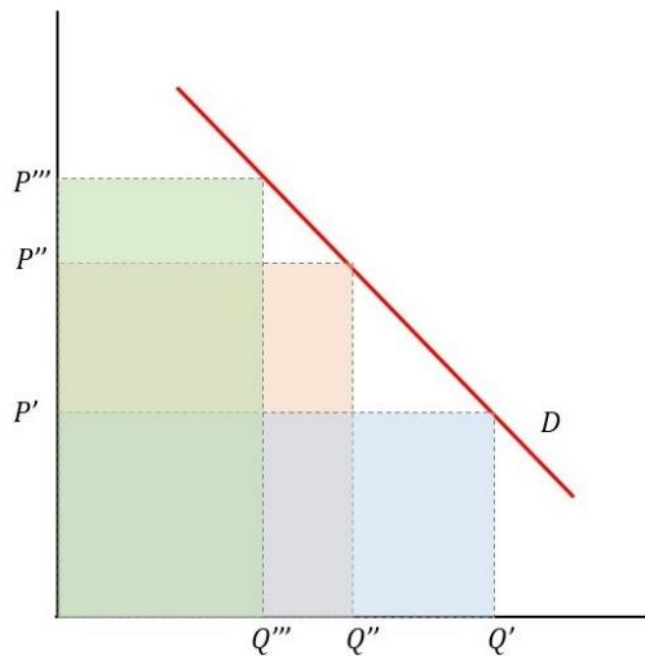
In the figure 11 is shown the segmented demand curve. Under the demand curve are shown different segment with different willingness-to-pay, all blank triangles correspond to uncontested market segment, then to lost potential revenues. In fact, companies which pursue a Monoprice strategy may only attract segments that equals the corresponding willingness-to-pay, thus covering only that quantity of customer that are willing to pay that price even if our capacity is higher. On the contrary, companies that pursues price

diversification strategy are able to cover more market demand. This would allow companies in such industries to extract more market potential. However, focusing solely on sales minimizes the whole impact of the segment. In fact, it ignores add-on feature or emerging costs of embracing one segment rather than another. Therefore, companies should target those segment that most represent their core competencies rather than those whose ask for new ones as it generates emerging costs of entrance that erodes margins.

Ability to allocate properly and valuation of sensitiveness of the market segment allow service companies to optimize both revenues and margins. In order to better understand how different customers react to prices variation, take in consideration two different segment: leisure and business segment. Leisure segment are generally highly sensitive to prices and demand switch rapidly to those who offers even a slightly lower fare. Business customers instead are less sensitive then price variation does not imply a significant change in quantity demanded.

1.4.1 Cost-based pricing

Cost-based pricing methods are widely used due to the ease of calculation and the financial accuracy they give apparently. The theory would lead directly to business profitability, the reality lead to barely enough results as the value creation process is broader than a mere arithmetic process. Exists two main cost-based pricing methods:

Mark-up pricing

*O*nce calculated unit cost it should apply a mark-up which represent the profit. In restaurant industry pricing tradition suggest applying a mark-up about 300% for food, 400% for beer and 600% for liqueurs. Such method has several advantages such as, ease of calculation, avoidance of price war, apparent cost coverage. However, such strategy is entirely self-centred without considering the market perspective. Therefore, it does not consider competitors neither customer. Moreover, it does not consider any pricing differentiation strategy which the cornerstone for revenue management is. Applying such strategy, the risk is on the one hand to be out of the market as the price overcome the customer willingness-to-pay, on the other hand to loss part of potential revenues as the price is lower than the willingness-to-pay. Another criticism of the methodology is due to the high level of fixed

costs and that cost accounting is based on historic prices that makes rather impossible to determine properly unit cost as fixed costs might be not properly allocated and variable costs are likely to change. Even though this methodology would appear rather objective and precise, the variable that should be considered are so wide and uncertain that outcomes are likely to mismatch expected results (Ravenna & Pandolfi, 2010).

Break-even analysis (BEA)

It allows to determine the point over the company starts generating profits. Such method is widely used to those firms with high level of fixed costs, such as hospitality and restaurant industry. BEA calculation starts form the assumption that Revenues and total costs equals, therefore:

[2]

$$R = TC$$
$$R = FC + VCu$$
$$Pu * Q = FC + (VCu * Q)^1$$

Equation how given costs and quantity, or costs and unit price is possible to determine quantity should be produced or price should be sold in order to cover total costs. To determine Revenue Break-even point (RBep):

[3]

$$RBep = FC/(1 - \frac{VCu}{Pu})$$

---

[1] R = Revenues

FC = Fixed Costs

VCu = unit Variable Costs

Pu = unit Price

Q = Quantity

Target profit method allows to determine other variable as revenues are given as a target (Prd). Therefore, same result could be expressed in terms of quantity:

[4]

$$Q = \frac{FC + Prd}{Pu - VCu}$$

It might be expressed also un terms of unit price:

[5]

$$Pu = \frac{FC + VCu + Prd}{Q}$$

BEA allows to determine unit price according to total costs for a certain volume as well as to determine production and revenue volume necessary to arrive to a target profit. BEA is widely used by restaurant operator since it supports decision making process about pricing and production volume in an easy and direct way. However, the analysis represents dynamic events in a static way (e.g. economy of scales) and does not consider seasonality that may affect variable costs. Moreover, its limits are even stronger in a multiproduction view. In conclusion, such method does not fit to revenue management as it considers prices as constant (Locane, 2009).

1.4.2 Market-based pricing

Market-based pricing is a method where a company bases its prices through the observation of the pricing set by the direct competitors. Such method is followed by small operators in market dominated by a leader. Such strategy could be useful for start-up as it does not have enough information about demand and supply structure and the first goal is to penetrate the market. Therefore, prices are sat slightly lower than competitors. The main drawback of the methods is that the pricing strategy is not under control. Moreover, such strategy is not aligned with a differentiation strategy it would rather perceive products as a competitors' by-product. Therefore, price is systematically sat under the customer's willingness-to-pay. However, monitoring competitors' pricing is necessary to do not overprice product but

following such strategy rigorously may lead to undesired results (Ravenna & Pandolfi, 2010).

1.4.3 Value-based pricing

Aforementioned methods answer the question *"How much should I make customer pay for my products/services?"*. Value-based pricing shift toward a customer perception view as it tries to answer the question *"How do customer valuate my product? How much are they willing-to-pay?"*. Hence, this method puts customer value perception first. In fact, a full-grown value-based pricing would lead to a custom fare to each value perception level. Price developing is based on marketing. The aim is to levers on such elements to enhance customer's value perception and thus increase its willing-to-pay (Ravenna & Pandolfi, 2010).

However, conferring a value based on other's perception is a rather hard challenge. In this regard, Utpal Dholakia (Professor of Marketing at Rice University's Jesse H. Jones Graduate School of Business) suggest a practical framework to implement effectively such model. He defines value-based pricing as a *"…method of setting a price by which a company calculates and tries to earn the differentiated worth of its product for a particular customer segment when compared to its competitor."* (Dholakia, 2016). Breaking down this definition the framework could be divided in four main steps:

- *Focus on a single segment* - value-based pricing refers to one specific segment. Therefore, value pricing could be used only whether company operates in a specific segment. If they operate in multiple segments, in necessary to determine a value for each one.

- *Compare with next best alternative* - This method works when the target segment has a specific competitor's product. Then, while setting the price it should be asked the question: "*What would this segment buy instead of my product?*". As it is a comparison method, for brand new products the model does not work properly since no peers are available.

- *Understand differentiated worth* – Then, a value-pricer should get what feature make the product unique. Namely, what differentiate our product or service to those already in the target segment.

- *Place a dollar amount on the differentiation* - The last and the most difficult step to give a monetary value of the differentiated features. Then, to answer the question *"How does my unique feature worth for my customer?"*. Conjoint analysis or qualitative customer interviewing are typical methods used to assess it.

Note that, company does not get all differentiated worth as *"In many situation"*, company *"may have to share the differentiated worth with the customer."* (Dholakia, 2016)*. Unlike it might be guessed, company should not value willingness-to-pay for any feature that characterise product or service, it should be rather valuate the opportunity cost to shift from the best alternative to our product. This because since the value of a product does not match with sum of the single feature value, also willingness-to-pay will be different from the mere sum of single feature. The biggest concern about value pricing is about the comparative base of the model. In fact, the success of value pricing depends on how smartly competitors have sat prices. Therefore, competitors' wrong or low price are transposed to value pricing. Hence, "*Competitors have to practice intelligent pricing if value-based pricing is to work successfully.*" (Dholakia, 2016). In conclusion, value-based pricing appears easier in practice than it appears to be in theory. Moreover, this method is effective to price products according with revenue management, leading to make smarter pricing decisions and increasing profits (Dholakia, 2016).

1.4.4 Bundling

Another method used for leading to different price level is bundling. It embeds different products or services to sell all in a unique item. This would create a new product or service with own value. It is generally sold to a comprehensive price that is lower than the sum of single options embedded in the bundle. This aims to increase the perceived value of the product then increasing the gap between price and willingness-to-pay. This strategy gives several product-bundle price opportunities. Moreover, bundling allows promotion of product or service that otherwise are unlikely to be sold. Promotion and communication are

key pillar of a correct bundling strategy as a good promotion enable company to let customer aware about the offering and a good communication should spread the offer's value to customers in order to enhance their willingness-to-pay. Bundling product price allows to cover the real price of the products as whole in order to avoid the fallout of perceive quality. In fact, a customer who receive for free an additional service that should otherwise paid as a decrease in quality in the service itself. It also decreases the risk of price war among competitors.

Two bundling strategies are dominant to avoid the aforementioned concerns:

- *Tying* – Selling products or service only whether they are purchased all together. Namely, promoting products or services as an indivisible cluster.

- *Bundling* – Grouping products or services which otherwise have been sold separately and selling to a price which is lower than their sum.

In food service industry, both are used as promotion driver since discount strategy might lead to an unfair perception of pricing policy (Heo, 2013). Therefore, restaurant use to offer special menus targeting specific customer (e.g. lunch menu at ticket restaurant price for businesses, happy hour, student menu) in order to cover more segment with demand-oriented offering.

1.4.5 Target costing

Whether companies pursue pricing driven strategy, it is necessary to target a certain level of profit management should achieve. In order to achieve such level of profit, cost perspective shift from a price driver toward a target perspective. In fact, as mentioned for prices based on BEA or mark-up pricing, prices are set up as a cost per unit produced mark-up in order to remunerate all productive resources. While prices arise from market perspective, as in the case of market pricing and value pricing, cost are seen as a threshold to be kept behind to not erode expected margins. In fact, whether company is operating in competitive contexts where the price is set by the market, the cost becomes the variable dependent on the desired sales price and profit margin. This is possible because the quality and functionality of a product must be achieved through appropriate design-time choices.

Therefore, cost levels also depend on the design solutions adopted. As a result, about 80% of the costs of a new product are determined during the design and design phases. In other words, when 80-90% of the costs are still to be incurred, the level of cost can also be determined during the product and process design phase. This means that it is necessary to ensure from the outset that the product that meets the customer's needs is made efficiently to match expected cost level (Yoshikawa, Innes, Mitchell, & Tanaka, 1993). Value analysis systematically evaluates all aspects of business functions in order to reduce costs while meeting the needs of the customer. This analysis can result in improvements in product design, changes in material specifications, or changes in process procedures. Target costing has been developed by Japanese managers as part of *lean thinking*, where has been identified three methods of determination for target costing.

Deduction method

The cost objective results from the difference between the sales price and the desired profit. Since the price is determined based on general competitive conditions, a market-oriented target cost emerges, very strict, but impossible to achieve and, therefore, to be reviewed internally.

[6]

$$Target\ costs = Market\ price - Expected\ profit$$

Adding method

The objective cost is determined by analysing current technologies and production capacity. The result is a target cost that ignores the market situation so much that there are no substantial differences with the standard cost. This second method has three variants. In the first, the target cost is determined by reviewing the current costs of similar products, considering the inflation rate, volume effect, conceivable future market conditions and the adjusted normal costs of the product family. This is an easily reachable target cost because it is based on past production experiences. In a second variant, the target cost is based on the costs of similar products related to the physical characteristics of the product that are subject to change. In the third variant, based on the logic of the new idea for products with

innovative features, the target cost is equal to 50% of the cost of the product to be replaced or 70%, if the product is innovative.

[7]

$$Target\ cost = Allowable\ cost - Expected\ cost$$

Integrated method

It is based on a process of negotiating the results that have emerged with the application of the other two methods and allows its integration. The development team implementing this integration must face the top management for the final decision. Therefore, the objectives of improvement and related interventions are developed by a cross-functional team of a cross-functional nature. In fact, only a working group with strong cross-skills is able to identify the main drivers of performance achievable along the processes that lead to the obtaining of the product. Operators of different business functions therefore contribute, without a strict demarcation between the different functional roles, within teams to analyse the areas of intervention for efficiency and effectiveness improvements both at design time and at run time.

In this perspective, target costing is interconnected with kaizen costing as it does not pursue an objective cost, rather it focuses on maintaining the cost level by intervening directly on the inefficiencies. Therefore, the target cost is reviewed to consider the lessons learned during production trials and the expected improvements along the experience curve. The kaizen costing, therefore, pursues the compliance of the target cost during production, not taking care of the product project but focusing on the production process and its inefficiencies (Monden & Hamada, 1991). The target cost therefore translates into a goal shared by the team, which takes on the commitment to achieve it. An appropriate incentive system based on team results supports the functioning of this coordination management mechanism. In this way, designers are also involved in the cost management activity that transforms from a test of compliance with standards to the search for opportunities to reduce costs for the same quality, timeliness and other factors that affect the value for the customer (Yoshikawa, Innes, Mitchell, & Tanaka, 1993).

The importance of the use of cost management techniques within a more modern organization of new product development activities also emerges from the analysis of the phases that usually characterize the application of target costing.

Step 1 - Product planning

The analysis of the needs of the target customers defines the general idea of the product and its main specifications in terms of performance and design, as well as the benefits that it must offer to the buyer. This analysis also shows the price that the customer is willing to pay for these benefits and the volumes that you want to realize. With a vision that extends throughout the product life cycle, therefore, the specifications of design, the production and marketing program, and above all, the levels of profitability to be achieved are defined. determine the current cost. The comparison between the acceptable cost and the currently achievable cost results in the target cost and the related efficiency and effectiveness recovery goals.

Step 2 - Defining functional specifications

A greater detail of the design specifications identifies the main areas of functions that the product is able to offer to the customer and each is assigned the relative cost within the target cost. At this stage, a continuous comparison with the target cost is initiated to ensure that the functions of the product can meet the needs of the customer ensuring the achievement of specific profitability goals.

Step 3 - General design

The main functions are disarticulated into subfunctions within the function tree. In this way, the product's characteristics and its production are more precisely defined. Sub-functions are also assigned their target costs. The product is then designed and prototyped, respecting the target costs set for each function area.

Step 4 - Detailed drawing

The particularities of the production process are identified based on what was defined above, always in accordance with the level of cost set, and the production specifications are defined by carefully considering the interventions to be carried out to comply with the target cost.

Step 5 – Industrialization

You define the environment in which you will proceed to production, the processes and technologies required, always in compliance with the target cost. In other words, the production system (methods and technologies) is designed that allows to obtain the product in question in full compliance with the target cost. From this moment on the process is regulated by the logic of kaizen costing (Monden, 1995).

In conclusion, that the use of target costing promotes an integrated approach to the development of new products and allows for further benefits. First, the project team is able to gain a greater awareness of the economic aspects and the different ways in which you want to meet the needs of customers. It is in this area that the use of *Value Engineering* is optimal, a rigorous approach to the study of the product that allows to carry out what *if* analysis on the choices at the level of materials, design parameters and production processes. The team can thus gain knowledge of the phenomena that are at the root of the business costs and the areas in which these costs originate. This is even more true if target costing is integrated with business process analysis and mapping them in to Activity-Based Management logic (Yoshikawa, Innes, & Mitchell, 1994).

In addition, analysis of market evolution and customer requirements, carried out at the start of target costing, allows the team to understand how the company's chain of activities impacts effectiveness levels. The use of the Quality Function Deployment approach, which translates the characteristics considered relevant by the customer into product design parameters, if integrated with the knowledge of the activities allows to identify the characteristics of the product that produce value for the market.

Target costing allows the company to accumulate over time a database on the cost and value of the functions of a product, which is very useful for the planning and design of new products, but also as a basis for competitive analysis by comparing the cost of a product's functions with competitors. The development team can thus know the competitive position of the company with respect to its costs within the specific sector, confronting the best practices. Lastly, target costing helps to strengthen the process through an empowerment mechanism that gives the different organizational units participating in the development team precise responsibilities in relation to obtaining the different functions of the product. In this way, a systematic comparison of budgets and results for different levels of functions can be carried out, stimulating an improvement in effectiveness performance.

Chapter 2   Revenue management in food service industry

As reported in the previous chapter, revenue management was created by American airlines in response to the research of a new variable pricing strategy aimed at anticipating or influencing consumer behaviour to maximize revenue from a fixed resource. This strategy was also adopted by the hospitality industry some 30 years later. In both sectors, room prices and airfares change depending on demand. If demand is high, especially on weekends or holidays, prices go up. Conversely, when demand is low, prices drop to attract more consumers to shop during a high season. Such system has been around for nearly six decades, but it has always been relevant as it has been successfully implemented by start-ups such as AirBnb and Uber that have found success with similar dynamic pricing models.

Airlines and hotels are considered as traditional revenue management industries; in fact, they have successfully adopted revenue management techniques. However, revenue management might be extended to more service industries, which have similar business characteristics. As a consequence, more and more industries have begun to adopt such practices (Chang, Chen, & Xu, 2007) as these industries share most of the common commercial characteristics of traditional revenue management industries. In fact, revenue management is suitable in condition of perishable stocks, fixed capacity, cost structure mainly based on fixed cost, variable demand, and segmentable market (Berman, 2005; Kimes 1989).

Figure 12: Revenue management types by industry

	Traditional Revenue Management Industries	Non-traditional Revenue Management Industries	
Industry Examples	Hotels Airlines	Restaurants Gold Clubs	Theme Parks Tourism Attractions
Service Capacity	Fixed	Relatively Fixed	Relatively Flexible
	⬆	⬆	⬆
Duration of Service Use	Fixed	Variable	Variable
Physical Constraint	Very Constraint	Constraint but Elastic	No Constraints and Elastic

Source: C. Y. Heo (2013 p. 1)

However, as shown in the figure above, physical constraints differ among industries. In fact, for non-traditional industries physical constrains is rather elastic, while very constraints for traditional revenue management industries. Moreover, also service capacity of non-traditional revenue management industries is relatively fixed as the duration of service use is up on the customer, even though for traditional revenue management industries is fixed. In fact, all passengers board and leave a flight at the same time. Likewise, the check-in and check-out time in a hotel has been set in fixed time span.

To explain how such differences live together should analysed peculiarities of non-traditional revenue management industries in order to fit with such practices. What changes is the duration of the service use. It is unpredictable and variable in non-traditional revenue management industries as customers have freedom to decide how long to use facilities. For example, some people spend long time in restaurants for their meal, whereas others may need only little time. Moreover, restaurants are physically less restricted than traditional revenue management industries as they may expand and reduce capacity. In fact, restaurant can addition chairs and tables, as well as change the table layout, whereas the addition of one more seat in a flight is not feasible. Moreover, a restaurant may have an outdoor seating area during good weather that allow to expand their capacity. Characteristics of duration and physical constraints may on the one hand decrease physical constraints, and on the other hand creates mismatch in demand flow. In fact, those non-traditional industries face often an excess capacity during low-demand seasons and excess of request at high-demand seasons or on weekends. An excessive number of visitors that is over the optimal capacity during the high-demand periods often causes problems. It is common that restaurants face periods of breaks during service or to have an excess of demand during traditional meals, forcing diners to leave or wait for a long time when maximum capacity is reached. This inhomogeneity in the use of production capacity influences the potential profit of the restaurant. The solution is to post part of the high flow during peak periods on hours or days when demand drops to maximize profitability that would otherwise have been overlooked. Therefore, revenue management can be a useful strategic approach to alleviate demand fluctuation and to maximize revenue. By identifying this as an immense opportunity, many companies have built their businesses on the premise of offering consumers discounts based on elapsed time or leveraging prices to level demand.

Revenue management is based on the service perspective of companies. Therefore, on the efficient use of capacity in the presence of fixed and perishable capabilities. In fact, service industries view of the stock is toward the availability of provide such service rather than consider warehouse stock. The perishable stock is, then, the possibility of providing a certain service limited to a certain span of time when the capacity is fixed. As cost structure is mainly composed of fixed costs and low levels of variable costs, prices should be used to handle with variable demand flows and a segmentable market (Berman, 2005; Kimes 1989). In fact, by charging customers different prices for identical services, it might be balanced demand and revenue per unit of capacity (Kimes, 1989; McGill & van Ryzin, 1999). In addition, booking systems are useful tools to handle with demand forecasts as it can calculate how inventory units are allocated before consumption.

Revenue management generally involves segmenting customers, setting prices, controlling capacities, and allocating inventories to maximize the revenue generated from a fixed capacity. Fixed service capacity is a key characteristic of successfully applied revenue management as capacity limitation generally enables a firm to switch toward an external perspective and building variable pricing policies and proper rate fences for allocating all available units. On the contrary, whether the less service capacity is limited, the less a business is able to apply variable pricing, and particularly to impose premium pricing during peak periods. For example, customers perceive higher the value of the flight ticket during peak period and are willing to pay more because of the limited seats during high season. Therefore, the core principles of revenue management pricing are based on the customer perceptions of value rather than of cost and their different valuations for service products of limited availability, according to the demand fluctuations. Thus, the service capacity levers on the customer perception of value for a service. These unique characteristics of restaurants pose special challenges to restaurant operators and consequently require more creative revenue management strategies. Several restaurants adopt various revenue management approaches. Most common strategy is to offer time related promotions such as "happy hour" rates and "early bird" specials. However, the revenue management pricing strategies implemented in food service industry are not that sophisticated as they merely focus on apply discount prices for low demand periods and charge higher prices during high season (Heo, 2013).

Food service industry match with most of the characteristics that permit a successful revenue management implementation as food service companies generally have perishable inventories, variable demands, relatively high fixed costs. Even though restaurants have a higher percentage of variable cost than traditional revenue management industries, their potential revenue gains can be substantial (Kimes & Thompson, 2004). This is because of the possibility to spread fixed costs on more product and give the possibility to exploit the all revenue opportunities. Revenue management in restaurant industry should manage five key variables to pursue the goal of maximize revenues: capacity, time, menu, price, and customer perception.

2.1 Capacity management

Capacity utilization is the first concern should be handled by food service companies for trying to maximize revenue. However, the service capacity of restaurants is less constrained than that of hotels and airlines, therefore, there is less capability by the company to leverage on prices. Moreover, the capacity utilization may affect quality of service supplied, then, having consequences on value perceived by customer, thus, the financial performance. The likely effects of capacity utilization in a restaurant are presented in Figure 13.

Figure 13: *Capacity in restaurant*
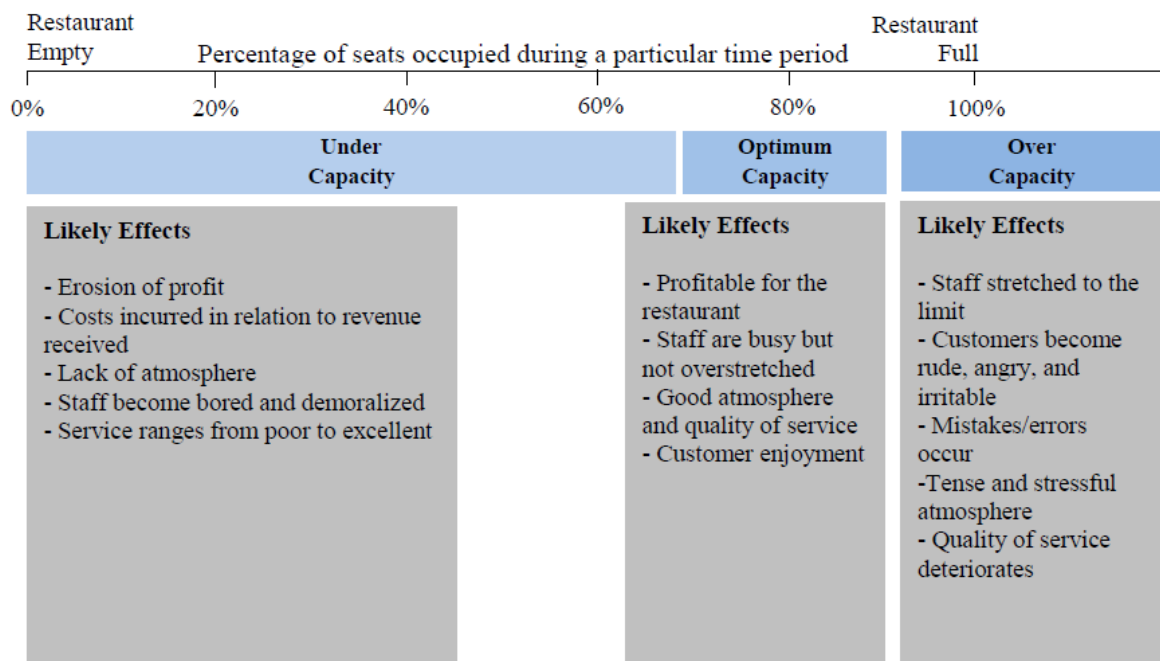
Source: C. Y. Heo (2013 p. 3)

As might be observed by the figure above, under capacity use of the store either affect financial performance and quality of service. Quality of service is affected firstly by the lack of motivation of staff that might lead to a poor and passive service. Moreover, customer may experience a lack of atmosphere and perceive the service as less valuable. The poor financial performances are then explained. Even though no products are sold, thus no variable costs have incurred, the low revenues do not permit to cover the high level of fixed costs. Moreover, all seats unsold represent lost revenue opportunity that cannot be recovered in any way. Likewise, overcapacity usage might lead to same result despite the store is fully employed. In fact, service quality decrease as staff is stretched by the limit having an unkind and approximative service. Service becomes slower increasing waiting time of customer due to long waiting list and increasing number of errors and mistakes. Such environment is far away from a relaxed and enjoyable surround, thus customer become more rude, irritable, and angry decreasing the value perceived. Financial performances are then eroded by the increasing cost of waste generated by errors, and by the revenue lost by overloaded facilities. Finally, such behaviour makes business a systematic loss of customer eroding the customer base necessary to each business to survive.

The optimal capacity is then between 80 and 90% the total space available. At this usage it is possible to provide an excellent service, keeping staff stimulated with an acceptable level of stress. In fact, with such working level staff is always stimulated to keep the same level of attention without feeling overloaded, then being always kind with customer and limiting error at the minimum. Moreover, a full restaurant that permit correct flow of customer and staff permit a quicker service and to maintain a warm, relaxed and enjoyable atmosphere. This positively affect financial performance as revenue level is high enough to balance the high level of fixed cost as the all customer left are functional to keep higher standard of services then no revenue opportunity is lost. A higher level of service increases customer's value perception leading to a higher customer retention in the long run.

As mentioned before, restaurants do not face strictly limited space. However, food service might be approached with two different perspective; takeout restaurants which deal with the meal itself concerned with a production perspective, and restaurants which are much more concerned with space and time. First kind of restaurant may have limited applications for revenue management to maximize revenue as it is more applicable whether restaurants

have a perspective of their capacity as space available to serve meals and provide enjoyable experiences, and, then, a higher demand than the capacity that they can accommodate during peak times (e.g., Friday dinner). Most of the restaurants can increase revenue by the adopting revenue management approach.

Hence, an effective management of service capacity is the first step should be implemented in strategy for restaurant revenue management. Food service companies should extend, when possible, their service capacity during high-demand periods to maximize revenue serving more customers. Space in restaurants is limited. Thus, to achieve such result should be handed with the flexibility of table layout which allows to change service capacity. It should be provided a correct mix of table to increase flexibility. In fact, whether a restaurant only has four-person table, but all customers come in pairs, restaurants should give four-people tables to two customers losing half of capacity. On the other hand, whether restaurants can easily change a four-seat table to two two-seat tables, they can supply more customers. Therefore, to maximize the service capacity while needed, restaurants should set up table layout according to the usual sizes of customer groups at each part of the day.

However, maximum amount of seat is not only a matter of how many tables can fit the space. It should be considered also the space needed to preserve customer's privacy and flow, as well as for preserve an enough space to the staff to provide an efficient service. As afore mentioned, 80 – 90% is optimum level of space destinated to customer. It should be planned every act and movement. The study of workflow has been increasingly important, including in food service industry. It is a question of running a sort of map of the movements of everyone throughout the time frame interested in the production phase. This study translates into following all the routes and routes taken by each operator to and in the middle of the facilities and examining the behaviour of each employee. Subsequently, the displacement plants of all people overlap during the production phases of a given menu, and the intersections and possible overlaps of the use of space or equipment occur (Figure 14). From this control, the points of measurement of the production process of a certain menu will be easily detected and, as a result, the appropriate changes will be made to the layout of the structures or machinery, the working time and the choice of dishes. The study of working conditions is very important restaurant companies, where congestion at certain stages of work, especially in distribution, leads to a high cost.

Figure 14: *Workflow map*

The physical constraints restaurants faced during high-demand periods does not concern only the dining space of customers. The capacity of a service firm is defined as *"the highest quantity of output possible in a given time period with a predefined level of staffing, facilities, and equipment"* (Lovelock, 1992, p.26). Several factors may limit service capacity. These limiting factors include facilities, staff, and parking space, as well as the number, size, and arrangement of tables. Therefore, companies should consider also all the operational factors

should be managed before increasing the service capacity during high demand periods to avoid overloading the store.

2.2   Time management

Revenue management has been defined as "*selling the right seat to the right customer for the right price at the right duration*" (Kimes, 1999, p.17). Therefore, it might be assumed that revenue management relies basically on two levers: duration management and demand-based pricing (Kimes & Chase, 1998; Kimes, Choi, Chase, Ngozi, & Lee, 1998). Duration can be managed basically by reducing customer dining time. Managing time in food service industry is a rather challenging issue, specially whether being considered that food service operators have explicit and implicit unit of sale at the same time. In fact, the meal is the explicit unit of sale as it embodies the service itself. However, the implicit unit of sale is time (Kimes, Choi, Chase, Ngozi, & Lee, 1998). Therefore, one could state that the right driver for revenue management should be the time required for service, rather than the meal itself (Kimes, 1999).

2.2.1   Customer time expectation

However, it should be done rather cautiously as although reducing duration may on the one hand increase revenue, on the other hand, it may decrease customer satisfaction affecting for future business. Therefore, a correct duration management strategy should answer the question *"How much a meal can be reduced before customer feel rushed and unsatisfied?"* (Kimes, Wirtz, & Noone, 2002, p. 221)*. To answer this question should be considered that dining duration is influenced by three factors: wait time, service time, and consumption time. Hence, food service operators should comply all the factors affecting variability in meal length rather than the duration itself as how customer will react to reduction may affect future performance in either positive or negative way (Kimes, Barrash, & Alexander, 1999).

Food service operators seeking to maximize revenue should carefully monitor and stimulate tables' length occupancy as stores can increase service capacity by reducing the total dining duration during peak hours. Consequently, dining duration allows serving more customers, thus generating more revenue. Customers who stay behind the meal is finished keep out the

possibility to seat new customer (Kimes, Choi, Chase, Ngozi, & Lee, 1998). The financial impact of reducing meal duration is substantial during peak hours. Considering a store with 100 seats, an average check about 30€, an average dining duration of one hour, and a service of four hours.

Firstly, should be determined table turnover:

[8]

$$Table\ turnover = \frac{240\ minutes\ peak\ hours}{60\ minutes\ average\ dining\ duration} = 4$$

Potential revenue is determined as product by total capacity and the average check:

[9]

$$Potential\ revenues = (4 * 100\ seats) * 30€\ average\ check = 12000€$$

The restaurant has a potential revenue about 12.000€. Whether the restaurant might be able to reduce average dining time about five minutes revenue potential shift to 13.091€. This means that a decreasing about 5% in dining duration has generated almost 10% revenue gain.

Studies have highlight customer's perception on dining duration. Firstly, should be distinguished by time sensitivity and time expectation. In fact, customers 's time sensitivity and expectation may increase or decrease based on the customer profile and the reason they are having that meal. Customer accounting procedure support this phase trying to identify degree of time sensitivity and time expectation of each customer group. Time sensitivity is concerned with time availability of each customer. Therefore, it is the time constraints a business should consider while designing delivery process as respecting that time is crucial in satisfying customer's needs. In general, leisure customers are less time sensitive than business then two segments perceive time in different way. Different time sensitivity influences time expectation. Even though the store format plays a crucial role in communicating dining length, time expectation is influenced by rather subjective factors

such as personal time perception and past experiences making the study of such aspect rather complicated. Therefore, Kimes, Wirtz, and Noone (2002) tried to determine customer's optimal duration based on time sensitivity. In the study has emerged that optimal duration highly vary from countries (Figure 15). In fact, American and Asian has a time duration shorter than average European. Nevertheless, a short casual meal is considered lasting on average half an hour and too short whether it lasts less than 25 minutes. A long casual meal instead, is considered about 80 minutes and too long about 94 minutes. However, whether short dining time is rather similar, for long dining time variability is more pronounced. In fact, Asian and American consider long a meal lasting more than 80 minutes, and too long whether it last more than 90 minutes. European instead, consider long a meal lasting at least 90 minutes and too long more than 100 minutes. Therefore, on average the expected duration is around 60 minutes for either American, Asian, and European.

***Figure 15**: Summary of dining time expectation*

The study also highlighted that dining time in casual restaurant might be reduced up to 20% before being negatively perceived by customer. This, whether properly managed during

peak period, will be translated to a 25% revenue gain. Nevertheless, food service operators should be cautious while trying to decrease dining duration. In fact, it should be done accordingly to store format and it should be chosen accurately the moment to be cut as customers react better to time saving at the beginning and at the end of the dinner and negatively whether the service is too fast during the main part of the meal. As a consequence, it is better to reduce duration by decreasing waiting time and improving service response. Also, verbal estimation is useful method in determining time sensitivity and expectation of customer (Kimes, Wirtz, & Noone, 2002).

2.2.2 Capacity management science

Moreover, restaurants may reduce the time between customers by various approaches centred to increase operational efficiency. Lean thinking, training employee, developing standard operating procedures, and improving table management are widely used approaches to increase operational efficiency. Sill and Decker (1999) proposed capacity management science (CMS) as a systematic approach assess potential capacity and process efficiency from either guest or company perspective. The main aim of CMS is to make processes as efficient as possible in order to decrease times customer should wait and better match their needs without rush them. To do this is necessary to monitor how long do customers use consume their meal. Consequently, the stronger the digitalization and POS system the stronger could be the improvement provide by the CMS as POS system provide fast and precise information on customer behaviour.

Capacity management science is developed into five steps involving both production and delivering process.

1. Define all production and delivery system phases and components

2. Measure all identified phases and component as precise as possible

3. Measure historical demand for each component of the operating phase

4. Determine an ideal capacity usage level for steps 2 and 3

5. Compare actual capacity usage with ideal capacity usage

6. Find out and solve any capacity constraints and process bottlenecks

7. Establish work team and redesign processes accordingly to actual needs

First two steps are concerned with identification and measurement of all phases involved in production and delivering process. To better understand and visualize all might be developed a process map (Figure 16).

Figure 16: Process map
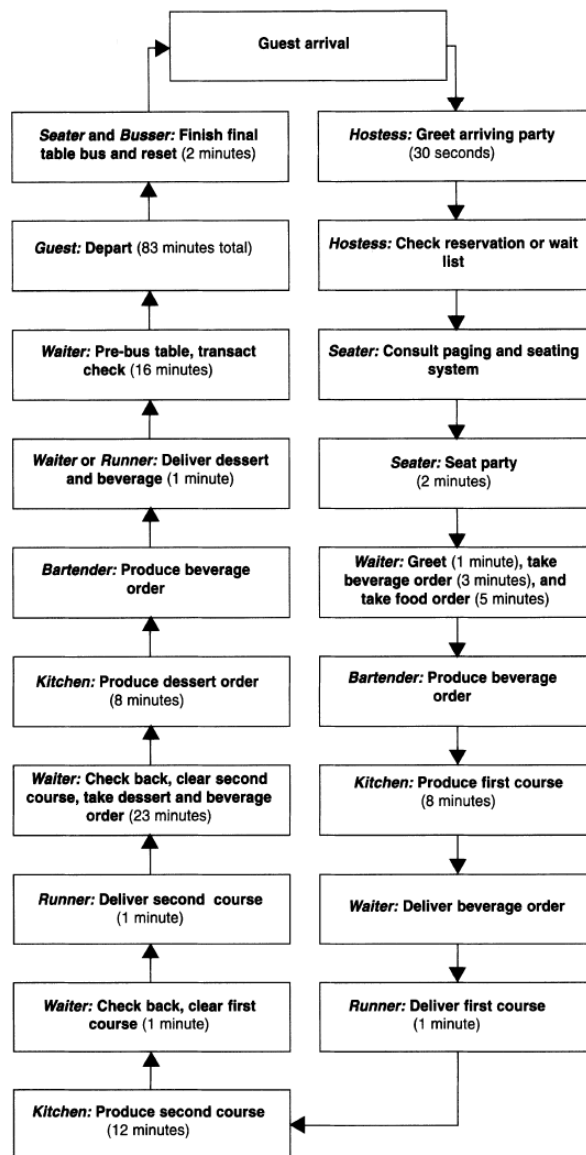
Source: Sill and Decker (1999, p. 24)

Once determined all components of production and delivery process it should be measured. Some components are prone to be estimated or tested, others are standards or target time to be achieved as in the case of courses production. While greeting and seating time of each table might be tested, production timing is function of process efficiency and production time. Therefore, such time span should be more a matter of target time to be achieved accordingly with store format. Consequently, menu items are designed in order to match time expectation. Therefore, each item is taking apart in all steps necessary to be produced and time is measured for each phase, as shown in the figure below.

Figure 17: Menu item analysis

Item: Chargrilled chicken breast

Work location or individual (times in seconds)

Process step	Pasta front	Hot salad	Char grill	Soup	Backup	Service	Fryers	Caller	Pasta back	Plater	Cold salad	Pudding	Sequential hands-on time
1. Pull service ticket to grabber, call								0.6					0.6
2. Pull ticket to grabber (plater)								1.4		1.3			
3. Transfer starters away ticket (caller)													
4. Transfer starters away ticket (plater)										2.4			2.4
5. Protein to grill			9.1										9.1
6. Seasoning to grilling protein			1.8										
7. Flip protein on grill			1.7										
8. Plate from hot cupboard to bench										3.1			3.1
9. Mixed leaf to plate										4.2			4.2
10. House dressing to serve, grill plate or bowl										3.8			3.8
11. Mashed potatoes to plate										9.7			
12. Chips to fryer							1.1						
13. Chips drain to hot hold							1						1
14. Chips to plate or bowl										5.1			5.1
15. Grilled protein to plate			4.1										
16. Tarragon butter slice to plate										9			9
17. Lemon wedge to plate or bowl										2.1			2.1
18. Chive hollandaise sause to remekin										8.5			8.5
19. Plate or bowl to pass										2.6			2.6
20. Ticket to pass (plater)										0.7			0.7
21. Ticket to pass (caller)								0.3					
22. Call server								0.6					
Totals			16.7				2.1	2.9		52.5			43
Cook time													600
Total production time													643

Source: Sill and Decker (1999, p. 25)

Menu item analysis helps to assess all time required by each item to be prepared. It would lead operation managers to redesign processes in order to distributing processes efficiently and coordinating all operators. Time is then summed and to determine total production time.

Figure 18: *Menu item analysis of production time*
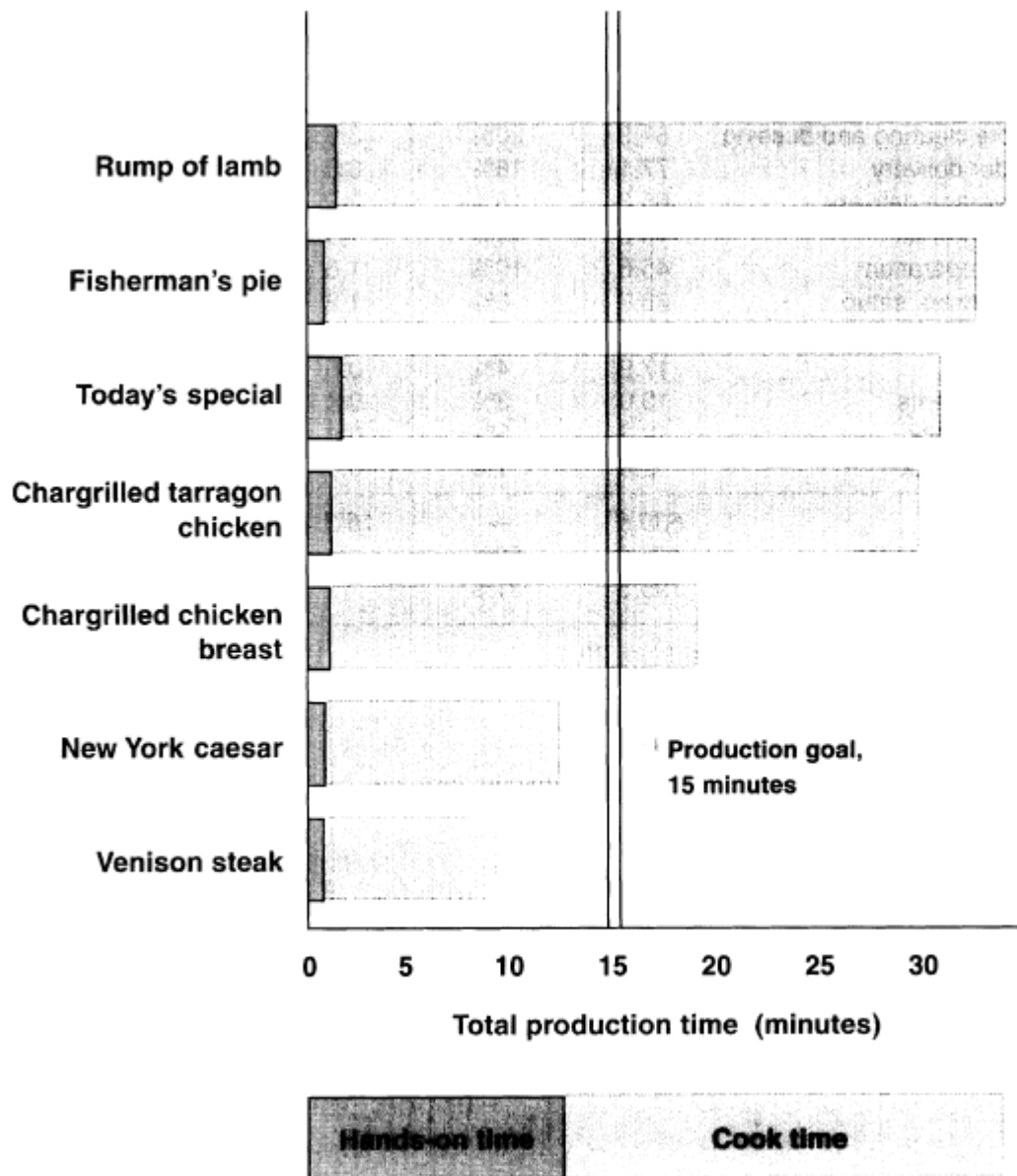
Source: Sill and Decker (1999, p. 27)

Once all recipes are analysed, are matched with production goal and all processes are coordinated to achieve target time (Figure 18).

Other steps are concerned with forecasting and determining optimal capacity as well as boost a control system to lead a continuous improvement of the process. At this phase it should be designed work team necessary in each phase of the day in order to minimize working day and at the same time without overload operators. To determine optimal capacity, it should be assessed production capacity for each workstation and how it might be organized in a more efficient way. For example, a bar station layout might be redesigned

accordingly with storage capacity. Level or types of glassware and bottles might be changed to balance working peaks, preferring faster cleaning and less space consuming glassware during peak hour and much sophisticated glasses on slow service period (Sill & Decker, 1999).

2.2.3 Measuring performance: RevPASH

Kimes, Choi, Chase, Ngozi, & Lee (1998), Kimes (1999), and Kimes, Barrash, & Alexander (1999) proposed a performance indicator to monitor performance of a restaurant. It is called Revenue Per Available Seat per Hour (RevPASH) it is the revenue accrued in each time span divided by the number of seats available. Managers in food service industry are generally evaluated by KPIs such as average check, food cost and labour cost percentage. However, no one of the aforementioned indicators are prone to express effectively store performance, especially whether considered revenue or profit generation. In food service industry is not enough to express performances with unidimensional indicators. In fact, whether considering only on average check might be not enough to have an idea on profitability as average check is more likely to be high as transaction decrease, especially whether the menu has high different price levels. Consequently, might happen that a restaurant gives only few tables a day with high bill, preserving a high average check despite a low profitability. Similarly, a manager can also do a good job maintaining high margin rates but being still unprofitable. Moreover, managers may reduce cost over the limit at which customer are unsatisfied. Those are just some examples of myopic behaviour manager may have in pursuit of their personal interest or to achieve short term goals.

RevPASH tries to take over such limitation as it comprehends capacity use and average check or cost margins. Therefore, it indicates the rate at which capacity utilization generates revenue. Since RevPASH increases as the number of table turnovers increases and the duration of a meal decreases, although a manager pursues short term goals by keeping RevPASH as high as possible it is still profitable. In fact, RevPASH is a compounded indicator as it comprises, average check and capacity usage. Its calculation is then composed as follow:

$$Average\ check = \frac{Revenues}{Covers}$$

This indicator tells general spending of store customer. This is a largely used indicator in food service industry. It is a sort of variation of average ticket. However, food service industry has quite different selling dynamics. In fact, in retail, even if people come in small groups, tickets are likely to express transaction for single customer. In food service, instead, guest came in groups as well, but ticket is often expressed for the entire table. Therefore, variability on the number of guests seating at the same table makes ticket incomparable measure in food service as a table as a semi-fixed number of seating with a variable number of actual seaters. It should be considered actual capacity of store considering seats as unit of sale. Therefore, it has aroused the need of changing the indicator's base from ticket to customer served.

Capacity usage is function of seats available and seats actually sold. As aforementioned, seat available depend on table turnover as reduction in meal duration may increase number of seats during peak period as it gives the possibility to let more guest seating in the same span of time. As shown in formula 8, table turnover is calculated as follow:

$$Table\ turnover = \frac{Service\ time}{Meal\ duration}$$

Then, capacity might be calculated as follow:

$$Available\ seats = Seats\ \times Table\ turnover$$

As might be noted, seats in the store is semi- fixed measure as table layout might change; however, number of sets might not be increased over a certain level despite flexibility of table layout. Therefore, table turnover is the variable that might significantly increase number of seats available. In fact, given the same number of seats, as meal duration decrease seat available per service time increases (Figure 19).

Figure 19: *Effect of meal duration on seats available*

Meal duration	Table turnover	Available seats
60	4.00	400
59	4.07	407
58	4.14	414
57	4.21	421
56	4.29	429
55	4.36	436
54	4.44	444
53	4.53	453
52	4.62	462
51	4.71	471
50	4.80	480
49	4.90	490
48	5.00	500

Source: Autor's elaboration

Managers should monitor how many seats have been sold in each service time. Seats are called generally covers and express number of people seated in a table. Given the number of covers is possible to determine how many guests have been seated during the service. Comparing total number of covers by the total seats available is possible to determine capacity usage percentage.

[12]

$$Capacity\ usage = \frac{Covers}{Seats\ available}$$

Once determined average check and capacity usage is then possible to calculate the RevPASH as follow:

[13]

$$RevPASH = Average\ check\ \times Capacity\ usage$$

Therefore, RevPASH is simultaneously considering the average spending of customer and capacity usage transposing result on unit level. Therefore, RevPASH consider seats (or

cover) as a measure considering capacity as a dimension of the indicator. This creates an indicator that normalizes revenue performance avoiding capacity limitation.

Figure 20: *Capacity effect on RevPASH*

Restaurant	Capacity usage	Average check	RevPASH
A	40%	$ 18.00	$ 7.20
B	60%	$ 12.00	$ 7.20
C	80%	$ 9.00	$ 7.20
D	90%	$ 8.00	$ 7.20

Source: Kimes (1999, p. 18)

As might be noted in figure above, despite restaurant A has the higher average check the performance for seat available equals other restaurant due to lower capacity usage. Therefore, whether such restaurants were evaluated on the base of their average check, performance of restaurant A was outstanding compared with others leading to a partial evaluation. With RevPASH, instead, might be noted that revenue performance of all restaurant was exactly the same.

In the table below is shown the incidence of meal duration reduction on RevPASH. As a consequence, to duration reduction, it might be faced a proportional increase in RevPASH. In fact, each minute duration is reduced correspond to around 2% revenue increase.

Figure 21: *Incidence of duration on RevPASH*

Meal duration	Table turnover	Revenue	RevPASH	Percentage increase	Cumulative increase
60	4.00	$ 6,000	15.00	0.00%	0.00%
59	4.07	$ 6,102	15.26	1.70%	1.70%
58	4.14	$ 6,207	15.52	1.72%	3.45%
57	4.21	$ 6,316	15.79	1.76%	5.27%
56	4.29	$ 6,429	16.07	1.79%	7.15%
55	4.36	$ 6,545	16.36	1.80%	9.08%
54	4.44	$ 6,667	16.67	1.86%	11.12%
53	4.53	$ 6,792	16.98	1.87%	13.20%
52	4.62	$ 6,923	17.31	1.93%	15.38%
51	4.71	$ 7,059	17.65	1.96%	17.65%
50	4.80	$ 7,200	18.00	2.00%	20.00%
49	4.90	$ 7,347	18.37	2.04%	22.45%
48	5.00	$ 7,500	18.75	2.08%	25.00%

Source: Kimes (1999, p. 18)

 Reducing meal duration may be achieved in different ways. It should be highlighted that first minute of reduction are easily achievable by changing service processes, reorganizing staff, and changing menu. However, whether managers would reduce meal duration of several minutes it requires substantial investment, such as renewing equipment, redesigning spaces, and hiring new employees. ROI analysis considering service cycles changes on RevPASH may help managers deciding whether investment is worthwhile. Managers should also consider that customers expectation limits the minimum feasible duration which determine minimum acceptable RevPASH.

RevPASH strategies

Once managers have got own RevPASH pattern, they should develop strategies to handle with low and high RevPASH periods. Generally, during low RevPASH period managers should either try to attract more clients increasing capacity usage or try suggestive selling increasing average bill. Conversely, during high RevPASH periods menu prices might be raised to reduce demand or might be decreased meal duration to increase table turnover. RevPASH might be used to develop strategies at different levels and for different purposes. RevPASH might be developed to capture partial performance and drive to strategy for each part of the day or test efficiency of delivery process.

Figure 22: *RevPASH per time slot*

	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM
Monday	$ 2.39	$ 6.72	$ 6.43	$ 6.36	$ 3.36
Tuesday	$ 0.19	$ 2.91	$ 2.92	$ 3.52	$ 2.95
Wednesday	$ 0.61	$ 2.96	$ 5.46	$ 4.61	$ 5.47
Thursday	$ 0.75	$ 2.70	$ 3.92	$ 4.29	$ 2.26
Friday	$ 0.22	$ 1.47	$ 4.86	$ 3.37	$ 2.84
Saturday	$ 1.49	$ 6.04	$ 8.76	$ 8.17	$ 9.21
Sunday	$ 2.72	$ 6.22	$ 11.89	$ 12.60	$ 11.59

Source: Kimes (1999, p. 19)

As might be noted, RevPASH changes over time slot and day-by-day (Figure 22), managers should then find the right strategy in order to harmonize RevPASH over the week. In fact, optimal condition aims distributing capacity equally and maximizing average check, then, having a stable RevPASH.

Moreover, whether the company has more than one store it may compare store's RevPASH. This would provide information about how differs performance among areas. Ticket and RevPASH performance[2] might be used as useful tools to let easier comparison among stores (Figure 23).

Figure 23: *RevPASH comparison among stores*

Restaurant	Average check	RevPASH	Check performance	RevPASH Performance
1	$ 10.50	$ 6.45	0.99	1.24
2	$ 9.75	$ 4.50	0.92	0.87
3	$ 11.25	$ 5.25	1.06	1.01
4	$ 12.10	$ 4.25	1.14	0.82
5	$ 9.45	$ 6.25	0.89	1.20
6	$ 10.60	$ 4.50	1.00	0.87
MEAN	$ 10.61	$ 5.20		

Source: Kimes (1999, p. 20)

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[2] Check and RevPASH performance are determined by comparing average check or RevPASH by the mean of all store considered.

RevPASH is also prone to be compared with those of competitors to have an idea of how good, or bad, the store is performing in a certain area. However, such information might not be easily available and, thus, not easily estimated.

In conclusion, to develop a revenue management system deploying RevPASH, it should be determined current condition and performance. Therefore, managers should understand what drivers have led to such performance in order to improve RevPASH based evaluations. Lastly, managers should constantly monitor effects on revenue by changes implemented. Kimes (1999) proposed five step RevPASH implementation:

1. *Establish the baseline* – managers are aware on their average check and food cost; however, some may lose several useful data for properly implementing RevPASH analysis. Therefore, the service should be organized to make favourable condition for gathering information needed, including POS system.

2. *Understand the drivers* – Once data baseline has been established, managers should get what factors affect meal duration the other RevPASH performance. CMS and other tools may help managers to understand how delivery process and meal duration might be improved.

3. *Make recommendations* – Once identified problems affecting delivery process and meal duration, corrective action should be taken as well as setting best practises. Whether corrective action involves loud investments, evaluation of the ROI of the RevPASH improvement generated might be used as decision making tool.

4. *Implement the changes* – Corrective actions should, then, be implemented and managers must be sure that such actions are effectively understand by all levels. Training might help employee to understand their role within the organization as well as the purpose of such changes. Incentives and reward should also be aligned with revenue management objectives.

5. *Monitor outcomes* – Once RevPASH starts proving first outcomes, it should be compared with desirable or expected results. Therefore, managers should develop a system of measure to allow monitoring any deviation from standard set.

2.3   Menu Management

As analysed in the previous paragraph, performances in food service industry are influenced mainly by meal duration and average check. While meal duration might be handled by increasing efficiency in delivery process or by redesigning spaces, average check should be managed by leveraging on sales strategy. In food service industry sales strategy are rather circumscribed as sales tools are basically reduced to menu. Therefore, menu is the most important, often the only one, tool to which sales strategy in food service industry may rely (Pavesic, 2005).

2.3.1   Menu engineering

The menu engineering (ME) and the menu analysis (MA) are used to determine which items are common among consumers. Identifying the most common products allows management to order and prepare quantities appropriate to the satisfaction and need of the customer, avoiding shortages of food products and, therefore, possible lack of sales. The concept is also applicable in those companies that want to stimulate the interest of customers in foods and specific targets. These items are strategically placed within the pages and lines of the menu and are written and presented to the customer in a way that is attractive. In fact, placing menu items in certain locations and using persuasive terms are more effective ways of pushing certain sales than reducing prices. In the past this method has been used to promote healthy food among students at some American colleges. Unhealthy and high-calorie foods are positioned and described in such a way as not to attract the right attention, and in this case price increase greatly discouraged its consumption. In professional environments ME is enriched with further analysis. For example, the analysis of popularity, consumption period, seasonality, give a lot of support to Restaurant Managers for the construction of operational standards for food preparation, purchases and reorders. In addition to assessing the sales performance and analysing the behaviour of the food cost and prices in the target market, the ME and the MA also find ample use as a tool for monitoring the financial needs of the company. Once the ME and MA are activated, the restaurateur in question can decide what to do with the individual menu items. With all the useful information such as cost, popularity, sale price available, it is possible to determine which items are to be kept and which to remove from the restaurant menu.

Menu engineering has been become a popular tool to develop better sales strategy in food service industry. Miller (1980) is the first who theoretize menu analysis with a matrix model focused on food cost and product mix with the aim to maximize item profitability. Kasavana and Smith (1982) developed a matrix based on the Boston Consulting Group Portfolio Analysis. They called the matrix *Menu Engineering Matrix* for the menu analysis, or more simply, menu engineering (ME). It is based on menu item classification to determine which items are best sold and which are more profitable. In fact, the matrix considers the two variables: sales volume and contribution margin. Contribution margin is expressed as item price less the production cost of such item (such definition is closer to what is called in the recent years as gross profit). Sales volume define instead item popularity by determining the sales frequency of each item.

Once measured popularity and gross profit, all items are categorized into four categories:

- Stars – high popularity and high margins

- Plowhorses – high popularity and low margins

- Puzzlers – low popularity and high margins

- Dogs – low popularity and low margins

Each item category is decided on item positioning within the matrix (Figure 24). Consequently, a restaurant operator can increase the total gross profit and the bottom-line profitability of the restaurant by changing the menu items or the menu itself (Kasavana & Smith, 1982).

Figure 24: Menu engineering matrix

Plowhorses	Stars
Dogs	Puzzles
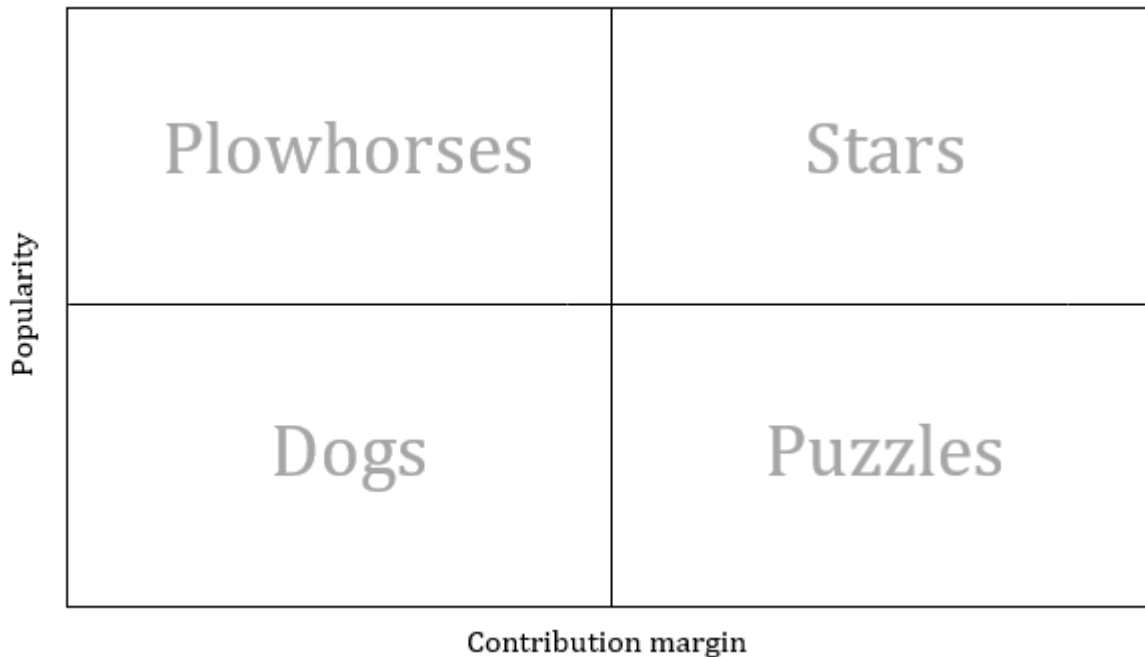
Source: Adaptation from Kasavana & Smith (1982)

2.3.2 Menu design and item positioning

The menu is an important sales and marketing tool available to the management of the restaurant. Marketing studies and psychological analyses on the customer interaction process allowed to establish some rules on the presentation and structure of the elements that make up the menu. Editing a menu accordingly with this rules of presentation, composition and exposure allows to increase the effectiveness of this tool by guiding the choice of the customer (Luise, 2013).

The correct presentation of items depends on the menu and can be pursued by respecting some general principles related to the size, type of holder, pages, text and colours that should be chosen accordingly with the type of store format. The size of the menu in its maximum opening should never exceed the space available for every customer on the table. The support used to expose the menu must strengthen the restaurant's positioning by recalling its image and business idea. In fact, a menu presented on many pages may require too much time to be consulted by increasing the time of customer stay, as well as the number of resources and skills needed to provide and manage the service. Either careful management

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of the business and the various aspects related to the menu optimize the efficiency of this tool and its promotional effectiveness. Writing must be readable and understandable. Exclusive use of lowercase and uppercase characters or the abuse of ruffle fonts should therefore be avoided. The choice of the colour of the menu influences the mental process of selecting and purchasing the customer and can therefore increase the average revenue. For example, green is associated with an idea of health and freshness, orange helps to stimulate hunger while red and yellow attract attention.

Throughout menu creation process, logical-organizational aspects should be considered in order to respect production capacity constraints and optimize sales. These logical-organizational processes are the set of menu composition rules. Whether menu proposal is too wide, it would cause organizational problems due to limits on production capacity, logistic and labour organization. In order to avoid these problems, the number of proposals per category must never exceed six courses and the number of main courses must be less than the sum of the proposals of the other categories. The menu should not be changed during the year only in the case the restaurant is not affected by seasonality. Otherwise, a change of menu should be proposed whenever required by the change of season. Therefore, this change should not take place less than twice a year. The courses within the menu can be divided using a classic logic that divides items into categories such as starters, first and main courses or using other division criteria based on the nature of the dish or the store format. The placement of culinary proposals within the menu should also consider the path that the human eye unconsciously takes when reading a menu. Several studies on this topic have highlighted the main points on which the attention of customers is focused when reading the menu. The knowledge of these focal points allows you to promote the most interesting dishes for the restaurant. The following figures show the eye path and the points on which the customer's attention is focused when reading the menu (Pavesic, 2005).

Figure 25: Eye tracking on 1-page menu
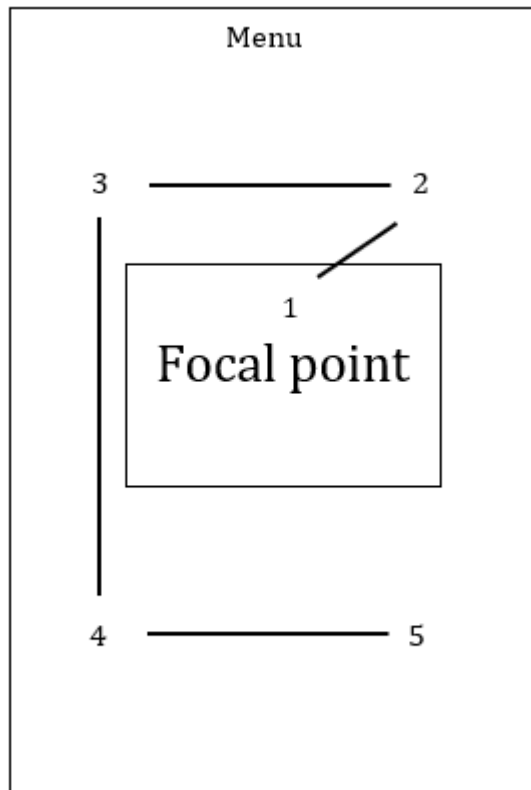
Source: Autor's adaptation from Montemurro (2016)

The focal point represents the point where customer focuses first attention. On one-page menu (Figure 25), attention is focused firstly on the top-central part of the menu. This part is the hottest part in the menu *heatmap.* Therefore, it is the part where is more likely that a customer chooses an item. Furthermore, the attention shift toward the upper part from right to left. Then, guests skim downward the page to the bottom side left to right (Pavesic, 2005). In order to increase sales less popular and more profitable items should be placed on the focal point, the other items should be placed accordingly to the strategy that best fit with the organizational layout. (Montemurro, 2016)

Figure 26: *Eye tracking on 2-pages menu*

On two-page menu (Figure 26) instead, attention is focused firstly on upper part of the second of the menu. Furthermore, the attention shift toward the upper of the first page. Then, customer skim the entire page to the bottom side left to turn right toward the bottom side of the second page.

Lastly, on Three-page menu, attention is focused firstly on the very central part of the menu; in the central page. Furthermore, the attention shift toward the upper of the third page. Then, customer shift its attention toward the first page having a break on the upper side of the second page. It, then, skims entirely the first page to the bottom side left to turn right toward the bottom side of the third page, having another break on the bottom side of second page.

Figure 27: *Eye tracking on 3-pages menu*

The figures above show the typical movement of the human eye when reading a menu. Consumer attention can however be attracted by visual cues in order to change this pattern. At the very beginning, customer attention falls onto a certain point within the menu. The first attention customer reserves for a dish is generally maintained until the final choice. Guests takes on average 109 seconds to read the menu. Therefore, by graphically or textually highlighting the courses that you want to promote, you can direct the customer's choice towards the latter. The use of professional photographs of some menu proposals could also attract the attention of customers by pushing them to consume more. However, the display of photographs of the dishes on the menu could also help to create a medium or a low-level image. A lot of attention should also be paid to the terminology used for the descriptions of the dishes that must be clear and evocative in order to capture the attention of the customer (Pavesic, 2005). The reference to source names that indicate quality and goodness of the product are different, such as D.O.P., zero kilometre, IGP can increase the level of quality perceived by the customer (Montemurro, 2016).

Prices should be placed immediately after their description following a descending order. This would decrease the actual perception of the cost and incentive customer to carry on the reading. Figures should also be used in order to keep the restaurant's image high, however

it should be high quality image and represent the actual product in order to not disattend customer expectation. Prices should be accompanied by the extended name of the reference currency with the aim of diverting the consumer's attention from the monetary aspect of the transaction (Yang, Kimes, & Sessarego, 2009).

In conclusion, according to Malik and Davar (2009) all item classified abiding by menu engineering might be place on the menu according to the following criteria.

Stars

Stars are most popular and profitable item. It means that are the items that contributes more to the profit creation and popularity of the restaurant than others. These products are the company's specials; therefore, managers should not worry about the position where to place such item, rather it must concentrate to keep up quality and quantity standards of the items.

Puzzles

Puzzles are high profitable but less popular. Therefore, despite these items contribute heavily to the value creation, sales performance should be increased. Hence, it should be implemented some techniques aiming to increase sales volume of this category. Some possible solution might be:

- Placing puzzles at menu focal point to capture the guest attention. This would increase probability that customer choose that item rather than others.

- Associating puzzles to add-ons. It aims increasing popularity leveraging on highest value perceive by the customer.

- Decreasing prices for these items. It increases attractiveness of the item as it is perceived as more convenient, on the other hand, this solution should be carefully undertaken as decreasing prices also margins decrease.

Plowhorses

Plowhorses are very popular but less profitable items. Therefore, profit margins should be increased for these items. In pursuit of that, management can:

- Increase prices as customer are attracted to such items and are likely to carry on buying despite paying a reasonable higher price.

- Margins might be increased also by leveraging on food cost, such as reducing portion size.

- Place them away from focal point of the menu. Since customer are loyal to such items, it is likely that placing in a less important side will not affect sales volume. It would increase margins by increasing sales of more profitable items.

Dogs

Dogs are neither profitable nor popular. The best possible strategy for these items is to remove from the menu and try introducing some new items.

As mentioned in the previous section, the methodology has the limitation to which is not possible including only Stars in a menu. Since any food service store aim to maximize both profits and sales volume. Therefore, it is only possible by removing dogs and introducing brand new items in order to leverage on highly popular items to attract clients, profitable items to increase margins, and new items to provide newness to store offerings (Malik & Davar, 2009).

2.3.3 Menu engineering implementation

Mooney (1994) developed a model for menu analysis (Figure 28). In its model the review of menu effectiveness is the last step of the process of menu development. In fact, the menu development process is composed firstly by menu creation, followed by menu launch, and only after few times, when menu effect has been tested, it could be revised.

Figure 28: Menu development and analysis
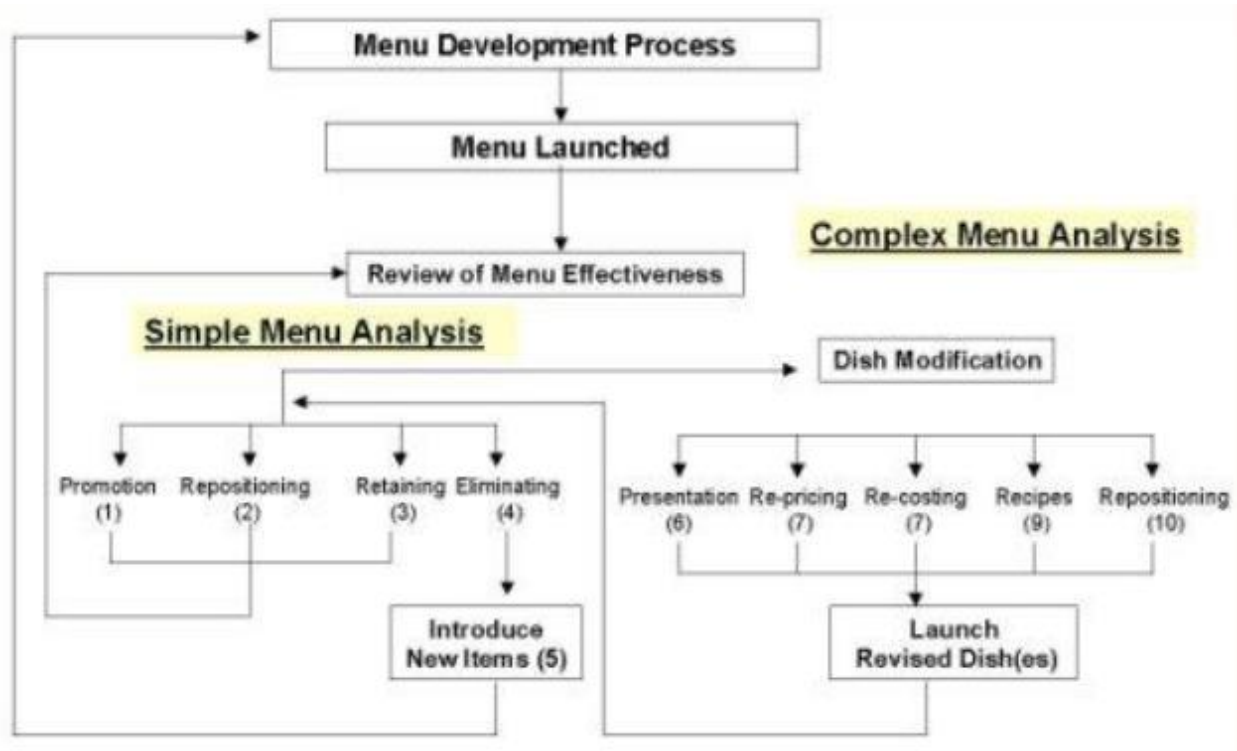
Source: Mifli (2000, p.7)

The model exposes two alternative approaches of review of menu effectiveness: simple and complex menu analysis. The main different is that simple analysis bases decision making process on items based on predetermined factors of menu engineering without any quantitative and qualitative assessment. Complex analysis, instead, support decision with qualitative and quantitative for supporting items performance evaluation. Simple and complex menu analysis are developed as follow.

Simple menu analysis

Simple menu analysis is composed by five steps:

1. *Promotion* - it is used to obviate to the lack of awareness of customer of menu offering. In fact, whether a menu is not properly promoted to the public, it may cause a low demand. Promotion strategy is employed to increase brand popularity, with a likely increase of customer demand. eyes may be the caused why the menu items are low in demand. Menu promotion comprises both internal and external promotion. For internal promotion is intended to communicate properly all offering to guests. With

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external promotion is intended to make potential customer aware of company existence and general proposal. Communication style and content should be adapted to channel used, store format, and customer targeted.

2. *Menu Repositioning* – menu presentation and layout is essential for sales strategy. As aforementioned, low popularity of certain item may depend on incorrect positioning within the menu. Moreover, item positioning may be used strategically for boosting sales as well as promoting certain item rather than others according to their profitability. Items description may also influence customer choice. In fact, a clever used of words used in items description may improve popularity of one item.

3. *Item Retention* – Whether menu items and menu as whole is facing successful performances, there no corrective action should be undertaken. In fact, the effort on such item should be addressed toward maintain and improve desirable performances. However, customer preferences change constantly. Therefore, review of menu item is kept constantly for either well or bad performing items to catch up on the customer preferences variability. In fact, items who well performed may no longer perform that well along item life cycle.

4. *Items Elimination* - Menu items that are no longer popular or who overload service capacity, should be eliminated from the menu as they erode, rather than create value. Interestingly, decision of eliminating items from the menu is mainly due to qualitative aspects rather than quantitative. In fact, is more likely to find out a way to improve undesired quantitative performance rather than finding solution to qualitative one. Moreover, items elimination may arise also by the necessity of reducing product mix.

5. *New item introduction* - whether items elimination has not arisen from the necessity of reducing product mix, items eliminated should be replaced by new items that best fit with customer preferences and service constraints. New item introduction is an actual research and development activity for food service companies. It is done accordingly with market trends and customer feedback as well as staff knowledge, and equipment available. Once new items are found, these are launched to market, performances monitored, and process of item effectiveness starts again.

Complex menu analysis

Complex menu analysis is composed by six steps:

1. *Menu Items Presentation* – as for simple menu analysis, communication of proposal is fundamental for menu engineering implementation. However, in complex menu analysis the analysis is enriched by customer feedback gathered mainly from staff experience. This is made with the aim of align item characteristics, such as taste, garnishing, saltiness, colour, texture, etc; with customer preferences. Nevertheless, the creative skills of operation managers play a crucial role in item design.

2. Menu Item Re-price - The main cases of menu item re-pricing, after inflation, are due items over-pricing. In fact, an indicator of over-pricing is whether a certain item is facing demand decreasing without an evident erosion of quality of food. In general, whether an item's price is slightly decreased, popularity increases consequently. Other frequent causes of re-pricing might be increase in taxation or change in financial policies of the company as well as the application of psychological pricing method whereby all the menu prices end with either 5 or 9 number.

3. *Menu Re-costing* – As a consequence of changing in items characteristic, re-costing is necessary practice. In fact, such changes impact on items standards, and, thus, on costing. Generally, costing in food service industry is a matter of target costing at which any managers must abide by, for both budget and control purposes. Hence, whether target cost is not respected as it exceeds, margins are erodes; whether it is largely lower, it is likely that manager is not catching up on quality standards.

4. *Modify recipes* - Recipe modification is basically a consequence of menu re-costing.

5. *Reposition* - Unlike repositioning regarding simple menu analysis, repositioning in the context of complex menu analysis involves several modifications such as pricing and presentation. Moreover, whether several items are modified the entire menu design should be revised and likely the layout. After such implication, the same menu repositioning already discussed take place again.

6. *Launch Revised Menu Item* - once menu items have been modified, revised menu items are tested, and their performance is revised. As for simple menu analysis processes conducted so far is then ready to begin again.

The model appears as a perpetual analysis (Figure 29). In fact, after having been chosen one of the two approaches and menu correction occurred, the analysis begins from the initial step. In fact, the model is the result of a perpetual cycle of menu development, menu launch, and menu review analysis (Mifli, 2000).

Figure 29: Menu development process
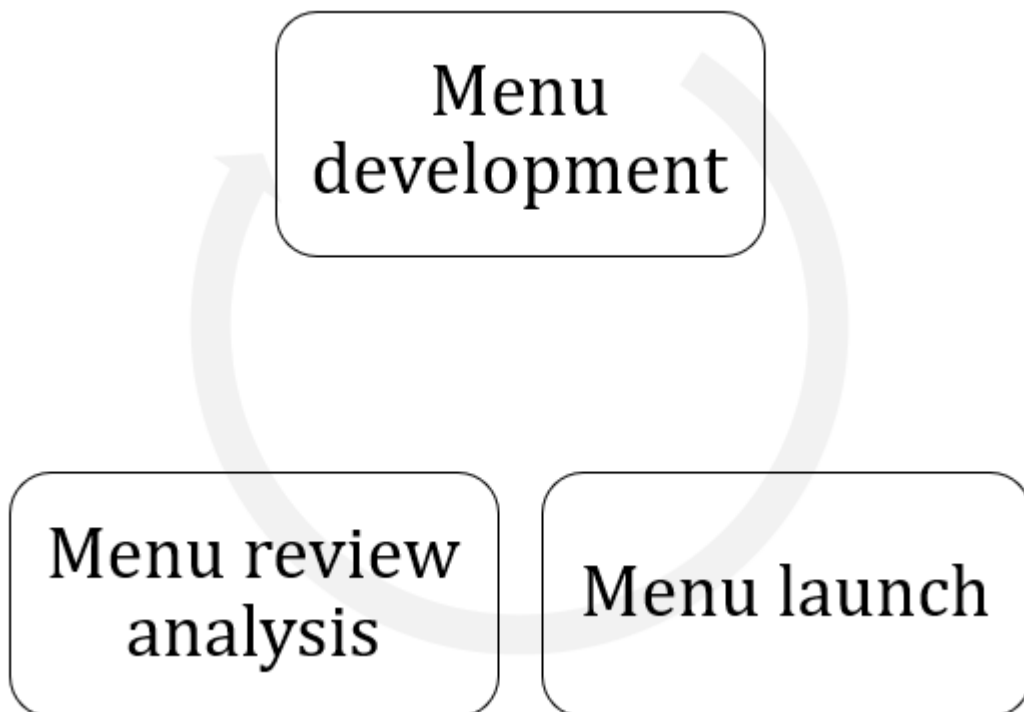
Source: Autor's elaboration

2.3.4 Menu engineering limits and critics

Menu engineering is certainly a powerful method which allows evaluation of menu items. However, the methodology faces some heavy limitations.

The most important is surely that it does not consider labour cost as it corresponds to the greatest cost category food service faces on its activity. Menu engineering exclude labour cost from the analysis firstly as it is defined as differential cost. Therefore, it might be

obtained accurately and inexpensively (Horton, 2001). Moreover, it is difficult to allocate properly amount of labour cost to each item.

Labour cost should be classified as semi-fixed cost since part of the labour cost is fixed, while another part is variable. The fixed part is represented by the minimum staff levels should be employed to open and get *mise en place* ready. The variable part instead is represented by the extra staff employed or by the extra effort derived from the increasing number of customers should be served. In order to allocate correct amount of labour costs to each menu item, it should be weighted the variable part of labour cost to each item This would change item's contribution margin as calculated so far, therefore, it would affect also items category. Consequently, items should be labelled as *high* or *low* whether they correspond or not to labour intensive items. Rankings and labelling should a judgement of management accordingly to specific variable affecting organizational structure of the service. In fact, it does not exist an objective estimation of neither high labour cost nor low labour cost item. The most common method used concerns with labour planning using time as a driver. Therefore, fixed part is assessed by preparation planning and the variable part is assigned by forecasting the demand for any item.

Once each item is labelled as high or low in the menu engineering worksheet, it might be embedded into the model. This increases the original four categories theorized by Kasavana and Smith to eight possibilities:

- *Stars* - High contribution margin, high labour, and high popularity,

- *Shining Stars* - High contribution margin, low labour, and high popularity,

- *Puzzles* - High contribution margin, low labour, and low popularity,

- *Brain Teasers* - High contribution margin, high labour, and low popularity,

- *Tradors* - Low contribution margin, low labour, and high popularity,

- *Plowhorses* - Low contribution margin, high labour, and high popularity,

- *Ultimate Dog* - Low contribution margin, high labour, and low popularity,

- *Dogs* - Low contribution margin, low labour, and low popularity,

Figure 30: *Example of extended Menu engineering categories*

Menu Engineering Worksheet

Menu Item Name	Popular	Contrib. Margin	Labor	Category
Turkey Sandwich	High	High	Low	Shining Star
Pizza	High	High	High	Star
Fish and Chips	Low	High	Low	Puzzle
Spaghetti	Low	High	High	Brain Teaser
Hamburger	High	Low	Low	Tracctor
Grilled Cheese	High	Low	High	Plowhorse
Bologna Sandwich	Low	Low	Low	Dog
Chicken a la King	Low	Low	High	Ultimate Dog

Source: LeBruto, Quain, and Ashley (1995, p.48)

By ranking and labelling item accordingly with labour cost, the analysis is improved. Whether labour cost is embedded within menu engineering, tool can be useful on enhancing coordination among sales mix increasing contribution margin (LeBruto, Quain, & Ashley, 1995). Therefore, a possible strategic use of menu engineering considering labour is to exploit information labour intensity to promote low labour item during peak hours, increasing service capacity; while promoting high labour item when demand decrease. In fact, labour intensive items are likely to have more elaborated preparation, then it is better to promote such items when capacity required is lower to not overload service and maintain quality standard. Therefore, might be provided different menu for different time slot, or positioning Shining Star items in the focal point of the menu to keep high level of capacity.

Another problem concerns the interdependency of variable used: margins and popularity. In fact, as margins increases it is likely to affect the volume of sales consequently. This dynamism makes rather impossible to have an objective valuation of correct pricing level, positioning strategies, or promotion (Malik & Davar, 2009). Therefore, menu analysis is not a mere cost and sales analysis, it rather means a deep understanding of customer needs and perception (Jones, 1994, cited in Malik & Davar, 2009, p.44). For this reason, cannot exist a

menu composed entirely by items which fall in Stars category. Therefore, any menu systematically has all categories (Malik & Davar, 2009).

2.4   Price Management

As analysed in the previous chapter, prices can be based, in general, either on costs occurred in the production or based on demand. Revenue management is based on demand-based pricing, by applying, at least theoretically, different prices to each customer. It allows companies to gain revenues on the one hand, increasing prices to less price-sensitive customer on peak-periods. On the other hand, discounted prices to price-sensitive customer when demand decreases may stimulate more customer to seat increasing revenues by allocating all available capacity (Heo, 2013).

Demand-based pricing is based on the assumption that real market is populated by several sellers and few information are available on customer. Moreover, whether properly communicate their actions, sellers may exercise a power on market and stimulate customer behaviour. Companies who act toward such direction should communicate own price diversification strategy in order to achieve higher revenue and profit not achievable with single price strategies. However, the basic principle is the same of each pricing strategy as each price level creates customer or producer surplus (Figure 31).

"The consumer surplus is the amount that consumers benefit by being able to purchase a product for a price that is less than they would be willing to pay for the unit bought" (Heide, White, Grønhaug, & Østrem, 2008, p.253). Therefore, given a price P*, customer are paying less than how much they are willing to pay. In such case, companies are not extracting the entire potential revenues from customer leaving money on the table. The consumer surplus might be define more simply as the *"difference between the price they are willing to pay and the price they in fact pay"* (Heide, White, Grønhaug, & Østrem, 2008, p.253). price differentiation strategies would decrease such difference by increasing prices for those customer are willing to pay more.

"The producer surplus is the amount that the firm benefits from selling at a price that is higher than the minimum price it would be willing to sell for in the market" (Heide, White, Grønhaug, & Østrem, 2008, p.253). The supply curve is MC curve drawn in the figure below, given a

quantity Q*, supplier have unallocated capacity which might be sold by reducing prices for those customer which are willing to pay less for the product.

Whether seller are able to adddress unique price to each customer is the case of perfect price discrimination; then, supplier becomes able to capture the customer surplus as whole. However, such aim is achievable on theoretical dimension as assimetry of information between customer and companies get impossible for companies to be aware of each consumer willingness-to-pay. Therefore, companies do pursue differentiaion strategies by addressing prices regarding segments, seasonality, time slot, and week-days. Most popular strategies comprises: *price discrimination, bundling and peak-load pricing* (Heide, White, Grønhaug, & Østrem, 2008).

Figure 31: *Impact of strategic pricing on demand curve*
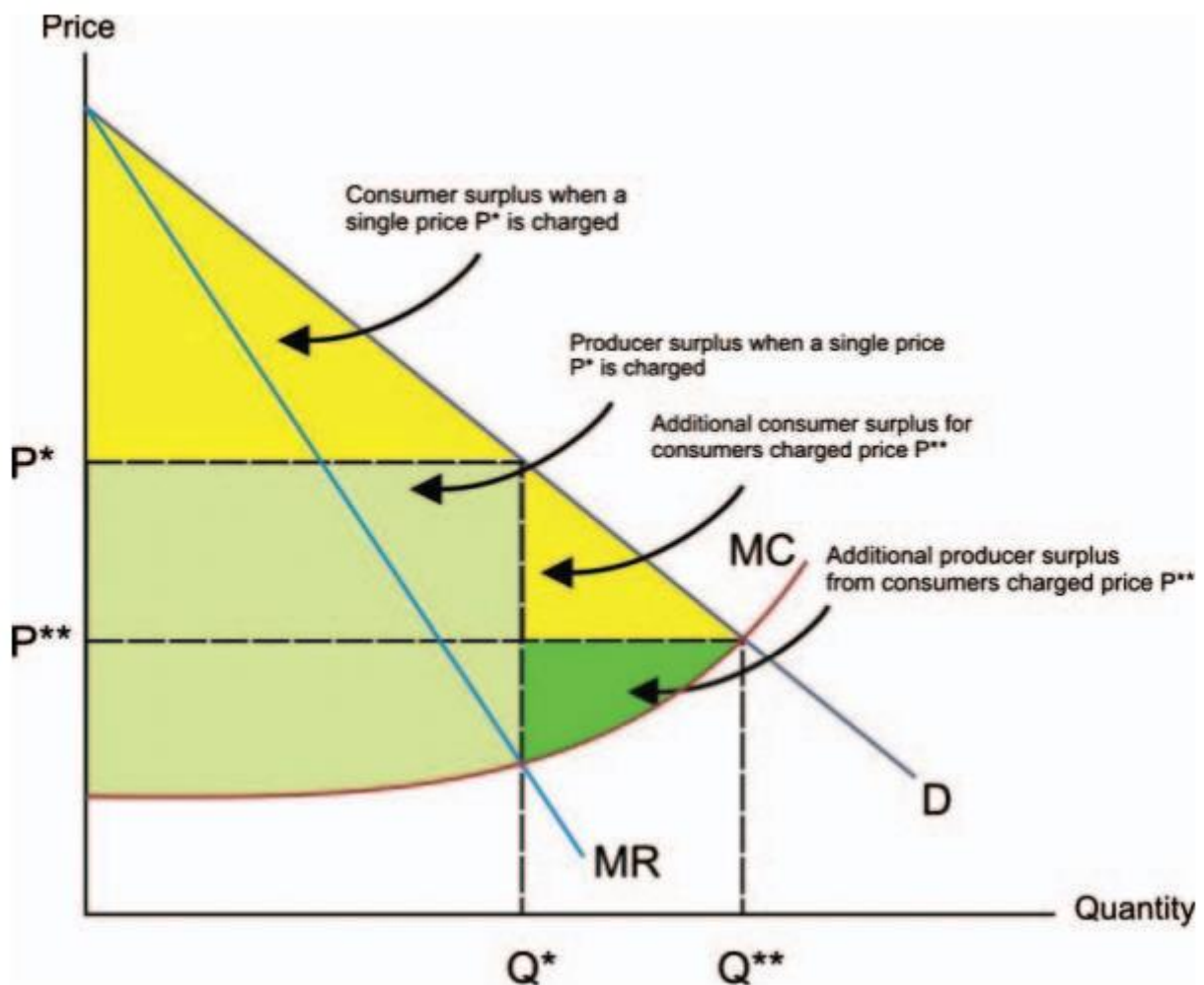
Source: Heide, White, Grønhaug, & Østrem (2008, p.254)

Price diversification strategy is widely used while implementing revenue management for traditional revenue management industries, such as for travel, tourism and hospitality industry. Railway companies allocates both cost and prices regarding different classes customer reserves the seat (Taussig, 1891). The airline industry use to sell the same flight for different prices on the of price sensitivity of customer. In fact, airlines charge higher prices to less sensitive segment, and attracting price sensitive with lower prices (Stavins, 1996). Despite the successfully implementation of price diversification strategy in traditional revenue management industries, food service industry is far away to apply such strategy in advanced way for many reasons. Firstly, physical capacity in food service industry is not fixed as compared to traditional revenue management industries. Moreover, different pricing might be perceived as unfair by guest. In fact, whether customer should know that a restaurant charges different prices for the same menu it might be perceived as unfair policy for those who pay higher price since it is not perceive any difference on the value of the menu itself. As a consequence, guest may decide to not visit the restaurant anymore and to go elsewhere next time (Heo, 2013). Lastly, price discrimination in the context of food service industry is not a topic sufficiently studied by academics; therefore, causing a delay on successful diffusion of the practice (Heide, White, Grønhaug, & Østrem, 2008).

For aforementioned reasons, price discrimination in food service industry is only based on different menus designed for different demand levels. Menu are item clusters which differ on sizes and composition. The aim is to let perceive the customer each menu as different transaction as given the same price, unfairness increases as transaction similarity increases (Xia, Monroe, & Cox, 2004).

Food service enterprises may use rate fences to categorize menus increasing clustering option and customization of the menu regarding customer segment. In fact, rate fence polices impose that customer self-segment itself regarding its-own willingness-to-pay. Rate fences are proposed in food service industry as coupons, time-of-day pricing, lunch/dinner pricing, and week/weekend pricing. Such proposal is generally accepted by customer as perceived as fair. Unlike travel industry different prices based on different seat location is considered unacceptable (Kimes & Wirtz, 2003). Moreover, customers are more willing to shift from peak to off-peak hours whether menu items are discounted in that time slot

(Susskind, Reynolds, & Tsuchiya, 2004). Incentive strategies might be exploited through reservation system by proving discount towards shifting demand to desired time slots such that customer arrivals, meal duration, and service capacity is properly coordinated (Dickson, Ford, & Laval, 2005), as well as providing discount whether reserving through a certain platform for given time slot or last minute call.

2.4.1 Price segmentation

Since precise and complete information on single customer are not available in real world, dividing customer into groups might be a feasible strategy for addressing right price. In fact, it is not possible to be aware on each customer's willingness-to-pay. Nevertheless, it is possible to get what willingness-to-pay has each segment or, at least, its price sensitivity.

Therefore, once defined each customer segment, it should be measured price sensitivity for each. Accurately measure price sensitivity. To get segment price sensitivity it is necessary to get customer socio-economics characteristic and main habit, and all other segmentation criteria exposed in previous chapter. For example, a business may expect that older people would be less price sensitive than younger people, since older has more stable lives and careers. Business should also be always aware on value added element as it is the first driver of willingness-to-pay increasing. Value-added elements should be properly exposed and communicated such that customer's willingness-to-pay increases and different prices charged for each segment are justified. As aforementioned, value-added element should be exposed in form of different menu size or combination and should be avoided location and daily deals. As for menu items, prices should be continuously revised. Test and adjust prices as often menu items are updated might be a useful strategy for finding the right price for each segment.

It should be noted that some explicit segmentation is well accepted by customer, such as separate prices for children, student deals, family deals and other groups deals. Thus, offering special discount might increase demand and attracting more of specific customer segment.

2.4.2 Price discrimination

Price discrimination is defined as the practice of charging different prices to different customer, based on customer's willingness-to-pay. In order to implement price discrimination, it should be required following three conditions to function:

- *Market power* - the firm must have enough power to impose price on market, otherwise business' risk is to lose revenues rather than gain revenues as consequence of strategy.

- *Elasticity of demand* – same product should be characterized single elasticity for each customer segment. This would allow companies to charge different prices for the same product to different customer. Therefore, the firm should divide consumers into groups with similar elasticity and assign a price for each of them,

- *Separation of the market* - the firm must be able separate the market over the segment previously created in order to avoid the possibility that customer of a certain segment resell the product to customer belongings to segment with higher willingness to pay (Heide, White, Grønhaug, & Østrem, 2008).

Price discrimination might be implemented with different degree regarding the intensity of discrimination a business would charge or is able to charge to customer. Pigou (1920) identified three degree of price discrimination: perfect discrimination, non-linear pricing, and third-degree discrimination; or more easily, first, second and third-degree discrimination.

First-degree, or perfect price discrimination is the purest price discrimination possible. It is when seller is able to charge different price for each customer such that each unit price equals customer willingness-to-pay for that unit. As already discussed, perfect discrimination is not pursuable so far in food service industry as businesses have not enough information regarding customer's willingness-to-pay, also due to the unfairness perceived by customer whether a company applied such practice.

Second-degree price discrimination, or nonlinear pricing involves different prices on the base of the quantity sold for a given product. Such discrimination is not addressed to specific customer, it would rather be addressed to specific amount of product. In fact, each customer has the same price schedule where price changes as quantity increases in a non-linear way. Food service industry pursues nonlinear pricing through promotion or quantity discounts, main example is menu size pricing. As single transaction is perceived as different when size changes, nonlinear pricing is perceived as fair policy by customer.

Third-degree price discrimination involves again different prices for different customer. However, customers are segmented into groups and different pricing is associated to a certain segment. This means each customer pays a certain amount regarding the segment to which is associated such that each customer belongings to the segment pays the same amount for the same item. This is perhaps the most common form of price discrimination in food service industry. It is performed as student discounts, business menu, happy hour or charging different menu, then different prices, through the week (Pigou, 1920; Varan, 1989). Declination of price discrimination are bundling and peak-load pricing.

2.4.3 Bundling

Bundling is the practice of selling clustered products. Bundling is a popular strategy in the food service industry. In bundling items are clustered together into a single deal that in food service is called menu. Bundle encompasses products that are generally sold separately. However, the bundle consists in an inseparable item which is priced at an amount that is generally lower than the sum of the items. Thus, a customer who would purchase the bundle do not have generally the opportunity to exclude or add items into the bundle such that a bundle is presented a single transaction (Adams & Yellen, 1976). Bundling strategies are most successful when:

- Production may exploit economy of scales,

- Distribution may exploit economy of scopes,

- Bundles simplify customer's purchase decision and give a concrete benefit from purchasing a set of items rather than buying them singularly.

- Bundling generates low marginal costs,

- When items into the bundle are negatively correlated,

- When customer acquisition is difficult.

In the restaurant industry, bundling pursued by offering a set menu which may vary of sizes, number of items for a price which is lower than the price customer should have been paid whether purchasing single items from the *a la carte* menu. Consequently, bundles create brand new products which attract diverse customer from those who are attracted by single items, generating producer surplus. Moreover, in order to keep high attractiveness of bundle it should be developed a cluster of negatively correlated products such that sales of a given set of items remain steady over time (Guiltinan, 1987). In fact, items within the bundle should have complementary characteristics. In this way it is likely that customer perceive bundle combination as more favourable than combination with unrelated characteristics (Herrmann, Huber, & Coulter, 1997). Nevertheless, bundle components may also include technical components that are not related with company's core business. In fact, it is not rare to see bundles including sport matches, live music, stand-up comedy and so on. Lastly, customers tend to over valuate single items whether items are also sold separately. Therefore, perceived value of bundle is generally higher than bundle price (Guiltinan, 1987).

In conclusion, bundling product together negatively correlated products business is able to sell to a single customer a set of items that otherwise the same customer should not have been purchased, or it should have been purchased only one of the items included into the bundle. In fact, whether proposed a bundle, such as "starter, main course and soft drink" and "main course, dessert and soft drink", both become automatically new items. Whether the price of such bundles do not exceed the sum of the single components, it may persuade to buy the bundle even though they should not have been bought starter or dessert at full price (Heide, White, Grønhaug, & Østrem, 2008). Moreover, in order to increase attractiveness of bundles, it might be customized directly by customer. In fact, by giving the chance to choose autonomously which items include enhance the correlation between items. However, whether a company decide to pursue such strategy, boundaries should be properly defined and clearly communicated to customer.

2.4.4 Peak-load pricing

Peak-load pricing involves policies which would drive demand by leveraging on prices. In fact, prices should increase whenever demand increase, and prices should decrease to attract more customer. Peak-load pricing has the aim to keep demand steady increasing economic efficiency through pricing. In fact, marginal costs increase as demand increases due to capacity constraints, thus also prices should increase consequently. Peak-load pricing would allocate capacity available more efficiently by shifting customer from peak to off peak periods. (Bergstrom & MacKie-Mason, 1991). Food service industry practices peak-load pricing commonly with promotion during off-peck periods such as happy hour or excluding promotional menu during peak-days. In fact, it is quite common that special menus are available only at certain time or not available at weekend, when demand is at highest levels.

Whether a food service company pursues a single price structure which is valid also for peak-periods, there is the concrete risk of overload capacity that could be avoided whether the business implemented a pricing policy that considered variability of demand. (Bergstrom & MacKie-Mason, 1991). As already discussed, overload capacity has the ability of erode profitability in several ways rather than creates profits. Possible solutions to shift demand from peak to off-peak periods could comprise menu offered at a certain time of the day with cheaper prices, complementary items provide for free on off-peak periods, such as snacks, homemade bread or nacho chips (Heide, White, Grønhaug, & Østrem, 2008). This would also be a successful way to promote less popular items of the menu.

2.5   Customer Perception Management

Food service industry is characterized by fierce competition due to low entry barriers the sectors has. Therefore, several competitors populate the industry generating a bloody competition for retain and engage customers. Customer relation management is a strategic issue to catch up on the competitive environment in food service industry as every business should maintain good relationship with customer to retain existing customer and have a good impression on new guests. In fact, whether customers unfairly perceive the service may choose to go elsewhere. Therefore, the business who does not manage customer relation and do not comply with customer perception management erodes customer base, while high rate

of customer satisfaction increases customer returns, then, a greater customer base. Therefore, food service business should handle with value perceived by customer as well as quality food and services. to survive in a competitive market, restaurant operators need to provide good value as well as quality food and services (Kimes , 1994; Kivela, Inbakaran, & Reece, 1999). In fact, whether revenue management practices are implemented such that revenue are gained but customers perceive the policies as unfair, any gain generated by revenue management is a short-term growth (Kimes, 2002; Hoang, 2007).

Kivela, Inbakaran, & Reece (1999) theorized a diagrammatic model (Figure 32) for better understanding with attributes influences customer return. At the very beginning the authors distinguish between pre-dining and post-dining. Pre-dining is linked with customer expectation as they do not have been experienced their dine. Nevertheless, pre-dining expectation comprises both guests who came for the first time and guests who return. Post-dining is linked with experience as guest valuate dine for what they perceived it was in reality.

Pre-dining

Customers faces both internal and external inputs while choosing the place where to have their dine. Internal inputs concern the dining occasion, situational constraints, dining out frequency, and customer characteristics; namely all inputs that came directly from the customers for choosing a place rather than another. In fact, different customers have different range of possible places where to have their dine accordingly with their preferences. Nevertheless, the same customer may choose different places for different occasion as well as for the time and the budget available for the occasion. However, food service business may influence such decision giving external inputs to potential customer. Therefore, good communication and promotion is at the basis of being preferred among competitors. Good communication should be accompanied by carefully managed attributes that positively influence the customer perception: Food, service, atmosphere, convenience, and restaurant specifics. Food is certainly one of the most influent attributes that influences customer choices. In fact, menu variety, freshness, and presentation are main attributes that may attract or not a given customer segment as well as being chose a particular occasion or the lunchbreak. Service as well plays a crucial role on customer's perception. In fact, good

service can make the difference on a positive or negative experience. Friendly and polite, efficient and sympathetic, skilled and knowledge staff have positive impact on customer. Managers should recruit properly and find ways to incentive staff to best perform. Service management also impact on the atmosphere. In fact, as discussed previously, whether capacity is not well managed customer do not feel comfortable due to lack of space and privacy. Moreover, whether the capacity is overloaded also staff is not able to do its best. Lastly, food service industries should also handle with extra services for being chose by customers, such as parking availability and phone reservation.

The aforementioned attributes generate expectation on customers. In fact, customer before experiencing the dine makes expectation on the dine progress. Then, expectation shift into perception along dining. In fact, while customer is experiencing the dine evaluate its impression on the overall experience regarding the attributes of the restaurant.

Pre-dining

Once the dine is over and customer has experienced all attributes of the restaurant makes its personal evaluation of the overall experience. Then, it bases the value of the experience on the base of how it has perceived the dine. Customer perception of each attributes is confronted by customer with its expectation on each attribute. Whether expectation of each attributes match or overcome perception of each attributes experienced customer will be fully satisfied. On the contrary, the higher the gap between expectation and perception the higher is customer unsatisfaction. As a consequence, it is likely that the customer will look for a restaurant with desired attribute for the next time.

Whether a customer sees its expectation as confirmed, there is confirmation of customer's expectation and customer is likely to return to visit the restaurant. On the other hand, whether a customer sees its expectation disconfirmed, there disconfirmation of customer's expectation. According to the disconfirmation theory, the disconfirmation is higher as the importance of the event has generated expectation increases. In fact, disattended expectation for a unique event are so much momentous than disconfirmed expectation of a lunchbreak. Therefore, whether the importance of the event is high, and expectation are disattended is almost sure that customer do not visit the restaurant anymore.

Therefore, manager should handle with all attributes to make revenue management best perceived as possible, especially with those practices that best fit with financial performance improvement that customer may negatively perceive. One of those practices is meal duration reduction that each food service manager seeks to achieve. In fact, customers want to take their time to consume their meal and it is likely that they will perceive negatively most of meal duration policies. However, some tricks may help managers to shorten meal durations of customers such as using background music, lighting, and interior colour (Heo, 2013). Moreover, fast-tempo music makes customer consuming faster and incentive more spending (Miliman, 1986), and giving visual signals such as bussing the table, delivering the check, or offering valet service may remind customers that the meal is over (Kimes, Barrash, & Alexander, 1999).

The other most delicate practice is pricing policies and fencing condition as revenue management practices are perceived as fair whether properly disclosed. (Kimes & Wirtz, 2003; Wirtz & Kimes, 2007). In fact, pricing and rate fences perception are not as correlated to economical condition as might seem due to the framing effect and the prospect theory. Framing effects refer to the phenomenon wherein people respond differently to different descriptions of the same condition (Frisch, 1993). Prospect theory posits that individuals value gains and losses differently even if their situations are economically equal (Kahneman & Tversky, 1979; Thaler, 1985). According to both framing effects and prospect theory, the customer perceives pricing policies and rate fences as fairer when prices when are framed as a gain from a customer's perspective than when those prices are framed as a loss. Kimes and Wirtz (2003) found that demand-based pricing is perceived as fairer whether presented as discounts rather than as surcharges due to the customer inability of labelling a correct price to products. Moreover, whether customers are aware of how prices are made and then affected policies are perceived as fairer (Choi & Mattila, 2005). Therefore, food service business should accompany proper disclosure model to pricing policies and rate fences in order to increase fairness perception of customer.

Figure 32: *Dining satisfaction and return patronage model*
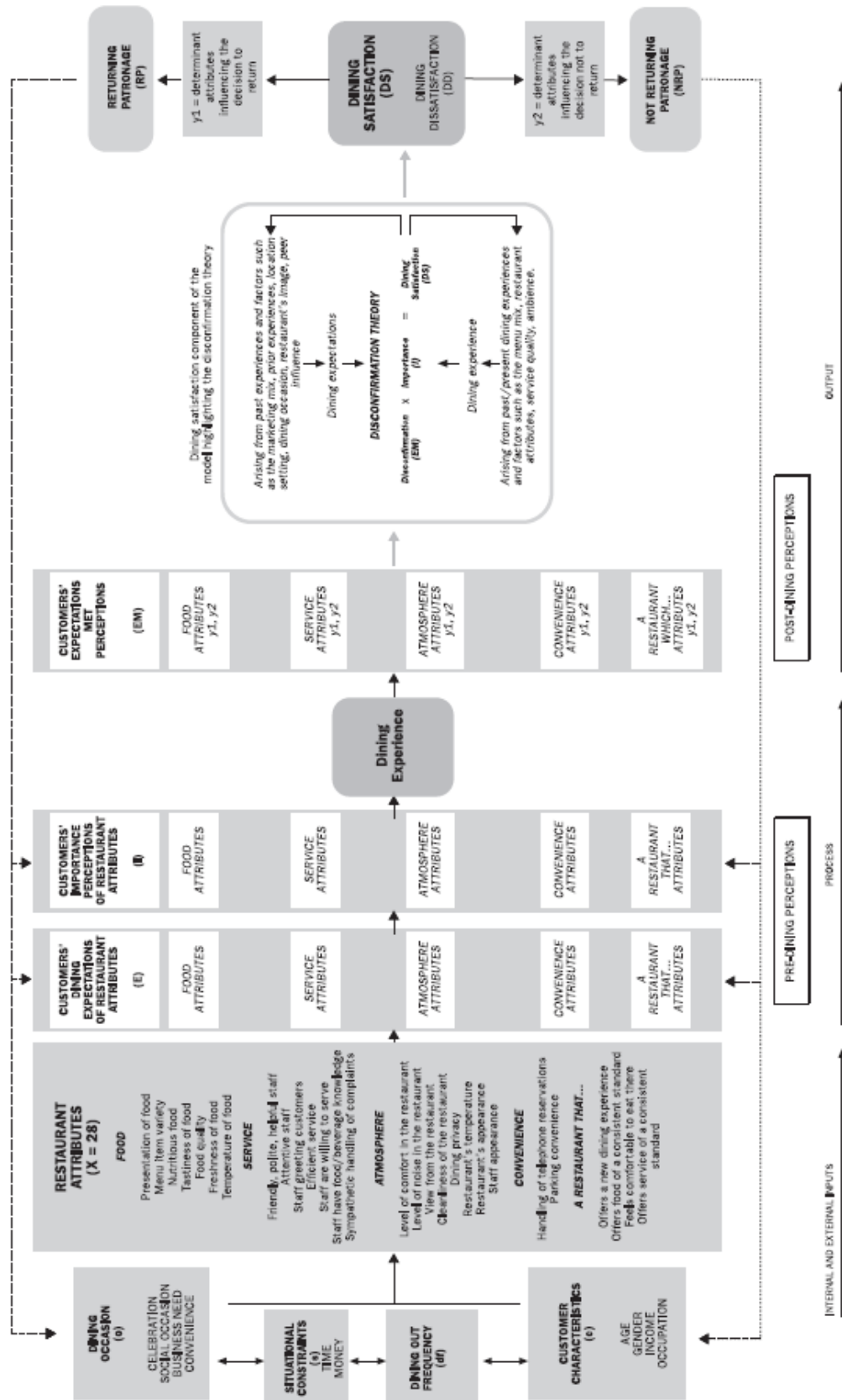
Source: Kivela, Inbakaran, & Reece (1999, p.209)

Chapter 3   Revenue management in food service industry. The case of AirFood Italy

The aim of this dissertation is to explore possible implementation of revenue management practices in food service industry in order to assess whether a change operational perspective from an internal point of view toward an external market-oriented point of view, may or not improve performance measurement for food service companies. The main concern is that food service companies relies mainly to roughly cost-based controlling methods in order to assess prior margins, such as F&B costing (Ravenna & Pandolfi, 2010; Luise, 2013). However, the higher degree of fixed cost, the unpredictability of variable cost, and the high uncertainty of production levels make difficult for food service companies of assessing previously the unit cost of item sold (Heo, 2013; Kimes, 1999; Kimes, Barrash, & Alexander, 1999). Therefore, it has been chosen AirFood Italy as a case study since it has been consolidated within travel retail market with almost around 65 food service stores around Italy. Hence, the case tries to lay down whether AirFood Italy's practices are aligned with those of revenue management for food service industry according to Heo (2013) classification.

The case study method has been chosen as business practices are likely of being explained whether boundaries are set. Thus, case study by implying usually a deep study of a single company may show best practices as well as analysing possible implication through implementation by addressing specific problem. (Scapens, 1990). Scientific evidences are collected by visiting the company headquarter, company stores, interviews, and analytics tools provided by the company itself on November 2019. The headquarter has been shown by a senior business analyst, who has given a preliminary overview to company's business and organizational model. Business analyst have shown all departments explaining the main duties for each. Afterward, F&B format manager analysed the revenue management practices identifying all actors involved in such practices. It has been deemed that the most significative example of food service practices implementation was the airport located in Italy northern east who counted the highest number of F&B stores as it encompasses all practices implemented by AirFood Italy for food service. Therefore, the interview to northern east airport area manager have been conducted into two phases: the stores visit and practices discussion. During stores visit all stores of the airport have been deeply shown

and all activity explained. However, all department involved in food preparation was shown by the outside for avoiding food contamination. In the second part of the interview was explained the store layout, store operations, store performance analysis, reporting, and organization. Therefore, a second interview was conducted with F&B format manager and Graphic design coordinator to discuss regarding store concept, menu analysis and design, pricing and costing activities, as well as providing tools *fac simile.* Lastly, a final interview with the Head of finance and business analysis was conducted to discuss regarding company's reporting and possible implication to revenue management practices. The figure below shows all interviews done with the company studied with specification of subjects involved and the duration of each interview.

Figure 33: *Interview resume*

Interviewee	Interview duration (min)
Business Analyst	60
F&B Format Manager	90 30
Graphic Design Coordinator	30
Area Manager	240
Head of Finance and Business analysis	60

Source: Author's elaboration

After all interviews was ended all information gathered have been organized according to the structure proposed in the previous section in order to make possible to compare AirFood Italy practices with those proposed by revenue management literature. Any tool and data provided have been reworked by the author to preserve any company's sensitive information maintaining tools representativeness.

The methodology choice has been influenced by the food service industry background. Food service industry is characterized by lack of managerial skills and accounting practices, mainly because of the lack of management literature regardless food service industry

(Chapman, Hopwood, & Shields, 2006). However, the sector present huge managerial skills and practices gap among small and large companies. In fact, small enterprises are more likely to face lack of managerial practices, while large industries have generally more structured managerial practices (Fornari, 2006). Therefore, AirFood Italy has been identified since being a large company was likely to find structured and complete managerial practices that may fit with those proposed by revenue management literature.

3.1   The case: AirFood Italy

3.1.1   Introduction to travel retail

Travel retail is a physical retail channel evolution to the classic DOS (directly operated stores) and Franchising as it transforms spaces where stores are located. Travel hubs are built with a specific purpose which are different from the trade and meeting points. Therefore, these are defined as non-place, namely those places that are not characterized by a historical and social identity, where multiple individualities meet without create any social relationship. However, in today's world those which were recognized as non-places are emerging as special places where highly informed consumers make special purchases for special occasions. Travel retail tries to incentive such evolution, exploiting long waiting time of travellers, giving to non-places a more precise identity.

Travel retail is located within the airports, large railway stations and motorway distribution chains. However, motorways are closer to the world of large-scale distribution and represent at a different point of connection between the travel and the shopping experience as motorway traveller is not characterized by mandatory waiting time in the station. Airports and stations represent important opportunities for the engagement of new potential customers due to the presence of several key factors that differ regarding the type of hub (Figure 34). Travel retail has led to the rethinking and proper engineering of the airport and railway spaces that must tell a shopping experience that kidnaps the traveller customer and directs it into a new dimension of purchase.

Figure 34: *Travel retail channel factors*

Airports	Railways
Long waiting times over 140 min	Relatively short waiting times less than 30 min
Layouts not only dominated by duty free but also by luxury brand stores and restaurants	Prevalence of domestic and commuter customers
Increased aptitude for buying experimentation due to more international travel	Oncoming Traffic Engagement
Gifting representing a medium high receipt	Free shopping routes
Presence of passengers from emerging countries increasingly inclined to buy	
Delimited shopping routes that are an advantage	

Source: Author's elaboration

The travel retail business model represents a reversal of roles between airport operator and company. Generally, the hub landlord grants a space to a commercial company. In the case considered the company becomes an operator acting within the spaces of an entity becoming the main subject. This is because facilities such as airports and stations have been designed for very specific purposes and travel retail becomes a complementary resource to the main business. The space-giving company must be proactive by choosing the brands and the correct merchandise that must characterize the environments, foster the interaction between the brands themselves and generate customer loyalty with appropriate marketing plans (Delta Sales, 2015).

Davide Cavalieri CEO and founder of Cavalieri Retail states, in an interview of 2019 for the parent's editorial, that *"For brands that deal with travel or food impulse products, travel retail is a market full of possibilities. The stores of Milano Centrale station and Roma Fiumicino of the*

Venchi brand, for example, have impressive numbers. For other sectors, investing in this market is a real challenge where the goal is not merely the business, in terms of income statement, but also marketing and visibility".

The sectors that benefit most from travel retail are food service, fashion and the gift world. In general, all brands that provide user function products such as newspapers, digital media, headphones and charge portable batteries or that meet impulsive needs.

The typical customer of travel retail is characterized by heterogeneity. It is a traveling customer who comes from all over the world who has seen his purchasing needs change from functional to experiential. There are two main reasons for the evolution of the typical travel retail customer. Primarily, in past years stations and airports were places where was possible buying everything that had been forgotten and was not in traveller's suitcase. For this reason, airports were called non-places. Now airport is large space where, in addition to fast purchases, the customer-passenger spent even long periods waiting for the coincidences. It has switched airports from non-places to real shopping malls that represent a very wide offer. In addition, the customer is more aware, has higher levels of education than in the past and has become increasingly democratized by the arrival of low-cost fares. The hubs that have become progressively more welcoming places to facilitate the process of buying passengers who spend their money more wisely (Delta Sales, 2015).

Travel retail is a growing market and reaches more targets: from businessman to traveling families, from Millennials to Generation Z. That's why the possibilities for brands investing in these spaces are endless. However, it is important to emphasize how the sector follows different logics than physical travel and it is necessary to define well the target audience to build on it the best communication and sales strategies. Firstly, it is essential to understand the target that walks through these spaces. Generally, there are three categories: businessman, tourist and casual traveller. The latter is a customer too difficult to know and it is superfluous to build strategies on it, while for the first two it should be designed different sales plans. The business segment normally has little time available and buys mainly for use function. On the contrary, the tourist calmly turns the stores and responds to different stimuli. Its purchase is not sophisticated, but of impulse and research almost always territoriality and typicality in products (Cavalieri, 2019).

3.1.2   The company

In the case study below, it will be discussed the company AirFood Italy. AirFood Italy is an Italian operator of travel retail, which plays a relevant role in Italian travel retail scenario. It is part of a greater group of companies headquartered in the northern east Italy. It is involved in travel retail with different business lines and channels to cover all Italian boundaries. The greater group is active in 14 railways stations, 31 airports, 8 motorways stations, and shopping malls with almost 150 stores and 500 employees. The business lines comprise Fashion, Duty Free, Travel Essential, and Food and Beverage. The entire group generates a turnover around 350 million euros. AirFood Italy is the company involved in the management of food and beverage stores. It comprises several formats developed internally, joint ventures and franchising. These compose a portfolio of 11 internal brands and several partners with around 65 stores and 150 employees contributing to a third of total group turnover annually.

Internally, AirFood Italy is divided between administrative and operative duties. Administrative, technical and support departments are centralized in the group headquarter, while AirFood Italy manages directly stores operation with local operation managers called Area managers. Despite company is widely diffused along the country, the business case is focused on the management of airport's stores due to the relevance such channel has in Travel retail. For the sake of simplicity, the case analyses only the airport with the largest number of stores rather than the entire business.

The business model is typical of travel retail, where the company has basically a B2B relation with channel operator who grants spaces for being managed by the company. Then, the grantee should develop commercial spaces accordingly to predetermined criteria that matches with strategic plan of the grantor. Therefore, to pursue such aim, the group has developed a portfolio of different formats and franchising in order to deeply penetrate on channels thanks to the great deal of possibilities it provides to grantor to develop different commercial spaces. Spaces are granted by the airport operator through a tendering. The tendering comprises all characteristic and constraints the space should have for being managed. In fact, airport operator decides destination of space, such as restaurant, gift shop, fashion shop. This include the minimum set of products the store should offer for being consistent with the airport offering. In fact, the airport operator asks that a minimum set of

product respect certain characteristics, such as local wine and dishes selection for a restaurant. Therefore, it should be described in detail the store format and the store concept the company would implement in the granted space. Moreover, such detail should comprise also the entire marketing plan of the store including all item that would be available and prices. As aforementioned, item selection should comprehend, or being entirely composed by, a set of items that correspond with certain characteristics imposed by the airport operator. Prices faces some limitation as well. In fact, prices should be competitive in the market and always being justified by comparison with similar competitors. Lastly, since airport operator should gain from the space grant, the company should propose a royalty rate at which will be paid royalties to the airport operator. Once each of these elements are proposed to airport operator it might decide to decline, renegotiate, or accept the proposal.

Company's performance indicators

According to Head of finance and business analysis, main indicators monitored by company's managers are average ticket, labour productivity, spending per passenger, and stop ratio (also known as conversion rate). Average ticket is the relation between revenues and ticket issued in a given span of time.

[14]

$$Average\ ticket = \frac{Revenue}{Tickets}$$

It considers tickets as transaction driver since it would capture the average amount and the number of items sold in each transaction. Labour productivity poses in relationship revenues and hours worked in a given span of time.

[15]

$$Labour\ productivity = \frac{Revenue}{Worked\ hours}$$

It would capture the revenue generation for each hour worked. Spending per passenger and stop ratio would capture information based on passengers. In fact, retail industry

performance indicators encompass information on number of customers that walked by the shop and into the shop, as well as how many of those actually purchases. AirFood Italy account for passengers as it corresponds with the number of potential customers since passengers follows mandatory trial within the airport. Spending per passengers is the revenue generation by each who walked through the airport. In fact, it is the relation between the revenue generated over the passengers.

[16]

$$Spending\ per\ passenger = \frac{Revenue}{Passengers}$$

Moreover, it would be known how much store are attractive for potential customers with the stop ratio. It is the relation on number of customers over the total passengers.

[17]

$$Stop\ ratio = \frac{Average\ ticket}{Spending\ per\ passengers}$$

In fact, by simplifying the formulas as follow might be derived stop ratio.

[18]

$$Stop\ ratio = \frac{Revenue}{Tickets} \div \frac{Revenue}{Passengers}$$

Then,

[19]

$$Stop\ ratio = \frac{Revenue}{Tickets} \times \frac{Passengers}{Revenue}$$

Therefore,

[20]

$$Stop\ ratio = \frac{Tickets}{Passengers}$$

The indicator would address the rate of transactions given the potential customer.

3.2   Capacity management

As explained by the F&B format manager, AirFood Italy has several formats developed internally, joint venture with other brands, and franchising. Internally developed formats are designed as whole by marketing team in the group headquarter. Formats might be divided into three main categories based on the type of service: counter service outlets, and table serving outlets. The two format categories basically differ for store concept and the type of sales strategy. In fact, counter service stores are designed for being a sort of hybrid between a retail store and a bar. In the outlet shelfs and coolers propose typical or fresh product that might be consumed locally or token away, as well as a counter for poured serves; customer who comes into counter service stores generally buy for both present and future needs. Present needs are generally satisfied by counter proposal, while cooler and shelf might be chosen also for take-out and gift. Table serving outlets are closer to typical restaurant bar and the proposal is made for satisfying generally present need of customers as meals are mainly consumed at the table.

Marketing team design the format concept and the store's proposal that best suits with the targeted segment, while operational logics are jointly developed among, operation managers, technical offices, and marketing. In this last step is found the correct equilibrium among operational needs, physical constraints, and the proposal that best fit with the store. Therefore, once created the format and defined the type of products that is intended to sell is necessary to give shape to the store. To do this, it should be identified which areas of the store to target for production and which areas to use for sale. It should be defined the equipment and spaces necessary for the operators' movements, and then the work areas, such as counter, pizzeria or kitchen, will be optimally configured. The project proposed by

the format operations technicians, will then be sent to the operation manager who will analyse the compliance of the project with the efficiency standards. Efficiency standards are in line with the logic of lean thinking, which allows operations to exploit as much as possible the limited space available for comply operative duties. In particular, the operation manager will make changes, if necessary, to improve efficiency and facilitate interaction between departments. The project will also be reviewed by a technician who will analyse its compliance with health and safety standards.

Area manager pointed out that, stores do not adopt standard procedures in order to maintain some operational flexibility. Instead, operational dynamics are driven by the operation manager in the layout definition. The layout is designed not only to promote maximum efficiency, but also to ensure flexibility. Therefore, stores are designed for being managed by single or multiple operators regarding the demand level. In fact, in periods of high production any store department might be handled by one operator per station, while during peak-off period it might be managed by only a single operator in a comfortable and functional way. Operators should comply with the production standard for finished products which basically involves the compliance of standard recipe.

Stores appear to have a minimalist layout, as they try to minimize back office productions and give dominance to front office productions. To do this, it was decided to outsource and merge the production of back offices into a single centre called the Single Production Centre (S.P.C.). The SPC is responsible for producing for all the stores everything necessary to compose the ready-to-eat counters. This excludes the specific preparations of the store such as pizza and bread for those who provide handmade pizza and bread and express cafeteria preparation. Each store will still have its own peculiarities and its products to be inserted in the ready bench, the advantage lies in the optimization of resources. In addition, the remaining products are always semi-finished that operators can package and cook with less time spending activities and use of special skills. This also allows to homogenize front office activities in most of the stores, giving the possibility of moving operators among the airport's stores in case of need.

Training is a crucial aspect of capacity management for AirFood Italy as production capacity relies on employee's capability of respecting company's best practices and on sharing

employees experience. Therefore, AirFood Italy do not implement properly production standards for giving more flexibility to operators, thus, to the stores. This would increase the operator's integration and flexibility as any operator would be able to cover any task in the production. The training includes a dynamic evaluation of the resource, in which the resource taken is tested for a month in all functions, so that the attitude of the resource can be tested and being addressed to the activity that best fit with trainee characteristic. Once inserted, the resources turn all functions, except for functions that require an elevated specialization and experience, but this does not exclude that it may happens that a trainee is skilled enough for being assigned to such functions. This permits to train the operators in all functions. This facilitates the store manager in the creation of shifts as it makes turnover easier, improves the synergy between operators as each operator is fully aware of the operational dynamics of each function. More health and mood, so more efficiency.

Therefore, a store staff is generally composed by trainees, junior operators, senior operators, service responsible and the store manager. Before being store manager, a senior operator is promoted as service responsible. Service responsible is formed directly by the store manager in a year. First six months are a shadowing trial where the responsible directly touch store manager's activities, in the last six months is tested the autonomy and actions are overviewed by store manager. Once fully promoted to service responsible, it should vicariate store manager in the functions:

- Coordinating the service

- Provide operative support to overloaded areas during peak hours

- Trainee supervision and training

- Make stocks order.

3.2.1 Forecasting

Area manager also explained that production at the SPC is commissioned directly from the stores. However, the quantities to be produced are not arbitrary but the result of careful forecasting. To forecast demand and minimize waste and scrap of product, store managers

compile a tool that crosses the flight plan by time slot with the amount of products sold per time slot and normalizing it for any key variables that can change the normal passenger parking such as weather conditions and strikes. Flight plan is provided by airport operator with detailed description of flight provenience, expected arrival or departing. By combining product already available, passengers expected, past consumption, the tool is able to determine how many products should be provided to each store. This allows store manager to predict with a fair precision the amount and the type of product that will be consumed during the day, in addition to the tool keeping in mind the shelf life of the product giving back the exact amount to order at the SPC. In this way, production at the SPC will be made net of advanced products that have not exhausted the shelf life. Generally, products have a shelf life of 12h if the product has been properly stored, has not suffered any temperature fluctuations that may have altered the characteristics. In order to improve the analysis, the flight plan and sales are structured to make the comparison:

- Week of this year vs week of last year

- This week vs last week

- Last 5 weeks of this year vs last 5 weeks previous year

This will give a generic idea about what will be the trend of passages to the store, then consumption.

All the stores draw from the same warehouses: one for frost stocks, one for fresh stocks and one for the dry stocks; each of which is operated by third-party companies that provide logistics service. Each store will then be given handouts and cold rooms, with a significant saving in terms of space. The service responsible must prepare the inventory downloads card, and then define the quantities to be received.

There are two methods for supplying goods in cold, freezing and dry storage. The classic paper method in which the discharges are made. In paper method, optimal stock is set in advanced and reordering is made as difference between optimal stock and available stock. Automatic reordering (RA) which is an automatic tool where optima stock that should be ordered are calculated by an algorithm of the POS system.

The latter is a pilot project that is not fully implemented in all stores. RA is an automatic virtual warehouse management system that crosses the quantity of product sold, the quantity ordered one and the waste; then, the system defines the optimal quantity to order according to a system of minimums and maximums. With automatic reordering, the service responsible should limit its work to the control of the results in order to manually correct any anomalies, rather than manually preparing the entire project.

Every month the service responsible will have to carry out the analysis of the stock variance. Each month, the manager area will receive a report from the management control on the total variance and variance of each individual product for each store. The area manager will report this last report to all service responsible that should identify the 10 products that have the most variance. Once these products have been identified, the service responsible will first have to identify the causes of the stock variance, which might be the wrong recipe, the operators do not follow the recipe, poor product yield etc. Then, to discuss with the area manager the corrective actions to be taken.

According to the Head of finance and business analysis, main KPIs are monitored by both store manager and area manager are average ticket and labour productivity. Both indicators are provided by company headquarter business analysis team into periodical reports with weekly, monthly and yearly basis. Labour productivity is the relation between turnover and hour worked in a certain span of time. It would express the turnover generated by each worked hour giving to area manager a broad idea to the general workload bare by the staff. Average ticket is the relation between turnover and tickets issued in a given span of time. It would address to the average basket purchased by customer.

Figure 35: Labour productivity by timeslot

	18:30	19:00	19:30	20:00	20:30	21:00	21:30	22:00	22:30	23:00	23:30	00:00
Operator 1												
Operator 2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Operator 3												
Operator 4					0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Operator 5					0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Operator 6												
Operator 7	0.5	0.5	0.5	0.5	0.5							
Operator 8												
Operator 9			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		
Operator 10												
Operator 11	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Operator 12												
Operator 13	0.5	0.5	0.5	0.5								
Operator 14					0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Operator 15												
Tot WorkHours	2	2	2.5	2.5	3.5	3	3	3	3	3	2.5	2.5
Revenues	84.19	83.04	109.17	107.63	106.08	78.40	77.25	76.09	74.93	73.77	48.41	47.64
Productivity	42.10	41.52	43.67	43.05	30.31	26.13	25.75	25.36	24.98	24.59	19.36	19.06

Source: Author's elaboration

Area manager also showed the main KPI that is monitored by the store manager. It is productivity by time slot as shown in the figure above. The flowchart is created with all operators and the opening hours are divided into half hours. Once the diagram is prepared and the hours worked for each half hour are added, the turnovers for the corresponding time slot are entered, then the productivity per time slot is calculated. The store manager should monitor productivity to understand the consistency between employed operators and workloads to understand whether shifts are distributed consistently throughout the day. Whether productivity is tended to be aligned throughout the day, shifts are well done, otherwise action should to be taken.

3.3   Time management

Area manager showed software which is used for managing customer waiting. In particular, the software monitors the capacity of the restaurant by saying how many places are available and the waiting times for the main courses: first, second and pizza. This information is shown by a monitor in reception and above the cashier. In this way the waiting times act as bait for the customer as the software knows how much customer should wait approximatively before eating. When ordering, instead, will direct customer to what type of item to order for waiting less time. When the customer orders an item, each course will be directed to the function that will prepare the item. The operator working in the function will then have the whole list of items to be prepared creating a real waiting list. The more the items in the queue increase, the more time in the display for that type of food will

increase. The operator should select the item it intends to start cooking (coloured black in the display), once ready and waiting to be brought to the table will be in green. If there are multiple different items in a receipt (i.e. pizza and first course, pizza and main course) having different cooking-times, the display will mark in grey the item that cannot be prepared with a countdown that signals to the work in how long it can start to prepare that item to make the items come out at the same time. This facilitates communication between departments and facilitates coordination in the service.

The quality of service also depends on the coordination between departments because people want to eat together and the wait creates embarrassment as those who wait would not want to do so, while those who are waiting for feel guilty. Moreover, delays lower the quality of the item if it is consumed under the service temperature. Lastly, estimated times and actual times are also compared, as the system tracks how much time has elapsed between when the order was placed and when it was served in order to detect bottleneck in the service.

AirFood Italy is also developing a virtual waiter to enhance customer experience and better exploit available time. The main idea is to communicate which flight customer should take by scanning a QR code, then virtual waiter would suggest items and coordinate meal duration with flight departing. This would be an effective tool for match customer's time expectation with effective meal duration increasing customer satisfaction. Moreover, it would be an effective tool to increase control on meal duration.

3.4   Menu engineering

As explained by Graphic design coordinator, Menu engineering process consists of two basic steps: technical construction and graphic construction.

3.4.1   Technical construction

F&B format manager showed that technical construction phase is initially based on the creation of the product offer. As explained in the section above, products face several constraints that may affect store's offering.

The product offer in stores is constrained by:

- Format

- Airport operators' constraints

Product shelf-life

The products or recipes will be designed according to the format. Then, each format should have a shortlist of products that composes the basic offer of the format. These products should be grouped by macro product categories, priced and their production cost defined as a target. However, the company should abide by the specifics and parameters imposed by the tender. The call imposes the format and characteristics of the products that the store should offer. Usually the characteristics of the products should be in line with the culinary tradition and the products of the territory. AirFood Italy opts for the localization of the format in order to shape the range of products offered.

Once the basic offer of the format has been identified and localized, the items will be grouped into two categories:

- Best seller

- Innovative items

The best sellers are those items that make up the basic and essential offer of the menu. These items have both high margins and do not follow the seasonality. These items make up the store's fixed offer. Innovative items, on the other hand, are generally designed and studied jointly by suppliers to exploit supplier's knowhow of the product. These are in fact designed to consider seasonality, localization and market trends. In fact, innovative items are updated cyclically.

All products are designed to ensure the use of as little additional products as possible and to ensure the longest shelf life possible in order to minimize waste. In this sense, a commission has been set up called Team Zero Ems, which deals with the proper management of raw

materials and semi-finished products in order to coordinate inbound and outbound flows. Any unsold product that cannot be re-entered into the production process is not thrown away but donated to the food bank.

3.4.2 *Graphical construction*

According to Graphic design coordinator, graphical construction of the menu includes 3 steps:

- Menu layout

- Graphics

- Positioning

The menu layout is decided in order to find the right stylistic compromise, spatial and ease of reprinting. Stylistically as the style of the menu must always be attractive and consistent with the target, spatial as it must respect the space available to the customer as well as the space necessary to the presentation of the products, with an easy, fast and economical format to allow reprints over time. In fact, any change in price, an ingredient, an item makes the menu obsolete and requires a reprint. Then it should be chosen a format which is printable at a low-cost, and that is quick to print.

The placement of the products is carried out in order to expose the core products into the focal point. The core product is the product that want be sold at the most. In the other part of the menu follows the corollary in order to complete the menu. The company also uses Bundling and best match tactics to boost sales. The best match consists to propose a perfect match to a specific item (e.g. beer to the sandwich, side dish per second), or to place or propose some products where they are more likely to be paired such as proposing the flatbread on the page of the salads for being chosen as paired.

Visual strategies are also implemented for pricing. In fact, prices are generally exposed without currency symbol to keep out customer attention from monetary transaction. Moreover, prices are rounded up to tens of cent to increase revenue volume. AirFood Italy

generally avoid round prices like 7 or 7.5 euros. Such prices are generally increased by 20 cents for increasing revenue without being perceive as concrete price increasing by customer. Nevertheless, any price change should be communicated and approved by the airport's operator.

The graphic construction of the menu should be consistent with the target audience as the menu of an outlet that is more oriented towards an elegant kitchen should have an electable menu. This affects the choice of colours and weight of the paper, as well as to insert references on the identity of the format in the room. The menu should be built in such a way as to be as immediate and impactful as possible since the customer at the airports has less time to choose their own dish. Then, should be created a menu with a few pages and full of images to make it immediately the idea of what you will order as seeing the ingredients is more immediate than reading them. In addition, colours are used to increase the glance in some areas. The menu is a component that suits to a la carte service at the table. However, not all stores provide such service. Those who serve at the counter will prefer a menu displayed in the back and bundle menu displays. In addition, the customer once reached the table will find references to the menu on the table, which would tend to inventive sales (e.g. desserts, coffee offers)

However, it is also important to take care of the customer's perception and not to disregard the aspects that the ambient and the menu have generated to the customer. To minimize the imbalance between expectation and reality you will have to have a faithful shoot or a price that is not too far from the perceived value of the dish, In fact, a dish well presented in the paper but at a low cost will be more accepted if not compliant with reality rather a more expensive dish. The graphics will also be studied in a way that reflects the philosophy of the dish, where you will have a more spartan graphics you will also expect a less refined dish; essentially menu should be designed to have consistency between graphics, items and store format.

3.5   Price management

As aforementioned, items are retailed at a price which is competitive as compared with prices applied by comparable competitors in the market. Nevertheless, according to F&B

format manager, AirFood Italy tries to set prices as close to customer's willingness-to-pay. Then, prices are tested by benchmarking competitors' prices and trying for being as competitive as possible. In fact, once an item is chosen, target price is set jointly to a target cost. All items with corresponding price and target cost are listed together laying down format general proposal. Once target prices and target costs are set it should be benchmarked with those of competitors.

3.5.1 Benchmarking

As mentioned in chapter 1, benchmarking is the activity of comparing company's prices or activities with those of peers. AirFood Italy relies on this activity for assessing whether its target prices are competitive as compared with those of competitors. Firstly, AirFood identifies competitors who are comparable enough. Therefore, similar format, items offered, and customer segment targeted should be used as metrics. Once found a sufficient number of similar competitors, item prices are collected and listed as shown in the figure below.

Figure 36: *Competitors' item price list*

Product / FOOD	BAR BELLA ITALIA (ROMA)	BAR LA DOLCE VITA (MILANO)	BISTROT ITALIA (ROMA)	BAR CENTRALE (ROMA)	CAFFE VIVALDI (VENEZIA)	CASA DEL CAFFE (NAPOLI)	IL DUOMO (ROMA)	PIAZZA ITALIA (MILANO)	CAFFE DEGLI ARTISTI (ROMA)	ANGOLO BISTROT (ROMA)
CAFFETTERIA										
Coffee	€ 1.20	€ 2.00	€ 1.20	€ 1.80	€ 2.30	€ 1.80	€ 2.50	€ 2.00	€ 3.00	€ 2.00
Decaffeined coffee	€ 1.20		€ 1.50		€ 2.50	€ 2.10	€ 3.00		€ 3.50	€ 2.00
Tea	€ 3.00		€ 3.50	€ 3.50	€ 4.50	€ 2.60		€ 4.00	€ 4.00	€ 4.00
Orzo	€ 1.20	€ 2.00	€ 1.50			€ 2.40		€ 3.00	€ 3.50	€ 2.00
Ginseng	€ 3.50	€ 2.50	€ 1.50			€ 3.30			€ 3.50	
Cappuccino	€ 2.50	€ 3.50	€ 1.50	€ 2.80	€ 3.50	€ 2.40	€ 3.00	€ 3.00	€ 4.00	€ 3.00
Latte macchiato	€ 4.50	€ 3.50	€ 1.70	€ 2.80		€ 2.40		€ 3.00	€ 4.00	€ 3.00
Double espresso	€ 2.50	€ 4.00		€ 3.80						
Milk	€ 3.50			€ 2.50		€ 1.40		€ 3.00	€ 2.50	
Brioche	€ 1.80					€ 1.80		€ 3.00	€ 2.00	€ 2.00
Stuffed brioche	€ 1.80					€ 1.80		€ 3.00	€ 2.00	€ 2.00
Water 50cl										
Water 75cl - open cooler										

Source: Author's elaboration

Once competitor's item prices are listed, prices are compared with those of the company. Therefore, minimum and the maximum price for each item is isolated for being compared with company's price. Then, average and average without lowest price is calculated for benchmark price competitiveness. Target price is compared with average price and price without lowest price for determining the competitiveness of the item price. Thus, average is used for determining whether a price is into the benchmark threshold, while average without lowest price for determining price competitiveness through percentage deviation from target price. Therefore, whether target price is lower than the average it is acceptable,

whether it is not such item risks to be out of the market. Also benchmark level is tested such that items who are found in less than 70% of the companies analysed, are considered as non-reliable, then label as *NO BENCHMARK*. Thus, such items should be threated separately. The figure below shows an example of benchmarking comparison.

Figure 37: *Items' price comparison*

Product	Benchmark									
FOOD	Min price	Max price	Average	average without lowest price	Actual Price	New Price	Benchmark level	*Yes / No Benchmark	Δ new vs average without lowest price	Δ vs actual price
CAFFETTERIA										
Coffee	€ 1.20	€ 3.00	€ 1.98	€ 2.07	€ 1.10	€ 1.20	100%	YES	-42%	9%
Decaffeined coffee	€ 1.20	€ 3.50	€ 2.26	€ 2.43	€ 1.20	€ 1.40	70%	YES	-42%	17%
Tea	€ 2.60	€ 4.50	€ 3.64	€ 3.79	€ 1.70	€ 2.10	80%	YES	-45%	24%
Orzo	€ 1.20	€ 3.50	€ 2.23	€ 2.40	€ 1.20	€ 1.40	70%	YES	-42%	17%
Ginseng	€ 1.50	€ 3.50	€ 2.86	€ 3.20	€ 1.90	€ 2.00	50%	NO BENCHMARK	-38%	5%
Cappuccino	€ 1.50	€ 4.00	€ 2.92	€ 3.08	€ 1.50	€ 1.70	100%	YES	-45%	13%
Latte macchiato	€ 1.70	€ 4.50	€ 3.11	€ 3.31	€ 1.70	€ 1.70	80%	YES	-49%	0%
Double espresso	€ 2.50	€ 4.00	€ 3.43	€ 3.90	€ 2.10	€ 2.30	30%	NO BENCHMARK	-41%	10%
Milk	€ 1.40	€ 3.50	€ 2.58	€ 2.88	€ 1.50	€ 1.70	50%	NO BENCHMARK	-41%	13%
Brioche	€ 1.80	€ 3.00	€ 2.12	€ 2.20	€ 1.30	€ 1.80	50%	NO BENCHMARK	-18%	38%
Stuffed brioche	€ 1.80	€ 3.00	€ 2.12	€ 2.20	€ 1.60	€ 1.80	50%	NO BENCHMARK	-18%	13%
Water 50cl	€ -	€ -	0	€ -	€ 1.60	€ 1.70	0%	NO BENCHMARK	0	6%
Water 75cl - open cooler	€ -	€ -	0	€ -	€ 2.10	€ 2.30	0%	NO BENCHMARK	0	10%

Source: Author's elaboration

Through benchmarking AirFood Italy is able to test prices set and to analyse competitiveness of pricing strategy.

3.5.2 Bundling

As explained by both Graphic designer coordinator and F&B format manager, AirFood Italy uses bundling as a strategy for boosting sales. As discussed on previous sections, bundling consists in group different items together for creates brand new item priced at a price which is lower than the sum of the items. For implementing bundling, items are listed with own price and margins; then, grouped into macro categories and subcategories.

Bundles are created according to macro categories to increase customization and better match customer preferences. Thus, each bundle is proposed at a certain part of the day. This would incentive customer of preferring a certain type of product in different part of the day allowing the store of changing layout increasing efficiency, as well as designed for specific target. Bundle for breakfast, aperitif, lunch, tasting, and light lunch are example of bundle proposed.

Bundles are proposed as self-combinable deals based on group categories. Therefore, each bundle combines some categories based on the part of the day are proposed. For example, breakfast combo is a deal that comprises one choice of cafeteria, one of baker, and one juice. Therefore, a customer may choose among several items creating the deal that best fit with its preferences. However, combo price variability is rather high. Therefore, bundle price is compared with worst, average, and best choice. Worst choice corresponds with the most expensive combination a customer may do. Best choice corresponds with the cheapest combination. The average is the sum of the average price of each category may be choose in the bundle. Figure 36 shows an example of how items are listed and categorized. Figure 37, instead, shows how bundles are constructed and tested.

Figure 38: *Item list with categories*

CAFFETTERIA		Price
Cafè Nero	COFFEE	€ 1.20
	DECAFFEINED COFFEE	€ 1.30
	ORZO	€ 1.30
	GINSENG	€ 1.80
Cafè white	MILK	€ 1.30
	CAPPUCCINO	€ 1.70
	CAFFE LATTE	€ 1.80
Coffee specials	ESPRESSO CREAM	€ 2.80
	BROWN COFFEE	€ 2.90
	CAPPUCCINO DOUBLE	€ 3.50
	ESPRESSO DOUBLE	€ 2.90
Soft drinks	WATER 0.5L	€ 1.50
	COKE	€ 3.10
	SODA	€ 3.10
Juice	FRUIT JUICE	€ 3.00
	FRESH SQUIZED JUICE	€ 4.70
BREAKFAST BAKER		
Croissant	CROISSANT HONEY AND GINGER	€ 1.60
	CROISSANT CHOCOLATE	€ 2.40
	CROISSANT CREAM	€ 2.40
	CROISSANT APRICOT	€ 2.40
	CROISSANT	€ 1.60
Bakes	MUFFIN CHOCOLATE	€ 3.50
	MUFFIN BERRIES	€ 3.50
	SAINT HONORE'	€ 6.00
	TIRAMISU	€ 6.00
Fruit salad/Fruit	FRUIT - SMALL	€ 4.50
	FRUIT - XL	€ 7.50
	FRUIT MIX - SMALL	€ 12.00
	FRUIT MIX - XL	€ 8.00
FLATBREAD		
Flatebread	FLATBREAD BIANCA	€ 4.00
	FLATBREAD MUSHROOMS	€ 5.50
	FLATBREAD ARTICHOCKES	€ 5.50
	FLATBREAD AUBERGINES	€ 5.50
	FLATBREAD VEGETABLE MIX	€ 5.50
	FLATBREAD POTATOES	€ 5.50
	FLATBREAD CRUDAIOLA	€ 5.50
COURSES		
First courses	GNOCCHI DELLA CASA	€ 14.00
	FETTUCCINE SENATOR	€ 14.00
	TORTELLI TRADIZIONALI	€ 14.00
Main courses	CAPRESE CON BUFALA	€ 17.50
	CAPRESE CON GIUNCATA	€ 17.50
	CAPRESE CON BURRATA	€ 17.50
	SEASON SALAD	€ 14.50
	OCTOPUS SALAD	€ 23.50
	SAN DANIELE SUMMER SALAD	€ 19.50
	COLD CUTS AND CHEESE	€ 17.50
	TUNA SALAD	€ 23.50
Cheesee	BURRATA	€ 4.50
	MOZZARELLA BUFALA	€ 4.50
	GIUNCATA	€ 4.50
	SMOKED BURRATA	€ 4.50

Source: Author's elaboration

Figure 39: *Breakfast menu example*

BREAKFAST MENU			Price	
CAFFETTERIA			**Price**	
Cafè Nero	COFFEE	€	1.20	
	DECAFFEINED COFFEE	€	1.30	
	ORZO	€	1.30	
	GINSENG	€	1.80	
Cafè white	MILK	€	1.30	
	CAPPUCCINO	€	1.70	
	CAFFE LATTE	€	1.80	
Coffee specials	ESPRESSO CREAM	€	2.80	
	BROWN COFFEE	€	2.90	
	CAPPUCCINO DOUBLE	€	3.50	
	ESPRESSO DOUBLE	€	2.90	
Soft drinks	WATER 0.5L	€	1.50	
	COKE	€	3.10	
	SODA	€	3.10	
	ACQUA FRIZ. VETRO 50CL VAP	€	3.10	
JUICE				
Juice	FRUIT JUICE	€	3.00	
	FRESH SQUIZED JUICE	€	4.70	
BREAKFAST BAKER				
Croissant	CROISSANT HONEY AND GINGER	€	1.60	
	CROISSANT CHOCOLATE	€	2.40	
	CROISSANT CREAM	€	2.40	
	CROISSANT APRICOT	€	2.40	
	CROISSANT	€	1.60	

BREAKFAST MENU	Price		Price Δ		
WORST	€	10.60	-€	2.70	MENU PRICE € 7.90
AVERAGE	€	8.15	-€	0.25	
BEST	€	5.80	€	2.10	

Source: Author's elaboration

3.6 Case study summary

In conclusion, the practices of AirFood Italy might be aligned with revenue management practices proposed for food service despite revenue management is not implemented formally. In fact, practices for capacity, time and price management are implemented as well as menu engineering. Moreover, according to F&B Format manager, customer perception management is a central issue for each practice implementation process and improvement as AirFood Italy relies on customer's feedback for monitoring customer perception of practices implemented.

However, performance indicators do not match with those proposed by revenue management literature as AirFood Italy relies on average ticket, labour productivity, spending per passenger, and stop ratio.

Discussion and conclusions

Revenue management has been analysed under the strategic management perspective in order to permit a wider observation of such practice since strategic accounting practices are needed as preliminary observation for designing correctly revenue management practices company would implement. However, both revenue management and strategic management accounting are not widespread terms. Even the definition of strategic management accounting is not fully agreed by academics. In fact, several academics have tried to define strategic management accounting with disagreed results due to different perspective it might be observed such a wide range of practices and purposes (Pires, Alves, & Rodrigues, 2015). Revenue management, instead, is a rather young term and it is called often interchangeably as yield management (Kimes, 1999; Kimes, 1989; Kimes & Chase, 1998) generating quite a few problems to revenue management identification. Such problems with terms and definitions has weakened the formal diffusion of such practices although it is implemented unconsciously by companies. Although, AirFood Italy does not implement formally revenue management neither strategic management accounting, large dimension of the company has made possible the alignment with revenue management classification.

Figure 40: Revenue management vs AirFood Italy procedures

	Revenue management	AirFood Italy
Competitor accounting	✓	✓
Customer accounting	✓	✓
Capacity management	✓	✓
Time management	✓	✓
Menu management	✓	✓
Price management	✓	✓
Customer perception management	✓	✓

Source: Author's elaboration

As shown by the figure above, AirFood Italy has implemented a set of procedures that may fit with competitor's accounting as benchmarking is part of a wider set of procedures.

Customer accounting is implemented as format design, product design and more generally travel retail relies on customer segmentation. Customer accounting practices enable AirFood Italy on implementing menu management activities and price management. Menu management follows principles of menu engineering although it has decided to internally develop menu management procedures. In fact, items classification does not follow the one proposed by Kasavana and Smith (1982) as items are classified into innovative and best sellers. Therefore, the procedure might be classified as menu management or menu analysis but not called menu engineering. Price management instead is more aligned to food service trend especially whether considered the importance of bundling and item's best match. Operation management activities enables AirFood Italy to keep up with time and capacity management. As reported in previous section, a rather strong effort is kept for coordinating operational activities and to seek operative efficiency by handling with outlet layout, as well as the advanced tools for production volumes forecasting where information management has a crucial impact with. Time management is not fully implemented in all stores, but it represents a rather innovative procedure within the case. In fact, order management system and the virtual waiter are oriented towards waiting time and meal duration decrease. Lastly, AirFood Italy activates customer perception procedures at each level while implementing any aspect of outlet procedures and layout, as well as it monitors customer perception through a system of feedback in company's social networks.

Despite AirFood Italy procedures might be aligned with those of revenue management, performance measurement does not match with those suggested by the revenue management practice. In fact, controlling system for F&B business line is almost the same as the other company's business lines, even though it has internally developed tools that might permit to handle properly with typical revenue management KPIs, since variables of food service are tracked. Therefore, while AirFood Italy practices might be classified into revenue management, KPIs may not since are more prone to be considered as typical of retail industry.

Figure 41: *Revenue management vs AirFood Italy KPIs*

	Revenue management	AirFood Italy
Labour productivity		✓
Average ticket		✓
Spending per passenger		✓
Stop ratio		✓
Average check	✓	
Table turnover	✓	
Capacity usage	✓	
RevPASH	✓	

Source: Author's elaboration

As shown in the figure above, AirFood Italy implements Labour productivity and Average ticket as KPIs, while revenue management suggest the use of average check, table turnover, capacity usage and the RevPASH. However, AirFood Italy has already tracking many information needed for such analysis. Thus, it needs of being available to business analysts for KPIs elaboration. Indeed, RevPASH, and thus, average check, table turnover, and capacity usage needs following data for being implemented:

- Revenues

- Guests served or covers

- Available seats

- Average meal duration

- Opening hours

Revenues and guests served are tracked by POS systems. Covers tracking have been also improved over time by marketing staff as it was already identified as material information for marketing analysis. However, covers are not available to business analysists as covers are used only for marketing purposes. Although, meal duration is tracked by order

management system, it was not clear whether such information is available or not outside the store since such system is still on testing. The only information that has not been tracked yet is Available seats for each store. However, planimetries for each store have been done while setting up outlet layout. Moreover, no relevant changes in table layout are foresee during outlet life.

Therefore, AirFood Italy might be ready for implementing Average check with the minimum effort of getting available a Business Intelligence query which comprehend Revenues, time slot, and Covers to business analysts as well as the updating of reporting layout. Average check might substitute or support average ticket since it is recognised by academics as more precise indicator for food service industry (Kimes, 1999). Despite being often associated to retail industry and sharing most of indicators, food service industry has quite different selling dynamics. As explained by the Head of Finance and Business Analysis, in retail outlets people come in small groups, tickets are likely to express transaction for single customer, as it might be observed for fashion outlets where customers are likely to ends with different transactions even though they came in groups. In food service guests may come in groups as well, but tickets express more often the entire transaction since bills are generally done for table rather than for customer. Therefore, variability on the number of guests seating at the same table makes ticket an incomparable measure for food service. Indeed, it should be considered actual capacity of store considering seats or cover as unit of sale (Kimes, Choi, Chase, Ngozi, & Lee, 1998). Since average ticket is not a comparable measure in food service as a bill might comprises one or more customer is necessary to give a measure of revenue accrued for each customer has been served in order to express correctly how much customer spends on average. In fact, high average ticket means that customer purchases expensive products or customers are buying more quantities. Conversely, lower average ticket means that customers are buying less or cheaper items suggesting revising pricing or sales strategy. Average check tries to lead the same information to manager but with a more precise detail. Therefore, the indicator's objective remains substantially the same, what changes is the metrics to which the indicator is referred.

The main concern is for those outlets that only contemplates counters service that might face more difficulties to implement such indicator as it might be more difficult to account for each customer served due to take out layout of the store. For those stores, might be easier

to record stores performance with average ticket and labour productivity as the basket each customer composes is driver that better express the transaction dynamic. However, head served might be tried to be recorded as well by the counter for improving the analysis.

Table turnover would give a measure of store's capacity. As shown in chapter 2, it is function of available seats and meal duration. Whether seat has been considered as unit of sale of the store, the service capacity is expressed in terms of seats might be sold in given time span. Thus, monitoring the service capacity of the store would give a measure of revenue potential of store since it would express how many times a seat might be employed along opening hours. It would also express the degree of service efficiency, since the higher the Table turnover the lower waiting time of customer, thus, the higher service efficiency is. Moreover, the development of order management system may provide even more precise information regarding meal duration since it might enable to be aware on timing in each step of the service. Therefore, it might be possible to be detect which step of the service needs corrective action for being improved. AirFood Italy needs to keep tracking Available seats and opening hours for implementing Table turnover calculation, although, opening hours might be determined by POS system revenue time slots.

The other capacity measure is capacity usage of the store. This measure whether reported separately would give an idea of store attractiveness and whether production and service spaces are correctly dimensioned. In fact, a poor capacity usage may reflect a unproportionate mix between spaces dedicated to production and service; or, on the contrary, high capacity usage may suggest increasing spaces dedicated to service. This may be used strategically by AirFood Italy while proposing to tenders as space indicators may drive to better use of limited space which is one of the main constraints while developing stores in travelling hubs. Even in this case AirFood Italy may implement such indicator with minimum effort as seat available are tracked in store planimetries and table layout do not contemplate variation. Such indicator should not need of being reported systematically but tested periodically for assessing whether stores are correctly dimensioned. In fact, by comparing available seats, which should be normalized considering an 80% of systematic loss of seat as suggested by Heo (2013), with covers is reported the capacity usage of the store.

[21]

$$Capacity\ usage = \frac{Covers}{Available\ seats\ \times 80\%}$$

Capacity usage find the complete application whether combined with average check in order to determine the RevPASH. The RevPASH express the accrued revenue against the actual revenue potential. In fact, it considers average check weighted for the capacity utilization. However, capacity utilization for the RevPASH should not be normalized as in formula 21. This indicator would lead to get the performance of the entire outlet by normalizing the Average check. In fact, the main limitation of average check is that it does express how many customers have been consuming. Therefore, by weighting the average check in add another dimension to Average check proving a measure of store performance rather than customer spending performance.

However, among several format belonging to AirFood Italy, only few formats contemplate table service. Thus, such indicator may fit only to those who may consider seat as indicator driver. AirFood Italy may use revenue management indicators for improving performance analysis of Food and Beverage business line and address to more reliable information for those stores who fit less with Retail analysis due to transaction nature. In fact, whether an outlet comprises table service selling behaviour of customer is slightly different as transaction reflects personal choices, thus, the transaction driver should reflect personal behaviour. Moreover, since the implicit unit of sale become more important the seat should be considered as service capacity (Kimes, Choi, Chase, Ngozi, & Lee, 1998). For take-out stores instead, selling behaviour is more aligned with other retail stores, thus, transaction should reflect the transaction as whole. However, the benefit of indicator implementation is limited whether considered at top management level as adding inconsistent indicators for a such great number of stores owned by the company may lead to an inhomogeneous representation of whole company's performance. Therefore, increasing the number of indicators for top managers just for few stores might not lead to significant benefits, even though performance communication is improved for single store. Therefore, only Average check might fit with reporting at this level as it might be considered as a declination of Average ticket, thus, being more consistent with the reporting in use. Hence, the benefit might be higher for AirFood Italy whether considered the implementation at store level. In

fact, such set of indicators might be implemented only for those stores who contemplate table service at operational level avoiding the problem of inhomogeneity. Therefore, Area managers may set operational goals through indicators, such as achieve a certain meal duration or maintain a certain RevPASH; as well as controlling store and store managers performance. Moreover, store managers may improve operative analysis as whether combined to knowledge of the store dynamics it would lead to detect possible bottlenecks within the service. Stop ratio is not proposed by revenue management for food service literature, however, it is a key performance indicator for travel retail Top managers. As reported in previous chapter, AirFood Italy accounts for stop ratio [20] by combining average ticket [14] and spending per passengers [16]. However, as has been already discussed ticket might be considered transaction driver for retail, but it should not for food service due to different purchase dynamics. Therefore, whether food service business line implements average check as indicator even stop ratio might be improved. Moreover, it does not change neither metrics nor the perspective under which the indicator is observed preserving the communication purposes, but with a more reliable information.

Despite large dimension of AirFood Italy, food service industry's companies are generally small businesses. Therefore, it is unlikely to see accounting and marketing department in companies with less than 50 employees. Therefore, strategic management accounting is not common practice in food service industry outside larger companies. This has created unbalance in competitive environment due to the difficulties of small enterprises to implement proper controlling practices within the business affecting the existence of the business itself (Akroyd, Frederick, & Harrison, 2013). In fact, SMEs in food service generally implement roughly controlling practices based on F&B cost accounting and mark-up method. However, it could be rather difficult for a SME to foresee production cost, as well as to track and correctly allocate costs to each product being sold, especially due to the lack of managerial skills. Moreover, due to the high level of fixed cost and the unforeseeable of variable cost, controlling based only on break-even analysis and unit cost it is not reliable. Such methods are more prone for being used as *ex post* cost control rather than *ex ante* analysis (Ravenna & Pandolfi, 2010). In fact, such practices are useful to determine whether target cost set has been overcome or not, thus, whether it should be adjusted. Lastly, whether internal control is emphasized, it is often overlooked market perspective creating mismatch between company's offer and customer needs. As a consequence, SMEs are those companies

who faces the highest rate of failure within the market as are not able to catch up on the competition imposed by larger and more organized companies (Akroyd, Frederick, & Harrison, 2013).

Revenue management might help food service's SMEs to improve controlling practices and get closer company's offer with market trends. In fact, whether it is rather difficult for a SME to base competitiveness from an internal view due to small available data from the inside (Akroyd, Frederick, & Harrison, 2013), it is easier to find information from competitors. In the era of internet, it is possible to be aware on prices applied by direct competitors and customer opinion. Thus, through benchmarking is possible to determine prices that are closer to customer's willingness-to-pay rather than set prices on a desirable profit level based on presumed cost. Moreover, whether fixed cost is high it is more likely to achieve profitability by increasing revenues rather than controlling production costs (Ravenna & Pandolfi, 2010). Nevertheless, *ex post* cost control is still a necessary practice for be aware on the actual cost level at which the company is working. The pursuit of efficiency is not overlooked. In fact, managing variable as time and capacity keep up the attention on efficiency by giving a concrete indication on which drivers managers should handle with. This would lead managers to detect possible bottlenecks within the service increasing efficiency. Moreover, capacity management emphasizing the importance of find the optimal level of capacity usage to do not overload staff and do not create unpleasant surround for customer, decreasing quality of the service.

The switch of the perspective from internal to external emphasizes also the qualitative aspects of the service. This would mitigate the risk of management myopia that might be generated from the pursuit of higher financial performances (Merchant & Van der Stede, 2017). In fact, implementation of revenue management should always consider customer perception of practice as value creation is not a mere function of revenues and costs, but a greater consideration of how company and company's practices are perceived by customers under condition of economic equilibrium.

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