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Restaurant Menu Engineering for Revenue Management Purposes

DISSERTATION ABSTRACT

for awarding the educational and scientific degree "Doctor"
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Scientific Supervisor:
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The dissertation was discussed and proposed for defense in accordance with the Law on the Development of the Academic Staff in the Republic of Bulgaria and the Rules for the Implementation of the Law on the Development of the Academic Staff at the D. A. Tsenov Academy of Economics by the Department of "Economics and Management of Tourism".

The author is a part-time doctoral student at the Department of "Economics and Management of Tourism" at the D. A. Tsenov Academy of Economics – Svishtov.

The dissertation comprises 240 pages and is structured into: introduction (6 pages), main text of three chapters (224 pages), and conclusion (10 pages). It includes a declaration of originality and authenticity. There are three appendices. The information in the dissertation is visualized in 33 figures and 23 tables. The list of references consists of 158 sources, of which 116 are in Latin and 42 in Cyrillic.

The defense of the dissertation will take place on October 4, 2024, at .... hours in the Boardroom of the Rectorate at the D. A. Tsenov Academy of Economics, Svishtov. The materials related to the defense are available for those interested at the "Doctoral and Academic Development" department of the D. A. Tsenov Academy of Economics – Svishtov – https://www.uni-svishtov.bg/

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I.GENERAL CHARACTERISTICS OF THE DISSERTATION

1. Relevance and significance of the research

In the context of modern economic instability, the restaurant sector faces continuous challenges related to revenue management and resource optimization. Revenue management offers methods and tools to effectively address these challenges, making the topic relevant to modern business.

The Covid-19 pandemic significantly changed consumer behavior and the operations of restaurant enterprises. Revenue management and menu engineering provide means for adapting and restoring the restaurant industry to new market conditions. In an environment of heightened competition, the application of innovative and effective revenue management strategies can offer significant competitive advantage. By analyzing and optimizing the menu and pricing strategies, restaurant establishments can attract and retain more customers while maximizing their profits.

The dissertation deeply examines theoretical concepts and offers scientifically-based solutions to contemporary challenges in the restaurant business. By developing and testing a conceptual model for menu engineering, the research provides practical guidelines and tools that can be immediately applied to improve operational efficiency and financial results.

The significance of the topic lies in its ability to contribute to the sustainable development and success of restaurant enterprises. The application of revenue management and menu engineering leads to better revenue management, which increases the financial stability of restaurants. This is crucial in conditions of economic uncertainty and changing market conditions.

By implementing strategies for revenue management and menu engineering, restaurant organizations create more attractive and profitable offers, leading to attracting more customers and increasing market share. This dissertation provides both theoretical and practical contributions to the issues related to revenue management and menu engineering in the restaurant business. It contributes to the development of theoretical foundations and offers new methodological approaches that can be used by researchers and practitioners in the future.

Based on a thorough desk study of specialized literature on the topic of the dissertation, the content of the research by leading authors who examine the issues related

to revenue management and menu engineering in theoretical and practical aspects has been analyzed. Among the main figures dedicated to studying and building upon it specifically in the restaurant industry are names like Sheryl E. Kimes, Dimitrios Buhalis, David K. Hayes, Joshua D. Hayes, Peggy A. Hayes, and others. Bulgarian authors who have devoted their scientific research to revenue management in tourism include Desislava Varadjakova, Svetoslav Ivanov, Ivanka Nikolova, and others. Research on this topic in the Bulgarian specialized literature on tourism is primarily focused on the hotel industry and, to a lesser extent, on revenue management and menu engineering in the restaurant business.

2. Object and subject of the research

The object of the research in the dissertation is menu engineering in restaurants as a means of effective revenue management in tourism. The subject of the research is the process of optimizing management operations in the restaurant business through the application of the principles of revenue management and methods of menu engineering.

3. Purpose and objectives of the dissertation

The purpose of the dissertation is to analyze and investigate the role of restaurant menu engineering in revenue management in the restaurant business with a view to achieving optimal revenues and increasing the competitiveness of enterprises.

To achieve this purpose, the following research objectives have been formulated:
1. Investigation of the theoretical foundations of menu engineering and revenue management.
2. Analysis of modern methods and techniques used in menu engineering and revenue management.
3. Exploring the possibilities for applying these methods and techniques in the restaurant business.
4. Building a methodological framework for the application of menu engineering in revenue management.
5. Testing the developed methodology in real conditions to evaluate its effectiveness and applicability.

4. Research thesis of the dissertation

The main research thesis advocated in the dissertation is: The application of a conceptual model for menu engineering that takes into account the specifics of the restaurant business in conditions of dynamic economic processes can be a useful tool for revenue management and increasing the competitiveness of enterprises.

5. Methodology of the research

For the development of the dissertation, a methodological approach has been used that combines, on the one hand, a thorough comprehensive analysis of contemporary global and Bulgarian academic sources, and on the other hand, consideration of the environment in which restaurant enterprises operate and the specifics of business activities. This approach of combining the achievements of theoretical knowledge on the issues of revenue management and menu engineering and an empirical view and data provides the necessary basis for an objective and specific analysis and results on the chosen topic.

The dissertation uses a combination of qualitative and quantitative research methods. Specifically, to achieve the goal of the dissertation, the following methods have been applied: historical method, induction and deduction, analysis and synthesis, content analysis, statistical and descriptive methods, and others combined with appropriate graphical presentation. The specific characteristics of the research object and the specific nature of the examined problem determine the use of:

Qualitative interviews: Research of activity specifics from specialists and practitioners from the industry. These interviews provide valuable additional data and reveal the perspectives and experiences of experts in the tourism business.

Survey studies: Collection of data from the restaurant activities of the objects where the developed conceptual model of menu engineering is tested. This method allows the collection of specific data and statistics on the studied objects and their operations.

Case studies: Analysis of menus that are actually operating in the restaurant objects for the examined period. This method contributes to a deep understanding of how menu engineering is applied and how it affects revenue management in specific conditions.

The qualitative data analysis methods are used to analyze the collected information, which is then interpreted and used to develop practical guidelines for improving the effectiveness of menu engineering in revenue management. Quantitative data analysis methods, on the other hand, enable the processing of numerical data, statistical analysis, and graphical presentation of results. The combination of qualitative and quantitative methods ensures a comprehensive and accurate analysis of the research problem and the achievement of the objectives of the dissertation.

The development and testing of a conceptual model for menu engineering is based on the systematic approach and analysis of data and processes in the restaurant business. The conceptual model is built on theoretical foundations and practical experience and aims to provide an effective tool for revenue management in the restaurant business. The model is tested in real conditions in selected restaurant objects to evaluate its effectiveness and applicability.

6. Limitations of the research

The main limitations of the research are related to the specific characteristics of the restaurant industry and the scope of the studied objects. The research focuses on the application of menu engineering and revenue management in the restaurant business, and the conclusions and recommendations may be specific to the studied objects and may not be fully applicable to other types of businesses or industries. Additionally, the research is limited to the period in which the data was collected and analyzed, and the results may not fully reflect future changes in the economic environment and the restaurant industry. Despite these limitations, the research provides valuable insights and practical guidelines for improving revenue management in the restaurant business and can serve as a basis for further research and development in this field.

7. Approval of the dissertation research

The dissertation research has been discussed and approved by the Department of "Economics and Management of Tourism" at the D. A. Tsenov Academy of Economics – Svishtov. The research has undergone thorough academic review and has been presented at national and international conferences. The dissertation has been evaluated by leading experts in the field and has been recognized for its contribution to the development of revenue management and menu engineering in the restaurant business.

II. STRUCTURE AND CONTENT OF THE DISSERTATION

The dissertation is structured into three main chapters, each addressing specific aspects of the research problem. The chapters are logically interconnected and build upon each other to provide a comprehensive analysis of the topic. The structure and content of the dissertation are as follows:

Introduction
Chapter One. Theoretical foundations of revenue management and the role of menu engineering in it
1.1. Historical overview of the development of revenue management
1.2. Conceptual foundations of revenue management

III SYNTHESIZED SUMMARY OF THE DISSERTATION

Introduction

The introduction of the dissertation discusses the relevance and significance of the research. This section substantiates the need for conducting research in the field of revenue management through the application of menu engineering. The object, subject, purpose, and tasks of the dissertation are defined, as well as the research thesis that will be addressed. The introduction also presents the methodology used during the research and the information sources utilized to provide facts and analyses. Additionally, the limitations of the dissertation are outlined.

CHAPTER ONE. Theoretical Foundations of Revenue Management and the Role of Menu Engineering in It

In the first chapter of the dissertation, the foundations and evolution of revenue management are examined, focusing on its importance and application in various business sectors, with a particular emphasis on the restaurant industry. Revenue management is a strategic approach aimed at optimizing revenues by controlling pricing and product availability, as well as forecasting consumer behavior. In the restaurant industry, menu engineering plays a crucial role as a tool for menu analysis and optimization, helping to maximize profits and customer satisfaction. This part of the dissertation discusses theoretical perspectives on the possibilities of menu engineering as part of revenue management to improve the financial results and competitiveness of restaurants.

1.1. Historical Review of the Development of Revenue Management

The idea of revenue management began in the aviation sector in the mid-20th century and spread to other industries, including hospitality and restaurant services. The definition by Sheryl E. Kimes that "revenue management in the restaurant industry consists of selling the right seat to the right customer at the right price and for the right duration" (Kimes & Jeannette, 2019) is the starting point of this research.

This paragraph clarifies the concept of revenue management and its evolution. The concept dates back to the mid-20th century, starting in the field of aviation services and spreading across all business ventures worldwide. Based on an in-depth chronological study of its emergence and development, we identify three successive stages: the initial emergence and application in the aviation sector with the formation of the revenue management idea and "Littlewood's rule," the expansion and adaptation with the introduction of revenue management as a term by Bill Marriott in the hospitality business, and the digitization and development of specialized revenue management systems and their application in various business ventures.
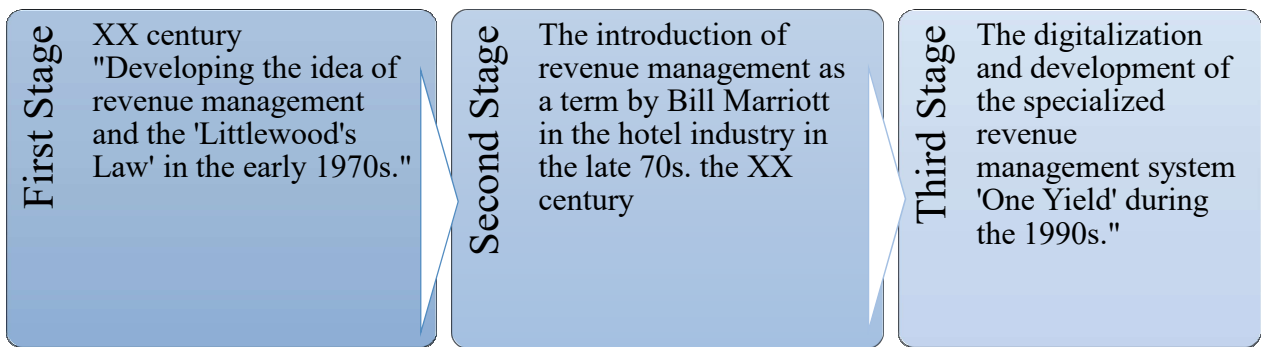
Figure 1. Stages of Revenue Management Development

These stages illustrate the evolution of revenue management from a specific industrial practice in the aviation business to a widely used strategic approach for optimizing revenues across all economic ventures worldwide.

1.2. Conceptual Foundations of Revenue Management

1.2.1 Definitive Clarifications of the Concepts of Revenue Management, Revenue Management, and Yield Management

The dissertation emphasizes the importance of understanding the differences between yield management and revenue management. Although these two terms are sometimes used interchangeably, they have significant differences in their meaning and scope of application.

Based on the discussion in this section, it becomes clear that revenue management encompasses both strategies. Unlike yield management, which focuses solely on the sale of fixed products, revenue management is a comprehensive strategy for forecasting and managing revenues. Originating from yield management, it covers and develops a broader range of activities and various aspects of operations to increase revenues and optimize profit.

Table 1. Comparison of Yield Management and Revenue Management Concepts

Yield Management	Revenue Management
• Introduced by Robert Crandall in the 1960s in the airline industry. • Sole focus on optimizing pricing. • Specifically targets maximizing the value and profitability of each seat on a flight. • Does not consider other revenue-generating factors for the enterprise, such as ancillary services.	• Introduced by Bill Marriott Jr. in the 1980s in the hotel industry. • An enhanced version of yield management with a broader scope. • Includes customer behavior and market segmentation; refinement of distribution channels for sales; improvement of forecast modeling accuracy and analytical pricing. • Encompasses all revenue streams and focuses on gross operating profit.

The paragraph presents the hierarchical structure of the concepts of revenue management, yield management, and revenue management.

1.2. Conceptual Foundations of Revenue Management

1.2.1 Definitive Clarifications of the Concepts of Revenue Management, Revenue Management, and Yield Management

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1.2.2 Key Characteristics of Businesses for Applying Revenue Management

With the development of tourism practices and thanks to the works of many scholars, notably Sheryl Kimes, it has been established that industries suitable for

applying revenue management need to possess certain common characteristics (Ngonzi & Kimes, 2008).

Characteristic 1: Limited fixed capacity;

Characteristic 2: Market segmentation;

Characteristic 3: Variability and predictability of demand;

Characteristic 4: Price differentiation and advance purchase of services;

Characteristic 5: Perishability and inability to store the offered product;

Characteristic 6: Low marginal costs of sales and high marginal costs of production.

In her studies, Desislava Varadzhakova divides the industries that apply revenue management into traditional and non-traditional ones, depending on the available capacity (length of stay and physical limitations) (Varadzhakova, 2015).

In addition to the similarity in characteristics of businesses practicing revenue management strategies, achieving a positive economic effect requires adherence to a specific cycle for application and knowledge of revenue management systems.

1.2.3 Revenue Management Cycle and Revenue Management Systems

The application cycle of revenue management in business consists of four stages:

Stage 1: Forecasting Demand:This is the initial stage where past time periods are assessed.

Stage 2: Optimizing Demand: In this stage, the analyzed data is evaluated, and decisions are made regarding the elimination or improvement of certain products offered by the enterprise.

Stage 3: Controlling Demand: This stage involves dividing demand control into two subtypes - tactical and strategic.

Stage 4: Monitoring:This stage involves evaluating the application of the entire revenue management cycle and should be applied continuously.

Revenue management systems are built based on the revenue management cycle and its application. For revenue management systems to be maximally effective in today's information world, the companies creating these systems and the personnel applying them in a specific field must deeply understand all business characteristics.

1.2.4 Main Areas of Application of Revenue Management in Restaurant Enterprises

This paragraph examines the relevance of applying revenue management to the restaurant business. According to the purpose of the dissertation and based on the reviewed scientific literature, some main areas of application of revenue management in the restaurant business are identified.

Capacity Management: For the restaurant business, capacity is relatively fixed, determined by the number of seats and the service capacity that is managed.

Time Management: The time customers spend in the restaurant is a critical factor for revenue management. The ability to manage time is essential for successful business, especially in the restaurant sector, where precision is key to excellent service.

Menu Management: Not all menu items perform equally well throughout the year (Bowen, 1995). Proper menu management through the application of revenue management strategies and menu engineering techniques is a necessary prerequisite for the success of a restaurant enterprise.

Price Management: Setting the right prices for products is a decisive step in applying revenue management for all businesses, including restaurants.

Customer and Behavior Management: Managing the relationship between the restaurant enterprise and customers in the restaurant business is both a science and an art (Kimes & Wirtz, 2008). As the main driver of any business, customer satisfaction must be at the core of all strategies and operations.

Revenue management helps restaurateurs make informed decisions regarding pricing, promotions, and package deals, while menu engineering involves streamlining the process to boost sales of the most profitable menu items and reduce missed opportunities. By exploring the integration of these strategies in the restaurant business, the goal is to improve customer experience, increase revenues, and drive growth in a highly competitive environment.

1.3 Theoretical Views on the Application of Revenue Management in the Restaurant Industry

The restaurant business possesses all the key characteristics necessary for the application of revenue management, as it is characterized by: relatively limited fixed capacity, the ability to segment the market, variable yet relatively predictable demand, perishable products that cannot be stored for later sale, and the potential for advance sales of the offered product.

The restaurant business caters to clients willing to pay different prices for their needs, and revenue management allows targeting various customer segments through product differentiation and menu engineering techniques. Revenue management involves setting prices based on forecasted demand levels, enabling restaurant enterprises to avoid missed revenue opportunities from product sales.

Desislava Varadzhakova identifies two approaches to defining revenue management in the restaurant business (Varadzhakova, 2015). The first approach focuses on maximizing sales revenue by optimizing factors such as the temporal characteristics of demand, costs, prices, and occupancy of commercial space, while simultaneously analyzing and understanding consumer behavioral patterns. The second approach involves anticipating and adequately responding to changes in customer preferences and perceptions to effectively differentiate and promote the restaurant product.

Revenue management in the restaurant business aims to maximize revenue by optimizing factors such as the temporal characteristics of demand, costs, prices, and occupancy of commercial space, while analyzing consumer behavioral patterns. Modern conditions rely on the application of computer software and information systems to create highly accurate pricing strategies tailored to the right place, the right customer, and the right duration (Kimes & Jeannette, 2019).

As a result of the analysis of existing definitions, the author of the dissertation provides their own definition of revenue management. Revenue management is a strategic approach to maximizing revenue by using data and forecasts to optimize prices, targeting, and sales at the right time and at the best price for the restaurant. It includes adapting prices and promotions according to consumption trends and the location of the establishment. Revenue management encompasses all revenue streams for the enterprise

and includes customer behavior management, distribution channel management, and analytical pricing focused on gross operating profit.

The application of revenue management in the restaurant industry aims to create optimal solutions using information systems and pricing strategies to allocate the right capacity to the right customer at the right place at the right time and at the best price. However, due to the unpredictability of the restaurant business, factors exist that complicate the implementation of a successful financial policy (Jones P., 1994). A useful tool is menu engineering within the revenue management concept. Menu engineering involves optimizing the menu to maximize profit, facilitate staff work, and thereby improve service quality and customer satisfaction. This is a critical component of revenue management, as it directly impacts the pricing and demand for products. Strategic application of menu engineering can significantly enhance a business's ability to generate revenue and maintain the financial stability of the restaurant enterprise.

1.4. Menu Engineering in the Restaurant Industry
1.4.1. Menu Engineering in the Context of Revenue Management

The strategic levers and components of revenue management systems include proper pricing, duration (time) management, and distribution channels (Buhalis, 2022). Menu engineering is a key component of revenue management in the restaurant industry, enabling strategic decisions regarding offerings and price management. In the dissertation, menu engineering is considered a current technique for application in restaurant enterprises.

In the context of the restaurant business, revenue management is guided by general rules but has its own specifics. Effective revenue-generating strategies, regardless of occupancy levels, include menu engineering, menu design, service monitoring, and sales enhancement (Kimes & Ho, 2019).

Menu engineering involves a detailed analysis of each menu item, focusing on its popularity and profitability. By categorizing items into segments such as "stars" (high profitability and high popularity), "plow horses" (low profitability but high popularity), "puzzles" (high profitability but low popularity), and "dogs" (low profitability and low

popularity), restaurants can make informed decisions about which items to promote, adjust, or remove from the menu.

Additionally, menu design plays a significant role in guiding customer choices and increasing average spend per customer. Elements such as layout, descriptions, and visual appeal can influence customers' perceptions and decisions. Effective menu engineering and design can lead to increased sales of high-margin items, optimized operational efficiency, and enhanced customer satisfaction.

Thus, integrating menu engineering within revenue management strategies allows restaurant businesses to maximize their revenue potential while maintaining high standards of service and customer satisfaction.
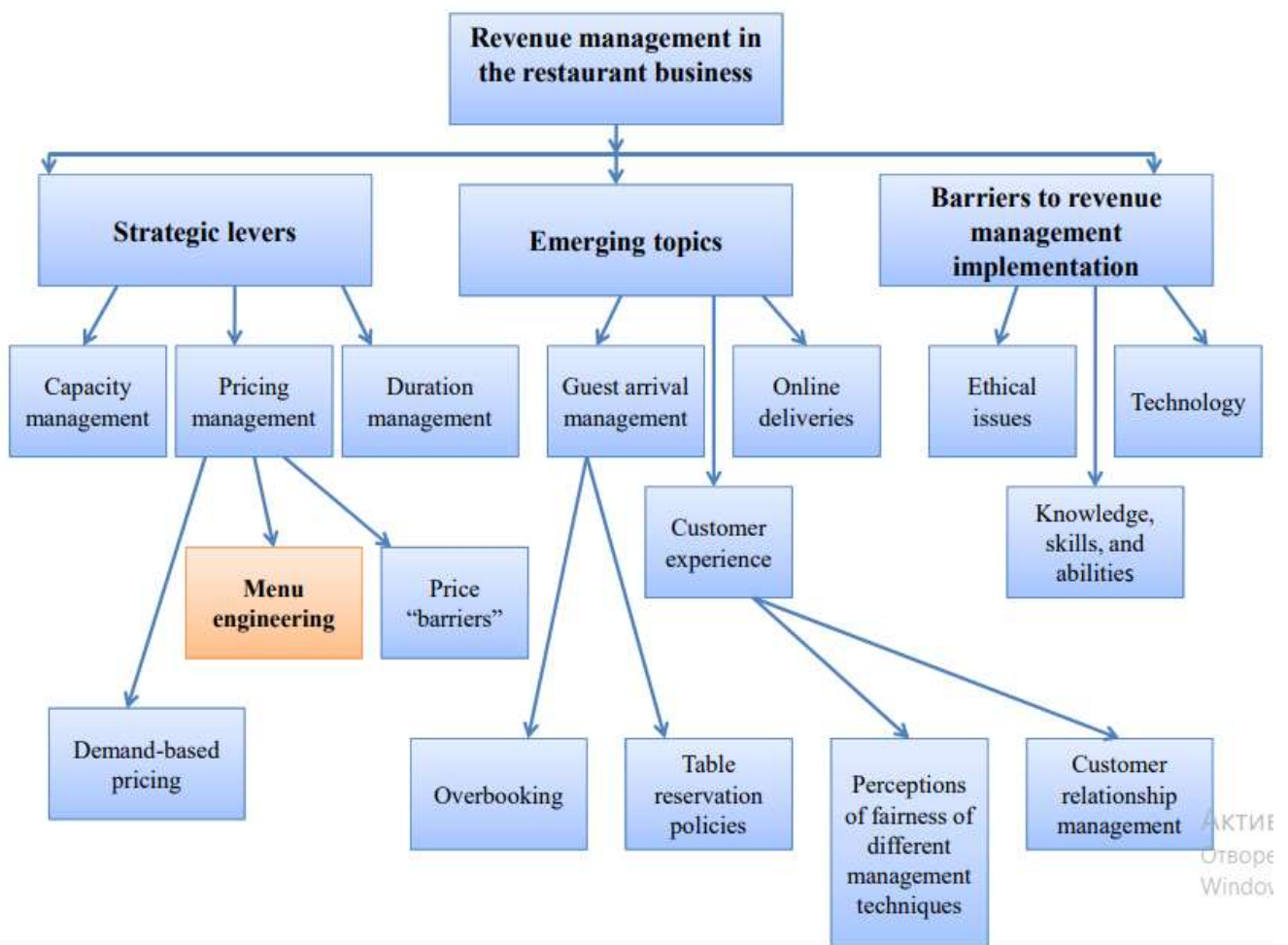

Figure 2. Position of Menu Engineering in Revenue Management in the Restaurant Business
Source: Tyagi, M., N. B. Bolia1(2022), Approaches for restaurant revenue management// Journal of Revenue and Pricing Management, Vol. 21, pp.17–35;
https://doi.org/10.1057/s41272-021-00288-0

Menu engineering is a key component of revenue management in the restaurant industry, assessing the popularity and profitability of menu items as a basis for pricing, menu design, and sales strategies. The classical model relies on data about profit margins and sales volume, classifying items into four quadrants: stars (high profit and high sales), puzzles (high profit, low sales), workhorses (low profit, high sales), and dogs (low profit and low sales). These classifications guide managers in menu optimization. A detailed systematization of existing models for menu analysis is presented in Chapter Two of the dissertation.

As a result of the theoretical analysis of the concepts in this paragraph, the author presents their own definition of menu engineering: a process of strategically planning and optimizing the menu through a detailed analysis of the current menu, preparation costs, popularity, selling prices, and complexity in preparation and serving of different items. The goal is to create a new menu that, through design and psychological techniques, guides customers towards the most profitable and easy-to-produce and serve dishes, while simultaneously increasing customer satisfaction and the restaurant's profit.

In the post-pandemic atmosphere, menu engineering focuses on forming a streamlined and practical menu to optimize revenues. Additional studies examine the potential of the menu to serve social goals such as creating healthy menus and reducing food waste.

1.4.2. The Restaurant Menu – Foundation of Menu Engineering

This section retrospectively examines the restaurant business and the menu as its core in the context of human civilization's development. It is emphasized that the primary purpose of the menu assortment provided to the customer is purely communicative, between the customer and the restaurateur, but its guiding significance is in the overall restaurant process, related to product, financial, and marketing policy.

From the review in this section, it is concluded that culinary technology is a complex of strictly ordered elements that directly affect the raw materials and goods to obtain the final product. It is a combination of labor and technological activity, and for the purposes of revenue management, tools for analyzing and studying culinary technology are applied. This proper analysis allows decisions to be made regarding the

final culinary product's price and preparation time to create a maximally profitable menu for the restaurant business that meets consumer demand.

The restaurant menu is a key tool in revenue management and general management in the food service industry. Its composition significantly influences the future development of restaurant enterprises and their competitiveness. For revenue management, it is necessary to assess each dish's value, the ingredients used, labor, preparation time, and other elements. The menu guides the investments and initiatives of restaurant establishments and is a strategic tool for competitiveness. Through menu analysis and optimization, restaurateurs have the opportunity to increase revenues and improve the overall profitability of the business.

The marketing potential of the menu should not be underestimated. It is not just a list of dishes but a story that the restaurant tells its customers. Properly presented, the menu can be a powerful marketing tool that attracts customers and creates an impression of unique tastes and experiences offered.

For successful menu engineering implementation in the restaurant, having good restaurant software is crucial. It provides timely and detailed information on costs, customer preferences, and marketing trends, which is a prerequisite for conducting quality analysis and making appropriate decisions regarding revenue management and the future prosperity of the restaurant enterprise.

1.4.3 The Restaurant Menu – Foundation of Menu Engineering

In today's globally and informationally developing world, no industry is infinitely dependent on new trends and their correct application in business. In menu engineering, and revenue management as a whole, technology is a core element for the correct execution and functioning of the management system and access to reliable information (Kimes S. E., 2008; Wirtz, Kimes, & Pheng, 2003).

In modern times, the restaurant business is closely linked to new technologies and innovations used for successful revenue management. Restaurants use various software systems, including revenue management systems, to help analyze economic indicators, plan sales, and manage inventory. Having fast and easy-to-use software is essential for the restaurant's effective functioning. Key functions that a restaurant system should have

include speed of operation, easy management, inventory control, quality reporting, menu setup, table and reservation management, staff training, and marketing tools. These technological tools play an important role in increasing the revenues and profits of restaurants, supporting the process of menu engineering and revenue management.

Summary and Conclusions of Chapter One

1. **Evolution of Revenue Management**: The concept of revenue management originated in the early 20th century and has continued to evolve. Based on a thorough chronological study, we identify three successive stages of development: its inception in the aviation industry, the introduction of the term revenue management in hospitality, and its current state of digitalization and global systems.

2. **Differences Between Yield Management and Revenue Management**: Historically considered equivalent, there are distinct differences between yield management and revenue management. Yield management focuses mainly on prices and sales volume. In contrast, revenue management is a strategic approach to maximizing revenue by using data and forecasts to optimize pricing, targeting, and selling at the right moment and at the best price for the restaurant. It includes adapting prices and promotions according to consumption trends and the establishment's location. Revenue management encompasses all revenue streams for the enterprise and involves customer behavior management, distribution channel management, and analytical pricing focused on gross operating profit.

3. **Relevance to the Restaurant Industry: Revenue management is highly relevant** to the restaurant industry, as it involves using sales data analysis tools to accurately predict future demand. The restaurant business possesses the necessary characteristics for applying revenue management techniques: relatively limited fixed capacity, market segmentation possibilities, variable but relatively predictable demand, perishable products that cannot be stored for later sale, and the possibility of pre-selling the offered product.

4. **Menu Engineering as a Strategic Process:** Menu engineering is the process of strategically planning and optimizing the menu through a detailed analysis of the current menu, preparation costs, popularity, selling prices, and the complexity of preparing and

serving various items. Through menu engineering, restaurants can increase average revenue per person, improve marketing strategies, and manage revenues more effectively. It complements the overall revenue management strategy in the service industry by analyzing data, optimizing prices and assortment, and creating personalized marketing strategies. This leads to more efficient use of resources and achieving higher revenues and profitability for the business.

5. The Restaurant Menu as a Central Tool: The restaurant menu is a fundamental tool in the application of the menu engineering system and impacts the overall management of restaurant operations. Its proper and accurate composition is one of the basic prerequisites for the future success of the restaurant enterprise and its competitiveness. Menu engineering provides the opportunity to analyze and change various aspects of the menu to maximize revenues and customer satisfaction.

6. Importance of Software Solutions: Specific characteristics of the software solutions and analytical tools used can support the processes of analysis, data management, and strategy implementation.

Chapter One of the dissertation provides insights into the development of revenue management, the differences between revenue management and yield management, the role of revenue management in the restaurant industry, the potential of menu engineering for optimizing restaurant revenues, and the necessary characteristics of software products for revenue management. These conclusions serve as a foundation for Chapter Two, which presents the methodological framework for implementing menu engineering in the restaurant industry. It examines the stages of implementing revenue management in the restaurant business and systematizes existing models, providing a more detailed understanding of the concepts discussed in Chapter One.

**CHAPTER TWO: Methodological Framework for Implementing Menu Engineering in the Restaurant Business**

2.1. Stages of Implementing Revenue Management in the Restaurant Business

In the second chapter of the dissertation, the stages for implementing revenue management strategies in the restaurant business are discussed. These stages are crucial for optimizing revenues, improving business efficiency, and enhancing the

competitiveness of restaurant enterprises. The application of these strategies allows restaurants to create more efficient and sustainable business models, helping them adapt to changing market conditions and customer requirements. Additionally, these strategies contribute to a better understanding of consumer preferences, optimization of operations, and increased competitiveness of restaurants. In the Bulgarian specialized literature, four stages are typically identified, but more recent research in the field suggests a fifth stage in the implementation of revenue management strategies.

Figure 3 Stages for Implementing Revenue Management Strategies
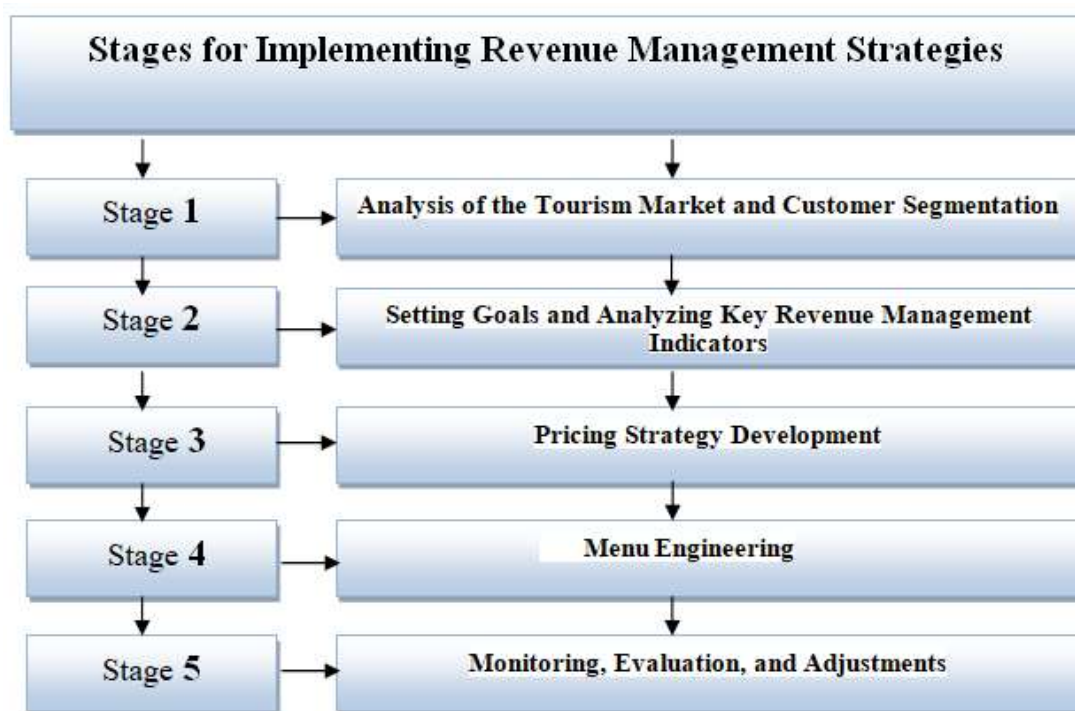
Source: Compiled from: Penkova, D. (2012). Planning the Revenue Management Process in Hospitality / Challenges for Tourism in the 21st Century, University of National and World Economy; Kimes, Sh., J. Ho (2019), Implementing Revenue Management in Your Restaurants. Cornell S.C. Johnson College of Business."

Stage 1: Analysis of the Tourism Market and Customer Segmentation

This stage involves analyzing the tourism market and segmenting customers, which is crucial for successful revenue management in the restaurant business. The goal is to identify the most profitable customer segments and develop strategies to reach them using various marketing channels. Positioning the restaurant in the market is also an

important part of this stage, determining how the restaurant is perceived by customers and what value it offers.

Stage 2: Setting Goals and Analyzing Key Revenue Management Indicators

In this stage, goals are set and key revenue management indicators are analyzed. Data analysis and calculations of key performance indicators form the basis for determining price levels for different customer segments.

Stage 3: Pricing Strategy Development

This stage involves setting the right price for the offered restaurant products, considering service and production costs, as well as other factors influencing price formation. Developing a pricing strategy is crucial for successful revenue management and the overall prosperity of the restaurant enterprise.

Stage 4: Menu Engineering

A well-designed menu can significantly impact the profitability of the enterprise. Restaurants use menus as a strategic tool to increase sales and profitability. Menu analysis models help restaurants classify menu items and adjust them to meet demand for maximizing sales. Using the Boston Consulting Group matrix and other menu analysis models can provide more accurate and informative decisions in managing the restaurant menu.

In addition to the stages discussed for implementing revenue management strategies in the restaurant business, global academic literature considers a fifth stage: monitoring, evaluation, and adjustments. This stage follows the implementation of the other revenue management stages in the restaurant business.

Stage 5: Monitoring, Evaluation, and Adjustments

The monitoring, evaluation, and adjustments stage represents a continuous process of observing, assessing achieved results, and making corrections where necessary. This stage is critically important for the business, as it allows for real-time adaptation and optimization of strategies, ensuring continuous improvement and achieving better results in the future. Global scholars in revenue management, such as Sheryl E. Kimes and Jeanette Ho, emphasize the importance of this stage, considering it crucial for the success of the restaurant business.

Table 4. Methods and Models for Revenue Management in the Restaurant Business

№	Model	Year of creation
1.	Miller's Model	1980
2.	Kasavana and Smith's Model	1982
3.	Yumun's Model	1983
4.	The Merrill and Jones Method	1983
5.	Pavesic's Model	1983
6.	The Hayes and Huffman Method for Profits and Losses	1985
7.	The Hayes and Huffman Method - Target Costing Analysis	1995
8.	The Lebruto Method	1997

Source: Adapted from Taylor James, Denise M (2007) Brown, "Menu Analysis: A Review of Techniques", " Hospitality Review", cmp.25

The research and study of developed scientific models for menu analysis aim to uncover both their strengths and weaknesses. This is essential for identifying opportunities to improve existing analysis techniques and for creating a more comprehensive and effective menu analytical model for restaurants.

2.2 Techniques for Menu Analysis as Part of Revenue Management in the Restaurant Business

2.2.1 Models for Menu Analysis

This section of the dissertation examines and systematizes the main models and methods for menu analysis. Their strengths and weaknesses are outlined to identify the best features for building the author's conceptual model for menu engineering.

Miller's Model: In 1980, Jack Miller developed the first model for menu analysis, attempting to identify the most demanded items with the lowest costs. He created his matrix model focusing on product costs and product mix to analyze menu profitability without considering production costs (Millar, 1992).

Kasavana and Smith's Model: In revenue management for the restaurant business, menu engineering is a key activity for determining pricing strategies. This process involves methodical selection, cost analysis, pricing, and menu evaluation. Menu

engineering combines design elements with profitability and popularity analysis of each dish, allowing for full menu optimization to maximize revenues. Kasavana and Smith use a matrix approach for menu analysis, applying the Boston Consulting Group's portfolio analysis. They focus on the importance of profit, measured by the difference between the selling price and the production costs of food items. Their model evolves Miller's model by replacing the cost matrix with profit and average cost percentages with average profit. This approach helps them create a more effective model for menu optimization.

Yumun's Model: Yumun's matrix model from 1983, similar to Kasavana and Smith's and Miller's models, divides menu items into four groups. The drawback of Yumun's model is that without the overall cash flow, it is impossible to draw conclusions about the sales volume. This can hinder the evaluation of the effectiveness of different menu items and limit the restaurant's ability to optimize revenues.

Pavesic's Model: In 1983, Pavesic developed a model to address the shortcomings of previous menu analysis models. This model includes the weighted average gross profit, referred to as the "profit coefficient." The profit coefficient is a variable value dependent on gross profit and sales volume. This approach allows for better adaptation to varying conditions and sales volumes in the restaurant environment.

LeBruto, Quain, and Ashley's Model: In 1995, Hayes and Huffman developed a method for menu analysis, offering an alternative to the matrix model. Their approach focuses on net profit by creating cost and revenue reports for each menu item. This method aims to overcome the deficiencies of previous models like those of Miller, Kasavana and Smith, and Pavesic. Hayes and Huffman consider variable costs for profitability assessment, striving to create a more comprehensive and accurate analytical model for the menu.

Cohen, Mesika, and Schwartz's Model: This model represents a multifaceted approach to addressing the two-dimensional limitations of matrix analysis in menu analysis. Their approach includes labor costs, product costs, pricing, demand, and profit through a multifactorial approach in normalizing input variables.

Horton's Model: Horton represents a new approach to including labor in the matrix analysis of the restaurant menu by modifying the menu engineering model. This model

reflects labor costs in gross profit by including the active working time required to prepare a specific menu item, multiplying it by the hourly labor cost.

2.2.2 Application of Menu Engineering to Achieve Revenue Management Goals in the Restaurant Business

In this section, the menu is examined not merely as a list of food and beverages but as a strategic tool for achieving the business goals of a restaurant. To this end, it is crucial to analyze various aspects such as the preferences of the target audience, culinary trends, operational capabilities, and the competitive landscape.

Menu engineering involves selecting appropriate products, determining a pricing strategy, designing the visual presentation of the menu, creating descriptions, and using visual effects. The primary goal of the menu is to sell products, but it also serves as the restaurant's business card. Achieving the right balance between variety, quality, price, and uniqueness of the offered products is essential for the restaurant's success. Menu engineering provides information on the profitability and popularity of menu items, which helps managers make proactive decisions regarding planning, design, and pricing. Economically, it is sensible for restaurants to highlight and draw attention to their most profitable products.

Understanding customer preferences is a key element in menu engineering, helping to increase revenue and reduce production costs. The application of menu engineering in restaurants requires special attention to various business aspects and data analysis to successfully achieve the enterprise's goals.
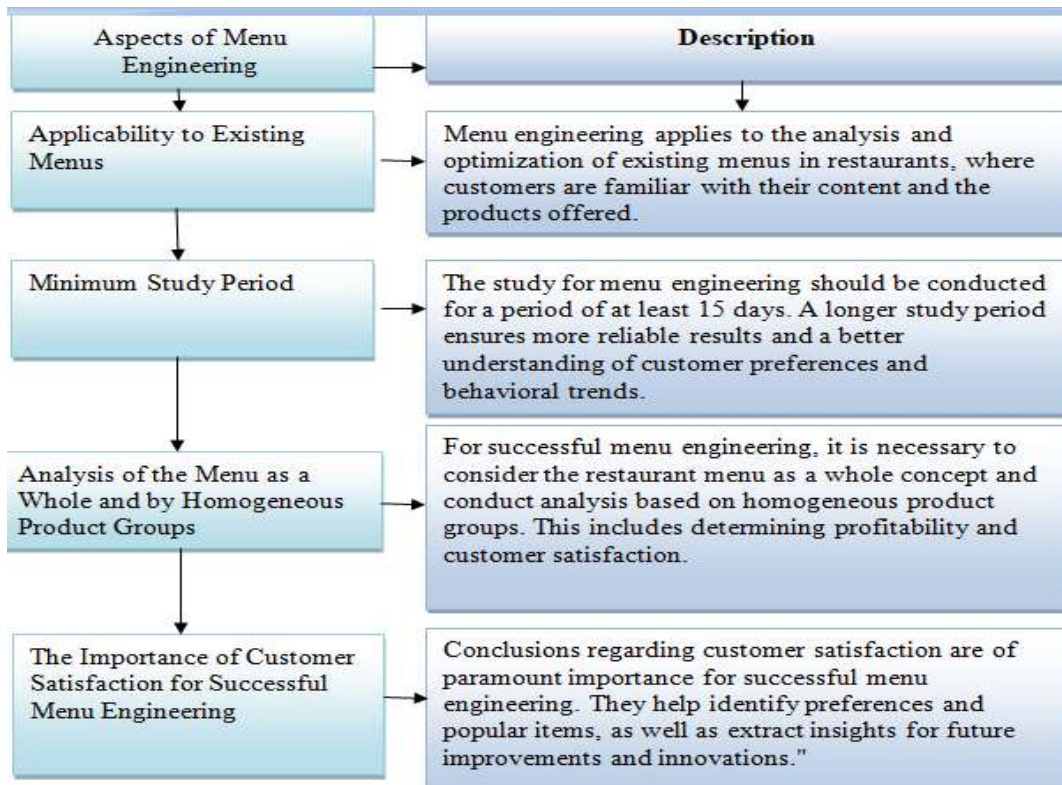
Figure 4. Key Aspects for Successful Implementation of Menu Engineering in the Restaurant Enterprise

Menu Engineering Techniques for Achieving Revenue Management Goals in the Restaurant Business

Menu engineering requires periodic application, at least twice a year, to account for changes in consumer behavior, preferences, and perceptions. According to established experts in menu engineering, such as Greg Rapp[1], the implementation in a restaurant enterprise should follow these key stages:

1. **Cost Analysis for Creating a Product:** "Menu Evaluation" or cost analysis involves a detailed breakdown of each menu item into its constituent elements used to prepare a dish, and determining their cost. This process focuses exclusively on "food cost" – the costs of the raw materials and products necessary to prepare a particular dish, excluding additional costs such as labor, electricity, and others. The profitability of each menu item is a crucial factor in the engineering process. This

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[1] Greg Rapp (September 5, 1958 - November 11, 2020) was the first professional menu engineer in the restaurant industry. His use of science-based empiricism helped evolve restaurant menu design from an art into a data-driven science.

analysis allows restaurants to understand the costs of each offered dish and how they impact the overall profitability of the restaurant. Accurate cost evaluation is essential for optimizing profitability and managing menu prices.

2. **Menu Classification:** Categorizing menu items according to their profitability and popularity levels (Cooper & Kaplan, 1998). The process of classifying menu items is a vital stage that determines the most suitable way to design the restaurant menu. This process is divided into several parts:

   Part 1: Dividing the Menu into Categories and Sections: Categories are broad levels of menu division without overlap between items and focus on the specific menu. Sections are more detailed differentiations of categories, depending on the menu content. Keeping different types of menu items separate is essential for the successful application of menu engineering.

   Part 2: Allocating Items in an Engineering Matrix:

   Stars: Items with low production costs and high popularity are placed here and should remain unchanged.

   Plow Horses: Items with high demand but low profit require alternative methods for more favorable positioning.

   Puzzles: Items with high profit but low demand should be aimed at increasing popularity through methods such as changing their position in the menu.

   Dogs: Items with low profit and low demand require either significant change or removal from the menu

   The goal of menu engineering is to position most of the menu items in the "Stars" quadrant, but the realistic target is for at least 60% of them to be in the "Puzzles" quadrant for the restaurant business to be successful.
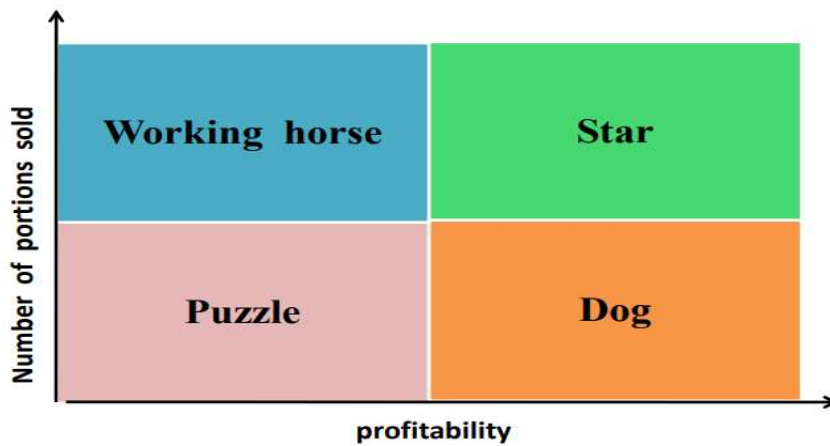
Figure 5. Menu Engineering Matrix Source: Adapted from **Gregg Rapp(2022) Menu Engineering: How to Raise Restaurant Profits 15% or More,**
https://www.menucoverdepot.com/resource-center/articles/restaurant-menu-engineering/

Part 3: Evaluating the Future Assortment of Dishes

By distributing menu items across the quadrants in the engineering matrix, restaurants can assess which items should be retained, which should be removed, and which need more promotion to become profitable. This strategic evaluation helps optimize the menu to align with the revenue goals and operational capabilities of the restaurant.

Part 4: Finalizing Menu Design

The final stage concerning menu design is crucial for the successful implementation of revenue management in the restaurant industry. This phase represents a synergy between design and engineering, where the design creates an attractive catalog of dishes, and engineering optimizes the technological processes for menu composition. This integrated approach enhances resource and cost management, ensures better customer satisfaction through improved design and quality of culinary products, and provides valuable insights into revenue management in restaurants.

A well-designed menu, optimized through menu engineering, not only attracts customers but also strategically promotes the most profitable items. By regularly updating the menu to reflect changes in consumer behavior and market trends, restaurants can maintain a dynamic and appealing offering that maximizes revenue potential.

In summary, menu engineering should be applied periodically, at least twice a year, to account for shifts in customer behavior, preferences, and perceptions. This continuous process involves analyzing costs, classifying menu items, evaluating future offerings, and refining menu design to achieve the business objectives of the restaurant and enhance its overall profitability.

2.2.3 Menu Design as a Tool for Planning

Menu design impacts customer perception and ordering decisions, thus influencing revenue management in the restaurant business. This process, known as the "psychophysical arrangement of the assortment," involves organizing, distributing, and enhancing the visual appeal of the dishes on the menu. Menu design can be optimized using psychological techniques such as highlighting high-profit items or strategically placing products within the menu. This process not only improves the dining experience but also increases revenue and profitability through more effective sales management and cost control.

In this section of the dissertation, the author presents established patterns and techniques in menu composition, as well as analyzes methods for influencing customer choice through the menu.

2.3 Research Methodology

The methodology of the dissertation adheres to the dissertation framework, including the object, subject of the research, and the stated objective. It employs a combination of quantitative data and qualitative assessments applied through the method of menu engineering analysis.

The research includes an action algorithm based on a systematic literature review of theoretical and empirical achievements worldwide regarding the application of revenue management and menu engineering in the restaurant business. It summarizes the process of developing the research design for the empirical study of the dissertation. The goal is to enrich and overcome the shortcomings of previous scientific and practical research related to the application of existing menu engineering models.

The methodology of the empirical study followed by the author is multifactorial. The logical sequence (algorithm) in the research methodology follows the stages presented in Figure 6.
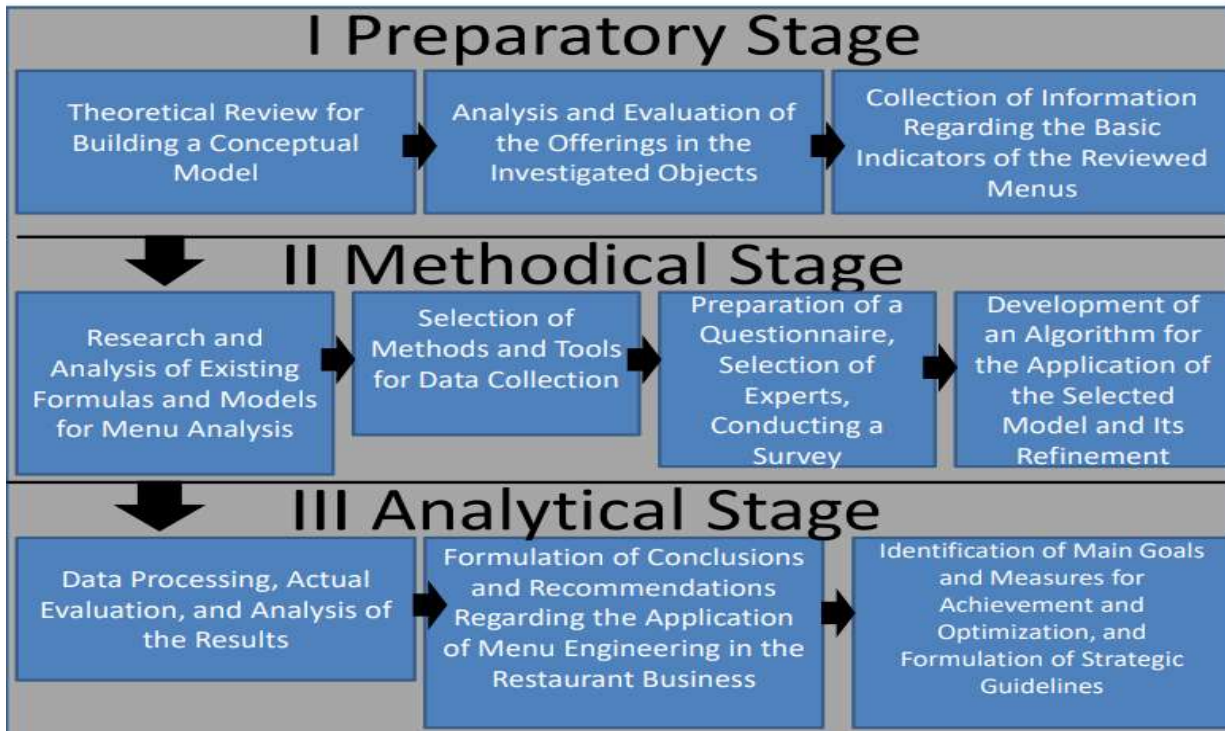
Figure 6. Research Methodology

Due to the wide variety of manifestations and dependencies in restaurant enterprises and the issues related to the application of menu engineering strategies, the methodology of development adheres to an interdisciplinary scientific approach. The research utilizes theoretical concepts, principles, models, and methods inherent to the general theory of economics and management in the restaurant business.

The chosen theoretical foundation is intertwined with practical approaches that can facilitate the application of revenue management in restaurants and improve the economic status of restaurant enterprises.

2.4 Development of a Conceptual Model

In this section, the advancement in the current research is delineated as a result of reviewing the scientific literature and existing models for menu analysis in restaurants. The most suitable basis for further development in this study is the model by Kasavana

and Smith, known as menu engineering (Davar & Sandeep, 2009). The author of the dissertation presents a conceptual model for menu engineering based on researched models for menu analysis. This model is designed as a functional tool applicable in the Bulgarian restaurant industry and includes additional elements for the successful operation of restaurant enterprises. The innovation in this model lies in the incorporation of an assessment of menu items with specific additional criteria that represent fundamental aspects of restaurant operations. Including these additional elements in the conceptual model for menu engineering enables managers to develop more precise and effective menu management strategies. They are able to take into account not only customer preferences but also the technical and organizational aspects of food preparation and service.

This approach provides a more comprehensive and detailed analysis of the menu, which can be used to optimize operations and enhance the efficiency and quality of service in the restaurant industry. Restaurants can benefit from better management of their resources and higher customer satisfaction through intelligent menu planning that aligns with the specifics of their business and technological capabilities.

The author's conceptual model is designed to assist restaurant enterprises in achieving higher precision in menu management, aiding in managerial decision-making for improved profitability, operational optimization, and enhanced customer service. Figure 7 illustrates how information integrates into the menu improvement process and depicts the interactions and relationships formed among different aspects and components. This forms the basis for formulating strategies and methods for effective menu management and optimizing restaurant business.
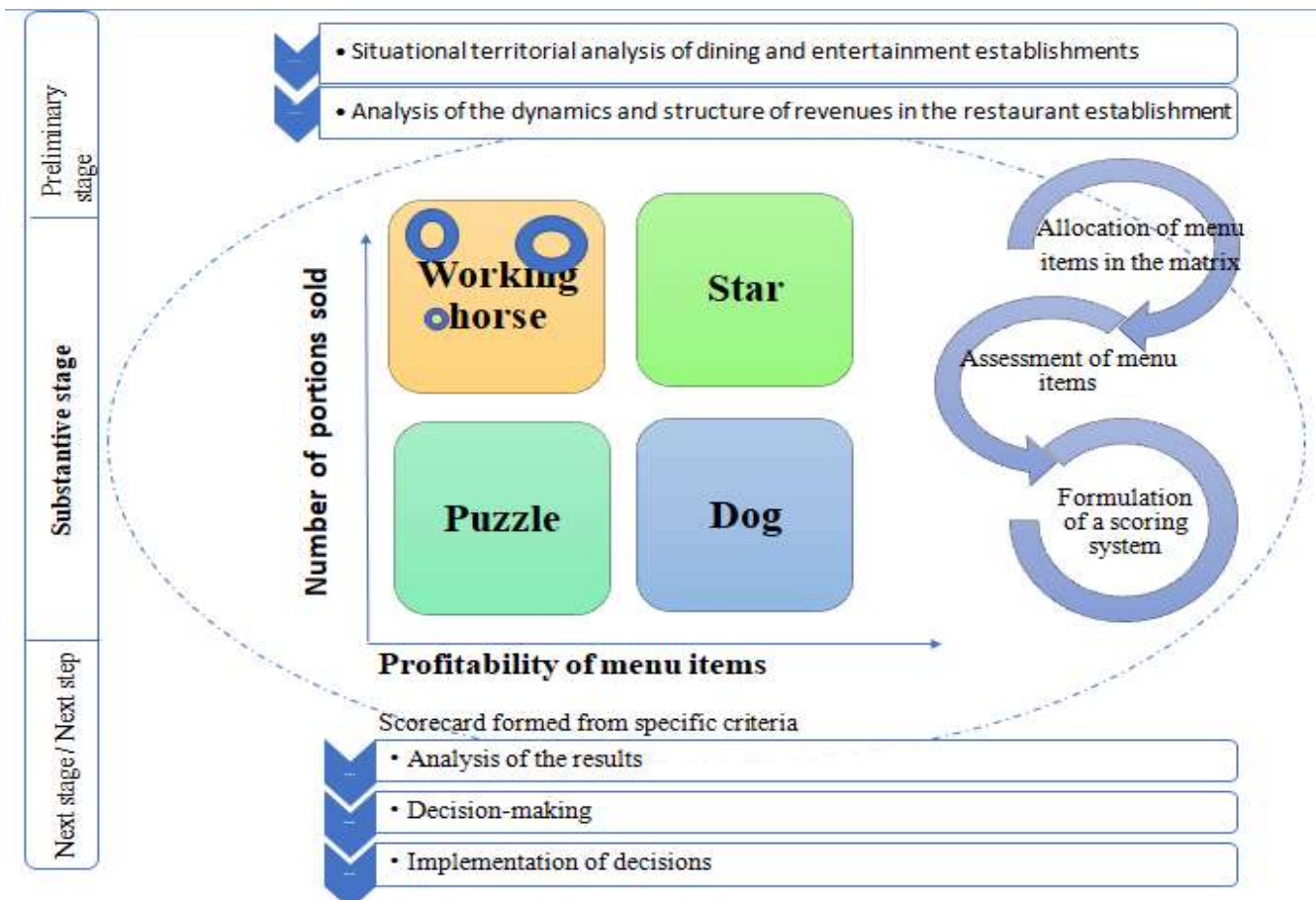
Figure 7: Author's Conceptual Model for Menu Engineering

The validation of the model in practical environments across two restaurants with different characteristics and target audiences demonstrates its effectiveness and applicability in real-world conditions. In this manner, the author investigates how the model performs in diverse settings and identifies potential areas for improvement and specific needs of different restaurants. The goal is not only to confirm the model's effectiveness but also to understand its adaptation to varying conditions and its impact on menu management and restaurant revenues.

To ensure precision in analysis and evaluation, the model incorporates the following additional criteria regarding each menu item:

Criterion №1: Degree of difficulty in preparing the dish;

Criterion №2: Relative amount of technological time required for dish preparation;

Criterion №3: Level of impact on kitchen stations (how much preparing this dish complicates the preparation of other orders in the kitchen);

Criterion №4: Risk level of quality deterioration upon serving.

Criteria from №1 to №3 are assessed by food preparation specialists, while criterion №4 is evaluated by those responsible for serving. Assessment is conducted using a three-point Likert scale – 1 for low, 2 for medium, and 3 for high. An item from the menu can receive a maximum score of 12 and a minimum score of 4.

Table 5. Formation of Overall Score

Score Rating	4:00-7,99	8-9,99	10:00-12:00
Circle Size in the Engineering Matrix	Minimum circle diameter	Average circle diameter	Maximum circle diameter
Description	A menu item with the lowest complexity related to preparation and serving.	A menu item with medium complexity in terms of preparation and serving.	An item from the menu with high complexity in terms of preparation and serving.

The obtained overall score based on the specified additional criteria is reflected in the size of the circle in the conceptual model's figure. The scores are categorized into ranges: 4 – 7.99; 8 – 9.99; 10 – 12 (largest diameter circle) – indicating the menu item with the highest complexity related to preparation and serving. This categorization places menu items into different positions within the quadrants of the classic matrix, depending on their complexity and risks during preparation. These data form the basis for conducting in-depth evaluation and analysis.

The system for additional assessment of dishes, based on a three-point Likert scale, allows for quick visual assessment of the complexity and risks associated with each menu item. This facilitates focused decision-making, enhances the quality of dishes offered, and improves customer service in the restaurant sector in Bulgaria.

Summary and Conclusions for Chapter Two

1. The implementation of revenue management undergoes specific stages to achieve maximum economic effectiveness for restaurant enterprises. Based on the reviewed literature, we systematize the following five stages of the implementation process: first, analysis of the tourist market; second, organizational stage; third, formulation of pricing strategy; fourth, menu analysis techniques; and fifth, monitoring, evaluation, and adjustments.

2. Menu design directly influences customer attention, which directly impacts sales revenue from culinary products. With the evolution of the restaurant business, the menu presented to customers is no longer merely a means of information about the food and beverages offered by the restaurant. It serves multiple functions, acting as a primary communication tool, cost control mechanism, and marketing instrument for restaurant enterprises.

3. The developed conceptual model advances existing frameworks and represents a valuable tool for restaurant enterprises. It helps them analyze, plan, and manage their menus in ways that lead to improved profitability, operational optimization, and enhanced customer service. By integrating various aspects and components, as well as analyzing interactions and relationships between them, the model provides a foundation for formulating strategies and methods for effectively managing menus and restaurant business operations.

CHAPTER THREE. Applied Aspects of Revenue Management in the Restaurant Business

3.1. General Characteristics of the Objects Where the Conceptual Model is Applied

The developed author's model is tested in two restaurants operating in different municipalities across the country. The establishments considered are: (1) urban classic restaurant Magus in Dianaabad, Sofia, Stolichna Municipality, and (2) an adjoining

classic restaurant at the mountain hotel Villa Magus in Kladnitsa village, Pernik Municipality. Both venues operate in distinct environments.

Both restaurants aim for high quality service and cuisine but differ in type, location, category, operating hours, and other elements. They strive to provide diverse and unique dining experiences for their customers.

Table 6. Business Card of the Examined Objects Where the Model Was Tested

Restaurant	Magus (M1)	Villa Magus (M2)
Name, Abbreviation in Dissertation, and Type	Magus (M1) - Classic Restaurant	Villa Magus (M2) - Classic restaurant, part of a mountain hotel with the same name, 4 stars
Opening	2016	2019
Category	4 stars	3 stars
Seasonality	From September to June	Year-round
Location	Sofia, Dianabad, Loven Park St. 3	Located on the southwestern slopes of the Vitosha Nature Park in the Pernik municipality, at an altitude of 1305m in the area of Selimitsa, 2 km above the village of Kladnitsa, 22 km from Sofia and 18 km from Pernik
Menu	The menu concept consists of original recipes that remind and return visitors to Bulgarian roots, combined with a modern and refined touch for lovers of Mediterranean and international cuisine.	The menu is multi-component and diverse, offering a huge variety of tastes and flavors. The author's interpretation of the menu combines Asian, Italian with traditional, local, and national cuisine through the lens of gourmet craftsmanship.
Dishes	The culinary assortment is in the following groups: Salads and cold starters - 11 items; Hot starters - 16 items; Main courses - 11 items; Side dishes and bread - 5 items: Desserts - 5 items.	The culinary assortment is in the following groups: Salads - 8 items; Cold starters and bread - 10 items; Soups - 6 items; Hot starters - 6 items; Pasta and Risotto - 6 items; Main courses - 11 items; Desserts - 8 item

Their differentiated features provide us with the opportunity to test the author's model and its applicability as a conceptual tool in the restaurant industry in Bulgaria.

3.2. Situational Analysis of the Types of Food and Entertainment Establishments

This paragraph analyzes the food and entertainment establishments in the two municipalities where the restaurant sites testing the author's conceptual menu engineering model are located. Restaurant management is multifaceted, encompassing a diverse array of food and entertainment establishments concerning class, type, capacity, category, theme, location, design, level of complexity, seasonality, participation in chains and other associations, and management forms (Dabeva, Lukanova, & Filipova, 2020).

To characterize the restaurant industry in the studied administrative-territorial units, we use data from the National Tourism Register. Due to the nature of the available data, we perform a situational analysis based on the data in the register of Food and Entertainment Establishments with valid registration. The presented information and analysis for the two administrative-territorial units in Bulgaria illustrate the diversity of the competitive environment in which the restaurants testing the author's menu engineering model operate.

3.3. Testing the Conceptual Model in Restaurant M1

This section calculates the positioning of elements from the studied categories: salads and cold appetizers, hot appetizers, main dishes, side dishes, bread, and desserts in the classified quadrants from the Magus restaurant in Sofia (M1) for the period from September to November 2023. For the scientific research, we use analytical reports on sales, demand, and profitability of each menu item provided by the restaurant management program. Using the mathematically developed model by John Nessel, we distribute them into four positions according to their results.

We also establish the results from the evaluation based on additional criteria in the model applied to the menu at Magus restaurant M1, located in the Dianabad residential area of Sofia, for the period from September to November 2023. Subsequently, the results from the menu evaluation cards by the restaurant staff are considered.

Analyzing the results of the menu item evaluation by difficulty, we find that some menu items, which are "easy" to produce in the kitchen, present problems when served in the dining area. Therefore, we seek the average score of the culinary products, which at a

later stage, along with the results of the popularity and profitability of the given item, will find a new place in the menu design provided to the customer.

Averaging the results from the conducted study of the culinary assortment in restaurant M1 shows the positions of the items according to additional criteria and reflects them in the circle's size in the conceptual model's figure. This significantly simplifies analyzing the culinary products that need to be reworked to be functional and financially effective for the restaurant.

Based on the obtained data and the conducted analysis, this section distributes the menu items into the respective categories. After testing the author's model, we obtain a clear picture of menu optimization based on analytics and business goals.

3.4. Testing the Conceptual Model in Restaurant M2

Calculating the positioning of the items from the studied categories: salads, cold appetizers and bread, hot appetizers, pasta and risotto, main dishes, and desserts in the classified quadrants from the Villa Magus restaurant (M2) for the period from September to November 2023. To test the model, we again use analytical reports, as with M1, for sales, demand, and profitability of each menu item. The menu items are distributed into the four positions according to their results.

From the menu analysis in restaurant M2, we find that due to its large volume of items, it is not profitable for the restaurant. This section also examines the results from the evaluation based on additional criteria in the model applied to the menu at Villa Magus restaurant M2 in the village of Kladnitsa, Pernik municipality, for the period from September to November 2023.

The results from the culinary assortment study in restaurant M2 provide information on the positioning of the items according to additional criteria, reflected in the circle sizes in the conceptual model. This analysis facilitates understanding the culinary products and their characteristics, which can contribute to more effective restaurant operation and optimization of financial results. Thanks to testing the author's model, a new perspective on the design and creation of the restaurant menu is formed. This section discusses the distribution of menu items at Villa Magus restaurant (M2) in

Kladnitsa village, Pernik municipality. According to the analysis based on the collected data, we classify the menu items into appropriate categories.

3.5. Recommendations to the Management of the Studied Establishments

Based on the results obtained from testing the model in the two restaurant establishments, the author makes specific conclusions and offers scientifically substantiated recommendations to the management teams of both restaurants. The directions in which the author formulates the recommendations are related to: personalizing revenue management strategies according to the specific characteristics of each restaurant; optimizing the menus; adapting to changing conditions; better understanding of the interactions between elements.

The empirical part of the dissertation demonstrates the effectiveness of the author's model for optimizing restaurant operations by examining two establishments: Magus in Sofia and Villa Magus in Kladnitsa village. The analysis reveals the need to adapt menus, optimize scope, manage technological time, kitchen stations, and serving quality. The recommendations emphasize the importance of personalized service, efficient resource management, and simplified personnel management to improve customer satisfaction and the competitiveness of both restaurants.

Summary and Conclusions for Chapter Three

The third chapter of the dissertation provides an application field for the developed author's model for menu engineering. It is the empirical stage where the conceptual model is tested in specific restaurant establishments, confirming its effectiveness and applicability. The conclusions and recommendations made after evaluating the menu items in the restaurants where the model is tested are significant for the development and successful operation of the business in these establishments, contributing to the personalization of development strategies, menu optimization, adaptation to current conditions, and better interaction between elements.

Conclusion

The conclusion summarizes the main results from the research and analyses in the dissertation. Based on theoretical foundations and empirical analyses, it can be argued that the application of a conceptual menu engineering model, which considers the specific characteristics of the restaurant business in dynamic economic conditions, is a valuable tool for revenue management and enhancing the competitiveness of enterprises. By focusing on the analysis and study of the role of restaurant menu engineering in revenue management within the restaurant business, as developed in the three chapters, the dissertation has achieved its goal.

The summarized, systematized, and further developed scientific knowledge in the theoretical first chapter establishes the foundation necessary for the dissertation research. The methodological second chapter of the dissertation is related to clarifying the stages of implementing revenue management in the restaurant industry; systematizing and comparing existing models and techniques for menu analysis; developing a research methodology; and building a conceptual model for menu engineering in the restaurant industry. The analysis, model testing, and evaluation in the third chapter of the dissertation test and demonstrate the applicability and effectiveness of the author's model for restaurant menu engineering. The summaries, conclusions, and recommendations, based on scientifically substantiated analyses, have practical significance for the successful operation of the restaurants where the model was tested.

The presented appendices in the dissertation complement and support the proposals and concepts outlined in the text.

IV REVIEW OF THE MAIN CONTRIBUTIONS IN THE DISSERTATION

1. Enhancement of Existing Knowledge on Revenue Management and Menu Engineering: The dissertation enriches existing knowledge through an in-depth examination, summarization, and critical analysis of key theoretical concepts. It introduces original definitions of the categories of revenue management and menu engineering in the restaurant industry. A periodization of the development of the revenue management concept is provided. Distinctions between the concepts of revenue management and yield management are highlighted.

2. Systematization of Techniques and Models for Menu Analysis: Based on extensive and critical research of the techniques and models for restaurant menu analysis, the strengths and weaknesses of these techniques are systematized. This systematization serves as a foundation for developing the author's conceptual model for menu engineering. The applicability of existing models in the contemporary economic environment is assessed.

3. Development of a Multifaceted Methodology for Scientific Research: A comprehensive methodology for conducting scientific research is developed, grounded in a theoretically argued relationship between the environment impacting the restaurant business, revenue management strategies, and the application of menu engineering. Key criteria and sub-criteria for evaluating menu elements are identified to enrich and address the shortcomings of previous scientific and practical-applied research related to existing menu engineering models.

4. Creation and Testing of an Author's Conceptual Model for Menu Engineering: An author's conceptual model for menu engineering is developed and proposed as an effective tool applicable in the Bulgarian restaurant industry. The model is tested in restaurant establishments, leading to conclusions and recommendations formulated for the management of the studied establishments.

V LIST OF PUBLICATIONS ON THE DISSERTATION TOPIC

Scientific Studies

1. Moneva, G. (2022). **Menu Engineering – A Tool for Implementing Revenue Management in the Restaurant Business.** Annual Almanac of Doctoral Research, Svishtov, Vol. XV, No. 18, pp. 52-74; ISSN: 1313-6542; (online)

2. Moneva, G. (2022). **Technologies in Support of Revenue Management in the Restaurant Business.** Yearbook of the D. A. Tsenov Academy of Economics, Svishtov, Vol. 125, pp. 136-158; ISSN: 0861-8054; (online)

Scientific Articles

1. Moneva, G. (2021). **Genesis and Evolution of Revenue Management in the Restaurant Business.** Annual Almanac of Doctoral Research, Svishtov, Vol. XIV, No. 17, pp. 356-372; ISSN: 1313-6542; (online)

Scientific Reports

1. Moneva, G. (2022). **Technological Solutions in Revenue Management of the Restaurant Business.** Proceedings of the International Scientific Conference "Contemporary Challenges in Tourism." Veliko Tarnovo, 12.05.2022, pp. 870-878, ISBN: 978-619-239-710-4 (electronic collection); (online)

2.Ivanova, P., & Moneva, G. (2023). **Events in the Restaurant in the Context of Revenue Management. Proceedings of the Scientific Conference "Modern Tourism – Rethinking Opportunities and Development Models."** Varna, "Science and Economics" Publishing, pp. 3016-326; ISBN: 978-954-21-1161-0; (online)

VI STATEMENT ON COMPLIANCE WITH MINIMUM NATIONAL REQUIREMENTS IN RELATION TO THE PROCEDURE FOR ACQUIRING THE DEGREE OF "DOCTOR"

Indicators	Points
Group of Indicators A *Indicator 1.* Dissertation for the Award of the Educational and Scientific Degree "Doctor"	
Restaurant Menu Engineering for Revenue Management Purposes	50
The dissertation has been discussed, and a procedure for its defense has been initiated.	
Group of Indicators **G.** Sum of Indicators from *4 to 10*	
7. Articles and Papers Published in Non-Refereed Journals with Scientific Review or Published in Edited Collective Volumes	
Moneva, G. (2021). **Genesis and Evolution of Revenue Management in the Restaurant Business.** Annual Almanac of Doctoral Research, Svishtov, Vol. XIV, No. 17, pp. 356-372; ISSN: 1313-6542; (online)	10
Moneva, G. (2022). **Technological Solutions in Revenue Management of the Restaurant Business.** Proceedings of the International Scientific Conference "Contemporary Challenges in Tourism." Veliko Tarnovo, 12.05.2022, pp. 870-878, ISBN: 978-619-239-710-4 (electronic collection); (online)	10
Ivanova, P., & Moneva, G. (2023). **Events in the Restaurant in the Context of Revenue Management. Proceedings of the Scientific Conference "Modern Tourism – Rethinking Opportunities and Development Models."** Varna, "Science and Economics" Publishing, pp. 3016-326; ISBN: 978-954-21-1161-0; (online)	5
9. Studies Published in Non-Refereed Journals with Scientific Review or Published in Edited Collective Volumes	
Moneva, G. (2022**). Menu Engineering – A Tool for Implementing Revenue Management in the Restaurant Business.** Annual Almanac of Doctoral Research, Svishtov, Vol. XV, No. 18, pp. 52-74; ISSN: 1313-6542; (online)	15
Moneva, G. (2022). **Technologies in Support of Revenue Management in the Restaurant Business.** Yearbook of the D. A. Tsenov Academy of Economics, Svishtov, Vol. 125, pp. 136-158; ISSN: 0861-8054; (online)	15
Total Number of Points Accumulated – Sum of Indicators from 4 to10	**55**
Required Number of Points – Sum of Indicators from 4 to 10	**30**

VII Conferences, Seminars, Round Tables

1. International Scientific Conference "Tourism Beyond Expectations", UNSS, Sofia, September 25, 2020.

2. International Scientific Conference "Contemporary Challenges to Tourism", organized by the Tourism Department of the Faculty of Economics at Veliko Tarnovo University "St. St. Cyril and Methodius" and the National Institute of Geophysics, Geodesy and Geography at the Bulgarian Academy of Sciences, May 12, 2022.

3. 15th Black Sea Tourism Forum on "Human Resources in Tourism – Challenges and Perspectives" organized by the Varna Tourism Chamber and the University of Economics – Varna, April 15-16, 2022.

4. 16th Black Sea Forum organized by the Varna Tourism Chamber, Varna, September 30 - October 1, 2023, St. St. Constantine and Helena Resort – "Models for Four-season Tourism Development".

5. Round Table "The Menu – Key Component of Successful Restaurants" organized by the College of Tourism at the University of Economics – Varna and Shef&Gastro, November 17, 2023, Varna.

6. Information Event "Responsible Business Conduct" – National Contact Point for Bulgaria and the Organization for Economic Co-operation and Development (OECD), November 20, 2023, Sofia.

7. Round Table "The Role of Universities, Business, Politics, and Secondary Schools in Attracting Young People to Tourism". Department of Tourism Economics at UNSS, January 19, 2024, Sofia.

Webinars

1. "Digital Marketing in Tourism", February 13-17, 2021, University of Economics, Varna.

2. "Bulgarian Tourism in the Conditions of COVID-19", organized by the Department of Tourism Economics and Management at the Dimitar A. Tsenov Academy of Economics, Svishtov, September 27, 2021.

3. "Intelligent Tourism: Challenges for Scientific Research and Training", University of Economics – Varna, March 7, 2022, Varna.

4. "Development of Rural Tourism in Northern Bulgaria", January 19, 2022, America for Bulgaria.

Doctoral Scientific Sessions

1. Doctoral Scientific Session 2023, Dimitar A. Tsenov Academy of Economics, Svishtov, December 1, 2023.

2. Doctoral Scientific Session 2022, Dimitar A. Tsenov Academy of Economics, Svishtov, December 2, 2022.

3. Doctoral Scientific Session 2021, Dimitar A. Tsenov Academy of Economics, Svishtov, December 17, 2021.

4. Doctoral Scientific Session 2020, Dimitar A. Tsenov Academy of Economics, Svishtov, November 20, 2020.

Specialized Exhibitions

1. Specialized Exhibition for the Food and Beverage Sector in Bulgaria, "Interfood&Drink, Wine Salon", October 2, 2021, Inter Expo Center Sofia.

2. Specialized Exhibition for the Food and Beverage Sector in Bulgaria, "Interfood&Drink, Wine Salon", October 2, 2022, Inter Expo Center Sofia.

3. "Wine and Gourmet" Exhibition, May 14-15, 2023, Plovdiv.

4. National Culinary Cup of Bulgaria, November 8-11, 2023, Inter Expo Center Sofia.

5. GastronomiX Professional Forum for Haute Cuisine and Culinary Culture in Bulgaria, February 13-16, 2024, Inter Expo Center Sofia.

6. Visit to HORECA – Food and Beverage for Tourism & HOST Industry, Grand Hotel Millennium, March 20, 2024, Sofia.

VIII   DECLARATION OF ORIGINALITY AND ACCURACY

DECLARATION of originality

by Galya Koleva Moneva,

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I declare that the dissertation entitled: "Restaurant Menu Engineering for Revenue Management Purposes" submitted for the award of the educational and scientific degree of "Doctor" in the scientific specialty "Economics and Management (Tourism)" is an original authorial development. It contains results obtained from scientific research conducted by me. Results obtained, described, and/or published by other scholars are duly cited in the text and included in the bibliography.

The present dissertation has not been applied for the acquisition of a scientific degree in another higher education institution or research institute.

…...2024 г.   The declarant: ……………………………

Svishtov   /Galya Moneva/