Senni Salonen

The impact of grocery store layout decisions on store performance through consumer behaviour

School of Technology and Innovations
Bachelor's thesis in Economics and
Business Administration
Industrial Management

Vaasa 2025

UNIVERSITY OF VAASA
School of Technology and Innovations
Author: Senni Salonen
Title of the thesis: The impact of grocery store layout decisions on store performance through consumer behaviour
Degree: Bachelor of Science in Economics and Business Administration
Degree Programme: Industrial Management
Supervisor: Binod Timilsina
Year: 2025 **Pages:** 41

ABSTRACT:

This thesis examines the impact of layout design used in grocery stores on store performance through consumer behaviour. The aim is to understand how floor plans in grocery stores are intentionally designed to influence consumer behaviour and thereby enhance the store's performance. As online grocery shopping grows in popularity, researching and developing traditional brick-and-mortar stores is valuable to keep them relevant to consumers.

This study has been conducted as a narrative literature review. It focuses on defining layout planning and different grocery store layouts, understanding consumer behaviour from the perspectives of behavioural economics, decision-making processes, and impulse buying, and linking these theoretical insights to store performance. The study uses research material published in the 2000s on these topics.

The literature review suggests that the three most common grocery store layouts are grid, free-form, and racetrack. The greatest benefits in store performance are achieved by combining different layout models, most often the grid and racetrack layouts. Consumer behaviour encompasses all in-store activities related to purchasing, whether happening before, during, or after the purchase. Effective influence on consumer behaviour is achieved through strategic placement of store departments and products to maximize consumers' exposure to stimuli. Impulse purchases, frequently discussed in the literature and based on stimuli, are a significant source of income for grocery stores.

In conclusion, strategic layout design can influence consumer behaviour and thereby improve store performance.

KEYWORDS: Consumer behaviour, grocery, impulse buying, layout planning, store layout, systematic layout planning

VAASAN YLIOPISTO
Tekniikan ja innovaatiojohtamisen yksikkö
Tekijä: Senni Salonen
Tutkielman nimi: The impact of grocery store layout decisions on store performance through consumer behaviour
Tutkinto: Kauppatieteiden kandidaatti
Koulutusohjelma: Tuotantotalouden ja tietojärjestelmätieteen kandidaattiohjelma
Opintosuunta: Tuotantotalous
Työn ohjaaja: Binod Timilsina
Valmistumisvuosi: 2025 **Sivumäärä:** 41

TIIVISTELMÄ:

Tutkielmassa tarkastellaan päivittäistavarakaupoissa käytettyjen pohjaratkaisuiden vaikutusta liiketoimintaan kuluttajakäyttäytymisen avulla. Tutkielman tavoitteena on selvittää, miten päivittäistavarakaupoissa tehdyt pohjaratkaisut on tarkoituksellisesti suunniteltu vaikuttamaan kuluttajien käyttäytymiseen ja sitä kautta parantamaan myymälän suorituskykyä. Päivittäistavaroiden verkkokaupan suosio on kasvussa, ja jotta perinteiset kivijalkaruokakaupat pysyisivät kuluttajille relevantteina, niiden tutkiminen ja kehittäminen on arvokasta.

Tutkielma on toteutettu narratiivisena kirjallisuuskatsauksena. Sen keskeisessä osassa ovat pohjaratkaisusuunnittelun sekä päivittäistavarakaupoissa tehtyjen pohjaratkaisuiden määrittely, perehtyminen kuluttajakäyttäytymiseen käyttäytymistaloustieteen, päätöksentekoprosessin ja impulssiostosten näkökulmista sekä edellä mainittujen teoriaosuuksien yhdistäminen myymälän suorituskykyä käsittelevässä alaluvussa. Työssä hyödynnetään 2000-luvulla julkaistua tutkimusaineistoa käsitellyistä aiheista.

Tutkielmassa tehtyyn kirjallisuuskatsaukseen pohjautuen voitiin kolmen pohjaratkaisutyypin, ruudukkomaisen, vapaamuotoisen ja kilparadan, olevan päivittäistavarakaupoissa yleisimmin käytettyjä pohjaratkaisuja. Suurin hyöty myymälän pohjaratkaisusta saavutetaan yhdistelemällä eri pohjaratkaisumalleja. Yleisimmin käytetty on ruutu- ja kilparatapohjaratkaisun yhdistelmä. Kuluttajakäyttäytymisen havaittiin kattavan kaiken myymälässä tapahtuvan toiminnan, joka tapahtuu joko ennen, samanaikaisesti tai jälkeen ostotapahtuman. Kuluttajakäyttäytymiseen voidaan vaikuttaa tehokkaimmin myymäläosastojen ja tuotteiden strategisella sijoittelulla, jonka tavoitteena on maksimoida asiakkaiden altistuminen myymäläympäristön ärsykkeille. Yksi kirjallisuudessa usein toistunut, myymälöiden suorituskykyä parantava ja ärsykkeisiin perustuva, kulutusmuoto oli impulssiostokset, jotka muodostavat tärkeän tulonlähteen päivittäistavarakaupoille.

Kirjallisuuden perusteella voidaan todeta, että strategisella pohjaratkaisusuunnittelulla pystytään vaikuttamaan kuluttajien käyttäytymiseen ja siten edistämään myymälän suorituskykyä.

AVAINSANAT: Kuluttajakäyttäytyminen, päivittäistavarakauppa, impulssiostot, layout-suunnittelu, myymälän pohjaratkaisu, systemaattinen layout-suunnittelu

Contents

Pictures

Figures

Tables

1 Introduction

Grocery stores are a central part of everyday lives. Consumers are used to roaming the wide aisles in a nicely lit environment, while browsing attractively presented products on varying types of displays. However, this may soon be a thing of the past, as online grocery shopping is taking root in the grocery retail sector. McKinsey & Company (2025) state in their report that, despite the grocery retail sector's relatively low overall growth in 2024, the online grocery sector is expected to see the highest growth, being 2.0 % above average.

This trend can be seen in the research of the grocery retail sector, too, as a significant share of the studies published between 2020 and 2025 examine online grocery stores. To remain relevant in the eyes of consumers, researching and developing traditional brick-and-mortar grocery stores is valuable, which forms the background of this study. Therefore, examining the role of store layouts and consumer behaviour in physical grocery stores remains both timely and relevant.

1.1 Purpose of the study

The purpose of the study is to examine layout planning, the layout strategies used in grocery stores, the theoretical foundations of consumer behaviour, and how the layout design choices can improve a store's business performance. One of the main focuses is on the impact of intentional layout decisions on consumer engagement, movement, and impulse purchasing behavior.

1.2 Research objective and questions

The research objective is to examine how layout decisions in grocery stores are intentionally designed to influence consumer behaviour, to improve store performance. The research objective will be achieved by answering the following research questions:

1. What are the commonly made layout type decisions in grocery stores?
2. How is consumer behaviour defined?
3. How do the overall layout decisions affect consumer behaviour?
4. How do changes in consumer behavior, influenced by store layout, impact business performance?

1.3 Scope and limitations

This study is primarily focused on physical store layout decisions in the grocery retail sector, and their links to consumer behaviour and store performance. The analysis is limited to brick-and-mortar stores only; online grocery stores and retail sectors other than grocery are outside of the scope. The scope is also limited so that it does not address the daily operations of a grocery store, such as logistics, warehousing, or personnel duties.

Although in-store consumer behaviour is also affected by various marketing instruments, such as branding and promotions, this study is consciously framed from an industrial management perspective. Marketing theories are referenced only to inasmuch as required to understand the mechanisms through which layout exerts its effects.

1.4 Research method

1.4.1 Research design

This study is carried out as a narrative literature review. According to Salminen (2023, p. 3), a literature review builds a comprehensive picture of a specific topic, which is why it was chosen as a method for this study. In addition, one reason for selecting the narrative literature review as the method of the thesis is that there is not an extensive amount of new and comprehensive research available on the subject under study. For this reason, the aim is to build a consistent picture and show how the topics are related, which is possible with the chosen method.

1.4.2 Data collection and analysis procedure

The articles used in this study were retrieved from various academic databases, ScienceDirect (Elsevier), Emerald Journals, Taylor & Francis online, and ABI Inform Complete (ProQuest), being the most frequently used. In the searching process, Boolean operators were used as searching commands to find relevant articles. The operators were formed for each theme individually, as illustrated in Table 1 below.

Table 1 Foundations of the Boolean operators used in searching articles

Theme	**Boolean search command**	**Approx. number of articles found**	**Approx. number of potential articles screened for review**
Behavioural economics	”behavi* economics" AND ("grocery shopping" OR "food shopping" OR	~1,500	~15

	"supermarket" OR "retail")		
Consumer behaviour	("consumer behavi*" OR ”shopping behavi*”) AND ("store layout" OR "floor plan" OR "grocery store")	~1,150	~20
Impulse purchasing	("impulse buying" OR "impulse purchas*" OR "unplanned buying") AND ("grocery store" OR supermarket OR retail)	~2,500	~35
Grocery store layout	("systematic layout planning" OR "layout design" OR ”layout planning”) AND (”grocery store” OR supermarket)	~500	~10
Store performance	("store layout" OR "store design") AND profitability AND (“grocery store” OR supermarket)	~500	~10

The use of synonyms was maximized in Boolean search commands to obtain as many results as possible, as suitable articles might get missed due to different wording. The Boolean operators were modified during the search process, but the ones presented in Table 1 served as the foundations for those used in searching. Different databases highlighted different words from the search commands, which also led to command modifications.

Thematic analysis was used as an approach in reviewing the articles. According to Braun and Clarke (2021, p. 4), thematic analysis is a data collection and analysis method for developing, analysing, and representing patterns across a dataset. They further explain that the technique involves applying codes or labels to the data to highlight meanings that may be relevant to the research questions. The articles gathered during the process were divided into groups based on themes frequently appearing in the articles. The recurring themes obtained were, for example, consumer behaviour, layout planning, and store design. This approach helped to arrange the findings effectively. Around 90 potential articles were obtained based on their titles. Each of these 90 articles underwent screening, during which the abstracts and keywords were read, accompanied by an overall scanning. Out of this, 30 articles made it to comprehensive reading. As a result, 18 articles were used for the literature review, accompanied by relevant theory books. The list of the reviewed articles, according to their themes, is provided in Appendix 2.

1.4.3 Reliability and validity

To ensure an article's suitability as a source for academic use, the following criteria were considered: published in an academic journal, peer-reviewed, and with a clear IMDR structure, which means an easily identifiable introduction, methods, results, and discussion.

As stated before, a significant share of the studies published between 2020 and 2025 examined online grocery stores, and in addition to Covid-19, which was not optimal, as these aspects were outside of the scope of this study. This created challenges in ensuring the information is up to date, as many of the articles relevant to this study were from 2017 onwards. However, after careful consideration, it was concluded that as the studies were published less than ten years ago, they were considered suitable for this thesis. If a relevant article was published more than ten years ago, special attention was paid to assessing the topic's nature and its sensitivity to rapid changes. If the topic was considered stable, research published in the 2000s was relevant and applicable to this study.

1.4.4 Ethical consideration

To ensure fair practices in research, all the materials used as sources in this study are appropriately referenced. Picture 1 and Figure 1 presented in this study are either published or based on another person's publications, which are mentioned in relation to them. Artificial intelligence has not been used to produce any material for this study, but the clarification on its usage can be found in Appendix 1.

1.5 Structure of the thesis

This study is a narrative literature review consisting of five main chapters: an introduction, chapters on the theory of layout planning, consumer behaviour, and their impact on grocery store performance, and lastly, a discussion and conclusions based on existing literature and theoretical frameworks.

2 Layout planning

Layout is one of the key decisions that determines the long-run efficiency of operations (Heizer et al., 2024, p. 400). They state that the goal of the layout strategy is to establish an effective and efficient layout that will align with the firm's competitive requirements. There are several steps that must be considered in every layout design. According to Heizer et al. (2024, p. 400), the previously mentioned steps are:

- Higher utilization of space, equipment, and people
- Improved flow of information, materials, and people
- Improved employee morale and safer working conditions
- Improved customer interaction
- Flexibility

Tompkins et al. (2010, p. 15) highlight that for the facility plan to be successful, it is important to clearly understand not only the vision but also the mission where the business is headed. They state that an organization's model of success is formed of five elements: vision, mission, requirements of success, guiding principles, and evidence of success. The definitions of these five elements are: vision, a description of where the business headed; mission, how to accomplish the vision; requirements of success, the science of your business; guiding principles, the values utilized while pursuing the vision; and evidence of success, quantitative results that prove the organization is moving towards its vision (Tompkins et al., 2010, pp. 15–17). To summarize, the facilities layout strategy should emerge from the overall strategic plan (Tompkins et al., 2010, p. 292).

2.1 Systematic layout planning (SLP)

Systematic layout planning was developed by Muther in 1961 (Chen et al., 2016, p. 172). It is divided into three stages: analysis, search and selection, and has a total of ten steps (Figure 1).

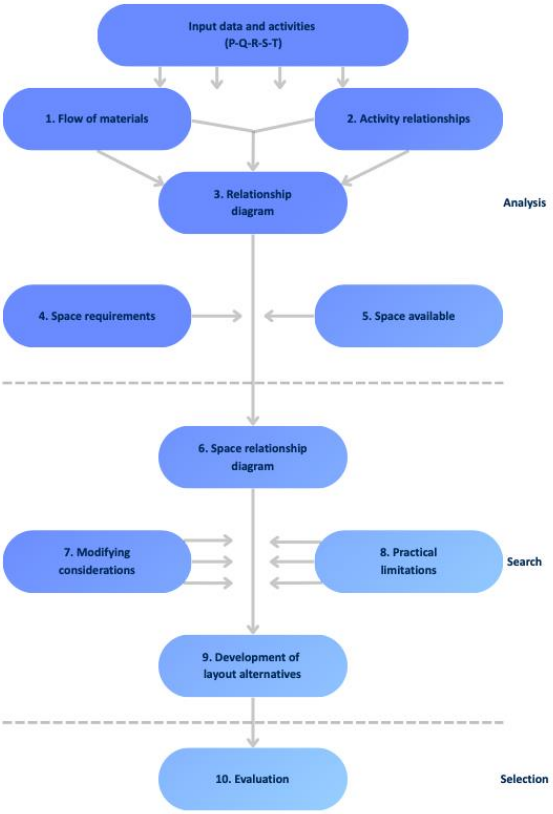


Figure 1 Systematic layout planning procedure. (Tompkins et al., 2010, p. 299)

2.1.1 Foundation

The procedure uses an activity relationship chart as its foundation (Tompkins et al., 2010, p. 297). Chen et al. (2016, p. 173) describe the key inputs in the procedure as P-Q-R-S-T terms, which transfer to product (P), quantity (Q), routing (R), supporting resources (S), and timing data (T). Tompkins et al. (2010, p. 113) state that measuring the activities between departments is a key factor in the layout design of departments within a facility, and these activities can be stated in either a quantitative or qualitative manner. Quantitative measures of flow consider factors such as pieces per hour or moves per day, while qualitative measures may differ from an absolute necessity that two departments are close to one another to a preference that two departments do not need to be bordering. Both quantitative and qualitative flow measures provide value for facilities

with varying characteristics. According to Tompkins et al. (2010, p. 113), facilities with large volumes of materials, information, and people movement between departments benefit from quantitative measurements of flow, while qualitative measures serve facilities with very little actual movement but strong communication links and organizational relationships. Commonly, facilities need both quantitative and qualitative measurements, which therefore serve as foundations in layout planning. So, in turn, systematic layout planning converts solutions of facility layout issues from independent quantitative or qualitative factors into a combined analysis of these two aspects (Chen et al., 2016, p. 173). In brief, activity relationship measurements can be seen as closeness requirements, as the strength of interdepartmental relationships affects their placement in the layout (Tompkins et al., 2010, p. 119).

2.1.2 Analysis

Having considered the foundation of systematic layout planning, the process continues with an analysis. Tompkins et al. (2010, p. 299) state that the relationship diagram developed in the analysis stage is based on the previously discussed activity relationship chart and a material flow analysis, which is illustrated as a from-to chart. The relationship diagrams' nature is qualitative, as it displays the relationships that pairs of activities have between them.

Space requirements and availability of space are considered next in the analysis stage. The focus is on calculating how much space each department requires. According to Tompkins et al. (2010, p. 119), determining space requirements is the most difficult part of facility planning, as future-related uncertainties need to be considered. The analysis of space requirement begins with listing all the departments and identifying the space needed for equipment, workers, materials, and processes, while also considering factors such as productivity (Tompkins et al., 2010, pp. 119–124).

2.1.3 Search and selection

After summing up the requirements to determine the total space, space templates are created for each department, which are then placed onto the relationship diagram that produced a space relationship diagram balancing supply and demand while also taking future needs into account (Tompkins et al., 2016, pp. 119, 300). Considering practical limitations and modifying possibilities, an assortment of block layout alternatives is developed, out of which a preferred design is chosen. Tompkins et al. (2010, p. 302) highlight that the successful implementation of the systematic layout planning process requires first developing a block layout, which is then transformed into a detailed layout for each department in the plan.

2.2 Layout strategies in grocery stores

According to Barghash et al. (2017, p. 215), the aim of the store layout design is that it should be appealing to consumers, make it easy for them to locate the products, keep them in the store as long as possible, and encourage them to make unplanned and impulsive purchases. They state that a successful store layout keeps a consumer interested, which will eventually turn them from consumers into customers. From consumers' perspective, Bargash et al. (2017, p. 215) emphasize that they prefer easy and enjoyable shopping experiences in an environment where the aisles are wide and products are clearly presented and easily locatable.

2.2.1 Layout approaches

Cil (2012, p. 8612) categorizes layout approaches in grocery stores into two primary categories: the traditional retail store layout approach and the consumption universe retail store layout approach. In a traditional retail store layout, the store is divided into different departments, each of which consists of products with similar characteristics. In other words, dairy products are in one department, breads and biscuits in another,

vegetables and fruits on their own, and so on. Cil describes this as a so-called industrial department approach, in which the store layout is organized based on categories defined by manufacturers, which makes it highly company-oriented and fails to take consumers into account.

The consumption universe store layout approach is the newer of the two layout approaches presented. In the approach, products are arranged into groups based on purchase opportunities associated with them (Cil, 2012, pp. 8612-8613). An example presented by Cil illustrates the approach, in which instead of placing coffee in the beverage department, ham in the meat section, and cereals into a separate cereal shelf, all are brought together into a breakfast consumption sector, which will categorically produce conjoint buying. The idea behind the consumption universe approach is to position products with strong purchasing relationships together, thereby advantaging their correlation, since the combined use of these products typically results in joint purchases.

2.2.2 Primary layout types

Typically, the grocery store layouts are divided into three groups: a grid layout, a freeform layout, and a racetrack layout (Levy and Weitz, 2001, as cited in Vrechopolus et al., 2004). In the grid layout, the store consists of rectangularly arranged displays and long, side-by-side aisles. They state that the grid layout is highly utilized in the grocery sector, as consumers tend to visit stores with a pre-planned shopping list, and the grid layout promotes flexibility and quickness in the identification process of consumers' pre-selected products. Barghash et al. (2017, p. 216) point out that the grid layout takes advantage of every available centimeter of floor space and makes it easy to categorize products within the store. Cil (2012, p. 8613) adds that the grid layout is notably beneficial for consumers buying multiple products from different categories during their grocery shopping.

According to Vrechopoulos et al. (2004), in the freeform layout, displays and aisles are arranged asymmetrically, engaging a variety of varying sizes, shapes, and styles of displays. Consumers' willingness to spend more time in-store has been shown to increase with the use of freeform layout, as its structure makes browsing the store easy for the shoppers (Cil, 2012, p. 8613).

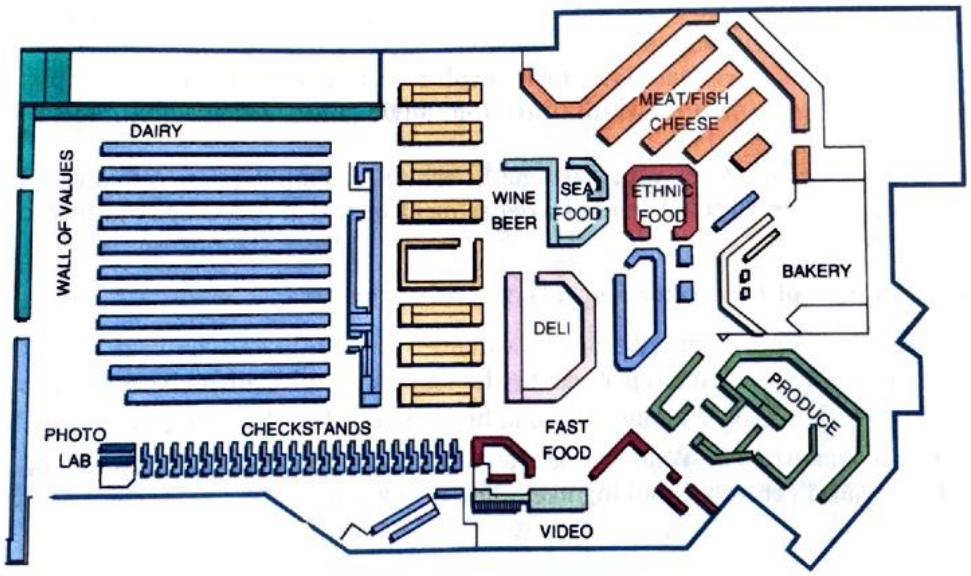
A third layout alternative is a racetrack layout, in which the store is divided into separate areas built around a specific shopping theme (Vrechopoulos et al., 2004). They report that the layout guides consumers along certain shopping paths, encouraging them to visit as many store departments as possible. This is possible, as the main aisle of the store facilitates consumers' movement through the store.

In addition to the three previously discussed layout types, Cil (2012, p. 8613) adds a circulation spine layout to the list. He describes the layout as a traffic loop going around the entire store, with an additional customer path going right across the middle of the store. Product shelves are located on both sides of the spine, extending towards the back and side walls of the store (Barghash et al., 2017, p. 216). Barghash et al. highlight that the spine layout allows consumers to move in both directions within the store, as the main aisle runs from the front of the store to the back of the store.

Ozgormus and Smith (2020) state that, generally, grocery store layouts are most beneficial when different types of layouts are mixed, the most common combination being a mixture of elements from grid and racetrack layouts.

2.3 Intentional design choices in grocery store layouts

One of the most important decisions affecting the grocery store is the general arrangement of departments. Heizer et al. (2024, p. 403) state that highly sought-after products, such as dairy and bakery, should be located at the different ends of the store (Picture 1).



Picture 1 High-drawn items in different areas of the store.
(Heizer et al., 2024, p. 403)

Štulec et al. (2016, p. 142) add to the view presented by Heizer et al. that regularly bought products should be placed in the back of the store, so that consumers will have to walk through the entire store.

It is also noted that the mission of the grocery store should be a determining aspect when deciding the department arrangement (Heizer et al., 2024, p. 404). They add that if one department of the store is in the leading position in the mission, it should be placed at the entry. Štulec et al. (2016, p. 142), on the other hand, state that the appealing feel of the store when entering is a key factor, which can be achieved through sensory stimuli. They describe the positive, mood-boosting stimulus being a result of encountering bakery, flowers, fruit, and vegetables, which is the reason why these departments are usually placed at the entrance.

One intentional layout decision made in grocery stores is to place the entry on the right side of the store (Štulec et al., 2016, p. 142). They state this is because most consumers

habitually move clockwise, and they are being lured through the entire store with this design choice. Items dominant on most consumers' shopping lists are typically placed on both sides of aisles, in hopes of boosting inspection of other products, too (Heizer et al. 2024, p. 404). Štulec et al. (2016, p. 142) highlight that the main aisle running through the entire store is where the majority of products are sold, which is something that should be considered when deciding the order of departments.

3 Consumer behaviour

Roberts-Lombard and Brijball Parumasur (2017, p. 2) describe consumer behaviour as an activity and its influences that take place either before, simultaneously with, or after the purchase is made. They note that this is just one approach, and many other definitions can be found. Bamossy et al. (2014, p. 6) also refer to consumer behaviour as a continuous process, rather than just a moment of payment. They highlight that even though exchange, which in their example is related to monetary aspects, is still an important part of the process, the focus should be on the entire consumption process. Bamossy et al. describe consumer behaviour as a three-step process, in which the steps are the identification of a need or a want, making a purchase, and finally the disposal of the bought product.

In addition to the definitions presented above, Roberts-Lombard and Brijball Parumasur (2017, p. 2) state that consumer behaviour also covers all the emotional, mental, and behavioural responses that are included in the three-step process. By understanding consumer behaviour, for example, consumers' needs and wants, and not so obvious, underlying demands, organizations can acquire a competitive advantage (Roberts-Lombard & Brijball Parumasur, 2017, p. 7). They also highlight that businesses are becoming aware of the importance of understanding consumer behaviour, as it has such a crucial role in determining the company's success.

3.1 Behavioural economics

Mallard (2017, p. 7) describes behavioural economics as a field of study concentrating on the overlap of economics and psychology, which relies on an empiricist approach, instead of the rationalist assumption that thinks decision-making is thoroughly logical. He states that the main objective is to observe how humans behave in everyday life, intending to reveal universal behaviour patterns and situational influences that could

explain and predict behaviour. Mallard adds that the goal is to be able to observe behaviour without dependence on untested assumptions or their level of logicality.

According to Szmigin and Piacentini (2015, p. 41), the traditional point of view presented by economists is that consumers behave rationally, as they establish their consumption decisions based on logical facts, such as price and quality. They observe that the trend has been that behavioural economists recognize human behaviour as being more complex regarding how costs and benefits of the choices made are evaluated. Bamossy et al. (2014, p. 346) explain this as being a hybrid perspective, in which consumer decisions are not consistently based on logical components, such as previously mentioned price and quality, but are affected by emotions and environment-driven cues that guide consumers' behaviour.

Szmigin and Piacentini (2015, p. 41) state that in behavioural economics, thinking can be divided into two modes. They further describe these as the automatic mode and the reflective mode. In the automatic mode, the consumer operates habitually, without intentionally being in control of their behaviour. Szmigin and Piacentini demonstrate this with an example: a consumer picks a chocolate bar at the grocery store checkout without thinking much about it, even though they might be willing to lose weight. The reflective mode Szmigin and Piacentini describe as a state of mind, in which attention is paid to one's mental activity, resulting in concentration and considered choices. They further explain this with an example, in which a consumer compares two different products based on their relative price per gram.

3.2 Consumers' in-store behaviour

Cakici and Tekeli (2022, p. 58) state that several theoretical models aim to explain from various perspectives how and why consumers behave the way they do. They describe the most widely used theoretical framework in consumer behaviour as the stimulus-organism-response (SOR) model, developed by Mehrabian and Russell in 1974. Cakici

and Tekeli state that based on the model, an environmental stimulus influences consumers' internal evaluation, leading to a behavioural response. Variables, such as information, atmosphere, and accessibility, affect consumers' emotions, interpretations, perceptions, and attitudes, which will eventually result in either purchase intention or actual purchasing behaviour.

According to Larsen et al. (2017, p. 342), consumers' in-store behaviour includes everything a consumer does in-store. Basic behaviours observed in-store include walking behaviour, choice behaviour, socializing behaviour, assistance-related behaviour, and other potential forms of behaviour (Larsen et al., 2017, p. 349). They describe the basic behaviours as follows: walking behaviour includes, for example, navigating the store, walking speed, shopping paths, and facing a display. Choice behaviour is about touching, browsing, and buying, whereas socializing behaviour includes speaking with other customers or store personnel, or talking with someone on the phone. Assistance-related behaviours include the use of a shopping list, choosing carrying equipment, and consulting store personnel. Lastly, other behaviours occurring in-store can be collecting empty bottles, placing and arranging products in the carrying equipment, and parking a shopping cart or a basket.

Sorensen et al. (2017, p. 182) state that consumers' in-store behaviour can be examined based on various aspects, such as the length of the shopping trip, the size of the shopping basket, and the store area covered during the visit. They explain that these aspects influence one another, as the number of products needed can determine how much of the store area the consumer covers, which in turn can affect the time spent in-store. It is also highlighted that one's personal features have an impact on the behaviour, and variation between individuals occurs.

3.3 Decision-making

Roberts-Lombard and Brijball Parumasur (2017, pp. 244-245) state that consumers' decision-making is a cognitive process, consisting of mental activities that examine the actions consumers take to resolve the tension generated by a need. They further describe the decision-making process as being similar to problem-solving, as it consists of psychological and physical activities varying from problem recognition to post-buying behaviour. Bamossy et al. (2014, p. 332) support this by stating that when a consumer makes a purchase, it is a response to a problem. Szmigin and Piacentini (2015, p. 80) divide decision-making into two categories: high-involvement decision-making and low-involvement decision-making. They state that the main difference between the two categories is that in high-involvement decision-making, an evaluation criterion regarding the choices is applied. In contrast, low-involvement decision-making is habitual by its nature.

The decision-making process can be divided into five steps: problem recognition, information searching and processing, alternatives evaluation, buying decision, and post-buying evaluation (Roberts-Lombard and Brijball Parumasur, 2017, pp. 246-256). Firstly, the consumer becomes aware of a problem that needs to be solved to achieve an ideal state. Secondly, the consumer starts to gather and process information on the problem identified in the first step. Roberts-Lombard and Brijball Parumasur describe this as an interactive learning process, in which the consumer compares, for example, different brands, prices, and stores to evaluate the alternative solutions. Thirdly, the consumer evaluates the alternative solutions by listing the advantages and disadvantages for each option. Fourthly, as a rational outcome of the evaluation process, the consumer makes the buying decision by selecting the best option based on the previously set evaluation criteria. Lastly, in the post-buying evaluation, the consumer goes through psychological processes varying from satisfaction to dissatisfaction and neutral assessment to a conflict, depending on whether the consumer is satisfied with the purchase or not.

3.4 Impulse buying and unplanned purchases

Bamossy et al. (2014, p. 87) describe impulse buying as a situation in which the consumer faces an irresistible need to buy something, and they are unable to resist the desire for the product. They state that well-known impulse-buying items are candies and chewing gum. Verplanken and Herabadi (2001, p. S71) argue that impulse buying is a relatively loosely defined concept, and can describe a wide range of events, even though it is mainly associated with unplanned purchases accompanied by strong emotions.

Verplanken and Herabadi (2001, p. S72) state that for impulse buying to occur, at least two core elements are required. They describe the first element as a lack of planning and consideration when buying the impulsively selected product, noting that purchases can be unplanned for multiple reasons. Verplanken and Herabadi further argue that the purchase will not qualify as an impulsively made purchase if it does not involve the second element, emotional response. They state that emotional responses can happen before, at the same time, or after the unplanned purchase, and the typical emotions related to impulse buying are pleasure and excitement. Verplanken and Herabadi note that one's personal features also affect the tendency to make impulse purchases, and various briefly existing motives, such as the will to comfort oneself, stimulate impulse buying.

According to Cil (2012, p. 8614), unplanned purchases made in-store are a result of in-store stimuli. Cil states that in-store stimuli are mostly a result of product assortment and layout of the store. This will be further discussed in Chapter 4.

4 Store performance, consumer loyalty, and revenue

Cil (2012, p. 8612) states that the layout of a store is an essential component in its success, as the decisions made in the design phase can either support or undermine sales and the store's profitability. He continues by stating that the more well-presented products consumers are exposed to, the more they tend to buy. Heizer et al. (2024, p. 403) support the view presented by Cil, as they describe the foundation of retail layouts being the idea that sales and profitability are directly impacted by consumer exposure to products.

4.1 Store performance

According to Hwangbo et al. (2017), a store layout intended to optimize consumers' shopping experience can increase in-store traffic, average transaction value, and profitability. Babaee et al. (2022, p. 5566) describe the store space planning consisting of two levels: macro-level and micro-level. They state that the macro-level is more strategic, as it establishes the aisle or shelf-space given to each product category, and takes the exchange between categories into account. They highlight that, at the macro-level, consumers' shopping paths are considered. Micro-level they describe being operational, as it focuses on assigning shelf-space to products from the same product category based on their demand.

Hirpara and Parikh (2021, p. 13) state that when following their pre-planned shopping lists, consumers' shopping paths through a store are directly impacted by the layout. They continue by mentioning strategic department positioning, a key method for guiding consumer flow through departments and aisles to increase product visibility. Increased product visibility often results in more purchases, generating additional revenue for the store. Štulec et al. (2016, p. 142) present an example of the strategic positioning by stating that products with quick turnover, consumed in everyday lives, are often located at the back of the store. This way, consumers have to walk through the entire store,

which exposes them to a greater variety of products and increases spending. Heizer et al. (2024, p. 404) emphasize the use of end-of-aisle and checkout placements for high-margin products, as these locations have high exposure rates.

Mfundi Ndengane et al. (2021, p. 29) agree that the physical design of a store has an impact on consumer behaviour, as consumers tend to develop a behaviour impacting impression of the store based on its physical structure. According to Mantratzis et al. (2023), stores' perceived value increases for consumers when it creates positive emotions. They highlight that layout and design elements are crucial for consumers when choosing where to shop. Alawadhi and Yoon (2016, p. 29) state that crowding is an important aspect that determines how consumers experience the grocery store. They note that if the layout of the store is poorly designed, it will have negative impacts on consumer behaviour. The impacts they describe are avoidance caused by crowding, which leads to less money and time spent in-store, avoidance of unplanned purchases, and, in extreme cases, exiting the store without making any purchases. Behera and Mishra (2017) support the previous by stating that the flow of the store layout guides how, and for how long, consumers shop, and the longer the consumer stays in the store, the greater the likelihood of increased spending.

4.2 Store loyalty

According to Bamossy et al. (2014, p. 75), store-loyal consumers are highly valuable for retailers, as the economic environment can be unpredictable, and consumers nowadays have plenty of choices regarding where to shop, including online stores. They note that consumers are not as store loyal as they used to be. Mfundi Ndengane et al. (2021, p. 29) highlight that a store design that enables an enjoyable in-store experience will improve consumer loyalty and therefore increase sales volume.

Roberts-Lombard and Brijball Parumasur (2017, pp. 332-333) point out that in the ideal situation, retailers would want consumers to patronize their stores. They state that when

consumers' expectations align with the feelings that stores' characteristics evoke, store loyalty builds up. Store loyalty is influenced by both functional and psychological factors, such as product range, layout, and store atmosphere. When consumers' expectations are persistently met, consumers are encouraged to patronize a specific store. On the contrary, unmet expectations push consumers towards competitive stores.

Francioni et al. (2018, pp. 333-334) state that at the store level, behavioural store loyalty can be determined with varying measures, such as repetition of purchases, frequency of visits, and how much consumers spend in the store. They further explain that store satisfaction is one of the most determining factors contributing to store loyalty.

4.3 Revenue generation through impulsive purchases

According to Underhill (2000, p. 101), 60-70 % of purchases made in grocery stores are unplanned, which makes them high-rate impulse buying places. As previously noted by Babaee et al. (2022, pp. 5566-5567), on the micro-level, store space planning focuses on assigning shelf-space based on the demand of products from the same category. They further explain that when a product category is placed near a frequently purchased one, or on the consumer's shopping path towards the high-demand products, its visibility increases, raising the chance of impulsive buying. Cil (2012, p. 8614) supports this by stating that in-store stimuli, such as product placement and the layout, have a strong influence on consumers' purchasing behaviour, and therefore increase the possibility of impulse buying. Sorensen et al. (2017, p. 183) note that to be influenced by in-store stimuli, consumers need to cover enough store space, which can be facilitated with the layout design. Bamossy et al. (2014, p. 87) support this by stating that many grocery stores are, for example, widening their aisles to encourage consumers to browse the store.

According to Verplanken and Herabadi (2001, p. S72), there are multiple variables triggering impulse buying in the store environment, but one to consider is how products

are displayed. They state that the triggers can be elevated with, for example, pretty colors and pleasant music, and with these emotionally saturated cues, can the attention of consumers be drawn and purchasing motives be evoked, which makes this an important aspect in the results that in-store browsing produces.

5 Discussion and conclusions

This study aimed to examine layout planning, the layout planning techniques used in grocery stores, the theoretical foundations of consumer behavior, and how the layout design choices can influence consumer behaviour and therefore optimize grocery stores' business outcomes. This study was conducted as a literature review, based on research published in the 21st century.

5.1 Findings

The research questions to which this study sought answers were as follows:

1. What are the commonly made layout type decisions in grocery stores?
2. How is consumer behaviour defined?
3. How do the overall layout decisions affect consumer behaviour?
4. How do changes in consumer behavior, influenced by store layout, impact business performance?

To answer the first question — what the commonly made layout decisions in grocery stores are — the literature review shows that there are three common types of grocery store layouts: a grid layout, a freeform layout, and a racetrack layout (Levy and Weitz, 2001, as cited in Vrechopolus et al., 2004). Out of these three layout types presented, the grid layout emerged as the most widely utilized option in the grocery sector. As Vrechopolus et al. (2004) stated, the grid layout emphasized flexibility and quickness in the identification process of products, which is advantageous for consumers as they tend to visit grocery stores with a pre-planned shopping list. The other two layout approaches also had advantages: According to Cil (2012, p. 8613), the freeform layout encourages consumers to spend more time in-store, as its structure makes browsing the store easy. The racetrack layout encourages consumers to visit as many store areas as possible,

which was highlighted as a positive feature (Vrechopolus et al., 2004). Cil (2012, p. 8613) added a fourth layout type to the list, which was a circulation spine layout. Barghash et al. (2017, p. 216) highlighted that this layout type supports consumers' in-store movement. Ozgormus and Smith (2020) highlighted an important point, that the greatest benefit of grocery store layout is achieved when different types of layouts are combined, most commonly being a mixture of a grid and racetrack layouts.

To address the second research question — how is consumer behaviour defined — the foundation of consumer behaviour can be found to be established in behavioural economics, as Mallard (2017, p. 7) described the main objective of the field of study being observing humans behaviour in everyday life, with the intention to reveal universal behaviour patterns and situational influences that could explain and predict behaviour. All the reviewed literature contained the same key elements for the definition of consumer behaviour: it was defined as a three-step, continuous process taking place before, simultaneously with, or after a purchase is made (Bamossy et al., 2017, p. 6; Roberts-Lombard & Brijball Parumasur, 2017, p. 2). It was also essential regarding the topic of the study to define the in-store behaviour of consumers, which was described in the literature as follows: consumers' in-store behaviour includes everything a consumer does in-store, it can be examined based on various factors, such as the store area covered during the visit, and is influenced by stimuli of the store environment (Cakici and Tekeli, 2022, p. 58; Larsen et al., 2017, pp. 342-349; Sorensen et al., 2017, p. 182).

For the third research question — how do the overall layout decisions affect consumer behaviour — the reviewed literature presented various answers, all supporting the statement that layouts are designed with consumers' in-store behaviour in mind. Consumers' shopping paths are directly impacted by the layout, which is an opportune moment to increase product visibility and therefore consumer spending (Hirpara & Parikh, 2021, p. 13; Mfundi Ndengane et al., 2021, p. 29). In-store stimuli are the main element influencing consumers' behaviour, and to be exposed to stimuli, enough store

space needs to be covered during grocery shopping. Store layouts are designed to guide consumers along certain shopping paths, which encourages them to visit multiple store departments, and therefore exposes them to stimuli. An example of the exposure is placing regularly bought products in the back of the store, so that consumers will have to walk through the entire store (Cil, 2012, p. 8614; Vrechopolus et al., 2004; Štulec et al., 2016, p. 142; Sorensen et al., 2017, p. 183). The influence of impulse buying behaviour was emphasized in much of the reviewed literature, and it appears to be one of the primary mechanisms through which store layout is used to affect consumer behaviour and, consequently, store performance (Babaee et al., 2022, pp. 5566-5567; Barghash et al., 2017, p. 215; Cil, 2012, p. 8614; Underhill, 2000, p. 101).

To address the fourth and final research question —how do changes in consumer behavior, influenced by store layout, impact business performance —it is essential to recognize that the relationships between these factors are highly complementary. While the third research question examined how layout decisions affect consumer interaction with the store, the focus now shifts to how those behavioural patterns translate into business results. Changes in consumer behaviour, such as time spent in-store, tendency to make impulsive purchases, and the overall shopping experience, all directly impact the stores' business performance (Barghash et al., 2017; Cil, 2012; Mantratzis et al., 2023; Sorensen et al., 2017). When consumers experience the store in a positive manner, sales tend to increase. In contrast, if the store environment causes discomfort, for example, as a response to crowding, customers start to avoid the store, leading to less time spent in-store and less money spent, which directly harms the business (Alawadhi & Yoon, 2016; Hwangbo et al., 2017). From a business perspective, the above-mentioned behavioural consequences influence performance metrics, such as sales, transaction values, and consumer loyalty. These factors result in either short-term, such as increased sales, or long-term, like store loyalty, changes, which is why it is important to understand the strategic importance of a store layout.

To summarize the findings from the reviewed literature, with the right layout combination and strategic planning, it is possible to influence consumer behaviour in such a way that the store's performance improves.

5.2 Evaluation of source reliability

In this literature review, the publications used as sources were evaluated in terms of their reliability and scientific quality. Most of the articles used in this study were retrieved from databases ScienceDirect (Elsevier), Emerald Journals, Taylor & Francis online, and ABI Inform Complete (ProQuest). To ensure scientific quality, the journals in which the reviewed articles were published were occasionally verified via JUFO-portal, which is a Finnish rating and classification system for scientific publication channels.

One key challenge for this literature review in terms of scientific quality was the difficulty of finding research published after 2020. Much of the recent research was either about online grocery stores, written from a dietary perspective, or Covid-19 related, which cannot give a comprehensive picture of everyday grocery stores and typical consumer behaviour.

5.3 Limitations and suggestions for future research

This thesis has several limitations that should be acknowledged. As this thesis is conducted as a literature review, it completely relies on secondary references, which limits the possibility of engaging in a deeper analysis. The scope of this thesis also causes limitations, as marketing aspects were not included, even though they have a significant impact on the store’s overall appearance and, therefore, consumer behaviour. Including marketing perspectives could provide a more comprehensive understanding of how grocery store layouts work. Another limitation concerns consumers, as they were treated

as a single group, without considering differences between consumer groups and their individual characteristics.

This thesis examines the impact of layout decisions made in grocery stores on consumer behavior and thus on store performance. Future research on brick-and-mortar grocery stores is important, as the online grocery sector is the fastest-growing segment in the grocery retail sector, and improvements on traditional grocery stores will be needed in order for them to stay relevant.

As it was found, consumers can behave habitually, without intentionally being in control of their behavior. An interesting opportunity for future research regarding the topic of this study could be an exploration of how changes in the physical grocery store environment, such as the reorganization of departments, affect consumers' in-store behaviour. It would be essential to observe how consumers behave and buy before and after the changes, and if the changes in behaviour are transitory or permanent.

Another interesting future research possibility is related to different consumer groups and how they experience a grocery store layout. In this study, consumers were covered in general, but as they are not a homogeneous group, future research could divide consumers into groups based on their personal circumstances. Possible groups could be defined based on family (e.g. singles, families with children), age (e.g. teenagers, elderly people), work situation (e.g. students, unemployed), et cetera. The different groups all vary in their behaviors and in what expectations they have for the grocery store, and examining the differences among groups could provide valuable information on how the store is seen by different groups.

References

Alawadhi, A., & Yoon, S. (2016). Shopping Behavioral Intentions Contributed by Store Layout and Perceived Crowding: An Exploratory Study Using Computer Walk–Through Simulation. *Journal of Interior Design*, *41*(4), 29–46. DOI https://doi.org/10.1111/joid.12077

Babaee, S., Araghi, M., Castillo, I., & Rostami, B. (2022). Attractiveness factors in retail category space location-allocation problem. *International Journal of Production Research*, *61*(16), 5566–5584. DOI https://doi.org/10.1080/00207543.2022.2104179

Bamossy, G. J., Hogg, M. K., Solomon, M. R., & Askegaard, S. T. (2014). *Consumer behaviour: A European perspective* (5th edition.). Pearson Education

Barghash, M., Al-Qatawneh, L., Ramadan, S., & Dababneh, A. (2017). Analytical hierarchy process applied to supermarket layout selection. *Journal of applied research on industrial engineering*, *4*(4), 215-226. DOI https://doi.org/10.22105/jarie.2017.54706

Behera, M. P., & Mishra, V. (2017). Impact of Store Location and Layout on Consumer Purchase Behavior in Organized Retail. *Anvesha, 10*(1), 10-21. Retrieved 2025-10-15 from https://www.proquest.com/scholarly-journals/impact-store-location-layout-on-consumer-purchase/docview/2053297244/se-2

Braun, V., & Clarke, V. (2021). *Thematic Analysis*. SAGE Publications, Ltd. (UK). https://bookshelf.vitalsource.com/books/9781526417299

Cakici, A. C., & Tekeli, S. (2022). The mediating effect of consumers' price level perception and emotions towards supermarkets. *European journal of management and business economics, 31*(1), 57-76. DOI https://doi.org/10.1108/EJMBE-12-2020-0344

Chen, W., Liu, C., Huang, X., Lai, H., & Li, B. (2016). SLP approach based facility layout optimization: An empirical study. *Science Journal of Business and Management, 4*(5), 172–181. DOI 10.11648/j.sjbm.20160405.15

Cil, I. (2012). Consumption universes based supermarket layout through association rule mining and multidimensional scaling. *Expert Systems with Applications*, *39*(10), 8611-8625. DOI https://doi.org/10.1016/j.eswa.2012.01.192

Francioni, B., Savelli, E., & Cioppi, M. (2018). Store satisfaction and store loyalty: The moderating role of store atmosphere. *Journal of retailing and consumer services, 43*, 333-341. DOI https://doi.org/10.1016/j.jretconser.2018.05.005

Heizer, J., Render, B., & Munson, C. (2024). *Operations management: Sustainability and supply chain management* (Fourteenth edition. Global edition.). Pearson.

Hirpara, S., & Parikh, P. J. (2021). Retail facility layout considering shopper path. *Computers & industrial engineering, 154*, 106919. DOI https://doi.org/10.1016/j.cie.2020.106919

Hwangbo, H., Kim, J., Lee, Z., & Kim, S. (2017). Store layout optimization using indoor positioning system. *International journal of distributed sensor networks, 13*(2), 155014771769258. DOI https://doi.org/10.1177/1550147717692585

Larsen, N. M., Sigurdsson, V., & Breivik, J. (2017). The Use of Observational Technology to Study In-Store Behavior: Consumer Choice, Video Surveillance, and Retail Analytics. *Perspectives on behavior science, 40*(2), 343-371. DOI https://doi.org/10.1007/s40614-017-0121-x

Mallard, G. (2017). *Behavioural Economics*. Agenda Publishing.

Mantratzis, P., Tsiotras, G., Tsironis, L. K., & Gotzamani, K. (2023). Exploring the Impact of Supermarket Store Layout and Atmospheric Elements on Consumer Behavior: A Field Research Study in Greece. *Journal of Operations and Strategic Planning*, *6*(2), 131-151. DOI https://doi.org/10.1177/2516600X23120349

McKinsey & Company. (2025, April 8). *The state of grocery retail Europe 2025*. Retrieved 2025-10-20 from https://www.mckinsey.com/industries/retail/our-insights/state-of-grocery-europe-report

Mfundi Ndengane, R., B. Mason, R., & Mutize, M. (2021). The influence of store atmospherics on customers' satisfaction at selected South African retail outlets. *Innovative marketing, 17*(1), 26–39. DOI https://doi.org/10.21511/im.17(1).2021.03

Ozgormus, E., & Smith, A. E. (2020). A data-driven approach to grocery store block layout. *Computers & industrial engineering, 139*, 105562. DOI https://doi.org/10.1016/j.cie.2018.12.009

Roberts-Lombard, M., & Brijball Parumasur, S. (2017). *Consumer behaviour* (Fourth edition.). Juta.

Salminen, A. (2023). *Mikä kirjallisuuskatsaus? Johdatus kirjallisuuskatsauksen tyyppeihin ja joihinkin hallintotieteellisiin sovelluksiin*. Vaasan yliopisto. https://urn.fi/URN:ISBN:978-952-395-081-8

Sorensen, H., Bogomolova, S., Anderson, K., Trinh, G., Sharp, A., Kennedy, R., . . . Wright, M. (2017). Fundamental patterns of in-store shopper behavior. *Journal of retailing and consumer services, 37*, 182-194. DOI https://doi.org/10.1016/j.jretconser.2017.02.003

Štulec, I., Petljak, K., & Kukor, A. (2016). The role of store layout and visual merchandising in food retailing. *European journal of economics and business studies*, *2*(1), 138-151. DOI https://doi.org/10.26417/ejes.v4i1.p138-151

Szmigin, I., & Piacentini, M. (2015). *Consumer behaviour* (1st edition.). Oxford University Press.

Tompkins, J. A., Bozer, Y. A., Tanchoco, J. M. A., & White, J. A. (2010). *Facilities planning* (4th ed.). Wiley.

Underhill, P. (2000). *Why we buy: The science of shopping*. Simon & Schuster.

Verplanken, B., & Herabadi, A. (2001). Individual differences in impulse buying tendency: Feeling and no thinking. *European journal of personality, 15*(S1), S71-S83. DOI https://doi.org/10.1002/per.423

Vrechopoulos, A. P., O'Keefe, R. M., Doukidis, G. I., & Siomkos, G. J. (2004). Virtual store layout: An experimental comparison in the context of grocery retail. *Journal of retailing, 80*(1), 13–22. DOI https://doi.org/10.1016/j.jretai.2004.01.006

Appendices

Appendix 1. Statement on the use of artificial intelligence

In this study, a free version of the AI-based application Grammarly Desktop has been used for language maintenance. The application provides correction proposals for the wrong prepositions and guides on commas. Artificial intelligence has not been used to produce text.

Appendix 2. List of the reviewed articles according to the theme

Author(s)	Year	Title of the article	Related theme(s)
Alawadhi, A., & Yoon, S.	2016	Shopping Behavioral Intentions Contributed by Store Layout and Perceived Crowding: An Exploratory Study Using Computer Walk–Through Simulation	Consumer behaviour, crowding, in-store experience
Babaee, S., Araghi, M., Castillo, I., & Rostami, B.	2022	Attractiveness factors in retail category space location-allocation problem	Store design, space planning
Barghash, M., Al-Qatawneh, L., Ramadan, S., & Dababneh, A.	2017	Analytical hierarchy process applied to supermarket layout selection	Store layout planning
Behera, M. P., & Mishra, V.	2017	Impact of Store Location and Layout on Consumer Purchase Behavior in Organized Retail	Consumer behaviour
Cakici, A. C., & Tekeli, S. (2022)	2022	The mediating effect of consumers' price level perception and emotions towards supermarkets	Consumer behaviour, stimulus
Chen, W., Liu, C., Huang, X., Lai, H., & Li, B.	2016	SLP approach based facility layout optimization: An empirical study	Systematic layout planning, layout planning
Cil, I.	2012	Consumption universes based supermarket layout through association rule mining and multidimensional scaling	Store layout, store layout planning

Francioni, B., Savelli, E., & Cioppi, M.	2018	Store satisfaction and store loyalty: The moderating role of store atmosphere	Store loyalty, store atmosphere
Hirpara, S., & Parikh, P. J.	2021	Retail facility layout considering shopper path	Layout, shopping paths, visibility
Hwangbo, H., Kim, J., Lee, Z., & Kim, S.	2017	Store layout optimization using indoor positioning system.	Store layout optimization
Larsen, N. M., Sigurdsson, V., & Breivik, J.	2017	The Use of Observational Technology to Study In-Store Behavior: Consumer Choice, Video Surveillance, and Retail Analytics	Consumer behaviour, in-store behaviour
Mantratzis, P., Tsiotras, G., Tsironis, L. K., & Gotzamani, K.	2023	Exploring the Impact of Supermarket Store Layout and Atmospheric Elements on Consumer Behavior: A Field Research Study in Greece	Store layout, consumer behaviour
Mfundi Ndengane, R., B. Mason, R., & Mutize, M.	2021	The influence of store atmospherics on customers' satisfaction at selected South African retail outlets	Consumer satisfaction, store atmosphere
Ozgormus, E., & Smith, A. E.	2020	A data-driven approach to grocery store block layout	Layout, grocery store design
Sorensen, H., Bogomolova, S., Anderson, K., Trinh, G., Sharp, A., Kennedy, R., . . . Wright, M.	2017	Fundamental patterns of in-store shopper behavior	In-store behaviour, consumer behaviour

Štulec, I., Petljak, K., & Kukor, A.	2016	The role of store layout and visual merchandising in food retailing	Store layout, retail space management
Verplanken, B., & Herabadi, A.	2001	Individual differences in impulse buying tendency: Feeling and no thinking	Impulse buying behaviour
Vrechopoulos, A. P., O'Keefe, R. M., Doukidis, G. I., & Siomkos, G. J.	2004	Virtual store layout: An experimental comparison in the context of grocery retail	Grocery store layouts, consumer behaviour