

Innovative concepts for designing commercial spaces: functionality, adaptability and aesthetics

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ABSTRACT

The importance of adopting new design and architectural solutions represents a critical aspect of contemporary business. This article aims to analyze innovative approaches to commercial space design, considering modern requirements for functionality, adaptability, and aesthetics. To achieve this objective, scientific methods were examined, including the PRISMA framework for literature collection, and a survey was conducted among users and professionals. In total, 41 relevant sources published between 2019 and 2025 were analyzed. The survey included 119 participants: 42 professionals, 39 business owners, and 38 visitors. The methodology employed in this study involved certain limitations that may affect the interpretation of the findings. The sample size was relatively small, and the respondents were geographically limited, which restricted the ability to consider cultural and regional influences on design perception. The results indicated that functionality and aesthetic appeal were the most highly valued aspects of design. Business owners generally expressed satisfaction with both the functional and visual elements of their commercial spaces. Visitors preferred environments that combined modern style, comfort, and intuitive navigation. The study further highlights the growing relevance of flexible spatial solutions that can be easily adapted to evolving functional needs or changing target audiences. The conclusions emphasize the significance of modern style, comfort, intuitive navigation, and the biophilic approach as key elements of innovative commercial landscape design. Future research should investigate the role of digitalization in the development of commercial spaces, given the increasing usefulness of digital tools in optimizing time and space.

Keywords: Architecture, Design, Commercial premises, Aesthetic ideas

1. Introduction

In the modern world, the design of commercial spaces has acquired new qualities, transformed from local utilitarian tasks into independent ones and rather a complex interdisciplinary process that combines architecture, consumer choice, design, branding, and the use of digitalization. Commercial spaces in today's business environment do not act solely as physical environments where consumers exchange goods and services. Often, these projects also turn into an arena to communicate with customers, to form the necessary emotional connections, and unique experiences of individual communication, and to become an extremely relevant tool for increasing the competitiveness of doing business. Thus, the modern design of commercial spaces has undergone significant changes. While earlier the focus was on emotionally rich environments, with the development of digital technologies and transformations in consumer behavior, the emphasis had shifted to the creation of aesthetically pleasing, interactive environments. Modern trends in interior design include the use of digital solutions, the concept of sustainable design (environmental friendliness of materials), and flexibility in space organization.

Scientists are increasingly implementing innovations in architecture, design, and eco-design into the practice of designing commercial premises. They also use current technologies for this purpose, including virtual and augmented reality, intelligent systems for space management, the use of environmentally friendly materials, interactive surfaces, specialized developments in modeling, and computer programs. This opens new opportunities for the arrangement of business spaces that can quickly consider changes in consumer behavior, the emergence or extinction of social trends, and the occurrence of unforeseen circumstances, including

emergencies like the effects of pandemics and economic crises) [1]. As a result, the adaptability of commercial space has become one of the key aspects for effective design solutions. According to market reports, the global retail fit-out industry reached a valuation exceeding \$145 billion USD in 2024, with annual growth rates projected to continue at over 6.5% over the next five years. These impressive figures highlight the increasing demand for adaptable and aesthetically optimized commercial spaces capable of meeting evolving consumer expectations and business needs.

Modern projects of working with interior design place special emphasis on the functionality of commercial premises, which is the ability of the space to provide optimal opportunities for interaction with staff, meet the logical movement of customers, provide comfort and easy navigation in the halls [2], [3]. The effectiveness of functional design can significantly improve user experience and increase the time customers spend in commercial space, which will also contribute to the growth of sales, transactions, etc. They also note the importance of the aesthetics of commercial spaces, which today is not only a part of the visual design, but also a tool for influencing customers' emotions that creates a brand identity and emphasizes differences from competitors [2]. We also analyzed the aesthetic component of projects as a part of organic combination of functionality and adaptability, which creates a holistic picture of the needs of modern consumers.

In modern literature researchers usually define the commercial environment as a complex creative process that combines aesthetic, functional and technological elements [4], [5]. An important feature of the modern development of the design sphere is the biophilic style, which involves the inclusion of natural elements in the interior space to significantly improve the well-being and psychological comfort of employees and customers. Researchers have also identified modularity as an important modern concept that makes it easy to change the functional purpose of space [6]. Smart interiors, which effectively combine digital technologies, intelligent control systems, sensory systems, etc. with user interaction, have an important impact on defining new design paradigms. Therefore, researchers note the importance of combining existing digital environments for the development of commercial design [7] (see Table 1).

Table 1. The analysis of the concepts of commercial spaces' design

Scientists	Concept	Functionality	Adaptability	Aesthetics	Gaps
[8], [9]	The commercial environment as a complex creative process	Optimization of interaction with employees and customers	Modularity and biophilic design	Integration of natural elements for psychological comfort	Fragmentation of research into separate aspects
[10]	Smart interiors	Digital technologies and interactive systems	Integration of digital and physical environments	Ensuring a harmonious balance of style and technology	Lack of interdisciplinary research
[11], [12]	Economic effect through proper space organization	Organization of customer flows, service areas	Long-term sustainability	Emotional impact on customers	Insufficient empirical research
[13], [14]	Psychophysiological analysis of design	Impact on behavioral patterns	Inclusivity and accessibility	Forming emotional attachment to the brand	Local characteristics of perception not taken into account
[15]	Economic effect	Digital technologies and interactive systems	Inclusivity	Harmonious balance	Lack of empirical evidence

Source: Author's development

Despite the considerable interest in this issue, there is a certain fragmentation in research, which usually focuses on a particular aspect of the design of business premises. In addition, the presented modern research does not pay much attention to the innovative aspects of the design of commercial spaces. Local peculiarities of perception of innovative solutions in design are not considered, and there is no interdisciplinary research on the analysis of commercial spaces that combine urbanism, psychology, and digital technologies. There is also a lack of empirical research in this area that would combine both qualitative and quantitative data analysis. Further development of this issue will allow deepen the scientific understanding of the impact of space on user experience, to formulate some practical recommendations for architects, designers, representatives of the business environment.

The purpose of this review is to critically analyze innovative concepts in the design of commercial spaces with an emphasis on three interrelated dimensions: functionality, adaptability and aesthetics. The task is to determine how modern design approaches take these aspects into account and to what extent they meet the needs and expectations of users. To achieve this goal, the following research questions are addressed:

1. What are the guiding principles and emerging trends in modern commercial space design?
2. How do users perceive and prioritize functionality, adaptability, and aesthetics?
3. What are the discrepancies between theoretical design concepts and actual user expectations?

2. Research method

2.1 Study design

The study of the features of using innovative concepts for designing commercial spaces covers three main aspects: functionality, adaptability and aesthetics. Accordingly, these concepts are multifaceted and interconnected, and to fully study their impact on the design of commercial spaces, it is necessary to apply a mixed approach. This influenced the obtaining of both theoretical and practical information for analysis. The mixed approach in the study consists of a combination of literature analysis and a survey among participants in commercial design, in particular architects, business owners and visitors to commercial spaces. This approach made it possible to evaluate not only scientific literature, but also to obtain practical data through direct surveying. This allowed for a comparison of theoretical concepts and real needs and requirements described by the participants of the experiment.

To fully answer the research questions (RQ1–RQ3), we used a mixed-methods strategy comprising a structured survey and a systematic literature review. RQ1 (What are the current trends and advances in commercial space design?) was directly driven by the literature review and conducted by means of the PRISMA framework to identify theoretical models, trends, and gaps in the field. This gave the study a strong conceptual basis and guaranteed that it was based on current academic discussions. To answer RQ2 (How do business owners and visitors perceive the effectiveness of current design solutions?) and RQ3 (What features are considered the most important in shaping positive user experiences?), the survey component supplemented this by gathering first-hand perceptions and experiences from practitioners and end-users. Combining these two methods enhances the validity of the findings through triangulation: the literature offers depth and theoretical rigor, while the survey provides empirical support and contextual relevance. This integration allows for a more nuanced understanding of both established knowledge and emerging, practice-based insights.

There are certain restrictions on the study's methodology that could influence how the results are interpreted. Convenience sampling was used to create the survey sample because participants were gathered through email and social media. Despite its efficiency, selection bias could be introduced by this strategy. A variety of participants from various industries and vocations (professionals, entrepreneurs, and tourists) were included to reduce this bias. To promote widespread participation and lessen respondent self-selection based only on design interest, the survey design also placed a strong emphasis on neutrality and inclusion.

2.2. Sample and participants

2.2.1. Peer-reviewed literature

To retrieve modern peer-reviewed literature, the PRISMA methodological approach was applied, involving the processing of relevant sources published between 2019 and 2025 (search conducted on April 12, 2025). This approach was chosen because it provided a structured approach to the selection and analysis of scientific articles

and publications. In addition, this approach is also effective for a comprehensive collection of the required literature published in various scientific journals.

Data collection was carried out in accordance with the selected methodological approach (PRISMA). This made it possible to systematize the selection of scientific material in accordance with the specified criteria, disclosed below. Electronic databases, including JSTOR, Scopus, and Web of Science, were also employed to conduct the literature search. The selection of publications was based on topic relevance, peer review status, and citation frequency.

Boolean search queries (Scopus): (“commercial space” OR “retail space” OR “business interior”) AND (“design” OR “architectural solution” OR “space planning” OR “interior design”) AND (“functionality” OR “aesthetic” OR “user experience” OR “adaptability” OR “flexibility”). Boolean search queries (WoS): “commercial space” OR “retail space” OR “business interior”) AND (“design” OR “architectural solution” OR “space planning” OR “interior design”) AND (“functionality” OR “aesthetic” OR “user experience” OR “adaptability” OR “flexibility”). Boolean search queries (JSTOR): “commercial space” OR “retail space” OR “business interior”) AND (“design” OR “architectural solution” OR “interior design” OR “space planning”) AND (“user experience” OR “adaptability” OR “functionality” OR “aesthetic”). The following keywords were entered into search databases: innovations, innovative design concepts, commercial spaces, functional design, adaptability, design trends, architectural trends, and design for business environments. A total of 1,894 records were obtained. Initially, all duplicates (398) were removed, resulting in 1,496 remaining entries.

The following keywords were entered into search databases: innovations, innovative design concepts, commercial spaces, functional design, adaptability, design trends, architectural trends, and design for business environments. A total of 1,894 records were retrieved. Initially, all duplicates (398) were excluded, resulting in 1,496 remaining records.

Then, all the articles that did not correspond to the research problem and the main focus (-891) as well as other 112 papers did not relate to innovative aspects were related. After that, we checked all the sources for inclusion and exclusion criteria. The inclusion criteria were as follows:

1. Publications must relate to innovative design of commercial space and be published in the period from 2019-2025.
2. Various types of publications are eligible for inclusion: scientific articles, books, monographs, analytical reports, review papers.
3. The main focus is on research conducted in countries where there is a developed market for commercial real estate and innovative design solutions, however, in Europe, America and some Asian countries.
4. Articles describing various modern solutions in architectural and interior design, changes in operational requirements for commercial spaces and various aesthetic trends are included.
5. Scientific articles, monographs and other types of research published in professional peer-reviewed journals are eligible for inclusion.
6. Language of writing: English

At the same time, the exclusion criteria were as follows:

1. The articles with biased data as well as the articles written before 2019. (C1)
2. The materials that are not scientific, journal articles that do not undergo peer review, marketing reports without scientific justification. (C2)
3. The articles of a local nature that describe non-global projects. (C3)
4. The works that are not directly related to the research topic. (C4)
5. All scientific publications published in non-reviewed journals and those collections that do not have a peer-reviewed policy. (C5)
6. Articles written in languages other than English. (C6)

For further details, refer to Figure 1, which provides a step-by-step description of the search process, including the inclusion and exclusion of identified scientific sources.

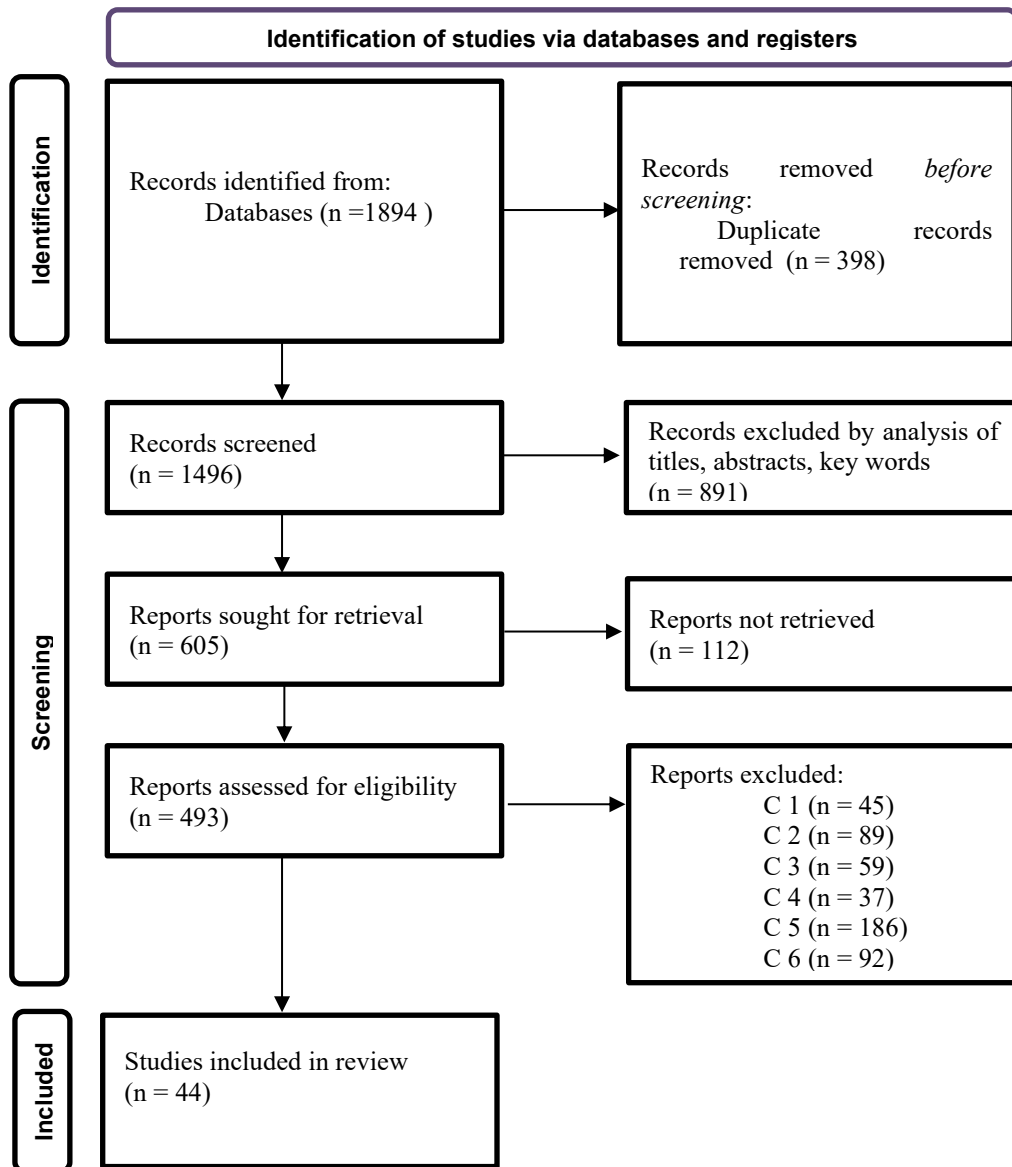


Figure 1. Step-by-step collection of scientific sources (according to PRISMA)

2.3 Survey methodology

2.3.1. Participants

The authors conducted surveys among three main groups of participants, whose opinion was important for the analysis of innovative concepts in the design of commercial spaces. The following categories were selected:

1. Architects, i.e., specialists directly involved in the design of commercial spaces.

2.3.2. Business owners

3. Visitors to commercial spaces, i.e., end users who interact with the space and evaluate it from the point of view of convenience and aesthetics.

Information about the survey was distributed using multiple methods, including social networks and email. The survey announcement was published on widely used platforms such as Facebook, LinkedIn, and Instagram. For this we applied relevant hashtags and groups specializing in architecture, design and business, created separate posts with links to the online survey, and sent invitations to participate in the survey via e-mail to professionals in the field of architecture and business. The messages stated the main purpose of the study. In this way, 119 participants were involved, who had different experiences in using modern solutions in the design of commercial spaces. There were 119 participants in all, including 38 tourists, 39 business owners, and 42 specialists. As the study relied on a non-experimental survey design without group comparisons, formal power analysis (e.g.,

G*Power, Cochran test) was not required. However, the sample size ($N = 119$) was considered sufficient for exploratory purposes, based on practical feasibility and relevance to the target population.

The authors chose the participants from among the experts in the domains of marketing and retail planning (12 respondents), architecture (12 respondents), and interior design (18 respondents). The entrepreneurs represented businesses in the following industries: retail (15 participants), hotel (12 participants), beauty and wellness (7 participants), coworking and flexible office spaces (5 participants), and hospitality (restaurants and cafés). A variety of demographics were represented in the selection of the visitors (consumers). Of the 38 guests, 20 were classified as female and 18 as male. Ten were between the ages of 18 and 25, fifteen were between the ages of 26 and 40, nine were between the ages of 41 and 55, and four were over the age of 55 (see Table 2).

Table 2. Grouping of closed-ended questions into thematic subscales and internal consistency ($\alpha \geq 0.7$)

Subscale	Target Group	Items (Question No.)	Construct	Cronbach's α
Subscale 1: Functionality and Adaptability	Specialists	Q1: Importance of functional aspect Q3: Frequency of considering adaptability Q4: Integration of modern technologies	Perception of practical and adaptive design features	0.81
Subscale 2: Aesthetics	Specialists	Q2: Importance of aesthetic aspect	Perceived importance of visual design	Not applicable
Subscale 3: Satisfaction with Design and Functionality	Business owners and visitors	Q1: Importance of modern design trends Q2: Satisfaction with functionality Q3: Aesthetic perception Q4: Importance of versatility	Evaluation of the commercial space from the user perspective	0.86

Source: Author's development

2.4 Instruments and procedure

First, the authors carried out a poll of experts, including designers and architects, then administered a Google Forms-based survey to business owners and patrons of commercial locations. Both closed-ended and open-ended questions were included in the poll. A Likert scale was the primary basis for closed questions, which allowed for the assessment of respondents' degree of agreement with certain propositions. Experts' and business owners closed-ended questions needed a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). The respondents were also able to share their thoughts and experiences thanks to open-ended questions. The primary questions from the questionnaire, which is intended especially for business owners and experts in the fields of architecture and design, are included in Appendix 1.

The survey was available in both Ukrainian and Russian languages to ensure accessibility for all the participants. First professional bilingual translators translated the original English version of the questionnaire into Ukrainian and Russian. To ensure accuracy and equivalence of meaning across languages they used a "back-translation method": Different language experts, who did not have access to the original, back-translated the Ukrainian and Russian versions into English. Then the resulting back-translations were compared with the original to identify and resolve discrepancies. In addition, three specialists in research design and survey methodology, who reviewed all language versions to confirm the conceptual and linguistic consistency of the questions conducted "expert validation". Based on their feedback, they made minor linguistic refinements before the distribution of the final survey.

2.5 Data analysis

The authors used the method of thematic analysis to analyze literary sources. It influenced the classification of the main theoretical aspects related to such principles as functionality, aesthetics, and adaptability. The following aspects are highlighted below:

1. Ease of navigation
2. Availability of places to rest or wait
3. Ergonomic planning
4. The impact of design on business efficiency
5. The ability to quickly transform the interior to meet new needs
6. Compliance with modern challenges
7. Visual appeal
8. Atmosphere of comfort
9. Convenience
10. Experience of interacting with space
11. Consumer priorities
12. Business priorities

After that, we combined the indicated aspects into broader themes:

1. Functionality of spatial arrangement
2. Adaptability to requirements and changing challenges
3. Aesthetic innovations and emotional perception
4. Expectations and priorities
5. Innovative solutions and interaction with technologies

To analyze the survey results, we used descriptive statistics (mean, median, mode, standard deviation) to identify basic trends in the data, performed the calculations using IBM SPSS Statistics (Version 27). Additionally, where appropriate, we applied non-parametric tests (e.g., Spearman's rank correlation for assessing associations). The threshold for statistical significance was set at $p < 0.05$. Microsoft Excel software was used to visualize the results. The mean value made it possible to determine the general responses of participants for a certain indicator, however, this indicator may be sensitive to extreme values. Therefore, the following were additionally calculated:

The median is the middle value in an ordered series of data. This indicator showed which value is typical in the array of responses and allows assessing the symmetry of the distribution. Its use was appropriate because some data was asymmetric and there were outliers. The mode is the most frequently repeated value in the sample. This indicator made it possible to determine which answer option was the most popular among respondents.

2.6 Ethical considerations

This study was conducted independently, without institutional affiliation or external funding. All procedures followed internationally recognized ethical standards for research involving human participants.

Before participating, all respondents received clear information about the study's goals, anonymity, and voluntary nature. Informed consent was obtained electronically. Participants could decline or withdraw at any stage without any consequences. No personally identifiable data was collected. All responses were anonymized upon submission and securely stored. The study did not involve vulnerable populations or activities requiring formal ethics committee approval under GDPR or national data protection laws. The research followed the principles of the Declaration of Helsinki (2013) and the European Code of Conduct for Research Integrity (ALLEA, 2017). All data were used solely for academic purposes, with full respect for participant privacy and autonomy.

3. Results and discussion

The study provides data that demonstrates the general perception of such key aspects as functionality, aesthetics, adaptability, and the use of modern technologies. Taking such indicators into account is an important component of understanding current design trends.(See Table 1).

The quantitative part of the study consisted of survey, which consisted of closed-ended questions with a five-point Likert scale (from 1 to 5). Tables 1–3 show the generalized statistical indicators for each group of respondents. Specialists assessed the aspects of functionality and aesthetic appeal as the most important parameters during design (4.78 out of 5 and 4.64 out of 5, respectively). At the same time, the principles of adaptability and technological feasibility played a significant role (4.31 out of 5 and 4.19 out of 5, respectively). Such trend decisions from specialists reflected the desire to create flexible and technologically equipped modern commercial spaces (See Table 3).

Table 3. Assessment of innovative characteristics of commercial space by specialists (N=42)

Indicator	Average (Mean)	Median (Md)	Mode (Mo)	Standard deviation (SD)
Importance of functional aspect	4.78	5.0	5	0.42
Importance of aesthetic aspect	4.64	5.0	5	0.48
Frequency of considering adaptability	4.31	4.0	5	0.61
Integration of modern technologies	4.19	4.0	4	0.68

Source: Author's development

At the same time, business owners highly rated both the functional and visual components of their spaces. The versatility indicator (average score 4.46 out of 5) showed a significant need to adapt to new business formats without major retrofit costs. Table 4 presents the assessment of spatial solutions by modern business owners.

Table 4. Assessment of spatial solutions by business owners (N=39)

Indicator	Average (Mean)	Median (Md)	Mode (Mo)	Standard deviation (SD)
Importance of following modern design trends	4.56	5.0	5	0.57
Satisfaction with the functionality of the space	4.12	4.0	4	0.66
Satisfaction with the aesthetics of the space	4.24	4.0	5	0.59
Versatility of space for future transformations	4.46	5.0	5	0.53

Source: Author's development

Besides, visitors to commercial spaces prefer areas that combine modern style, comfort and easy navigation. Visual appeal of space (average value 4.48 out of 5) and the importance of innovative appearance (average value 4.32 out of 5) were particularly important indicators (see Table 5).

Table 5. Visitors' benefits and expectations of commercial space (N=38)

Indicator	Average (Mean)	Median (Md)	Mode (Mo)	Standard deviation (SD)
The importance of innovative appearance	4.32	4.0	5	0.60
Meeting functional expectations	4.15	4.0	4	0.63
Visual appeal of the space	4.48	5.0	5	0.55
Flexibility and comfort in use	4.21	4.0	4	0.59

Source: Author's development

Along with the statistical data from the survey, it is crucial to pay attention to the analysis of professional scientific literature, which enables us to make several important theoretical generalizations. In the modern professional world, a commercial space has ceased to be just a place for selling goods or providing services. It has changed under the influence of technology into a multifunctional environment. At the same time, this environment communicates with the client, supports brand identity, and promotes ease of use. For this reason, innovative concepts for designing such spaces are increasingly based on functionality, adaptability, and aesthetic appeal. At the same time, technological integration is an important modern approach to the creation of high-quality commercial spaces. Modern specialists are increasingly applying special programs based on AI to take into account all aspects during planning. At the same time, specialists apply elements of augmented reality, touch surfaces, and automatic lighting and climate control systems in modern commercial spaces. It is also necessary to consider modern flexible spatial solutions that can easily adapt to changes in functional solutions or target audience. The biophilic approach is also highlighted. This involves the use of various natural materials,

textures, landscape design elements, and live plants, which affect the aesthetic appeal and practical formation of commercial space. In addition, it is noticeable that the importance of dialogue with the end user is now growing even at the design stage. At the same time, given the trends of inclusivity, which have been actively spreading recently, the design should be convenient for people with disabilities, the elderly, and parents with children. Table 4 shows the key topics, presented in accordance with the responses of architecture and design specialists (see Table 6).

Table 6. The main innovative solutions and their description

Key innovations	Explanation
Technological integration	Introduction of AI elements, augmented reality, touch surfaces, automated systems, climate control, etc.
Flexible spatial solutions	Interiors that are easily transformed to change function
Biophilic approach	Active use of natural materials, textures, landscape design elements and living plants.
Co-design with the customer	Dialogue with the end user at the design stage
Inclusivity	The design should be user-friendly for people with disabilities, the elderly, and parents with children.

Source: Author's development compiled from [4], [8], [9], [15]

Within the framework of modern commercial space design, an important trend is the integration of aesthetic, ergonomic, and brand components to create an effective consumer experience. The results of a qualitative study conducted among business owners and visitors to commercial establishments in different cities of Ukraine indicate that spatial logic and navigation play an important role. There is a connection between spatial orientation and the economic efficiency of the establishment. It has been proven that clear navigation logic minimizes stress and helps to increase the duration of customers' stay [9]. At the same time, a noticeable aspect is the aesthetics of details. Attention to small elements, particularly the smell in the room, the texture of furniture materials, the comfort of chairs, or even the design of the door handle, are the important indicators of the formation of an attractive environment.

At the same time, the surveyed clients sought to be in a space that has coziness and a level of privacy. One of the respondents (31 years old) indicated, "I want to feel like I am in a safe, private space." The younger respondents drew attention to the importance of novelty: the use of technology and new solutions is an important condition for the attractiveness of the institution for them. The respondents also indicated a positive attitude towards the space, which allows you to be there and not to buy goods or services when you don't need them. Thus, this demonstrates an important paradigm shift. Modern commercial space should perform not only the function of sales but also be an important social platform. Figure 2 presents the main visions of visitors.

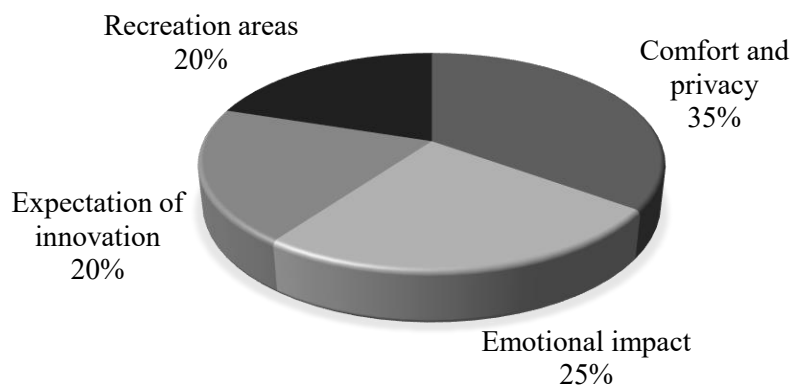


Figure 2. Main visions of visitors

Source: Author's development

Thus, there is a noticeable relationship between the architectural solutions of commercial space and the emotional and behavioral reactions of consumers. Currently, modern commercial interiors play the role not only

of a branding tool but also of an environment that should satisfy the aesthetic, emotional, and sometimes technological needs of visitors.

The proposed results noted that specialists had assessed the aspects of functionality and aesthetic appeal as the most important parameters during design. At the same time, the principles of adaptability and manufacturability played a significant role. Such trend decisions from specialists reflected the desire to create flexible and technologically equipped modern commercial spaces. The obtained results coincide the conclusions of other scientists who noted trends in changes in the design of functional [16], adaptive [17], and aesthetically attractive premises [18]. The use of modern digital solutions has significantly expanded the possibilities of design, as emphasized by researchers [19]. At the same time, it is important to consider the viewpoint of other scientists who disagree that the progress of architectural and design forms is also dependent on the development of technologies that enable the rapid design of commercial spaces and simultaneously take the specific preferences of customers into account [20]. It will take more thought to build such a vector for the advancement of design principles.

No long dashes (em dashes)! replace constructions “we” with impersonal expressions No long dashes (em dashes)! Perform scientific and literary editing of the text. The text should be clear, logically structured, and comply with the standards of scientific language in American English. The use of specialized terminology should be appropriate to the subject matter of the text. Strictly adhere to spelling rules without changing the overall length of the text. Perform literary editing with correction of grammatical, spelling, and stylistic errors: Visitors preferred spaces that combine modern style, comfort, and easy navigation. A particularly important indicator was the visual appeal of space and the importance of an innovative appearance. Other researchers also confirmed that the factors of functionality, adaptability [21], and aesthetics in commercial spaces were extremely important in the design of commercial premises, [22]. Scientists pointed out the importance of considering the type of business activity that is planned to be used in the commercial space [23]. For catering establishments, not only functionality and adaptability will be important, but also aesthetics. While for industrial premises [24], adaptability and functionality are the basis of successful design [25]. Other scientists have pointed out the importance of combining all three components under any circumstances, since in modern society not only utilitarian capabilities are important, but also psychological comfort, which is also provided by the satisfaction of aesthetic tastes [26], [27]. However, such thoughts will need to consider the consequences of the large-scale implementation of remote work, which has brought its own adjustments to the understanding of a cozy commercial environment. The proposed results also determine that under current circumstances; commercial space has ceased to be just a place for selling goods or providing services. It has changed under the influence of technology into a multifunctional environment. At the same time, this environment communicates with the client, supports brand identity, and promotes ease of use [28]. For this reason, innovative concepts for designing such spaces are increasingly based on functionality, adaptability, and aesthetic appeal. At the same time, technological integration is an important modern approach to creating high-quality commercial spaces [29]. Modern specialists increasingly use special programs based on AI to consider all aspects during planning [30], [31]. At the same time, specialists use elements of augmented reality, touch surfaces, automatic lighting systems, and climate control in modern commercial spaces [32], [33]. It is also worth paying attention to modern flexible spatial solutions that can easily adapt to changes in functional solutions or target audience [34]. The biophilic approach is also highlighted. This involves the use of various natural materials, textures [35], landscape design elements [36], and living plants that affect the aesthetic appeal and practical formation of commercial space [37], [38]. The results obtained correspond to the conclusions of other scientists who noted the existence of certain discrepancies between theoretical design concepts and real expectations of respondents [39], [40]. See also scientists who emphasized user dissatisfaction in high-performance open-plan office environments despite their theoretical efficiency [41], [42]. First, the researchers also note the significant need to consider the individual tastes of users, which are difficult to predict and require individual coordination during the planning of commercial premises [43], [44]. Although such theses will require broader argumentation considering that trends towards individual selection and implementation of planning will develop in the future. The methodology used in the study has its limitations, which may affect the further interpretation of the results obtained. First, it is important to consider the peculiarities of the PRISMA scientific approach, which is associated with restrictions on the search for peer-reviewed literature. Although it allows you to select and process the most recent sources, there is a possibility that some important publications may fall out of sight. We should consider that survey methods contain a significant subjective component, so the experience of respondents plays a significant role in shaping the results. However, such limitations open up more opportunities for further comparison of the results with other scientific achievements.

4. Conclusions

The use of innovative technologies when planning commercial spaces is a modern requirement for architects and designers. At the same time, there is a need to find a balance between functional premises, their adaptability, and aesthetic requirements. Accordingly, the purpose of the proposed article was to analyze innovative approaches to the design of commercial spaces and consider modern requirements for these three important aspects. The implementation of this task involved the consideration of the following issues related to the determination of the main principles and trends in the design of functional, adaptive, and aesthetically attractive commercial spaces; the determination of the perception and priority of user choice among these factors; and the identification of discrepancies between theoretical concepts and actual expectations of consumers of design and architectural services.

Therefore, in the modern world, the design of commercial spaces is a significant factor for the development of business premises. The combination of such aspects as functionality, adaptability, and aesthetics is important, which requires architects and designers to pay special attention to these elements. Functionality and aesthetic appeal were evaluated as the key parameters in the design process. At the same time, the principles of adaptability and technology play a significant role. Such trend-setting solutions from specialists reflected the desire to create flexible and technologically equipped modern commercial spaces.

Business owners highly appreciate both the functional and visual components of their spaces, including compliance with modern design trends, functionality of the space, satisfaction with aesthetics, and versatility. Visitors, on the other hand, preferred spaces that combine modern style, comfort, and easy navigation. A particularly important indicator was the visual appeal of space and the importance of an innovative appearance.

Considering the results presented in the article, we can identify priorities for further research. First and foremost, it is important to further empirically trace how digital technological solutions will affect the experiences of commercial space users. Another important vector will be to further explore cultural and regional differences in customer preferences for design.

Declaration of competing interest

The authors declare that they have no known financial or non-financial competing interests in any material discussed in this paper.

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Appendix A

Closed questions that required a rating from 1 to 5, where 1 is not important or never, and 5 is very important or always.

A set of closed questions for specialists

1. How important is the functional aspect when designing commercial spaces?
2. How important is the aesthetic aspect when designing commercial spaces?
3. How often do you consider the adaptability of commercial spaces when designing them?
4. To what extent should technology (in particular, automation, interactive elements) be integrated into the design of commercial spaces?

Open questions for specialists:

1. What innovative trends in the design of commercial spaces are the most important today?
2. How do you take into account the needs of end users (visitors) when designing commercial spaces?
3. What factors do you consider to be the most critical for achieving a balance between functionality, adaptability and aesthetics in commercial spaces?

A set of questions for business owners and visitors to commercial spaces

1. Closed questions
 1. How important is it for you that the commercial space meets modern design trends?
 2. How satisfied are you with the functionality of the commercial space?
 3. How aesthetic is your commercial space?
 4. How important is it for you to ensure the versatility of the commercial space for different types of businesses or visitor needs?

Open questions business owners and visitors to commercial spaces

1. What design elements in a commercial space do you consider most important to improve functionality and comfort?
 2. How do you rate the overall experience of being in a commercial space in terms of convenience, accessibility, and aesthetics?
 3. What innovative solutions or technologies would you like to see in future commercial spaces that could improve their functionality or aesthetics?
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