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Research Article:

The Perceived Influence of Digital Marketing on the Architectural Design of High-Rise Residential Buildings: A Case Study of Sulaymaniyah City, Kurdistan Region of Iraq

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Abstract

Nowadays developers depend on new media to promote their development and to listen to prospects' expectations for buyers. It is still questionable whether the expectation captured online reflects priorities of evaluating architecture in dynamic cities. This study investigates it for high-rise residential projects in Sulaymaniyah City, Kurdistan Region of Iraq. The present research design is cross-sectional and based on a mixed-methods approach focusing on establishing relationships between the participants' perspectives. Quantitative data consisted of 210 complete questionnaires collected from experts including architects, real estate agents, marketing specialists, and residents. Also, data were collected through the process of interviews conducted with 5 senior managers from prominent companies. Significant correlations were found between assessing the marketing tools within new media, and determining the architectural priorities based on elements like the exterior-facade of the building, the layout and arrangement of the apartment's interior and amenities for customers' satisfaction. In addition, interviewees confirmed utilizing many aspects of new media such as the virtual tour/reality, the 3D modeling, and the visualization in explaining the architectural attributes and getting the market reaction about it. On the other hand, interviewee put more focus on companies' reputability in their past achievements as a result of construction quality and successful and on-time delivery rather than new media to have success. Overall, the research focuses on how people assess certain relationships; it does not provide convincing results about the direct impacts on residential architecture physically due to new media in term of architecture's physical characteristics.

1. Introduction:

Digital marketing has evolved as an indispensable tool for promoting residential real estate. Website and social networks enable developers to engage and communicate property related information to potential purchasers, collect consumer feedback on preferences and demand, and access comprehensive information using variety of digital technologies and platforms (Chaffey & Ellis-Chadwick, 2019; Kotler et al., 2021). In relation to high-rise residential developments, digital mediums also serve the purpose of showcasing architectural elements including, facades, floor-plan layouts, features of amenities, city and garden views, and quality of life. These digital interactions may offer a unique type of market feedback valuable to architectural design

prioritization. However, the relationship between the feedback obtained through digital channels and architectural designers' priority setting are rarely studied. Architectural properties of housing design, such as forms, facades, spatial configurations, views (Ching, 2015; Damigos & Anyfantis, 2011; Fadaei et al., 2015) are key in architectural design and user appraisal and evaluation. The digital space has been studied in context of its marketing, consumer interactions, or design appraisal in discrete contexts. The connections between digital feedback from market to actual consideration to set architectural design priority have remained unexplored. Digital visualization technologies in the shape of BIM, VR, AR, 3D modeling etc provide great possibility for

representing architectural designs, however they differ to digitally marketed product information. In a scenario where rapid real estate development and heightened competition in Sulaymaniyah City have prompted the developers' need for digital marketing, it can be understood how digital marketing may impact the design priority for high-rise residential developments. This research has not considered how digital marketing can lead to physical alteration of buildings' physical features. Need to be addressed especially in an environment like Sulaymaniyah City .

2. Research Objectives and Hypotheses:

a. Research Problem:

For residential property markets digital promotion has become an everyday business, but relation to perceived architectural priorities in high-rise developments is not widely researched. The majority of previously conducted researches address issues such as consumer behavior, online marketing activities or advertisement of properties separately. They barely talk about whether online responses collected from digital promotions are transferable on assessing of architectural qualities, this gap causes importance in emerging markets such as Sulaymaniyah City in which developer, and buyer are meeting increasingly in digital medium, hence the question being presented as relating to how closely associated online marketing action is with people 'judgments about perceived architectural priorities and the eventual real-estate success of the apartment buildings.

b. Aim and Objectives:

This research will investigate how key stakeholders perceive the interconnection of digital marketing, the importance architects' place, and their resulting effects on real-estate returns. The research will be structured around three research objectives: To test whether on-line market information and on-line discourse are correlated to participants' architectural priority. To compare the opinion of architects', property brokers, marketeers, apartment owners' and key developer managers. To reflect on which arguments developers evaluate when weighing up the importance of architectural importance, digital advertising, the builders history and their trust for their companies, and their brand for property success. Sulaymaniyah data is provided to contribute to literature which has often treated property outcomes, marketing and design evaluation in isolation. Findings may assist in providing architects and developers with signals from the market, whilst not allowing these to dominate the concerns for function, place and architecture. The figure above summarizes the structure of the research. The study commences with a review of relevant literature, follows it

with the specification of hypothesis and variables and subsequently the analysis of survey data using descriptive statistics and correlation and regression analysis. It also uses analysis of thematic approach to the interview material in order to locate quantitative information within the qualitative insights of the experienced personnel involved.

c. Research Hypotheses

The quantitative model and the stated objectives led to the following testable hypotheses:

- **H1: In Sulaymaniyah City's high-rise residential developments, more positive evaluations of digital marketing are associated with more positive assessments of architectural design priorities.**
- **H2: More positive evaluations of digital marketing are associated with more favorable evaluations of real-estate outcomes.**
- **H3: More favorable assessments of architectural design are associated with more favorable evaluations of real-estate outcomes.**

3. Literature Review:

These are the three fields from where the review is developed. These three fields meet at this research. These research fields were identified and were defined. The research work on marketing deals with aspects like customer interaction, electronic communication, accessibility, generation of market feedback etc. (Kotler & Keller 2016; Chaffey & Ellis-Chadwick 2019, 2022; Ryan 2016). The subject of research on architectural science includes defining the characteristics of tall buildings from perspectives of form, façade, interiors, view, user-experience, energy efficiency, etc. (Frampton 1992; Lawson 2005; Ching 2015). The works that concern the domain of real-estate development and users' experience were introduced to explain how those specific design characteristics are correlated with customer preferences, value perception and the project's business achievement (Damigos & Anyfantis 2011; Fadaei et al. 2015; Lemon & Verhoef 2016). Finally, recent contributions concerning visualization, e-business technologies, selling of residences, development of tall structures were discussed and used in relation to where the fields cross over and where the new research works are needed. Marketing is about meeting the customers' needs, communicating an offer of value, and sustaining exchanges capable of supporting a long-term relationship (Kotler & Keller, 2016; Vargo & Lusch, 2004). In real

estate, this process goes beyond just a single transaction as a response in the market is influenced by the reputation of developers, status and perceived value of the projects and quality of continuing interactions. This has resulted in the emergence of digital media having the capabilities of reaching buyers directly, segregating their audience from each other, monitoring interactive engagements with clients and measuring the performance in the online sphere. The implications for real estate is a decision on buying the property starts through impression on the digital world before actually a customer may have witnessed the completion. (Kotler & Keller, 2016; Chaffey & Ellis-Chadwick, 2019). Digital marketing refers here to the use of online media and data-supported communication to present an offer, interact with an intended audience, and evaluate the audience's response (Chaffey & Ellis-Chadwick, 2019). Unlike conventional promotion, it leaves observable traces of participation, such as visits, inquiries, comments, and patterns of engagement (Dwivedi et al., 2021). Its channels include websites, search marketing, social networks, digital advertising, email, mobile communication, and distributed online content (Kotler & Keller, 2016; Ryan, 2016). Property developers use these channels to introduce a scheme, answer questions, reach prospective purchasers, and monitor interest. A distinction must nevertheless be made between a marketing channel and a tool used to represent architecture Building Information Modeling, three-dimensional rendering, virtual tours, virtual reality and augmented reality as an example are design-support or visualization-enabling technologies. It would only be perceived as part of the marketing activity once the resulting material is used in some form in a web-site, advertisements, network media or an interactive property portal. This definition is essential because communication, consumer feedback is the theme of the analysis, not simply treating every digital tool that facilitates design as marketing technique. Interaction within the web can yield useful knowledge about consumer' preference, which is hard to get through non-two-way advertising channels. Some outcomes are easy to quantify such as visits, questions, prospects or sales; yet some are abstract such as awareness, trust, good image and post-commitment-those less measurable results, especially in real estate, affect purchasers' desire

on project image and assumed quality, beside price and site. Customer interaction may therefore contribute to value before a transaction occurs (Booms & Bitner, 1981; Vargo & Lusch, 2004), while online representation affects how high-rise housing is understood. The marketing process itself normally moves from identifying demand and selecting an audience to carrying out a strategy and assessing its performance (Kotler & Keller, 2016). Chaffey and Ellis-Chadwick's (2022) RACE model expresses this sequence as Reach, Act, Convert, and Engage. Reach concerns awareness; Act concerns interaction with project information; Convert covers inquiries, reservations, or purchase-related action; and Engage concerns **the longer** relationship with customers. Search-engine optimization, paid search, social-media marketing, content, email, advertising, and analytics are common practices within this process (Ryan, 2016; Wedel & Kannan, 2016). Figure 2 presents the categories most relevant to property promotion. For a prospective buyer, digital media provide a way to examine a development, compare information, contact the company, and state preferences. Website behavior, social-media comments, and inquiries can consequently offer practical evidence of market interest (Ryan, 2016; Tiago & Verissimo, 2014). Search services and property listings also affect whether information about a project can be found (Chaffey & Ellis-Chadwick, 2019; Kotler & Keller, 2016). Architecture is communicated through photographs, drawings, video, renderings, written descriptions, and interactive presentations. A virtual tour or three-dimensional model may help a purchaser understand a plan, an outlook, or a spatial relationship before visiting the site (Lemon & Verhoef, 2016; Pine & Gilmore, 2011). Such a presentation should not be confused with proof that marketing changed the design Here, visualization is used as part of the communication of architecture in order to gain feedback on it. Additionally, some of the limitations are pragmatic: the campaign could be compromised due to considerations of privacy, strong competition, unequal access to digital media, and local norms. Buying the product does not necessarily result from high customer engagement, and slick visualization could foster expectations with which a finished product must compete. Therefore, it is important to interpret online metrics alongside physical manifestations

of market demand and construction quality, and evidence of sales success (Kotler & Keller, 2016; Chaffey & Ellis-Chadwick, 2022). Just as for developer and investor reputation, this could also be said to refer to reputation beyond web presence, where attributes like honesty, solvency, execution success, delivery, and established reputation are important (Eisingerich et al., 2020; Spence, 1973). Digital touchpoints facilitate dialogue and can suggest use pattern, but Trust and perceived value develop over time (Vargo & Lusch, 2004). Marketing that does not promise Delivery has to this point only concerned increasing familiarity (awareness), and not reputation generation. Some part of this research endeavor was to address this differentiation point. Digital Marketing Evaluation (DME), is the independent construct in the quantitative model. Variables were identified covering digital engagement over social, website, and other media outlets, as well as digital media exposure and analytics from AI. Use of “3D,” “virtual tour,” “VR,” “AR” were all interpreted as indicating application of this technology in promotional capacity rather than in its use as an architectural production technique. The operational definition is reported in Table 2. Architectural design orders-built form and space in response to practical, social, environmental, and aesthetic requirements. In housing, the consequences are experienced in privacy, accessibility, indoor comfort, spatial efficiency, and everyday use (Lawson, 2005; Frampton, 1992). The present study considers form and massing, façade treatment, spatial and floor-plan organization, orientation and views, amenities, user experience, and selected market-related features. Form includes the building's mass, scale, proportion, and composition; it establishes both a visual identity and a relationship with the surrounding city (Ching, 2015). A residential tower must also accommodate circulation, daylight, ventilation, and privacy (Emmitt, 2002). Renderings and models make these qualities easier to communicate, although their **use in promotion does not** demonstrate that the design itself was altered. Figures 3 and 4 show the attributes considered. Even at an instant level the facades make a statement about identity and establish a first impression (Ching, 2015); but also control light, ventilation, privacy and thermal conditions. Well-designed facade systems are important for environmental performance (Fernando et al., 2023). Facades

tend to dominate most scheme imaging, and can also contribute to how a scheme appears online. Floor plans offer another story. They organize the movement between areas, the types of activity, public spaces, private space and rooms. Floor plans are able to ensure that space can be used in flexible and comfortable way (Ching, 2015; Lawson, 2005), while floor plans vary according to type and Lifestyle of household. Interactive floor plans and virtual tours can enable purchasers to analyse plans before buying the unit. Also, outlook and orientation are not without relevance to future residents. Outlook relates the inside to the outside, influences light, privacy, comfort, value (Pallasmaa, 2012; Ching, 2015) and can affect viewsand, consequently, privacy. Orientation influences light, ventilation and temperature (Damigos & Anyfantis, 2011). Digital tools are ideal tools for previewing views and orientations. The set of architectural variables considered in this research are those which: a) Are visible and easy to be evaluated by potential purchasers, b) Are commonly used in marketing materials for apartment, apartment blocksand residential areas, c) Are considered significant in shaping the human experience of residential space; and, therefore d) Can be digitally communicated and visualized, that is form, facade, layout, views, shared amenity spaces, environmental friendly aspect and architectural identity. Online marketing meets architecture mainly through representation, communication, and feedback. Before construction is complete, architects and developers can show a proposal, invite questions, and observe which features attract attention. Whether those reactions later influence a design decision depends on the project and cannot be inferred from communication data alone. For that reason, this study examines how stakeholders perceive design priorities; it does not presume that online activity changes the building. Digital interaction may nevertheless affect the way a scheme is discussed, evaluated, and positioned. Comments, inquiries, website analytics, and responses to visual material can reveal preferences for particular amenities, images, or spatial qualities (Chaffey & Ellis-Chadwick, 2019; Ryan, 2016). These signals provide evidence about attention rather than instructions to the designer. Table 1 summarizes how such information may correspond with stakeholders' assessment of architectural qualities (Chaffey & Ellis-Chadwick, 2019; Kotler & Keller, 2016).

Two kinds of technology need to be kept separate. Social media, project websites, online advertisements, and communication platforms are used to promote and interact with the market. BIM, VR, AR, and three-dimensional rendering are used primarily to develop, represent, or assess a design (Pan & Zhang, 2021). A visualization can supply content to a campaign, yet the tool that creates it remains technically different from the channel that distributes it (Eastman et al., 2011; Chaffey & Ellis-Chadwick, 2022). Digital design systems may therefore support architectural evaluation without constituting marketing in their own right (Whyte & Hartmann, 2022). Visualization is nonetheless an important point of contact. It lets prospective purchasers explore a proposed building and may make plans, views, and spatial relationships easier to understand (Ryan, 2016; Eastman et al., 2011). Their assessment is not purely physical; confidence, emotional response, and perceived value also affect a property decision. Relationship marketing can support these dimensions through continuing dialogue and responses to customer concerns (Kanapathipillai & Kumaran, 2022). Initial interest may arise from promotion, understanding may improve through visualization, and trust may develop through subsequent contact (Alabay, 2025). This sequence helps explain why design assessment and digital promotion may both be related to marketability. Feedback can draw attention to amenities, outlooks, adaptable plans, façade treatments, overall form, or environmental features. Conversely, a well-resolved design gives a developer stronger material for websites, advertisements, virtual tours, and social-media content (Chaffey & Ellis-Chadwick, 2019; Kotler & Keller, 2016). Architecture provides the substantive spatial and visual qualities; marketing extends their reach and records reactions to them. Demonstrating an actual design change, however, would require traceable evidence from the project itself (Relph, 1976; Kavaratzis & Ashworth, 2005; Zukin, 2010). Existing studies often examine promotion, visualization, customer experience, or property development in isolation. Far fewer ask how stakeholders understand the relationship between marketing activity and architectural priorities in high-rise housing, particularly in emerging urban markets. **Table 6** compares previous work on digital promotion, architectural design,

visualization, and property development. The selected studies were relevant to at least one of the three constructs used in this research: Digital Marketing Evaluation, Architectural Design Evaluation, or Real-Estate Outcomes. For each source, the comparison records the subject, method, main finding, and contribution to the present model. Taken together, the studies show a fragmented field. Marketing, design, and property performance are commonly examined on their own, while their perceived interaction in high-rise housing receives much less attention.

[1] **Bilgihan et al. (2020)** examined the influence of digital platforms on customer engagement and online choices. Their findings show that interaction and access to information affect how products and services are evaluated. Because the study dealt with consumers generally, it did not address the narrower question considered here: whether assessments of digital marketing correspond with priorities in architectural design

[2] A comprehensive review of advances made in social media and digital marketing is available from **Dwivedi et al. (2021)**. Key contributions made online such as providing support to engagement and gathering market intelligence are highlighted. While the article focusses on marketing processes, it does not test if the feedback received online is related to architectural values or assessment.

[3] **Jiang et al. (2022)** carried out research regarding digital transformation, especially concerning operations, information flow and relationships between the real estate sector and the market place. The research shows digital ways which can ease communications and decision making processes. Perception by stakeholders regarding relationship between marketing online and architectural value, was not investigated.

[4] A summary of newer technologies employed in real estate and construction, in the context of competitive advantage, innovation and stakeholders' needs, has been proposed by **Ghobadi and Sepasgozar (2020)**. The marketing aspect, namely the method through which architectural value was marketed and how this was received by the user, was not tested.

[5] A general observation about increased role and significance of architects and architectural practitioners in property development has been made by **Abd El-Aziz et al. (2025)**. They reported participation of architects in management, marketing and value creation of the property and in a more integrated way compared to solely design processes. Impact of digital marketing on the architectural value of a property, was not analyzed.

[6] An investigation into how variables such as spatial attributes, materials, the number, placement and sizes

of openings in the elevations, as well as internal layouts, contributed to the value of sustainable housing has been conducted by **Fadaei et al. (2015)**. Design has thus been identified as an attribute relevant to property value, however how design features were presented/viewed online was not tested in their study. [7] A review of digital transformation within the engineering, architecture, construction sectors provided insights of how the system would foster cooperation, communication, and transfer of information, particularly among the users of such information, from **Vergara et al. (2023)**. The article did not look into whether marketing the architectural design through an online marketing system influences people's perceived architectural priority.

[8] Use of architectural digital technologies such as BIM, HBIM, virtual reality and 3D model for a comprehensive digital recreation of the Sulaymaniyah historic complex is available in **Ali (2026)**. This work clearly points to how digital technologies would assist in presenting and communicating the architectural value of a building. Though, his work focuses more on heritage restoration and did not discuss how the architectural quality of apartment blocks for residential purposes was marketed and received online.

[9] The application of BIM, AI, parametric design, facade technologies in planning the architectural design of apartment blocks of Sulaymaniyah real estate for better performance of the building has been examined by **Amin et al. (2026)**. These technologies helped to generate design decisions that concerned the overall performance of the apartment block as an engineered and planned architecture. Architectural marketing values were again not examined for the architectural decisions made; perhaps because, his work, primarily involved design technologies of apartment buildings for its purpose.

[10] Consumers' ability and their willingness towards adoption of information technology based innovations, interaction and experience was tested by **Pantano and Di Pietro (2012)**. Their results revealed that a digital interaction affects perception in the decision making phase of a transaction, implying that perception of the property for sale was influenced by the manner in which an interactive environment presented it to a consumer and his level of interaction within it during the buying process. Unlike this study he did not study the tall apartment block of the real estate for the context of an actual marketing endeavor and was not specifically linking it to a higher preference or value assigned. A consistent division is apparent in the literature. Digital-marketing research stresses communication, visibility, and customer participation; architectural research focuses on the qualities by which a property is designed and evaluated. Few studies bring these perspectives together to ask how participants in high-rise development understand the connection between marketing activity and architectural priorities.

Evidence from Sulaymaniyah City is used here to address that specific omission.

4. Research Gap:

Online marketing, digital communications, architectural visualization and property-branding **marketing** each has separate work areas. The interaction among them, when considered in high-rise residential buildings is still neglected. This paper assumes that buying behaviour is explained and digital conversations is addressed and thus gives less evidence whether on online gathering based feedback reflects the importance that architects and planners consider the developer or, marketer has and what it can be expected by residents in general. This is **even** more evident in the emerging cities where the digital media is widely used as way for projects presentation and finding out buyer sentiments. This research doesn't argue that promotional activities **impact** directly or indirectly the architecture design for a building, it rather used interview and questionnaire data to investigate in Sulaymaniyah City the correlation among digital marketing and the priorities architects' use to design while marketing for the development and the expected impact on overall real estate outcome. Based on the literature a framework was constructed to link evaluations of the effectiveness of digital marketing, the design choices and a resulting real-estate outcome. Studies historically approached digital marketing, design choices and a resulting real-estate outcome, in **different** academic fields. This single model allows for these elements to be explored together empirically. It should be noted this is not to assert that digital marketing is directly physically changing a project but whether an attempt has been made and whether this attempt correlates with how various stakeholders assessed the priorities within a design. Digital Marketing Evaluation is the judgment stakeholders make about the extent and effectiveness of a developer's online communication. It includes social-media activity, online visibility, digital content, and interactive contact. These practices support communication with customers, the collection of market information, and the observation of audience engagement (Chaffey & Ellis-Chadwick, 2022; Ryan, 2016). The construct is measured through respondents' ratings of a developer's online presence, interaction on social networks, digital presentation of projects, quality of published content, and use of interactive visualization for communication.

[11] Architectural Design Evaluation Conceptual definition: Architectural Design Evaluation refers to stakeholders' judgment of

the relevance and quality of design attributes in high-rise housing. The construct covers overall form, façade treatment, spatial arrangement, orientation, views, amenities, and user-focused features. Together, these attributes shape residential experience, environmental performance, and perceived project value (Ching, 2015; Lawson, 2005). Respondents evaluate the architectural characteristics that contribute to the appeal and overall assessment of a residential development.

Real-Estate Outcome Evaluation

Conceptual definition: Real-Estate Outcome Evaluation is the appraisal that interested parties assign to how attractive, how competitively placed, how able to acquire, and how confidence-generating the project is. In reaching such decisions location, quality of design and customer treatment or the apparent value of the development (Damigos and Anyfantis 2011; Fadaei et al. 2015.).

Operational definition: The measure is based on respondents' perceptions of project appeal, marketability, competitive standing, and the confidence created among potential investors.

Market Response (Qualitative Theme Only):

Customer response was another topic addressed by interviews. When used as a marketing response it represented what customers were perceived to expect, their receptiveness and trust, plus developers' notions of developer reputation. Mediation analysis wasn't implemented, so this became a quantitative mediator. As a consequence, it acts only as a qualitative complement to interpretations of statistics.

Methodology:

The study used a cross-sectional, correlational mixed-methods design to examine perceptions of digital marketing, architectural priorities, and real-estate outcomes in Sulaymaniyah City's high-rise housing market. Statistical relationships were estimated from questionnaire responses, while semi-structured interviews provided developers' accounts of the same issues. Because the data record perceptions at one point in time, the design cannot establish that online marketing causes a physical change to architecture. Table 2 and Figure 5 summarize the relationships examined.

Research Design:

A mixed-methods strategy was adopted, with quantitative and qualitative evidence serving different but complementary purposes. The questionnaire phase captured participants' evaluations of digital-marketing activity, architectural attributes, and real-estate outcomes. Semi-structured interviews with senior executives were then used to place the statistical patterns within the practical setting of development decisions. Reading the two sets of evidence together allowed numerical

relationships to be considered alongside the experience of industry practitioners.

Research Context and Case Study

Area: The study was conducted in Sulaymaniyah City, where residential development is active and property firms are making growing use of online communication. This setting is therefore appropriate for examining how stakeholders perceive the relationship between digital promotion and architectural priorities in high-rise housing.

Population and Sample:

Selection: Participation was limited to individuals with experience of, or informed knowledge about, high-rise housing. The group included architects, real-estate professionals, marketing practitioners, and residents. A total of 250 questionnaires were distributed and 227 were returned; after incomplete forms had been excluded, 210 responses remained for analysis. This final sample was considered adequate with reference to established guidance for behavioral studies (Roscoe, 1975; Cochran, 1977).

Questionnaire Development and Variable Measurement:

Items were developed from dimensions repeatedly identified in the relevant literature. Each construct was represented by indicators with a clear theoretical basis. Digital Marketing Evaluation drew on work concerning online visibility, communication, audience engagement, and interactive promotion (Chaffey & Ellis-Chadwick, 2022; Ryan, 2016); the resulting items covered social-media interaction, digital-content quality, online presentation, virtual visualization, and general web presence. Architectural Design Evaluation reflected studies of building form, façades, spatial organization, orientation, views, user experience, and design features with market relevance (Ching, 2015; Lawson, 2005; Fadaei et al., 2015). Real-Estate Outcome Evaluation was informed by research on housing value, customer experience, competitiveness, and project attractiveness (Damigos & Anyfantis, 2011; Lemon & Verhoef, 2016). Its items addressed marketability, purchaser interest, investor confidence, and competitive position. Responses were recorded on a five-point Likert scale, from 1 (strongly disagree) to 5 (strongly agree). Before administration, the instrument was reviewed for construct coverage and clarity within Sulaymaniyah's high-rise development

context. Tables 4 and 5 present the full measures and their adaptation from earlier literature.

Data Collection Procedure:

The questionnaire began by recording the background characteristics shown in Table 10. Respondents were classified according to occupation, familiarity with residential development, and the source from which they obtained project information. Architects, real-estate and marketing specialists, and residential clients were all represented, allowing the variables to be viewed from several stakeholder positions.

Interview Design:

Semi-structured interviews were conducted with five senior executives from major development companies in Sulaymaniyah. They were selected purposively because their roles involved direct responsibility for residential projects, management, architectural decisions, or marketing policy.

Data Analysis:

Descriptive measures, reliability tests, Pearson correlations, and regression models were applied to the questionnaire data. These procedures were used to examine the relationships among the study constructs. Interview transcripts were analyzed thematically, with attention to recurring observations about online promotion, communication of architectural qualities, customer expectations, confidence, and corporate reputation.

Reliability and Validity Assessment:

Questionnaire reliability was checked through split-half analysis, as reported in Tables 7 and 8 and Figure 6. The 210 completed questionnaires were divided into two comparable sets, and the coefficient obtained indicated an acceptable degree of internal consistency. The result supports the use of the items as stable measures of their intended constructs.

Correlation between study dimensions:

Pearson correlation coefficients were estimated for Digital Marketing Evaluation (TX), Architectural Design Evaluation (TY), and Real-Estate Evaluation (TZ). All 210 valid responses were included. Table 11 and Figure 8 report the resulting coefficients.

5. Results and Discussion:

Reliability and Validity Assessment:

As shown in Table 5 and Figure 6, correlations between individual items and their assigned constructs ranged from 0.638 to 0.842, and every coefficient was significant at $p < 0.001$. The items were consequently judged to have an adequate connection with the dimensions they were intended to measure. Cronbach's alpha provided an additional check on internal consistency; all constructs were above the recommended threshold of 0.60 (Cronbach, 1951; Nunnally & Bernstein, 1994; Hair et al., 2019).

Questionnaire Scale and Measurement Approach:

A five-point Likert scale was used for all questionnaire items, as detailed in Table 3. Respondents indicated the extent of their agreement with statements about digital marketing, architectural qualities, and real-estate outcomes. Applying the same response format across the instrument made the evaluations comparable among constructs (Likert, 1932).

Demographic Results and Correlation:

Table 10 and Figure 7 show that the sample included architects, real-estate and marketing specialists, and residential clients. Most respondents had relevant knowledge of the field: 82.4% reported being familiar or very familiar with high-rise residential development. Social media, identified by 89% of participants, was the dominant source of information about projects. Table 11 and Figure 8 also show positive and statistically significant correlations.

Digital Marketing Evaluation (TX) was related to Architectural Design Evaluation (TY) at $r = 0.562$ and to Real-Estate Evaluation (TZ) at $r = 0.640$. The correlation between Architectural Design Evaluation and Real-Estate Evaluation was $r = 0.633$. In practical terms, more favorable assessments of digital marketing generally occurred alongside higher assessments of both design and real-estate outcomes.

6. Regression Analysis:

Regression results are presented in Table 12 and Figure 9. Digital Marketing Evaluation was a significant predictor of Architectural Design Evaluation ($R^2 = 0.32$, $\beta = 0.584$, $p < 0.001$), so respondents who evaluated online marketing more positively also tended to evaluate architectural qualities more positively. A significant relationship was likewise found between Digital Marketing Evaluation and Real-Estate Evaluation ($R^2 = 0.41$, $\beta = 0.558$, $p < 0.001$). In a third model, Architectural Design Evaluation predicted Real-Estate Evaluation ($R^2 = 0.40$, $\beta = 0.531$, $p < 0.001$). These findings concern association and should not be read as evidence that marketing activity directly changes physical design. Descriptive results in Table 13 and Figure 10 place Real-Estate Evaluation first ($M = 4.34$), followed by Location and Contextual Factors ($M = 3.79$), Digital Marketing Evaluation ($M = 3.78$), and Architectural Design Evaluation ($M = 3.53$). Design was thus assessed positively, although its mean was lower than those of the other dimensions.

Analysis of Selected High-Rise Residential Projects:

Table 14 presents ten developments in Sulaymaniyah City and records their main characteristics, promotional practices, visualization methods, and stages of development. The comparison draws on available documentation and promotional material. It illustrates how local projects are presented through digital platforms and how architectural features are communicated to prospective purchasers and investors. The analysis is descriptive; it offers context

for the qualitative interpretation but does not test whether marketing brought about architectural change.

Integrated Findings and Hypothesis Evaluation:

Quantitative Results Evaluation and Hypothesis Testing:

Tables 7-12 bring together the quantitative evidence on Digital Marketing Evaluation, Architectural Design Evaluation, and Real-Estate Evaluation. The reliability statistics first established that the questionnaire had adequate internal consistency for measuring respondents' perceptions. Correlation and regression analyses then revealed positive, statistically significant relationships among the three constructs. According to Table 12 and Figure 9, Digital Marketing Evaluation predicted Architectural Design Evaluation ($R^2 = 0.32$, $\beta = 0.584$, $p < 0.001$); respondents who viewed online marketing favorably were also likely to rate the design dimension favorably. Digital Marketing Evaluation was related to Real-Estate Evaluation as well ($R^2 = 0.41$, $\beta = 0.558$, $p < 0.001$). A further relationship emerged between Architectural Design Evaluation and Real-Estate Evaluation ($R^2 = 0.40$, $\beta = 0.531$, $p < 0.001$). Since the study is cross-sectional and based on reported perceptions, these results indicate association rather than a causal effect of online promotion on physical architecture.

Hypothesis Testing and Discussion of H1 and H2:

Hypotheses were evaluated by correlation and regression analysis. Statistical significance was set at $p < 0.05$, and interpretation also considered R^2 , regression coefficients, t statistics, and F statistics. **H1 proposed** a relationship between Digital Marketing Evaluation and Architectural Design Evaluation. **The result** in Table 12 and Figure 9 supports that proposition ($R^2 = 0.32$, $\beta = 0.584$, $p < 0.001$). One plausible explanation is that three-dimensional images, virtual-reality applications, and other digital presentations make architectural proposals easier to see and understand. Even so, the analysis records perceptions and cannot demonstrate that marketing modifies form, façade treatment, or spatial planning. H2 concerned the relationships of digital marketing and architectural evaluation with real-estate outcomes. Significant positive correlations among the three dimensions, reported in Tables 11 and 12 ($p < 0.001$), support this hypothesis. Architectural Design Evaluation also predicted Real-Estate Evaluation ($R^2 = 0.40$, $\beta = 0.531$, $p < 0.001$). Participants who valued the architectural qualities of a project therefore tended to judge its appeal and market performance more favorably. The findings suggest that digital communication and design quality jointly contribute to how residential developments are understood and assessed.

Relationships Among Digital Marketing, Architectural Design, and Real-Estate Evaluation:

Figures 11 and 12 show positive, statistically significant relationships among the constructs. The standardized coefficient for Digital Marketing Evaluation and Architectural Design Evaluation was $\beta = 0.584$ ($R^2 = 32\%$), indicating that variation in assessments of online marketing corresponded with variation in assessments of design. Digital Marketing Evaluation was also related to Real-Estate Evaluation ($\beta = 0.558$, $R^2 = 41\%$). This model explained the largest share of variance and connects online visibility and communication with perceptions of project appeal and market image. The relationship between Architectural Design Evaluation and Real-Estate Evaluation remained significant ($\beta = 0.531$, $R^2 = 40\%$), underlining the role of perceived design quality in the assessment of property.

Qualitative Findings from Investor Interviews:

In May 2026 semi structured interviews were held with five senior figures at top development firms in the city regarding digital marketing, presentation of buildings, customer experience and salability of developments (see fig 13). It should be born in mind that this was the perception at May 2026, when all these figures were at the head of development, decision and marketing in their respective corporations. They do acknowledge that digital channels for offering house developments can be a benefit, but they still rank the impact of their building's quality, company's reputation, confidence of the buyers, and their previous developments with a very much higher regard. It may broaden the audience range and communication but for them online promotion could not replace delivering buildings of real, trustworthy, architectural and construction qualities.

Interview Themes and Coding Analysis:

See Table 15 for the complete interview schedule and question categorization regarding architectural design, promotion, the client, the company, reputation and competition. Data were thematically analyzed to achieve the codes summarized in **Table 16 and illustrated in Figure 14** below under architectural quality, market outcomes, trust and brand positioning/digital. The coding indicated significant focus on architectural quality, market outcomes (mean=2.6), then the construction of trust (mean=2.4).

In this case, building quality, identifiable architectural characteristics, as well as the 'proofs' of previously completed projects represented the core component of successful projects from the executive's perspectives. Contemporary appearance, brand reputation, and cultural identity occupied a middle position in the coding results (mean = 2.0). Direct references to digital-marketing mechanisms were less frequent (mean = 1.4), suggesting that adoption differs from one company to another. Several executives mentioned social media, paid advertisements, three-dimensional visualization, or virtual reality; others reported relying more heavily on established reputation and customer recommendation. Viewed collectively, the interviews suggest that digital marketing helps communicate architectural and real-estate value but is not, by itself, the source of marketability. **Figures 15-17** summarize this evidence through the links among promotional practice, design and luxury attributes, and the reputation and branding of developers.

7. Discussion of Findings:

The findings showed important links between Digital Marketing Evaluation, Architectural Design Evaluation and the real estate outcomes in high-rise housing sector in Sulaymaniyah. Digital Marketing Evaluation was predictive of Architectural Design Evaluation ($R = 0.32$, $p < 0.001$). So, good feelings about online promotions were correlated with good feelings about architecture - a logical association, considering how digital marketing represents and explains design through. Another correlation was recorded between Digital Marketing Evaluation and Real Estate Evaluation ($R = 0.41$, $p < 0.001$). Internet presence, social networking engagement and digital communications have correlates with project perception and real-estate market, the link between them can not indicate any influence of promotion and design decisions. Mean values for Real Estate Evaluation ranked highest ($M = 4.34$), while for Location and Contextual Factors ($M = 3.79$), Digital Marketing Evaluation ($M = 3.78$) and Architectural Design Evaluation ($M = 3.53$). This order indicates the importance to respondent of marketing and communication perspectives when assessing housing projects and also consistent with research which connect property value with design, clients' perceptions

and quality assessment (Fadaei et al., 2015; Damigos & Anyfantis, 2011). Architectural Design Evaluation was predictive of Real Estate Evaluation too ($R = 0.40$, $p < 0.001$) indicating that functional and spatial properties, building faades, etc., are still important in positively judgment a project; this is while digital means may present these characteristics in front of public, architectural quality is independently connected to any projects competitiveness. So, findings from this quantitative study support H1 & H2, positioning three construct in connected perceptual framework, though the order doesn't claim any causal direction from marketing to physical design. Interviews with senior professionals' perspective of industry showed the main drivers behind success were construction standards, record of previous projects, reputé, trust, etc. Professionals felt social media, paid advertising, virtual reality and 3D representations were effective in communication with consumers; nevertheless, genuine trust had been obtained through performance, fulfillment and track records. These results indicate that online promotions can establish the credibility needed from the top of reputation pyramid and trust among the consumer; in short this also supported H3: reputation and trust are the fundamentals of the developer's performance and achievements, where online marketing contributes as supporting tool. Overall, the two stages show online marketing as presentation not explanation tools about architectural and property value where trust and reputation are the key elements to keep client and investor trust on the developer in question

8. Conclusion and Recommendations:

The purpose of this mixed-methods study was to ascertain associations between digital-marketing practice, architectural appraisal and real-estate outcomes in the high-rise residential sub-sector of Sulaymaniyah City utilizing both questionnaire and interview data. The participants in the survey represented four groups: Architecture, Marketing, Real Estate and Residential Usage, whilst for the interviews I chose a sample of senior executives of large construction firms. Statistically significant relations have been observed between Digital Marketing Evaluation and both Architectural Design Evaluation and Real Estate Evaluation. It cannot be claimed from the data obtained that marketing itself induces changes to building shape, faades, interior layout, views or any other physical architectural aspect of a building's form, although architectural quality continues to be significantly linked with evaluations of building performance and property

outcomes. Interviews revealed that developer credibility is associated with standards of construction and also with completion of past projects and reliability and trustworthiness. Building on this credibility, participants saw benefits in digital applications for communication and exposure though rely on demonstrated success as an indicator of enduring viability. Practically, this suggests close collaboration between Architects and Developers to bring about well-designed projects with clearly communicated information online. A key challenge is that interactive visualization should complement rather than replace other vital factors: build quality, customer satisfaction and organizational reputation. Training provided by institutions, industry associations or public agencies could address professional gaps concerning digital-marketing, visualization of construction drawings and marketing of properties. Future research should also track projects over their entire lifecycle, recording changes made to initial drawings and making pre-post marketing interventions analyses. I must stress again that current work is cross-sectional and based on perceptions, which cannot prove cause and effect over time; longitudinal, project-level study would provide clearer evidence of such processes.

References:

- [1] Abd El-Aziz, F. H., Nassar, U. A., Abou El-Azm, F. M., & Bagha, M. A. (2025). Enhancing the role of architect in the real estate development process. *Suez Canal Engineering, Energy and Environmental Science Journal*, 3(1), 65–74. <https://doi.org/10.21608/sceee.2025.343384.1053>
- [2] Ali, A. F. (2026). Digital reconstruction and rehabilitation of a historical structure: Historical buildings in Sulaymaniyah, KRG/Iraq as a case study. *Scientific Culture*, 12(4), 307–320. <https://doi.org/10.5281/zenodo.12426126>
- [3] Amin, H. M., Mohammed, K., Muhealdeen, B. N., & Ali, A. F. (2026). The influence of advanced technology on architectural form in high-rise housing projects in Sulaymaniyah City/KRG-Iraq. *Scientific Culture*, 12(4), 5427–5439. <https://doi.org/10.5281/zenodo.12426584>
- [4] Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- [5] Chaffey, D., & Ellis-Chadwick, F. (2022). *Digital marketing: Strategy, implementation and practice* (8th ed.). Pearson.
- [6] Ching, F. D. K. (2015). *Architecture: Form, space, and order* (4th ed.). Wiley.
- [7] Cochran, W. G. (1977). *Sampling techniques* (3rd ed.). John Wiley & Sons.
- [8] Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16(3), 297–334. <https://doi.org/10.1007/BF02310555>
- [9] Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.
- [10] Damigos, D., & Anyfantis, F. (2011). The value of view through the eyes of real estate experts: A fuzzy Delphi approach. *Landscape and Urban Planning*, 101(2), 171–178.
- [11] Dwivedi, Y. K., Ismagilova, E., Hughes, D. L., Carlson, J., Filieri, R., Jacobson, J., Jain, V., Karjaluo, H., Kefi, H., Krishen, A. S., Kumar, V., Rahman, M. M., Raman, R., Rauschnabel, P. A., Rowley, J., Salo, J., Tran, G. A., & Wang, Y. (2021). Setting the future of digital and social media marketing research: Perspectives and research propositions. *International Journal of Information Management*, 59, 102168. <https://doi.org/10.1016/j.ijinfomgt.2020.102168>
- [12] Eastman, C., Teicholz, P., Sacks, R., & Liston, K. (2011). *BIM handbook: A guide to building information modeling for owners, managers, designers, engineers, and contractors* (2nd ed.). John Wiley & Sons.
- [13] Fadaei, S., Iulo, L. D., & Yoshida, J. (2015). Architecture: A missing piece in real-estate studies of sustainable houses. *Procedia Engineering*, 118, 813–818. <https://doi.org/10.1016/j.proeng.2015.08.518>
- [14] Fernando, D., Navaratnam, S., Rajeev, P., & Sanjayan, J. (2023). Study of technological advancement and challenges of façade system for sustainable building. *Sustainability*, 15(19), 14319. <https://doi.org/10.3390/su151914319>
- [15] Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis* (8th ed.). Cengage Learning.
- [16] Kanapathipillai, K., & Kumaran, S. (2022). The mediating effect of relationship marketing strategy between digital marketing strategy and consumers' purchase decisions in the automotive industry in Malaysia. *European Journal of Management and Marketing Studies*, 7(2), 1–27.
- [17] Kavaratzis, M., & Ashworth, G. J. (2005). City branding: An effective assertion of identity or a transitory marketing trick? *Tijdschrift voor Economische en Sociale Geografie*, 96(5), 506–514. <https://doi.org/10.1111/j.1467-9663.2005.00482.x>

- [18] Kotler, P., & Keller, K. L. (2016). Marketing management (15th ed.). Pearson.
- [19] Kotler, P., Kartajaya, H., & Setiawan, I. (2021). Marketing 5.0: Technology for humanity. Wiley.
- [20] Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30(3), 607–610. <https://doi.org/10.1177/001316447003000308>
- [21] Lawson, B. (2005). How designers think: The design process demystified (4th ed.). Architectural Press.
- [22] Lemon, K. N., & Verhoef, P. C. (2016). Understanding customer experience throughout the customer journey. *Journal of Marketing*, 80(6), 69–96. <https://doi.org/10.1509/jm.15.0420>
- [23] Likert, R. (1932). A technique for the measurement of attitudes. *Archives of Psychology*, 22(140), 1–55.
- [24] Nunnally, J. C., & Bernstein, I. H. (1994). Psychometric theory (3rd ed.). McGraw-Hill.
- [25] Pantano, E., & Di Pietro, L. (2012). Understanding consumers' acceptance of technology-based innovations in retailing. *Journal of Retailing and Consumer Services*, 19(1), 49–57. <https://doi.org/10.1016/j.jretconser.2011.09.005>
- [26] Pan, Y., & Zhang, L. (2021). Roles of artificial intelligence in construction engineering and management: A critical review. *Automation in Construction*, 122, 103517. <https://doi.org/10.1016/j.autcon.2020.103517>
- [27] Pallasmaa, J. (2012). The eyes of the skin: Architecture and the senses (3rd ed.). Wiley.
- [28] Relph, E. (1976). Place and placelessness. Pion.
- [29] Roscoe, J. T. (1975). Fundamental research statistics for the behavioral sciences (2nd ed.). Holt, Rinehart and Winston.
- [30] Ryan, D. (2016). Understanding digital marketing: Marketing strategies for engaging the digital generation. Kogan Page.
- [31] Sekaran, U., & Bougie, R. (2016). Research methods for business: A skill-building approach (7th ed.). John Wiley & Sons.
- [32] Spence, M. (1973). Job market signaling. *Quarterly Journal of Economics*, 87(3), 355–374.
- [33] Tiago, M. T. P. M. B., & Veríssimo, J. M. C. (2014). Digital marketing and social media: Why bother? *Business Horizons*, 57(6), 703–708. <https://doi.org/10.1016/j.bushor.2014.07.002>
- [34] Vargo, S. L., & Lusch, R. F. (2004). Evolving to a new dominant logic for marketing. *Journal of Marketing*, 68(1), 1–17. <https://doi.org/10.1509/jmkg.68.1.1.24036>
- [35] Wedel, M., & Kannan, P. K. (2016). Marketing analytics for data-rich environments. *Journal of Marketing*, 80(6), 97–121. <https://doi.org/10.1509/jm.15.0413>
- [36] Barreda, A. A., Nusair, K., Wang, Y., Okumus, F., & Bilgihan, A. (2020). The impact of social media activities on brand image and emotional attachment: A case in the travel context. *Journal of Hospitality and Tourism Technology*, 11(1), 109–135. <https://doi.org/10.1108/JHTT-02-2018-0016>
- [37] Ghobadi, M., & Sepasgozar, S. M. E. (2020). An investigation of virtual reality technology adoption in the construction industry. In S. Shirowzhan & K. Zhang (Eds.), *Smart Cities and Construction Technologies*. IntechOpen. <https://doi.org/10.5772/intechopen.91351>
- [38] Sepasgozar, S. M. E. (2020). Digital technology utilisation decisions for facilitating the implementation of Industry 4.0 technologies. *Construction Innovation*, 21(3), 476–489. <https://doi.org/10.1108/CI-02-2020-0020>
- [39] Spence, M. (1973). Job market signaling. *Quarterly Journal of Economics*, 87(3), 355–374.
- [40] Tiago, M. T. P. M. B., & Veríssimo, J. M. C. (2014). Digital marketing and social media: Why bother? *Business Horizons*, 57(6), 703–708. <https://doi.org/10.1016/j.bushor.2014.07.002>
- [41] Vargo, S. L., & Lusch, R. F. (2004). Evolving to a new dominant logic for marketing. *Journal of Marketing*, 68(1), 1–17. <https://doi.org/10.1509/jmkg.68.1.1.24036>
- [42] Pan, Y., & Zhang, L. (2021). Roles of artificial intelligence in construction engineering and management: A critical review. *Automation in Construction*, 122, 103517. <https://doi.org/10.1016/j.autcon.2020.103517>

Online Project Documentation Sources

- [43] Bakrajo Hills. (n.d.). Bakrajo Hills [Facebook page]. Facebook.
- [44] Baran Complex. (n.d.). Baran Complex [Facebook page]. Facebook.
- [45] Dilly SHAR. (n.d.). Dilly SHAR [Facebook page]. Facebook.

- [46] Garden City Slemani. (n.d.). Garden City Slemani [Facebook page]. Facebook.
- [47] Grand Boulevard–Nergis Park. (n.d.). Grand Boulevard–Nergis Park [Facebook page]. Facebook.
- [48] Infinity Towers Iraq. (n.d.). Infinity Towers Iraq [Facebook page]. Facebook.
- [49] MJ Holding. (n.d.). MJ Holding [Facebook page]. Facebook.
- [50] Qaiwan Group. (n.d.). Construction and real estate.
<https://www.qaiwangroup.com/construction-and-real-estate>
- [51] Shari Aram. (n.d.). Shari Aram [Facebook page]. Facebook.
- [52] Shary Snawbar. (n.d.). Shary Snawbar [Facebook page]. Facebook.

أثر التسويق الرقمي على التصميم المعماري لمشاريع الأبراج السكنية: مدينة السليمانية كحالة دراسية

المستخلص:

غدا التسويق الرقمي جزءاً أساسياً من أساليب الترويج للمشروعات العقارية السكنية وعرضها، إذ أتاح للمطورين قنوات إضافية للتعرف إلى تفضيلات المستهلكين وتوقعات السوق. ومع ذلك، ما تزال الأدلة محدودة بشأن مدى ارتباط الملاحظات المستخلصة من البيئة الرقمية بأولويات التصميم المعماري، ولا سيما في المدن النامية. ومن ثم تبحث هذه الدراسة في العلاقة التي يدركها أصحاب المصلحة بين التسويق الرقمي وأولويات التصميم المعماري في الأبنية السكنية العالية بمدينة السليمانية في إقليم كردستان العراق. اتبعت الدراسة منهجاً مختلطاً ذا تصميم مقطعي ارتباطي يركز على تصورات المشاركين. وشمل الجانب الكمي تحليل 210 استبانة صالحة قدمها مشاركون من مجالات العمارة والعقارات والتسويق واستخدام الوحدات السكنية، في حين اعتمد الجانب النوعي على مقابلات شبه منظمة مع خمسة مديري تنفيذيين كبار في شركات بارزة للتطوير العقاري. كشفت النتائج عن ارتباط إيجابي دال إحصائياً بين تقييم ممارسات التسويق الرقمي وتقييم التصميم المعماري، وظهر ذلك بوضوح في الواجهات والتنظيم الفراغي والإطلالات وطرائق العرض البصري والسمات التصميمية المتصلة بالسوق. وأفاد المشاركون في المقابلات بأن وسائل التواصل الاجتماعي والنماذج ثلاثية الأبعاد والواقع الافتراضي تُستخدم لعرض خصائص المشروعات المعمارية واستقبال ردود فعل السوق. في المقابل، ارتبطت سمعة المطور بدرجة أوثق بجودة البناء، ونتائج المشروعات السابقة، والثقة، والقدرة على الإنجاز والتسليم، مقارنة بالاعتماد على الترويج الرقمي وحده. وبذلك تؤكد الدراسة وجود علاقة بين النشاط التسويقي الرقمي وأولويات التصميم كما يدركها أصحاب المصلحة، من دون أن تثبت أن هذا النشاط يسبب بصورة مباشرة تغييرات مادية في تصميم الأبنية السكنية.

الكلمات المفتاحية

التسويق الرقمي؛ التصميم المعماري؛ التطوير العقاري؛ الأبنية السكنية العالية؛ التصور الرقمي؛ سمعة المستثمر؛ مدينة السليمانية

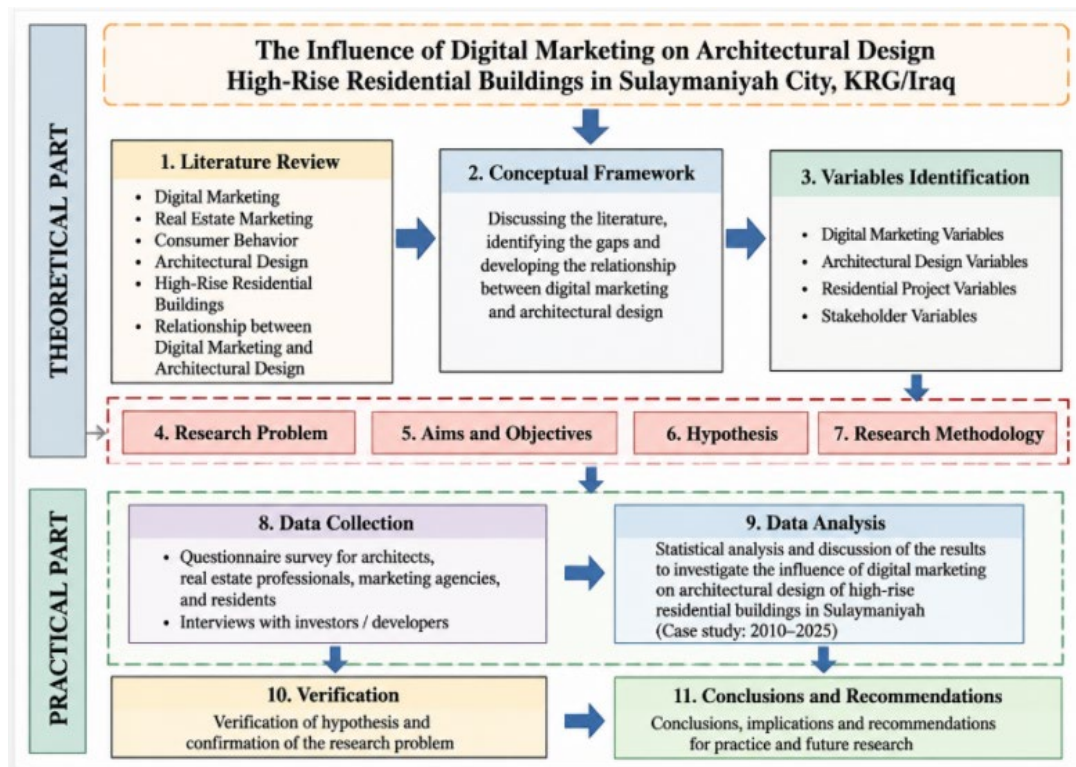


Figure 1: Conceptual framework and sequence of the investigation (source: developed by the researcher).

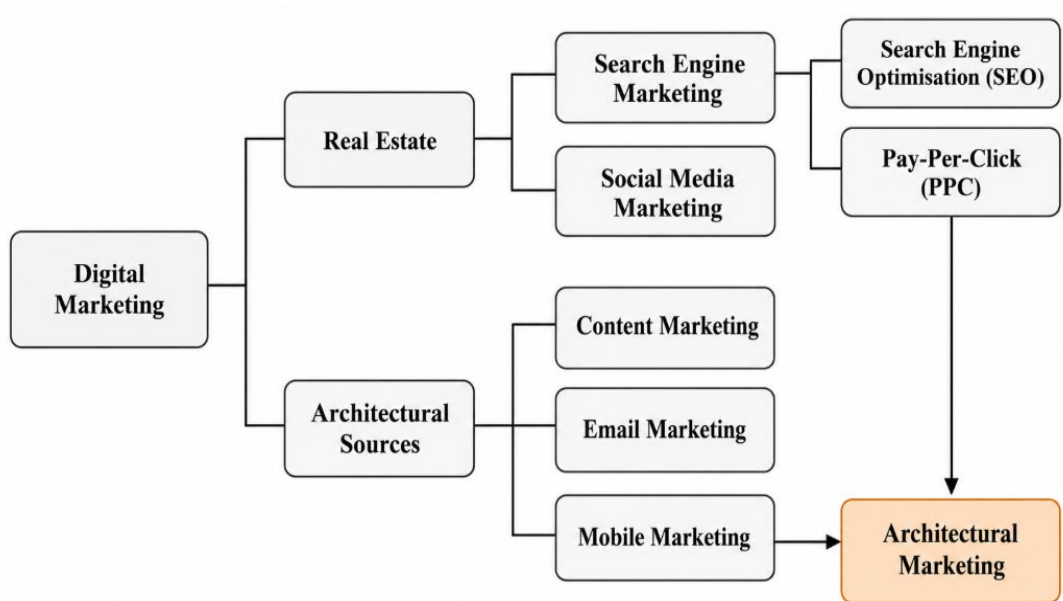


Figure 2: Principal digital-marketing categories applicable to architecture and real estate (source: developed by the researcher from: Ryan, 2016, and Wedel & Kannan, 2016).

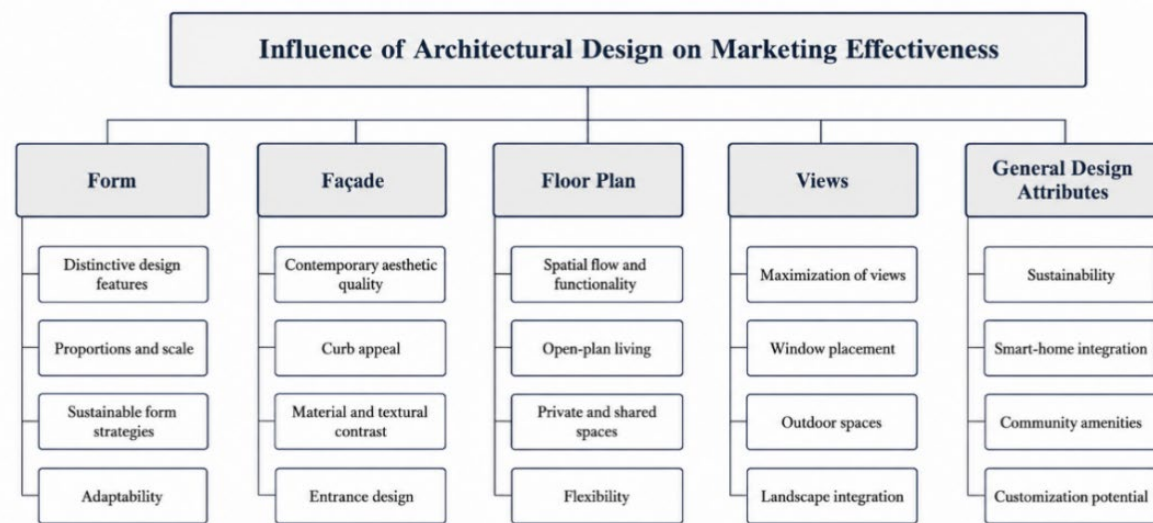


Figure 3: Connections between architectural attributes and marketing effectiveness (source: developed by the researcher from: Ching, 2015; Lawson, 2005; Damigos & Anyfantis, 2011; Fadaei et al., 2015; and Fernando et al., 2023)).

Design Attributes and Their Influence on Real Estate Perception

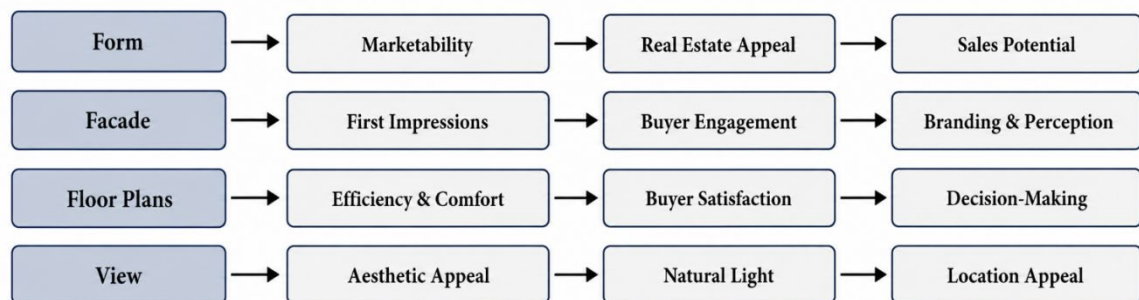


Figure 4: Contribution of form, façades, floor plans, and views to property appeal and purchaser decisions (source: developed by the researcher from: Frampton, 1992).

Table 1: Perceived links between digital-marketing mechanisms and architectural design (source: developed by the researcher from Relph, 1976; Kavaratzis & Ashworth, 2005; and Zukin, 2010).

No.s.	Integration mechanism	Digital marketing role	Perceived relationship with architectural design	Real estate outcome
1	Customer feedback	collects market reactions through online exchanges	can inform design adjustments requested by clients	Closer alignment with expressed consumer demand
2	Digital visualization	employs VR, video, virtual tours, and three-dimensional imagery	makes form, façade treatment, plans, and views easier to assess	Greater consumer participation
3	Relationship marketing	builds confidence through continuing dialogue and tailored interaction	supports design priorities centered on client requirements	Stronger customer confidence and loyalty
4	Market positioning	promotes lifestyle, amenities, environmental qualities, and visual identity	supports distinctive design qualities with clear market appeal	Improved attractiveness of the development
5	Data-informed decision making	Draws on market evidence to interpret customer requirements	Can inform the consideration of architectural priorities	Greater potential for conversion and sales

Table 2: Research variables and their operational indicators (source: developed by the researcher from the conceptual framework and questionnaire design).

1. DIGITAL MARKETING Evaluation (INDEPENDENT)		2. Market Response Qualitative Theme)		3. ARCHITECTURAL DESIGN Evaluation (DEPENDENT VARIABLES)		4. REAL ESTATE OUTCOME Evaluation (FINAL LAYER)	
Main Variable	Indicators	Main Variable	Indicators	Main Variable	Indicators	Main Variable	Indicators
DM1: social media engagement	Likes, comments, shares	MR1 Buyer Behavior	Preferences, Decision Patterns, Search Behavior	AD1: Building Form & Massing	Shape, Scale, Proportion	RE1: Property Value	Market Price, Investment Value
DM2: Digital Content Marketing	Posts, videos, engagement rate	MR2 Investor Response	Investment Interest, Risk Perception, Demand Level	AD2: Façade Design	Materials, Aesthetics, Performance	RE2: Market Competitiveness	Demand Level, Project Ranking
DM3: AI & Analytics	User behavior tracking, predictive insights	MR3 Brand Perception	Trust, Reputation, Prestige	AD3: Spatial Configuration	Layout, Circulation, Flexibility	RE3: Sales Performance	Sales Volume, Occupancy Rate
DM4: Virtual Visualization Tools	VR tours, AR, 3D models	MR4 Conversion Performance	Leads, Bookings, Conversion Rate	AD4: View & Orientation	Internal Views, External Views, Light Access	-	-
DM5: Digital Visibility	SEO, traffic, online reach	-	-	AD5: User Experience	Privacy, Comfort, Emotional Impact	-	-
-	-	-	-	AD6: Market-Driven Design Features	Amenities, Luxury Features, Curb Appeal	-	-

Table 3: Numbers of questionnaires distributed, returned, not returned, excluded, and retained (source: researchers' statistical analysis).

Distributed forms	Retrieved forms		Non- retrieved forms		Invalid forms for Analysis		Valid forms for Analysis	
	Count	%	Count	%	Count	%	Count	%
250	227	90.8	23	9.2	17	6.8	210	92.5

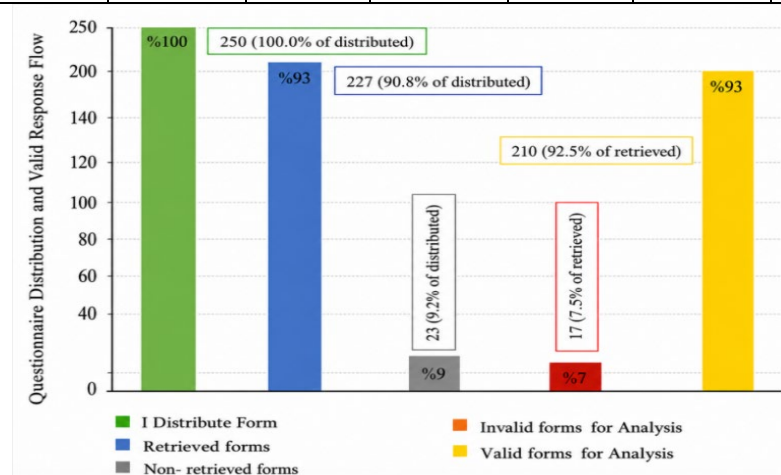


Figure 5: Distribution, return, exclusion, and final retention of questionnaires (source: researcher).

Table 4: Derivation of the questionnaire variables from earlier literature (source: developed by the researcher from the reviewed literature and conceptual framework).

Construct	Indicators	Basis of Item Development	Example Measurement Aspect
Digital Marketing Evaluation	Social media engagement	Chaffey & Ellis-Chadwick (2022); Ryan (2016)	Capacity of social media to communicate residential projects effectively
	Digital content marketing	Chaffey & Ellis-Chadwick (2022)	Clarity and quality of project information provided online
	Virtual visualization tools	Eastman et al. (2011)	Value of VR, AR, and three-dimensional representations
	Digital visibility	Ryan (2016)	Accessibility and strength of the project's online presence
Architectural Design Evaluation	Building form and massing	Ching (2015); Lawson (2005)	Composition of the building and expression of visual identity
	Façade design	Frampton (1992); Fernando et al. (2023)	Visual appearance and environment-related performance
	Spatial configuration	Ching (2015)	Functional arrangement and relationship of spaces
	View and orientation	Damigos & Anyfantis (2011)	Contribution of orientation and outlook to residential value
Real-Estate Outcome Evaluation	Property value	Damigos & Anyfantis (2011)	Stakeholders' perception of housing value
	Market competitiveness	Fadaei et al. (2015)	Comparative attractiveness of the project in the market
	Sales performance	Lemon & Verhoef (2016)	Market reaction and level of interest among buyers

Table 5: Questionnaire statements used to measure the constructs on a five-point Likert scale, from 1 (strongly disagree) to 5 (strongly agree) (source: developed by the researcher from the conceptual framework).

Variables	Coding	Questionnaire Item
Digital Marketing Evaluation	DM1	Social-media channels facilitate communication between property developers and prospective purchasers.
	DM2	Images, video, and written project information distributed digitally make residential schemes easier to understand.
	DM3	Online exchanges generate useful evidence about buyer preferences and prevailing market expectations.
	DM4	Three-dimensional models, virtual tours, and related visualization tools make architectural qualities more comprehensible.
	DM5	A strong digital presence raises public awareness of residential developments.
Architectural Design Evaluation	AD1	The form and massing of a building contribute to the appeal of a residential project.
	AD2	Façade treatment shapes perceptions of a residential building's quality and identity.
	AD3	The organization of space affects both functional performance and residential comfort.
	AD4	Orientation and the quality of views contribute to the value assigned to a housing project.
	AD5	Architectural quality affects residents' experience and level of satisfaction.
	AD6	Amenities and market-responsive design attributes strengthen the appeal of a project.
Real Estate Outcomes	RE1	Perceived property value is enhanced by architectural quality.
	RE2	Clear and persuasive project presentation strengthens market competitiveness.
	RE3	The attributes of a residential project shape buyer interest and confidence in investment.

Table 6: Comparative summary of earlier research on digital marketing, architectural design, and property development (source: developed by the researcher from the reviewed studies).
METHODOLOGY/ DISCUSSION (DATA DESCRIPTIONS)

	Study	Research Focus	Method/ Approach	Main Findings	Relevance to Current Study
1	Bilgihan et al. (2020)	Digital platforms and consumer engagement	Empirical study of digital consumer interactions	Online platforms shape consumer engagement and the way digital information is assessed.	Demonstrates the value of digital communication in stakeholder assessment, although architectural priorities are not examined.
2	Dwivedi et al. (2021)	Digital and social media marketing development	Review of digital marketing research	Digital platforms facilitate consumer participation, market analysis, and the collection of relevant data.	Supplies a theoretical foundation for the Digital Marketing Evaluation construct used here.
3	Jiang et al. (2022)	Digital transformation in the real-estate sector	Digital transformation analysis	Digital technology strengthens information management, communication, and support for decisions.	Confirms the importance of digital systems in property activity but does not address perceptions of architectural design.
4	Ghobadi & Sepasgozar (2020)	Technological innovation across real estate and construction	Review/analysis of technological approaches	Adoption of technology is connected with user requirements, innovation, and the ability of projects to compete.	Connects technological adoption with the evaluation of property development.
5	Abd El-Aziz et al. (2025)	Role of architects in real-estate development	Case-based examination of architects' contributions to development	Architects participate in design, promotion, management of projects, and the creation of value.	Clarifies how architectural practice relates to outcomes in real estate.
6	Fadaei, Iulo & Yoshida (2015)	Architectural attributes and the value of sustainable housing	Analytical study of sustainable housing attributes	Orientation, spatial planning, materials, and openings are among the design variables that shape housing assessment.	Supports the architectural indicators selected for assessment in the present study.
7	Vergara et al. (2023)	Digital transformation in the AEC sector	Review of digital transformation practices	Digital systems improve collaboration, communication, and information flows among stakeholders.	Supports the treatment of digital technology as a communication aid in architectural evaluation.
8	Ali, A. F. (2026).	Digital visualization and reconstruction of heritage buildings in Sulaymaniyah	Case study using BIM, HBIM, VR, and 3D modeling	Digital methods strengthen architectural representation and public comprehension of historic buildings.	Offers local evidence of digital-technology use within Sulaymaniyah.
9	Amin et al. (2026).	Use of advanced technologies in high-rise residential design	Case study of high-rise projects in Sulaymaniyah	BIM, artificial intelligence, parametric methods, and façade technology enable performance-led design decisions.	Informs discussion of the technologies relevant to architectural assessment.
10	Pantano and Di Pietro (2012)	Consumer experience and acceptance of technology-enabled services	Empirical investigation of consumer interaction and technology adoption	Interactive technologies affect users' experience and willingness to accept digital environments.	Helps explain how digital visualization may shape perceptions and assessments of residential developments.

Table 7: Split-half assessment of questionnaire reliability (source: researchers' statistical analysis).

variable	Spearman Correlation coefficient	Spearman Brown
Overall variables	٠,٣٣٧	٠,٥٠٤

Table 8: Cronbach's alpha assessment of questionnaire reliability (source: researchers' statistical analysis).

Variables	Cronbach's alpha	coefficient validity
Total	٠,٨٩٠	٠,٩٤٣

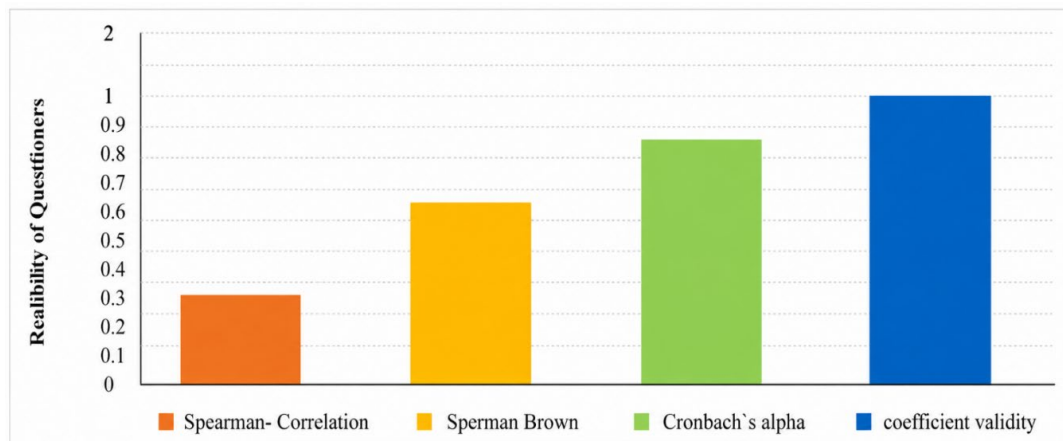


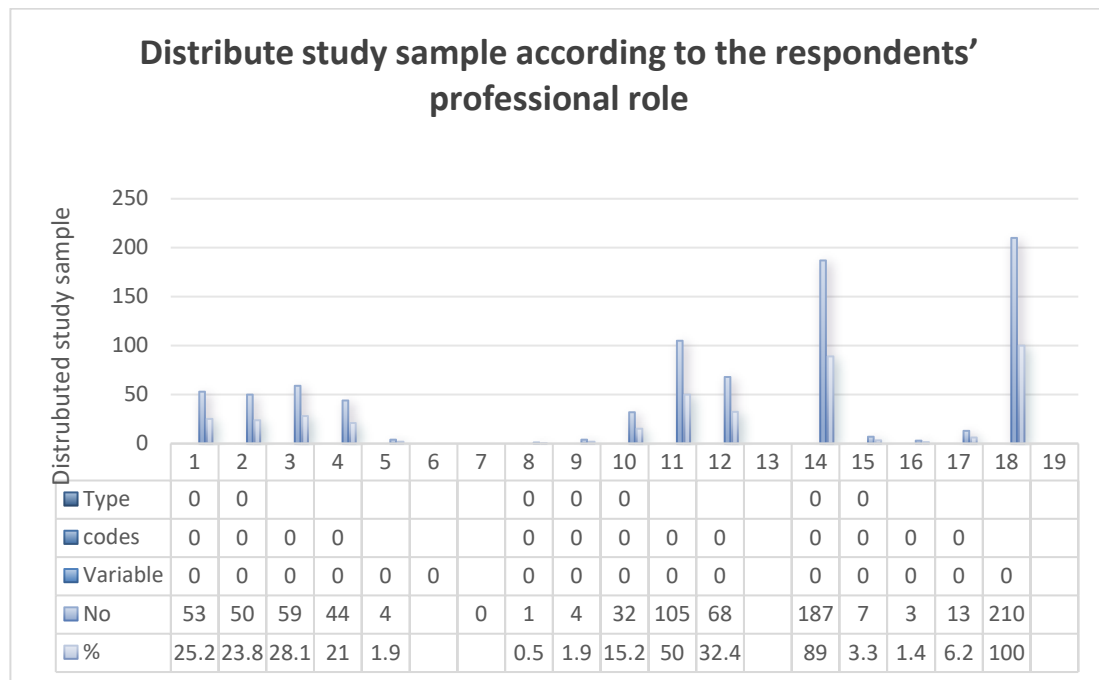
Figure 6: Reliability findings from the split-half procedure and Cronbach's alpha (source: developed by the researcher).

Table 9: Scale used to assess the variables (source: developed by the researcher from the questionnaire and measurement framework).

Category	Variable	0% 1	25% 2	50% 3	75% 4	100% 5
DIGITAL MARKETING VARIABLES	DM ¹ :social media engaement					
	DM ² : Digital Content Marketing					
	DM ³ : AI & Analytics					
	DM ⁴ : Virtual Visualization Tools					
	DM ⁵ : Digital Visibility					
ARCHITECTURAL DESIGN VARIABLES	AD ¹ :Building Form & Massing					
	AD ² :Façade Design					
	AD ³ :Spatial Configuration					
	AD ⁴ :View & Orientation					
	AD ⁵ :User Experience					
REAL ESTATE OUTCOME VARIABLES	AD ⁶ :Market-Driven Design Features					
	RE ¹ :Property Value					
	RE ² :Market Competitiveness					
	RE ³ : Sales Performance					
	MR ¹ Buyer Behavior					
MARKET RESPONSE	MR ² Investor Response					
	MR ³ Brand Perception					
	MR ⁴ Conversion Performance					

Table 10: Distribution of the sample by respondents' professional roles (source: Researcher From survey data collected and analyzed by the authors).

Type	codes	Variable	No	%
Group 1: professional role	B1	Education (highest degree completed in (Architecture	53	25.2
	B2	Real Estate Expert (professionals)	50	23.8
	B3	Client / Customer	59	28.1
	B4	marketing agency (professionals	44	21
		Other	4	1.9
Group 2: Residential real estate projects familiar	B5	Not familiar at all	1	0.5
	B6	Slightly familiar	4	1.9
	B7	Moderately familiar	32	15.2
	B8	Familiar	105	50
	B9	Very familiar	68	32.4
Group3: learn about new residential projects	C1	Social media (e.g., Instagram, Facebook)	187	89
	C2	Real Estate Websites	7	3.3
	C3	Email or Mobile Alerts	3	1.4
	C4	Word of Mouth	13	6.2
		Total	210	100



Distribution of respondents according to professional role.

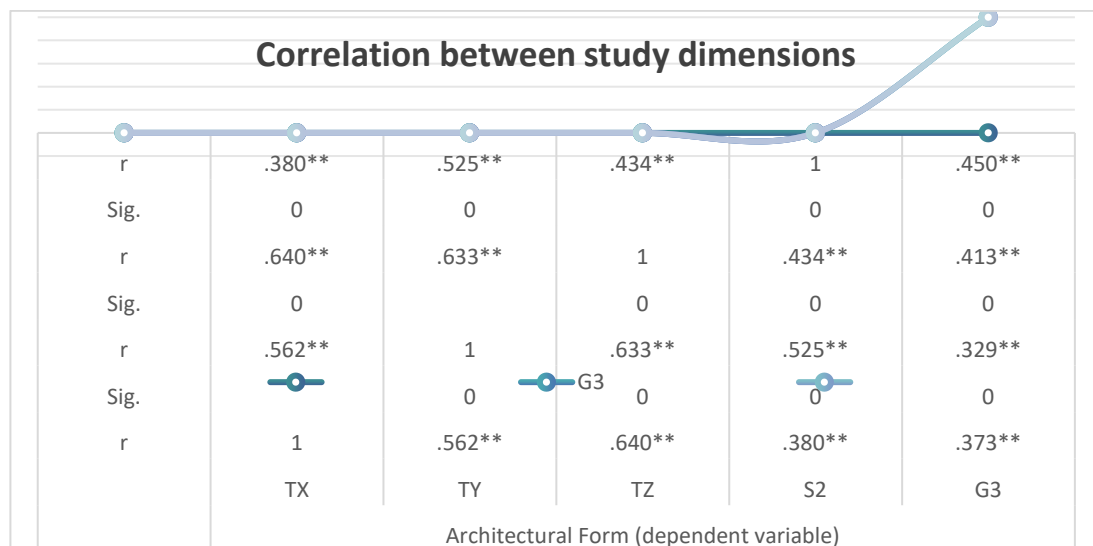
Figure 7: Professional-role distribution of survey respondents (source: researcher).

Table 11: Correlations among the research dimensions (source: researchers' statistical analysis).

Dimensions	Architectural Form (dependent variable)
------------	---

		TX	TY	TZ	S ₂	G ₃
TX	r	1	**062.	**64.	**38.	**373.
	.Sig		.,.,.	.,.,.	.,.,.	.,.,.
TY	r	**062.	1	**633.	**020.	**329.
	.Sig	.,.,.		.,.,.	.,.,.	.,.,.
TZ	r	**64.	**633.	1	**434.	**413.
	.Sig	.,.,.	.,.,.		.,.,.	.,.,.
S ₂	r	**38.	**020.	**434.	1	**450.
	.Sig	.,.,.	.,.,.	.,.,.		.,.,.
G ₃	r	**373.	**329.	**413.	**450.	1
	.Sig	.,.,.	.,.,.	.,.,.	.,.,.	

= Note. Correlations are significant at the .,., level. r = Pearson coefficient; TX = Digital Marketing Evaluation; TY = Architectural Design Evaluation; TZ = Real-Estate Evaluation; S₂ = Architectural Design Evaluation for all projects; G₃ = Digital Marketing Evaluation for all projects =

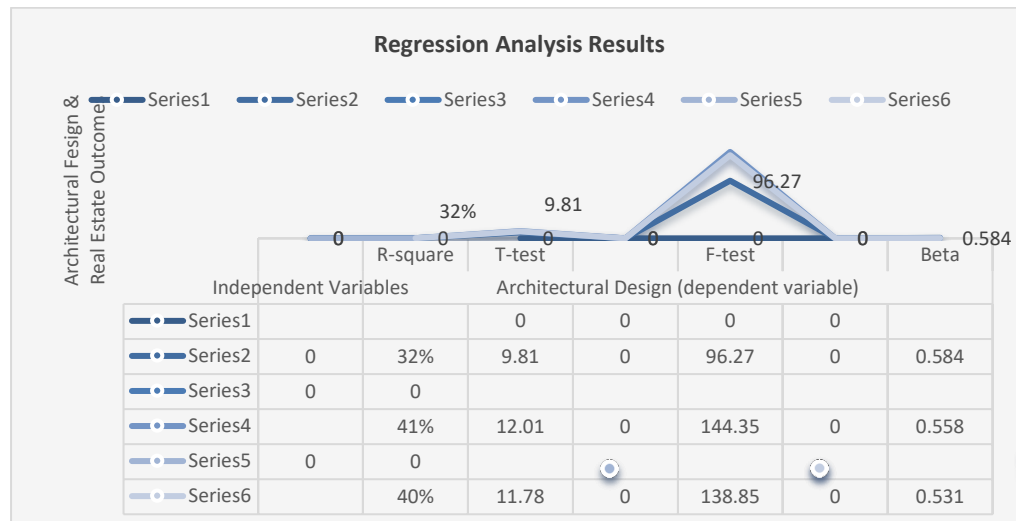


Pearson correlation matrix for the architectural-form dimensions.

Figure 8: Correlations among the study dimensions (source: researcher).

Table 12: Regression models linking Digital Marketing Evaluation, Architectural Design Evaluation, and Real-Estate Evaluation (source: researchers' statistical analysis).

Independent Variables	Dependent Variable	Architectural Design (dependent variable)					
		R-square	T-test		F-test		β
			F-test	P-value	t-test	P-value	
Digital Marketing Evaluation	Architectural Design Evaluation	32%	9,81	.,...	96,27	.,...	.,084
Digital Marketing Evaluation	Real Estate Evaluation	Real Estate					
		41%	12,01	.,...	144,30	.,...	.,008
Architectural Design Evaluation	Real Estate Evaluation	Real Estate					
		40%	11,78	.,...	138,80	.,...	.,031



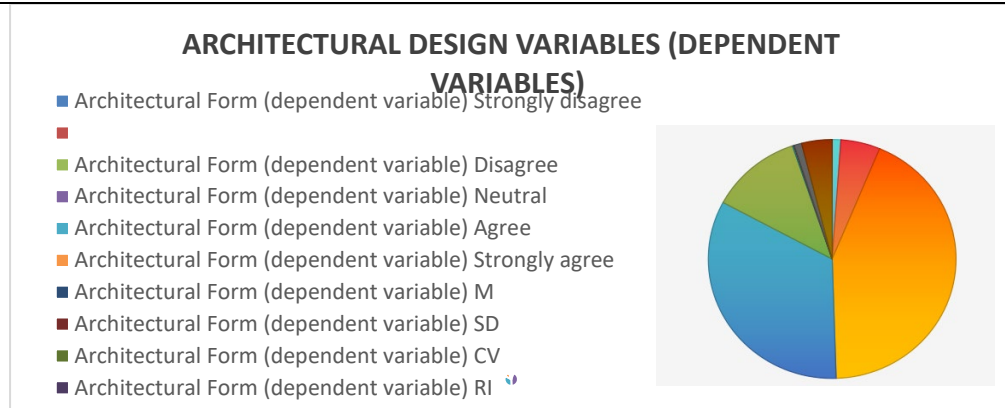
Evaluation of the questionnaire's split-half reliability results.

Figure 9: Graphical summary of the regression findings (source: researcher).

Table 13: Questionnaire means, standard deviations, and relative-importance values (source: researchers' statistical analysis).

Independent Variables	Architectural Form (dependent variable)								
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	M	SD	CV	RI
ARCHITECTURAL DESIGN VARIABLES (DEPENDENT)	20,00	91,00	766,00	591,00	212,00	3,53	0,61	17,30	70,50
DIGITAL MARKETING VARIABLES (INDEPENDENT)	1,00	6,00	77,00	81,00	45,00	3,78	0,83	21,97	70,50
REAL ESTATE OUTCOME VARIABLES (FINAL OUTPUT LAYER)	30,00	32,00	175,00	198,00	195,00	3,79	0,69	18,22	70,70
Qualitative Themes from Investor Interviews	6,00	38,00	230,00	513,00	893,00	4,34	0,58	13,37	86,70

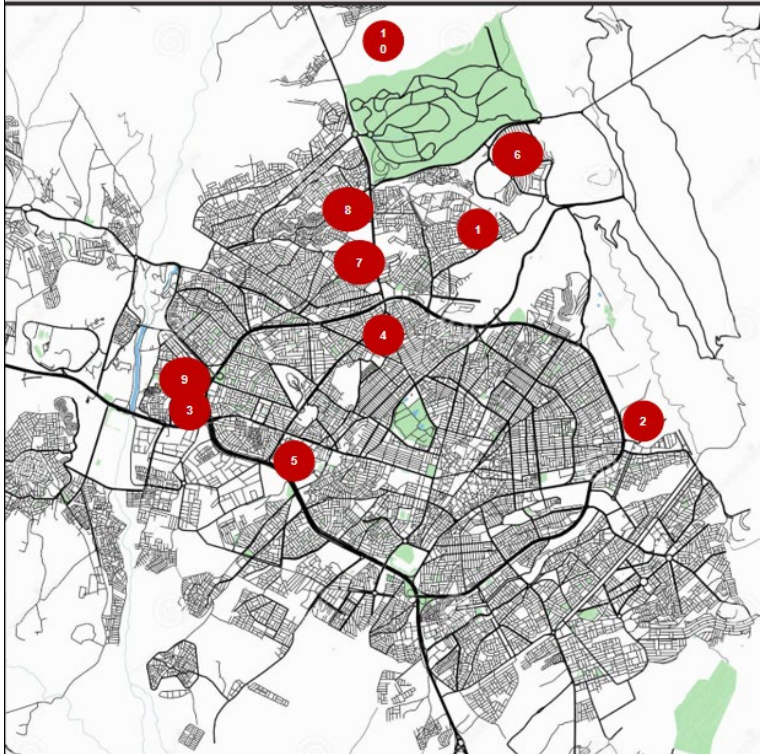
.Note. M = weighted mean; SD = standard deviation; CV = coefficient of variation; RI = relative importance

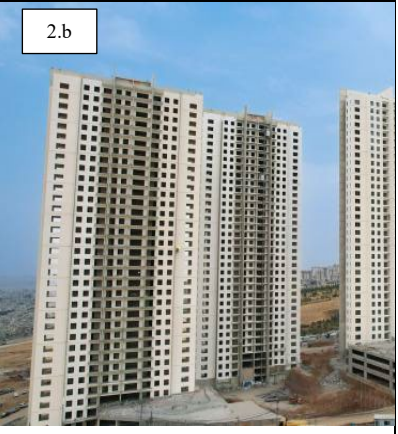
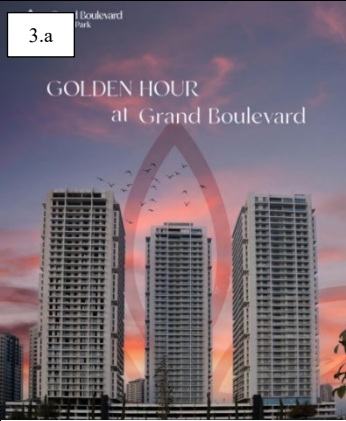
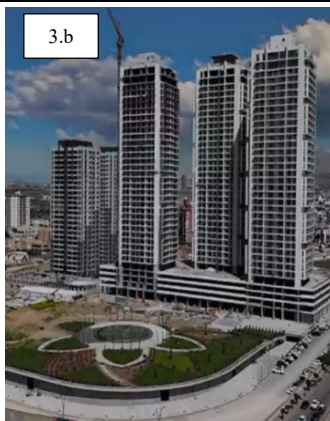


Likert-response distribution for variables related to architectural design

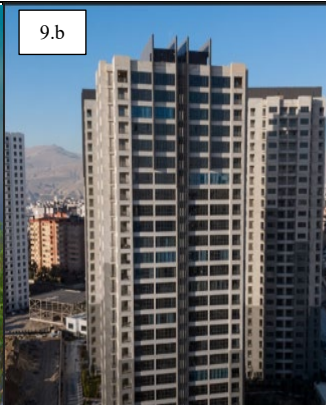
Figure 10: Grouped-bar presentation of questionnaire results (source: researcher).

Table 14: Selected high-rise housing projects, digital-promotion practices, and architectural characteristics (source: **developed by the researcher from project records and field observation**).

projects	Description	Marketing Illustrations	Real- Time Illustrations
Sulaimani master plan	Location of the projects in Sulaymaniyah city		
	Developer/ company	Halabja Group	
	Architectural Characteristics	Residential development planned according to contemporary principles and supported by integrated community facilities	
	Design Features and Contextual Elements	Landscaped open space, greenery, a modern residential setting, and contemporary façade treatment	
	Digital Marketing and Presentation Methods	Social networks, online project displays, digital imagery, and promotional material	
Pl: Garden city village			
	Figure 1.a in Table 14 presents the project's marketing image (source: its official account; Garden City Slemani, n.d.), while Figure 1.b documents construction progress (source: researcher). The company is led by a modern, growth-oriented executive who uses marketing actively to generate prospective customer leads. Although current promotional practices broadly resemble those adopted by competing developments, the interview indicates a more ambitious intention to advance future marketing activity (see Investor Interview).		

P2: Aram city	Developer/ company	Energy Erasion	 
	Architectural Characteristics	High-rise housing project representing a contemporary model of urban living	
	Design Features and Contextual Elements	Modern tower forms, coordinated residential planning, a contemporary architectural language, and shared community facilities	
	Digital Marketing and Presentation Methods	Communication on social networks, online advertising, and digital visualization of the development	
Figure 2.a in Table 14 is a marketing image obtained from the project's official account (Shari Aram, n.d.). Figure 2.b in Table 14 records construction conditions (source: researcher). Although the developers are relatively recent entrants to the local market, the scheme's strategic setting and broad views substantially strengthen its market appeal.			
P3: Grand Boulevard – Nergis Park	Developer/ company	Balla Group	 
	Architectural Characteristics	High-rise housing development with a contemporary urban character	
	Design Features and Contextual Elements	Modern tower composition, landscaped areas, planning oriented to the boulevard, and contemporary façade design	
	Digital Marketing and Presentation Methods	Social-media channels, online promotional material, project visualization, and digitally presented architectural content	
Figure 3.a in Table 14 presents a marketing image from the project's official account (Grand Boulevard-Nergis Park, n.d.); Figure 3.b is a construction photograph taken by the researcher. As the developer's first property venture, the project depends heavily on online promotion and virtual tours to establish awareness and attract prospective customers (see Investor Interview).			
P4: White Towers	Developer/ company	MJ Holding	 
	Architectural Characteristics	Planned residential high- rise development formed by three towers	
	Design Features and Contextual Elements	Contemporary apartment living, compact urban form, accessible planning, and efficient functional layouts	
	Digital Marketing and Presentation Methods	Digital project presentation and promotional content.	
Figure 4.a in Table 14 is a marketing image from the project's official account (MJ Holding, n.d.). Figure 4.b in Table 14 shows the construction stage (source: researcher). The developer is widely known for using conventional promotion and recommendations from previous customers to build awareness and confidence. Digital campaigns could nevertheless broaden the project's audience and improve its visibility (see Investor Interview).			

P5: Dilly Shar	Developer/ company	Ali Hadi/ HSC	5.a	5.b
	Architectural Characteristics	Mixed-use scheme comprising four residential towers together with commercial accommodation		
	Design Features and Contextual Elements	Retail uses, landscaped space, urban accessibility, and the coordinated provision of residential and commercial functions		
	Digital Marketing and Presentation Methods	Social media promotion and visual communication.		
	Figure 5.a in Table 14 is a marketing image from the project's official account (Dilly SHAR, n.d.). Figure 5.b in Table 14 depicts the project under construction (source: researcher).			
The development combines conventional promotion with online marketing for its residential complexes. Despite the benefits of its location, the developer has only recently entered the market, so the quality of its completed work has not yet been established fully.				
P6: Sulaimanyah Heights	Developer/ company	Qaiwan Group	6.a	6.b
	Architectural Characteristics	Large high-rise residential project comprising 17 vertical towers and a mixture of housing units		
	Design Features and Contextual Elements	A strategically placed site with attractive landscape views, contemporary housing planning, and high construction standards		
	Digital Marketing and Presentation Methods	Online promotion, digital presentation, and visual communication of the development's principal attributes		
	Figure 6.a in Table 14 is a promotional image obtained from the project's official account (Qaiwan Group, n.d.). Figure 6.b in Table 14 is a construction photograph taken by the researcher.			
The project is visible online and uses digital advertising; nevertheless, interview evidence suggests that its developer gives comparatively greater weight to established reputation and customer recommendations (see Investor Interview).				
P7: Shary Snawbar	Developer/ company	Himada d Hamid	7.a	7.b
	Architectural Characteristics	High-rise residential scheme consisting of nine towers		
	Design Features and Contextual Elements	Contemporary vertical housing, efficient use of land, environmental considerations, affordable units, and a strategic urban setting		
	Digital Marketing and Presentation Methods	Digital project displays, communication on social media, and visual marketing content		
	Figure 7.a in Table 14 is a promotional image from the project's official account (Shary Snawbar, n.d.). Figure 7.b in Table 14 records the construction stage (source: researcher).			
A well-resourced marketing office and developed digital strategy project a distinctly contemporary image.				

P8: Infinity Towers	Developer/ company	Nawkar Holding	8.a	8.b
	Architectural Characteristics	High-rise housing development formed by four towers offering vertical residential solutions		
	Design Features and Contextual Elements	A Golden Zone location characterized by panoramic outlooks, contemporary design, and efficient spatial organization		
	Digital Marketing and Presentation Methods	Online advertising, digital visualization, and visual presentation of architectural attributes		
Figure 8.a in Table 14 is a marketing image obtained from the official project account (Infinity Towers Iraq, n.d.); Figure 8.b documents construction (source: researcher).				
Its developed digital strategy and equipped marketing office convey a contemporary identity. As a relatively new developer, however, the company has not yet accumulated the level of market credibility held by longer-established competitors.				
P9: Baran Complex	Developer/ company	Faruk Group	9.a	9.b
	Architectural Characteristics	Completed premium high-rise development comprising three residential towers		
	Design Features and Contextual Elements	Modern vertical housing, 25-storey towers, and premium residential units		
	Digital Marketing and Presentation Methods	Visibility developed mainly after completion through construction quality, resident experience, and established reputation		
Figure 9.a in Table 14 is a marketing image from the project's official account (Baran Complex, n.d.); Figure 9.b is a construction photograph supplied by the researcher.				
Because the investor already holds a strong reputation and an established market position, formal campaigns are considered less necessary. Projects are commonly publicized once complete, after which prospective purchasers visit and judge the finished product directly (see Investor Interview) .				
P10: The Mayorca City	Developer/ company	MJ Holding	10.a	10.b
	Architectural Characteristics	Residential scheme combining horizontal housing types with vertical development		
	Design Features and Contextual Elements	Three development areas, several housing choices, efficient land use, and attention to affordability		
	Digital Marketing and Presentation Methods	Online communication and digital marketing materials.		
Figure 10.a in Table 14 is a promotional image from the project's official account (MJ Holding, n.d.). Figure 10.b in Table 14 shows construction progress (source: researcher).				
The investor is recognized for relying on established forms of promotion and word-of-mouth to develop customer trust and project recognition. Online marketing could still extend the audience and reinforce visibility (see Investor Interview).				

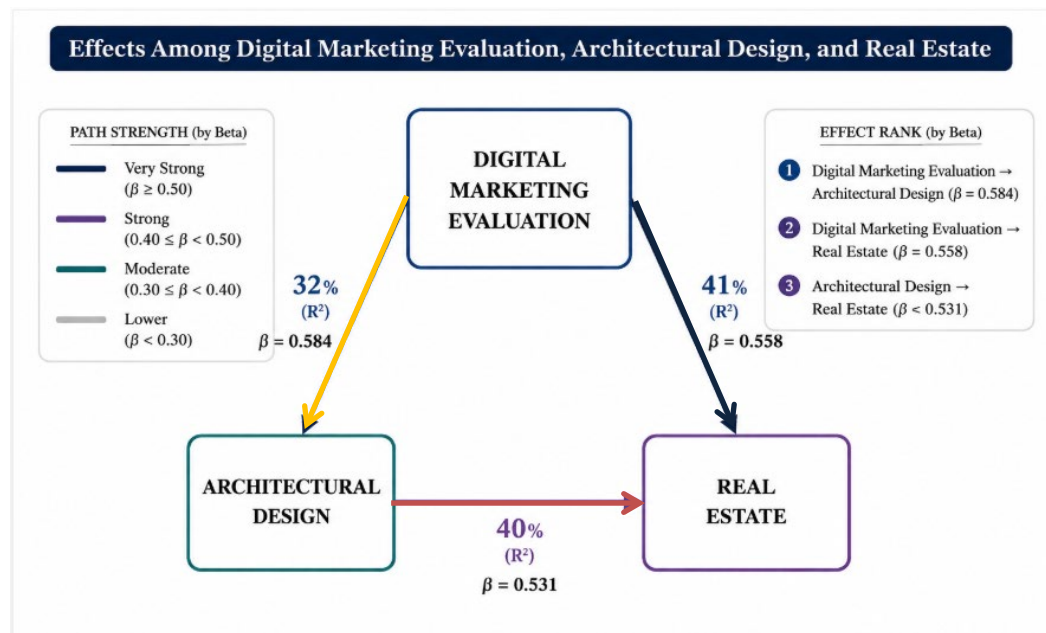


Figure 11: Relationships among Digital Marketing, Architectural Design, and Real Estate (source: researchers' statistical analysis). Standardized path coefficients are shown as β , and R^2 gives the variance explained in each dependent construct.

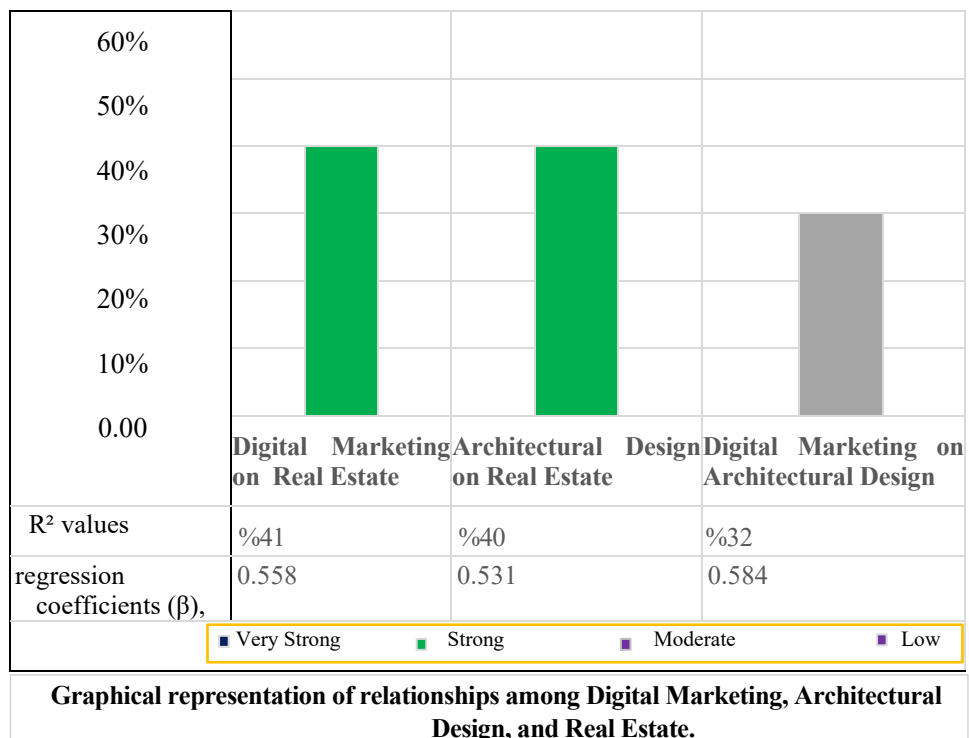


Figure 12: Graphical representation of relationships among Digital Marketing, Architectural Design, and Real Estate. (Source: Researcher)

Investor's Interview:

Figure 13: Profiles of participating real-estate executives and their principal projects in Sulaymaniyah (source: researcher, based on interviews conducted in May 2026).

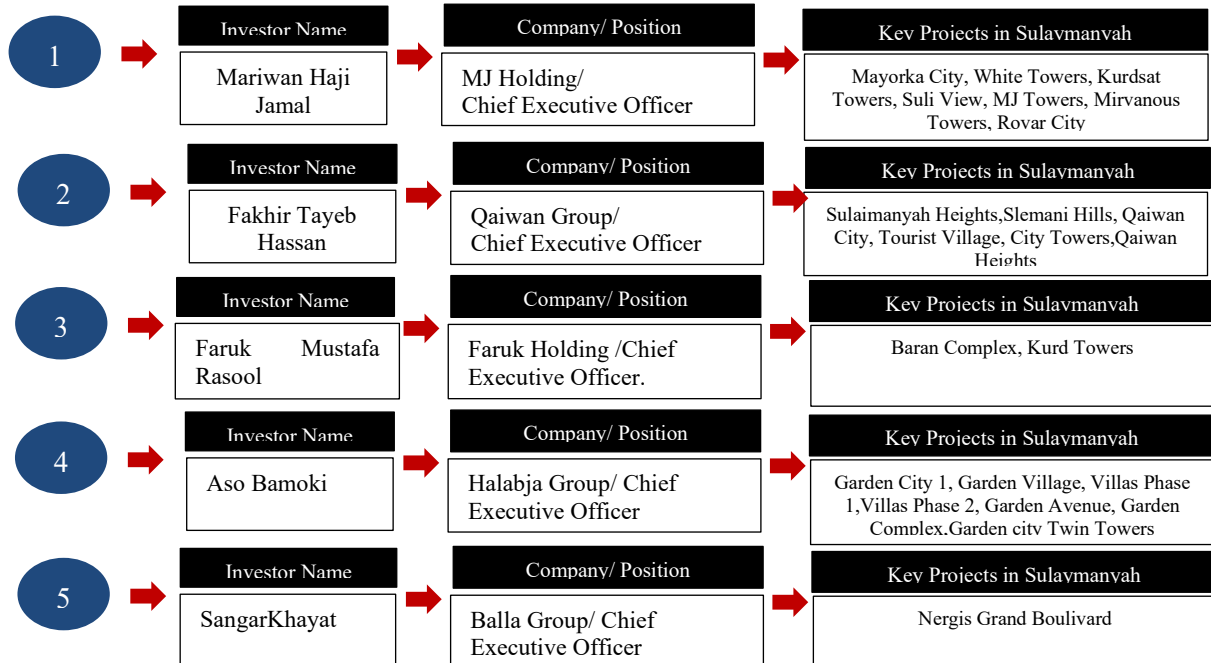


Table 15: Interview questions and synthesis of the principal responses (source: researcher, based on interviews conducted in May 2026).

Questions	Summary of Respondents' Answers
1. How is architectural design used in promoting residential developments?	Interviewees regarded architecture as one of a project's main selling points. Contemporary or high-end design, sound construction, smart-home systems, landscape treatment, sustainability, distinctive form, and a consistent identity were among the qualities they believed could attract buyers and set a development apart.
2. What digital channels and presentation tools are used to promote residential projects?	Social networks accounted for the largest portion of the responses, though YouTube, paid advertising, 3-dimensional representations, and virtual reality presentations were reported as effective to raise the profile of and communicate a design to a buyer or investor. On the other hand, company brand and individual referrals still played a significant role for some respondents.
3. What factors strengthen the confidence of buyers and investors in a residential project?	The three aspects relating to buyers' confidence were primarily focused on: successful completion of projects, consistent output quality, meeting deadlines reliably, transparent communications, and ultimately the overall experience the customer had. It was further noted that a prior reputation for a company will foster buyer's confidence, encouraging repurchase.
4. How are local cultural conditions reflected in architectural and marketing decisions?	Some developers referred selectively to local culture through traditional materials, landscapes associated with Kurdish identity, courtyards, and messages centered on community. Others preferred a contemporary architectural vocabulary that they considered more consistent with present lifestyles and market demand.
5. Which characteristics contribute most to the appeal and marketability of a residential development?	Respondents associated market appeal with design quality, location, price, security, green space, views, sustainability, and a recognizable visual character. In their view, architecture organizes these elements into a coherent identity that can speak to both buyers and investors.
6. What allows a project to compete when its use of digital marketing is limited?	Competitive strength was attributed to construction quality, a proven reputation, the success of previous developments, knowledge of the market, innovation, affordability, and customer confidence. Digital communication may make these advantages more visible, but participants did not consider it a substitute for

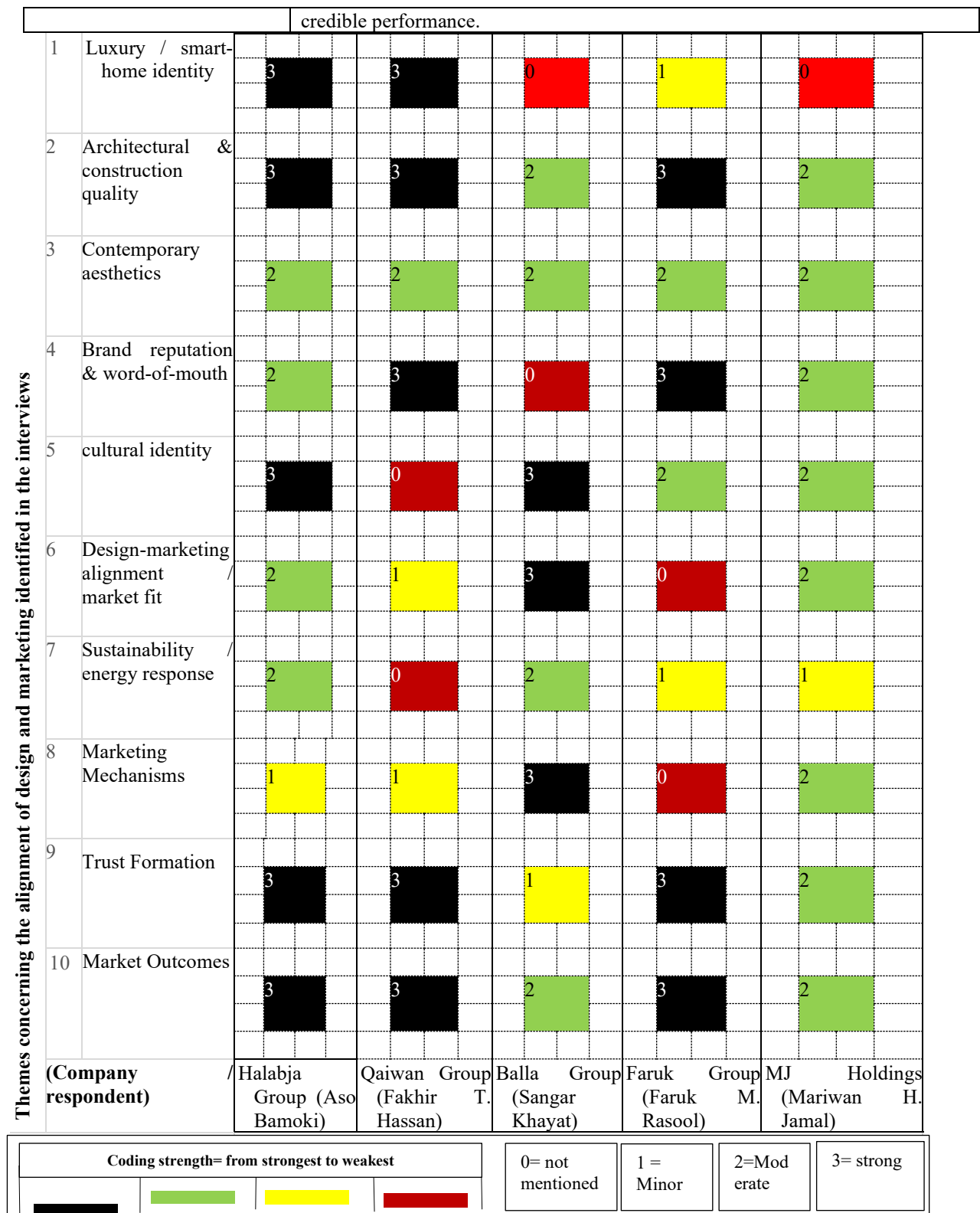


Figure 14: Thematic Coding Heat map of design- marketing integration in residential development (source: Researcher based on investor interview conducted in May 2026)

Table 16: Thematic interpretation of design-marketing integration in residential projects (source: researcher, based on interviews conducted in May 2026).

Thematic Factors		Mean Coding Score *	main Dimension	Interpretation of Interview Findings
1	Architectural & construction quality	2.6	Architectural Design	Architectural and construction quality was the most prominent design theme, repeatedly identified as essential to attracting purchasers and reinforcing project value.
2	Market outcomes	2.6	Real Estate	In the interviews, buyer interest and market performance were discussed in relation to design quality, reputation, location, and the particular qualities of each development.
3	Trust formation	2.4	Real Estate / Marketing	Trust was said to grow from completed work, dependable standards, accumulated experience, and constructive relationships with purchasers.
4	Contemporary aesthetics	2.0	Architectural Design	Every company recognized contemporary architectural expression as an element of residential identity and market appeal.
5	Brand Reputation, word of Mouth	2.0	Marketing / Real Estate	Even where digital promotion was modest, reputation and customers' previous experience continued to exert strong influence on purchase decisions.
6	Cultural identity	2.0	Architectural Design	Approaches to culture differed: some firms adopted Kurdish-inspired materials and forms, whereas others prioritized contemporary market preferences.
7	Design–marketing alignment / market fit	1.6	Design/ Marketing	The deliberate alignment of architectural design with promotional strategy differed substantially across the interviewed firms.
8	Luxury / smart-home identity	1.4	Architectural Design / Marketing	Luxury positioning and smart-home provision were important to certain developers but did not constitute a shared strategy across the sector.
9	Marketing mechanisms	1.4	Digital Marketing	Adoption of social media, paid online campaigns, three-dimensional imagery, and VR was uneven; several firms continued to depend more on reputation and referrals.
10	Sustainability / energy response	1.2	Architectural Design / Real Estate	Sustainability was an emerging rather than fully established concern, appearing mainly in relation to solar power and the reliability of electricity supply.
*Coding scale: 0 = absent, 1 = limited, 2 = moderate, and 3 = strong.				

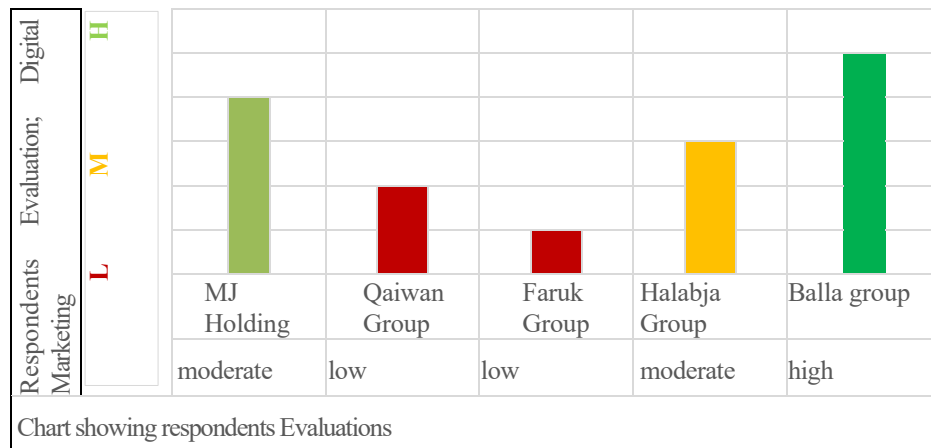


Figure 15: Interview participants' assessment of digital-marketing practices in the promotion of high-rise housing (source: *researcher, based on interviews conducted in May 2026*).

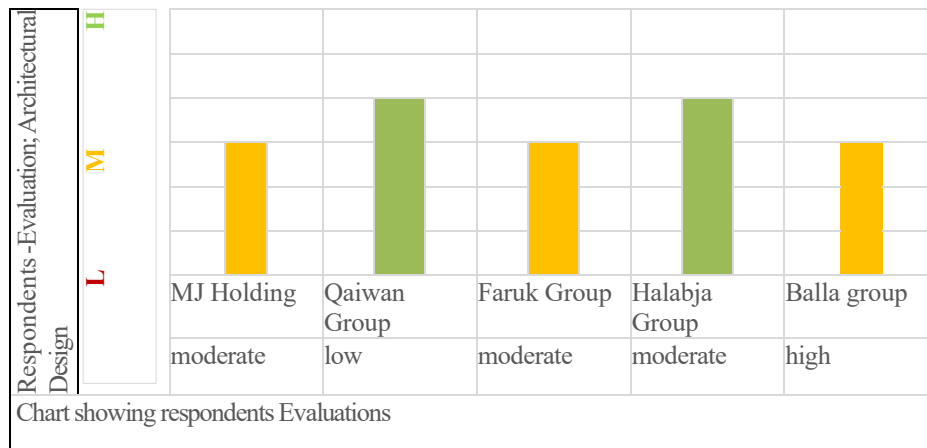


Figure 16: Interview participants' evaluation of architectural design in the marketing of high-rise housing (source: *researcher, based on interviews conducted in May 2026*).

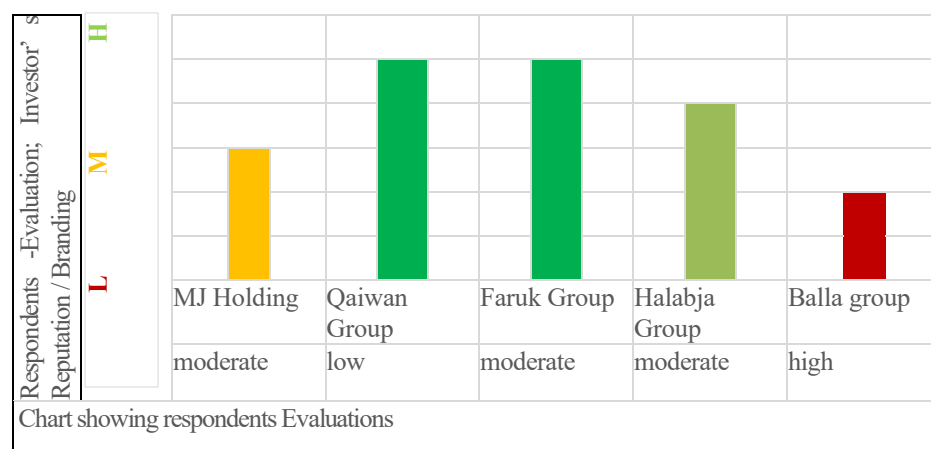


Figure 17: Interview participants' evaluation of investor reputation and branding in high-rise residential marketing (source: *researcher, based on interviews conducted in May 2026*).