

Characteristics of the Construction Industry from the Marketing Viewpoint: Challenges and Solutions

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Abstract

Marketing management plays a crucial role in successful companies. However, marketing has been either misunderstood or entirely neglected in numerous construction companies because it is difficult to apply conventional marketing strategies due to specific characteristics of the industry. This study systematically investigates the characteristics of the construction industry and their effects on marketing management. A systematic literature review covering scientific papers from 1995 to 2015 (556 scientific papers) identifies 16 characteristics, which are organized into two main categories—the construction industry and construction product-related industry. 'Fragmentation' was the most highlighted characteristic.

A total of 10 identified characteristics, according to the experts' opinions gathered through the questionnaire, may affect the construction marketing, of which "competitive bidding mechanism" and "project-based nature of the industry" have the greatest effect. Through a combination of literature review and focus group study, the challenges resulting from each of these 10 particularities regarding various dimensions of marketing are examined and practical solutions are suggested for overcoming these challenges. The main suggestion is the modification of the traditional marketing mix (4Ps) by eliminating "place" and adding four elements—profile, pooling, phase, and presenter. Therefore, a tailored marketing mix for construction companies is developed, with seven elements (7Ps). Moreover, marketing research and marketing intelligence systems are vital marketing tools for construction companies and should allocate adequate resources and responsible staffing levels for these activities.

Keywords: Construction Industry; Marketing Management; Marketing Mix; Construction Characteristics; Focus Group.

1. Introduction

The construction industry plays a significant role in the economic growth and development of all countries. The construction environment is characterized by a high level of competition, complex operations, high-risk conditions, and well-informed clients [1, 2]. The competitive bidding system in the construction industry—often based on the lowest price—leads to a high bargaining power of the clients. Furthermore, construction firms are generally unable to induce demand for their services and must participate in a bidding process to generate new projects [3].

These circumstances result in a high rate of business failure in the construction industry—greater than that of numerous other industries in recent decades [4, 5].

Because of these difficult conditions, construction companies must find methods to survive and maintain a steady workflow. In this context, marketing may create a sustainable competitive advantage, contribute to continuous growth and help increase the bargaining power in biddings and negotiations [6].

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Numerous definitions of marketing have been suggested by academics and practitioners. The American Marketing Association Board of Directors [7] defines marketing as 'the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large'.

Marketing management is one of the most important activities in all business sectors because of its direct impact on profitability, customer satisfaction, and business success. Effective marketing may create numerous advantages for construction firms, including sustainable growth, increased profits, increased sales and client satisfaction, development of brand identity, entrance into new markets, improved customer loyalty and reputation, enhanced procurement processes and coordination capability, and quality improvement [8-10].

However, marketing in the construction industry still remains undeveloped and misunderstood, and numerous practitioners view marketing and its benefits with skepticism [11, 12]. Furthermore, a systematic approach to marketing is not observed among construction companies [13]. Surveys in the USA, the UK, Turkey, Russia, Indonesia, Malaysia, Croatia, Nigeria, and Jordan indicate that the marketing budget and commitment to marketing management in the construction industry are substantially lower than that in other industries [11, 12, 14-20]. A similar condition is observed in the academic sector and very little scientific research has been conducted on this topic [21].

Researchers believe that a key reason for this situation is that certain characteristics of the construction industry make it difficult to apply the theories and techniques of conventional marketing—such as service and industrial marketing—in the construction industry [3, 11, 18]. The characteristics of the construction industry and their consequences have been investigated from different perspectives, including the production system, flow management, construction technology, knowledge management, innovation, and comparison with other project-based industries, and some solutions have been suggested by researchers [22-27]. However, from the marketing viewpoint, only some characteristics of the construction industry have been considered in literature, without investigation of their effects on marketing. Therefore, it is necessary to investigate the effects of the specific characteristics of the construction industry on marketing management for developing tailored marketing strategies and theories for construction companies [28].

This study investigates the characteristics of the construction industry and their effects on marketing management from various dimensions. This paper is organized as follows: First, characteristics of the industry are identified through a systematic review of prior studies. Then, the importance and degree of specificity of these characteristics are determined by use of a questionnaire issued to industry professionals and scholars. Finally, the challenges associated with each characteristic are examined and solutions to overcome them are suggested.

2. Characteristics of the Construction Industry

The characteristics of the construction industry and construction products have been investigated by scholars from various management viewpoints. Nam and Tatum [24] state that constructed products have five features—immobility, complexity, durability, costliness, and high level of social responsibility. Kangari [29] notes that the construction industry is fragmented, sensitive to economic change, and highly competitive. Arditi et al. [12] state that the industry is capital-intensive and location- and weather-dependent, and involves a complex long-term procurement process. In comparison to project-based industries, Vrijhoef and Koskela [26] identify the peculiarities of the construction industry, including on-site production, extremely low-volume and repetitive projects, fragmentation of the industry, and one-off capital-intensive products. Polat [3] mentions that construction products are complex, bulky, and very expensive, and do not exist prior to their purchase. Alarcón and Mesa [30] note that the building sector is a fragmented, complex, high-risk, and multiparty business. Kärnä [31] highlights the difficulty in using past experiences in new projects because of the complex and project-based nature of the industry.

Additional characteristics of the construction industry have been implied in numerous other studies. Therefore, a systematic literature review was conducted to identify all of the characteristics of the construction industry. For this purpose, combinations of key terms related to "the construction industry" and "characteristics and nature" (Figure 1) were used to search databases, including ScienceDirect, ASCE, Taylor & Francis, Ebsco, Emerald and Google Scholar for articles published from 1995 to 2015.

A total of 41 characteristics were identified from 556 unique studies that addressed one or more aspects of the industry. These characteristics were consolidated into 16 items in two categories (Tables 1 and 2). Group 1 includes characteristics related to the industry and its external environment, while Group 2 comprises characteristics associated with construction products, including both services and physical end structures. Item A1 (fragmentation) is the most highlighted characteristic of the industry found in prior studies—mentioned in 155 of the 556 identified papers, whereas the characteristics A2, A3, and A4 are mentioned in 91, 56, and 47 papers, respectively.

The extent of the effect of each characteristic differs for various management fields within the construction industry, such as SCM, HRM, HSE, KM, and ICT. Consequently, only certain characteristics are highlighted for each of the management fields as affecting and distinctive factors in prior studies. Column 2 of Tables 1 and 2. lists the types of

management field that are affected by each characteristic. The data provided in these tables indicate that certain characteristics influence as many as 10 areas (A1), while certain other characteristics influence only two areas.

Six of the characteristics have been implied in prior studies as characteristics of the industry from the marketing perspective, four of which (B3 to B6) are related to products of the industry, and two (A2 & A5) to the industry environment. Therefore, it seems that the marketing characteristics related to the products have been discussed by scholars more often than the industry environment.

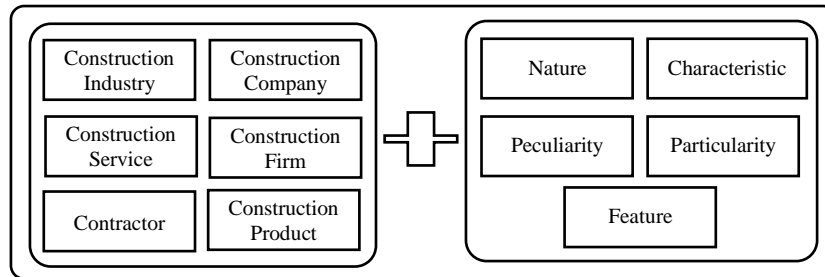


Figure 1. Search strategy to identify the characteristics of the construction

Table 1. Characteristics of the construction industry and affected management fields

Characteristics of the industry	Management field
A1. highly fragmented and multi-disciplinary	KM, HR, Safety, BIM, SCM, Innovation, LC, QM, CS, ICT
A2. dynamic and cyclical industry	safety, automation, marketing, HRM, BIM, ICT
A3. complexity of the environment and clients	CS, Automation, ICT, BIM, LC, SC, RM, partnering, HR
A4. project-based business	Innovation, safety, RM, KM, SC, HR
A5. competitive bidding based on lower price	marketing, PM, QM
A6. institutional and professional buyers	SC, QM, innovation
A7. conservative and traditional business	QM, BIM, ICT, HR
A8. limited number of projects in progress simultaneously	PM,
A9. crowded industry with too many SMEs	KM, BIM

KM=knowledge management, HR=human resource management, BIM=building information modeling, SCM=supply chain management, LC= lean construction, QM=quality management, CS=customer satisfaction, PM=production management, RM=relationship management

Table 2. Characteristics of the construction product and affected management fields

Characteristics of the industry	Management field
B1. immobility and on-site production	ICT, BIM, LC, PM
B2. one-off product	CS, KM, RM, LC, BIM, SCM, HR, innovation, ICT
B3. bulk and expensive	marketing, innovation, CS
B4. hybrid of service and physical product that does not exist before purchasing	marketing, contractor selection, innovation
B5. only clients can create demand for projects	marketing, innovation
B6. difficulty of product differentiation	innovation, marketing, QM, SM
B7. variability of quality	PM, QM

3. Research Methodology

A survey questionnaire was developed to determine which identified characteristics have major effects on marketing management and which cause peculiarities in construction marketing, compared to other primary marketing disciplines.

The questionnaires were mailed to two groups of experts—academics and practitioners. The academic respondents included 89 authors who had published at least one study regarding construction marketing. The second group included

143 members of associations and consulting services in construction marketing, such as the Chartered Institute of Marketing Construction (CIMCIG), the Construction Marketing Association (CMA), the Marketing Committee of the Construction Institute, the Construction Marketing Experts (CME), Construction Marketing Advisors, Construction Marketing Services (CMS), Construction Marketing Group (CMG), Construction Marketing Team, and the Construction Management and Marketing Association (CMMA).

The questionnaire had two primary sections (See Appendix 1). In Section 1, the respondents were asked to indicate the extent to which each characteristic influences marketing management on a five-point Likert scale (from “not significant” to “extremely significant”). In Section 2, the experts determined which of the characteristics have effects on construction marketing that are similar to those in other primary marketing disciplines, and which have effects that are specific to the construction industry. Because construction is a project-based, business-to-business, and primarily service-oriented industry [17, 26, 32], marketing disciplines, including project marketing, industrial marketing, and service marketing, were considered as more related areas.

A total of 61 questionnaires were completed and returned. Table 3. provides the demographic information of the respondents. Approximately 57% of the respondents were practitioners, comprising marketing consultants who serve construction companies and marketing directors or managers of contractors who are connected to these consultant institutes. Other respondents include authors of construction marketing articles with various academic degrees.

Table 3. Characteristics of the respondents

Position	Frequency	Percent
Practitioner	35	57.4
Construction marketing consultant	13	21.3
Director of marketing & business development	10	16.4
Marketing & business development manager	12	19.7
Academic	26	42.6
M.S.	2	3.3
Ph.D.	2	3.3
lecturer	3	4.9
Assistant professor	3	4.9
Associated professor	6	9.8
Full professor	10	16.4

4. Effects of the Industry Characteristics on Construction Marketing

Tables 4 and 5. show the summary of survey results. The importance score (IS) is calculated as follows:

$$IS = \frac{\sum f \cdot s}{N}, \quad (1 \leq IS \leq 5), \quad (1)$$

Where s refers to the score given to each characteristic by respondents and ranges from 1 to 5, f is the frequency of responses at each level for each factor, and N is the total number of respondents.

As the tables indicate, six items received average ratings greater than 4, which indicates that they have very significant effects on marketing management. Four of these characteristics were related to the industry environment, while two others were concerned with construction products. The experts indicated that "competitive bidding mechanism based on lower price" has the greatest effect on marketing management. This result is compatible with prior studies which state that this feature is one of the primary reasons that construction firms neglect marketing [12, 14, 32]. The project-based nature of the industry was determined to have the second greatest effect. This is reasonable because scholars have developed a particular discipline in marketing—termed "project marketing".

In regard to the degree of specificity to the construction industry, three groups of characteristics were identified. The first group included nine items that a large majority of the experts ($\geq 80\%$) determined to be specific to the construction industry (strong specificity). Therefore, these characteristics may affect the various dimensions of marketing management significantly. The second group includes two characteristics—"competitive bidding mechanism" and "one-off"—which nearly half of the respondents believe to be general characteristics of a project-based business, while other

respondents indicated that the impact of these characteristics on the construction industry differs from that in other project-driven industries (medium specificity). The experts indicated that the other five characteristics are weakly specific to the construction industry and that related experiences and strategies may be applied if necessary.

In regard to both the degree of effect and specificity, as displayed in Figure 2, three important categories can be distinguished from the marketing viewpoint. Category 1 (Zone I) includes characteristics with highly significant effects (scores > 4), which the majority of experts believe are specific to the construction industry, including four items (A2, A5, B2, B4). These characteristics result in the greatest limitations and barriers to construction companies in applying marketing principles, and it is necessary to develop specific strategies to overcome the related problems. The second category (Zone II) includes two characteristics (A4, A6); the mean score of their effects is greater than 4, but they are not specific to the construction industry. Practice and strategies from similar disciplines may be applied to the construction industry with certain modifications. The final category (Zone III) is composed of characteristics that are specific to the construction industry; they have significant effects on marketing (3 < score < 4) and include A1, A8, B1 and B8.

The next section examines each of these 10 characteristics, the problems associated with them, and solutions.

Table 4. Importance and degree of specificity of the construction industry's characteristics

Characteristics	Importance score	Similarity to marketing disciplines (percentage of respondents)			
		Similar to service marketing	Similar to industrial marketing	Similar to project marketing	specific to construction
A1	3.29			16.4	83.6
A2	4.23	4.9	3.2	9.8	85.1
A3	2.49	49.1		27.9	23.0
A4	4.49			91.8	8.2
A5	4.61	1.6	1.6	46	50.8
A6	4.08		83.7	6.5	9.8
A7	2.66	1.6	4.9	13.1	80.4
A8	3.61		3.2	13.2	83.6
A9	3.33	32.8	4.9	32.8	29.5

Table 5. Importance and degree of specificity of the construction product's characteristics

Characteristics	Importance score	Similarity to marketing disciplines (percentage of respondents)			
		Similar to service marketing	Similar to industrial marketing	Similar to project marketing	specific to construction
B1	3.73	9.9		4.9	85.2
B2	4.13	3.2		44.4	52.4
B3	2.62		23.0		80.3
B4	4.03		3.2	11.6	85.2
B5	3.38			19.1	81.9
B6	2.77		1.6	14.7	83.7
B7	2.70	66.2		8.2	25.6

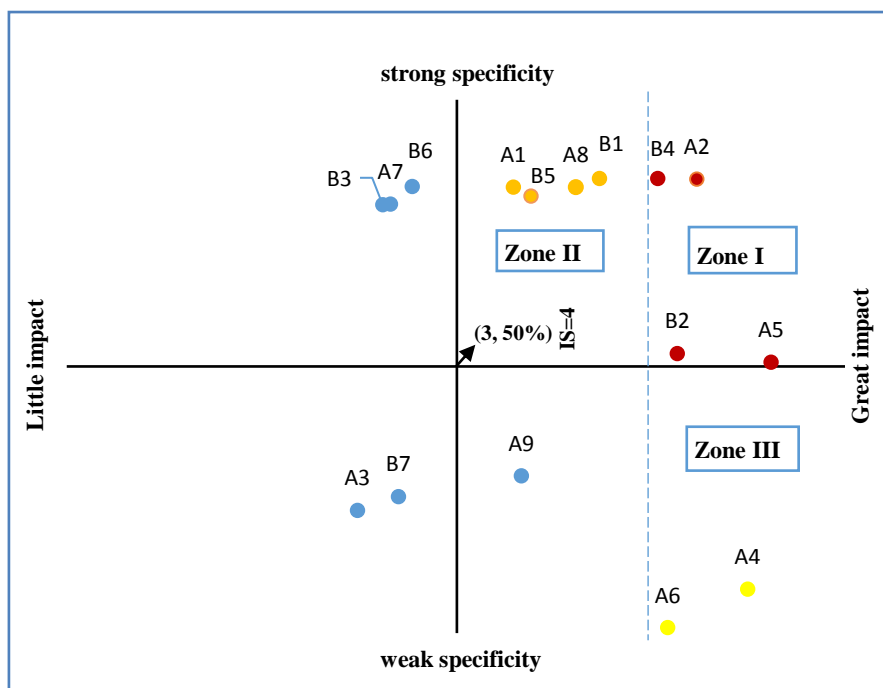


Figure 2. Impacts of the characteristics on construction marketing

5. Problems Caused by the Characteristics and Relevant Marketing Solutions

The 10 identified characteristics may result in challenges and problems in the application of marketing principles to the construction industry. For identifying these challenges, a preliminary list of these limitations and difficulties, and related marketing suggestions was collected from prior studies on marketing in other well-known disciplines and industries, as well as on other management areas of the construction industry. Since marketing—similar to other management fields—includes various paradigms and dimensions, the gathering process was carried out based upon this classification. Based on literature review and the scrutiny of marketing textbooks, the primary paradigms and concepts of marketing include marketing budgets, international marketing, relationship marketing, marketing practices, marketing strategies and especially marketing mix, marketing plans, integrated marketing programs, customer satisfaction and loyalty, marketing research, new market entry, and customer acquisition.

A semi-structured focus group was conducted to fill the gaps and refine the early list of challenges and solutions. The focus group comprised three marketing academics, two construction academics, and two construction practitioners. In the focus group sessions, each characteristic was first explained in detail to the experts. Next, they discussed the problems caused by each item according to the main marketing paradigms. Finally, marketing-related solutions (activities, strategies, systems, and organizational structures) were recommended to solve the problem or mitigate the adverse impacts of each challenge.

In the following section, the results of the focus group discussion are explained, including a description of each characteristic in greater detail, a discussion on the problems and limitations associated with them, and an examination of the strategies and tactics for overcoming them.

- *Dynamic and cyclical industry*

The construction industry is a dynamic and turbulent industry. A strong relationship between the construction industry and the economic cycle was observed during the recent world economic crisis. Furthermore, in developing countries, since the employers of many construction projects are the public sectors, political changes and decisions significantly impact the construction market.

This cyclical nature is one of the primary environmental reasons that construction companies are reluctant to engage in midterm and long-term planning. This unwillingness is more visible in regard to the marketing plan, due to the intangibility of its short-term benefits. Consequently, many construction firms do not create a formal marketing plan, the marketing budget is significantly less than that of other industries, and decreasing or even eliminating the marketing budget is one of the first methods used to reduce costs during a recession.

Management training such as MBA courses for the staff of construction companies, particularly managers, may improve understanding of the importance of long-term planning and change the organizational culture in these firms in regard to the commitment to marketing plans [33, 34].

- *Competitive bidding based on lower price mechanism*

Competitive bidding based on lowest prices remains the most common method to select construction contractors [35-37]. This mechanism is more often observed in developing countries due to a greater percentage of public projects.

In this situation, some contractors believe that the only necessary marketing-related practice is pricing, and hence, marketing management may be neglected. Furthermore, in bidding processes that focus on the lowest price, a close relationship, and past successful experiences with clients cannot help contractors to obtain additional projects with those same clients.

The undesirable effects of this mechanism can be mitigated because the marketing-related parameters are considered in pre-qualification and contractor selection is gradually moving toward values and qualifications based, which emphasizes other marketing-related parameters such as references and trust-based relationships as well as price [35, 38, 39].

- *Hybrids of service and physical products that do not exist prior to purchase*

Although the end products in the construction industry are generally in the form of a physical facility, the main product received by the client throughout the project is the service provided by the contractor [17]. In fact, the actual time, cost, and quality of a project constitute the principal attributes of the product purchased by an employer, which cannot be determined or evaluated before the contracting and end of the project.

It should be noted that although the 3D presentation and BIM technology allow employers to have a schematic picture of the final facilities prior to construction and assist contractors in preparing the tender documents [40], they cannot help the employer evaluate the attributes of the real product, since it does not exist during the tendering.

This process may invoke challenges in the selection of the most qualified contractor for a project, because the customer cannot assess or compare the product packages and the real performance (time, cost, and quality) of each contractor prior to committing to a contract. Similarly, the contractors should attempt to convince the clients through some tangible evidences that they will complete the project better than competitors.

The appropriate marketing strategy to address this problem may be derived from service marketing. To resolve this problem, "physical evidence," which is considered by service marketing as one of the primary marketing-mix strategies, has not been addressed in prior studies regarding construction marketing. Construction firms should provide some evidence that can be investigated by customers during the bidding or negotiation process, such as references from past clients, projects and experiences—particularly for similar works—and licenses, capacity, and financial strength. These parameters should be added to the traditional marketing-mix strategy (4Ps) in the construction industry, which is called "profile" element.

- *Only clients can create demand for projects*

New projects begin only when new demand is created by a customer. In fact, the construction has a make-to-order production system [41], contractors cannot induce or create demand in most instances (except homes).

A primary challenge in this situation is the possession of appropriate technical capabilities as well as financial and human-resource capacities when a project is proposed that may be more interesting than current projects. A strong network with potential customers, suppliers, consultants, financial institutions, and politicians may mitigate such problems. This strategy—a marketing-mix strategy—is so-called pooling strategy.

In addition to the pooling strategy, marketing research, along with a marketing intelligence system (MkIS), may help construction firms to collect and analyze local, regional, and international market information, anticipate and identify new opportunities and projects, and plan for future projects. These capabilities may help firms to acquire the flexibility that is needed once a new project arises. Marketing intelligence is the systematic gathering and analysis of publicly available information regarding customers, competitors, and development in the market, while marketing research is conducted for specific marketing situations and decisions [42]. It is suggested that contractors allocate staff to marketing research and marketing intelligence activities.

- *Institutional buyers*

Public and private institutions are buyers and clients of construction services (except homes). The purchasing process for industrial products is complex and may often involve numerous individuals from several departments [43].

According to professional buyers, the salesforce plays a significant role in marketing an industrial product and should have comprehensive technical knowledge as well as marketing and negotiation skills [44]. Since most individuals working in the construction industry are most often educated in engineering, they do not have sufficient management and marketing knowledge and abilities to help them negotiate skillfully.

In the construction industry, as the product does not exist during the negotiation and bidding process, it is vital for representatives and negotiators to highlight the company's capabilities and convince the clients that they can provide a better response to their needs than competitors. Hence, the position of the negotiators and representatives should be recognized as one of the main marketing tools and promotional strategies in construction companies. These representatives and negotiators should be educated and trained in order to enhance their marketing and negotiation skills.

- *Immobility and on-site production*

The end product of a construction project is typically immobile, and much of the production process is conducted on the final site of the facility.

There are two primary marketing challenges in respect to on-site production and immobility. The first is international marketing and its associated success factors and strategies in regard to the construction, which are completely different from other industries. Hence, it is necessary to conduct comprehensive studies regarding international marketing in construction.

The second challenge pertains to the "place" component of the marketing-mix strategy. In classic marketing terminology, the term "place" refers to how a product reaches a customer [45]. This is not, however, applicable in construction marketing because the product is provided at the final site and no physical distribution channel is required to deliver the product and related services. It may be mentioned here that in the field of construction, this connotation may refer to the "location" where the building is constructed, but the location of facilities—except for speculative buildings—is normally selected by clients and not controlled by contractors [12, 45]. A third interpretation views "place" as how the needed resources are delivered and supplied for a project. This function, however, is an activity defined in the context of project supply chain management rather than marketing practice. Another interpretation that links "place" to the procurement route and type of contract is noted and criticized by Smyth [45], who mentions that the effects of the procurement route and type of contract are more reflective of the organizational structure of the contractor than the marketing strategy. Furthermore, they cannot be adjusted according to the employers' need, and in practice are generally determined by clients rather than contractors at the project level. Finally, Arditi et al. [12] interpret "place" as the geographical expansion strategy and highlighted the fact that certain benefits result from the proximity of branch offices to the potential market. However, on the one hand, the market expansion decision is related more to segmentation and target market strategy than to marketing mix; on the other hand, although the proximity of the branch office to a project site provides advantages for the contractor, the significant competitive advantage related to geography stems from the strength of the relationships and network with local stakeholders, including key personnel of potential customers, suppliers, consultants, financial institutions, and political contacts that influence customers.

In conclusion, the term "place" is not as applicable in construction marketing. This finding is in conformity with that proposed by Smyth [45]. He discussed the "place" has a very limited scope in construction marketing and cannot be adapted or changed to meet the needs of customers.

- *Highly fragmented and multi-disciplinary industry*

Various temporary teams, with members from different disciplines and multiple firms, participate in each construction project. Because each project is unique, the teams and arrangements are also unique. Therefore, construction is a fragmented industry that includes temporary multi-organizations (TMO) for each project.

The different cultures and values of each subcontractor and general contractor lead to difficulty in delivering value to customers and implementing integrated customer satisfaction programs. In this context, one of the marketing tasks and responsibilities of main contractors is to conduct subcontractors, so as to create more value for clients. Furthermore, the temporary nature of project teams leads to problems in maintaining relationships with customers after project completion and transferring these relationships to teams working on future projects.

- *Project-based business*

The construction is a project-based business. Hence, certain suggested marketing practices and strategies of general project marketing discipline would be useful for application in construction. Focusing on a single project, marketing management in project-driven businesses is also involved in a three-stage process that includes anticipating the potential project, participating in the bidding, and implementing the project. Consequently, the project-based industries need an additional marketing-mix element that reflects the marketing strategy in each of the three stages of a project. This element can be called the "phase" strategy.

However, certain characteristics make the construction industry different from other project-based industries. The suggestions by the project marketer are more focused on the development of a network with business partners and relationship marketing in order to overcome the discontinuity-of-demand challenges [46]. In the construction industry, however, because a company may be involved in only a few projects at a time and the total number of transactions and projects with one specific client is small, the role and effects of relationship marketing are less in comparison that in to

other project-driven businesses. Therefore, transaction-related practices and strategies should be considered in construction marketing as well as in relationship marketing.

- *Limited number of simultaneous projects and often few transactions with a client*

Construction projects are complex and both capital- and labor-intensive [47]. Consequently, contractors—particularly small to medium-sized enterprises (SMEs)—may be involved in only a limited number of projects at a time because of limited resources. In fact, the number of transactions in which a large contractor engages may be smaller than that of a small consumer goods company. In addition, the diversity of construction works and the dependency of projects on location lead to the fact that only a few transactions with a client is possible, despite a close relationship.

Certain challenges stem from this particular feature of the construction industry. One challenge is the difficulty in developing relationships and correlations between marketing programs and the performance of the company, particularly in regard to project acquisition. For example, if a consumer goods company launches a marketing campaign, the results may be tangible almost immediately after initiation; however, if a contractor implements a similar program, the results may not be observed even several months later. Accordingly, some contractor may believe that marketing is not effective, and some others might not optimally allocate their marketing budget because they cannot measure the effect of marketing practices on their company's performance. Therefore, it is necessary to develop specific metrics to measure the effectiveness of marketing strategies for contractors, such as those suggested for project marketing [48]. Moreover, the relationship between marketing practices and the firm's performance in the construction industry should be explored in order to help marketers in demonstrating the effectiveness of the marketing efforts to senior managers [49].

From this perspective, the second challenge for contractors is obtaining projects from clients and maintaining a steady flow of work. Moreover, involvement in one project may restrict opportunities of obtaining a more attractive future project. In this circumstance, the pooling strategy may improve the capabilities of a contractor in regard to project acquisition and the forecasting of potential projects. Furthermore, the combination of MkIS and marketing research may ensure the adoption of the most appropriate price strategy and optimum markup based on the forecast of the competitors' behavior and prior similar bids, and prepare proposals according to the needs and interests of the clients.

- *One-off product*

The products of the construction project, as well as other project-based businesses, are unique. But because production in construction is conducted on-site by temporary multi-organizations, and the product is often highly customized compared to other project-based industries, this unique characteristic is referred to as one-off product. Therefore, each project has its own unique specifications and processes. According to the project delivery system, all or some of these unique specifications and processes are reflected in the proposal. Consequently, contractors should explain their capabilities and competitive advantages in their proposals and consider these proposals as vital marketing tools, which may result in obtaining new projects.

Table 6. summarizes the characteristics of the construction industry from a marketing viewpoint, along with the challenges and marketing strategies to overcome them. Most of the solutions are related to the marketing mix. We propose the addition of three new strategies—profile, pooling, and phase—to the traditional marketing mix (4Ps) for the construction industry and the removal of the "place" strategy. Moreover, the role of proposals and negotiators may be considered as marketing-mix elements, which can be referred to as "presenter." Therefore, the construction industry marketing mix would comprise seven elements—product, promotion, price, profile, pooling, phase, and presenter (Figure 3). These elements represent components similar to the 4Ps.

It should be noted that the proposed 7Ps are appropriate for contractors of all sizes, and comprise all available marketing tools that can be controlled by marketing managers. However, the blending and proportion of each component in the final mix are unique for each company, such that it may be appropriate to not allocate resources to one or several components of the suggested mix. The constituency of the blend is affected by the target market, market position and brand equity, marketing objectives, competitors, and unique characteristics of the firm—such as size, age, and culture [50-52]. Therefore, each company should develop its own unique mix, and marketing managers should allocate marketing resources to these components in order to provide additional value for customers. For example, Owusu-Manu et al. [52] demonstrate that social marketing-related practices are the least important marketing activities for SME contractors, while Bechtel—the largest contractor in the US—spent considerable resources on activities such as social campaigns and scholarships for students. As another instance, a small construction company could just use a free weblog for communication to the market, but a large construction company may need to employ diverse marketing tools such as a professional website, advertising, participation in trade shows and seminars, social networking, catalogs, and press releases. The third example in this context is regarding pricing strategy. A contractor with a strong market position and brand may enjoy a premium pricing strategy, while a weaker company may be forced to use a low-price strategy.

Table 6. Effective characteristics on marketing management: challenges and solutions

Characteristics	Marketing challenges	Solutions
1. dynamic and cyclical	-reluctant to enjoy a marketing plan -low marketing budget	-contingency plan for marketing -management education for senior managers
2. competitive bidding based on lower price	-neglecting marketing practice	-value-based contractor selection system
3. hybrid of service and goods	-difficulty in convincing clients that a contractor is better than other competitors	-strong profile strategy
4. demand from client's side	-sufficient capabilities when an attractive project emerges	-pooling strategy -more attention to marketing research -implementing a MkIS
5. institutional buyers	-significant role of salesforces in project acquisition	-sales and marketing education for negotiators
6. on-site production	-different international marketing approaches -different service delivery systems	-build relationships with local stockholders instead of distribution channels
7. highly fragmented	-temporary teams with different cultures and values	-general contractor should manage teams to deliver more value to clients
8. project-based industry	-need to focus on marketing for each project	-phase strategy
9. few projects in progress at once	-having a steady workflow -measurement of effectiveness of marketing	-pooling strategy -more attention to marketing research -implementing a MkIS
10. one-off product	-special specification for each project	-robust proposal

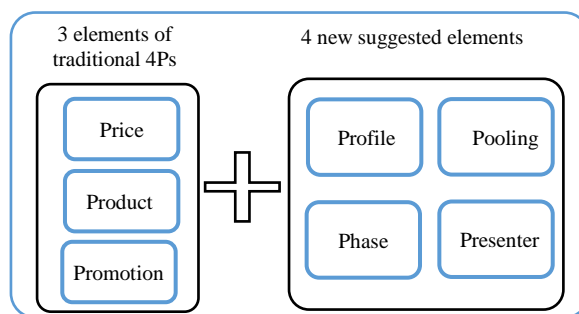


Figure 3. Tailored marketing mix for the construction industry

6. Conclusion

A total of 16 characteristics were found for the construction industry through a systematic investigation of the literature regarding various management fields in the industry. "Fragmentation of the industry" is the characteristic most highlighted in the prior studies. The cyclical and complex natures of the industry are in the next orders. According to experts in this field, 10 of these characteristics are indicated to be important and effective for marketing management within construction companies. Competitive bidding mechanism—which is often based on the lowest price—has the greatest effects on construction marketing, because it leads the contractors to focus more on cost reduction and pricing strategies and neglect many other marketing practices. The project-based nature of the construction industry is the next in order of importance, as it leads to discontinuity of demand and relationships with clients.

Through a combination of literature review and focus group discussion, marketing challenges caused by these characteristics were identified and solutions were suggested to overcome and mitigate them. These solutions are primarily grounded in the marketing mix concept because it is a core paradigm of practical marketing strategies. This study proposed the addition of four elements to the present traditional marketing mix (4Ps strategies) and suggested that "place" is not applicable to the construction industry and should be eliminated. Therefore, 7Ps—product, promotion, price, profile, pooling, phase, and presenter—are suggested as the new construction marketing mix. Although prior studies recommend some minor modifications of the traditional marketing mix for the construction industry, none were based on a systematic approach as was used in this study.

Moreover, this research highlighted that the role of marketing research and marketing intelligence system within construction companies is greater than for many other industries. These tools may significantly increase the ability to anticipate opportunities and potential projects, especially international projects, adopt proper pricing strategies, and forecast competitors' behaviors. Therefore, it is necessary to allocate sufficient resources and responsible staffing levels for these activities.

This research suggests practical marketing strategies for construction companies, particularly in regard to the marketing mix strategy. The results of the study provide a foundation for future research in construction marketing,

especially tailored marketing strategies for construction firms. Furthermore, the identified characteristics may be used in future studies of other management fields within the construction industry, particularly those concepts that are borrowed from other industries.

Further studies are needed to develop the marketing mix and practices in greater detail as well as marketing theory and marketing resource allocation for the construction industry. In alignment with theoretical and fundamental studies, additional studies should be conducted to reveal the benefits of marketing in the construction industry, in order to convince industry managers that they can profit from a commitment to effective marketing management.

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8. Appendix: Main Parts of the Questionnaire

1-1-The effects of the following characteristics of the construction industry on marketing management are (please tick only one box in each rows):

Help: Industrial marketing, service marketing and project marketing are the main disciplines in marketing management. This question examines whether the effects of the following characteristics on marketing are specific to construction or similar to these main disciplines.

characteristic	similar to industrial marketing	similar to service marketing	similar to project marketing	Peculiar to the construction
1.highly fragmented, multi-disciplinary, and involving temporary multi-organizations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.complexity of the environment, process, and client	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.project-based industry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.dynamic and cyclical industry that is heavily affected by economic, political, and environmental conditions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.competitive bidding mechanism based on lowest price	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. institutional and professional buyers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. conservative and traditional business	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.A construction company can be involved only in few projects simultaneously and the number of transaction (projects) with a client is low.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. crowded industry with too many SME firms	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1-2-To what extent do the following characteristics of construction industry influence the marketing management?

Note: effect on marketing includes effect on marketing budget, international marketing, mid-term and long-term marketing plan, long-term relationship and partnership with clients, winning a new work, and integrated marketing program during and after project.

characteristic	not significant	slightly significant	moderately significant	very significant	extremely significant
1.highly fragmented, multi-disciplinary, and involving temporary multi-organizations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.complexity of the environment, process, and client	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.project-based industry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.dynamic and cyclical industry that is heavily affected by economic, political, and environmental conditions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.competitive bidding mechanism based on lowest price	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. institutional and professional buyers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. conservative and traditional business	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. A construction company can be involved only in few projects simultaneously and the number of transaction (projects) with a client is low.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. crowded industry with too many SME firms	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2-1-The effects of the following characteristics of the construction product on marketing management are (please tick only one box in each rows):

Help: Industrial marketing, service marketing and project marketing are the main disciplines in marketing management. This question examines whether the effects of the following characteristics on marketing are specific to construction or similar to these main disciplines.

characteristic	similar to industrial marketing	similar to service marketing	similar to project marketing	Peculiar to the construction
1. immobility and on-site production	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. one-off product	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. bulky and expensive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. hybrid of service and physical product that does not exist before purchasing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. only clients can create demand for projects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. difficulty in product differentiation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. variability of quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2-2- To what extent do the following characteristics of the construction product influence the marketing management?

Note: effect on marketing includes effect on marketing budget, international marketing, mid-term and long-term marketing plan, long-term relationship and partnership with clients, winning a new work, and integrated marketing program during and after project.

characteristic	not significant	slightly significant	moderately significant	very significant	extremely significant
1. immobility and on-site production	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. one-off product	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. bulky and expensive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. hybrid of service and physical product that does not exist before purchasing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. only clients can create demand for projects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. difficulty in product differentiation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. variability of quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>