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The Level of Training in Consultancy Services in Construction Management in TÜRKİYE

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ABSTRACT

The fact that professional consultancy services applied in developed countries are not applied professionally in Türkiye, negatively affects the construction sector, which is increasing day by day, in terms of cost, time and quality. The implementation of this system in Türkiye is very important in terms of development and sustainability in the construction sector. To implement professional consultancy services, it is primarily aimed to determine the education level of technical personnel. The purpose of this study is examining of education of different sides in organization within consultancy service in construction management which applied in Türkiye. In this manner, firstly, literature and practice abroad were studied on subject. Then, data was collected using survey which was applied to consultants, owners and contractors. Consultancy service was examined by considering the practices abroad of Consultancy service and results of analysis. As a result, the level of professional construction management service education and information is not enough. Also, reached important conclusions about human resources, education and information in construction project management and recommendations were presented.

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1. INTRODUCTION

The construction industry is in a state of constant change and development according to the ever-increasing technological knowledge and changing needs. It also requires coordination and cooperation in building production, which requires the contribution of all engineering disciplines. Therefore, the processes from project design to demolition are becoming increasingly complex.

The subject of consultancy and owner representation started to emerge in the early 1950s, primarily in the USA and the UK, has increased its influence in many countries and has become more professionalized today [1-3]. This system can be classified as consultancy, owner representation and construction management [4]. With this system, the Construction Organization has been elaborated to include the contractor side and has taken shape in line with the owner's wishes [3]. However, it is obvious that there is not enough awareness about the necessity of consultancy services in building production both in the public and private sectors in Türkiye. Currently, except for a small number of large projects, consultancy services are not adequately received at any stage of the construction sector [4,5].

In short, the lack of strong representation of the owner in the building production process is an important factor in the failure to produce constructions in the expected time, cost and quality. The lack of consultancy services in the modern construction project sector, which is of great importance in terms of employment capacity in Türkiye, will cause different negative consequences. However, this issue has not been sufficiently researched even at the academic level.

Therefore, in the construction industry of our country, it is very important to know which subjects should be knowledgeable within the scope of consultancy service [4].

In this study, as a result of the literature review, the concept, definition and scope of service of consultancy service in general terms are mentioned. Then, the surveys conducted with consultancy firms, owners and contractors were examined to determine the level of awareness of the technical information that should be known about the consultancy service in our country. Afterwards, the results and recommendations for the use of consultancy services in the construction sector in our country are presented.

1.1. Consultancy

During construction projects, it is essential to receive professional support from expert individuals or organizations to meet the expectations of the owner and prevent potential grievances and to reduce the problems that may arise from the owner [1,3-4]. This consultancy service is called 'consultancy' or 'owner representation' depending on the service content [2].

In a professional construction, different from engineering-architecture services, an interdisciplinary service concept has developed under the name of consultancy and owner's representation. In traditional project delivery systems, there are three main parties: the owner, the designer and the contractor [2-5]. This service has taken place as a fourth party in project management to perform the necessary work on behalf of the owner and to meet his needs for accurate information and guidance throughout the building life cycle [1,2-4].

Depending on the content of the project and the needs of the owner, the scope and nature of the professional service to be outsourced varies [2]. The consultancy service can be categorized under three headings. These can be named “consultancy”, “owner representation” and “construction management”. Depending on the content of the consultancy service to be received, the type of service is determined by the contract [1-3,5]. Within the scope of the study, the definitions of consultant, owner's representative and construction manager can be accepted as follows.

Consultant: an expert and experienced person or company that can be consulted on all works and transactions from feasibility analysis to demolition of the project.

Owner Representative: A person or firm authorized by contract to act on behalf of the owner within the scope of the owner's requests, who is specialized and experienced in a specific subject.

Construction Manager: The person or firm that makes all decisions regarding the management and supervision of the work to ensure that the project is completed in accordance with the contract and its annexes, from feasibility analysis to demolition.

The construction manager can be described as an "owner's representative" with increased responsibilities. Therefore, three consultancy services can be defined as “Consultant and Owner's Representative (COR)”.

1.2. Scope of COR

Some of the consultancy services that can be provided within the scope of COR can be expressed as follows [1-3,5]:

- Feasibility analysis,
- Management of the preparation of project,
- Drafting the contract,
- Tender process management,
- Preparation of technical specifications,
- Tender process management,
- Contract management and organizing,
- Management of disputes and changes in the contract,
- Management of the construction delivery
- Educational counseling and knowledge management,
- Value engineering and performance management,
- Cost estimation and management,
- Risk management,
- Quality control,
- Document management,
- Construction schedule management,
- Safety management,
- Procurement services

The above-mentioned works and procedures constitute only the general titles of consultancy services [4,5,8,9]. The technology, which is developing and changing day by day, affects and changes the owner's demands considerably. Therefore, in parallel with the changing owner expectations, the consultancy services and contracts to be requested differ depending on the content of the projects [1,2,5,10-12].

Moreover, professional COR services will have a positive impact on the use of building information modeling in the construction sector [13,14]. However, it is obvious that to provide sustainable construction project management, it is very necessary to provide at least basic consultancy services in a professional sense. COR services are not provided professionally in Türkiye [4,5,12]. For this reason, to implement this study COR services professionally, first, it is necessary to determine the level of training of technical personnel in Türkiye. For this reason, in this study, the education levels of technical personnel in Türkiye were examined and it was envisaged that it would form a basis for the implementation of COR services.

2. MATERIAL AND METHOD

In this study, the data obtained from the literature on COR, especially from CMMA was used as a source [3,4]. Considering these sources, questionnaires were prepared for Consulting firms, Owners and Contractors. In particular, the type contracts, standards, procedures applied in countries where COR is institutionalized (e.g. USA and UK), and the data collected through the questionnaire constitute the material of the study.

The questionnaires were administered through face-to-face interviews and e-mails. A web-based survey software tool called “SurveyMonkey” was used in the survey application.

In this study, those who build on their land, those who give their land in return for flats and those who build as build-sell or sell-build are considered in the owner group named as Owner A, Owner B and Owner C respectively; those who work for the public sector, those who work for the private sector and those who work for both the public and private sectors are considered in the contractor group named as Contractor A, Contractor B and Contractor C respectively; and organizations operating only as “consultancy firms” are considered in the consultant group.

In the owner group, 97 surveys were received from those who built on their land, 44 surveys were received from those who gave their land in return for flats and 239 surveys were received from those who built as build-sell or sell-build.

In the contractor group, 41 surveys were received from public sector contractors, 33 surveys were received from private sector contractors and 60 surveys were received from public and private sector contractors.

Addresses and contact information of consultancy firms providing COR services were obtained through the official website of the Union of Turkish Consulting Engineers and Architects (“TürkMMMB”). Since the number of companies that provide professional consultancy services is quite small, questionnaires could only be collected from 17 consultancy firms.

As a result, a total of 380 owners, including 134 contractor companies and 17 consultancy firms operating in the construction sector, responded to the survey questions and constitute the sample size of this study.

Percentage (%) and frequency (n) values were used for the survey questions. Within the scope of the results obtained, recommendations have been made regarding the general training status of COR in professional project production in Türkiye and the related COR development.

3. FINDINGS

Table 1 shows the number and education levels of the current consultants in the surveyed consulting firms. It is seen that the companies generally need personnel with master's and, to a lesser extent, doctorate degrees. This situation reveals the need for technical personnel with specialized education in the construction sector.

When the professional profile of the employees of the consultancy firms is analyzed in Table 2, many of the personnel are civil engineers and architects. This situation supports the idea that professionalization in the construction sector in Türkiye should give more importance to civil engineering and architect education.

Table 1. Number and education levels of the consultants

Personel number	Graduate		Master		Doctora	
	%	n	%	n	%	n
1	0,00	0	6,25	1	25	4
2-3	12,5	2	25	4	18,75	3
4-5	18,75	3	6,25	1	12,5	2
6-7	6,25	1	6,25	1	0,00	0
8-10	6,25	1	0,00	0	0,00	0
11-20	6,25	1	37,5	6	0,00	0
>20	50	8	18,75	3	0,00	0
Total	100	16	100	16	100	9

Table 2. Professional profile of the employees of the consultancy firms

Professional profile	Total number of employees in consultancy firms	
	%	n
Civil Engineer	37	484
Architect	15	196
Surveying Engineer	3,4	45
Machine Engineer	2	26
Jeology Engineer	1	13

Electrical Engineer	0,9	12
Technical Draftsman	0,8	11
Lawyer	0,8	10
Environmental Engineer	0,8	10
Industrial Engineer	0,7	9
Economist	0,5	6

When the courses attended by employees of consulting firms are analyzed in Table 3, it is seen that the top three courses are on project management, contract management, and planning methods. However, there is insufficient demand for value engineering, dispute resolution methods, time and process management, conflict management, group management and negotiation skills courses, which are essentials of professional consultancy. These issues form the basis of problems in the construction industry, which are often under-recognized and under-trained [1-5,12]. It is also clear that these problems become chronic and lead to other problems every day.

Table 3. Course opportunities supported by the consulting firms

Courses	Number of the consultancy firms	
	%	n
Project management	100	16
Contract management	93,8	15
Schedule management	81,3	13
Safety management	75,0	12
Quality control system	68,8	11
Risk management	62,5	10
Document management	50,0	8
Human Source management	37,5	6
Effective Presentation Skills	37,5	6
Dispute Resolution	37,5	6
Time and scope management	37,5	6
Conflict management	31,3	5
Group management	31,3	5
Value engineering	31,3	5
Negotiation Skills	25,0	4
Environmental Awareness	25,0	4
Body Language	12,5	2

When the education level of the owners is analyzed in Table 4, 49% of the landowners who built a building on their land (Owner A) and gave their land in return for flats (Owner B), and 19% of the contractors who built construction in the form of build-sell or sell-build (Owner C) have less than a bachelor's degree. It is noteworthy that 65% of "Owner C" have a bachelor's degree.

Table 4. Education level of the owners

Education level	Owner A		Owner B		Owner C	
	%	n	%	n	%	n
Primary	20	19	27	12	5	12
Highschool	23	22	20	9	11	26
Associate	6	6	2	1	3	7
Graduate	38	37	39	17	65	156
Master	13	13	11	5	15	37
Doctora	0	0	0	0	0,4	1
Total	100	97	100	44	100	239

Table 5. shows the specialization areas of the owners. The questionnaire was not answered by 79% of the landowners who built a building on their land, 87.5% of the landowners who gave their land in return for flats, and 63.2% of the contractors who built a construction in the form of build-sell or sell-build. As a result, it is seen that many of the owners are not experts, and the owners who are experts are mostly in the field of "construction" and have little expertise in the fields of "operation" and "construction management". It is noteworthy that 36.8% of the contractors who construct in the form of build-sell or sell-build have 36.8% specialization.

Table 6. shows education level and the number of consultants within the owners. It is seen that the number of consultants within the owners is almost negligible and they mostly have a bachelor's degree.

Table 5. Specialization area of the owners

Education Level	Owner A		Owner B		Owner C	
	%	n	%	n	%	n
Structural	8,2	8	10,0	4	12,6	30
Business	5,2	5	--	--	5,4	13
Construction management	3,1	3	--	--	4,2	10
Other	4,1	4	12,5	5	14,6	35
Unanswered	79,4	77	87,5	35	63,2	151
Total	100,0	97	100,0	40	100,0	239

Table 6. Education level and number of consultants within the owners

Education Level	Number of Consultants	Owner A		Owner C	
		%	n	%	n
Graduate	1 person	2,1	2	3,3	8

	2-7 person	4,1	4	2,5	6
	>20 person	0,0		0,8	2
Master	1 person	2,1	2	1,7	4
	2-7 person	1,0	1	1,7	4
Doctora	1 person	1,0	1	0,8	2
	2-3 person	0,0		1,3	3
Unanswered		89,7	87	87,9	210
Total		100	97	100	239

Table 7. shows the education level of the contractors. As a result, it is seen that many contractors have bachelor's degrees, while master's and doctorate degrees are quite rare.

Table 8 shows the areas of specialization of the contractors. 71% of public and private sector contractors and 46.9% of private sector contractors left the question unanswered. As a result, it is understood that while the contractors working for the public sector and very few of the contractors working for the public and private sector have specialization areas, the contractors working for the private sector have more specialization areas and the most specialization area is the construction area.

Table 7. Education level of contractors

Education Level	Contractor A		Contractor B		Contractor C	
	%	n	%	n	%	n
Primary	0	0	0	0	0	0
Highschool	5	2	0	0	7	4
Associate	5	2	9	3	5	3
Graduate	**73**	30	**70**	23	**63**	37
Post graduate	17	7	21	7	25	15
Total	100	41	100	33	100	59

Table 8. Specialization area of the contractors

Education Level	Contractor A		Contractor B		Contractor C	
	%	n	%	n	%	n
Construction management	4,9	2	0,0	0	5,2	3
Structural	7,3	3	28,1	9	6,9	4
Transportation	12,2	5	9,4	3	1,7	1
Other	4,9	2	15,6	5	15,5	9
Unanswered	70,7	29	46,9	15	70,7	41
Total	100	41	100	32	100	58

4. CONCLUSION

In this study, the concept, definition and scope of the COR service are mentioned and then it is aimed to reveal the level of awareness of the technical information that should be known within the scope of COR service in our country. For this purpose, information was collected through a questionnaire from Owners, Consulting Firms and Contractors who are the parties of the COR service. Three separate questionnaires were applied to determine the current level of knowledge of the parties on the COR service. In line with the purpose of this study, the results obtained under the title of human resources and qualifications and the recommendations based on these results can be summarized as follows.

4.1. Human Resource Level and Quality

To provide COR services professionally, it is essential to integrate the project delivery systems implemented in Türkiye with consultancy services. In addition, COR services need to be supported by legal regulation. In these arrangements, countries such as the USA and the UK and the work of organizations such as CMMA can be taken as an example. However, before all these things need to be done, the level of knowledge of technical personnel in Türkiye needs to be improved and prepared for this new system. For this reason, first, to provide COR services, it requires some basic knowledge background in a professional sense. Therefore, in addition to the consultancy firm, the quality of the human resources employed by the owner and the contractor is very important [1-4,10,11]. In this context, the determinations regarding the human resources of the parties are as follows.

• Consultancy firms employ mostly architects and civil engineers with bachelor's degrees, and generally have technical staff with master's degrees. In this respect, it is understood that these firms have partially qualified human resources. However, it is evident that knowledge on value engineering, methods to be followed in dispute resolution, time and process management, conflict management, group management and negotiation skills required for professional consultancy is quite insufficient. The fact that the completion of knowledge gaps, which is one of the basic principles of professional DIT service, is prioritized in the studies on the subject [1-4,8,9] reinforces the importance of the situation.

• Approximately half of the owners have bachelor's and master's degrees, while the other half have primary education and associate's degrees. In the case of build-sell or sell-build contractors, many of the owners have a bachelor's degree, and the majority of the owners are not specialized in any field. • It is observed that the contractors mostly have bachelor's degrees and very few have postgraduate degrees. However, while very few of the contractors working for the public sector have areas of specialization, it is understood that contractors working for the private sector have more areas of specialization and the most specialized area is “construction”.

5. RECOMMENDATIONS

To contribute to raising awareness of the need for COR services in the long term, some recommendations are presented:

• In civil engineering undergraduate education, students can be given sufficient information about the function of consultancy and owner's representation, its importance for building production and the principles of its application within the scope of construction management/project management course. In addition, in the postgraduate education programs of the Civil Engineering Department of Construction Management, students can be given a course to gain competence in the subjects required by each building production process, considering that they can also serve as consultants and/or construction managers.

• Programs may be established, master's theses or non-thesis master's programs may be structured to cover the fields of civil and industrial engineering, business administration and especially law to prepare for contract management.

• An official regulation can be made to determine the number and qualifications of the minimum number and quality of human resources required for real and legal persons to provide consultancy services, and it can be ensured that these service providers employ human resources with adequate equipment in terms of information background.

• Training programs can be organized by professional chambers or by the Country.

In this study, COR services were evaluated only within the scope of training of technical personnel. However, in future studies, how the COR system can be integrated into Project delivery systems and how it can be supported by legal regulations are issues that need to be investigated.

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