

# Investigation of the Effect of Cultural Fit in International Construction Joint Venture Performance<sup>†</sup>

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## ABSTRACT

*International joint ventures (IJVs) have a great importance as a strategic alternative in global competition. Cultural differences between partners from different countries may cause lower performance levels in such ventures. The major objective of this study is to investigate the influence of national and organizational culture fit of partners on the IJV performance. In this respect, a questionnaire survey was administered to medium to large scale contractors, which are the members of the Turkish Contractors Association (TCA). A total of 68 project data was studied using regression and correlation analysis. Organizational and national culture fit between Turkish firms and their foreign partners was investigated. It is observed that compared to the national culture, organizational culture has a more significant effect on the IJV performance.*

**Keywords:** *International construction, joint ventures, cultural issues, performance.*

## 1. INTRODUCTION

The concept of creating competitive advantage through strategic alliances for companies has been widely debated since the late 1980s [1]. Over the past two decades, there has been a significant increase in the number of international joint ventures (IJVs) as a result of companies' efforts to be more dependent on each other globally. Joint Ventures (JVs), which are a special type of strategic cooperation, allow participating firms to combine different qualifications and complementary resources. A JV involves at least two organizations that contribute equity and resources to a semiautonomous and legally separate entity [2].

One of the biggest changes seen in the international business world in the last decade is increasing IJV activities which have become a common method for multinational companies to enter the sector. Local partners have become an internal part of business strategies especially for industry groups in countries in which such collaborative activities are developed. Despite the benefits associated with IJVs, the failure rate of IJVs is high [3]. This largely stems from the inherent complexity of IJVs involving a mixture of different cultures and therefore, IJVs are negatively affected by high instability and poor performance [4].

Success factors for JVs, which are an important element in both manufacturing and construction sectors, are also among the widespread research topics. In the study by Robson et al. [5], factors affecting IJV performance were divided into a total of 13 units, 11 internal

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effects and 2 external effects. These have been observed as intrapartner characteristics, interpartner fit, venture demographics, contractual elements, managerial characteristics, control and supervision, project-specific relational aspects, organizational learning, R&D strategy, production strategy, marketing strategy, human resource strategy, industry characteristics and regulatory environment.

Although JVs are common in the construction industry particularly in forming consortia to undertake a BOT/BOO/BOOT project, the majority of the current literature on IJVs concentrates on manufacturing industries. IJV theories have not been investigated empirically in the construction industry, except for a small group of studies associated with the risks of IJVs in construction [6, 7] and factors affecting the performance of IJVs [8, 9]. The study by Chan and Tse [10] concluded that as one of the major issues affecting the management of international construction projects is culture and it deserves deeper investigation.

Measuring IJV performance has always created difficulty for researchers because performance is a complex and multi-dimensional phenomenon. In general, three main difficulties in evaluating the success of IJVs are encountered. The first one is to decide whose performance should be assessed, namely the IJV partners', the IJV organization's or the project's. The second one is to decide which measures (objective and/or subjective) to use as performance indicators. The third difficulty was the difficulty of establishing a complete and valid list of performance indicators and identifying the relationships between these indicators. Many potential factors affecting IJV performance are presented in the literature [11, 12, 13]. Studies on the measurement and management of performance in the construction sector emphasizes the need for a framework for measuring project or company performance [14, 15]. There are both studies [8, 16] that have developed various performance measures for IJVs formed in construction sector and studies [11, 17] that determine the factors that affect the performance of these ICJVs, but there has not been a complete set of criteria and consensus on this issue. In their study, Ozorhon et al. [11] classified factors affecting IJV performance into 5 main groups and listed them as partner fit, interpartner relations, structural IJV characteristics, host country conditions, and project related factors. Since partner fit affects all other factors, partner fit is described in detail in the following sections of this study.

Cultural distance has received a great deal of attention in the international business literature [18, 19, 20]. There is no one single definition which encapsulates the term "culture" wholly. It has been referred to as a set of shared experiences, understandings, and meanings among members of a group, an organization, a community, or a nation [21]. Culture is an ingrained behavioral influence which affects the way collective groups approach, evaluate, and negotiate opportunities for international business. Different cultures have different models of management and different ideas of the nature of organizations [22]. Culture has been identified as a key factor in explaining foreign market attractiveness, expansion patterns, the degree of adaptation of marketing and retailing strategies, modes of entry, and organizational performance [23].

The major objective of the study presented in this paper was to investigate national and organizational culture fit of partners on the ICJV performance. ICJV performance was defined in a term "overall satisfaction" which is a subjective indicator that measures the performance of the ICJV as perceived by an ICJV partner. A questionnaire survey was administered to Turkish construction companies that have established ICJVs with foreign

partners. Hofstede's [24, 25] national and organizational culture dimensions were adopted to measure partners' cultural differences. A regression analysis was conducted on the collected data and the relationship between IJV performance and national and organizational culture was investigated in view of the obtained findings.

## **2. INTERNATIONAL JOINT VENTURE PERFORMANCE**

Along with the ongoing globalization of the world's economies, JVs have become an important part of the international strategy of many companies. JVs, which are known as the oldest organizational structures, have been used by merchants of ancient Egypt and Mesopotamia as a means to conduct overseas business transactions. There has been an increase in the number of JVs, especially since the 1970s. However, the multinational nature of JVs has led to the emergence of various problems in such structures [26]. JVs, a special type of strategic alliance, offer a unique opportunity to combine the distinctive competences and the complementary resources of participating firms. A JV involves at least two organizations that contribute equity and resources to a semiautonomous legally separate entity [2]. This structure is considered to be IJV if at least one of the partners is located outside of the JV's operating country or if a significant part of the JV's activities take place in more than one country.

The existence of two or more partner organizations with different management systems, philosophies, values and attitudes, includes competition as well as cooperation. Therefore it becomes difficult to achieve good performance for IJV management and achievement [27, 28, 29]. In Ozorhon et al.'s [11] study, factors affecting the IJV performance were investigated in detail. Within the context of their study, the factors affecting the partner relations are listed as the partners' cooperation with each other and JV (good intentions, promises in partnership), the effectiveness of communication between partners, the ability of creating joint solutions during conflicts at company, mutual trust between partners, past cooperations of partners and cooperation on strategic decisions. The structural characteristics related to the IJV organization include the extent of management (strategic, operational, and organizational) control imposed on the IJV, ownership distribution, and the completeness of the contract between partners. Factors related to host country conditions were listed as political risk (political stability), macroeconomic conditions (better economic indicators), strength of the legal system, and relations of the host government with foreign entities, the closeness of the JV to the language of the host country, the similarity of the JV habits to the commercial activities of the host country, the cognizance of the JV of the political and legal system of the host country, the adaptability of the JV to the economic structure of the host country, and the similarity of the JV to the sectoral structure of the host country. Project related factors in IJVs include completeness of payments by the client; tolerance/flexibility of the client; relations with other project parties; competence of other project parties; completeness of project definition; availability of resources; technical complexity of the project; impact of factors such as weather and soil conditions; completeness of the design; completeness of the contract documents; handling the project requirements in terms of quality, environment, health and safety; penalty sanctions concerning duration; and effectiveness of the project management functions such as planning, coordination, monitoring, and controlling.

Abdul-Rahman et al. [17] conducted a case study of the Bahrain Formula-1 Circuit construction project and their case study revealed that the success of the BFC project was the product of several factors, namely: 1) advanced technical and engineering expertise 2) selection of a committed partner 3) management expertise 4) creating and sustaining a good working environment 5) appropriate risk management 6) maintaining a reliable international materials supply chain, and 7) efficient project planning and tracking system. According to their study, management expertise is considered to be the most important factor because of the peculiarities and problems of IJV projects. The study of Larimo and Nyugen [12] analysed investment strategies and performance of Finnish firms in their IJVs established in Baltic States. The results indicated differences in the IJV performance depending on parent firms' objectives, their competitive strategies, mode of entry, age of IJVs, control strategies, level of trust, and commitment between partners, as well as depending on the performance measures used.

Ozorhon et al. [16] discussed partner relations/fit which is one of the main factors affecting the performance of IJVs, and they grouped them under three headings: strategic fit, organizational fit, and cultural fit. The components of interpartner fit are described in detail in the next section.

Partner fit determines the rate at which JV partners can negotiate and catch synergy that is expected from the JV [30]. The fit among partners, and the common choice in the IJV have been extensively addressed in the literature. For example, Geringer [2] advocates that both co-operative characteristics (eg resources and skills) and partner-related characteristics (eg size, objectives and activity policies) should be taken into consideration meticulously at the phase of partner selection for the IJV. Previous studies indicated that there is a link between "partner fit" and IJV performance. However, "fit" is defined by various concepts such as strategic symmetry [31], diversity among firms [32], matching in common characteristics in partnership [2] or compatibility / complementarity between partners [33]. As long as the critical characteristics of this phenomenon are not well-defined or appropriate measures are not proposed for these traits, partner fit studies remain limited. This is due to the fact that interpartner fit is a multidimensional and complex concept consisting of a combination of various factors. According to previous studies, factors affecting partner fit are generally identified as strategic fit, resource fit, operational fit, organizational fit and cultural fit [30, 34]. However, depending on the assumption made in each study, there is an overlap between these dimensions. In this study, partnerfit is examined in three main sections as strategic fit, organizational fit, and cultural fit.

## **2.1. Strategic Fit**

The strategic orientation of the JV companies is of great importance for the success of the IJV. Partner fit in terms of strategic goals and behaviors, cooperation culture, management philosophy, innovation and long-term orientation influences the mutual trust, commitment and cooperation between the partners [32]. Strategic fit implies congruence of IJV partners' goals, their experience at the host country, their experience from similar projects, their managerial capability, technical skills, qualification of human resources, and customer relations [11].

*i. Goal congruency between IJV partners* is the primary factor in the success of the IJV [35]. Disagreements that may arise among partners can affect IJV performance negatively [36]. In this respect, Hennart et al. [37] stated that the differences between partners in the goals increase the risk of break up of the IJV.

*ii. Complementarity of partners in terms of previous experience in the host country* is an important strategic asset due to the fact that in this process, foreign firms develop a general knowledge about the political, social, economic, and cultural aspects of the IJV location and specific knowledge about local business practices and local networks [38]. This acquired knowledge stimulates the trust and collaboration between partners. Moreover, Luo [39] investigated this issue and his findings confirmed this influence.

*iii. Complementarity of partners in terms of previous project experience* may be critical for achieving stronger partner relations. The partners' ability to acquire, learn, process, assimilate, integrate, deploy, and exploit an inflow of new knowledge and skills may be depend on how these relate to the skills already established [39]. The study of Günhan and Arditi [40] emphasizes that it is a great advantage to have a special expertise for a company operating in international markets.

*iv. Compatibility of partners' managerial skills, technical skills, and human resources* is important in that allows a firm to complete a project successfully. Compatible management skills does not only enable partners to operate the IJV effectively but also help them maintain good relations with other project participants. Compatible technical skills are required to smoothly mitigate possible project risks that may lead to cost, time and quality problems. Finally, human resources reflect the blending of partners' cultures and management styles, and as such affect the IJV's job design, recruitment and staffing, orientation and training, performance appraisal, compensation and benefits, career development, and labor-management relations [34].

*v. The quality of partners' relationship with the client* is also a good indicator of strategic fit. Since client satisfaction is an important indicator of performance, strong relations with the client are useful in dealing with client-related issues.

## **2.2. Organizational Fit**

Organizational fit consists of partners' financial capability, partner size, similarity between partners' management systems, and partners' national/international workload.

*i. Financial capability* of partner firms is critical since a partner's profitability directly influences its ability to make a capital contribution, fulfill financial commitments, and dispense financial resources in the operation of the IJV.

*ii. Partner size* may be a significant determinant of IJV performance [37]. The literature suggests that asymmetry in partners' firm size has negative effects on the stability of a JV [2, 28, 31]. Geringer [2] and Killing [28] argued that a venture between a small firm and a giant firm suffered from mismatches in strategic mission, corporate culture, and level of bureaucracy and would be incompatible. Park and Ungson [19] found that size differential did not affect the duration and the prospect of JV dissolution.

*iii. Similarity between partners' management systems* is another important determinant of IJV performance [28, 41]. Differences in partners' management styles can result in conflict; nonresolution of such conflicts can eventually affect the performance of the JV [42].

*iv. Partners' national/international workload* may influence the effort and time they allocate to the IJV. A partner with extensive international spread tends to reduce its commitment to the IJV [41], which in turn may affect IJV performance.

### **2.3. Cultural Fit**

Cartwright and Cooper [43] emphasized the influence of culture on the performance of IJVs, by defining culture as a 'social glue' that connects individuals and connects them with the institution, and also contributed that "cultural integration between institutions is directly related to the success of the union". International strategic alliances are influenced by differences in their national cultures [19, 44]. The following sections present detailed information on national and organizational culture and the observed effects of the differences in these cultures on IJV performance.

#### **2.3.1. Relationship between IJV Performance and National Culture**

Hofstede ve Hofstede [22] have shown that individuals living in a particular country tend to share similar values, and that they bring these values to the firms for which they work. Hence a firm's values are largely a reflection of its national culture. IJV partners based in different countries will therefore tend to have different values. These differences in values will in turn make it difficult for IJV partners to agree on common goals, solutions to problems, and resolution to conflicts than if they came from the same country.

Prior research has provided mixed empirical evidence regarding the specific influence of cultural distance on IJV performance [45]. Some researchers found that differences in national culture caused conflicts and barriers [46]. According to Nielsen [47], at least four interrelated negative effects of cultural distance on IJV performance can be identified: (1) cultural distance can lead to communication problems, which may hinder knowledge exchange and interorganizational learning; (2) it can cause managerial conflicts due to misunderstandings, which may lead to additional costs; (3) it can influence partner firm approaches to conflict resolution, which may adversely impact operations; and (4) it can erode applicability of certain partner competencies, which may decrease the potential benefits from cooperation [19, 32].

Parkhe [32] argued that partners' cultural differences in national aspects (e.g., in perception and interpretation of phenomena) contributed to the instability of IJVs. Makino and Beamish [3] suggested that IJVs between partners with similar national cultures should experience higher survival rates and performance levels than IJVs between partners with dissimilar cultures. For instance, Barkema and Vermeulen [44] found that distance in national culture was positively related to IJV survival. In another research, Park and Ungson [19] hypothesized that the greater the differences between IJV partners' national cultures, the lower the longevity of the IJV, but found instead the reverse. Fey and Beamish [48] reported that the differences between IJV partners' national cultures did not affect the performance of the IJV. The analysis of Tihanyi et al. [49] failed to provide statistical evidence of significant relationships between national culture and IJV performance.

### **2.3.2. Relationship between IJV Performance and Organizational Culture**

Hofstede and Hofstede [22] define organizational culture as “the collective programming of the mind which distinguishes the members of one human group from another.” Organizational culture refers to a pattern of shared basic assumptions about the environment, human nature, social relationships, and reality that employees have learned as they addressed and resolved problems of external adaptation and internal integration [50].

Because organizations are, in many ways, embedded in the larger society in which they exist, research on cultural differences of cross-national businesses should examine both national and organizational cultures. Although some researchers [51] may think that organizational culture is nested in national culture, most researchers regard national and organizational cultures as separate constructs with variable attitudinal and behavioral correlates [52, 53].

Partners with dissimilar organizational cultures may expend time and energy to establish mutually agreeable managerial practices and routines to facilitate interaction, and may incur higher costs and more mistrust than partners with similar organizational cultures [19]. Examining a large sample of IJVs, Pothukuchi et al. [53] found that the presumed negative effect from partner dissimilarity on IJV performance originates more from differences in organizational culture than differences in national culture. Based on another study of alliances, Brown et al. [54] concluded that large differences in partners’ organizational cultures can have a significant negative influence on IJV performance.

### **2.3.3. Impact of Cultural fit on IJV Performance**

Managing an IJV involves handling the differences in national and organizational culture. Differences in the organizational cultures of two IJV partners are manageable, since a firm’s organizational culture can always be modified. But the national culture is a given reality and is ingrained in a firm’s practices as well as individuals’ behavior, therefore national cultural differences can greatly affect the complementarities of IJV partners.

## **3. RESEARCH METHODOLOGY**

Within the scope of this study, a questionnaire was designed to measure cultural differences (both national and organizational) of IJV partners. The major objective is to observe the relationship between cultural fit and IJV performance. The survey was administered through face-to-face interviews and via e-mail to the Turkish partners of IJVs. Almost half of the projects were undertaken in 18 foreign countries including Afghanistan, Bulgaria, Jordan, Russia, Iraq, India, the United States, etc., whereas the remaining projects were undertaken in Turkey. Considering the fact that medium to large companies are likely to undertake IJVs with more frequency compared to smaller firms, the target population was set as the members of the Turkish Contractors Association (TCA). All of the respondents are large contractors with an average age of 40 years, operating both in domestic and international markets, and having expertise mainly in general contracting and infrastructure construction. The number of IJV projects completed by Turkish construction companies with foreign partners in the last 10 years is around 110 (TCA 2005). A total of 68 completed questionnaires of partnerships from 25 different countries were returned for data analysis, 48 of which were

administered through face-to-face interviews and 20 via e-mail. Around 60% of the target population was covered in this study. Respondents were required to rate (using a 1–5 point Likert scale) the national culture variables, the organizational culture variables, and “overall satisfaction,” by taking into account the characteristics of their IJV.

### **3.1. National Culture**

According to Ozorhon et al. [16], the most methodologically supported quantification of national culture (NC) was formulated by Hofstede and Hofstede [22] who developed a pioneering and widely accepted classification scheme which breaks national culture into the dimensions of power distance, uncertainty avoidance, individualism-collectivism, masculinity-femininity, and long-term orientation. Hofstede and Hofstede's [22] empirical framework of national culture is based on a survey of 117,000 IBM employees across 50 countries and three multicountry regions.

*1. Power distance (PDI):* PDI focuses on the degree of equality or inequality between people in a country's society. When PDI is high, hierarchy in organizational relationships is accepted. In low PDI case, there is equality in organization and participatory decision making.

*2. Individualism (IDV):* IDV focuses on the degree the society reinforces individual or collective achievement and interpersonal relationship. When IDV is high there is priority for individual needs and achievements. In low IDV scored countries, social groups need and benefit take precedence.

*3. Masculinity (MAS):* MAS focuses on the degree the society supports or does not support the traditional masculine work role model of male achievement, control, and power. When MAS is high there is assertiveness and a rational-achievement model exists. In low MAS scored countries, there is acquiescence and an emotional-affiliation model exists.

*4. Uncertainty avoidance (UAI):* UAI focuses on the level of tolerance for uncertainty and ambiguity within the society. When UAI is high there is avoidance of conflict and risk, and desire for organizational stability. In low UAI scored countries, risk and conflict are embraced, and ambiguity is tolerated.

*5. Long-term orientation (LTO):* LTO focuses on the degree the society embraces, or does not embrace long-term commitment to traditional, forward thinking values. A high long-term orientation ranking indicates the country appreciates long-term commitments and respect for tradition, whereas a low ranking indicates the country does not emphasize the concept of long-term, traditional orientation.

### **3.2. Organizational Culture**

Every organization has its own culture or shared systems of meanings that differentiate its members from other organizations' members [22]. Organizational culture dimensions obtained from the study of Hofstede et al. [52] were adopted in this study to measure the similarities of the partner companies in an IJV in terms of their organizational cultures. Hofstede et al. [52] asserted that organizational culture is best measured by organizational

practices instead of more abstract assumptions and values. The six independent dimensions describing the numerous organizational practices are defined as follows [55]:

1. *Process-oriented versus results-oriented culture*: This is related to the risk attitude of organizations. Employees of a process oriented culture tend to avoid uncertainty, whereas people belonging to a results-oriented culture view uncertainty as a challenge.
2. *Employee-oriented versus job-oriented culture*: This is about how the employees are valued. Employees' feelings and problems are of concern in an employee-oriented culture, whereas completing the work is the only goal in a job-oriented culture.
3. *Professional versus parochial approach*: This is related to how employees are identified. A professional culture is one in which people identify with their job, compared to a parochial culture in which employees derive their identity largely from the organization.
4. *Open system versus closed system*: It refers to the perceived communication climate within the organization. A closed system culture is seen as closed and secretive, and an open system is seen as open and inclusive to newcomers.
5. *The loose control versus tight control dimension*: This dimension refers to the degree of internal structuring in the organization. In units with loose control, hardly anybody thinks of costs and to be punctual is not a virtue. However, in a tight control unit, employees emphasize cost consciousness first and everybody has a strong sense for punctuality.
6. *The normative versus pragmatic dimension*: This dimension considers the popular notion of customer orientation. Pragmatic units are market driven; normative units perceive their task towards the outside world as the implementation of inviolable rules.

Considering each of the above organizational culture dimensions and using their perception of the situation, the respondent companies were asked to evaluate the level of similarity between the partners.

### 3.3. IJV Performance

Evaluating the performance of an IJV can be realized using subjective or objective indicators or a combination. Objective measures include financial criteria, e.g., measures of profitability, growth, and cost position, and operational measures, e.g., longevity of the strategic alliance ownership and survival. It should however be recognized that a company may not get involved in an IJV only to fulfill standard financial or operational objectives, but may instead have a number of additional motives such as to enhance organizational learning [56], to improve the strategic positioning of the company [29, 57], or to gain presence in new markets. Because of the difficulties associated with obtaining financial and operational measures to gauge the performance of IJVs, several researchers turned their attention towards subjective measures [28, 48].

A partner's satisfaction with the overall performance of the IJV is one of the most frequently used subjective measures of IJV performance [4, 26, 28, 48]. The main advantage of subjective indicators based on respondents' perceptions is their ability to provide information regarding the extent to which the IJV has achieved its overall objectives (including financial, survival, or expansion objectives, or any objective as the case may be). The overall

satisfaction of an IJV partner with the IJV is a subjective measure that was used in this study as one of the performance indicators.

#### **4. RESEARCH FINDINGS**

In order to explore the impact of culture on IJV performance, data collected from a total of 68 questionnaires were analyzed using a software package called Minitab 16 and MS Excel. Table 1 shows the descriptive statistics of data. In this study, culture's constructs NC, OC are analyzed and IJV performance has been set as subjective indicator of performance for comparison.

A total of 68 IJV partnerships were analyzed from different 25 countries. Figure 1 shows the distribution of partnerships among countries. Countries which have only one partnerships are not shown in order to simplify the chart presentation. As it is seen, partnerships are more often constructed with England, Germany, and USA.

*Table 1. Descriptive Statistics*

	<i>IJV Performance</i>	<i>National Culture Fit</i>	<i>Organizational Culture Fit</i>
Mean	3.5294	3.0984	3.3617
Standard Error	0.1098	0.0674	0.0825
Median	4	3.0263	3.3747
Mode	4	3	3
Standard Deviation	0.9055	0.5559	0.6804
Sample Variance	0.8200	0.3090	0.4629
Kurtosis	-0.1159	-1.0490	-0.1716
Skewness	0.2765	0.0457	-0.0522
Range	4	1.9958	2.9437
Min	1	2.0667	1.7600
Max	5	4.0625	4.7037
Count	68	68	68
Confidence Level (95%)	0.2192	0.1345	0.1647

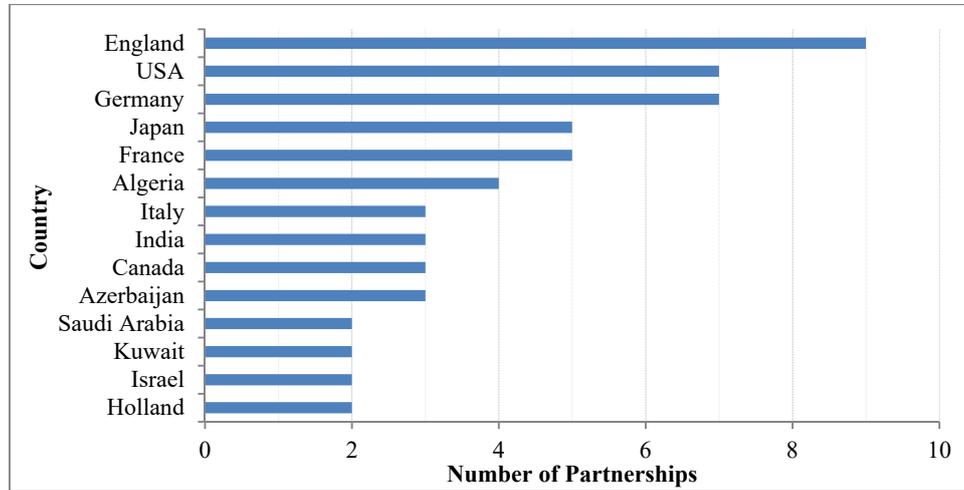


Figure 1. Number of partnerships sorted by countries

Also, according to NC and OC similarity indexes shown in Figure 2 and 3, top ten scored countries are shown.

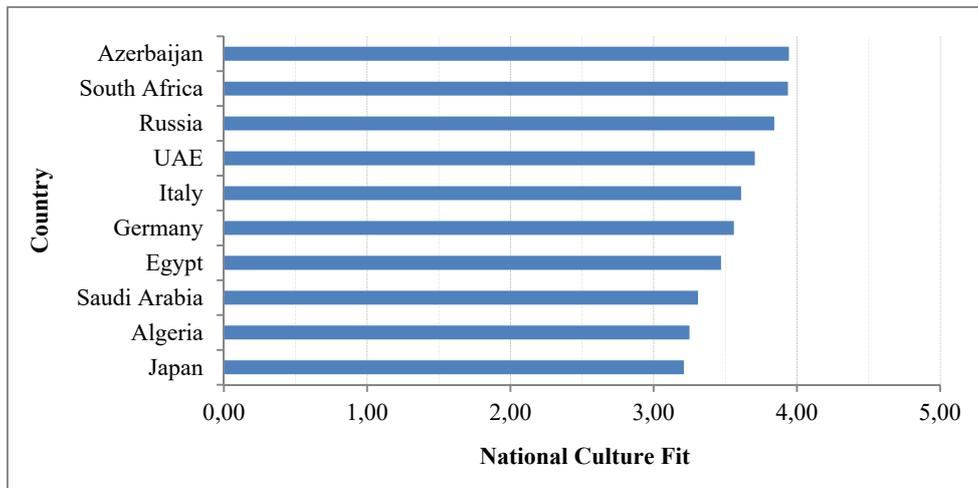
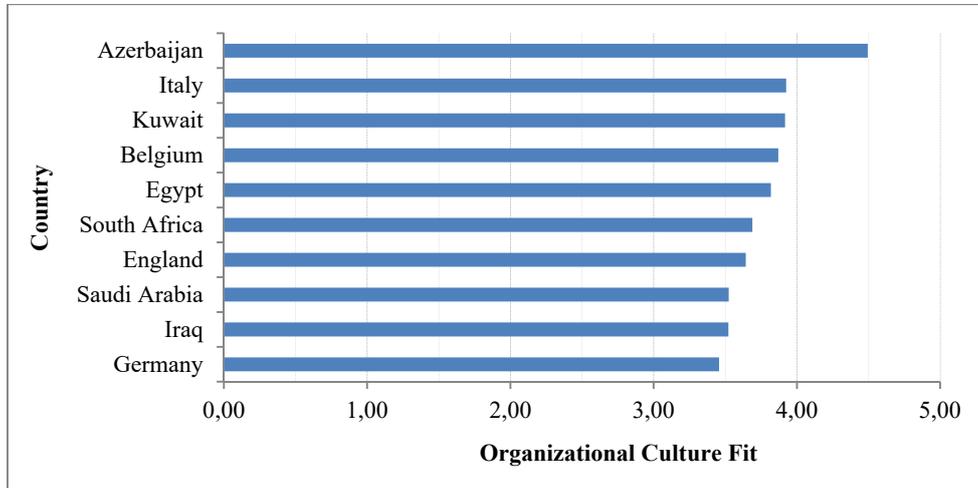


Figure 2. National culture fit index sorted by countries



*Figure 3. Organizational culture fit scores sorted by countries*

For each country, OS scores and OC and NC similarity indexes are shown in Table 2 for each country. OS scores which are mainly subjective, shows that Turkish companies are mainly satisfied for their IJV with their partners from Azerbaijan and Egypt, but unsatisfied with their IJV partners' performance from Austria, Pakistan, and Denmark.

Evaluating Figure 2, Figure 3 and Table 2, it can be said that partners from Azerbaijan, Italy, and Kuwait are more similar to Turkish partners in their organizational culture. However, Austria, Pakistan, and Israil partners are dissimilar to Turkish partners in terms of OC similarity index. NC similarity index results also shows that Turkish companies are more similar to their partners from Azerbaijan, South Africa, and Russia among countries. Moreover, they are less similar to their partner from Austria, Afghanistan, and Libya among countries. In respect of the data gathered from 68 projects, the average of IJV performance scores was 3.418, average of national culture fit values was 3.075, and average of organizational culture fit values was 3.281.

In this study, regression analysis is conducted, in which IJV performance is dependent variable and NC and OC are separately independent variables. As a result of evaluation, a multi variable regression analysis is carried out. As a result of the regression analysis, the  $R^2$  value, which is one of the criteria for evaluating the significance of the regression, was determined as 0.549 (Table 3).

In this study, based on R square criteria, about 55% of the data fits the regression model. In other words, 55% of the change/variance in the variables can be explained by the regression line. It is considered that the percentage of data-model adaptation is higher because the values of national culture and corporate culture adaptation values are decimal numbers, however IJV performance values are integer values.

Table 2. Overall satisfaction and cultural indexes by countries

No	Country	Number of Partnerships	IJV Performance	National Culture Index (Fit)	Organizational Culture Index (Fit)
1	Azerbaijan	3	5.000	3.944	4.494
2	Egypt	1	5.000	3.471	3.818
3	Belgium	1	4.000	3.000	3.870
4	France	5	4.000	2.995	3.408
5	Iraq	1	4.000	3.000	3.522
6	Israel	2	4.000	2.861	2.491
7	Italy	3	4.000	3.611	3.925
8	Kuwait	2	4.000	2.875	3.917
9	Libya	1	4.000	2.357	2.833
10	Rusia	1	4.000	3.842	3.091
11	Engaland	9	3.667	2.886	3.643
12	Japan	5	3.600	3.211	3.371
13	Saudi Arabia	2	3.500	3.309	3.524
14	Germany	7	3.429	3.561	3.457
15	USA	7	3.429	2.975	3.173
16	Canada	3	3.333	2.600	3.333
17	Afghanistan	1	3.000	2.250	2.870
18	UAE	1	3.000	3.706	2.960
19	Algeria	4	3.000	3.250	2.761
20	South Africa	1	3.000	3.938	3.690
21	India	3	3.000	2.549	2.975
22	Holland	2	2.500	2.456	2.869
23	Denmark	1	2.000	3.190	3.167
24	Pakistan	1	2.000	3.000	2.429
25	Austria	1	1.000	2.067	2.429

Table 3. Regression statistics

Parameter	Value
Multiple R	0.7411
R square	0.5493
Adjusted R square	0.5354
Standard Error	0.5199
Observations	68

The regression fit could be much more representative in case of using noninteger scale or larger interval scale. When rounded data are used in place of the true values to compute the variance of a variable or a regression line, the results will be distorted. Under suitable smoothness conditions on the distribution of the variable(s) involved, this bias, however, can be corrected with very high precision by using the well-known Sheppard's correction. Schneeweiss and Komlos [58] generalized Sheppard's correction to cover more general forms of rounding procedures than just simple rounding, probabilistic rounding, which includes asymmetric rounding and mixture rounding. In this study, in order to decrease this rounding effect, Sheppard's correction approach is used (shown in Eq.1-3) and the Rsquare of the regression model has been increased to 0.636 [59].

$$S^2 = \sqrt{(0.519)^2 - \frac{1^2}{12}} = 0.187 \quad (1)$$

$$SS_{error} = S^2 \times df = 0.187 \times 65 = 12.159 \quad (2)$$

$$R^2 = \frac{SS_{regression}}{SS_{total}} = \frac{SS_{total} - SS_{error}}{SS_{total}} = \frac{33.4 - 12.159}{33.4} = 63.6 \% \quad (3)$$

Regression analysis conducted with both variables gives a better representation of 55 percent and after using the Sheppard correction in order to decrease rounding effect, 64 percent representation is obtained. Also both OC and NC are significantly effective on IJV performance due to p values of 0.0476 and 0.0001 which are smaller than 0.05. Estimated regression model equation is given in in Eq. 4.

$$IJV \text{ performance} = 0.298 + 0.254 \times NC \text{ Fit} + 0.723 \times OC \text{ Fit} \quad (4)$$

In order to test the significance of the regression model, a null hypothesis was tested suggesting that OC and NC do not have any relationship with IJV performance. It was observed that NC and OC p values are respectively 0.0476 and 0.0001, which are smaller than the significance level of 0.05. This shows that both NC and OC have significant effect on IJV performance. Hence, both the national culture and the organizational culture seem to be very effective on the IJV performance which is a subjective component in this study [60].

Correlation analysis is one of the most widely used statistical methods in summarizing data. The correlation coefficients (r) which are  $\leq 0.35$  are generally considered to represent low or weak correlations, 0.36 to 0.67 modest or moderate correlations, and 0.68 to 1.0 strong or high correlations with r coefficients  $\geq 0.90$  very high correlations [61]. In order to get a bounded measurement that can be interpreted independently of the scale of the two variables. Based on the correlation coefficients obtained from Table 4, it can be stated that OC and OS are strongly related to each other ( $r=0.722$ ), whereas NC and OS have a moderate relationship ( $r=0.453$ ).

Based on the results of the analysis, correlation coefficients show that IJV performance is found to be highly associated with OC, whereas the effect of NC is found to be quite low. The effect of OC is also supported by other studies which suggest that OC has a greater impact on IJV performance compared to NC [53].

Table 4. Correlations: IJV performance; NC index; OC index

	IJV performance	NC	OC	p-value
<b>OS</b>	1.000			
<b>NC</b>	0.453	1.000		0.0476
<b>OC</b>	0.722	0.415	1.000	0.0001

## 5. CONCLUSION

Due to their increasing strategic importance in global competition, IJVs have been receiving considerable attention from researchers. Recently increasing IJV activities, one of the major changes seen in the international business world over the past few years, have become a popular method for multinational corporations. Today, the increase in the number of IJV attempts varies accordingly with such reasons like IJVs geographical coverage, and their international and intercultural variables. The most striking element as a consequence of the researches is that the majority of IJV studies concentrate on the cultural issues.

The aim of this study was to investigate the influence of NC and OC fit of partners on the ICJV performance. In this respect, a questionnaire survey was developed and administered to medium to large contractors, all of which are the members of TCA. A total of 68 questionnaires were returned and used for statistical data analysis. Through the regression and correlation analyzes made on the questionnaire data, the cultural fit between the Turkish firms and their non-Turkish partners was measured and the link between cultural fit and the ICJV performance was also investigated.

Based on findings of this study, Turkish firms are found to be performing better with partners from Azerbaijan, Egypt, Italy, and Kuwait. Turkish firms are more similar to Azerbaijani, Italian and Kuwaiti partners, but less similar to Austrian, Pakistani and Israeli partners in terms of organizational culture. It is also observed that Turkish firms exhibit similar characteristics to Azerbaijani, South African, and Russian firms but show different characteristics with Austrian, Afghan and Libyan companies in terms of national culture. Moreover, it was observed that the harmony between partners in terms of both national and organizational culture positively affected the performance of IJV, but organizational culture was determined to be a more effective factor on IJV performance than national culture.

In principle, it can be concluded that partners with similar cultures are expected to have better chances of operating successful IJVs. Although the objective of the research was met in this study, there is still room for a lot of research work that could be pursued in the future. In addition, the investigation on the identification of IJVs' obstacles to the successful adoption and management of IJVs and the appropriateness and effectiveness of IJV contracting strategies in practice is proposed to be as future work.

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