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Major Barriers and Best Solutions to the Adoption of Ethics and Compliance Program in Chinese International Construction Companies: A Sustainable Development Perspective

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Abstract: Unethical behavior is one of the grand challenges facing international construction companies (ICCs) to move toward sustainable development when operating on an international basis. The ethics and compliance program (ECP) has played a significant role in addressing illegal and unethical behavior and avoiding liability in multinational companies. However, there have been few studies on the current status, major barriers, and best solutions to ECP adoption in ICCs. To fill this gap, an international questionnaire was conducted; 87 valid samples of Chinese ICCs located in 44 countries were filtered out for in-depth analysis. The survey results showed that only 36.8% of responding ICCs exercised compliance functions through the compliance department. The top five recognized barriers hampering ECP adoption were “lack of related laws and regulations”, “insufficient support from the government”, “lack of authorization to the compliance department”, “shortage of compliance professionals”, and “lack of case studies”. There was no disagreement about the barriers’ rankings among organizations of different firm ownerships, sizes, and locations, except the variable “great institutional distance”. Results also revealed the top five best solutions to help ICCs overcome the identified barriers. The findings would enhance the understanding of industry practitioners and policymakers, hence helping them address corresponding solutions to boost ECP adoption and promote the sustainable development of ICCs.

Keywords: sustainable development; ethics and compliance program; international construction companies (ICCs); current status; barriers; solutions

1. Introduction

International construction companies (ICCs), as typical multinational companies, are immersed in the most corrupt construction industry [1,2]. They are plagued with unethical conduct such as corruption, collusion, fraud, and coercion throughout the process of operating overseas, which have been strongly constrained in recent years. From fiscal year (FY) 2009 to FY 2020, 646 firms were subjected to sanctions by the World Bank Group (WBG) [3]. The United States (U.S.) Sentencing Commission convicted 94 cases of organizational offenders in 2020 [4]. In 2020, the U.S. authorities imposed approximately USD 6.31 billion penalties on multinational companies violating the Foreign Corrupt Practices Act (FCPA). Unethical conduct is associated with low quality of infrastructure, cost overrun, unfair competition, and huge costs to society. Corresponding sanctions may bring ICCs lasting negative consequences, such as financial loss, reputation damage, legal liability, and even the collapse and ultimate closures [5], thus impeding the ICCs’ sustainable development. The most well-known fallen giants are Enron, WorldCom, Carillion, and Odebrecht.

To keep the organization operating legally and compliantly, the ethics and compliance program (ECP) was proposed, specified, or mandated [6,7]. The ECP, also known as compliance management systems [8] or ethical compliance program [9], consists of explicit components (e.g., codes of ethics, ethics training, ethics authorities, policies, etc.) and implicit components (e.g., ethics culture, top management commitment, communication, etc.) [5,6,10]. The ECP functions as an organizational control system for the sustainable development of ICCs in a scenario of the increased complexity of domestic and international regulations. On one hand, developing and implementing effective ECP incorporating procedures applicable on a global scale will assist ICCs in preventing and detecting illegal and unethical behavior both at home and abroad [11]. On the other hand, based on laws and regulations such as the Federal Sentencing Guidelines for Organizations (FSGO) and World Bank Group Integrity Compliance Guidelines, a formal ECP can bring favorable sentencing treatment, and substantially reduce a multinational corporate's exposure to legal liability when ICCs are prosecuted [12].

Unlike fragmented anti-corruption measures, the ECP is a formal system institutionalizing ethics into business [13], which needs long-term investment in terms of appropriate finances and personnel resources. Thus, the adoption of ECP in construction companies encounters several barriers, such as political barriers, psychosocial barriers, and organizational barriers [14,15]. In China, the ECP started to be widely concerned by construction companies in 2018. Even the essential compliance elements such as codes of ethics and compliance were not commonly practiced by construction organizations [15]. To date, little research focused on the current state, major barriers, and best solution for ECP to be adopted in ICCs. Thus, the following research questions were formulated to be addressed in this study:

RQ1. What is the current adoption status of ECP in ICCs?

RQ2. What are the major barriers faced when leveraging ECP for ICCs when operating abroad?

RQ3. What are the best solutions to boost the implementation of ECP in ICCs?

This paper seeks to answer the above questions by surveying Chinese ICCs. Although the survey objects are confined to Chinese ICCs, the implications are not limited to the Chinese construction industry. Based on the data from United Nations Statistics Division, the construction industry in China generated the largest construction Gross Value Added in 2019. In 2021, up to 78 Chinese ICCs are on the list of the Engineering News-Record's (ENR) top 250 international contractors [16], accounting for 31.2%. According to the report from the Ministry of Commerce People's Republic China [17], Chinese ICCs have ventured into 184 countries. Therefore, their practices have significant implications on ethics and compliance management for the international construction industry. Hence, our analysis would offer insights into the understanding of ECP in global circumstances. The outcomes would enrich the knowledge body of ethics and compliance management, which is an emerging research topic in the construction area. The findings may guide ICCs into the successful practices of accepting, creating, sustaining, or adjusting firms' ECP.

The sections of this paper are arranged as follows: (1) reviews the evolution of ECP both in the international business field and in China; (2) explores the current status of ECP in Chinese ICCs; (3) assesses the barriers to the adoption of ECP and comparing the views of respondents regarding their firm ownership, firm location, and firm size; (4) proposes feasible solutions to promote the adoption of ECP. The following parts are conclusions, limitations, and further research.

2. Literature Review

2.1. The ECP in International Business

To curb overseas corporate misconduct, the U.S. Congress promulgated FCPA in 1977 (Shown in Figure 1). It marks the first effort by the government authorities to regulate unethical practices carried out by multinational companies. Then in 1991, the United States Sentencing Commission enacted FSGO, in which the requirements of effective ECP were

proposed. This guideline directly pushed the widespread adoption of ECP by various companies in the U.S. The existence of an effective ECP is a key factor that a sentencing court should take into account in deciding whether to lessen a sentence [12]. Hence, a company can use the pre-existing ECP to pursue and access a reduced penalty for FCPA violation in some cases. This is a typical “carrot and stick” approach. The introduction of ECP has helped usher in an unprecedented era in which multinational companies devote themselves to internal, self-initiated, self-regulation campaigns to eradicate illegal and unethical behavior. After that, the mass promotion of ECP was further pushed by the legislation of the Sarbanes-Oxley Act in 2010, followed by the amendment in the U.S. Sentencing Guidelines for Organization in 2004 and 2010.

Laws or regulations issued by developed countries or international organizations	Regulations issued by China
1977 Foreign Corrupt Practices Act (US) 1991 Federal Sentencing Guideline Manual (US) 2002 Sarbanes — Oxley Act (US) 2010 The UK Bribery Act (The UK) 2016 The Sapin II Law (France) 2017 Deutscher Corporate Governance Kodex (German) 2020 Evaluation of Corporate Compliance Programs (US) 2010 Good Practice Guidance on Internal Controls, Ethics, and Compliance (OECD) 2010 World Bank Group Integrity Compliance Guidelines (WBG) 2013 ICC Ethics and Compliance Training Handbook (ICC) 2014 Compliance Management Systems — Guidelines (ISO) 2016 Anti-Bribery Management Systems (ISO) 2021 Compliance Management Systems — Requirements with Guidance for Use (ISO)	2017 Compliance Management Systems — Guidelines (China) 2018 Guidelines on Compliance Management of Central Enterprises (China) 2018 Guidelines for Compliance Management of Enterprises’ Overseas Operations(China)

VS

Figure 1. Laws and regulations incentive the adoption of ECP.

The FCPA from the U.S. dominated international anti-corruption enforcement until 2010. Other developed countries started to announce similar legislation, such as the United Kingdom Bribery Act 2010 and the Sapin II Law 2016. Furthermore, attention to ECP paid by international institutions has grown. Organization for Economic Cooperation and Development (OECD) issued its Good Practice Guidance on Internal Controls, Ethics, and Compliance back in 2010, providing a governance structure to advocate ECP implementation in companies domiciled in OECD countries. In the same year, the WBG issued World Bank Group Integrity Compliance Guidelines to provide practical guidance for debarred firms whose release from debarment is conditioned on implementing ECP. In 2013, the International Chamber of Commerce issued the ICC Ethics and Compliance Training Handbook, offering hands-on expertise from distinguished practitioners in the field of ethics and compliance. In addition, the ISO 19600 standard Compliance Management Systems Guidelines provided a framework for executing ECP in a wide range of applications covering nearly all types of organizations. Compliance management systems—Requirements with guidance for use was released by International Organization for Standardization (ISO) to serve for the certification of corporate ECP in 2021.

The aforementioned laws, regulations, and standards have advanced ECP adoption and encouraged industry-wide self-regulation from the perspective of incentives and deterrence [18]. Apart from these systematic legislative measures, compliance associations were established with the participation of governments, such as National Compliance Association in Russia and Ethics and Compliance Officers Association in the U.S. Compliance-related forums were created in the field of academia and industry. Round tables were also held in terms of compliance management introductions issues. The Russian government supported the initiative to develop anti-corruption compliance systems [19].

The ECP has been implemented developmentally by business organizations. The Center for Business Ethics conducted survey about the ECP adoption in 1984/85 and 1989/90, respectively. The results showed that Fortune 1000 firms had built ethical values into their company structures and culture regarding expanding efforts, objectives, progress, the perception of public pressure for ECP, the demand for ethics education [20]. Weber

et al. [7] reported that, as early as 2010, nearly all the surveyed U.S. firms housed ethics codes, ethics and compliance officers, internal reporting mechanisms, and ethical training. ECP appraisal and risk assessments were undertaken by 74% and 67% of the surveyed companies, respectively. Nevertheless, they faced the challenge of allocating enough resources to the ECP, such as human or financial resources. The U.S. deservedly led the trend and occupied a higher position than other countries in the field of ethics and compliance management. Nevertheless, in Russia, only 44% of the surveyed large organizations had compliance departments [19]. Slovakian respondents perceived that the most effective ECP components to improving ethical behavior are the code of ethics, reporting and control mechanisms [5].

2.2. The ECP in China

Guided by the theories and practice from the developed countries, the ECP wave has also occurred in China since 2006. The administrative requirement of adopting ECP in companies first emerged in the banking and insurance sector [21,22]. Back in 2006, the Guidelines on Compliance Risk Management in Commercial Banks was promulgated, designating the status of the ECP. Then in 2017, Measures for Compliance Management of Securities Companies and Securities Investment Fund Management Companies was released, forcing all the companies to adopt ECP in the securities industry. Given that more and more Chinese companies were expanding overseas, the ECP was advocated to apply in broader sectors. In 2016, the Chinese government kicked off five multinational companies in different industries to adopt the ECP. They were China Mobile Communications Group Co. Ltd., China National Petroleum Corporation, Dongfang Electric Corporation, China Merchants Group, and China Railway Group Limited.

In 2018, the United States sanctioned Zhongxing Telecommunication Equipment Corporation (ZTE) for making a false statement to the U.S. authorities that it punished employees who violated the U.S. Export Administration Regulations. ZTE was forced to set up compliance management within their organization to prevent similar violations. Due to this ZTE incident, the Chinese government attached greater importance to the ECP. From then on, many administrative regulations were released to achieve better multinational companies' performance in the international market, such as Compliance Management Systems—Guidelines, Guidelines for Compliance Management of Enterprises' Overseas Operations, and Guidelines for the Compliance Management of Central Enterprises. The China Corporate Compliance Promotion Alliance was established in the same year. Hence, the year 2018 is regarded as the dawn of the era of compliance management in China. Unlike developed countries adopting legislation to promote ECP adoption, these crisis-triggered government movements in China are carried out on an administrative level, which forms the administrative incentives [23]. Up to now, China still lacks laws similar to FSGO, lagging behind developed countries in corruption enforcement.

These movements were devoted to elevating ECP into becoming an integral part of the company's structure. However, the outcome was not as expected. From FY2009 to FY2020, 56 Chinese ICCs were prohibited from participating in WBG funded projects for a defined period of time [3]. The number of sanctioned Chinese ICCs ranked first in the world. In particular, the number was up to 15 in FY2019. What's worse, none of them adopted the ECP. It appears that the adoption of ECP in Chinese ICCs is still in its infancy.

2.3. Barriers to the Adoption of ECP

Although it has been emphasized repeatedly [5], the adoption of ECP in ICCs is confronted with many barriers. The adoption of ECP is somehow viewed as a burden by organizations. According to Weaver [24], the gap between the goals and practices of ECP was supposed due to three factors: perceived incentives to adopt (e.g., incentives and sanctions, control mechanisms, and enforcement problems); willingness to adopt (e.g., information and awareness problems, belief problems, and peer effects) and capacity to adopt (e.g., resource problems, autonomy problems). Several researchers attributed the

barriers to situational factors outside the organization, such as lack of perceived incentives [25], lack of professional guidance and support, insufficient cross-border supervision, administrative distance, adversarial environment [26]. On the other hand, several studies emphasized internal barriers including the awareness of compliance, financial capacity, technical know-how, human resources, ethical culture, managerial ability and oversight [27], and psychological constraints [28].

The adoption of ECP in ICCs faces challenges at different levels. From the firm level, Oladinrin et al. [28] highlighted managerial and organizational barriers, planning and monitoring barriers, and value and interest barriers. From the project level, Owusu et al. [14] grouped the barriers into political, psychosocial, social, and organizational barriers. In addition, there also existed special tensions for the ICCs when implementing ECP across national boundaries [29]. Helin et al. [30] discussed the cross-cultural barriers to implementing the parent company's code of ethics into its subsidiaries, mainly focusing on the national identity.

Given the limited amount of research on ECP in ICCs, the literature reviews in this paper were undertaken considering other related fields, such as international business and international law. Finally, 18 barriers that may hamper ECP adoption in ICCs were collected and presented in Table 1. They were classified into four groups: social barriers, resource barriers, managerial barriers, psychological barriers.

Table 1. Potential barriers blocking the adoption of ECP.

Groups	Code	Barriers	Description	References
Social barriers	B01	Lack of related laws and regulations	There are no Chinese laws similar to the FSGO to promote the implementation of ECP.	[14,15,21]
	B02	Inadequate sanctions	Weak sanction of noncompliance does not make the adoption of ECP an urgent task.	[21,24,27]
	B03	Insufficient support from the government	There are fewer available standards or guidelines about ECP in the international construction industry.	[21,24,31]
	B04	Weak public concern and pressure	Weak public awareness and insufficient community pressures on ICCs to improve their ethics and compliance performance, especially the public from the host country.	[28,32]
	B05	Great institutional distance	Great institutional distance between the host country and home country makes the ECP hardly respond to the differences in government policies, regulations, and institutions.	[29,33]
Resource barriers	B06	Shortage of compliance professionals	There are insufficient talents in ICCs holding the appropriate experience and qualifications to provide compliance management service.	[7,14]
	B07	Insufficient funding	The implementation of the ECP requires considerable funds for hiring sufficient staffing, training, monitoring, etc.	[7,24,28]
	B08	Inadequate training	There is insufficient time and frequency to the specific ethics training.	[15,31,34]
	B09	Lack of case studies	There are only a few cases successfully implementing the ECP in ICCs in the Chinese construction industry.	[26,31,34]
	B10	Difficulty in integrating advanced technologies	Advanced technologies are difficult to be integrated into the process of information documented, detection, screening, surveillance, etc.	[8,35]
Managerial barriers	B11	Lack of willingness by the leadership	Lack of willingness and commitment of top managers to enforce ECP.	[7,15,28]
	B12	Lack of authorization to the compliance department	There is insufficient autonomy from compliance officers, such as they can not directly access data, report to the board of directors or the board's audit committee.	[7,14,24]
	B13	Lack of tools to evaluate the benefits of the ECP	It is difficult to quantify the financial returns or reputation returns brought by adopting ECP.	[7,14,28]
	B14	Bureaucratic organizational setting	The bureaucratic structure makes it challenging to implement structural reforms within the organization.	[14,36]
Psychosocial barriers	B15	Concern about competitiveness	Managers may fear a loss of competitive position if they comply with a compliance requirement unless all of their competitors do so as well.	[7,15,28]
	B16	Reluctant to change and inertia	Managers are used to the current workflow and unwilling to change.	[15,26]
	B17	Organizational value conflict	When the anticipated ECP outcomes are inconsistent with organizational goals(e.g., performance emphasis) or with external values, the ECP will less likely be adopted	[15,24,28]
	B18	Great culture distance	Great cultural differences between the host country and home country increase the difficulty in converting ECP strategies to operational levels from the perspective of cognition and practice.	[29,30,33]

2.4. Solutions to Address the Barriers in Adopting ECP

To overcome the barriers hindering ECP implementation, many solutions have been proposed by extant studies. Focusing on the social barriers in the contexts of China, Wu et al. [22] proposed solutions from five aspects, which are: legislation, law enforcement, human resource, regime construction, and regime implementation. Wang et al. [37] emphasized the home country laws and regulations to promote and supervise the company's ECP. In addition, after analyzing sanctioned cases in the construction industry, Luo et al. [38] recommend several approaches to promote the adoption of ECP: encouraging international cooperation, improving national legal systems, employing advanced technology, and cultivating compliance talents. To cope with psychosocial barriers, Paine [39] recommended an integrity-based approach to ethics and compliance management, aiming for both a concern for the law and an emphasis on managerial responsibility for ethical behavior. Similarly, Weaver et al. [40] contended that an organization's ECP may combine the internalization of values with compliance with rules. Top managers' attitude to ethics is mostly linked to the effectiveness of the ECP. In addition, OECD [25] provided comprehensive solutions from government, civil society, and organization, mainly including government commitment, clear but flexible standards, government assistance, a compliance culture of the organization. Finally, 18 solutions have been identified and depicted in Table 2.

Table 2. Possible solutions to overcoming the barriers in adopting ECP.

Target Barrier	Code	Possible Solutions	References
Social barriers	S01	Promulgating laws fighting against corruption overseas	[22,37,38]
	S02	Strengthening international cooperation in foreign corruption issues	[22,25,38,41]
	S03	Strengthening the effectiveness of the rule of law	[25,37]
	S04	Initiating industry certification for the ECP	[21,38]
	S05	Adopting ECP on state-owned enterprises mandatorily *	[25]
	S06	Integrating ethics and compliance into school education	[22,25]
	S07	Increasing media coverage of ethical failings	[25,40]
Resource barriers	S08	Offering low-cost loans for developing the ECP	[25]
	S09	Developing analytical tools to evaluate the effectiveness of the ECP	[25]
	S10	Integrating advanced technologies in establishing and operating the ECP	[25,38]
	S11	Organizing more specialized seminars or forums for exchanges of information	[25,38,40]
	S12	Offering ethics training to employees at all levels	[39]
Managerial barriers	S13	Fostering top managers' commitment	[22,39,40]
	S14	Including ethics and compliance in employee evaluation processes	[22,39]
	S15	Keeping compliance officer in a high-ranking position	[39]
Psychosocial Barriers	S16	Tailoring the ECP to the host country's context	[25,38,39]
	S17	Adapting the ECP to local external stakeholders' needs	[25,38,39]
	S18	Encouraging management to take the lead in creating a culture of ethics and compliance	[25,38,39]

* The solution was derived from the pilot interviews.

3. Methods and Data Presentation

The research framework is shown in Figure 2. First, a comprehensive literature review was accomplished to spot the potential barriers and solutions to adopting ECP. Then a questionnaire was designed to evaluate them, which went through pre-survey interviews and large-scale questionnaire survey. Finally, post-survey interviews were executed with five senior industry practitioners to elaborate on the findings. Such multiple approaches were advocated and proved to be reliable [36,42].

To solicit barriers that hamper the ECP adoption in the ICCs, the pilot surveys were arranged with six experts with extensive international engineering knowledge from Singapore, Iran, Pakistan, Hong Kong, Australia, and China. Then the questionnaire was designed, consisting of three sections: basic personal and organizational background, the current status of the ECP adoption, barriers evaluation, and solution assessment. A five-point Likert scale was used to evaluate each barrier, ranging from "1-strongly disagree" to "5-strongly agree".

Since the COVID-19 pandemic was raging and the respondents worked abroad, the survey was conducted online through www.WJX.net, which is a platform that provides functions similar to Amazon Mechanical Turk. This questionnaire survey was carried out

from January 2021 to February 2021. All the respondents were employed in Chinese ICCs. To reduce social desirability bias and avoid ethical troubles, the anonymity of surveyed respondents was guaranteed.

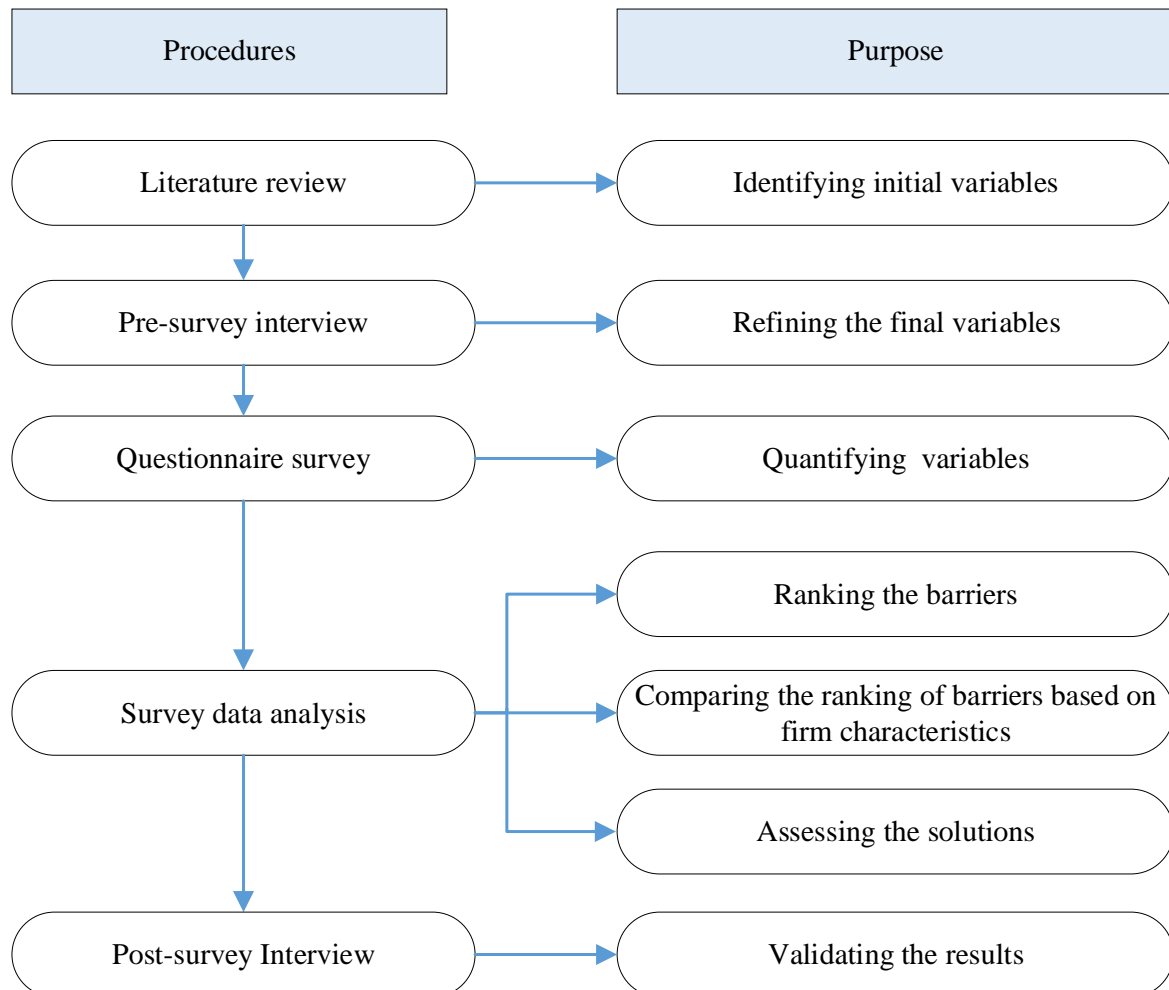


Figure 2. Research framework.

To improve the reliability, respondents with less than three years of work experience were excluded. Hence, 154 questionnaires were left. We deleted questionnaires with obvious errors, such as the wrong answer of firm ownership. Some of the respondents belonged to the same company, thus one valid questionnaire replied by the respondent in high position was extracted from each company [37]. Finally, a total of 87 valid questionnaires coming from different companies were selected for in-depth analysis. The demographic information of the 87 respondents is depicted in Table 3. Due to the harsh working environment of international engineering and COVID-19, 90.8% of the respondents are men. The male-female ratio is a little high, but it is reasonable [43]. 42.7% of the respondents have more than five years of working experience in overseas engineering and 69.0% of them are managers, which makes the collected data more reliable.

Table 3. Demographic information of valid respondents.

Category	Characteristic	Frequency	%
Gender	Male	79	90.8
	Female	8	9.2
Work experience in ICCs	3–5 years	42	48.3
	6–10 years	36	41.4
	11–15 years	8	9.2
	>15 years	1	1.1
Position in ICCs	Senior management	20	23.0
	Department management	26	29.9
	Project management	14	16.1
	Others	27	31.0

The targeted firms of this survey were ICCs. Table 4 presents the statistical breakdown of the 87 samples. Out of them, 85.1% were state-owned enterprises and 14.9% were private enterprises. These samples were located in 44 countries, notably, Saudi Arabia (8 samples), Pakistan (5 samples), Serbia (5 samples), Vietnam (4 samples), Cambodia (4 samples), Zambia (4 samples). Almost all the host countries are developing countries, except Israel. The business domains of these samples were transportation (37.9%), buildings (34.5%), power (20.7%), and petroleum (6.9%).

Table 4. Basic organizational information.

Category	Characteristic	Frequency	%
Firm ownership	State-owned enterprise	74	85.1
	Private enterprise	13	14.9
Number of regular employee	>200	28	32.2
	100–199	16	18.4
	50–99	11	12.6
	20–49	18	20.7
	<20	14	16.1
Location of samples	Asia (Excluding China)	43	49.4
	Africa	32	36.8
	Europe	6	6.9
	North America	6	6.9
Host country classification	Developing country	86	98.9
	Developed country	1	1.1
Business domain	Transportation	33	37.9
	Buildings	30	34.5
	Power	18	6.9
	Petroleum	6	20.7

IBM SPSS Statistics 25 was used for in-depth data analysis. First, Cronbach's Alpha was conducted to check the reliability of the data. Then Shapiro-Wilk test was used to test the normality of the data since the sample number is 87. Given that the collected data were non-normal distributions, a one-sample Wilcoxon signed-rank test was employed to check whether the sample median is equal to the test median 3.

In addition, the internal rankings under each group were also discussed. The Mann-Whitney nonparametric test was performed to check the differences between two related groups. Moreover, the Kruskal-Wallis and the Jonckheere-Terpstra tests were conducted to check whether a statistical difference exists to compare more than three related groups [44]. The significance coefficients were all adopted at 0.05 in this study.

Post-survey interviewers were conducted to elaborate the statistical results. They admitted that these findings in this study were reasonable and in line with their expectations.

They also provided possible explanations depending on their experiences in international projects. The profile of the five interviewees is shown in Table 5.

Table 5. Profile of interviewees in the post-survey.

Code	Designation	Experience	The Host Country	Firm Ownership	Business Domain
I1	Director	22 years	India	Private enterprise	Building
I2	Senior management	9 years	Kenya	State-owned enterprise	Transportation
I3	Senior management	14 years	Vietnam	State-owned enterprise	Power
I4	Senior management	12 years	Peru	State-owned enterprise	Transportation
I5	Project management	7 years	Saudi Arabia	State-owned enterprise	Petroleum

4. Data Analysis and Discussion

4.1. Current Status of ECP in ICCs

Figure 3 presents answers to “What kind of compliance initiatives did your organization launch?”. Approximately 81.6% of the samples create codes of ethics and compliance. The ratio is much smaller than that in the U.S. (98.3% of the U.S. companies had ethical codes in 2010) [7]. 75.9% of these samples employ ethics and compliance officers. 67.8% of these samples have ethics training in place, while the percentage in the U.S. was up to 98% [7]. 55.2% of the samples conduct internal reporting mechanisms. 49.4% of the samples revise and update the ECP whenever necessary to meet the evolving international circumstances. In summary, more than 50% of ICCs implement the basic compliance initiatives including codes of ethics and compliance, ethics and compliance officers, ethics training program, internal reporting mechanisms.

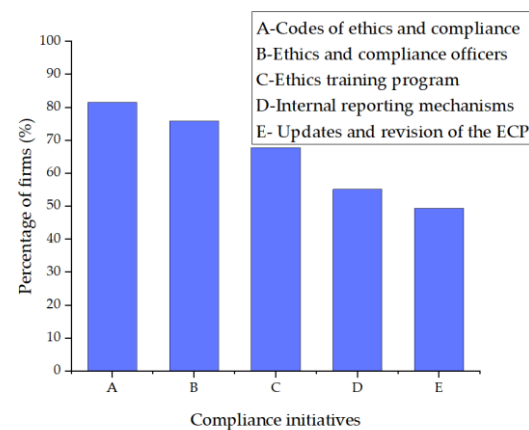


Figure 3. Answers to the question “What kind of compliance initiatives did your organization launch?”.

Empowering the compliance department within the company is the guarantee of an effective ECP [7]. It is the main signal to institutionalize compliance management in organizations. As shown in Figure 4, 36.8% of the samples have an independent function in the compliance department. 27.6% of the samples indicate that the responsibility for compliance management is housed within the legal department. The best practice is to keep the compliance department as an independent function due to the differing and sometimes conflicting responsibilities between the compliance department and the other departments [45]. In sum, currently, only 36.8% of ICCs use the work of the compliance department effectively. The level of practical adoption of ECP in ICCs remains low now.

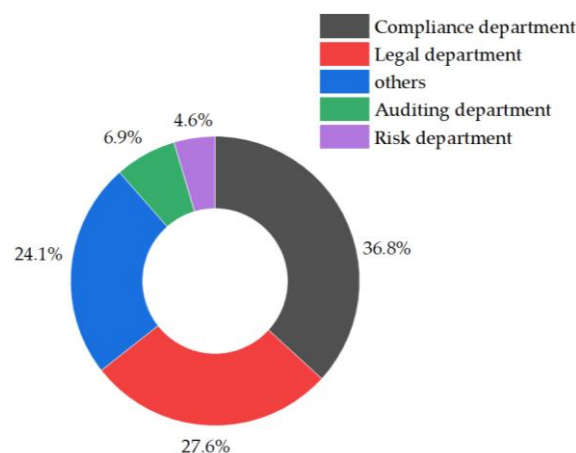


Figure 4. Answers to the question “Where is the compliance function housed within the organization?”.

4.2. Major Barriers to the Adoption of ECP in ICCs

As indicated in Table 6, the overall Cronbach’s Alpha value of the 18 barriers to ECP adoption was 0.906, greater than the threshold value of 0.7 [46]. Cronbach’s Alpha value of each item was greater than the threshold of 0.8, implying that the data has good reliability. Because the recommended threshold could decrease to 0.6 [47], it was accepted that the variables were divided into four groups despite the coefficients of “social barrier” being 0.650 and that of “psychosocial barriers” being 0.633.

Table 6. Assessment results of the barriers in adopting ECP.

Groups	Code	Cronbach’s Alpha	Mean Value	Rank		Median	Shapiro-Wilk Test	One Sample Wilcoxon Signed-Rank Test
				Overall Rank	Internal Rank		p-Value	p-Value
Social barriers ($\alpha = 0.650$)	B01	0.897	4.046	1	1	4	0.000	0.000 ¹
	B02	0.902	3.540	15	4	4	0.000	0.001 ¹
	B03	0.898	3.920	2	2	4	0.000	0.000 ¹
	B04	0.900	3.425	17	5	3	0.000	0.065
	B05	0.906	3.713	8	3	4	0.000	0.000 ¹
Resource barriers ($\alpha = 0.763$)	B06	0.893	3.805	4	1	4	0.000	0.000 ¹
	B07	0.900	3.632	12	5	4	0.000	0.000 ¹
	B08	0.892	3.690	10	4	4	0.000	0.000 ¹
	B09	0.898	3.782	5	2	4	0.000	0.000 ¹
	B10	0.903	3.770	6	3	4	0.000	0.000 ¹
Managerial barriers ($\alpha = 0.832$)	B11	0.895	3.713	7	2	4	0.000	0.000 ¹
	B12	0.894	3.908	3	1	4	0.000	0.000 ¹
	B13	0.895	3.517	16	3	4	0.000	0.011 ¹
	B14	0.896	3.379	18	4	3	0.000	0.112
Psychosocial Barriers ($\alpha = 0.633$)	B15	0.895	3.609	14	3	4	0.000	0.000 ¹
	B16	0.895	3.644	11	2	4	0.000	0.000 ¹
	B17	0.893	3.701	9	1	4	0.000	0.000 ¹
	B18	0.910	3.609	13	3	4	0.000	0.000 ¹

¹ One sample Wilcoxon signed rank test was statistically significant when the p-value was less than 0.05 level.

Mean score ranking was carried out since it was recommended to be the most practical tool to identify the major barriers [36]. The range of mean scores is from 3.379 to 4.406. The value of variables B01 “lack of related laws and regulations”, B03 “insufficient support from the government”, B12 “lack of authorization to the compliance department, B06 “shortage of compliance professionals”, B09 “lack of case studies” are greater than the other variables, indicating that they are the top five significant barriers.

In addition, the internal rankings under each group are also discussed. “lack of related laws and regulations” ranks first in the group of “social barriers”. “shortage of compliance professionals” is the leading barrier in the group of “resource barriers”. “lack

of authorization to the compliance department” receives the highest rating among the variables in the “managerial barriers” category. In the “psychosocial barriers” group, the prominent barrier is “organizational value conflict”. The value conflict means the opposing belief systems between ECP and company culture are at play and the person involved feels resistant to comply with the ECP.

The p -values of the Shapiro-Wilk test were all less than 0.05, indicating that the data were not normally distributed. All the p -values of one sample Wilcoxon signed-rank test were less than 0.05, except B04 “weak public concern and pressure” and B14 “bureaucratic organizational setting”. It can be concluded that the evaluation values of respondents are statistically different from the test median of 3.

4.2.1. B01 Lack of Related Laws and Regulations

As is shown in Table 6, B01 “lack of related laws and regulations” was the top barrier (mean value 4.046). The well-positioned laws and regulations which stimulate “the perception of need” [25] are the strongest driver for companies to develop an ECP, notably FSGO and FCPA [7]. However, for ICCs, both the home country and the host country lack laws and regulations involving the ECP. The institutional contexts of the home country largely shape ICCs’ internationalization [48]. There are no signal laws in China to criminalize foreign corruption. Hence, China has no jurisdiction over ICCs’ misconduct that took place overseas. In addition, there exist no laws or regulations promulgated by Chinese authorities that can incorporate the ECP into consideration to reduce the sentences [23]. This underdeveloped institutional infrastructure makes ICCs lag to adopt the ECP [49]. In terms of Chinese ICCs, their host countries are mainly developing countries, where deficiencies and insufficient enforcement of anti-corruption rules and laws are common [50]. The adverse host country institutional environment also hampers the adoption of ECP in ICCs. Therefore, the variable “lack of related laws and regulations” is inevitably recognized as one of the top obstacles for ICCs to adopt ECP.

4.2.2. B03 Insufficient Support from the Government

The variable B03 “insufficient support from the government” was ranked second (mean value 3.920). It is notoriously tricky for ICCs to develop the ECP that should adapt to their external contexts and rule pressures [51]. Overly burdensome local compliance requirements, coupled with language barriers, go beyond the companies’ cognition and ability, thus government support and assistance are a prerequisite for ICCs to adopt the ECP [21,52]. For instance, to answer the question “how to develop the ECP?” specific regulatory guidance or handbook should be tailored to the specificities of ICCs and to provide ICCs a better reference of what is expected in practice. To evaluate the ECP, standards should be set forth in accordance with international principles and reflect the characteristics of the construction industry. Some social initiatives should be led by government agencies, such as platforms for sharing compliance experiences, alliances for integrity. In general, the China government should devote more effort to helping ICCs cope with ECP implementation challenges in their overseas operations [21].

4.2.3. B12 Lack of Authorization to the Compliance Department

The variable B12 “lack of authorization to the compliance department” was the third significant barrier (mean value 3.908). The compliance department should have specific authority to perform necessary tasks such as overseeing the compliance risk, direct reporting to the governing body, unfiltered accessing to information demanded to play its supervisory role. In other words, the compliance department needs to be given “appropriate standing, authority and independence.” [53,54]. To realize authorization of the compliance department, it is inevitable to redistribute the responsibility within the organization and change the organizational structure. Adopting ECP is one type of corporate governance reform. Thus it is predictable that the variable “lack of authorization to the compliance department” would hamper the adoption of ECP.

4.2.4. B06 Shortage of Compliance Professionals

B06 “shortage of compliance professionals” ranked fourth (mean value is 3.805). Compliance professionals are responsible for developing, managing, and leading effective ECP within organization. They must have a legal or accounting educational background [7]. Ideally, they should possess strong knowledge of domestic and foreign compliance issues, audit techniques, industry-specific experience, and soft skills [54]. Unfortunately, the compliance officer is included for the first time in the Occupation Classification Ceremony of the People’s Republic of China (2021 Edition) in March 2021. It must be clarified that the Chinese authorities did not begin to promote the adoption of ECP in companies until 2018 in the construction industry. It is believed that global talent proficiency in compliance management is scarce in China. Therefore, “shortage of professionals” is regarded as a major barrier to the adoption of ECP.

4.2.5. B09 Lack of Case Studies

B09 “lack of case studies” was assessed as the fifth most significant barrier with the mean value of 3.782. Vicarious experience from case studies can shape ICCs’ attitudes toward the ECP [55]. However, there are only a few successful case studies of the implementation of ECP in the Chinese construction industry. Currently, among 56 Chinese ICCs debarred by the WBG, only seven of them are released because their ECP satisfied the compliance conditions [56]. What’s worse, five of seven are unwilling to publicize and share direct experiences of ECP because the sanction is a shame [57]. It can be speculated that “lack of case studies” is one of the major obstacles hindering the adoption of ECP.

4.3. Comparison of Ranking Based on Firm Characteristics

4.3.1. Comparison of Ranking between State-Owned Enterprise and Private Enterprise

The internal ranking under firm characteristics was analyzed. First, firm ownership is believed to be a significant variable that influences corporate ethical activities [58]. Hence, this paper compared the assessment of the barriers to adopting ECP between state-owned enterprises and private enterprises. As shown in Table 7, the p -values of the Mann-Whitney U test all exceed 0.05, indicating the same opinion on the mean value between state-owned enterprise and private enterprise, despite their divergent opinions on the six leading causes. The B03 “insufficient support from the government” is regarded as the second major barrier by private enterprises. Compared with state-owned enterprises, private enterprises often have limited access to institutional resources like preferential industrial policies, and even could be unfairly treated in regulatory policies [58]. Hence they are more eager for assistance and support from the government in the process of implementing ECP. What’s more, B08 “inadequate training” receives a much higher score (mean value is 3.924) from private companies than from state-owned companies (mean value is 3.649). Interviewee I1 from private enterprise revealed that they did not conduct ethics and compliance training for all the staff in the host country because the necessary resources were not provided.

4.3.2. Comparison of Ranking Based on Firm Location

The success of the adoption of ECP is tightly linked to the country where ICCs are located. When the host country has similar institutions with the home country, it is easier for parent companies to apply the strategic practices to their subsidiaries in the host country [29]. The Kruskal-Wallis test and the Jonckheere-Terpstra test were used to check whether a statistical difference exists because of the diverse locations, namely Asia (43 samples), Africa (32 samples), Europe (6 samples), South America (6 samples). As shown in Table 8, the p -values all exceed 0.05, suggesting that ICCs face similar obstacles in the process of adopting ECP no matter where they are.

Table 7. Comparison between state-owned enterprise and private enterprise.

Code	State-Owned Enterprise (<i>n</i> = 74)		Private Enterprise (<i>n</i> = 13)		Mann-Whitney U <i>p</i> -Value
	Mean	Rank	Mean	Rank	
B01	4.000	1	4.308	1	0.264
B02	3.500	15	3.769	14	0.259
B03	3.865	3	4.231	2	0.190
B04	3.419	17	3.462	17	0.549
B05	3.743	7	3.538	16	0.621
B06	3.811	4	3.769	13	0.787
B07	3.595	12	3.846	7	0.444
B08	3.649	10	3.923	4	0.341
B09	3.757	6	3.923	6	0.784
B10	3.770	5	3.769	15	0.729
B11	3.676	9	3.923	5	0.357
B12	3.878	2	4.077	3	0.548
B13	3.473	16	3.769	12	0.361
B14	3.378	18	3.385	18	0.813
B15	3.581	14	3.769	11	0.299
B16	3.608	11	3.846	8	0.412
B17	3.689	8	3.769	10	0.756
B18	3.581	13	3.769	9	0.539

Note: The Mann-Whitney U test was significant with the *p*-value less than 0.05, revealing that the barrier has a significantly different mean score between state-owned enterprises and private enterprises.

Table 8. Results of inter-group comparison.

Code	Firm Location		Firm Size	
	<i>p</i> -Value of the Kruskal Wallis Test	<i>p</i> -Value of the Jonckheere-Terpstra Test	<i>p</i> -Value of the Kruskal Wallis Test	<i>p</i> -Value of the Jonckheere-Terpstra Test
B01	0.315	0.119	0.601	0.351
B02	0.114	0.082	0.392	0.190
B03	0.206	0.058	0.249	0.128
B04	0.699	0.417	0.361	0.291
B05	0.039 ¹	0.016 ²	0.922	0.729
B06	0.483	0.628	0.590	0.459
B07	0.449	0.694	0.703	0.612
B08	0.854	0.696	0.063	0.050
B09	0.74	0.973	0.407	0.186
B10	0.579	0.529	0.842	0.685
B11	0.382	0.096	0.245	0.386
B12	0.774	0.32	0.287	0.116
B13	0.351	0.225	0.285	0.156
B14	0.997	0.986	0.381	0.809
B15	0.376	0.315	0.938	0.732
B16	0.641	0.199	0.241	0.801
B17	0.403	0.088	0.570	0.300
B18	0.152	0.114	0.303	0.895

¹ The *p*-value of the Kruskal Wallis Test was significant with a *p*-value less than 0.05, implying the respondent's assessment existed a difference in data dispersion. ² The *p*-value of the Jonckheere-Terpstra Test was significant with a *p*-value less than 0.05, implying the respondent's assessment existed a difference in data dispersion.

As can be seen from Table 8, respondents hold different views on the variable B05 “great institutional distance”. As an explicit index of liability of foreignness, institutional distance refers to the extent of dissimilarity between the regulative, normative, and cognitive aspects of institutions of the home country and the host country [33]. The greater the institutional distance, the perceived compliance burden becomes greater. Interviewee I3 indicated that it was easy for Chinese ICCs to respond to Vietnam's institutional environment in view of his working experience in Vietnam. Nevertheless, the rest four interviewees pointed out that there was a great institutional distance existed in their operations. Therefore, they should make great efforts to adjust the ECP to the host institutional environment.

4.3.3. Comparison of Ranking Based on Firm Size

Firm size is believed to play a tangible role in affecting enterprise risk management [59], which includes compliance risks. In general, larger firms are more likely to adopt enterprise

risk management because they have more resources to support the administrative costs [59]. We used the number of regular employees in the host country as a classification standard for firm size. We divided the samples into three categories: lesser than 100, 100~200, and more than 200. As shown in Table 8, all the p -values of the Kruskal Wallis test and the Jonckheere-Terpstra test exceed 0.05, suggesting that three levels of firms reach a consensus on the priorities of these barriers. The post-survey interviewees I1~I5 confirmed that the ECP was relatively unfamiliar to both large and small ICCs because the movement of ECP adoption was just begun in the last three years in China. In other words, ECP is a novel and challengeable issue for ICCs nonmatter the firm size is.

4.4. Best Solutions to Overcome Barriers

Based on an international survey, endorsements on identified solutions were solicited. As is shown in Table 9, 18 solutions are sorted in descending order. The top five best solutions are S13, S01, S10, S18, and S05. Since the space is limited, only the five best solutions were discussed in this study.

Table 9. Respondents' endorsements on identified solutions.

Code	Possible Solutions	Rank
S13	Fostering top managers' commitment	1
S01	Promulgating laws fighting against corruption overseas	2
S10	Integrating advanced technologies in establishing and operating the ECP	3
S18	Encouraging management to take the lead in creating a culture of ethics and compliance	4
S05	Adopting ECP on state-owned enterprises mandatorily *	5
S04	Initiating industry certification for the ECP	6
S09	Developing analytical tools to evaluate the effectiveness of the ECP	7
S15	Keeping compliance officer in a high-ranking position	8
S12	Offering ethics training to employees at all levels	9
S02	Strengthening international cooperation in foreign corruption issues	10
S14	Including ethics and compliance in employee evaluation processes	11
S16	Tailoring the ECP to the host country's context	12
S03	Strengthening the effectiveness of rule of law	13
S07	Increasing media coverage of ethical failings	14
S08	Offering low-cost loans for developing the ECP	15
S11	Organizing more specialized seminars or forums for exchanges of information	16
S17	Adapting the ECP to local external stakeholders' needs	17
S06	Integrating ethics and compliance into school education	18

* The solution was derived from the pilot interviews.

4.4.1. S13 Fostering Top Managers' Commitment

Targeting the “managerial barriers”, S13 “fostering top managers' commitment” received the most support. A commitment is defined as “any action taken in the present that binds an organization to a future course of action” [60]. Top managers' commitment is first aimed at senior managers, requiring them to restrain their behavior in line with the ECP consciously. Second, as a “tone from the top” approach, top management's commitment signifies an administration that understands and supports the adoption of ECP, which would facilitate cross-functional buy-in for the ECP at all levels of the organization. It offers a clear sense of focus within the organization, therefore, corporate resources such as funds, manpower, and technical input will also be tilted towards the ECP. S13 “fostering top managers' commitment” is expected to address the major barriers B12 “lack of authorization to the compliance department” and B06 “shortage of compliance professionals”. Other international institutions have also outlined this solution, including Asia-Pacific Economic Cooperation, the International Chamber of Commerce, and Transparency International [25].

4.4.2. S01 Promulgating Laws Fighting against Corruption Overseas

S01 “promulgating laws fighting against corruption overseas” was evaluated to be the second-best solution. This solution targeted the “social barriers”, especially the major barrier B01 “lack of related laws and regulations”. Park et al. [61] indicated that firms tend to yield to coercive pressure arising from their institutional environment. The provision of government laws effectively promotes the adoption of ECP in U.S. multinational corporates, notably, the FCPA and FSGO [12]. As such, the solution S02 should be the strongest

driver shaping ICCs overseas strategies from the home country institutional environment. Prompted by the prospect of leniency under the laws, ICCs are supposed to adopt the ECP in responding to regulatory pressures for seeking legitimacy from their home country [61].

4.4.3. S10 Integrating Advanced Technologies in Establishing and Operating the ECP

S10 “integrating advanced technologies in establishing and operating the ECP” was a key solution that should be taken into consideration to overcome “resource barriers”. Advanced technologies, such as Distributed Ledger Technology (DLT), Building Information Modeling (BIM), Natural Language Processing (NLP) techniques, and cloud-based techniques, are pivotal helpful to compliance management [62–65]. For instance, BIM is a promising tool for accumulating information, facilitating data capture and retention, storage, and reuse in the process of design, construction, operation of a construction project [42,66,67]. DLT, characterized by immutability, transparency, traceability, and accountability, has the potential to automate processes including records management, regulatory compliance, enterprise credit system, minimizing risks of data manipulation [63]. Also, Governatori et al. [68] proposed a framework to examine whether a business process adheres to the regulatory obligations through extending the technology of NLP.

4.4.4. S18 Encouraging Management to Take the Lead in Creating a Culture of Ethics and Compliance

Targeting the “psychosocial barriers”, S18 “encouraging management to take the lead in creating a culture of ethics and compliance” was ranked as the fourth-best solution. While the ECP is primarily rooted in avoiding legal penalties, legal compliance alone is far from enough to standardize employees’ behavior [8,10,15]. We cannot expect to rely solely on ECP to detect and control unethical conduct which is characterized by inherently secretive, covert, and clandestine. Hence, integrity-based approaches are encouraged to foster company-wide appropriate organizational cultures [39]. As informal rules, culture can imperceptibly restrain behavior, especially when leadership is devoted to paying continuing attention to key issues such as walking the talk, motivating employees to pursue ethical behavior spiritually, and rewarding ethical behavior [69].

4.4.5. S05 Adopting ECP in State-Owned Enterprises Mandatorily

The solution of “adopting ECP in state-owned enterprises mandatorily” was recommended to be the fifth-best strategy. In France, the government has enacted the Sapin II Law, which stipulated that any French company with over EUR 100 million yearly turnover and more than 500 employees are compulsory to implement an ECP. Referring to this policy, S05 would be a feasible approach to overcome the major barrier B09 “lack of case studies”. In China, state-owned enterprises are the leading force in undertaking international projects. In the list of the top 250 international contractors in 2021, 74.4% of the 78 Chinese ICCs are state-owned enterprises [16]. Compared to private enterprises, state-owned enterprises are abundant in terms of finance, workforce, experience, and technology [58]. It is believed that they have the ability to implement the ECP better. Meanwhile, state-owned enterprises are encouraged to set good examples in adopting ECP and impart compliance experience to other Chinese ICCs in the host country, helping overcome the worries about implementing the ECP [70]. In particular, all five practitioners acknowledge that this solution would be applicable in China.

5. Conclusions and Limitations

This paper is one of the recent few studies investigating the ECP in ICCs through an empirical survey. First, this paper outline the key facets of the adoption of the ECP. It is concluded that ECP should be considered as a necessity for ICCs devoted to staying on the international market sustainably and expanding further. Based on the 87 valid questionnaires collected from Chinese ICCs scatted in 44 countries, more than half launched four

basic compliance initiatives. Only 36.8% of them reported that the compliance department was responsible for the compliance function.

Second, adopting the ECP in ICCs was not without its challenges. The top five barriers in descending order were: B01 lack of related laws and regulations; B03 insufficient support from the government; B12 lack of authorization to the compliance department; B06 shortage of compliance professionals; B09 lack of case studies. Respondents working in different host countries held different views on the variable B05 “great institutional distance”. Apart from this variable, there was no different opinion on the rank of these barriers among different firm ownerships, firm sizes, and firm locations.

Third, this paper reported the five best solutions: S13 fostering top managers’ commitment; S01 promulgating laws fighting against corruption overseas; S10 integrating advanced technologies in establishing and operating the ECP; S18 encouraging management to take the lead in creating a culture of ethics and compliance; S05 adopting ECP in state-owned enterprises mandatorily.

There should be some limitations in this study. First, the data were gained through self-reporting procedure and depending on the respondents’ experience and perception, which might be influenced by personal bias. Second, despite there is a wide coverage regarding the construction companies’ location, the size of valid questionnaire was not representative of the entire industry. A larger number of samples may increase the validity of the findings. However, this paper makes the first attempt to provide the knowledge of adopting ECP in Chinese ICCs. Given that China is the representative of emerging countries, the current status, major barriers, and best solutions for Chinese ICCs to adopt ECP provides another deep insight for the international construction industry.

6. Further Research

In light of the limitations of the questionnaire, it is recommended to employ advanced research method to obtain the objective situation of ECP in ICCs, such as the text mining technology to analysis the company’s annual reports and web crawling to capture ICCs’ news. In future, the benefits of ECP adoption should be clarified and imparted to ICCs’ collaborators in the construction industry, such as suppliers, agencies, and subcontractors. It is meaningful to investigate the critical success factors of implementing the ECP of ICCs in specific countries. In addition, internalizing compliance concerns into the foreign operation is a worthwhile research work in the future.

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