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IS ISO 9001 REALLY EFFECTIVE FOR THE GLOBAL SUPPLY CHAIN MANAGEMENT? A PRELIMINARY EXPLORATORY ANALYSIS ON CUSTOMER-SUPPLIERS RELATIONSHIPS IN CHINA

Iñaki Heras-Saizarbitoria[1]

[1] The University of the Basque Country UPV/EHU, Business Management Department, Donostia, Spain

Olivier Boiral[2]

[2] Université Laval, Management Departament, Québec, Canada

Abstract

This contribution resumes a work in progress aimed at analyzing the value of ISO 9001 as a third-party certificate for the global supply chain management. The work summarizes a case-study carried out in a Spanish manufacturing company operating in China, based on both in-depth interviews of managers, as well as on direct observation. From the preliminary findings of our case-study we can conclude that there is some evidence as to the hypocritical adoption of ISO 9000 in China. Therefore, the managers of the analyzed manufacturer that have to operate with Chinese certified suppliers have doubts about the real value of the international quality certification. Through this case-study achievement we could confirm that the supposed signalling value of the ISO 9001 certification is lost, or at least significantly reduced.

Keywords: management system standards, meta-standards, ISO 9001, third-party certification, certification, audits, China.

1 email: iheras@ehu.es

2 email: Olivier.Boiral@mng.ulaval.ca

Introduction

By late 2010, over 1,100,000 ISO 9001 certificates had been authorized in a total of 178 countries all over the world (ISO, 2011). From a global perspective, the successful diffusion of ISO 9000 and other similar management system standards (MSSs), also referred to as meta-standards (Uzumeri, 1997), appear to be closely linked to the extending global supply chains (Braun, 2005). In the current economic environment, in which outsourcing and relocation of companies' activities have become key strategic elements of global supply chains, it is necessary to foster certain homogeneity of management systems in order to favour the development of such processes, and MSSs may help to achieve this aim (Heras, 2006).

All these MSSs based on third-party certification aim to *outsource* the inspection and auditing of management systems, activities that were originally performed by the purchasing company or the company that contracts out a particular operation (in the latter case also referred to as second party certification), to an independent third company that is dedicated to the certification and compliance with particular standards.

These *third party* standards have meant significant savings for the large companies, since they enable them, for example, the reduction of the number of audits that need to be carried out every year on their suppliers' and subcontractors' company procedures, and in addition to this the standards are themselves outsourced. According to a study carried out by the European Commission, each subcontractor or supplier of this type was formerly audited by its main customers about seven times a year on average, which meant an annual cost of over 30,000 U.S. dollars at the time (Silva, 1997). As Uzumeri (1997) points out, second party audits proved costly for both customers and suppliers. Large suppliers found themselves hosting dozens of audits a year, to different buyers' standards each time (Uzumeri, 1997). In this way, ISO 9000 standards, together with other third party standards, are a means of substantially reducing the number of audits (see Figure 1), which leads to savings in resources and in terms of the credibility of the suppliers' technical capacities (Uzumeri, 1997).

This issue has been analyzed in depth from the theoretical perspective. For instance, King et al. (2005) theorize that companies use the public act of certification to reduce "information asymmetries" between suppliers and potential buyers, basing their observations on the seminal work of Akerlof. In fact, as Tirole (1988) maintains, standards are expected to reduce customers' search costs and to mitigate transaction costs by reducing information asymmetries between buyer and seller. Furthermore, in the case of ISO 9000 certification of original equipment manufacturer suppliers, purchasers' direct

costs of inspection on incoming goods, suppliers' costs of compliance with diverse customer-specific quality standards, and the joint costs of contracting services are all reduced (Anderson et al., 1999). Anderson et al. (1999) also found, more than ten years ago, strong evidence to support the idea that North American manufacturing companies adopted ISO 9000 certification as a means of providing credible signals to external parties of their application of effective quality assurance practices.

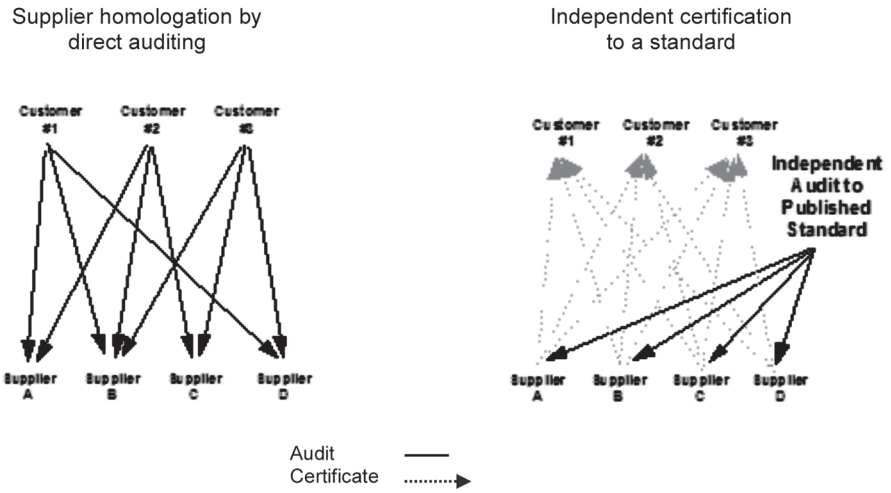

Fig. 1. Economies of Third-Party Certification

Source: Adapted from Uzumeri (1997)

Nevertheless, is this situation static or has changed over time as ISO 9001 extended throughout the global supply chain? Is the signalling value of ISO 9001 certificate analogous anywhere in the world? How is this value, for instance, in the People's Republic of China (hereinafter China), which had come to be known as the "world factory"? In this short contribution we try to address this later issue which, surprisingly, has not received much attention from *academia*, despite its clear interest for the certified companies as well as for other stakeholders affected by the adoption of such standards.

Therefore, this contribution resumes a work in progress aimed at analyzing the value of ISO 9001 as a third-party certificate for the global supply chain management in China. We analyze this issue contextualized in a case-study carried out in a Spanish manufacturing company that in recent years has increased its productive relationship with Chinese suppliers. Following this introduction, the contribution goes on to present a brief

overview about the adoption of ISO 9001 in China. The results of the field work are then summarized, and the contribution concludes with a summary of preliminary conclusions and implications for further research.

Adoption of ISO 9001 in China: a brief overview

China is the country with the largest number of certificates in the world (having a total of 297,037 by the end of 2010), followed by Italy (with 138,892), Russian Federation (62,265), Spain (59,854) and Japan (59,287). Those 297,037 certifications granted in China account for more than 26 % of the world's total. In relative terms (see Table 1), China is also one of the region with the highest Intensity of Certification of the World.

As stated by Lo et al. (2011) Chinese manufacturing firms are under a very high institutional pressure to adopt meta-standards. Similarly, special mention should be made to the growth in the number of ISO 14001 certificates issued in the People's Republic of China, due – among other factors – to the influence of the pressure exerted by the Chinese Government to encourage the implementation and certification of products in accordance with this international standard (Shin, 2005). Therefore, a big effort has been made in order to create the necessary quality infrastructure (Guasch et al., 2007).

Table 1. International adoption of the ISO 9000 standard in the main economic zones

	1997	*2001*	*2006*	*2010*	
	Certifications	*Certifications*	*Certifications*	*Certifications*	*IC GDP*
USA	18,581	37,026	44,270	25,101	0.20
Japan	6,487	27,385	53,771	59,287	1.14
European Union	135,984	253,488	344,705	418,197	1.56
China	5,698	7,413	143,823	297,037	1.90
World	223,299	510,616	776,608	1,109,905	1

Source: Own preparation on the basis of the various executive reports on the global statistics for ISO 9001 and ISO 14001 published by the International Organization for Standardization (ISO). Note: Up to the year 2000 the certificates analysed are ISO 9001, ISO 9002 and ISO 9003; from 2001 onwards the certificate analysed is ISO 9001:2000. IC-GDP: Intensity of certification calculated as the ratio between the percentage share of the number of certificates issued worldwide and the percentage share of total world GDP in 2007 measured in US dollars at current exchange rates of the time (World Bank).

Despite this huge dissemination of ISO 9001, very little is known about the adoption of ISO 9000 in Chinese organizations. From the *academia* very few articles have been published on this issue. Most of them (e.g. Cheng and Tummala, 1998, Zhang, 1999) —as the majority of studies in general about the adoption of meta-standards—, give a rather non-critical perspective of the adoption of ISO 9001. Under our opinion this is a real limitation to analyze the complex process of adoption of meta-standards such as ISO 9001 and to try to respond to the aforementioned questions. The majority of the academic works assume, for instance, the homogeneous adoption of ISO 9001, despite more and more studies now emphasize the heterogeneity of their adoption, i.e., the differences between models of adoption or internalization in terms of depth or substance, both in the case of ISO 9001 (see Heras-Saizarbitoria, 2011).

From this perspective, Christmann and Taylor (2006) analyzed how 170 Chinese companies with low quality standard implementation don't use the practices prescribed by the certified standards in their daily operations; these authors refer to this as symbolic implementation. In contrast, they state that companies with high quality implementation consistently use the practices defined in the certified standards, which we refer to as substantive implementation. Christmann and Taylor (2006) propose that companies approach the implementation of certifiable standards strategically by choosing a quality of standard implementation that matches their perceptions of costs and benefits. Assuming that substantive implementation is more costly for companies than symbolic implementation, companies have incentives to choose a low quality of implementation unless they anticipate benefits beyond the symbolic value of standard certification itself.

Similarly, Lee et al. (2009) explored the patterns under which ISO 9001 was implemented in 45 service organisations in Macao Special Administrative Region, in China. The authors established two different ISO 9001 implementation patterns among the organizations belonging to the sample undertaken: a set of organisations that implemented the principles of ISO 9001 just to the point needed to obtain the quality certification, and another set of organisations that were highly committed to implementing these principles to levels beyond the standard requirements.

As we will see, some years ago Yeung and Mok (2005) also analyzed indirectly this issue for the case of Chinese companies, with a specific reference to the audits of the Quality Management Systems (QMSs) that is very interesting and that is connected to the objectives of our contribution. Despite the article Yeung and Mok (2005) was written down from an international business and an international trade perspective, some interesting specific findings and concerns were evidenced. Nevertheless, as far as we

know, this issue has not been analyzed in the literature from an organizational perspective.

But, perhaps surprisingly, the evidences gathered from the practitioner's point of view are rather different, since, as we will see in the following section, the huge diffusion of ISO 9000 in Chinese organizations has generated some doubts about its true significance to them.

Case-study carried out

Introduction

In order to try to answer to the raised question, an empirical study of a qualitative nature was considered for this case study. A research based on a descriptive nature was planned, albeit mainly exploratory. This has facilitated a greater penetration and understanding of the subject under analysis (Eisenhardt, 1989, Yin, 2003).

On a much broader case-study research, done about the adoption of ISO 9001 in an organization, a specific field work was developed along time, between November 2011 and March 2012, including three components. First, a series of semi-structured in-depth interviews were conducted with four managers from the organization either located in China or in Spain —but in this latter case, under an active relationship with Chinese suppliers. In second place alongside with this procedure, direct observation work was carried out visiting the organization (both in Spain and in China). Third, the analyzed organization organized a set of documentation available for research related to the adoption of ISO 9001. As recommended in specialist literature on the subject (Yin, 2003, Maxwell, 1996), the validity of factors was guaranteed in the course of the research via the use of diverse sources of information. To try to prevent any distortion in the course of the inductive research, an attempt was made to avoid using discourse that was deemed too "academic" or "specialized" in interviews and consultation. Similarly, to prevent "organizational silence" (Morrison and Milliken, 2000), absolute confidentiality of the research was assured. For reasons of confidentiality agreed upon with the organization that took part in the study, all names are fictitious and we will not reveal specific data pertaining to the sector in which these organizations operate so as to maintain anonymity.

The case-study organization

The organization is a Spanish company that manufactures machinery. It was one of the first to be certified in accordance with this standard in its region. The initial motivation behind certification was, according to the general

manager "to facilitate the path towards certification [CE declaration] of our products", given that, in accordance with a European directive, any company from its sector that is ISO 9001 certified undergoes an analysis of risks. So it is allowed to self-certify its end products. Logically, this is a fundamental issue for the company as, otherwise, it would be compelled to certify each of the products it manufactures.

The company was assisted in the initial phase of adoption of the standard by an external consultancy service which was mainly financed by public grants. Once this first phase had come to an end, it was the technicians from the company itself who would then be responsible for maintaining the system.

From the direct observation carried out in the company, in Spain, it could be ascertained that most of its workers had the documentation related to the QMS made available to them in their respective workplaces. The procedures, job instructions and formats are characterized by their "user-friendly" design. The company has specific panels where all these documents are on display, and these are continually used by employees (to contrast measures, review tasks, take preventive action, etc.), together with other informative elements geared to improvement such as indicator panels, control graphs and cause-effect diagrams.

All the personnel of the organization have received some type of specific training in quality management and ISO 9000. Likewise, partial and general internal audits are carried out and employees take part of it. Attention should be drawn to the involvement of middle managers in implementing the system. Periodic meetings of improvement groups are held at the plant in which, on many occasions, modifications to the system's documentation are proposed which subsequently materialize. Parallel to the adoption of ISO 9000, the company also set in motion an intense management improvement program at the manufacturing plant. In short, we could say that the organization has adopted ISO 9000 substantively (Heras-Saizarbitoria, 2011).

In 2008 the organization established an office in China with a view to a possible market penetration in that country. One option was to establish a productive deployment, but to start gradually; the organization established a commercial delegation in order to gain access to a broad range of very competitive Chinese suppliers.

Brief description of the case-study

The delegation of the case-organization is located in an industrial area near the city of Shanghai. It employs four people full time, among which are a general manager of the delegation —an expatriate from the parent organization fluent in Mandarin—, and two local engineers dedicated to inspect the quality of suppliers.

In the last three years the volume of purchases of the delegation in China has grown strongly (from 2008 to 2011 the total amount of purchases has risen 750%), due to reduced costs and acceptable quality of the products the organization subcontracts. However, the possibility of growth of the delegation would be even greater if the mother organization had accepted to implement a production-plant in the Asian country. Nowadays the company dismisses it because their main business opportunities are still in Europe.

With respect to the suppliers-network the managers explained that ISO 9001 certification is a requirement to work with their company (both in Spain and in China). However, there are still some Chinese suppliers (less than 10%) that don't have this certificate; the organization carries out second party audits (or audits for homologation) to these suppliers. But the managers also point out that Chinese suppliers certified ISO 9001 are also audited, and by average not in a lesser extent that non-certified ones, a procedure that is not carried out in the Spanish plant. In Spain, to one supplier ISO 9001 certified *"it's just required to comply with plans. If it's a non-certified supplier an audit for homologation of new suppliers is needed. In China that kind of audit is need either for ISO 9001 certified and non-certified suppliers".*

One of the managers underlines that *"nearly all of the Chinese suppliers have their ISO 9001 certification, and if they don't they get it in one day. In China if you pay a little money Chinese agencies give you the certification from one day to another".* In any case, those suppliers that don't have the ISO 9001 certification have first of all to self-fulfil a questionnaire in order to become a supplier of the case-study organization. But as one of the managers told us *"since in both cases they're going to lie, an audit of the same level of intensity has to be carried out to all the suppliers".*

Similarly, the manager in China referred to the problems with the merely testimonial implementations:

> *"Here there are many companies working in such a way that you don't see the QMS* [of ISO 9001] *anywhere".*

To illustrate this, he referred to some specific non-conformities witnessed in visits to suppliers ISO 9001 certified. Another manager located in Spain said the following:

> *"Yes, they are* [ISO 9001] *certified, but then you go into the company and you ask for the QMS and no one knows what a manual or a procedure is.* (…) *You go to take a look at the machines and you see that they aren't even calibrated.* (…) *They tell you that the products are traceable, but you check in a minute that it is not true, there's no product traceability at all".*

Furthermore, one Chinese manager also refers to the existing problems regarding the *"fake ISO 9001 certificates"*. Those are the certificates that are not real but simulated. Some are copies of other real certificates with the name of the company or the registration number altered. Other ones are certificates issued by "fake certification bodies". As one of the interviewed managers said to us: this is a big problem for the purchasing organizations as the ISO 9001 loses its signalling value: *"It makes us insecure.* (...) *Many times we do not know if we really face a valid certificate"*. Nevertheless, another manager underlined us the following:

> *"Yes, there are fake* [ISO 9001] *certificates, but not many, since generally one company can pay a little money and easily obtain a* [ISO 9001] *certificate issued by a Chinese accredited body"*.

The respondents underlined the big differences in the degree and the level of requirements among different certification bodies. Globally well-known international bodies, are among the best ones, although the managers note that while *"*[the international bodies] *demand more than required by the Chinese, asking less than what is required here* [in Spain]*"*. In this regard, the manager noted that there is a tendency to create a division between "first and second class" certification bodies. In this sense, we must bear in mind that in China operate more than 90 certification bodies, many of them are clearly part of large multinational groups (such as LRQA China Shanghai or Beijing BSI), which in the opinion of the interviewed staff, generate, in principle, a greater sense of security. Nevertheless, for many other certification bodies, its supposed relationship to international ones is rather confusing. Furthermore, it has to be taken into account that there is no centralized database of certificates, neither a clear database of official certification bodies.

Preliminary discussion

As far as we evidenced from the preliminary interviews with the managers of the organization, the lack of credibility related to ISO 9001 in China is a sort of *conventional wisdom* among them. It seems that ISO 9001 has been mostly considered as a "commercial certificate" instead of a "Management System" intended to improve internal practices. Likewise, the case of *low intensity audits* is, for instance, well known. Audit carried out in too few days, falsifying records, etcetera. It has been also reported on several occasions by practitioners such as Dougherty (2008), former vice president for the ANSI-ASQ National Accreditation Board. Likewise, the case of the *"fake ISO 9001 certificates"* it's also a well know problem for the practitioners. In fact, one can identify questions of this type in different publications of the practitioner level (e.g. Dougherty, 2008), and even in forums online expatriate managers. In fact, China National Accreditation Service for Conformity Assessment has

issued several statements on fake ISO 9001 certificates, such as the case of Tung Sing (Far East) Mfg. Ltd. in Dongguan, Guangdong (China National Accreditation Service for Conformity Assessment, 2009).

Broadly speaking, we could say that we could find a casuistry of three types of traps: certified QMSs that are supposed to be implemented but which are not really internalized in the daily routine; official ISO 9001 certificates related to QMS that aren't even implemented; and, finally, fake ISO 9001 certificates —either launched by a fake certification body or launched by an official one but with the data of the real beneficiary modified. As underlined by Dougherty (2008) both with the internet and the most basic computer-software it's easy *"to create fake certifications, with and without accreditation marks. It also is easy to create an official-looking web site and fake accreditation"*; therefore, *"it is important to be cautious about inconsistencies and gaps that may appear"* (Dougherty, 2008).

Surprisingly, as far as we know, with regards to the academic contributions only the work done by Yeung and Mok (2005) focused critically in this great problem. More specifically, these authors analyzed in depth the way some Chinese companies "play the audit game", with audits conducted very superficially and with a lack of fully qualified auditors.

Conclusions

From the evidences analyzed in this paper —that as should be clear, are preliminary due to the obviously exploratory nature of its objectives, and with serious limitations to make generalizations— as a result of the rapid diffusion of meta-standards in some specific countries such as China, the quality of audit has been reduced. This is a weakness that seems to have favoured hypocritical or ceremonial implementation practices of ISO 9001, contributing, as stressed by Boiral and Gendron (2011), to the erosion of the prestige and credibility of this meta-standard.

As stated by Yeung and Mok (2005), despite the big institutional effort made by the Chinese Government in order to establish a conventional western quality infrastructure, it is plausible to think, based on the kind of evidences such as the one that we have gathered, that a some of the accredited agencies in China have adopted a "profit oriented business-friendly" audit approach to retain customers.

Under these circumstances, the supposed signalling value of the ISO 9001 certification is lost, or at least significantly reduced. As pointed out by Christmann and Taylor (2006) until the system of third-party certification is strengthened customers cannot rely on certifiable standards to assure their

suppliers' conduct. Therefore, customers have to reduce their information asymmetries not just with the suppliers but with the certification bodies, in order to establish a ranking among them. A ranking among the actors that were supposed to rank the suppliers. In other words, signalling for the body that signals, checking, among many other issues, the validity of a certification body's accreditation, its industry experience, background and expertise.

But, is this just the case of China? Or is this a generalized problem? Despite some cases of even non accredited certification bodies were detected in Western countries some years ago (e.g. in the UK, see Hedger, 1997), as far as we know this has not been a big concern for practitioners in these countries, in general. Nevertheless, from our perspective, it would be interesting to analyse the consistency of external auditing services all over the world. Indeed, as has been demonstrated by recent scandals in both the financial accountancy and rating sectors, third-party certification of management standards – an activity that does share certain similarities with that of account auditing and credit-rating – is no guarantee of honesty (King et al., 2005). And this is a weakness which has been pointed out ever since the ISO 9000 phenomenon began (Askey and Dale, 1994), now a quarter-century ago.

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