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Agrifood Certification Schemes in an Intercultural Context: Theoretical Reasoning and Empirical Findings

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Abstract. *The need for adequate systems to guarantee the quality of food products has become more and more obvious in recent years. As a consequence, not only in Germany but throughout the world, the number of certification schemes has been increasing for nearly a decade. Due to the implementation of these standards in various countries, a considerable number of contingency factors exist that may influence the effectiveness and efficiency of such schemes. These factors include the diverse political, economic and social conditions in the different countries. Numerous studies attribute a decisive role in the successful implementation of management instruments to cultural influences. Cultural conditions may differ considerably from region to region around the world. Against the background of this multiplicity of cultures, this study analyzes the impact of cultural context on the way certification schemes are implemented and work in different parts of the world.*

Based on theories concerning the influence of culture on the implementation of certification schemes, an empirical study was devised and conducted in 2008. Ninety-six respondents answered the extensive questionnaire, which helped identify how cultural differences are perceived by auditors and how these differences influence the implementation, effectiveness and efficiency of certification schemes. Based on the results, the authors formulate recommendations for standard setters and auditors, as well as the companies that implement these standards.

Keywords: Agribusiness, Certification Schemes, Culture, Intercultural Context.

1 Introduction

In recent years, there have been several significant developments in agribusiness, notably food crises such as BSE and increasing demands from consumers willing to pay for special food product attributes like guaranteed region-of-origin or organic production. These developments have highlighted the need for adequate systems that guarantee the quality of food products. The European Union has seen two important developments with regard to improved food safety and quality: new legislation and the emergence of certification schemes ^[1].

EU legislation seeks to increase the minimum food safety standards. The General Food Law Regulation (EC) 178/2002, for instance, has introduced a number of new principles such as the farm-to-fork approach, the precautionary principle and improved risk analyses ^[2]. This regulation has been complemented by a considerable number of other EU directives and regulations, for example, the so-called EU hygiene package (Regulations [EC] 852/2004, 853/2004 and 854/2004). Furthermore, EU legislation also provides a framework for food products with higher process qualities (like Regulation [EC] 510/2006 on the protection of geographical indications and designations of origin for agricultural products and foodstuffs).

Although legislation has been intensified over the years, food laws have increasingly been complemented by private regulation. This development accelerated in the late 1990s, when retailers tried to increase their control over food supply chains as a risk management strategy in the face of severe food crises ^[3]. Today certification schemes are major elements in the private regulation of food production ^[4]. In this context, “certification is the (voluntary) assessment and approval by an (accredited) party on an (accredited) standard” ^[5]. Neutral and independent third-party audits by a certifying party with the aim of assessing the compliance of a certifiable party—a farm or a firm—with a standard typically laid down in a systems handbook are at the heart of certification procedures. Firms successfully passing the audit procedure receive a certificate that can be used as a quality signal in the market to reduce the quality uncertainty of buyers and, in this way, lower transaction costs ^[6]. Certification has to be distinguished from the activities of public surveillance and the authorities that monitor the fulfilment of legal requirements, as well as from second-party audits, including customers checking compliance with their own standards ^[5].

In times of a globalizing agrifood sector, certification schemes have spread all over the world and, therefore, the number of schemes has been increasing rapidly over the last decade. More than three hundred certification schemes in the EU and about forty schemes in Germany alone illustrate their huge importance. Furthermore, many schemes have internationalized in recent years and are now being

implemented in more and more countries ^[7]. Against the background of their implementation in different countries, it is obvious that certification schemes are subject to various influences from their political, economic and social environments. Numerous studies attribute a decisive role for successful quality management to cultural influences, which may differ considerably in different regions of the world ^[8], and cross-cultural management has become a widely recognized concern ^[9]. Bearing in mind the multiplicity of cultures, it is the objective of this study to analyze the impact of cultural context on the way certification schemes are implemented and work in different parts of the world.

2 Certification schemes in agribusiness

A closer look at certification systems in the agrifood sector reveals a broad spectrum that can be organized along different dimensions ^[10, 11]: standard setter, addressees, foci, objectives, geographical coverage, number of participants and supply chain coverage.

With regard to the **standard setter**, private and public standards can be roughly distinguished ^[12]. The EU and some national and regional governments lay down public standards (for instance, Regulations [EC] 2092/91 and 510/2006). Private standards, on the contrary, can be defined by customers (International Food Standard), suppliers (Assured Farm Standard), norming institutions (ISO 9001, ISO 22000), inspection and certification institutes (Food TUEV Tested), supply chain partners (Q&S in Germany) or nongovernmental organizations interested in such issues as fair trade (TransFair) or higher animal welfare standards (Freedom Food).

The **addressees** of the certificates issued by standard setters can be either other businesses or consumers or—in some cases—both. Business-to-Business (B2B) standards are not communicated to the final consumers, who are often unaware of their existence. GlobalGAP, International Food Standard and the ISO 22000 are all B2B standards that seek to reduce quality uncertainties in food supply chains and, in that way, serve as quality signals, reduce transaction costs and liability risks and favour spot market transactions ^[13]. Business-to-Consumer (B2C) schemes address the final consumer typically with the help of a logo on the products produced by certified farms and firms (Freedom Food, TransFair, Bioland). The B2C standards represent the majority of certification schemes in Europe but often (although not always) operate in comparatively small market niches. Some schemes have a B2B as well as a B2C focus; the German Q&S System is a good example. In acquiring high market shares, the B2B as well as the mixed standards benefit from the bottleneck function of large retailers, who often only accept certified producers and processors. In this respect, large retailers act as the “new masters of the food system” ^[14] and, by doing so, make the participation of food farms and food manufacturers in certification schemes “quasi-voluntary” ^[15]; as a consequence, certification schemes can emerge as non-tariff trade barriers ^[15, 16].

The various certification schemes have very diverse **objectives**, which can be roughly described as the improvement of food safety by guaranteeing compliance with minimum standards and differentiating food products. Minimum standard schemes reduce quality uncertainties, especially with regard to credence attributes, such as freedom from microbiological risks. Often these schemes systematically compile legal rules, norms and industry guidelines (such as good hygiene practices) but largely refrain from defining higher standards. Many large B2B schemes enforce compliance with minimum standards, like GlobalGAP and the International Food Standard. In some cases, this also applies to smaller standards, for example, the BQ and BQM as regional standards in Germany. Product offerings that are perceived as superior by customers are created by means of differentiation strategies. As a result, higher prices and higher customer loyalty can be more easily achieved than is the case with undifferentiated products that compete only on price ^[17]. Product differentiation is typical of the vast majority of schemes addressing the final consumer. Differentiation can be based on compliance with above-average process standards, such as organic farming (Bioland, Demeter), animal welfare (Freedom Food) or guaranteed region-of-origin (Regulation [EC] 510/2006).

The **focus** of certification schemes can be systems, processes or products ^[18]. Schemes that seek to guarantee minimum standards in a B2B environment (ISO 9001, GlobalGAP, International Food Standard) are typically based on quality management system audits. Production processes are the main focus of organic farming labels and the EU egg classification system. Product awards based on sensory tests typically have a focus on the product but product characteristics are also often included in PDOs and PGIs (for instance, Comté Cheese in France and Grana Padano in Italy).

The **geographical coverage** of the certification schemes implemented in the EU is very diverse. Local standards admit only local producers and processors as partners (for example, Unser Land in Bavaria). Regional certification schemes are often founded by regional governments or medium-sized processors but also include many PDOs and PGIs. IKB in the Netherlands and Q&S in Germany are mainly national

systems. International schemes have been broadly implemented in two or more countries; some examples are the International Food Standard (France and Germany), GlobalGAP and ISO 9001.

The **number of participants** varies considerably. Small regional schemes in Germany, for instance, have barely more than 130 members. Medium-sized schemes have a few thousand farm and firm members, for instance, the organic farming labels Demeter (3,200 farms and firms) and Bioland (4,540 farms and firms). With more than 117,000 participating farms and firms, one of the largest systems is the German Q&S System.

Furthermore, **supply chain coverage** is very diverse. Some schemes focus only on one stage of the supply chain, such as agriculture (GlobalGAP) or food processing (International Food Standard). Other standards include several or all stages, like the German KAT (animal feed industry, laying farms and packing) and Q&S (animal feed industry, agriculture, processors, retailers) systems.

All in all, the certification landscape reveals a multifaceted picture with remarkable differences between different regions. In the northern and western parts of Europe, minimum requirement schemes dominate, while differentiation schemes are of less relevance in these food markets. The situation is reversed in the Mediterranean countries, where a stronger tradition of high quality and highly differentiated food and a longer tradition of protecting regional and traditional specialties favours the spread of differentiation systems, such as PDOs and PGIs.

In recent years the internationalization of certification schemes has been an important trend. Some schemes, such as the GlobalGAP standard, were initially established as international standards. As of 2008, 71,125 GlobalGAP certificates had been conferred, mostly in those countries in which European wholesalers and retailers buy fruits and vegetables. Other certifications schemes, including the British BRC Global Standard, the Dutch IKB and the German Q&S System, started as national schemes but are now certifying more and more farms and firms in other countries. Consequently, certain agriculture and food industries, notably those in Central and Eastern European, are in a catch-up position with regard to certification schemes (see Table 1).

Table 1: Number of certified farms and firms in selected Central and Eastern European Countries (CEEC)
[7]

	Global GAP	BRC	IFS	Q&S	Demeter
Bulgaria		3	17	2	-
Croatia	67	4	8		1
Czech Republic	12	78	82	6	1
Hungary	641	50	220	62	4
Poland	392	134	237	199	5
Slovakia	12	11	21	8	1
Slovenia	7	3	17	-	22
CEEC total	2,394	398	704	277	146

Most certification schemes were established in Western countries and, therefore, represent Western management styles and assumptions about the design of effective and efficient quality management systems. Nonetheless, due to their ongoing internationalization, certification schemes are now being increasingly confronted with the diverse cultures of the countries in which certified farms and firms are located. As a consequence, culture is gaining ever greater relevance as a determinant of quality management.

3 Culture as a determinant of management

The literature offers numerous definitions of the term *culture*. Kroeber and Kluckhohn ^[19], for instance, identified a total of 170 different definitions of culture with the help of a broad literature review. One of the first attempts to define culture can be traced back to Tylor: “Culture or civilization, taken in its wide ethnographic sense, is that complex whole, which includes knowledge, belief, art, moral, law, custom, and any other capabilities and habits acquired by man as a member of society” ^[20]. Similar definitions have also been developed with regard to the culture of organizations ^[21] and industries ^[22]. They illustrate the multiplicity of cultural elements and, at the same time, the difficulty of coming up with an adequate but, nonetheless, concise definition that encompasses these various elements.

There has been a great deal of research into the relationship between culture and business management ^[23, 24, 25]. It is widely accepted that culture is an important external contingency factor that influences the design of formal organization structures and the performance of companies. ^[26] In the last few years, diverse research approaches have been developed that seek to classify different countries with regard to the norms, values and accepted beliefs that form their culture. Table 2 shows three of the main approaches that can be found in the literature. Whereas Hofstede ^[24] as well as Trompenaars and Hampden-Turner ^[25] focus on culture in a business context, Schwartz and Boehnke ^[27] analyze different types of values on which human behaviour is based in a more general way. Due to space limitation, only Hofstede’s cultural dimensions, which still constitute the best known approach, are explained in greater detail.

Table 2: Studies on culture

Hofstede	Trompenaars/Hampden-Turner	Schwartz/Boehnke	
Research object Impact of culture on management activities	Research object Impact of culture on management activities	Research object Values of human behaviour	
Dimensions of culture		Types of values	
Power distance	Universalism/particularism	Power	Tradition
Individualism/collectivism	Individualism/collectivism	Achievement	Conformity
Masculinity/femininity	Neutral/emotional	Hedonism	Security
Uncertainty avoidance	Specific/diffuse	Stimulation	
Long-term orientation	Achievement/ascription	Self-direction	
	Attitudes to time	Universalism	
	Attitudes to the environment	Benevolence	

In 1967, 1973 and 1983, Hofstede conducted empirical studies based on standardized questionnaires in which he analyzed the relationship between culture and management processes. Hofstede mainly focused on the various attitudes of a society’s members. His research results are based on a sample of 117,000 IBM employees working in 50 different nations. With the help of the survey results, he defined the following five cultural dimensions:

- Power distance
- Individualism/collectivism
- Masculinity/femininity
- Uncertainty avoidance
- Long-Term orientation

Power distance

The first dimension of culture describes the relationship between the individuals constituting a society and the distribution of power among them. Existing inequalities with regard to power result in behavioural patterns through which the members of a society react to the differences in the distribution of power. These patterns cause inequalities in the allocation of hierarchies and power positions and, thus, in the social prestige of individuals. Social prestige can stem from different sources in different cultures. These sources include special capabilities, such as physical or intellectual superiority, but can also include power and wealth.

Based on statistical analyses, Hofstede defined what he termed the **power distance index**, which reflects the emotional distance that exists between staff members and their managers or supervisors.

Individualism/collectivism

The second cultural dimension deals with the relationships between the individuals of a society. In an individualistic society, the individual and his or her self-actualization are of major relevance. Great importance is attached to values such as freedom, leisure time and personal responsibility. In a collectivistic society, on the other hand, high importance is attached to continuous training, working conditions and application of skills. Furthermore, a strong group orientation can be found in collectivistic cultures. Analogous to the power distance index, Hofstede defined an **individualism index** in order to classify the cultures of the different countries in the world.

Masculinity/femininity

The dimension masculinity or femininity addresses certain gender-related attributes of various societies. Tolerance, commiseration, sensitivity and social skills are the main features of a feminine culture. Interpersonal relationships, quality of life and equal sharing of tasks are other important values of femininity. In contrast, values such as astringency, militancy and a materialist orientation reflect masculinity. Furthermore, challenging tasks, good salaries, ambition and roles clearly defined for men and women are some of the notable characteristics of masculine societies. The **masculinity index** allows one to measure the degree of masculinity/femininity of a society.

Uncertainty avoidance

The term *uncertainty avoidance* refers to the degree to which individuals feel threatened by ambiguous or unknown situations. Change is perceived as strange and dangerous. Uncertainty avoidance is reflected in nervousness and a need for predictability; rules such as legal constraints can provide the required certainty. In contrast, low uncertainty avoidance is characterized by a high tolerance for stress and absence of fear. Where uncertainty avoidance is low, willingness to take risks is much higher. The **uncertainty avoidance index** is used to measure this cultural dimension.

Long-term orientation

The last dimension of culture reflects the extent to which the members of a society target future goals and success. In a short-term orientated culture, values such as freedom, rights, efforts and independent decision-making at the work place are very important. Due to a lack of adequate savings, investment capital is often only rarely available. Societies characterized by long-term orientation tend to invest money in real estate; profits that can only be realized after a long period of time are highly appreciated, and social or economic inequalities are perceived as undesirable. Relationships at the work place are characterized by fidelity, adaptability, responsibility and self-discipline.

4 Certification schemes in an intercultural context

In this section we analyze the impact of culture on the implementation of certification schemes in the agribusiness sector. An empirical study was conducted based on the theoretical constructs defined by Hofstede ^[24]. Additional ideas were taken from studies by Trompenaars and Hampden-Turner ^[25] and by Schwartz and Boehnke ^[27]. All in all, five theoretical constructs were defined.

4.1 Theoretical constructs

Construct 1: Power and status

The first construct, **power and status**, refers to Hofstede's dimension of **power distance**, which describes the degree to which a society accepts an unequal allocation of power resources. A similar construct referring to the relationship between staff members and their supervisors has been identified by Trompenaars and Hampden-Turner, who refer to **achievement** and to **ascription** of status. The difference between cultures lies in how status is earned—by personal accomplishment or by social position. Based on this dimension, remarkable differences can be observed in the degree to which academic title, gender or age is perceived as a status symbol or influences the ascription of status. Similarly, Schwartz's values, **power** and **achievement**, base such properties as authority, social status, prestige and personal success upon competence.

The culturally determined relevance of power and status can impact the behaviour of people and the implementation of certification schemes. High power distance in a company can cause difficulties in communication between staff members and their supervisors. In societies with high power distances, it can be more difficult for staff members to communicate matters such as weaknesses in company processes or violations of quality management rules. Furthermore, the implementation of a continuous improvement process, which is often a central element of quality management systems, can become more difficult. Further consequences can occur regarding the auditing process by a neutral inspection agency. Depending on whether a high or a low power distance exists, the acceptance of the auditor can be affected positively or negatively.

Construct 2: Collectivism/individualism

The second construct **collectivism/individualism** is also based on Hofstede's and on Trompenaars and Hampden-Turner's findings; it takes into account the status individuals have in a given society and the impact this can have on management. Furthermore, Trompenaars and Hampden-Turner have added the dimension **specific/diffuse**. The construct also reflects the value **benevolence** as defined by Schwartz and Boehnke, which describes in a wider sense the individual's responsibility which can be highly relevant for the working context.

The collectivistic or individualistic orientation of a society can be relevant for quality assurance systems since it can influence staff members' willingness to participate in training courses. Individualistic cultures put a stronger emphasis on acquiring new skills and capabilities. Moreover, the willingness to accept personal responsibility is also affected; this influences the extent to which precise task descriptions are expected or accepted. In the sense used by Trompenaars and Hampden-Turner, in **specific** societies, tasks are more strictly separated from one another through precise task descriptions, which can also be found in many certification schemes.

Construct 3: Emotionality

The construct **emotionality** addresses gender specific attributes, such as tolerance, commiseration and sensibility, as well as the expression of emotions and feelings. Depending on whether human behaviour is characterized by impulsivity or discipline, Trompenaars and Hampden-Turner distinguish between **affective** and **neutral** cultures. Emotionality is also very much reflected by Hofstede's dimension **masculinity/femininity**.

High emotionality and impulsive behaviour can influence the implementation of "soft" measures, for instance, team meetings or quality circles, which are mandatory in some certification schemes. Empirical studies show that the ability to work in teams is more prevalent in feminine societies. Trompenaars has also highlighted important differences between neutral and impulsive cultures. Impulsive behaviour, for instance, can make it more difficult to successfully collaborate in intercultural projects since impulsive behaviour is often misinterpreted by members of neutral cultures. Therefore, joint decision-making often becomes very difficult.

Construct 4: Uncertainty avoidance

The fourth construct refers to the possibility that the members of a society may feel threatened by ambiguous or unknown situations ^[24]. This cultural phenomenon can influence staff members' willingness to accept rules or their attitudes towards innovation. Trompenaars and Hampden-Turner also refer to the importance of rules; for universalists, rules are more important for decision-making. Schwartz and Boehnke summarize terms such as security, harmony and social stability under the value **security**, and thus they, too, stress the relevance of this construct.

Uncertainty avoidance is very important for quality assurance in general and for certification schemes in particular since the latter strongly contribute to the bureaucratization of farms and firms ^[28]. A high degree of formalization and reliance on industry-specific standards and legal requirements can increase certainty for employees with high uncertainty avoidance.

Construct 5: Time orientation

The construct **time orientation** refers to attitudes towards time in everyday life. With regard to time, people may look mainly to the future, to the present or to the past. In this context, Hofstede refers to **long- and short-term orientation**, whereas Trompenaars and Hampden-Turner discuss **attitudes to time**. Schwartz also identifies related values, such as **tradition, respect and religion**.

Time orientation is relevant with regard to pursuing short-term and long-term objectives, for instance with regard to necessary investments in a company. The time orientation can also be important for starting a continuous improvement process as a typical example of a long term orientation ^[24, 25, 27, 29].

It can be summarized that five constructs are expected to have influence on the implementation of certification schemes in the agrifood sector: power and status, collectivism/individualism, emotionality, uncertainty avoidance and time orientation. Since empirical data is scarce so far, it was decided to test the hypotheses in an empirical study.

4.2 Methodology

Between October and November 2008 an empirical study was conducted in order to find out which effects culture can have on the implementation of certification schemes and which managerial

implications for agribusiness companies acting in an international environment can be derived from the hypothesized impact of culture. To this end, the theoretical constructs explained above were translated into a standardized questionnaire that was sent to auditors around the world. In all, 550 auditors at various certification bodies were contacted by email. A link integrated into the email gave them the opportunity to answer the questionnaire online. In order to have as broad a distribution as possible, the questionnaire was translated into English and Spanish and pre-tested. After a four-week field study phase and two reminders, 96 valid questionnaires were submitted, representing a response rate of 17.45%.

The standardized questionnaire consisted of 20 questions, which were organized in three parts: attitudes towards certification in an intercultural context, sociodemographic data and the description of the “typical company”, which the respondents referred to during the survey.

5 Results

5.1 Sociodemographic results

The certification bodies surveyed in our study employ on average less than 100 staff members (96%). About 46% of these companies employ less than 10 workers. About 64% are part of a larger, in many cases international, certification company. Of the respondents who revealed their nationality, about 45% are from Europe and 20 from the Americas. Asia and Africa contributed only marginally to our survey (see Table 3).

Table 3: Respondents continents

Continent	Frequency	Percentage
Europe	44	45.4
Americas	20	20.6
Asia	4	4.1
Africa	3	3.1
Australia	0	0
Missing values	26	26.8

When filling in the questionnaire, the respondents referred to various certification schemes. The EU Eco-Label, GlobalGAP, ISO 9001 and national organic programs (NOP) dominate. Nearly 8% of the respondents refer to other certification schemes for organic products (see Figure 1). Other schemes, which are mentioned only sporadically, are the International Food Standard, the BRC Global Standard, the ISO 22000, the German QS System, the KAT egg control system, Demeter and Naturland.

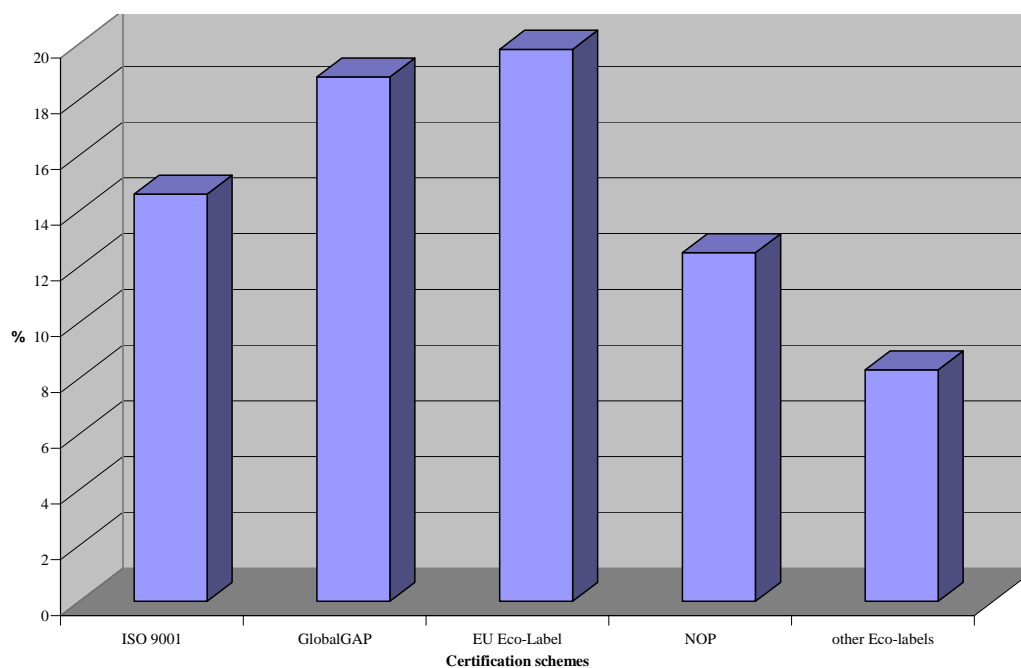


Figure 1: Certification schemes

In general, the geographical regions the respondents refer to parallel their own nationality. Figure 2 shows that most of the auditors refer to Southern and Central Europe as well as to South America. North America, Northern and Western Europe, Africa and Asia are mentioned only rarely.

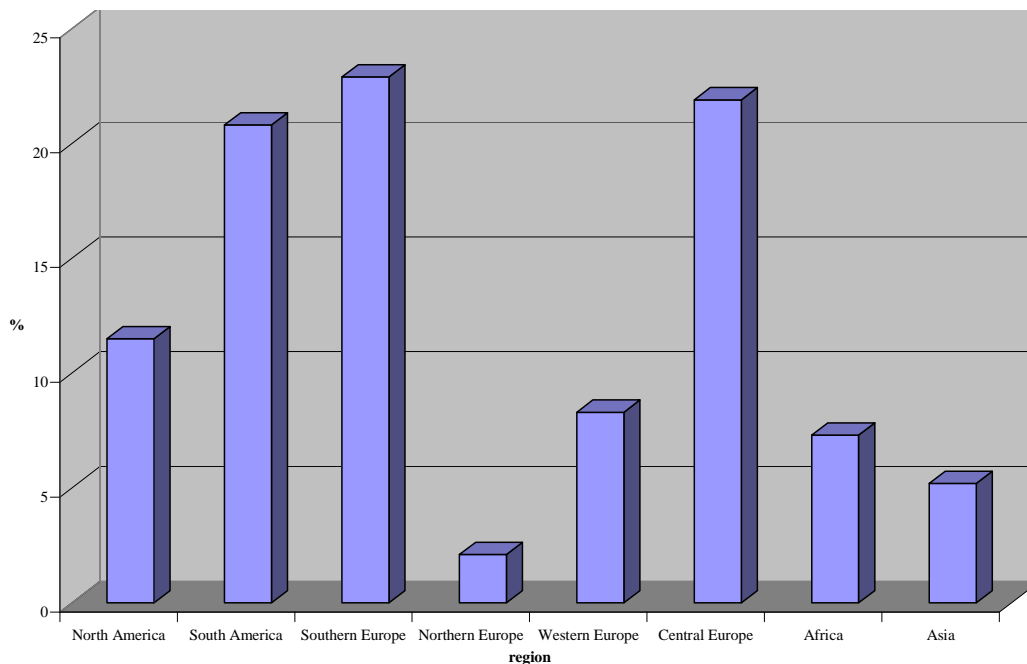


Figure 2: Geographical regions

When completing the questionnaire, most of the respondents referenced an enterprise in the agricultural, forestry or fishery sector (60%) when answering the questionnaire. Another 26% have the processing industry in mind when going through answering the questions. Two auditors referred to trading companies and nine respondents did not properly specify the industry they typically audit.

The agricultural enterprises respondents referred to are in most cases generally arable and horticultural farms (25 farms). In the case of livestock farming, pig production, dairy, cattle and poultry production are most prevalent. Slaughterhouses and meat processing companies are the most frequently mentioned processing companies (five companies). In the answers, a total of 55 values were missing.

One-half of the companies observed (52%) operate fewer than ten production sites; 48.5% employ ten to one hundred staff members; about 28% employ fewer than ten and about 14% employ 101 to 250 workers. The respondents refer to national (45%), international (45%) and, in a few cases, local companies.

5.2 Cultural differences and certification

In order to answer the research question whether cultural differences affect the implementation of certification schemes, a mean comparison test was conducted ^[30]. Tables 4 and 5 list eleven statements that reveal significant differences between the geographical regions the respondents come from and where they have experience with the implementation of certification schemes. The following regions were treated as culturally distinct areas: North America, South America Southern Europe, Northern Europe, Western Europe, Central Europe, Africa and Asia.

Table 4: Mean comparison test (part 1)

Staff members often fear to communicate violations of the certification standard to their supervisors.*	... respect auditors.**	... consider staff training on quality management and certification useful.**	Quality responsibility allows the staff members' self-actualization.***	... see the advantages of team-based work for such purposes as quality circles.**	Handing over a certificate motivates staff members to become better everyday.**
North America	μ	1.45	4.27	4.6	3.56	3.4	3.9
	n	11	11	10	9	10	10
	σ	0.688	0.786	0.516	1.014	1.075	0.568
South America	μ	2.95	4.65	4.11	4.44	3.82	4.41
	n	20	20	19	18	17	17
	σ	1.099	0.671	0.809	0.984	1.237	0.939
Southern Europe	μ	2.68	4.23	3.65	3.8	3.5	3.65
	n	22	22	20	20	20	20
	σ	1.086	0.922	1.04	0.768	1	1.089
Northern Europe	μ	2	2.5	4	4	4	3
	n	2	2	2	2	2	2
	σ	0	2.121	0	0	0	1.414
Western Europe	μ	2.12	4.38	3.86	4.25	4	3.71
	n	8	8	7	8	8	7
	σ	1.356	0.518	1.069	0.707	0.756	0.951
Central Europe	μ	2.55	4.3	3.65	3.12	2.62	2.93
	n	20	20	17	16	16	15
	σ	1.05	0.571	0.862	1.088	0.885	1.1
Africa	μ	2.71	4.43	4.67	4.33	4.2	4
	n	7	7	6	6	5	5
	σ	1.496	0.787	0.516	0.516	0.837	1
Asia	μ	2.20	5	4.6	4.6	4.4	3.8
	n	5	5	5	5	5	5
	σ	1.304	0	0.548	0.548	0.548	1.304
Total	μ	2.48	4.37	4.01	3.92	3.54	3.73
	n	95	95	86	84	83	81
	σ	1.157	0.8	0.901	0.984	1.085	1.084
Significance		0.038	0.01	0.01	0.001	0.004	0.015

μ = mean value; σ = standard deviation; *** $p \leq 0.001$; ** $p \leq 0.01$; * $p \leq 0.05$; Likert scales from 1: I fully disagree to 5: I fully agree.

The first statement “Staff members often fear to communicate violations of the certification standard to their supervisors” is (mostly) rejected by auditors in all regions. The statement is most strongly rejected in Western Europe ($\mu = 2.12$), Northern Europe ($\mu = 2$) and North America ($\mu = 1.45$). Rejection is somewhat weaker in South America ($\mu = 2.95$) and Southern Europe ($\mu = 2.68$), but also in Central Europe ($\mu = 2.55$) and Asia ($\mu = 2.20$). When interpreting the data one should consider that, especially in Asia, Western Europe and Africa, high standard deviations can be observed, which indicates heterogeneous response behaviour.

More differences between the attitudes of the respondents can be observed with regard to the statement “Staff members respect auditors”. Full agreement can be observed in Asia ($\mu = 5$), but also in South America ($\mu = 4.65$). North America ($\mu = 4.27$), Western and Central Europe ($\mu = 4.38$; $\mu = 4.3$), Southern Europe ($\mu = 4.23$) and Africa ($\mu = 4.43$) also agree, if somewhat less enthusiastically.

The third statement shows significant differences with regard to whether employees consider staff training on quality management and certification useful. A high level of agreement can be seen in Asia ($\mu = 4.6$), North America ($\mu = 4.6$) and Africa ($\mu = 4.67$). South America shows a mean value of 4.11, agreement is comparatively low in Europe (mean values: 4 to 3.65).

In contrast to the previous propositions, the statement “Quality responsibility allows staff members’ self-actualization” receives stronger agreement ($\mu = 3.92$). High mean values in Asia ($\mu = 4.6$), South America ($\mu = 4.44$), Western Europe ($\mu = 4.25$), Africa ($\mu = 4.33$) and Northern Europe ($\mu = 4$) reveal positive attitudes towards this statement. The responses from North America ($\mu = 3.65$) and Central Europe ($\mu = 3.12$) reveal somewhat weaker agreement.

The high standard deviation ($\sigma = 1.085$) indicates heterogeneous response behaviour with regard to the advantages employees attribute to team-based work for such purposes as quality circles. Advantages of team-based work are mainly seen in Africa ($\mu = 4.2$), Asia ($\mu = 4.4$) and Northern ($\mu = 4$) and Western ($\mu = 4$) Europe. Comparatively low mean values, which, nonetheless, still reflect agreement, are characteristic of South and North America ($\mu = 3.82$; $\mu = 3.4$) and Southern Europe ($\mu = 3.5$). Central Europe is an exception to the rule since it is the only region where respondents felt that staff members do not see any advantages in team-based work ($\mu = 2.62$).

Further differences between respondents can be observed with regard to the motivational effects of certificates. South America ($\mu = 4.41$) and Africa ($\mu = 4$) have mainly positive attitudes, whereas Northern ($\mu = 3$) and Central Europe ($\mu = 2.93$) tend to reject the statement.

Table 5: Mean comparison test (part 2)

Staff members consider a certificate a reward for their attempts to improve quality.**	... consider the rules set by certification standards useful management instruments.**	... consider handbooks and checklists derived from certification standards useful management instruments.**	... consider process instructions derived from certification standards useful management instruments.*	... readily stick to rules set by a certification standard.*
North America	μ	3.6	4.11	4.38	4.22	4.22
	n	10	9	8	9	9
	σ	0.843	0.601	0.518	0.667	0.972
South America	μ	4.47	3.44	3.65	3.65	3.65
	n	17	16	17	17	17
	σ	0.943	1.153	0.931	1.057	0.931
Southern Europe	μ	3.65	3.41	3.44	3.65	3.18
	n	20	17	16	17	17
	σ	1.089	1.121	1.031	0.931	1.015
Northern Europe	μ	3.5	3	3.5	3.5	2.5
	n	2	2	2	2	2
	σ	0.707	1.414	0.707	0.707	0.707
Western Europe	μ	4.57	4	3.86	4.14	3.43
	n	7	7	7	7	7
	σ	0.787	0.816	1.069	1.215	1.134
Central Europe	μ	3.6	2.71	2.86	2.86	3.57
	n	15	14	14	14	14
	σ	0.91	0.825	1.099	1.099	0.756
Africa	μ	4.46	4.25	4	3.75	2.75
	n	5	4	4	4	4
	σ	0.548	0.5	0.816	0.957	0.5
Asia	μ	4.2	4.4	4.4	4.2	4
	n	5	5	5	5	5
	σ	0.837	0.548	0.548	0.447	0.707
Total	μ	3.96	3.53	3.62	3.65	3.52
	n	81	74	73	75	75
	σ	0.98	1.05	1.022	1.033	0.964
Significance		0.036	0.005	0.014	0.04	0.05

μ =mean value; σ = standard deviation; *** $p \leq 0.001$; ** $p \leq 0.01$; * $p \leq 0.05$; Likert scales from 1: I fully disagree to 5: I fully agree.

The second statement “Staff members consider a certificate a reward for their attempts to improve quality” also addresses the motivation of members of certified farms and firms. A mean value of 3.96 signals, at least on average, clear agreement among respondents. It is strongest in Western Europe ($\mu = 4.57$), South America ($\mu = 4.47$), Africa ($\mu = 4.46$) and Asia ($\mu = 4.2$), whereas Central, Northern and Southern Europe and North America ($\mu = 3.5$ to 3.65) form a second, somewhat less optimistic group.

In Asia ($\mu = 4.4$), North America ($\mu = 4.11$), Africa ($\mu = 4.25$) and Western Europe ($\mu = 4$) auditors are most convinced that rules set by certification standards are considered useful management instruments by the staff members of certified organizations. Whereas South America ($\mu = 3.44$) and Southern and Northern Europe ($\mu = 3.41$; $\mu = 3$) agree less strongly, respondents from Central Europe actually reject this statement ($\mu = 2.71$). Similar results can be observed with regard to the perception of handbooks and checklists derived from certification standards as useful management instruments. North America ($\mu = 4.38$), Africa ($\mu = 4$) and Asia ($\mu = 4.4$) clearly have positive attitudes, whereas Central Europe again raises doubts ($\mu = 2.86$). The statement “Process instructions derived from certification standards are considered useful management instruments” once again confirms these results. Again, North America ($\mu = 4.22$), Western Europe ($\mu = 4.14$), Africa ($\mu = 3.75$) and Asia ($\mu = 4.2$) have positive attitudes, while respondents from Central Europe again reject the statement ($\mu = 2.86$).

The last statement refers to the rules set by a certification scheme and to what extent employees conform to these rules. This statement has the lowest mean value ($\mu = 3.52$). North America ($\mu = 4.22$) and Asia ($\mu = 4$) agree to the highest extent, whereas auditors in Northern Europe ($\mu = 2.5$) and Africa ($\mu = 2.75$) tend to disagree.

6 Discussion

Our empirical results confirm the majority of the hypotheses derived from the literature review. The comparison of mean values shows differences between geographical regions with regard to the constructs **power and status**, **collectivism/individualism**, **emotionality** and **uncertainty avoidance**. At least two statements of each construct show significant differences. Of course, the small group size in some regions and the lack of representativeness must be considered when interpreting the results.

Due to a low **power distance** in North America as well as in Northern and Western Europe, it does not come as a surprise that auditors in these regions are convinced that staff members are not afraid to communicate violations of the certification standard to their supervisors. These results confirm earlier findings from Hofstede’s studies. The situation is different in South America, Southern Europe and Asia, where hierarchy and status are more important and leader-subordinate relationships are more often characterized by autocratic or paternalistic leadership styles. Differences with regard to respect for auditors can be explained in a very similar way.

Hofstede and Trompenaars and Hamden-Turner describe Asia and Africa as more or less typical collectivistic societies. In this context, training activities and the use of personal skills are assessed positively. In contrast to this, Central, Western and Southern Europe have high individualistic values, which explain the empirical results with regard to **collectivism/individualism** in this study. On the other hand, more individualistic societies should emphasize self-actualization and personal responsibilities for task accomplishment. These expectations were not fully confirmed by our results. Although Asia, South America and Africa are often characterized as collectivistic societies, respondents from these regions answer in line with a more individualistic approach.

With regard to **emotionality**, culture appears to exert a strong influence. Team-based work, for instance, is least valued in the masculine culture of Central Europe, whereas it is much more appreciated in the more feminine cultures of Africa, Asia and Western and Northern Europe. This is in line with earlier findings from Hofstede’s studies. However, respondents from North America do not consider a certificate a source of staff motivation.

With regard to **uncertainty avoidance**, most empirical results are contrary to expectations. While a region characterized by high uncertainty avoidance, such as Central Europe, does not consider rules set by a certification system to be useful, Asian, North American and some African respondents agree with this statement. There were similar responses to other statements reflecting the influence of uncertainty avoidance on the assessment of and compliance with typical elements of certification schemes, like written rules, process instructions, handbooks and checklists.

All in all it is obvious that culture is an important determinant of how certification schemes are implemented and how they function in day-to-day business. Nonetheless, most—but not all—of the

proposed relationships between culture and the implementation of certification schemes were confirmed in our findings. This implies that not only culture but also other contingency factors have to be taken into account when the implementation of certification schemes is analyzed.

Some results imply that historical background may matter. That might be one explanation why Central Europe sometimes so clearly differs from the other regions. Since it is the only region in our study that experienced control and command economies (during the Communist era), the “history matters” argument developed in the economic literature on path dependence may be used here: “History matters in the sense that what happens next depends critically on the details of the existing state of affairs, which in turn is the outcome of the pre-existing situation.”^[31] Similar observations have been made with regard to cooperatives, which still have a very bad reputation in many Central and Eastern European countries^[32].

Another explanation for deviations from expected results could be that the rules laid down and controlled by certification systems are perceived as helpful additions to the fragile institutional infrastructures in many developing and transition economies. Under the influence of certification schemes, mainly established by the private sector, in many countries regulation of food production has evolved into a complex multilevel network of public and private interventions. This has replaced public regulation in countries such as the United Kingdom, where a gap was left after deregulation and the retreat of the state^[33, 34]. This development may be considered helpful in countries with weak institutions even if it does not fully reflect the regional culture.

7 Conclusions

All in all, this study has confirmed the initial basic hypothesis that culture influences the implementation of certification schemes. This finding has many interesting implications for the various actors involved in third-party audits and certification systems.

First, differences that can be observed between regions should be taken into account by managers of internationalized agribusiness firms operating in diverse cultures. Despite the need to audit and certify all business operations throughout the firm, a way should be found acknowledge the relevance of cultural diversity. This approach should take into account ability to work in teams, appreciation of written rules, acceptance of direct communication with supervisors and all other culturally sensitive aspects of certification and quality assurance.

With regard to standard setters, it has already been argued that more flexibility might help improve the effectiveness and efficiency as well as the acceptance of certification standards^[28]. This argument is strengthened by the need to operate certification systems in diverse cultures.

Auditors may need more intercultural training and competences. Since not all countries have their own auditing infrastructure, a reasonable cross-border exchange of human resources takes place, and expatriates often audit the implementation of certification schemes in transition, transformational and developing economies. Cultural training would improve the ability of such personnel not only to audit fairly but also to better understand where in a quality assurance system weaknesses can be expected.

The study presented here has some clear limitations. Sample size is comparatively small, and the study is not representative. This is most relevant where subsamples for regions such as Asia and Africa are analyzed. Therefore, future research should collect more empirical data in order to provide a more complete picture of certification in various cultural contexts. Future research might also survey certified farms and firms directly instead of sending questionnaires only to auditors. Last but not least, a more thorough discussion of the relationship between culture and management could improve understanding of the empirical results and better explain discrepancies between the existing literature and the empirical results obtained through studying certification schemes in the agrifood sector.

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