

# CROSS-CULTURAL DIFFERENCES IN THE MEDICAL DEVICE INDUSTRY

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## Abstract

Culture has an influence on how people thinking, acting and solving problems. This paper equates culture with values, norms and beliefs shared by members of a culture. Due to an increase of internationalization, cultural overlapping situation in all types of business relationships might occur. These overlapping situations also occurs in the medical device industry which likely is a result of global acting companies with several offices in diverse countries. Culture has been extensively studied in numerous studies at national level. To date, scant attention has been paid on the medical device industry and neither countries nor cultures have been compared in this industry sector. This paper addresses the needs of deeper analysis of the intercultural aspects of medical device companies active in such countries as Austria and Japan, representing the German and Asian Confucian clusters, previously analysed in the GLOBE study. The results of this analysis provide deeper insight on the specific cultural differences between these two countries. The practical application of these findings could be the development of intercultural trainings for employees in the international organizations of medical device industry.

**Key words:** cultural dimensions, medical device industry, Austria, Japan

**JEL Code:** M210, R140, Z190

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## Introduction

For the last decades the cross-cultural differences have been profoundly studied by quite few scientists, including qualitative reviews as well as quantitative examinations of the cultural value dimensions described by Geerd Hofstede in his book 'Culture's Consequences: International Differences in Work-Related Values' (Hofstede, 1980; Taras, Kirkman & Steel, 2010). The Global Leadership and Organizational Behaviour Effectiveness Research Program (GLOBE) has replicated and extended the model, proposed by Hofstede (House, Hanges, Javidan, Dorfman, & Gupta, 2004). GLOBE is one of the largest studies focused on the investigation of cultural differences as well as their impact on the organizational practice in

such international expanding industries as finance, food processing and telecommunication (House et al., 2004). Further investigations of this model are needed in specific in the medical device industry, as long as it is considered an important part of the European economy and a core part of the Life Sciences Industry (Hollanders & Merkelbach, 2020). Currently, there are more than 4.9 million people employed in the medical device industry in Europe, most of them working in Germany. Diverse international activities may cause plenty of cultural overlapping situations. This paper compares Austrian and Japanese cultures and highlights the peculiarities of the cooperation between the medical device industry companies acting in one of these countries.

### **Literature review**

Due to an increasing interest in cultural differences, researchers have heavily studied national cultures. Such Hofstede's IBM Study (Hofstede, 1980, 2001; Hofstede & Hofstede, 2011) and its follow-up studies as well as the GLOBE Study (House et al., 2004; Chhokar, Brodbeck & House, 2007) are one of the best documented studies on this topic in relation to measurement and test theory. Thus, both Hofstede's model of cultural dimension and the GLOBE study are the most commonly used ones for relevant intercultural issues.

The GLOBE study developed nine cultural dimensions which are direct descendants of prior cross-culture research (Hofstede, 1980, 2001; Triandis, 1995). These dimensions referred to cultural attributes, such as power distance, uncertainty avoidance, human orientation, institutional collectivism, in-group collectivism, assertiveness, gender egalitarianism, future orientation and performance orientation. The GLOBE study uses a holistic approach instead of focusing on separate countries to avoid the impact of the variations within separate cultures. Based on the previous research, such factors as common language, geography, religion and historical reports were used for creating the final GLOBE clusters (House et al., 2004; Chhokar, Brodbeck & House, 2007). The GLOBE clusters correspond to Anglo, Latin Europe, Nordic Europe, Germanic Europe, Eastern Europe, Latin America, Middle East, Sub-Saharan Africa, Southern Asia and Confucian Asia (House et al., 2004; Dorfman et al., 2012).

### **Comparison of two cultures – Austria and Japan**

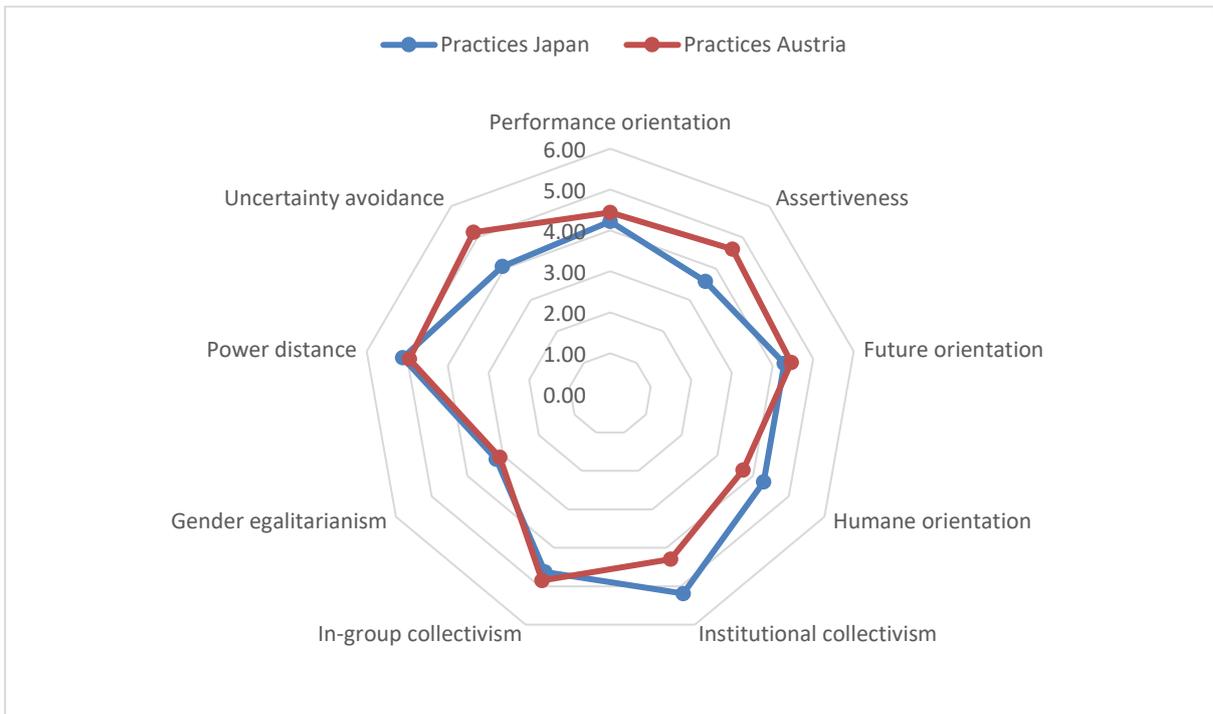
According to GLOBE, Austria belongs to the Germanic cluster. This cluster consists of societies that uses predominantly the German language as well as the Netherlands where a basic grasp of German language can be found in the Dutch language. Traditional religious practices,

historical influences and the resulting beliefs characterize this culture alongside its geographical location. Austria, Germany, the Netherlands and Switzerland belong to this cluster as well. High scores in this cluster are combined with the high assertiveness, future orientation, performance orientation and uncertainty avoidance. Gender egalitarianism and power distance are in the mid-score range while human orientation, institutional collectivism and in-group collectivism are scored low (Szabo et al., 2002; House et al., 2004; Chhokar, Brodbeck & House, 2007).

Opposite to Austria, Japan belongs to the Confucian Asian cluster. Further countries are China, Hong Kong, Singapore, South Korea and Taiwan. This cluster has a strong historical influence of Confucian ideology and Chinese traditions. Although, Japan is geographically isolated from the mainland of China, they show strong affinity to this culture (House et al., 2004). High scores in Confucian Asian cluster has been found in the field of in-group collectivism, institutional collectivism and performance orientation. The remaining dimensions were scored in the mid-score range (House et al., 2004; Chhokar, Brodbeck & House, 2007).

By comparing Austria from the Germanic cluster and Japan from the Confucian Asian cluster, differences in the uncertainty avoidance, assertiveness and institutional collectivism are visible (see Figure 1).

**Fig. 1: Comparison of Cultural Practices of Austria and Japan**



Source: Author's own work

Distinctive profiles of Austrian's and Japan's societal cultures, presented in the Figure 1, display them in terms of typical behaviour, which is also called 'practices' (see Table 1; House et al., 2007).

**Tab. 1: Figures of cultural practices of Austria and Japan**

Variables	Practices	
	Japan	Austria
Performance orientation	4.22	4.44
Assertiveness	3.59	4.62
Future orientation	4.29	4.46
Humane orientation	4.30	3.72
Institutional collectivism	5.19	4.3
In-group collectivism	4.63	4.85
Gender egalitarianism	3.19	3.09
Power distance	5.11	4.95
Uncertainty avoidance	4.07	5.16

Source: House et al. (2007)

Assertiveness reflects the belief to be assertive and aggressive to achieve goals and the willingness to confront or to be not assertive, not aggressive and tender in social relationships. Austria has a relatively high score on the dimension of assertiveness (House et al., 2004). Assertiveness is connected to the Hofstede's masculinity index (1980), Austria ranking high as well. Besides that, people associate assertiveness with male behaviour, expressed as a competitive individual behaviour (Hofstede, 2001; Hartog, 2004). Japan scores in the mid-score range in this dimension (House et al., 2004).

Humane orientation shows the way people treat each other, indicating whether fair and altruistic behavior in society is rewarded and. Austria shows a medium level on this dimension. There is often a private and public discourse considering humane issues which is for example shown in the treatment of refugees. Especially in pre-election times there can be found higher values in humane orientation than in daily life (Szabo & Reber, 2009). Japan has been also ranked in the mid-scores range but its cultural behaviour is more altruistic than that in Austria (House et al., 2004).

Institutional collectivism represents the degree to which organizational and social norms and practices are promoted and rewarded to the collective distribution of resources and collective action. It also dedicates the importance of belonging to a group. The Austrian Institutional collectivism score of 4.3 may be interpreted in their pride of their longstanding ties to a company while loyalty is considered as very important factor (Szabo & Reber, 2004). Japanese

culture shows diverse characteristics of a collectivist society. With a score of 5.19 it is scored higher than that in Austria. Representatives of such cultures are frightened to lose their face. Japanese are also known for their loyalty to their companies (Hofstede, 2001), paying attention to the harmonic relationships at the working place.

Uncertainty avoidance expresses the extent to which people of the respective culture avoid uncertainties through regulations, norms and rituals. The high score of 5.16 can be attributed to legal regulations (for instance collective agreements, maternity protection law, working hours law, and so on), standardized processes and the existing bureaucracy in Austria (House et al., 2004). Japanese culture has a score of 4.07 on this dimension, which might be due to such natural disasters, including earthquakes and tsunamis. Japanese learned to be prepared for any uncertain situation. This can be expressed in their highly ritualized life with a lot of ceremonies. It is recommended, to take into account those differences, before starting business activities in one or the other region (Hofstede, 2001).

### **Medical device companies in Austria and Japan**

The medical device industry is globally an important part of the medical technology industry. This industry shows a strong upward trend worldwide, especially in the Asian market. The most well known medical devices are, among others, pacemakers, diagnostic imaging and robot-assisted surgery equipment (Mikulic, 2018).

In 2017, 554 companies were active in the medical device industry in Austria. Compared to the numbers of 2014 (487 companies), there was an increase of 14% of those companies. In total, there are 26.630 employees in that industry, representing an important pillar in the Austrian job market. In addition to a remarkable number of traditional companies in this sector, the industry has grown enormously in the recent years. One hundred seventy one of the 554 medical device companies mentioned are active as research, development and manufacturing companies, as long as 383 medical device companies are dealing as suppliers, service providers and sales companies (Life Science Austria, 2018).

As per June 2019, there were 253 companies active in the medical device industry in Japan mainly focused on the innovative medical technology, including Artificial Intelligence (AI). Approximately 73.000 people are employed in those companies in Japan. Due to the falling birth rate on the one hand and an aging population on the other hand leading to a substantial decline in the population size, Japan is concentrating on globalization with its medical devices (Mimura, n.d.).

## Methodological remarks

The first step was collection of data regarding medical device companies acting in Austria and Japan as this comparison does not exist in any form. For this paper, the authors mainly used data from the Life Science Austria database and the database of the Medical Technology Association of Japan, which were transferred to an Excel table. The data obtained were compared by using the formula of vlookup in Excel. Before using vlookup and getting proper results, the typical designation of each company name such as Japan, Austria, Ltd, GmbH have been removed. The second step is based on the application of the formula and the subsequent review of the data obtained. Finally, the data thus obtained are shown in Tab. 2 by adding the prior removed designation to show the correct assignment to each country.

## Key findings

By comparing the two countries regarding the medical device companies, it could be mentioned, that the global big players in the medical device industry, such as Medtronic, Johnson & Johnson, Stryker and other well-known companies are represented in Austria as well as Japan. In total, there are 32 companies active in both countries which are illustrated in Tab. 2.

**Tab. 2: Medical device companies active in both countries – Austria and Japan**

Japan	Austria
GE Healthcare Co. Ltd.	GE Healthcare Austria GmbH & Co OG
Abbott Japan Co. Ltd.	Abbott GmbH
Nippon Becton Dickinson Co., Ltd	Becton Dickinson Austria GmbH
Edwards Lifesciences Japan Ltd.	Edwards Lifesciences Austria GmbH
Johnson & Johnson K.K.	Johnson & Johnson Medical Products GmbH
Medtronic Japan Co., Ltd.	Medtronic Austria GmbH
Fresenius Medical Care K.K.	Fresenius Medical Care Austria GmbH
bioMérieux Japan Ltd.	bioMérieux Austria GmbH
ConvaTec Japan K.K.	ConvaTec Austria GmbH
Sysmex K.K.	Sysmex Austria GmbH
Cardinal Health Japan G.K.	Cardinal Health Austria GmbH
Abbott Japan Co. Ltd.	Abbott Medical Austria Ges.m.b.H
Richard Wolf Co. Ltd.	Richard Wolf Austria GmbH
Smith & Nephew Japan	Smith & Nephew GmbH
Terumo Corporation	Terumo Germany GmbH
Initial Japan Inc.	Initial Austria GmbH
COOK Japan	Cook Austria GmbH
Stryker Japan K.K.	Stryker Austria GmbH
Zimmer Biomet G.K.	Zimmer Biomet Austria GmbH

Roche Diagnostics K.K.	Roche Diabetes Care Austria GmbH
Olympus Corporation	Olympus Austria GmbH
Coloplast Japan	Coloplast Ges.m.b.H
Boston Scientific Japan K.K.	Boston Scientific GmbH
3M Japan Ltd.	3M Austria GmbH
Dentsply Sirona Japan	Dentsply Sirona Austria GmbH
Intuitive Surgical G.K. Japan	Intuitive Surgical Austria
Nipro Corporation	Nipro Medical Austria GmbH
Varian Medical System Japan	Varian Medical System Gesellschafts m.b.H.
Hill-Rom Co. Ltd.	Hill-Rom Austria G.m.b.H
Getinge Japan	Getinge Austria GmbH
Sonova Japan Co. Ltd.	Hansaton - Sonova Audiological Care Austria GmbH
ResMed Japan	ResMed Austria Medizintechnik

Source: Authors' own work

## Conclusion and future research

The interest toward investigation of cultural aspects and models remains high for the last few decades, including thousands of studies investigating the model of Geerd Hofstede (1980) as well as the GLOBE Study (e.g. Chhokar et al., 2007). Current research has provided an in-depth analysis of the cultural comparisons in such branches as IT, telecommunication, finance or food processing (House et al., 2004). Little such research is known in the medical device industry. This paper analysis the current status in this industry, addressing such markets as Austria and Japan. Both countries are considered to belong to two different clusters, according to the GLOBE study – Germanic as well as Confucian Asian clusters. Although such cultures are known to show high similarities on such dimensions as future or performance orientation, they are also known to show differences on such aspects as the assertiveness or the uncertainty avoidance. These differences may serve for cultural misunderstandings between the employees working in different subsidiaries of the globally active enterprises. This paper addresses this issue, stressing the importance of addressing this topic from the theoretical as well as practical perspective. Further research should continue the investigation of cultural aspects among the companies working in the medical device industry, due to the scarce research and high demand in this specific business area.

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