

RELEVANCE OF BALDRIGE CONSTRUCTS IN AN INTERNATIONAL CONTEXT: A STUDY OF NATIONAL CULTURE

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Although the role of national culture in the implementation of quality management has long been debated, there has been little research to clearly articulate the relationship between national culture and quality management practices. The practices associated with quality management are primarily borrowed from Japan and are often treated as though they are universal. The Baldrige criteria are one way of codifying this set of practices, raising the issue of whether the Baldrige criteria are even appropriate in the U.S. The Baldrige award has been perceived as an important catalyst for transforming organizations and a recipe for world class quality. Because of this, it has been adopted, with varying degrees of local modification, by countries around the world, as their national award. This practice raises the question of whether extending the Baldrige criteria and its underlying framework to other countries is appropriate. This paper studies this issue, at the level of the theoretical constructs underlying the Baldrige framework, to assess whether the Baldrige framework is robust across national cultures. Is it appropriate to apply it as a framework for excellence in national cultures that are very different than the U.S. national culture, or are local adaptations necessary? These questions are investigated by examining the constructs underlying the Baldrige criteria in light of Hofstede's (1984, 1997) dimensions of national culture.

Hofstede (1984, 1997) describes national culture as "collective programming" of the mind that distinguishes inhabitants of the same nation from those of another. Culture is comprised of values, or broad preferences for certain states of affairs over others. This collective programming develops as a result of the experiences shared by inhabitants of a nation and includes values transferred by the educational, government and legal systems, family structure, patterns of religious preference, literature, architecture and scientific theories. National culture changes very slowly, because what is in the minds of the people of a nation also becomes crystallized in its institutions. This paper uses Hofstede's dimensions to describe national culture. They are based on his study of 116,000 employees of IBM, located in 50 countries. Hofstede's work on national culture is often described as seminal and is widely used as a theoretical framework for guiding cross-cultural comparisons.

Relevance of Hofstede's Dimensions to Baldrige Constructs

The dimensions of national culture described by Hofstede (1984, 1997) include power distance, uncertainty avoidance, individualism/collectivism and masculinity. Power distance is the extent to which the less powerful members of organizations within a nation expect and accept that power is distributed equally (Hofstede, 1984). Cooperation, trust and empowerment are based on the idea of decentralized power, with quality management being the responsibility of all employees. The Human Resource Focus construct views differences in power and status between various levels in an organization as at least changeable, encouraging the development of lower level employees to take

on responsibilities traditionally viewed as belonging to higher-level employees. Customer and Market Focus is based on minimizing the power distance between an organization and its customers. In contrast, many of the attributes of leadership described by the Baldrige criteria are consistent with higher power distance. For example, the bestowing of rewards for certain types of behavior is consistent with differences in power between the recipient and the bestowee. Thus,

H1a: Human Resource Focus and Customer and Market Focus will be stronger in national cultures that are lower in power distance.

H1b: Leadership will be stronger in national cultures that are higher in power distance.

Uncertainty avoidance is the degree to which people in a nation prefer structured situations (Hofstede, 1984, 1997). Data collection, analysis and statistical process control, structured approaches for process improvement and a focus on tangible results are oriented towards the reduction of uncertainty and the creation of rules and structures. Thus, we propose:

H2a: Information and Analysis, Process Management and Business Results will be stronger in national cultures that are higher in uncertainty avoidance.

The individualism/collectivism dimension describes the degree to which people are oriented towards acting as individuals versus acting as part of a group (Hofstede, 1984, 1997). Many Baldrige constructs are oriented towards collectivism. Group problem solving, high performance teams, group compensation schemes, partnerships and cooperative relationships within and external to an organization are typical of organizational cultures which are strong in the values of cooperation, customer satisfaction, trust and empowerment. Group consensus is important in strategic planning, and process management relies on group problem solving efforts. In contrast, the construct of Leadership implies individualism. Although effective leadership is related to the collective good, leaders develop individuals to take on new organizational responsibilities and reward them for performance and the development of advanced or multiple skills. Thus,

H3a: Human Resource Focus, Customer and Market Focus, Process Management and Strategic Management will be stronger in national cultures that are more collectivist.

H3b: Leadership will be stronger in national cultures that are more individualistic.

The term “masculinity/femininity” describes the extent to which aggressiveness and success are valued in a national culture, versus concern for relationships (Hofstede, 1984, 1997). Several of the Baldrige constructs focus on decision making by consensus, facilitative leadership and relationships, reflecting values such as empowerment, trust, customer satisfaction and cooperation. However, other Baldrige constructs are oriented towards decision-making based on fact, problem solving through focusing on processes, the prevention of problems, and driving towards results.

H4a: Human Resource Focus and Customer and Market Focus will be stronger in feminine national cultures.

H4b: Process Management, Leadership, Information and Analysis and Business Results will be stronger in masculine national cultures.

Previous research has documented interactions among the dimensions of national culture. For example, it has been widely noted that power distance and individualism/collectivism are inversely related, due to the effect of national wealth; wealthier nations are lower in power distance and higher in individualism (Franke, et. al, 1991). It is expected that these and other interactions between dimensions of national culture will be related to strength in the Baldrige constructs. Thus,

H5: Interactions between dimensions of national culture will be related to strength in the Baldrige constructs.

This leads to the notion that any framework for quality management will be more effectively implemented if it is aligned with the national culture in which it is implemented. Hofstede (1997) cautions against trying to overrule national culture with practices and the potential mismatches that can result. We expect that this will be true for the Baldrige constructs, as well; they will be more effectively implemented in countries whose national cultures are better aligned with the values underlying the Baldrige criteria.

H6: The Baldrige constructs will be stronger in those countries whose cultures are better aligned with the values underlying the Baldrige criteria.

METHOD

This study used data collected as part of the World Class Manufacturing Project, which includes data from 165 randomly selected manufacturing plants, stratified by industry and nation. In developing the measures for this study, the set of items most relevant to the construct being measured were selected from the data set. The items were factor analyzed, in an iterative fashion, removing the item with the lowest factor loading, until there was a single factor with an eigenvalue greater than one. Measurement analysis demonstrated the reliability, construct validity and discriminant validity of the scales.

Bivariate correlation analysis was used to test hypotheses 1-4, with the coefficient of correlation between the Baldrige constructs and dimensions of national culture used to assess the strength and direction of each relationship, in isolation. Stepwise multiple regression was used to test hypothesis 5. A baseline set of seven regression models was constructed, using each of the seven Baldrige constructs as dependent variables. For each model that was significant, a subsequent set of stepwise regression models was constructed, testing for all possible two-way interactions. In testing the sixth hypothesis, analysis of variance was used to test for differences in strength of the Baldrige constructs by country. A Duncan test was used for *post hoc* testing, in order to define homogenous subsets at the .05 level, to determine groups of countries with similar performance.

RESULTS

The results of the bivariate correlation analysis of H's 1-4 (Table 1), indicate that hypotheses 1a and 4a were not supported, while the other hypotheses were all supported. This showed that:

- Leadership was stronger in national cultures that are higher in power distance
- Information and Analysis, Process Management and Business Results were stronger in national cultures that are higher in uncertainty avoidance
- Human Resource Focus, Process Management and Strategic Management were stronger in national cultures that are more collectivist
- Leadership was stronger in national cultures that are more individualistic
- Process Management, Leadership, Information and Analysis and Business Results were stronger in masculine national cultures

The interaction analysis indicated that there were significant baseline models for every Baldrige construct except for Customer and Market Focus (Table 2). Thus, the fifth hypothesis was supported. Analysis of specific interactions indicated:

- The Leadership construct was stronger in national cultures that were masculine, with higher power distance. It was also stronger in national cultures with a combination of greater uncertainty avoidance and less power distance, and in more collective national cultures with greater uncertainty avoidance.
- The interaction of masculinity and power distance was positively related to Information and Analysis, as well as the interaction between collectivism with higher power distance and the interaction between collectivism and uncertainty avoidance.
- The interactions that were significantly related to Human Resource Focus included lower power distance combined with uncertainty avoidance and collectivism and uncertainty avoidance.
- Process Management was significantly related to the interaction between masculinity and uncertainty avoidance.
- The interactions between dimensions of national culture that were significantly related to Strategic Planning included collectivism and uncertainty avoidance, collectivism with higher power distance and masculinity with collectivism.
- The interactions between dimensions of national culture and Business Results include masculinity with collectivism, masculinity with power distance, uncertainty avoidance with collectivism and power distance with collectivism.

The analysis of variance by country (Table 3) was significant for every Baldrige construct except Customer and Market Focus. Two distinct patterns appear. Information and Analysis, Strategic Planning and Human Resource Focus are stronger in cultures that are more collective and masculine. Leadership, Process Management and Business Results are stronger in cultures that are more collective and masculine, with greater uncertainty avoidance and power distance.

DISCUSSION

There were clear differences in the strength of the Baldrige constructs by national cultures, providing support for the idea that the Baldrige award is more appropriate in some national cultures. Although the Baldrige award may be viewed as a vehicle for change, research on national culture indicates that it is highly resistant to change. Thus, although practices may be easily changed, the fundamental values that underlie those practices are very difficult to change. This may explain why, when times get tough, some organizations abandon quality management efforts and return to a mode of operation that seems more natural to its leaders. Research in quality management indicates that there is no “right way” to implement quality management and that there are many effective adaptations. Our findings suggest a strong need for countries to adapt their quality award programs to local conditions.

We found that the ideal national culture for success in the Baldrige constructs would have higher levels of power distance, uncertainty avoidance, masculinity and collectivism. This describes the national culture of Japan quite well. This is not surprising, since many quality management approaches have been modeled on the success of quality management approaches used in Japan. Thus, the Baldrige award appears to be a good fit with Japanese national culture. The Japanese Quality Award, which is heavily based on the Baldrige award, should be effective in evaluating

quality management practices in Japan. However, the Baldrige constructs are less of a good fit in the other countries in our sample. This is of particular concern for the U.S., where the Baldrige award was developed. Our findings would suggest making adaptations to the criteria to better align then with the national culture in the U.S. The European Quality Award is also in question. Europe contains several distinct cultures, with very different characteristics, including Hofstede's (1980) Anglo, Germanic, Latin European and Nordic cultures. Our findings were very different between England (Anglo cluster), Germany (Germanic cluster) and Italy (Latin European cluster). Assuming that the same set of practices and approaches is appropriate across such a diverse set of cultures may lead to problems.

There were a number of themes that emerged. They indicated that the Baldrige constructs will be stronger in cultures typified by driving for results under a strong leader, rules and structures for working together, groups working under a respected leader, rules and structures for striving for results, groups striving for visible results and the well-oiled machine analogy.

REFERENCES AVAILABLE FROM AUTHOR

Table 1
Intercorrelation Matrix (H's 1-4)

	Power Distance	Uncertainty Avoidance	Individualism/Collectivism	Masculinity/Femininity
Power Distance	-	.841 (.00)	-.660 (.00)	.811 (.00)
Uncertainty Avoidance		-	-.914 (.00)	.842 (.00)
Individualism/Collectivism			-	-.909 (.00)
Masculinity/Femininity				-
Leadership	.194 (.01)	.230 (.00)	-.329 (.00)	.363 (.00)
Information and Analysis	.115 (.14)	.165 (.03)	-.255 (.00)	.265 (.00)
Strategic Planning	.008 (.92)	.114 (.15)	-.250 (.00)	.226 (.00)
Human Resource Focus	.090 (.25)	.089 (.26)	-.163 (.04)	.203 (.01)
Process Management	.309 (.00)	.379 (.00)	-.398 (.00)	.384 (.00)
Business Results	.184 (.02)	.196 (.01)	-.212 (.01)	.229 (.00)
Customer and Market Focus	-.808 (.29)	-.068 (.38)	.086 (.27)	-.116 (.14)

Table 2
Stepwise Regression Analysis (H₅)

Dependent Variable	R²	F	Prob.	Independent Variable	t	Prob.
Cust. & Mkt. Focus			n.s.			
Leadership	.16	15.44	.000	Constant	12.69	.000
				Masculinity/Femininity	4.87	.000
				Power Distance	-2.38	.019
Information and Analysis	.10	8.95	.000	Constant	13.03	.000
				Masculinity/Femininity	3.84	.000
				Power Distance	-2.30	.023
Human Resource Focus	.04	6.93	.009	Constant	19.26	.000
				Masculinity/Femininity	2.63	.009
Process Management	.16	30.51	.000	Constant	35.66	.000
				Individualism/Collectivism	-5.52	.000
Strategic Planning	.14	13.25	.000	Constant	9.88	.000
				Individualism/Collectivism	-4.91	.000
				Uncertainty Avoidance	-3.85	.000
Business Results	.15	8.96	.003	Constant	16.95	.000
				Masculinity/Femininity	2.99	.003

Table 3
Analysis of Variance by Country (H₆)

Baldrige Category	F	Sig.	Homogeneous Subsets	Sig. Corr. with National Culture
Leadership	10.114	.000	<ul style="list-style-type: none"> • Italy, England • England, Germany, U.S. • Japan 	+PD, +UA, -IC, +MF
Information and Analysis	7.407	.000	<ul style="list-style-type: none"> • Italy, England • England, Germany, U.S. • U.S., Japan 	-IC, +MF
Strategic Planning	8.633	.000	<ul style="list-style-type: none"> • Italy • England, U.S., Germany • U.S., Germany, Japan 	-IC, +MF
Human Resource Focus	6.086	.000	<ul style="list-style-type: none"> • Italy, England, Germany • England, Germany, U.S. • U.S., Japan 	-IC, +MF
Process Management	8.188	.000	<ul style="list-style-type: none"> • England, U.S., Italy • U.S., Italy, Germany • Japan 	+PD, +UA, -IC, +MF
Business Results	3.311	.012	<ul style="list-style-type: none"> • England, Italy, Germany, U.S. • U.S., Japan 	+PD, +UA, -IC, -MF
Customer and Market Focus	.962	.430	n.s.	

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