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Quality awards and excellence models in Africa: An empirical analysis of structure and positioning

María del Mar Alonso-Almeida

Department of Business Organization, Faculty of Economics and Business Administration, Autonomus University of Madrid, 28049 Madrid, Spain. E-mail: mar.alonso@uam.es. Tel: 0034 91 497 6956. Fax: 0034 91 497 2994.

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This study analyses the internal dimensions of African quality awards and excellence models, comparing these distinctions to one another and to both the Malcolm Baldrige National Quality Award (MBNQA) and the European Foundation for Quality Management Excellence Model (EFQM EM). The empirical analysis revealed similarities and differences both among them and with respect to the aforementioned major awards. The awards were also measured against a theoretically ideal or universal model. The conclusions drawn from the findings provide the business community and legislators with practical advice on how these awards can provide African companies with management tools that ensure their survival through in-house skill development.

Key words: Malcolm Baldrige National Quality Award (MBNQA), European Foundation for Quality Management Excellence Model (EFQM), quality awards, universal quality model.

INTRODUCTION

Any number of quality awards and excellence models are in place around the world, all designed to raise business performance and profitability (Tan, 2002; Alonso-Almeida et al., 2006; Funk, 2007; Goonan and Muzikowski, 2008; Weinstock, 2009; Bou-LLusar et al., 2009; Yang and Hsieh, 2009; McManus, 2008; Keng-Boon, 2009).

The best known quality awards world-wide are the Malcolm Baldrige National Quality Award (MBNQA) and the European Foundation for Quality Management Excellence Model (EFQM EM).

Both have driven the institution of quality distinctions around the world and served as benchmarks for national quality awards (Alonso-Almeida and Fuentes-Frías, 2010).

The literature analysing quality awards has focused in particular on the internal structure of the MBNQA (Winn and Cameron, 1998; Wilson and Collier, 2000; Meyer and Collier, 2001; Pannilselvam and Ferguson, 2001; Flynn and Saladin, 2001; Ghosh et al., 2003; Lee et al., 2003; Flynn and Saladin, 2006) and the EFQM EM (Dijkstra, 1997; Eskildsen et al., 2000; Reiner, 2002; Bou-LLusar et al., 2005).

These prior studies have shown that the MBNQA and

the EFQM EM are total quality management (TQM) tools that enable companies making the necessary effort to meet the requirements of and implement TQM. Each has its own specific features, however, for they stress different factors (Bou-LLusar et al., 2009).

A rather short number of studies have addressed the relationship between some country-specific awards and these two major distinctions (Vokurka et al., 2000; Tan, 2002; Tuck, 2005; Funk, 2007; Marwa and Zairi, 2008). No analysis has been found in the literature, however, on the principles informing the internal structure of African quality awards and excellence models with respect to the major awards or, therefore, on TQM in African business management.

Consequently, the present article has a dual purpose. The first is to help fill the existing gap in the area of African awards by studying their internal structure and conducting a comparison to the MBNQA, the EFQM EM and a "universal model", a theoretical ideal designed on the grounds of a survey of the vast majority of the awards presently in place (Alonso-Almeida and Fuentes-Frías, 2010). The second objective is to discern the path that these awards are taking in a global context.

LITERATURE REVIEW

Quality awards and excellence models in Africa

The African continent presently has four quality awards and excellence models in place, namely in Egypt, Kenya, Mauritania and South Africa. While in South Africa the distinction is known as an excellence model, the other three countries have opted for quality awards, as shown in Table 1.

While relatively recent, these awards have been in place for an average of 10 years, long enough to compare them with other models in light of their durability and the consistency of their implementation by the business concerns involved.

These African awards and models share a series of scored criteria that, proactively speaking, may constitute requirements for establishing quality management systems, and reactively speaking, a business quality assessment (Tan, 2002). These criteria are summarised in Table 2. While the general characteristics listed are shared by all four awards, the respective sub-criteria and scoring schemes differ (Marwa and Zairi, 2008; Alonso-Almeida and Fuentes-Frias, 2010).

Flynn and Saladin (2006) showed that cultural and geographic proximity influence national quality awards. African awards would, then, be expected to be very similar to one another. Nonetheless, in the absence of any existing comparison, no information was available on how they might equate or differ. Based on previous research in other areas, then, the first hypothesis addressed in this study was:

H₁: African quality awards do not differ significantly from one another.

Impact of the MBNQA and EFQM EM

While companies engage in the pursuit of quality awards and excellence models voluntarily, the consensus in the literature is that awardees' results are favourably affected by the endeavour (Bou-Llusar et al., 2009).

The empirical evidence suggests that recipient companies are firmly committed to ongoing improvement and excellence (Curcovic et al., 2000; Wilson and Collier, 2000; Flynn and Saladin, 2001; Pannisalvan and Ferguson, 2001; Ghosh et al., 2003; Lee et al., 2003; Bou-Llusar et al., 2009; Jager et al., 2010). Moreover, the award is good publicity that helps improve the corporate image of the companies concerned. The market tends to see them as more reliable and trustworthy, which in turn enhances their economic performance (Hendricks and Singhal, 1997; Wrolstad and Krueger, 2001). Previous studies also suggest that the efforts deployed by companies to attain a quality award afford them a competitive advantage that may contribute to strengthening their position and preparing them to conduct business more

efficiently in today's dynamic environment.

The foremost such award, which has served as a model for others since its institution in 1987, is the Baldrige Award (Etorre, 1996; DeBaylo, 1999).

This award has become the primary driver of quality business practice and is a model widely accepted by organisations seeking to meet their stakeholders' demands (Schonbenger, 2001; Sila and Ebrahimpour, 2003; Flynn and Saladin, 2006). It was originally built around and has since been updated on the grounds of inter-related values and ideals that exemplify beliefs and behaviours identified in high-performing organisations (Schonbenger, 2001; Flynn and Saladin, 2006).

The EFQM EM, created in 2001 and updated in 2010, is based on the Baldrige model but adapted to accommodate the most prominent differential aspects of European business culture. It has served as a model for the national quality awards instituted by European countries (Alonso-Almeida et al., 2006).

Since most national quality awards the world over follow the MBNQA or EFQM EM patterns, the African awards would be expected to be no exception. Consequently, the study hypothesised that:

H₂: The main dimensions of the African quality awards are the same as in the MBNQA and the EFQM EM.

The so-called universal quality model

In light of the variety of quality and excellence awards in place around the world, Alonso-Almeida and Fuentes-Frías (2010) analysed the existing awards to identify the latent dimensions in all of them, which would constitute what those authors denominated a universal quality model.

Their analysis was conducted on a random sample of quality awards and excellence models using the criterion defined by Hernández-Sampier (2004) and a non-probabilistic stratified selection consisting of seven strata concurring with the world's seven continents and the representativeness of these awards and models in each. As a result, 39 quality awards and excellence models were selected from different countries around the world. The analysis yielded a model with seven multi-dimensional clusters establishing the patterns that determine world-wide standard criteria for the efficient design, implementation and assessment of total quality management systems.

Given the aforementioned description of the model and with a view to attaining the objectives of the present study, the following hypothesis was tested:

H₃: the main dimensions of African quality awards are the same as included in the universal model.

METHODOLOGY

Multiple correspondence analyses were conducted on a matrix

Table 1. Quality awards and business excellence models.

Denomination	Country	Year instituted
Egyptian Quality Award	Egypt	1997
Kenya Quality Award	Kenya	1999
National Quality Award	Mauritania	2001
South African Excellence Model	Sudáfrica	1997

Source: processed by the authors

encompassing the criteria governing African, MBNQA, EFQM EM and universal model awards to test the hypotheses put forward in this study.

RESULTS AND ANALYSES

Bearing in mind that excellence models have total scores of 1 000 points for the assumed criteria the score in each cell in the primary data matrix was converted to a proportion of the total (Hernández-Sampier, 2004). Consequently, in the new matrix generated, the interactions were expressed as one thousandth of the original score, which naturally ranged in value from zero to one.

The application variable used to obtain the correspondence matrix was consequently defined as the proportion of the total score. This in turn could be converted into a non-metric variable with four possible values: (0), when the element and the model were unrelated; (1), when they were distantly related; (2), when they were medially related; and (3), when they were closely related. These categories were defined as proposed in the literature (Moore et al., 2006; Walliman, 2006; Easterby-Smith et al., 2008; MacKinnon, 2008), as follows:

1. Distantly related (A): 0.00-0.067
2. Medially related (B): 0.067-0.13
3. Closely related (C): 0.13-0.20
4. Unrelated, with a value of zero (D).

The first hypothesis was tested by conducting a parametric analysis of the mean differences among African excellence awards and models using statistical software SPSSv17. The results are given in Table 3.

Further to Table 3, the F-statistic values for the relationship between the Kenyan and each of the other quality awards were in the high range, that is, over five. This was an indication that at a significance level of 99%, the differences between these models were not significant.

The differences found when the Egyptian and Mauritanian quality awards were compared to the South African excellence model, however, were observed to be significant at the 99% level, inferring that the internal structure of the third model deviated slightly from the structure of the other two awards. The F values for the Egyptian and Mauritanian awards proved to be similar when compared to both the Kenyan and South African models, suggesting that the former two awards have a

similar structure in terms of both the criteria analysed and the manner in which they are assessed.

While minor differences were detected among the African awards, assuming a confidence level of 95%, such differences were not significant. The first hypothesis was therefore verified.

The second and third hypotheses were tested with multiple correspondence analyses, pursuant to the procedure proposed by Cue-Muñiz et al. (1987) and Hernández-Sampier (2004), and assigning the variable the aforementioned category values (A, B, C or D).

Calculating the measure of association

The criterion most widely accepted for obtaining a perceptual map is to find the measure of association by reversing the sign on the standardised, chi-square cross-tabulation. By way of illustration, Table 4 gives the similarity measures for the general award criteria studied (Table 1), although, the analysis was conducted using the scores for the respective sub-criteria.

As Table 4 shows, high association values, both positive and negative, were found for different criteria in all the quality award and excellence models. These findings implied that some of these awards stress certain requirements and assessment criteria over others, and that consequently these criteria constitute distinctive elements in as regards the application of the awards.

A closer look at these inter-award similarity measures (Table 4) revealed that in the South African and EFQM business excellence models, the values closest to the expected value were found for knowledge measurement, analysis and management, while in those same models the values farthest from the expected value were found for resource management.

Similar behaviour was observed in the remaining awards, which exhibited even lower values. In all these similarity criteria, greater importance was attached to intangible than tangible resource management (Tan, 2002; Reiner, 2002; Funk, 2007).

A total of six dimensions were identified that best explained the variance in African awards and models with respect to the others analysed (Table 5). Of this maximum of six possible dimensions, the first three were chosen for further study because they exceeded the median inertia as well as their own values and were close

Table 2. Criteria for African excellence awards and models.

Criterion	Definition
Leadership (C1)	Indicates how the organisation guides people at different levels to ensure ongoing quality improvement
Strategic planning (C2)	Indicates how the organisation develops, conveys, implements and improves its policy and strategy to attain competitive advantage
Customer and market orientation (C3)	Indicates the company's ability to meet client needs and expectations by relating to and understanding its customers
Knowledge measurement, analysis and management (C4)	Indicates how the organisation makes timely use of in-house and outside information in decision-making to gain competitive advantage
Staff orientation (C5)	Indicates how the organisation plans and efficiently develops its human resources to achieve maximum performance
Process management (C6)	Indicates how the organisation designs, administers, assesses and improves its key processes to attain product and service excellence
Results (C7)	Indicates how the organisation obtains better management results through its quality strategy
Resource management (C8)	Indicates the organisation's resource management efficiency

Source: processed by the authors based on Alonso-Almeida and Fuentes-Frías (2010) and Tan (2002).

Table 3. Differential analysis of African awards.

ANOVA Table					
Variable	Sum of squares	Df	Mean square	F	Sig.
Kenya * Egypt					
Between Groups	0.022	4	0.006	15.862	0.000
Within Groups	0.022	61	0.000		
Total	0.044	65			
Kenya * Mauritania					
Between Groups	0.022	4	0.006	15,862	0.000
Within Groups	0.022	61	0.000		
Total	0.044	65			
Kenya * South-Africa					
Between Groups	0.019	8	0.002	5,214	0.000
Within Groups	0.025	57	0.000		
Total	0.044	65			
Egypt * South-Africa					
Between Groups	0.015	8	0.002	3,426	0.003
Within Groups	0.032	57	0.001		
Total	0.047	65			
Mauritania * South-Africa					
Between Groups	0.015	8	0.002	3,426	0.003
Within Groups	0.032	57	0.001		
Total	0.047	65			

Table 4. Measures of similarity for African, MBNQA and EFQM excellence models.

Parameter	Similarity measure							
	C1	C2	C3	C4	C5	C6	C7	C8
Egypt	1.71	0.00	5.59	21.32	-0.86	-7.43	0.10	-22.85
Kenya	1.71	0.34	8.88	21.32	-0.17	-5.10	-0.40	-22.85
Mauritania	1.71	0.00	5.59	21.32	-0.86	-7.43	0.10	-22.85
Sudáfrica	-0.40	-2.53	-4.83	-25.40	-0.17	0.30	7.27	42.46
EFQM	-0.40	-0.25	-21.74	-25.40	-0.17	2.21	7.27	42.46
MBNQA	1.71	0.00	5.59	21.32	-0.86	-7.43	0.10	-22.85

Table 5. Dimensions: own and inertia values.

Dimension	Cronbach's Alpha	Variance accounted for	
		Total (Eigen value)	Inertia
1	0.970	5.928	0.847
2	0.852	3,711	0.530
3	0.667	2,334	0.333
4	0.583	1,998	0.285
5	0.337	1,407	0.201
6	0.053	1,048	0.150
Total		16,425	2.346
Mean	0.740 ^a	2,737	0.391

a. Mean Cronbach's Alpha is based on the mean Eigenvalue.

Table 6. Award value correlations.

Variable	Egypt	Kenya	Mauritania	South-Africa	MBNQA	EFQM	Universal
Egypt ^a	1.000						
Kenya ^a	0.737	1.000					
Mauritania ^a	1,000	0.737	1,000				
South-Africa ^a	0.633	0.859	0.633	1,000			
MBNQA ^a	1,000	0.737	1,000	0.633	1,000		
EFQM ^a	0.633	0.859	0.633	1,000	0.633	1,000	
Universal	0.535	0.746	0.535	0.869	0.535	0.869	1,000
Dimension	1	2	3	4	5	6	7
Eigenvalue	5.526	1.130	0.209	0.135	0.000	0.000	0.000

a. Missing values were imputed with the mode of the quantified variable.

to the mean.

As the correlation matrix in Table 6 for the converted award values shows, the awards analysed were very closely related. Moreover, the Egyptian and Mauritanian awards had identical criteria and no significant differences in measurement methods with respect to the MBNQA. The South African model, in turn, was very similar to the EFQM EM in both those respects. In contrast, the close relationship between the Kenyan award and both the MBNQA and the EFQM EM was indicative of the hybridisation of its criteria and assessment methods.

The conclusion drawn from the preceding analysis was that African quality awards and excellence models are

very similar to the MBNQA and EFQM EM. Indeed, the Egyptian and Mauritanian awards follow MBNQA criteria and the South African the EFQM EM criteria, while the Kenyan model is more impartial, containing both MBNQA and EFQM EM criteria. These findings verify the second hypothesis.

Analysis of dimensions

The award and model dimensions shown in Table 7 were analysed to test the third hypothesis.

The universal model proposed by Alonso-Almeida and Fuentes-Frías (2010) was taken as the reference of

Table 7. Quality award and business excellence model dimensions.

Parameter	Dimension			Mean
	1	2	3	
Egypt	0.914	0.665	0.004	0.528
Kenya	0.843	0.146	0.000	0.330
Mauritania	0.914	0.665	0.004	0.528
South-Africa	0.861	0.506	0.921	0.762
Universal	0.660	0.380	0.481	0.507
Active Total	5,928	3.711	2.334	3.991

choice both as respects the general criteria applied and the weight accorded to each. Similarity was then established between the criteria used by the African models and awards and that universal model, in which a value of 0.20 was defined as the significance threshold for the analysis (Hernandez-Sampier, 2004).

The universal model assigned the greatest weight to the criteria in the first dimension, in which all the African excellence awards and models were present. This dimension measured the development of administrative leadership, governance and social and environmental responsibility, strategy development, an understanding of and communication with customers, organisational management, analysis and improvement, information management, an understanding of ICTs, personnel satisfaction, supplier selection and assessment, and organisational results in terms of customers, markets, people and processes.

The second dimension emphasised the identification of customer needs, work organisation and environment and the results in terms of leadership and supplier relations.

The third dimension encompassed a wide variety of criteria, including organisational culture, strategic management, strategy implementation, customer satisfaction, marketing chain management, skill development, key process management, process management, and results in terms of products and processes, economic profit or loss, social responsibility, environmental protection and community development.

The perceptual map obtained from the aforementioned dimensions was analysed to determine the position of each African quality award and excellence model. The graph showing their respective locations is reproduced in Figure 1.

When the graph was broken down into two-dimensional maps by pairs of dimensions (Figure 2) and preference circles were drawn taking the universal model as the hub, the distances in the first dimension were found to be short for all the quality and excellence awards. The conclusion reached on the grounds of that finding was that the criteria in question were similar in all the models. The criteria in the Egyptian and Mauritanian quality awards were found to concur significantly with the criteria in this dimension, positioning these two awards relatively near the ideal or *universal model*. In as much as these

awards are patterned after MBNQA criteria, the foregoing was an indication that the MBNQA resembles the *universal model* very closely.

The South African quality award was closest to the universal model in the second dimension, while the Kenyan award was positioned at a substantial distance from that ideal. In other words, the quality criteria included in this dimension were essentially absent from the Kenyan award. The South African model was the one closest to the EFQM EM, suggesting that the latter is also closely associated with the ideal in this second dimension. Lastly, while all the awards were fairly far from the ideal in the third dimension, the closest similarity, relatively speaking, was found for the South African model, indicating a certain concurrence with the model criteria. The distance observed for all the other awards on the map signified that these criteria were scantily adopted or developed.

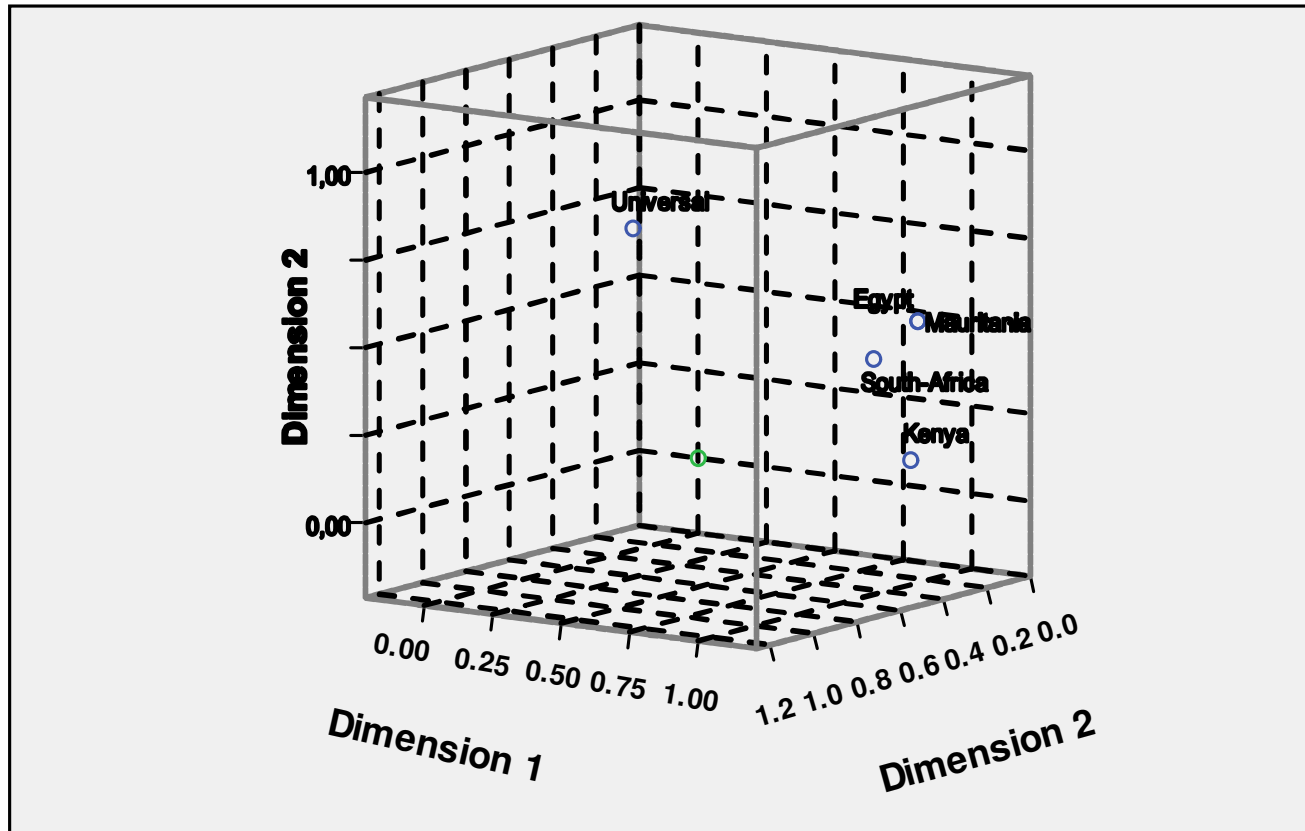
Briefly stated, the findings showed that the African quality awards and excellence models were present in all the dimensions defined in the universal model, although, not all the awards adopted the respective criteria to the same degree. The South African Excellence Model was the award positioned most closely to the ideal in all dimensions, with the exception of the first. The Kenya Quality Award was the farthest from the universal model in all dimensions. As noted earlier, this award contains a mix of MBNQA and EFQM EM components. The present findings suggest that hybrid models are the least appropriate for the satisfactory implementation of a TQM system.

In light of this order of similarity and the differences between the quality awards and excellence models and the universal model, the results can be regarded to be mixed. Hence the third hypothesis was verified only partially.

CONCLUSIONS AND MANAGEMENT IMPLICATIONS

The findings of the present study show that the four African countries with quality awards have adopted either the MBNQA award or the EFQM excellence model criteria, or a combination of the two. These countries therefore, have a powerful management tool that will enable

Discrimination Measures



Variable Principal Normalization.

Figure 1. Perceptual map of African quality and excellence awards.

companies striving to attain the respective awards to develop a culture of excellence and ongoing improvement, and raise internal performance levels and company profits. This fact is particularly significant, for in these countries awareness of international quality and environmental standards is very low (ISO, 2008).

Moreover, as the literature has shown, the benchmark awards used in this study contain Total Quality Management (TQM) dimensions, while many authors have reported benefits for companies pursuing the principles involved in TQM (Keng-Boon, 2009).

Consequently, quality and excellence awards are a good way of introducing and developing the TQM philosophy in organisations to make them more competitive. For companies to reap benefits from any quality or excellence programme, however, senior management must be wholly committed to the endeavour and provide the company with the resources needed to guarantee the success of such initiatives.

The differences found among African quality awards respecting their similarities and differences with MBNQA or EFQM EM, allowing for adaptation to national circum-

stances, may be due to cultural differences, such as reported by Flynn and Saladin (2006) in an analysis of MBNQA constructs in the United States, Japan, Italy and England. That subject lies outside the bounds of the present article, however, and might well be addressed in further research on African awards.

The study also revealed the need for greater efforts in African countries to attain some of the dimensions contained in the universal model used in this paper. The quality awards and excellence models exhibit significant shortcomings in the third dimension, which covers a wide range of criteria designed to afford companies a strategic vision and develop skills to respond to stakeholder demands. The suggestion, then, is that the criteria and assessment methods associated with these awards be re-evaluated to attain a more balanced approach. The primary reason is that the roll-out of this dimension provides the internal and external competence that companies must develop today to ensure a sustainable future.

The findings reported here have significant implications. Firstly, as respects business practice, quality

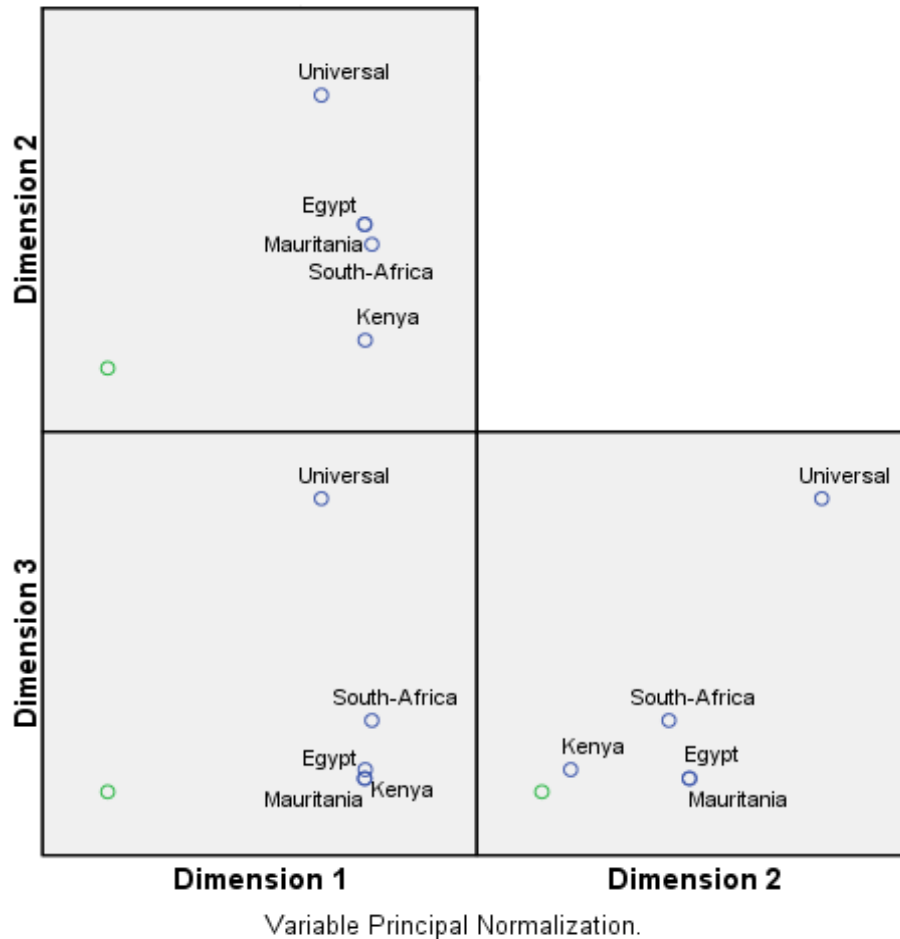


Figure 2. Two-dimensional maps of African awards with respect to the universal model.

awards and excellence models can help companies acquire the competitive advantage needed to confront the change that characterises a globalised world, exemplified by the present and possible future economic crises. Moreover, such awards provide businesses with an effective management tool that enhances quality and ongoing improvement in the absence of an external culture that encourages excellence.

African governments, in turn, should further business development with policies that encourage the adoption of excellence models by company managers. A first step would be to foster the adoption of international quality standards and enact legislation favouring environmental protection, along with the adoption of international standards in that area as well. A second step is to institute quality and excellence awards such as the countries studied have done, to further the adoption of such practices. The contents and measurement or assessment methods in these awards should not be static, however, but rather should be adapted from time to time to business and social needs to ensure that they constitute genuine business management tools.

Lastly, one possible future line of research would be to enlarge this study to other geographies to compare results and analyse any possible differences. A second would be to analyse the differences found in Africa in terms of the alignment of national awards, to ascertain whether they are due to cultural differences or other possible factors.

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