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FROM A MANAGEMENT PERSPECTIVE**

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## **CULTURE AND INNOVATION IN PERU FROM A MANAGEMENT PERSPECTIVE**

### **ABSTRACT**

Political stability, macro-economic caution and the aggressive pursuit of free trade have enabled Peru to emerge as one of the fastest growing economies in Latin America. This economic expansion has created heightened interest in the evolution of corporate culture and its influence on firm performance. This paper examines organizational performance in relation to the influence of cultural values on innovation by means of a survey of upper level managers. Involvement in innovation did not assist sales growth whereas involvement in open innovation did. There was a positive relation between open innovation and power distance and uncertainty. No relationship was identified for individualism and masculinity. Practical implications are open innovation may enhance business performance while declining power distance and lower aversion to uncertainty can have a positive impact as well.

### **INTRODUCTION**

The global banking crisis triggered by the sub-prime mortgage situation in the USA followed by the emergence of the sovereign debt crisis in the EU have combined to result in the longest economic downturn since the 1930s Great Depression. Although the adverse impact of this recession has been greatest in the developed nations, many emerging economies have also been affected by the global downturn. In the case of

Latin America, these developments come in the wake of massive privatization schemes, domestic market liberalisation and free trade agreements (Reficco and Ogliastri, 2009) all designed to make their respective more competitive now and in the years ahead. Nevertheless, many countries in the region and their respective firms have found difficulty in sustaining economic growth in the face of declining demand for goods and services in their key markets in Europe and North America.

Drucker (1985) posited that post-war business survival rates were likely to be highest among firms which engaged in innovation. Other studies have also concluded that innovation focusing upon creating new products and services during a recession will assist firms to emerge from an economic downturn in a much stronger position (Trott, 1998). Most organisations engaged in developing new products traditionally use a ‘closed’ in order to retain ownership of proprietary knowledge. Chesbrough (2003) posited ‘open innovation’ is more effective because it provides access to new knowledge. Brettel et al. (2008) concluded success of innovation will be influenced how national cultures influence the internal behaviour of organizations.

The vast majority of the management literature is focused upon research concerning firms located in developed economies such as the UK or USA. Hence the question arises of whether theories concerning innovation and the influence of cultural values are as equally applicable in firms based in an emerging economy? The purpose of this study is to examine this question in the context of the recent performance of companies in Peru.

### **RECENT TRENDS IN PERU**

Few nations have experienced the extreme changes in government economic policy, social and political upheaval, and shifts in business environment that Peru has over the last four decades (Jaramillo & Silva-Jáuregui, 2011). The country transitioned from military dictatorship in the 1970s to nearly fifteen years of terrorist activity beginning in the early 1980s accompanied by hyperinflation that reached over 7000 percent in the early 1990s (Murakami, 2007). In 1991, these developments gave way to a government policy of aggressive privatisation and the pursuit of free trade (ADEX, 2005; González Vigil, 2009). A wave of foreign investment followed, and has continued up to the present (de Althaus, 2007; Dube, 2011). In the new millennium political stability, macro-economic caution and the aggressive pursuit of free trade enabled Peru to emerge as one of the fastest growing economies in Latin America (Tello & Tavera, 2010). This economic expansion has created heightened interest in the evolution of corporate culture and its influence on firm performance (de Althaus, 2007; Flores & Ickis, 2007; Quiroz, 2008; Gil, 2009; Jaramillo & Silva-Jáuregui, 2011).

### **DIFFERENT DIMENSIONS TO CULTURE**

Culture influences peoples' attitudes, beliefs and decision making (Aycan, 2000). Several taxonomies exist in relation to measuring culture but possibly the commonest taxonomy used in marketing is that of Hofstede (Coviello and Jones, 2004). Hofstede (2001) posited that culture has are four critical dimensions; namely power distance, uncertainty avoidance, individualism-collectivism and masculinity-femininity. Power distance is characterised by centralised decision structures and use of formal rules (Trianus, 1994). Uncertainty avoidance determines whether difficult situations are to be tolerated or avoided. The individualism-collectivism dimension shows whether the interests of an individual or a group are more important. Masculinity-femininity

defines the degree to which a society is dominated by such masculine values as achievement and self-assertiveness versus feminine values such as discretion, modesty and tolerance.

There is significant variation in national cultures across the world. As illustrated in Table 1, Peru, similar to other South American countries, has a high score for power, low scores for uncertainty and individualism, and a high score for masculinity. This contrasts with Western democracies relatively low scores for power, high scores for uncertainty and individualism, and a low score for masculinity. Inglehart and Abramson (1999) posited that the existence of cultural differences between nations is attributable to the fact that economic development changes the priority of certain values. As rising incomes lead to feelings of greater security, for example, a materialist emphasis diminishes to be replaced with more post-materialist goals. Unlike the emerging economies in Asia, however, Peru and other South American countries have a high score for masculinity.

### **Insert Table 1**

## **INNOVATION AND UNCERTAINTY**

Although Peru's economy has grown in recent years, the prospects for further growth remain less certain in view of the overall state of the world economy. The country remains heavily reliant upon mining and agricultural exports--two sectors which exhibit volatility in both demand and prices (Anon., 2009). One of the features of markets during periods of economic uncertainty is that the majority of firms tend to adopt a survival strategy of seeking to reduce operating costs and to compete on the basis of lower prices (Bacot et al. 1992; Goodell and Martin, 1992). Building upon

theories generated by the Austrian School of Economics (Schumpeter, 1934), Drucker (1985) posited that successful managers exploit innovation to provide an effective a response during periods of economic uncertainty. This viewpoint has been validated by studies of firms which survive a recession (Ghemwar, 1993; Trott, 1998). Gilbert's (1990) analysis of American firms during the 1980s recession found that the majority tended to focus on short-term actions such as price reductions, apparently in response to major shareholders demanding firms should continue making dividend payments. The importance of innovation has recently been endorsed by a survey of over 1,000 CEOs (IBM, 2008). In the face of the worst recession since the 1930s, their view was survival and growth are dependent upon sustaining innovation and embedding an entrepreneurial culture across their organisations.

These observations provide the basis for the following hypothesis:

*H1: The performance of Peruvian firms will be higher among those engaged in innovation.*

## **INNOVATION AND CULTURE**

Ulijn and Weggeman (2001) and Westwood and Low (2003) demonstrated that successful innovation requires specific antecedents with culture being an important determinant. High power distance is associated with hierarchies and rigid controls. This can reduce the level of information sharing inside the organisation (Van Evergingen and Waarts, 2003). In cultures that exhibit lower power distance there tends to be better communication which enhances the sharing of ideas.

These observations provide the basis for the following hypothesis:



H2: *There is a positive relationship between declining power distance and innovation in Peruvian firms.*

Innovation is associated with greater uncertainty. In those cultures which use rules to minimize ambiguity, this value can create barriers in the development of new ideas. An aversion to uncertainty may also mean employees tend to avoid proposing new solutions (Williams and McQuire, 2005).

These observations provide the basis for the following hypothesis:

H3: *There is a positive relationship between decreasing uncertainty aversion and innovation in Peruvian firms.*

Emphasise on collectivism leads to focus on sustaining group agreement and cohesiveness. In individualistic cultures, greater value is placed on the freedom of the individual (Waarts and van Everdingen, 2005). Innovation is often associated with the actions of the individual who is prepared to challenge convention (Chaston, 2009). Individualism can also assist radical innovation, as demonstrated by Shane (1992) who found a positive correlation between the inventions patented and individualism.

These observations provide the basis for the following hypothesis:

H4: *There is a positive relationship between increasing individualism and innovation in Peruvian firms.*

Highly masculine cultures are dominated by values such as achievement, independence and personal success. As innovation involves risk, it would seem

reasonable to assume high levels of innovation are likely to occur in masculine societies. However, Williams and McQuire (2005) and Shane (1993) found no correlation between economic creativity and masculinity. One possible reason is that in feminine societies there is a focus on conflict avoidance and trust. Hence Nakata and Sivakumar (1996) proposed feminine societies create environments which assist employees more effectively cope with the uncertainties associated with innovation.

These observations provide the basis for the following hypothesis:

*H5: There is a no relationship between masculinity and innovation in Peruvian firms.*

### **OPEN INNOVATION**

Innovation involves generative learning which leads to the acquisition of new knowledge (Oguz, 2001; Popper and Lipshitz, 1998). Kuratko et al. (1993) and Lundvall (1998) proposed learning in successful innovation is concerned with acquiring new knowledge. Huang et al. (2010) posited that open innovation leads to business growth by permitting organisations to leverage more ideas from a variety of external sources. Freel (2006) concluded open innovation enhances the probability that firms will achieve business growth by developing new products or production technologies. Christensen et al. (2005) concluded open innovation is influenced by (i) firms' position in their market system, (ii) the position of products on the Product Life Cycle Curve and (iii) the potential scale of opportunities for value added. Although open innovation provides access to more ideas, Birkinshaw et al. (2011) noted the costs of open innovation can be considerable.

Chesbrough (2003) suggested companies' approach to open innovation can be described as existing on a continuum ranging from a low to a high degree of

‘openness.’ Lichtenthaler (2008) concluded that openness seems to rise with the degree of emphasis on radical innovation. Chesbrough (2007) posited that in the current economically uncertain world open innovation may permit the evolution of new strategies which are more appropriate for ensuring organisational survival.

Theories concerned with the benefits of open innovation suggest the following hypothesis:

*H6: The performance of Peruvian firms will be higher among those engaged in open innovation.*

### **LEARNING AND OPEN INNOVATION**

Jaworski and Kohli (1966) and Slater and Narver (1995) concluded market-orientated organisations exploit new sources of knowledge to outperform their competitors. Wiklund and Shepherd (2002) proposed participation in business networks offers access to new knowledge. This perspective is shared by Chen et al. (2006), Niehaves (2010), Mohannak (2007), Moensted (2010) and Ojala and Tyrvaained (2009). They posited that the creation of new knowledge from collaborative activities is critical in ensuring an adequate response to changing external environments. Lindsay (2005) and Palacios et al. (2009) determined that knowledge acquisition was especially critical in innovation management in knowledge-intensive organisations.

Kenworthy (1995) and Lundvall (1998) concluded that national culture and corporate culture may influence the willingness of organisations to collaborate in the development of new products or processes. Gerard et al (2009) confirmed this perspective in a cross-cultural study of open innovation processes across seventeen countries. Wang and Rafiq (2009) noted that in entrepreneurial collaboration, there is

a critical need to integrate learning styles such that all participants are able to effectively incorporate new knowledge from external sources. For the process to be effective there is a necessity for a high level of trust between the collaborators (Lundvall, 1998). A hierarchical structure and a rules based approach is an obstacle to the achievement of trust.

These perspectives lead to the following hypothesis

*H7: Power distance will be lower in Peruvian firms involved in open innovation.*

Van der Meer (2007) concluded that a key reason why many Dutch firms avoided involvement in open innovation was their perception that this was a high-risk activity. Firms felt collaboration increased the probability that confidential information will become known to competitors. Lazzarotti et al. (2010) reached a similar conclusion in relation to Italian firms.

These perspectives lead to the following hypothesis

*H8: There lower level of uncertainty aversion in Peruvian firms involved in open innovation.*

Saussois (2003) suggested that information technology has the potential to greatly assist inter-organisational knowledge sharing. In his view, a critical aspect of process design is to ensure individuals have the freedom to interact with individuals both inside and outside the organisation. This conclusion provides support for the following hypothesis; namely:

*H9: There is a higher level of individualism in Peruvian firms involved in open innovation.*

Masculinity is considered to be reflected in a greater emphasis on achievement and personal success whereas in contrast feminism is believed to reflect an orientation towards minimising conflict and resolving differences of opinion. Chaston (2009) concluded that trust is critically influenced by collaborators achieving consensus in determining appropriate actions. This perspective provides the basis for the following hypothesis; namely:

*H10: There is a lower level of masculinity in Peruvian firms involved in open innovation.*

### **CAPTURING THE PERCEPTIONS OF MANAGERS**

Commercial databases in Peru tend to be limited in their coverage of certain sectors and firms within sectors. Hence, we decided to survey higher level private and public sector managers enrolled at CENTRUM, the Catholic University of Lima's post-graduate school of business administration. To measure cultural values, we used the survey tool developed by Hofstede (2001). It measures power distance, uncertainty avoidance, individualism-collectivism and masculinity-femininity. In doing so, we assumed respondents' values are a reasonable indication of the values of the organisations where respondents are employed. As the basis of our assumption, we postulated that higher level manager/respondents are at a point in their career where their values are (a) reasonably compatible with their place of employment and (b)

have a relatively strong influence over the values of the work force they interact with at the company.

To assess organizational performance, we utilized the technique validated by Chaston and Mangles (1997). In doing so, we asked respondents to comment on average sales growth over the last three years on a five-point scale ranging from 'sales declined by more than 10 percent' through to 'sales increased by more than 10 percent'. To determine involvement in innovation, we followed Brettel et al.'s (2008) advice that in international research, the measure of entrepreneurial orientation developed by Covin and Slevin (1998) is an appropriate tool.

Most open innovation studies are of a qualitative nature (Van de Meer, 2007). One exception is the empirical study undertaken by Lazzarotti et al.'s (2010) of Italian firms. The Lazzarotti et al. scale assesses purpose, aims and rationale as the basis for calculating an overall mean for open innovation within an organisation:

## **SURVEY RESULTS**

We received usable responses from 239 individuals. Our visual inspection of the data indicated variation between respondents from different sectors of industry. However, we found that an ANOVA to assess variation by sector was not statistically significant at  $p < 0.05$ . Hence, we used all of the survey forms in the subsequent analysis.

We also found that Cronbach alpha scores for the variables which constitute the entrepreneurial orientation scale were greater than 0.7. Hence, we could use all the variables to calculate the overall mean employed in the regression analysis (Hair et

al., 1998). The overall mean value for entrepreneurial orientation was 2.84. The results of our regression analysis of sales performance and entrepreneurial orientation was not statistically significant at  $p < 0.05$  (Adjusted  $R^2 = 0.001$ ;  $F = 1.139$ ;  $t = 15.44$ ).

We then generated Cronbach alpha scores for the variables which constitute Hofstede's four dimensions of cultural value. These were all greater than 0.7. The overall means for power distance, uncertainty avoidance, individualism-collectivism and masculinity-femininity were 2.57, 1.157, 2.42 and 1.74 respectively. Our regression analysis of entrepreneurial orientation and power distance and uncertainty avoidance were both statistically significant at  $p < 0.05$  (Adjusted  $R^2 = 0.105$ ;  $F = 28.89$ ;  $t = 10.89$ ; Adjusted  $R^2 = 0.03$ ;  $F = 7.92$ ;  $t = 12.41$ ). In contrast, our regression analysis of entrepreneurial orientation and individualism-collectivism and masculinity-femininity were not statistically significant at  $p < 0.05$  (Adjusted  $R^2 = 0.004$ ;  $F = 1.99$ ;  $t = 21.94$ ; Adjusted  $R^2 = 0.01$ ;  $F = 1.26$ ;  $t = 20.81$ ).

We next calculated Cronbach alphas to test the reliability of the multiple measurement variables associated with assessing open innovation. All values were greater than 0.70 which allowed us to use them in our subsequent regression analysis. The mean scores for purpose, aims, rational, and behaviour were 3.29, 2.82 and 3.08 respectively, yielding an overall mean score for open innovation of 3.11. We then carried out a regression analyses of business performance in relation to involvement in open innovation that turned out to be statistically significant at  $p < 0.05$  (Adjusted  $R^2 = 0.13$ ;  $F = 4.02$ ;  $t = 9.42$ ).

The mean value of 3.11 for open innovation provides a mid-point for the degree of involvement in this activity and it is assumed that firms with a mean for open innovation of less than 3.11 have a low level of involved collaborative innovation. The means for power distance, uncertainty avoidance, individualism-collectivism and masculinity-femininity in relation to involvement in open innovation were 2.57, 1.27, 1.91 and 2.63 respectively. The t-tests for power distance ( $t=5.27$ ) and uncertainty avoidance ( $t = 2.63$ ) in relation to involvement in open innovation were statistically significant at  $p<0.05$ . The t-test value for individualism-collectivism ( $t = 1.91$ ) and masculinity-femininity ( $t = 1.10$ ) were not statistically significant at  $p<0.05$ .

## DISCUSSION AND CONCLUSIONS

The regression of business performance in relation to entrepreneurial orientation was not statistically significant at  $p<0.05$ . Thus, our survey results do not support the hypothesis H1 that *business performance will be higher among Peruvian firms exhibiting an entrepreneurial orientation*. Although Georgelli et al. (2000) posited that entrepreneurship leads to higher business growth, our results were unable to validate this viewpoint in relation to Peruvian firms. Instead, we interpret the implication of our findings to mean that a more conservative managerial orientation in Peru can be as just as effective for achieving business growth. Furthermore, we would suggest that one possible explanation for this business behaviour that contradicts espoused management theory is that in emerging economies, where export performance is reliant upon the sale of commodities, firms can achieve adequate business growth by focusing on optimizing the effectiveness and efficiency of their current operations. Hence, seeking to enhance the productivity of existing operations



has greater appeal than engaging in the inherently more risky activity of innovation (Chaston, 2009).

The results of our regression analysis of entrepreneurial orientation and power distance was statistically significant at  $p < 0.05$ . Hence, our survey result appears to support the hypothesis H2 that *there is a positive relationship between declining power distance and innovation in Peruvian firms*. This finding is similar to the results and conclusions of research carried out by Williams and McQuire (2005) and Shane (1993). They posited that as power distance declines, this usually leads to improved communication across functional and hierarchical boundaries which, in turn, enhance innovation activities.

Our regression analysis of entrepreneurial orientation in relation to uncertainty avoidance was statistically significant at  $p < 0.05$ . Hence, our result appears to support the hypothesis H3 that *there is a positive relationship between decreasing uncertainty aversion and entrepreneurial orientation in Peruvian firms*. In effect, our finding suggests that in Peruvian firms', aversion to uncertainty decreases as organisations become increasingly involved in innovation. This outcome is consistent with Herbig and Dunphy's (1998) perspective that acceptance of uncertainty is necessary in order to undertake the riskier activities associated with developing new products.

Our regression analysis of entrepreneurial orientation in relation to individualism-collectivism was not statistically significant at  $p < 0.05$  and hence this research finding does not support the hypothesis H4 that *there is a positive relationship*

*between increasing individualism and innovation in Peruvian firms.* This result is contrary to Waarts and van Everdingen's (2005) suggestion that higher levels of individualism have a positive influence over innovation. Their viewpoint is that as the collectivism declines, employees are more able to propose ideas which are different from the thinking of others. We would suggest that one possible argument to explain the current study's result is that collectivism in Peruvian firms assists individuals working with others in their organisations.

When we regressed entrepreneurial orientation in relation to masculinity-femininity, the result was not statistically significant at  $p < 0.05$ . This finding would appear to support the hypothesis H5 *there is a no relationship between masculinity and innovation in Peruvian firms.* Our finding also concurs with those of Williams and McQuire (2005) and Shane (1993) who found no correlation between economic creativity and masculinity.

The t-tests for power distance and uncertainty avoidance in relation to involvement in open innovation were statistically significant at  $p < 0.05$ . It seems reasonable to conclude these results support the hypotheses H7 that *power distance will be lower in Peruvian firms involved in open innovation* and H8 that *the level of uncertainty aversion will be lower in Peruvian firms involved in open innovation.* Our conclusion concerning hypothesis H7 is consistent with Lundvall's (1998) perspective that to be effective, there needs to be a high level of trust and commitment between the collaborating organisations. This can only occur where firms have a) reduced their hierarchical structures and b) a rules-based approach to defining employee tasks. Our interpretation of the result concerning hypothesis H8 is that it indicates that Peruvian

companies engaged in open innovation do exhibit lower uncertainty aversion. This outcome supports Chesbrough's (2007) perspective that acceptance of uncertainty is necessary because only then will the organisation be prepared to engage in the high-risk activity of knowledge sharing.

The t-tests for individualism in relation to involvement in open innovation was not statistically significant at  $p < 0.05$ . Hence this study cannot support hypothesis H9 that *the level of individualism will be higher in Peruvian firms involved in open innovation*. The t-tests for masculinity-femininity in relation to involvement in open innovation was not statistically significant at  $p < 0.0$  which means our study's findings could not validate hypothesis H10 that *there is a no relationship between masculinity and open innovation in Peruvian firms*. The inability to validate hypothesis H9 concerning the expectation of higher levels of individualism in Peruvian firms involved in open innovation corroborates Wang and Rafiq's (2009) findings. They identified open innovation as being reliant upon both intra and inter-firm project teams. For these activities to succeed, employees must accept collectivism in order to consensus over the resolution of problems.

Lazarotti et al. (2010) concluded successful open innovation requires firms to give less priority to their own performance and to adopt an orientation to sustain commitment toward all other organisations. We would contend that this probably explains why in the case of Peruvian firms involved in open innovation, our findings support the hypothesis H10 that no relationship exists between masculinity and open innovation in these organizations.

## **MANAGEMENT IMPLICATIONS**

Gilbert (1990) and Trott (1998) concluded that during periods of economic uncertainty, firms would be well-advised to focus on innovation. Firms such as Apple and Google certainly provide strong support for this perspective. However, our current study raises doubts over whether innovation leading to higher business growth in emerging economies is always a valid concept. Rather, our results suggest that for firms located in emerging economies like Peru, focusing on optimizing current operations is equally, if not more appropriate. Hence, when advising on appropriate management practices for firms in emerging economies, perhaps equal emphasis should be given to managing current operations and being engaged in innovation.

Our findings also suggest that managers in emerging economies need to recognize that certain aspects of culture will influence organizations engaged in closed or open innovation. This is because the results further validate that innovation is enhanced in those organisations able to reduce power-distance and accept higher uncertainty. Collectivism- individualism and masculinity can also influence organizational processes. However, our current research findings suggest that in the context of an emerging economy these values are not issue when seeking to create an internal culture designed to optimize the effectiveness of efforts to innovate.

Lastly, our observations are based upon a single study in a single country. Hence, further research is needed in Peru as well as other emerging economies to determine whether and if so, which of the findings from this study are conclusive for Peru, let alone applicable in other emerging economies.

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Table 1: Examples of National Cultures

Country	Power	Uncertainty	Individualism	Masculinity
Peru	64	42	16	87
Argentina	63	28	23	86
Brazil	69	49	38	76
UK	35	66	89	35
USA	40	62	91	46
Malaysia	104	50	26	36
Singapore	74	48	20	8

(\* Source: [www.geer-hofstede.com](http://www.geer-hofstede.com) accessed 2/9/11)