A IIIP Research Report

The IIIP Innovation Confidence Indexes 2009 Report

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v.3 26 July 2010

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Executive Summary

Consumer Innovation Confidence (CIC), a measure of consumer demand for innovation, is the degree to which individuals are willing to engage with and perceive benefit from new products or services, or products or services that embody new technology. It is measured as the IIIP CIC Index, which is derived from three different consumer survey items that a factor analysis has shown to load together with acceptable reliability and sampling adequacy across a wide range of nations.

CIC is distinct from general consumer confidence. It is influenced by deep-seated communal values that change with the socio-economic development of nations. Communal values "explained" two thirds of the variance (variability) in average CIC scores across the 33 nations plus Hong Kong and Shen Zhen in which CIC was measured at least once in 2007, 2008 or 2009. Consumers in societies with traditional values are much more likely to be innovation confident than those in societies with secular/rational values. New products and services may be supplying a need for human choice in societies where choice is restricted in many spheres by communal norms.

Following a successful pilot in the United Kingdom in 2008, Organizational Innovation Confidence (OIC) was measured in the 18 nations (and Hong Kong and Shen Zhen) that measured CIC in 2009. For those in work only, OIC scores closely tracked national CIC scores in most economies. Systematic differences were apparent across the sample, however. OIC was higher than CIC in three of the 20 economies (Belgium, Croatia and the United Kingdom) and lower in four (China, Ecuador, Iran and the United Arab Emirates). Differences in societal norms of leadership appear to account for most of the variance in differences in CIC and OIC across the economies in the sample. Essentially, OIC tends to be lower than CIC in societies in which paternalism and patronage are accepted forms of organizing.

Receptivity to innovation is driven mainly by demographic variables such as age, income and occupation. But attitudes to others have significant effects on consumer perceptions of new products and services, and how receptive organizations are to new products and services. For consumers, new products and services have meaning beyond their material utility, especially among the powerless in traditional societies. Perceived powerlessness of employees to take initiatives in societies where paternalism and patronage are accepted norms of organizing may reduce their latent interest in innovations that might generate benefits to their organization.

This document reports the third annual results of an international survey of Innovation Confidence developed for and funded by the Institute for Innovation & Information Productivity (IIIP)[1] by the Hunter Centre for Entrepreneurship at the University of Strathclyde, Glasgow, UK in association with the Global Entrepreneurship Research Association[2]. The report displays results from a survey of over 51,000 individuals in 18 nations plus Hong Kong SAR and Shen Zhen province in China in 2009. The results from the 2009 survey confirm the findings of the 2007 and 2008 surveys and develop new insights on what influences both consumer and organizational Innovation Confidence and what this means for consumers, business and government.

These findings have different implications for governments, consumers, business and consumer protection advocates, and the implications differ by culture. Traditional societies may provide surprisingly strong demand for innovative products and services, but marketers need to understand the nature of this enthusiasm and market responsibly to aspiring classes in such societies. Consumer protection may be particularly important in these societies. Consumers in societies with secular/rational values may be more discerning. Leaders of organizations based on paternalism and patronage may need to adapt their organizational culture if they are to fully benefit from innovation and compete globally.

[1] The Institute for Innovation and Information Productivity – details at http://www.iii-p.org/
[2] See www.gemconsortium.org

Introduction

Amar Bhidé has pointed out that innovative entrepreneurs are unlikely to succeed if they cannot get anyone to buy their innovative products or services[3]. He suggested that one reason for the relative economic success of the US compared with continental Europe was the receptivity of American citizens to innovations. While many supply-side indicators of innovation exist[4], global demand-side indicators are markedly absent from the literature[5]. Thus Bhidé was unable to test his hypothesis. Identifying this gap, the IIIP commissioned the Hunter Centre for Entrepreneurship at the University of Strathclyde in 2007 to develop reliable cross-national measures of consumer demand for innovation. This year, with the third annual survey undertaken in 2009, a new element was added measuring organizational confidence in innovation.

This report describes these two measures developed by the Hunter Centre for Entrepreneurship at the University of Strathclyde in association with the Global Entrepreneurship Research Association, the institution behind Global Entrepreneurship Monitor, for the Institute for Innovation & Information Productivity[6]. These measures are known as the IIIP Consumer Innovation Confidence Index (CIC) and the IIIP Organizational Innovation Confidence Index (OIC).

This is the third IIIP survey of innovation confidence. Following a successful pilot in the US in early 2007, 12 GEM research teams participated in the first global measurement of national CIC in the summer of that year. In 2008, over 81,000 individuals in 25 countries were surveyed, and a pilot survey of OIC was conducted in the UK[7]. In 2009, CIC and OIC scores were calculated from the responses of 51,000 individuals in 18 nations plus two important commercial regions of China (Shen Zhen and Hong Kong SAR). Scanning all of the reports, national estimates of CIC are now available for 33 nations plus Hong Kong and Shen Zhen for at least one year, and national estimates of OIC are available for 18 nations plus Hong Kong and Shen Zhen. (CIC is comparable to the "IC" findings reported in the 2007 and 2008 reports. We use the term "Consumer Innovation Confidence" in this report to differentiate between the results relating to individual consumers and the new organizational measure.)

The next section describes the CIC and its stability, reliability and validity. It also shows how CIC varies strongly with a national measure of human communal values developed by the World Values Survey. This is followed by a description of the OIC. Then differences between CIC and OIC across countries are described. These differences are explained by reference to two unique cultural constructs: humane orientation and power distance, as measured by the GLOBE study of leadership in 62 societies. Finally, some implications of the index for national governments, consumers, and business are drawn.

The IIIP Consumer Innovation Confidence (CIC) Index: New Findings

Innovative entrepreneurs need customers who are willing to buy new products and services and to try products and services that utilise new technology. Consumers who are receptive to such innovations tend to believe these will improve their life. The IIIP Consumer Innovation Confidence Index (CIC) captures these three dimensions of innovation confidence: willingness to buy new

[3] Bhidé, A. (2008). The Venturesome Economy. Princeton University Press.
[4] Common examples include measures based on patent production, or spending on R&D; see OECD (2007) *Science, Technology and Innovation Indicators in a Changing World*. OECD, Paris.
[5] Two studies have been conducted on related constructs: "consumer innovativeness" in 11 EU nations (see Steenkamp, J-B.E.M., ter Hofstede, F. and Wedel, M. (1999) A Cross-National Investigation into the Individual and National Cultural Antecedents of Consumer Innovativeness. *Journal of Marketing* 63(2): 55-69) and "innovation readiness" in 25 EU nations plus accession and candidate nations (see European Commission (2005) *Population Innovation Readiness*. Special Eurobarometer 236/ Wave 63.4 TNS Opinion & Social. European Commission, Brussels.
[6] See www.gemconsortium.org
[7] In addition, a survey was conducted in Hungary, but because it returned an unusually high rate of "don't know" responses, the Hungarian results were not used.

products or services (hereafter denoted by the term *innvbuy*), willingness to try products or services that involve new technology (*innvtry* for short), and the belief that new products or services will improve one's life (*innvlife*). Each dimension is measured using a five point Likert scale and then combined into an index at the national level.

The wording of these items was developed following extensive consultation with academic experts in innovation, corporate IIIP members and the IIIP leadership. A pilot in February 2007 with a representative sample of 1,000 respondents in the US showed high reliability[8] and low levels of refusals and "don't know" answers[9]. The wording of the items in the telephone surveys, with additional advice for the survey operatives, is shown below. The survey protocol was developed as an integral part of the international Global Entrepreneurship Monitor (GEM) survey of entrepreneurial activity, thus ensuring high and consistent levels of data quality. The pilot and subsequent national surveys were conducted by reputed market research firms (listed in Appendix 1) and monitored by full-time GEM officials.

		Strongly Agree	Somewhat Agree	Neither Agree or Disagree	Somewhat Disagree	Strongly Disagree	Don't Know	Refused
1q.	In the next 6 months, you are likely to buy products or services that are new to the market…… …1		2	3	4	5	8	9

If respondent is unsure what is meant by "new to the market", the following explanation may be used:
"By the term **new to the market**, I refer to products or services you have not noticed before when you go shopping for something, or which are advertised as new."

1r.	In the next 6 months, you are likely to try products or services that use new technologies for the first time..1		2	3	4	5	8	9

If respondent is unsure what is meant by "products or services that use new technologies", the following explanation may be used:
"By the term **products or services that use new technologies**, I refer to products or services that use new scientific breakthroughs. An example might be a light bulb that makes light in a new way".

1s.	In the next 6 months, new products and services will improve your life……..1		2	3	4	5	8	9

If respondent is not sure what is meant by "improve your life", the following explanation may be used:
By the term **improve your life**, I refer to an increase in the quality of your life, or in other words, your life changing for the better directly as a result of your use of new products and services".

Following the successful pilot, 12 GEM country teams were invited in mid-2007 to participate in a combined international survey by adding the three innovation confidence items to their GEM national surveys, with the expense sponsored by the IIIP. The nations were chosen to represent a wide distribution of large and small countries with a range of high, medium and low incomes from around the world. In 2008, 26 nations participated and in 2009 18 nations plus Hong Kong and Shen Zhen province were surveyed. The participating GEM national teams are acknowledged in Appendix 1.

Prior to analysis, the samples were weighted to be representative of gender and age group distributions within the working age population (18-64 years). As Table 1 shows, some sample sizes are less than 2000. This is because in these economies the age distribution of the sample was 18-80, not 18-64. In Angola in 2008, a small random sample of the national sample was selected to answer the questions. In Spain in 2008, all respondents in a very large sample of almost 31,000 working age adults was taken. All other sample sizes varied from around 1,500 to around 4,000.

[8] Cronbach alpha of 0.794. "Reliability" in this context is the extent to which a set of items measures a single latent (underlying) construct, such as, in this case, innovation confidence. Cronbach alphas of over 0.7 for a set of variables are generally considered in social science to indicate that they measure one underlying construct well.

[9] Percentage of "don't know" for the three items was 1.2%, 1.1%, 0.2%, and for "refused to answer" was 0.2%, 0.2%, 0.3% respectively.

Table 1 Size of samples (individuals aged 18-64 years) for the 2007, 2008 and 2009 surveys

	2007		*2008*		*2009*	
Economy	*Frequency*	*Per cent*	*Frequency*	*Per cent*	*Frequency*	*Per cent*
Angola			246	0.3%		
Argentina			1731	2.1%		
Belgium					3989	8.5%
Brazil	2000	8.1%	2000	2.4%	2000	4.3%
Chile			1828	2.2%	1705	3.6%
China	2666	10.7%			3608	7.7%
Colombia			1965	2.4%		
Croatia			1696	2.0%	1665	3.5%
Denmark					2012	4.3%
Ecuador			2142	2.6%	2200	4.7%
Finland	2005	8.1%	2011	2.4%		
Hong Kong SAR					2000	4.3%
Hungary			1994	2.4%		
Iceland			2002	2.4%	1736	3.7%
India	1601	6.5%				
Iran			3116	3.7%	3317	7.1%
Ireland	1897	7.6%	1924	2.3%		
Israel			1778	2.1%		
Italy	2000	8.1%	2970	3.6%		
Jamaica			2399	2.9%		
Japan			1879	2.3%		
Republic of Korea			2000	2.4%	2000	4.3%
Macedonia			1746	2.1%		
Mexico			2523	3.0%		
Netherlands	1479	6.0%				
Peru			1990	2.4%	2021	4.3%
Shen Zhen province					2000	4.3%
Slovenia	3020	12.2%	3019	3.6%	3030	6.5%
South Africa			2719	3.3%		
Spain			30879	37.1%	3081	6.6%
Switzerland					1532	3.3%
Turkey	2400	9.7%				
United Arab Emirates	2097	8.4%			1987	4.2%
United Kingdom	2069	8.3%	1479	1.8%	2051	4.4%
United States	1583	6.4%	3442	4.1%	3412	7.3%
Uruguay			1645	2.0%	1624	3.5%
Total	**24817**	**100.0%**	**83123**	**100.0%**	**46970**	**100.0%**

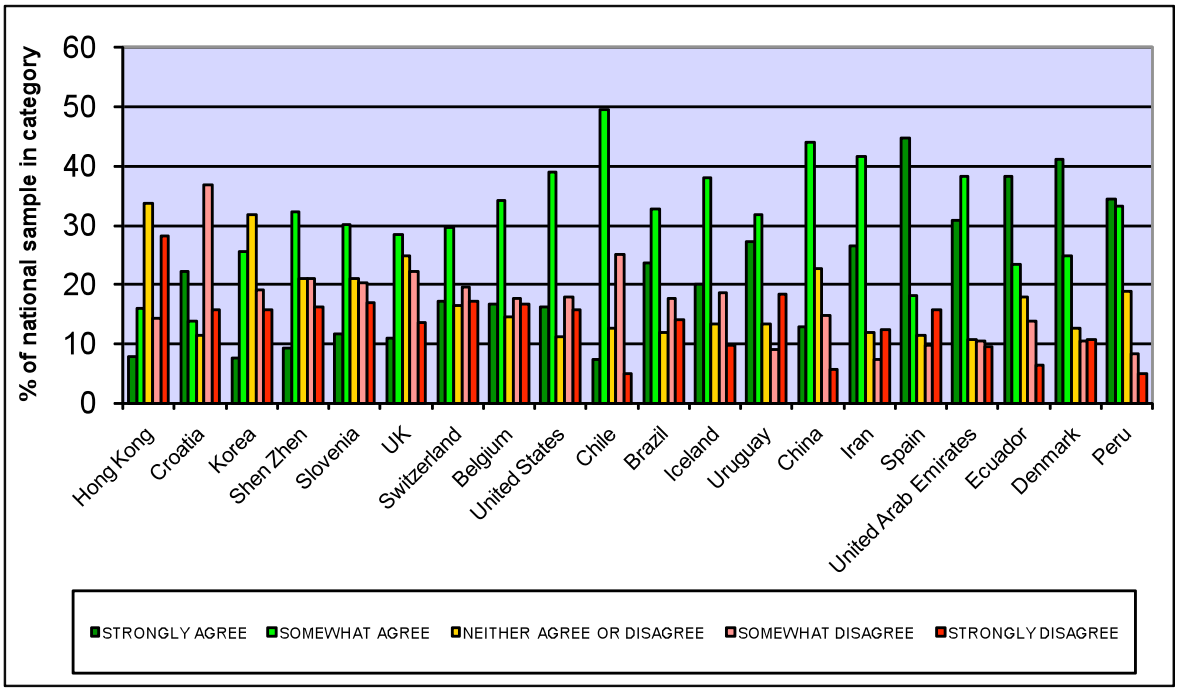
Figures 1, 2 and 3 show the distribution of responses to each of the three items comprising the IIIP Consumer Innovation Confidence Index for each participating economy in 2009[10], using a colour-

[10] These figures exclude the proportion of respondents who responded “don’t know” and “refused to answer” to the three items, which were 4.4%, 4.4%, 5.9% and 0.4%, 0.4%, 0.4% of the gross sample respectively, very

coded “traffic light” display of green for agree through red for disagree. The distributions across the five-point Likert scales are similar in shape for all three items by economy, with a few exceptions. However they are dramatically different in different economies. For example, the distribution is highly left skewed in Ecuador, and strongly bi-modal in Croatia. This has implications for analysis. Mean scores are not an appropriate way of comparing responses to these items across economies because of strong bi-modal distributions in some economies.

While most economies occupy the same position in Figures 1, 2 and 3, Shen Zhen and Denmark move respectively from the left and right in Figure 1 toward the middle in Figure 3. Iran ranks lower on *innvtry* (Figure 2) than on *innvbuy* (Figure 1) or *innvlife* (Figure 3).

Figure 1 2009 sample responses on a five point scale of agreement to the item: In the next six months, you are likely to buy a new product or service (*innvbuy*). The participating economies are ordered by mean response.



close to the 2008 results. Peru had the highest proportion of don’t knows (10.2%, 11.5%, and 15.2%), similar to the results for Peru in 2008 of 10.1%, 10.6%, 13.3%.

Figure 2 2009 sample responses on a five point scale of agreement to the item: In the next six months, you are likely to try products or services that use new technologies for the first time (*innvtry*). The participating economies are ordered by mean response.

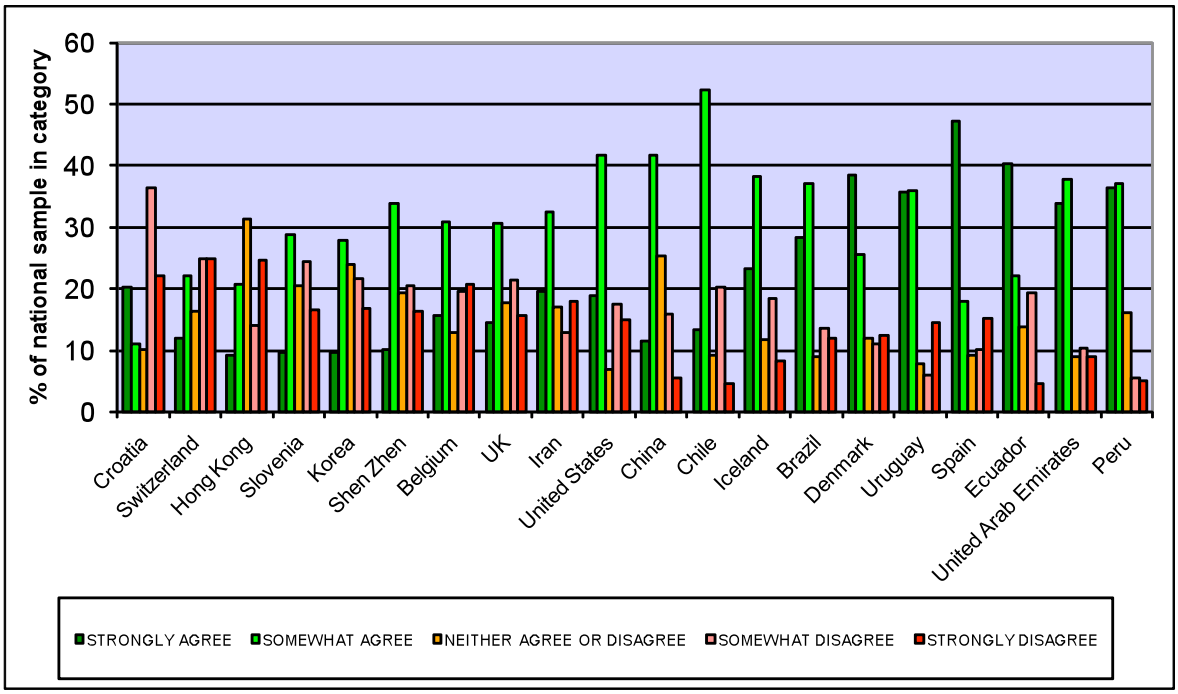
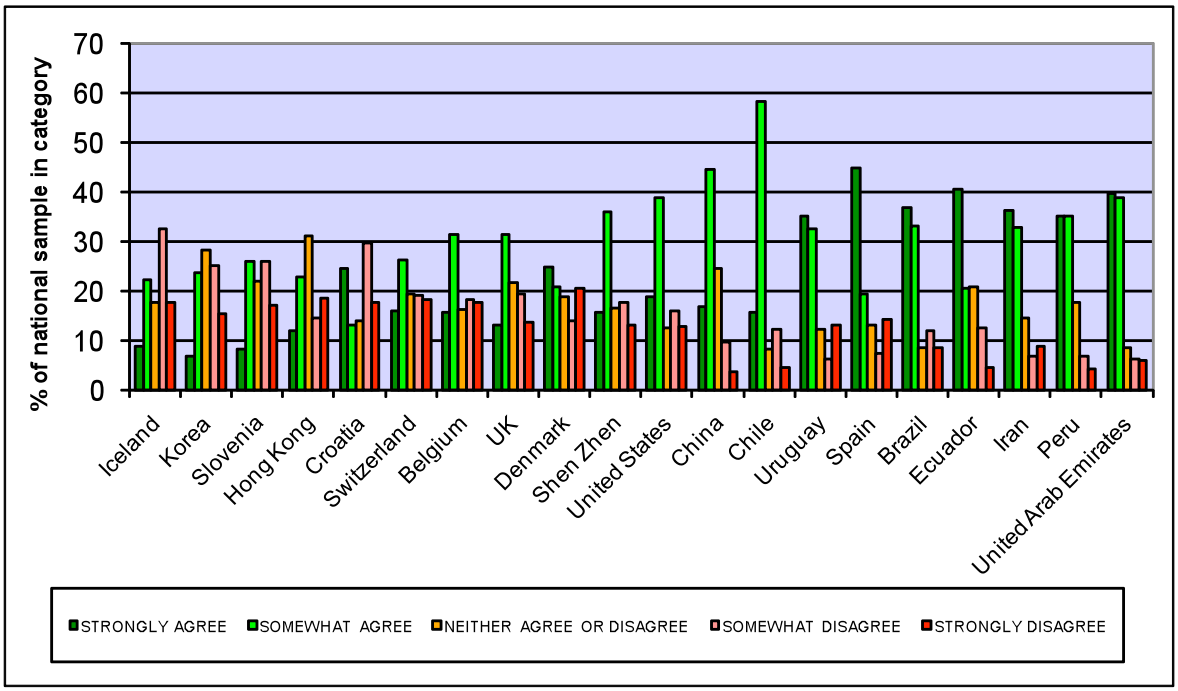


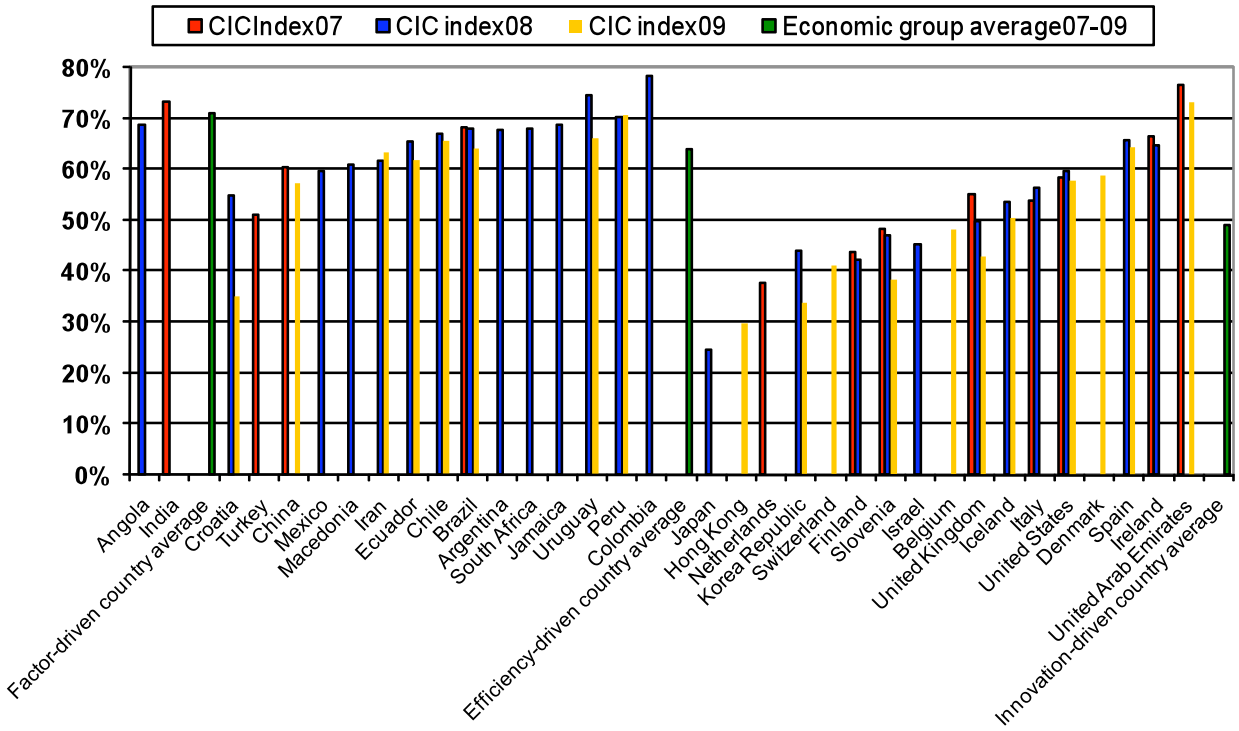
Figure 3 2009 sample responses on a five point scale of agreement to the item: In the next six months, new products or services will improve your life (*innvlife*). The participating economies are ordered by mean response.



In the initial 2007 report, an index was created that captured as much of the variance across all three items as possible yet was trackable across economies and across time[11]. Figure 4 presents this "IIIP Consumer Innovation Confidence (CIC) Index," which is a measure of the average percentage of people agreeing to each of the three items, for all economies by year. It also groups the average CIC for this period by economic stage, i.e. by phase of economic development as determined by the Global Competitiveness Report[12]. This index correlates highly[13] with an index based on mean factor scores; there is an even gradation across the sample from 24% to 78%, and it is easier to understand than the complex patterns in Figures 1, 2 and 3.

The IIIP CIC score for each participating economy[14] in 2007, 2008 and 2009 is given in Table 2 below. The country mean for the period 2007 to 2009 is also included.

Figure 4 IIIP CIC Index for 2007, 2008 and 2009 by economy and economic group



This year, it was possible to further test the stability, reliability and validity of the index. Seven countries participated in both the 2007 and 2008 survey, 13 participated in 2008 and 2009, and six participated in 2007 and 2009, enabling an estimate of the stability of the index. The correlation of

[11] Another way of capturing a measure of innovation confidence from these three items would be to generate factor scores that extracted the greatest amount of variance across all three items. However, factor scores created with different sets of economies would not be comparable.

[12] Schwab, K. (2009). *Global Competitiveness Report 2009-2010*. World Economic Forum. Geneva, Switzerland. http://www.weforum.org/pdf/GCR09/GCR20092010fullreport.pdf This report argues that countries differ in their stage of economic development, and that policy priorities should differ across these stages. Factor-driven countries, with per capita GDP of less than $2000, should emphasise basic infrastructure as key priorities for development. Efficiency-driven countries (per capita GDP of $3000 to $9000) should emphasise higher education and training, goods market efficiency, labor market efficiency, financial market sophistication, technological readiness, and market size, while innovation-driven economies (per capita GDP of over $17,000) should focus on improving business sophistication and innovation. In Figure 4, countries in transition are placed in the lowest adjacent stage. Comparable per capita GDP data for Shen Zhen was not available.

[13] Correlations were .909 for the economies sampled in 2007, .945 for the economies sampled in 2008 and .954 for the economies sampled in 2009.

[14] Shen Zhen is excluded from this figure because it is not included in the Global Competitiveness Report.

the CIC indices for these three nation-year combinations was .966 (p=.000), .922 (p=.000), and .960 (p=.002). This suggests that the index is stable. A factor analysis of the three items on the larger samples of countries in 2008 and 2009 produced very similar reliability and sampling adequacy statistics to the smaller 2007 sample[15].

Table 2 IIIP Consumer Innovation Confidence Index in participating nations, 2007 to 2009

	IIIP Innovation Confidence Index (from the most confident nation to the least)			
Nation	Mean 2007 to 2009 IIIP Consumer Innovation Confidence Index score (rounded)	2009 IIIP Consumer Innovation Confidence Index score (rounded)	2008 IIIP Consumer Innovation Confidence Index score (rounded)	2007 IIIP Consumer Innovation Confidence Index score (rounded)
Colombia	78		78	
United Arab Emirates	75	73		76
India	73			73
Peru	70	71	70	
Uruguay	70	66	75	
Jamaica	69		69	
Angola	69		69	
South Africa	68		68	
Argentina	68		68	
Brazil	67	64	68	68
Chile	66	66	67	
Ireland	66		65	66
Spain	65	64	66	
Ecuador	64	62	65	
Iran	62	63	62	
Macedonia	61		61	
Mexico	60		60	
Denmark	59	59		
China	59	57	60	
United States	59	58	60	58
Italy	55		56	54
Iceland	52	50	53	
Turkey	51			51
United Kingdom	49	43	50	55
Belgium	48	48		
Shen Zhen	46	46		
Israel	45		45	
Croatia	45	35	55	
Slovenia	44	38	47	48
Finland	43		42	44
Switzerland	41	41		
Korea Republic	39	34	44	
Netherlands	38			38
Hong Kong SAR	30	30		
Japan	24		24	

[15] Factor analysis was conducted on the total sample and country by country. Across the 18 countries plus Hong Kong and Shen Zhen, the three original items loaded onto one factor which explained 69% of the variance with acceptable reliability (Cronbach alpha .780) and sampling adequacy (KMO statistic .692). Country level reliability and sampling adequacy were similar with the exception of Denmark (alpha .686). This suggests that these three items are capturing different dimensions of one underlying construct. Equivalent statistics for the 2007 sample of 12 nations were one factor explaining 68% of the variance, Cronbach alpha .765 and sampling adequacy .683, and for the 2008 sample of 25 nations were one factor explaining 67% of the variance, Cronbach alpha .754 and sampling adequacy .676.

The finding in the 2007 report of an association between innovation confidence and economic growth raised the issue that innovation confidence might be just another measure of consumer confidence. The severe drop in consumer confidence in many countries between 2007 and 2008 and again in 2009 provided a natural test of this proposition. AC Nielsen found that General Consumer Confidence (GCC) in April 2008 dropped by an average of 8% of the point estimate for April 2007 in six of the seven countries that participated in 2007 and 2008. Consumer confidence was not measured in the seventh country. By contrast, the CIC Index in the six nations dropped by only 1% on average of the 2007 value; only in the UK did it drop by as much as 9% of the previous year's point estimate (five points, from 55 to 50). The CIC indexes and annual changes were uncorrelated with their respective GCC indexes, and their annual changes (-.099, p=.881, N=6). This suggests that the CIC Index is stable and does not track consumer confidence.

This test was repeated for the five countries that participated in 2007 and 2009 and for which GCC indexes were available, with similar results. During this two year period, the CIC Index dropped by 8% on average while the GCC index dropped by 18%. The two year changes in these two indexes were uncorrelated (.371, p=.539, N=5).

For the period 2008 to 2009, however, the correlation was suggestive of a link between the CIC and the GCC indexes (.801, p=.055, N=6). Among the six countries that participated both years, the CIC Index fell by 8% on average and the GCC Index fell by 18% on average between 2008 and 2009 (coincidentally the same as the drop between 2007 and 2009 for a different set of five nations). This was during an unusually severe global slowdown, and it may be that the drastic annual fall in consumer sentiment in some countries fed into consumer innovation confidence.

There is a CIC Index and a GCC Index for all three years for only three countries: Brazil, United Kingdom and the United States. The pattern is different in all three countries, as Table 3 shows. There appears to be no association across the three years in the US and Brazil, but the association is almost perfect in the UK, where consumer confidence over the three years declined even more than in the US (29% versus 25%).

Table 3. GCC and CIC Indexes for United States, Brazil and United Kingdom for 2007 to 2009

	GCC07	GCC08	GCC09	CIC07	CIC08	CIC09
United States	106	83	80	58	60	58
Brazil	89	105	88	68	68	64
United Kingdom	91	79	65	55	50	43

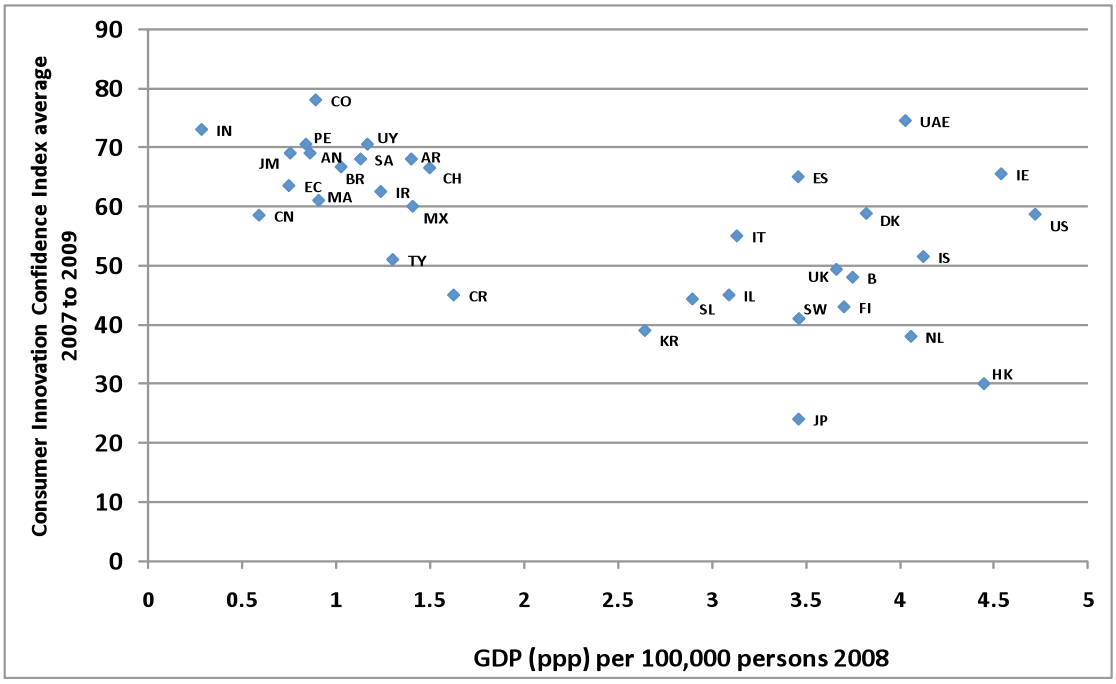
Innovation Confidence varies widely between nations. It tends to be high in poor nations and can be either high or low in rich nations, as Figure 5 shows. Figure 6 shows that there is a reasonably strong, negative association between the source of authority in a nation – or in other words, a nation's communal values – and Consumer Innovation Confidence. This one variable, developed by the World Values Survey[16] "explains" two-thirds of the variance in average national Consumer Innovation Confidence across all the nations sampled in 2007, 2008, and 2009[17]. This variable is based on five indicators that capture different, but highly correlated, dimensions of communal values, including religiosity, patriotism, need to respect authority, teaching goals (obedience versus

[16] See www.worldvaluessurvey.org

[17] Values estimates were made for Angola by substituting the communal value for Zambia; Ecuador by the average of Peru and Colombia; Jamaica by the value for the Dominican Republic; the United Arab Emirates by the value for Saudi Arabia; and Shen Zhen province by the average of China and Hong Kong. If these data points were deleted, the variance explained was virtually unchanged at 0.63. Exclusion of Shen Zhen changed the Rsquare from .650 to .644.

independence), and family values. It is usually portrayed as varying from "traditional" communal values to "secular/rational" (some might say "modern") communal values.

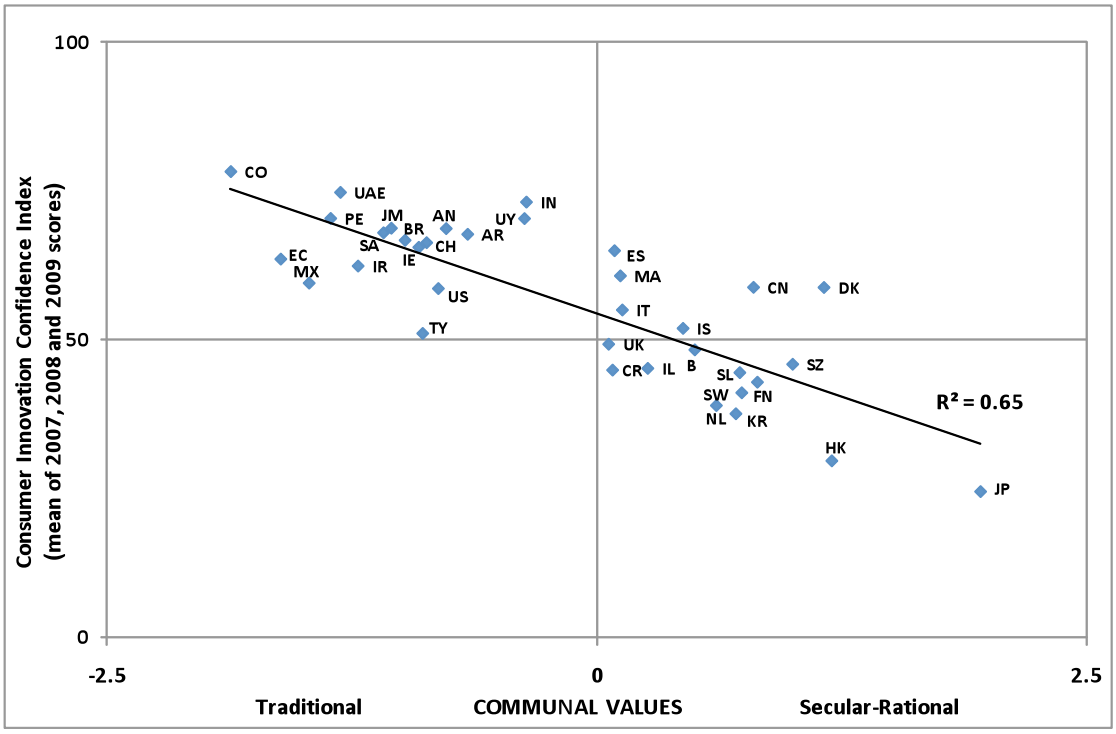
Figure 5 Association between Consumer Innovation Confidence and national wealth (GDP, ppp, per capita in 2008) for 33 nations plus Hong Kong (average of CIC scores for 2007, 2008 and 2009)



Source of GDP and population data: IMF World Economic Outlook Database, US Bureau of the Census International Database

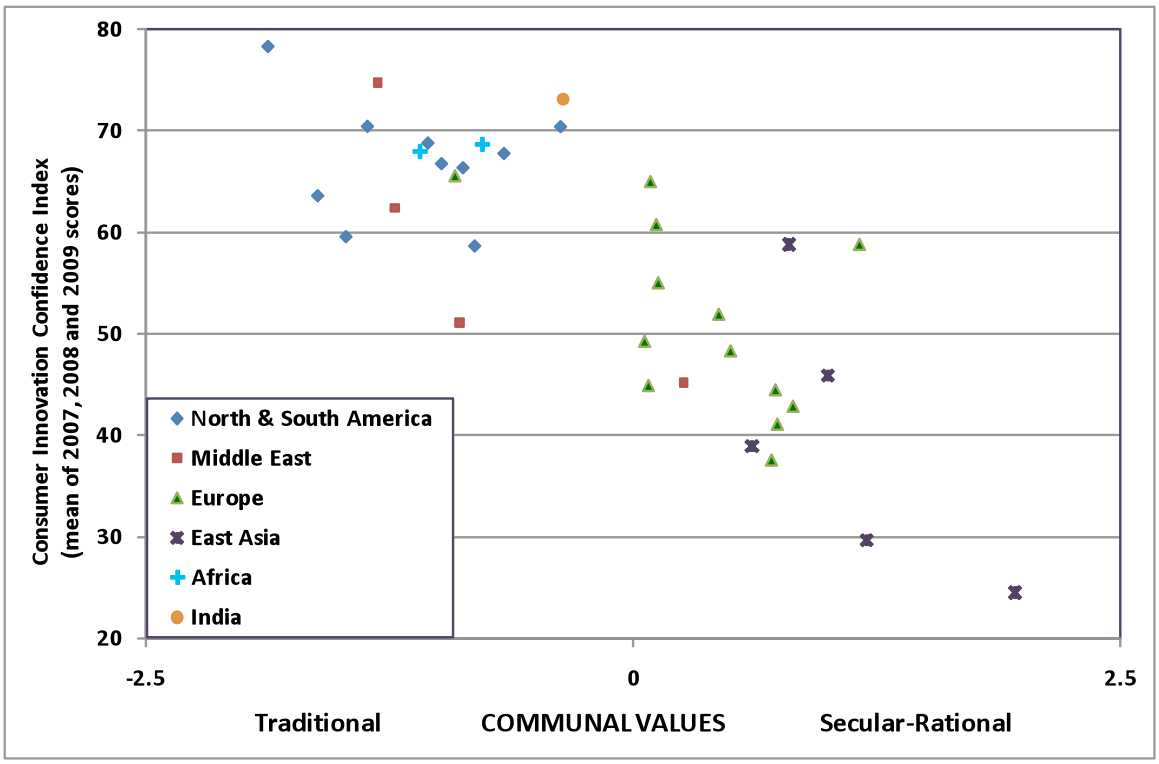
In Figure 6 below, the trendline is both linear and negative and passes close to the midpoint of both indices (the intercept is 55). No economy with traditional values has a CIC Index below 50. However, most economies with secular-rational values have CIC Index scores below 50. Figure 7 colour codes the economies by global region. Economies in global regions tend to occupy unique spaces along the communal values spectrum. In this sample, all Latin American economies and almost all Middle East economies have traditional values (Israel is an exception), and all East Asian and almost all European economies have secular-rational values (Ireland is an exception).

Figure 6 Association between Consumer Innovation Confidence and national community values for 33 nations, Hong Kong and Shen Zhen (IC values are averages of 2007, 2008 and 2009 values)



Source for community values: World Values Survey latest available years (2005, 2004 or 2000)

Figure 7 Association of national community values and Innovation Confidence for 32 nations, Hong Kong and Shen Zhen by global region (IC values are averages of 2007, 2008 and 2009 values)



Figures 6 and 7 suggest that "traditional" societies have high CIC levels, no matter whether they are mildly or strongly traditional. The only exception, Turkey, still has a CIC score above 50. However the range of CIC is much wider among "secular-rational" societies. CIC tends to be medium-high in mildly secular-rational societies, and low in highly secular-rational societis, with Denmark being a notable exception.

There are some interesting differences in national-level responses to the three dimensions that contribute to CIC. Denmark, Finland, Iceland and the Netherlands all scored higher on *innvbuy* than on *innvlife*. East Asian countries, Korea excepted, tended to score higher on *innvlife* than on *innvbuy*. The United Kingdom, United States and many developing countries tended to have similar scores for *innvbuy* and *innvlife*.

A wide range of cultural indicators was tested to see if the relationship shown here was perhaps a coincidence or a reflection of a related aspect of culture. No other cultural, demographic or economic measure came close to the strength of the association with communal values[18]. One possible explanation for the pattern in Figure 6 is that individuals are constrained by community pressure to conform in societies with traditional values, and new products and services are thus valued beyond their material utility as one of the few sources of novelty and freedom of choice in such environments. They may also be a symbol of aspiration, or of apparent conformity with a culture's general aspirational norms, even if the individual may not be genuinely aspirational themselves.

In secular/rational societies, where individuals are relatively free to make their own decisions, new products and services do not carry the special meanings of choice and aspiration. With freedom from traditional norms, individuals in these societies are more likely to be sceptical about what a new product or service can do for them and less likely to accept statements at face value. This is not a rejection of the new, but a more critical, less naive approach of relatively secure individuals. Marketing to these people may need to be relatively sophisticated.

This interpretation may also explain the CIC scores of two countries that are relatively far from the trendline in Figure 6. China is a secular/rational country in which certain freedoms are restricted by law and Turkey is a traditional country in which secular freedoms are protected by the force of law. These mismatches between communal values and freedom may explain why China has a higher CIC score than its communal values would predict, while Turkey has a lower CIC score than its communal values would predict. If China and Turkey are excluded, over 71% of the variance in CIC scores is explained by communal values.

Furthermore, Denmark, which has a higher CIC score than its communal values would predict, tends to score highly in international assessments of innovation[19]. Despite its relatively older age profile, Denmark may be an ideal test market for many of its innovative businesses: most Danes are willing to buy and try new things, but not necessarily for aspirational reasons or to exercise freedom of choice.

Innovation confidence has no relationship with the other major dimension of difference in human values developed by the World Values survey, a focus on "survival" versus "self-expression" ($r = -.042$, $p=.808$, $N=34$[20]). This suggests that new products and services are not perceived as symbols of self-expression but are instead symbols of choice and aspiration for individuals subject to community constraint.

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[18] For example, CIC displays no significant correlations with any of the Hofstede measures of culture, either singly or in any combination. The highest correlation to any of the nine Schwartz cultural variables tested in the World Values Survey samples was "tradition," providing some additional validity to the communal values finding.

[19] See for example the European Innovation Scoreboard 2009 downloadable at http://www.proinno-europe.eu/sites/default/files/page/10/03/I981-DG%20ENTR-Report%20EIS.pdf

[20] Shen Zhen is excluded in this calculation. Including Shen Zhen makes virtually no difference to the correlation coefficient. Countries without survival/self-expression values estimates were substituted with neighbouring country values in the same way as for the communal values variable.

In part, the variance in CIC across economies might be explained as a result of decreasing marginal utility of new products and services for individuals in wealthier economies. If this were the only explanation for differences in CIC across economies, one would expect a linear negative association between CIC and national wealth. As Figure 5 above shows, the relationship appears to be negative and linear among poorer economies, but is not at all clear for richer economies.

Consumer Innovation Confidence is not merely a function of high expectations of the benefits from science and technology. Estimates were available from the World Values Survey for 16 of the 35 economies for which CIC was measured in 2007, 2008 or 2009. This showed that nations which had modest expectations (as opposed to high expectations) for the benefits science and technology could bring society varied widely in Consumer Innovation Confidence. All nations with high expectations, however, had CIC levels above 50%.

It is perhaps an irony that new products and services are welcomed most vigorously by people whose societies are most traditional. New products and services may represent a way of escaping from community rules, because the rules were invented without anticipating such products and services. However, these individuals may be less discerning in their cost/benefit analysis of new products and services, because novelty has more psychological value to them than it has to those living in secular/rational societies.

The IIIP Organizational Innovation Confidence Index

In some nations, businesses and other types of organizations may be more, or less, innovation confident than consumers. For example, some organizations follow practices of paternalism, where the male leader of a social unit, such as the head of a household or business, is expected to know and do what is best for the social unit; and patronage, where a high level of personal support and loyalty, which can extend to wider family members, is given and expected by both employers and employees. These practices, which are culturally accepted in many East Asian and Latin American economies, might result in organizations that are less innovation confident than consumers in those cultures. This is because any changes in such organizations would have to be introduced from the top and with due regard for the impact on worker welfare. Such cultures are said to be high in “power distance,” a concept used by Geert Hofstede to describe power relationship norms among individuals in organizations and societies, and also in “humane orientation,” a concept that was developed in the course of the GLOBE studies of leadership in 62 societies across the world. Societies with a high power distance accept that some individuals are dominated by others.[21] In societies with a high humane orientation, individuals are motivated more by a need for belongingness and affiliation than by self-fulfilment, pleasure, material possessions, and power.

Since organizational customers are so important in innovation adoption, a measure of Organizational Innovation Confidence (OIC) was developed and tested with the UK sample in 2008. The wording of the three items used in this measure was very similar to the CIC items, and all survey respondents identified as “in work” either for themselves or others, were asked these items after being asked the CIC items:

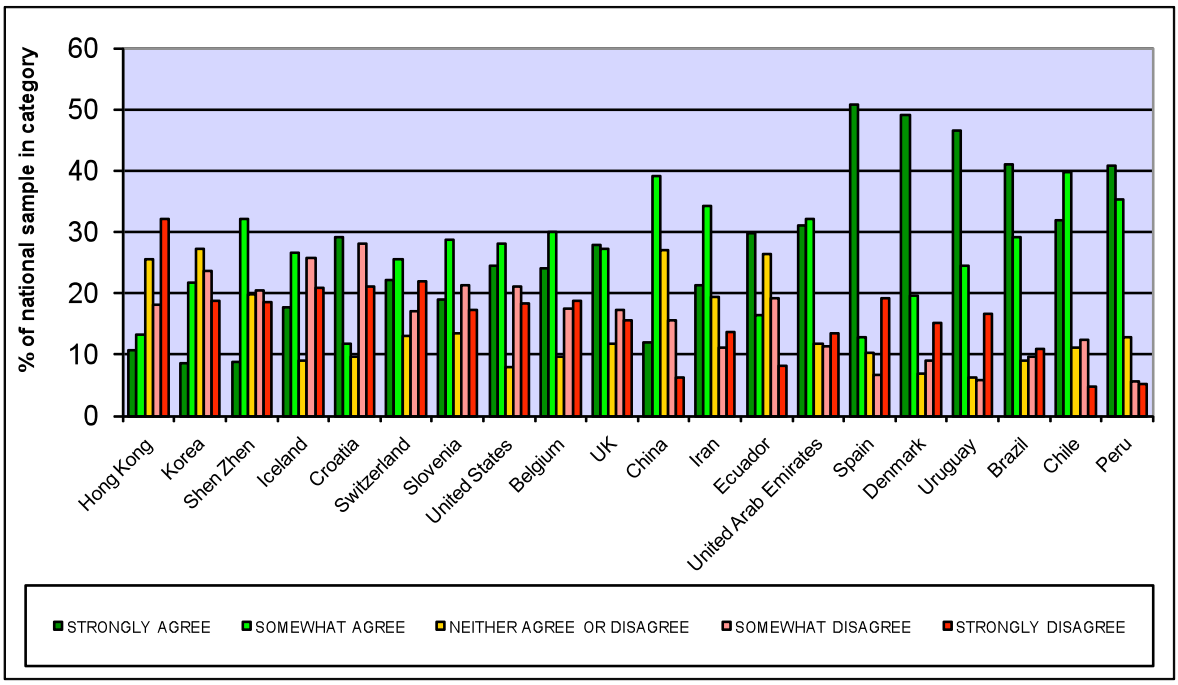
1. "In the next 6 months the organization that you work in is likely to buy products or services that are new to the organization" (*Innvorgbuy*)
2. "In the next 6 months you are likely to try products or services that use new technologies in your daily work for the first time" (*Innvorgtry*)
3. "In the next 6 months, new products and services will improve your working life" (*Innvorglife*)

[21] See Kabasakal, H. and Bodur, M (2004), Humane orientation, societies, organizations, and leader attributes, and Carl, D., Gupta, V and Javidan, M., Power distance, in: House, R. J., Hanges, P. J., Javidan, M., Dorfman, P. W., & Gupta, V. (Eds.) (2004). *Culture, leadership and organizations: The GLOBE study of 62 societies*. Thousand Oaks, CA: Sage Publications. pp 564-601 and pp513-563.

The national-level OIC Index was calculated in the same way as the OIC index, resulting in a score for the UK of 53, which compared with 50 for UK consumers in general in that year. Following this successful pilot[22], all GEM national teams that included the CIC items in 2009 also included the OIC items, permitting a comparison of CIC and OIC across a wide spectrum of economies. Figures 8, 9 and 10 show the distribution of responses to the three items, and Table 4 compares the 2009 CIC Index with the OIC Index for each participating economy (18 countries plus Hong Kong and Shen Zhen).

The OIC was sampled in 2008 and 2009 in only one country: the UK. Exactly the same score of 53 was returned in both years for the UK, even though the CIC dropped by 7 points between 2008 and 2009. It remains to be seen if OIC is generally more stable than CIC from year to year.

Figure 8 2009 sample responses on a five point scale of agreement to the item: In the next six months, the organization that you work in is likely to buy products or services that are new to the organization (*innvorgbuy*). Economies ordered by mean response.



[22] All three items performed well, with a low percentage of 'don't knows' (7.2%, 3.2%, 4.8%) and only one refusal out of 1168 18 to 64 year olds identified as being in work. One component was extracted from factor analysis which contained 67% of the variance. This factor had sampling adequacy of .645 and reliability of .748, both of which are acceptable.

Figure 9 2009 sample responses on a five point scale of agreement to the item: In the next six months, you are likely to try products or services that use new technology in your daily work for the first time (*innvorgtry*). Economies ordered by mean response.

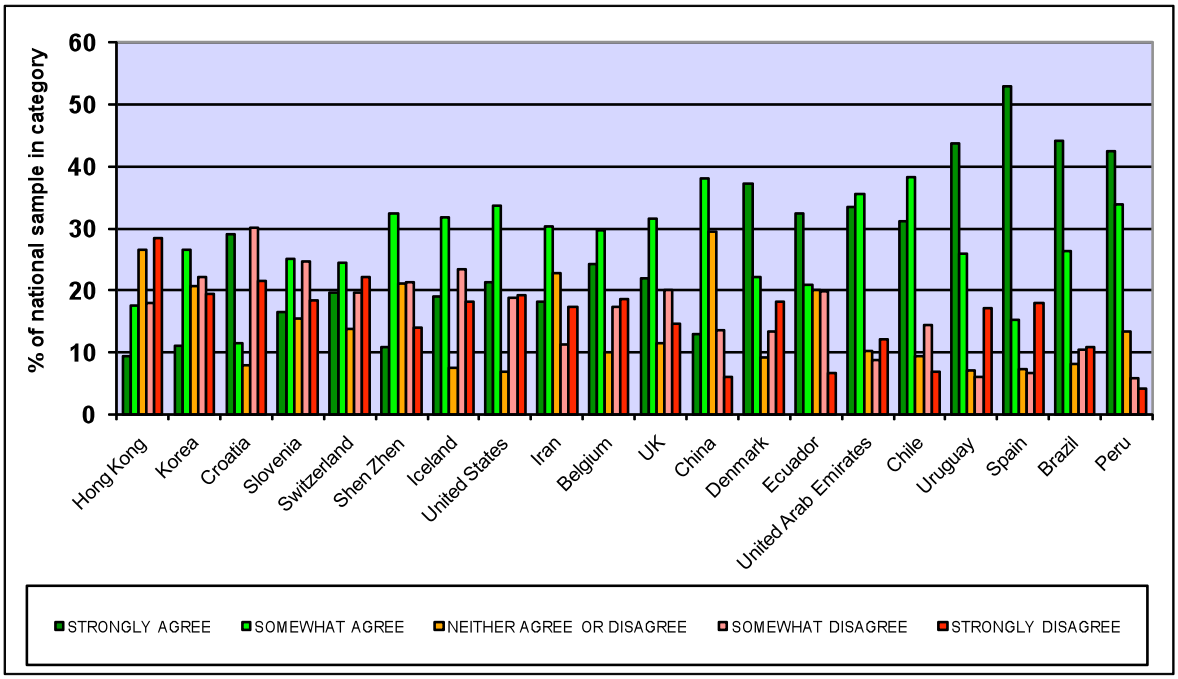
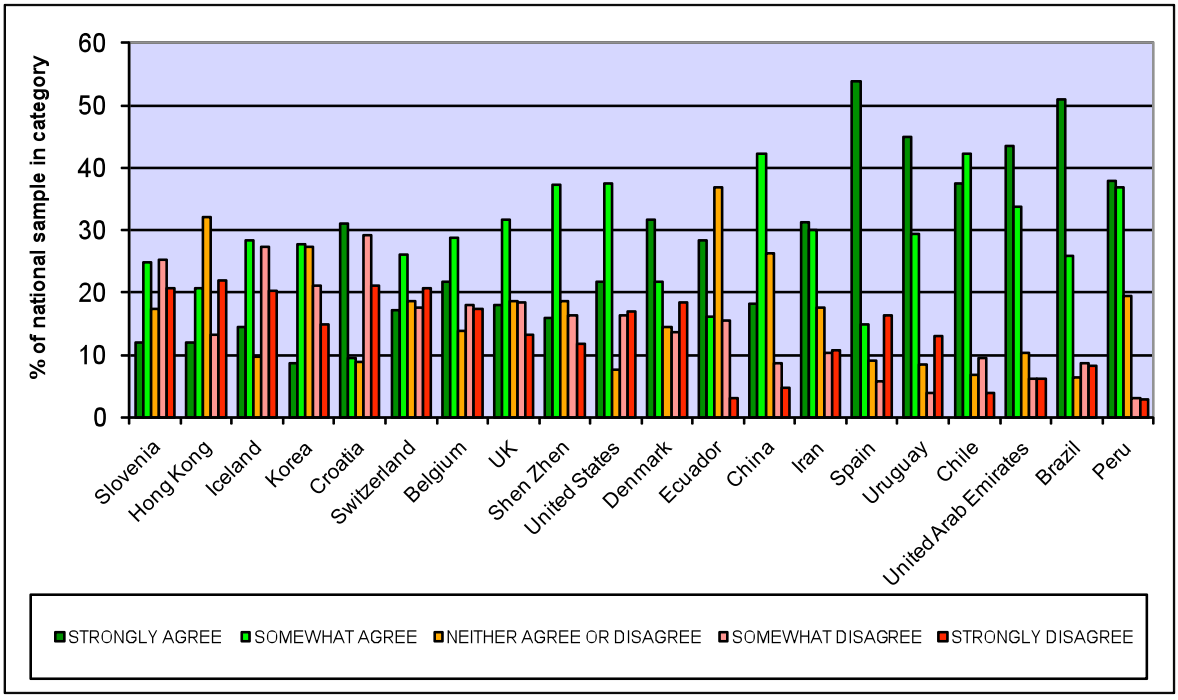


Figure 10 2009 sample responses on a five point scale of agreement to the item: In the next six months, new products or services will improve your working life (*innvorglife*). Economies ordered by mean response.



Like the CIC Index, the OIC Index varies widely across economies, from 76 for Peru to 28 for Hong Kong. It correlates highly with the CIC Index (r = .90), but the CIC and the OIC are different in some countries. Index scores shown in **bold** in Table 4 denote differences between the estimates that we can be reasonably confident are "real" and probably not due to sampling error[23]. OIC was higher than CIC in four of the 18 nations (Belgium, Brazil, Chile and the United Kingdom) and lower in two (Ecuador and Iran). In general, though, it closely tracked national CIC scores.

Table 4 IIIP Organizational Innovation Confidence Index and Consumer Innovation Confidence Index in participating economies, 2009

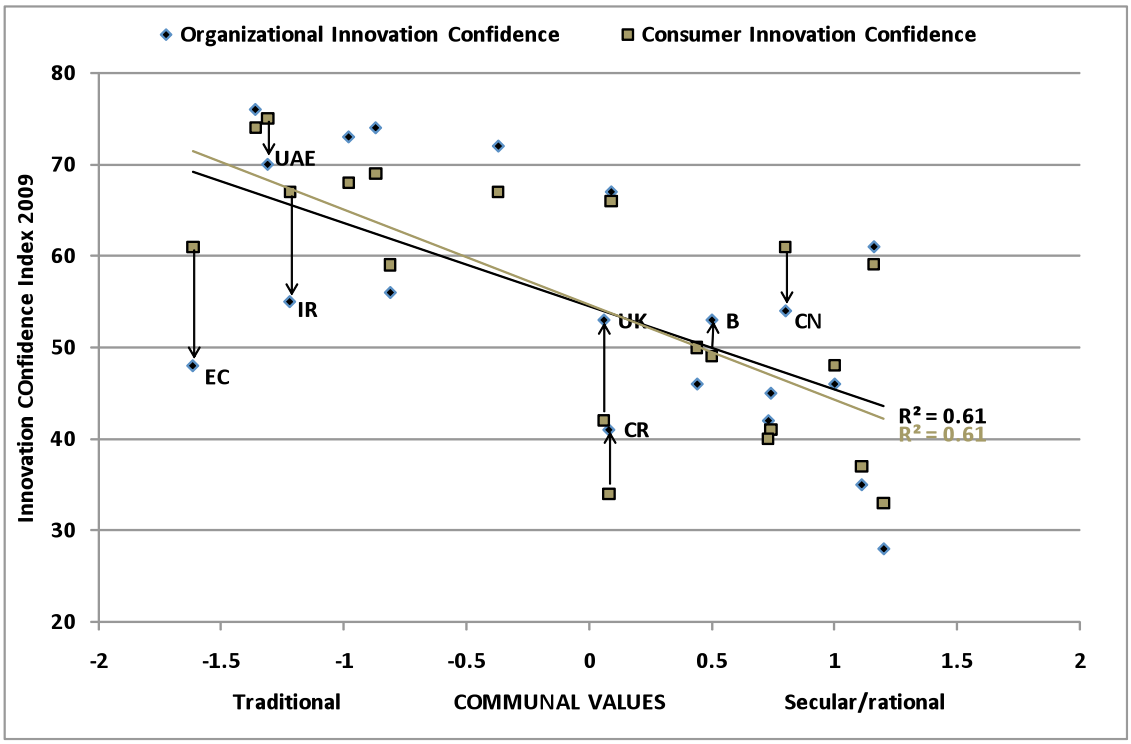
Nation	2009 IIIP Consumer Innovation Confidence Index score (rounded)	2009 IIIP Consumer Innovation Confidence Index score (rounded) (those in work only)	2009 IIIP Organizational Innovation Confidence Index score (rounded) (those in work only)
United Arab Emirates	73	**75**	**70**
Peru	71	74	76
Chile	**66**	69	74
Uruguay	66	67	72
Brazil	**64**	68	73
Spain	64	66	67
Iran	**63**	**67**	**55**
Ecuador	**62**	**61**	**48**
Denmark	59	59	61
United States	58	59	56
China	57	**61**	**54**
Iceland	50	50	46
Belgium	**48**	**49**	**53**
Shen Zhen	46	48	46
United Kingdom	**43**	**42**	**53**
Switzerland	41	41	45
Slovenia	38	40	42
Croatia	35	**34**	**41**
Korea Republic	34	37	35
Hong Kong SAR	30	33	28

Note: Bold face scores in blue mark OIC estimates that are lower than CIC estimates (in bold face black); scores in red are higher than corresponding CIC estimates.

Comparing the CIC and OIC of people in work only, significant differences were apparent in seven nations. OIC was higher than the CIC of people in work in Belgium, Croatia and the United Kingdom, and lower in China, Ecuador, Iran and the United Arab Emirates. Comparing only CIC and OIC scores for these same individuals, around 40% of economies with high CIC (greater than 50) had significantly lower OIC than CIC, and around the same percentage of economies with low CIC had significantly higher OIC than CIC. Yet no economy with high CIC had significantly higher OIC, and no economy with low CIC had significantly lower OIC. In other words, the range of OIC is less than than of CIC. Figure 11 shows this; the relationship of OIC to communal values has a slightly less steep slope than the relationship of CIC to communal values. This suggests that OIC is affected by communal values, but may also be influenced by other factors.

[23] Because the CIC and OIC indices are each calculated as the average of three different population-level estimates, the 95% confidence intervals of these estimates were calculated, and then the lower C.I. of the three estimates was averaged to calculate the lower estimate for the Index, and the higher C.I. used to calculate the higher estimate. This provides a guide to the extent to which any differences between point estimates of the Index measures might be due to sampling error.

Figure 11 IIIP Organizational Innovation Confidence Index and Consumer Innovation Confidence Index in participating economies, 2009, with trend lines and major differences between OIC and CIC estimates



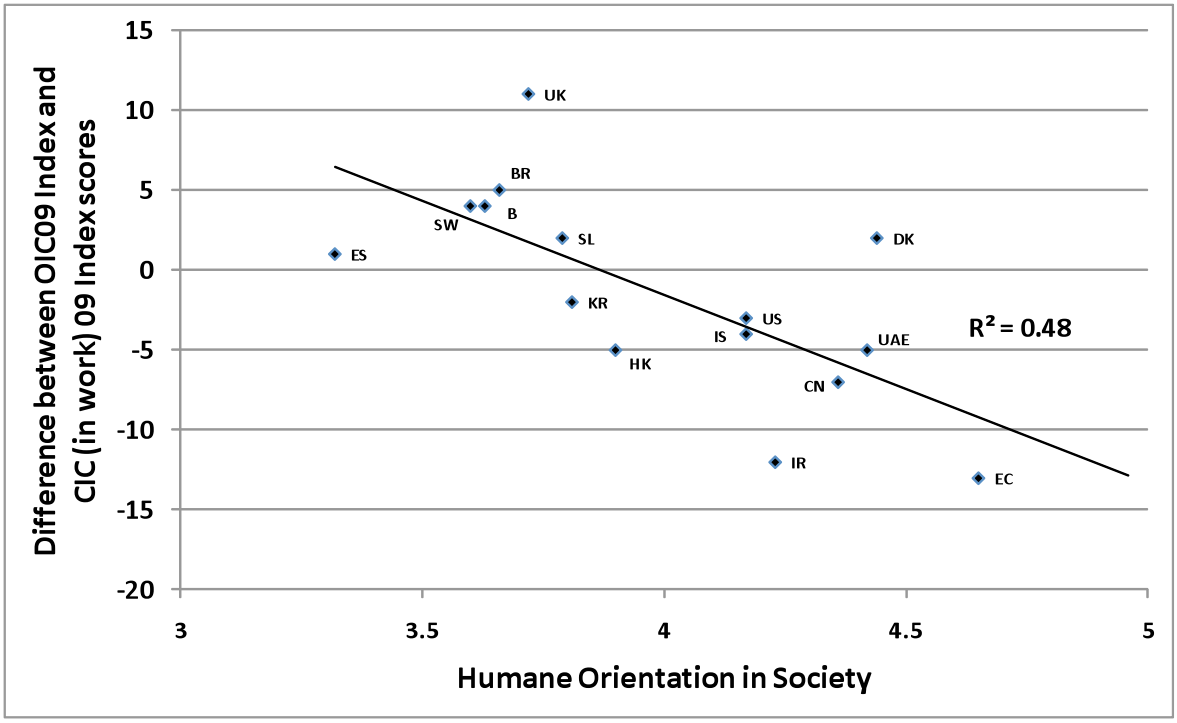
If receptivity to new product or process innovation was suppressed or enhanced for cultural reasons, one would expect a systematic difference between OIC and CIC across economies. While the sample of countries is small, and data is missing for some countries, it appears that almost half of the variance in the difference between CIC and OIC can be explained by the cultural construct described earlier: humane orientation, where leaders are motivated to consider the welfare of followers and there is a strong sense of belonging to the group. Figure 12 shows a straight line, negative association between humane orientation and difference between the CIC scores (for those in work) and OIC scores for 2009. This difference is unusually large in the UK, but CIC in the UK in 2009 was unusually low, especially among young adults[24].

Figure 12 shows that in societies with low humane orientation, OIC tends to be higher than CIC, that is, the difference between OIC and CIC is positive. In countries with high humane orientation, it is the opposite. In societies high in humane orientation, there may be concern about impact of changes in routines brought about by new products or processes on others in the organization. If there is strong "power distance" between the leaders and the led in a society where humane orientation is valued, this concern combined with the lack of autonomy afforded to workers by managers in paternalistic societies might adversely affect the introduction of new products and new technologies into organizations. This would manifest as lower receptivity to innovation within organizations than among consumers generally in that society. This might explain the significantly lower levels of OIC than CIC in Ecuador, Iran and China, for example, which score highly on humane orientation and power distance[25].

[24] The drop in CIC in the UK in 2009 was most marked among young adults. This may be related to the steep decline in availability of consumer credit in the UK in 2009.

[25] House et al., ibid. While the number of participating countries in 2009 was too small to provide conclusive evidence, power distance, while not significantly associated with the difference between OIC and CIC or to humane orientation, did significantly improve the variance explained by humane orientation alone when

Figure 12 Association between Humane Orientation of societies and the difference of OIC09 and CIC09 Indexes across 14 nations and Hong Kong.



Source of Humane Orientation (societal practice) data: House et al. (2004)[26]

The IIIP Innovation Confidence Indexes: Implications for Consumers, Government and Business

The 2009 survey of innovation confidence confirmed the general findings in the 2008 report and demonstrated systematic differences between receptivity to innovation among consumers and organizations in some societies. Both consumer and organizational innovation confidence is higher in countries with traditional values. However, innovation confidence in organizations seems to be lower than consumer innovation confidence in societies where paternalism and patronage are accepted forms of leadership.

The findings in this and earlier innovation confidence reports suggest that new products and services can have meaning to consumers and workers beyond their material utility. For those who feel powerless in society, individual consumption of new products and services may have a social-psychological value that boosts the individual's sense of identity. These findings provide opportunities for business to develop marketing communications targeting this sense of identity, but also contain dangers for consumers.

In countries with traditional values, innovation confidence is higher than one would expect among those groups that are most vulnerable, such as the young, less well educated and those dependent on others for income[27]. Undoubtedly, groups have material needs that could be satisfied by new

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entered into a linear regression from .442 to .617. This would support this interpretation. A larger sample of countries would be needed to confirm these indications.

[26] Estimates for Belgium are the average of estimates for France and Netherlands; estimates for Iceland are the average of estimates for Denmark, Sweden and Finland, and estimates for the United Arab Emirates are based on those for Qatar. Removing these three estimates reduces the Rsquare to .44.

[27] This is based on regression analyses of the 2008 data for different demographic groups. Details are available on request from the author.

technology (with mobile phones in the absence of a fixed line network being an iconic example). But individuals, facing institutional pressures to conform, may use also use new products and services as a way of asserting their self-identity. This makes such people susceptible to damage and loss from rogue businesses playing on their emotional needs and desires.

Consumer protection advocates are therefore perhaps even more important in such traditional societies, where the psychological need for new products and services is higher than in secular-rational societies. Responsible businesses may need to educate consumers more in societies with traditional values about the true costs and benefits of their products and services. Possibly, if the more vulnerable consumers were more aware of what new products and services mean to them, they might modify behaviour that involves spending on symbols at the expense of necessities. On the other hand, for some people, symbols of self-identity may be worth more than bread. Increased self-awareness of the reasons for their consumption may make for better quality consumers, not just from their own perspective but from the perspective of product or service providers.

In societies where leadership combines paternalism with patronage, the dampening effect on the adoption of innovation in organizations should be a concern to organizational leaders and to suppliers of new products and services to organizations. It places an additional burden on organizational leaders to constantly be alert for, test and propose the use of new products and processes in their organizations. An alternative is to reward recommendations for innovative change from their workforce, but cultural changes such as these may be difficult to implement. It may be much easier to do this in secular-rational societies. For suppliers exporting to such countries, the message is clear: business should be done with the most senior executives, and sensitivity needs to be shown to the needs of leaders in these societies to care for the welfare of their staff.

It is important to keep the effect of “culture” in context. While cross-cultural influences on innovation confidence have been stressed in this report, differences such as age, income, and occupation have much greater effects on individual innovation confidence than culture, as the 2008 report demonstrated. Yet culture and demographics are linked. Traditional societies tend to have larger families and thus a younger population profile. For innovative entrepreneurs aiming at consumer markets in countries with traditional values, these findings suggest their products or services might tap into the need for self-identity among less powerful groups, which might not otherwise be an obvious choice of sales target. They may find their sales are higher than they would be among these groups in secular-rational countries with similar levels of wealth. In secular-rational countries there is no significant boost from marketing to a deficiency in self-identity since individuals are relatively free to make choices and their only restriction, effectively, is time and money. Sales strategies in these countries could be more rational and/or emphasise aesthetics for enduring products or services, or be more overtly fashion-oriented for products or services with a deliberately short life cycle.

A significant fall in innovation confidence was registered in the UK among consumers but not in organizations in 2009. This fall was concentrated among younger adults and is unmatched in any other nation. So far, the UK is the only nation in which consumer innovation confidence has matched a shift in consumer confidence generally. It remains to be seen if this is an unusual event sparked by an unprecedented tightening in consumer credit in the UK, which has fallen particularly heavily on the young.

Finally, in 2009 a special effort was made to include more economies at the secular/rational end of the communal values spectrum, both in Europe and in East Asia. While the general pattern from previous years was confirmed, Denmark stands out as having unusually high innovation confidence for a secular/ rational nation. Danes have a relatively high propensity to buy new products and try new technology, even though most of them are sceptical about the ability of new products and services to improve their lives. The case of Denmark shows that receptivity to innovation, like innovative capacity, varies widely through Europe, and that broad-brush comparisons of America and Europe on this issue are simplistic.

Acknowledgements

The author is grateful to members of the Board of the Institute for Innovation & Information Productivity, the IIIP Academic Advisory Board, the Research Committee of GERA, and the following individuals for their advice, comments and encouragement during the development of the IIIP Innovation Indexes: Pia Arenius, Erkko Autio, Niels Bosma, Marcia Cole, Rebecca Harding, Mark Hart, Yana Litovsky, Michael LoBue, Virginia Lasio, Steve Lomax, Linda Marcus, Colin Mason, Maria Minniti, Mark Quill, Dick Reilly, Craig Samuel, Slavica Singer, Karen Sobel-Lojeski, and Janet Ulrich. He is also grateful to the 19 national GEM teams for participating, and for providing access to their proprietary data for this report. All participating GEM national team members are acknowledged in Appendix 1.

Appendix 1. Participating GEM national teams, sponsors and vendors

Team	Institution	National Team Members	Financial Sponsors	APS Vendor
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Chile Regional Teams: Arica y Parinacota Antofagasta Coquimbo Valparaíso Bío-Bío Araucanía	Universidad del Desarrollo Universidad Adolfo Ibáñez Univ. de Tarapacá Univ. Católica del Norte Univ. Católica del Norte Univ. Técnica Federico Santa María Univ. del Desarrollo Univ. de la Frontera - INCUBATEC	José Ernesto Amorós Daniela Ortega Germán Echecopar Carla Bustamante Vesna Karmelic Roberto Gamboa Aguilar Hernando Bustos Andreu Dante Choque Cáceres Gianni Romaní Miguel Atienza Karla Soria Cristóbal Fernández Robin Jorge Cea Valencia Juan Tapia Carlos Smith José Ernesto Amorós Daniela Ortega Carlos Isaacs Bornand Claudina Uribe Bórquez Franklin Valdebenito	InnovaChile de CORFO ICARE Área Emprendimiento, Liderazgo y TIC´s de la Universidad de Tarapacá Universidad Católica del Norte, DGIP. Gobierno Regional, Agencia Regional Desarrollo Productivo. Universidad Católica del Norte, DGIP. Gobierno Regional, Agencia Regional Desarrollo Productivo. Departamento de Industrias y Centro de Ingeniería de Mercados, CIMER, de la Univ. Técnica Federico Santa María El Mercurio de Valparaíso UDD-Facultad de Economía y Negocios. Dirección de Innovación y Transferencia Tecnológica de la Universidad de La Frontera	Opina S.A.
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GEM Global Coordination Team		Kristie Seawright Mick Hancock Yana Litovsky Chris Aylett Jackline Odoch Marcia Cole Jeff Seaman Niels Bosma Alicia Coduras		

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The techniques for measuring performance today, from factory floors to the delivery of services to the outcomes of innovation, often fall short because they do not consider the value of new technology or provide meaningful indicators to determine tradeoffs among multiple investments. The Institute for Innovation & Information Productivity was formed in 2006 to break through outmoded, industrial-age biases and redefine knowledge economy measurements for individuals, teams, firms and nations. The IIIP develops new measurements and best practices to better understand the factors affecting business and organizational performance, studies the impact of technology, and encourages a global dialogue on improving operational results.

The IIIP is a mutual benefit, nonprofit corporation. The membership and focus are global; the headquarters are located in San Francisco, California, USA. The Institute is governed by an elected board of directors, who are representatives of member companies.

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