

1 **The Management Challenge of Sustaining Competitive Advantage through Innovation in**
2 **Nigerian Business Environment**

3
4 **Abstract**

5 Organizational learning refers to the sum total of individual and collective learning through
6 training programs, experience, experimentation and work interactions within the organization.
7 Thus, sustainable competitive advantage is the ability to offer superior customer value on an
8 enduring or consistent basis, a situation in which competitors are unable to easily imitate the
9 firm's capacity for value creation. It is worrisome that most literary works have not clearly linked
10 organizational learning with sustainable competitive advantages, as is the case with intellectual
11 capacity (knowledge-based resources) using the resource-based view of the firm. A survey
12 approach was the research design used with particular reference to the South East Zone of
13 Nigeria. Findings revealed that organizational innovation leads to sustained competitive
14 advantage. The Z-statistic value with the corresponding probability value confirms that the
15 organization to a large extent draws its competitive strength jointly from the following factors:
16 creation of new products, changes in way of production, changes in architecture of production,
17 improved ways of sourcing supplies, opening new market opportunities, providing goods and
18 services that others are not yet offering or are not able to copy, being able to offer products of
19 comparable quality at a lower price, maintaining a configuration of resources and capabilities
20 that cannot easily be imitated by competitors, being able to attract customers from competitors
21 due to a positive corporate image and encouraging employees to improve their personal skills.
22 The results total Z-scores in absolute term shows that the listed factors pose challenges to the
23 organization in the process of achieving sustainable competitive advantage through innovation.
24 For further justification, we proceed to their joint significant analysis adopting the one sample Z-
25 test. The proxies employed in this study for the measurement of sustainability agreed with
26 resource-based view strategies on sustainability of competitive advantage in an unstable business
27 environment.

28 Keywords: Organizational learning, Innovation, Management, Sustainable competitive
29 advantage

30 **Introduction:**

31 Today's challenges in business Environment is not only to build innovation capacity but
32 establishing clear ways on how to sustain it (Barney, 2005:90). Learning through training is of
33 the essence so that capabilities can become stronger, evolving and more unique, thus making
34 them more difficult for competitors to understand and imitate (Autio et al, 2002:97).

35 In building and sustaining capabilities, the characteristics of the organization which
36 cannot be replicated by others make it distinctive and that which can be bought in by the

37 competition are appropriate to the attainment of set objectives (Barney, 2001:72). Focusing on a
38 model involving five essential elements and their application consistently and measurement
39 within an activity leads to a greater potential to sustain innovation and competitive advantage.

40 In the 21st-century business landscape, firms must compete in a complex and challenging context
41 that is being transformed by many factors from globalization, frequent and uncertain changes to
42 the growing use of information technologies (Denisi, Hitt and Jackson, 2003:116). Therefore
43 achieving a competitive advantage is a major pre-occupation of senior managers in the
44 competitive and slow growth markets which characterize many businesses today and the sources
45 of competitive advantage have been a major concern for scholars and practitioners for the last
46 two decades (Henderson, 1983:57; Porter, 1985:82; Coyne, 1986:102; Prohalad and Hamel,
47 1990:78; Grant, 1991:46; Peteraf, 1993:67).

48 The importance of innovation as a tool for competitive advantage and distinctive
49 competencies as determinants of a firm's success and growth has increased tremendously in the
50 last decade. This increase in importance is as a result of the belief that the fundamental basis of
51 above-average performance, in the long run, is a sustainable competitive advantage (Porter,
52 1985:213). Practitioners and academics have centred their studies on firm's specific
53 characteristics that are unique, value adding to the ultimate consumer and are transferable to
54 many different industrial settings (Coplin, 2002:87). Thus, it is understood that across sectors
55 most firms should recognize that attaining competitive advantages is the most challenging issue
56 facing firms in the 21st century. The concern has to lead to the development of resource-based
57 and knowledge-based theories that examine the relationship between core resources and
58 capabilities; sustainable competitive advantage through innovations to attain above normal
59 performance. According to Barney (2005:202), a firm is said to have a sustainable competitive
60 advantage when it is implementing value-creating innovative strategies, not being implemented
61 by any current or potential competitors. Thus sustained competitive advantages exist only after
62 efforts to replicate that advantages have failed. It is for these reasons that firms in Nigeria should
63 focus on innovative methods and strategies that will result in new product development. One of
64 such methods and strategies is organizational retooling through which an organization is capable
65 of being involved with value-adding activities by developing creative innovations, by developing
66 intellectual capital (human capital, social capital and organization capabilities) that are unique.

67 Roozenburg, (2003:73) posits that the intent of the firm is shown by its policy and the
68 strategies for fulfilling the goals become the complementary part of the policy. This was also
69 emphasized by Goh (2003:65) who noted that to remain competitive; many organizations are
70 adopting a strategy of continuous improvement. In a new product idea, two elements come
71 together: a technical possibility and a market need. The discussion on whether the development
72 should be market-pull or technology-push is in this context less important. As a result of
73 continuous improvement, employees are encouraged to learn new skills continually and to try
74 new processes and work methods in order to achieve the strategic business objectives of the
75 organization.

76 **Literature review/research gap:**

77 Theoretical Framework

78 *Organizational Learning Process*

79 Organizational learning refers to the sum total of individual and collective learning
80 through training programs, experience, experimentation and work interactions within the
81 organization. It is the acquisition, sustenance or changing of meanings shared by people through
82 collective actions and creativity (Cook and Yanow, 2006:76). However, the concept of
83 organizational growth through innovation is subject to competing formulations and is an on-
84 going activity (Stewart, 2006:107). There is a need to have a process of coordinated systems
85 change, with mechanisms built in for individuals and groups to access, build and use
86 organizational memory structure and culture to develop long-term organizational capacity. It is a
87 dynamic process of creation, acquisition and integration of knowledge aimed at the development
88 of resources and capabilities that contribute to better organizational performance (Lopez et al,
89 2005;117).

90 Precious studies (Huber 1991:87; Dale, 1994:168; Winteer, 2000:102) have proposed
91 four dimensions or phases of sustaining competitive advantage through innovation to be
92 knowledge acquisition, reliable distributive system, accurate information database and good
93 communication channels. These procedures can be used for leveraging creativity in firms thereby
94 attaining sustainable competitive advantage.

95 This implies that, when a firm acquires individual level knowledge resources (human
96 capital development) through training or experience and other learning activities, it must find a
97 way to leverage those resources to the organizational level (Deivisi, 2000:68). Otherwise, the
98 effects of these knowledge-based resources on competitiveness will be limited. This implies that
99 for an organization to benefit from the innovation process, it should put some effort into the
100 management of knowledge.

101 The increasing difference between company market value and company book value has
102 prompted academics and practitioners to consider the concept of intellectual capital as a key
103 determinant of the process of value creation for shareholders, managers and the society as a
104 whole (Viedma, 2003:68). The intellectual capital theory was initially developed as a framework
105 for analyzing the value contribution of intangible assets in an organization (Sveiby, 1997:121;
106 Edvinson and Malone, 1997:187) but recent theories include strategic perspectives that allow
107 identification and evaluation of the core competencies that help achieve sustainable competitive
108 advantage (Viedma, 2003:98). He further argued that the daily operation of firms shows that in
109 value-creation processes, all these types of intellectual capital (organizational capital, social
110 capital, and human capital) act together. These capital resources are acquired through the process
111 of organizational learning and are seen as being extremely important for sustaining competitive
112 advantage in today's competitive environment (DeNisi, 2000:147). Thus through organizational

113 learning, a firm can develop a unique human and organizational capital that is hard to imitate and
114 that evolve continuously with the firm (Amstrong, 2001:87). Armstrong argues that employees'
115 skills, knowledge and abilities (human capital) are intertwined with organizational culture to
116 form unique resources through innovation that other firms cannot acquire and apply.

117 Organizational capital arises from converting individual and collective knowledge
118 acquired through learning processes, into routines, processes and systems that help develop an
119 organizational reputation, competence and capabilities that are rare and difficult to imitate
120 (Amstrong, 2001:76). It is important to note that human capital has a symbiotic relationship with
121 organizational capital in the sense that each provides the prerequisites for one another's use and
122 development. Individual skills, collective skills and knowledge are used to develop work
123 methods and databases which in turn are used as sources of knowledge for innovative techniques
124 by individuals and groups for the attainment of competitive advantage sustainability.

125 The mobility of human capital is less a threat to competitive advantage than it would first
126 seem to be because once an organization integrates human capital with other complementary
127 resources and uses this integration to create organizational capabilities, losing one or a few
128 individuals may not lead to a loss of competitive advantage. This means that it is not enough to
129 acquire individuals who have skills, knowledge and abilities, it is also necessary to develop these
130 abilities further and use them to develop structures, systems procedures and reputation
131 (organizational capital) that allows the organization to exploit the resources and gain competitive
132 advantage (DeNisi et al, 2003). This tripartite concept of intellectual capital indicates that while
133 it is individuals who generate, retain and use knowledge (human capital), this knowledge is
134 enhanced by the social interactions and networks (social capital) to generate the institutionalized
135 knowledge possessed by an organization (Amstrong, 2001:128).

136 Organizational Learning and Sustainable Competitive Advantage

137 Alderson (2005:97) posits that firms should strive for unique characteristics in order to
138 distinguish themselves from competitors in the eyes of the consumer for a long period of time
139 (that is a sustainable competitive advantage). Thus, sustainable competitive advantage is the
140 ability to offer superior customer value on an enduring or consistent basis, a situation in which
141 competitors are unable to easily imitate the firm's capacity for value creation (Collis and
142 Montgomery, 2005:198). However, Barney (2001:58) avers that sustainable competitive
143 advantages could occur when firm's resources valuable (the resources help the firm to create
144 products and services), rare (competitors do not have access to them), inimitable (competitors
145 cannot easily replicate them) and appropriate (the firm owns them and can exploit them at will).
146 Acquiring and preserving sustainable competitive advantage and superior performance is a
147 function of the resources and capabilities brought to the competition (Aaker, 2009:38; Barney,
148 2005:89). These knowledge resources and capabilities, resulting from learning processes implies
149 an improvement in response capacity through a broader understanding of the environment
150 (Dodgson, 2003:76; Sinkula, 2004:102).

151 A superior capability to learn is critical because of the acceleration of markets and technological
152 changes, the explosion of available market data and the importance of anticipatory action. It is a
153 valuable source of competitive advantage because of its complexity, usefulness and difficulty to
154 imitate (Day, 1995; 21; Slater and Never, 1995:105).

155 The resource-based theory (Barney; 1991: 79; Prahalad and Hamel, 1990: 127;
156 Wernerfelt, 1985:98), complementing the traditional Porter's (1985) model of competitive
157 advantage stresses the importance of the resources and capabilities of the intangible resources
158 and capabilities of the firm in the context of the competitive environment (Collis and
159 Montgomey, 1995: 87). This affirms to the fact that firms who devote their internal forces to
160 exploit the opportunities of the environment and to neutralize threats while avoiding weak points
161 are likely to attain competitive advantages than those that do not do the same (Barney, 2005:84)
162 and they are able to build a good reputation.

163 Consequently, the knowledge-based view depicts firms as repositories of knowledge and
164 competencies. This implies that the organizational advantage of firms over markets arises from
165 their superior capability in creating and transferring knowledge (Ghoshal and Moran 1996:72).
166 Sequel to this, firms are able to improve their real and perceived market value.

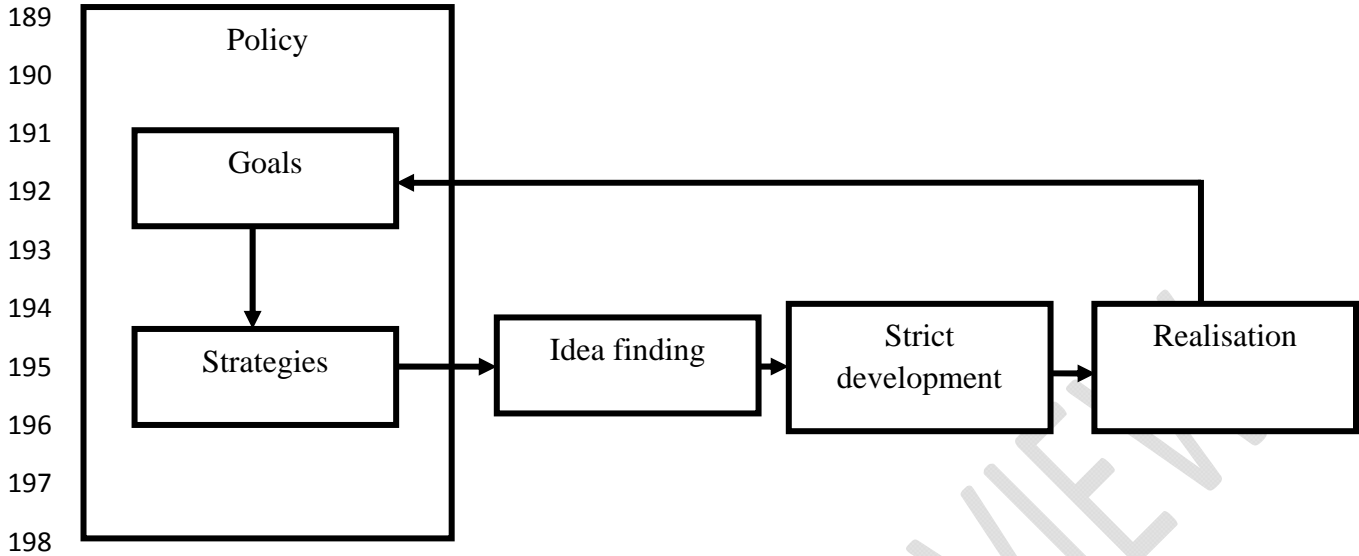
167 Therefore, accumulation of knowledge through learning constitutes a driving force in
168 development and growth of firms, because the acquisition of knowledge enhances the firms'
169 ability to sustain a competitive position (Spender and Grant, 2006:182). This added to the fact
170 that the ability to learn faster than competitors may be the only sustainable competitive
171 advantage (Stata, 2009:105) makes organizational learning a competence that all organizations
172 should develop in fast-changing and competitive environment (Garvin, 2003:78) that is being
173 witnessed today in businesses.

174 Therefore this research proposal proposes a model that links organizational innovation
175 through learning to sustainable competitive advantage through intellectual capital elements. The
176 design model will help a firm achieve above-average performance over a long period of time if it
177 pursues innovation through organizational learning strategies that lead to competitive advantage
178 and are hard to imitate. Intellectual capital with an effective knowledge management system is to
179 enhance the transfer of knowledge across the boundaries of individual, units and organizations
180 which could lead to sustainable competitive advantage.

181 Organizational Innovation and Competitive Advantage

182 Organizational innovation encompasses all activities that precede the adoption of new
183 operational procedures and processes in the structure of an organization. According to
184 Roozenburg and Eekels (1995:201), an organization that wants to innovate must know very well
185 what it wants to achieve. It must produce fruitful ideas for innovation, work them out skillfully
186 into comprehensive plans for action and then realize those plans tenaciously yet flexible. The
187 structure of innovation is shown in Fig. 1.

188 Fig. 1. Flow chart showing structure of innovation



199 *Source: Roozenburg and Eekels, 1995:201*

200 The first part of the innovation process to sustain competitive advantage is planning
201 which has two parts: 'policy formulation' and idea finding.' What an organization wants to
202 achieve is shown by its policy. The right choice of strategy is of the essence in the sustenance of
203 competitive advantage.

204 When searching for new organizational ideas, it is wise not to search at random, but first
205 to demarcate the areas in which you intend to be active. These areas are called 'search fields'. A
206 search field is a strategic idea of feature activities of a company, which is based on knowledge of
207 external opportunities (strengths). Idea finding has much in common with exploration. Its
208 success depends on the activity itself, but also strongly on luck and chance. The organization
209 policy directs the idea-finding process and provides normative information for making choices in
210 that process. Buijs (2003:81) argues that coming up with new organizational procedures and
211 processes is the responsibility of an organization to its changing competitive environment.

212 The strategy formulation stage is subdivided into six activities.

- 213 (i) Analysis of the present situation, which leads to the strategic situation of the
214 organization;
215 (ii) Internal analysis;
216 (iii) External analysis;
217 (iv) Search area generation;
218 (v) Search area evaluation; and
219 (vi) Search area selection.

220 Based on an analysis, the strategic situation of the organization is formulated. The strategic
221 need for innovation is made explicit by estimating the future corporate situation when no
222 strategic changes are made. During the internal analysis, the strategic strengths, the core
223 competencies are defined. In the external analysis, the competitive environment is analysed and

224 the opportunities and threats are made explicit. Search areas are strategic ideas for innovation
225 and potential new business opportunities. A search area is a combination of strategic strength and
226 an external opportunity. During search area evaluation, the strategic innovation ideas are checked
227 with the outside world by interviewing experts, looking at patents, observing potential
228 clients/users, etc. In search area selection, a definite choice is made. The selected search areas
229 form the starting point for the next phase.

230 An improvement path is selected based upon the strategy and business environment.
231 However, most improvement efforts to sustain a competitive advantage require some level of
232 organizational change, change management and leadership style issues to be addressed.

233 **Research method:**

234 The research design that was adopted for this research was the survey approach. The
235 survey approach focused on certain phenomenon through the use of the questionnaire, with
236 particular references to the South East Zone of Nigeria, to gather information from a sample of
237 population under study. This is because the survey seems to bring things up to date and relate to
238 the present state of events.

239 The findings of this work are discussed in the light of the set objective as follows:

240 **DATA ANALYSIS**

241 ***TABLE 1: DISTRIBUTION OF GENDER OF THE RESPONDENTS***

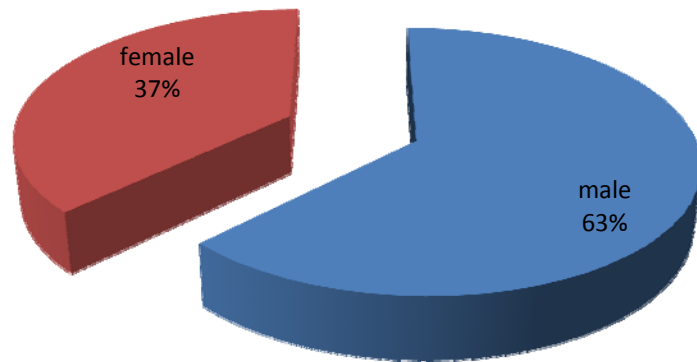
Gender	Frequency	Per cent
Male	37	62.7
Female	22	37.3
Total	59	100.0

242 ***SOURCE: Author's computation using SPSS 20***

243 **RESULTS**

244 The distribution of the gender of the respondents indicates that 37(62.7%) of the respondents are
245 males while 22(37.3%) of the respondents are females. This shows that there are more males
246 than females in the study. See Fig. 2 below for pictorial presentation

Fig. 2: Pie chart of the gender of the respondents



247

248 *SOURCE: Field Survey 2016*

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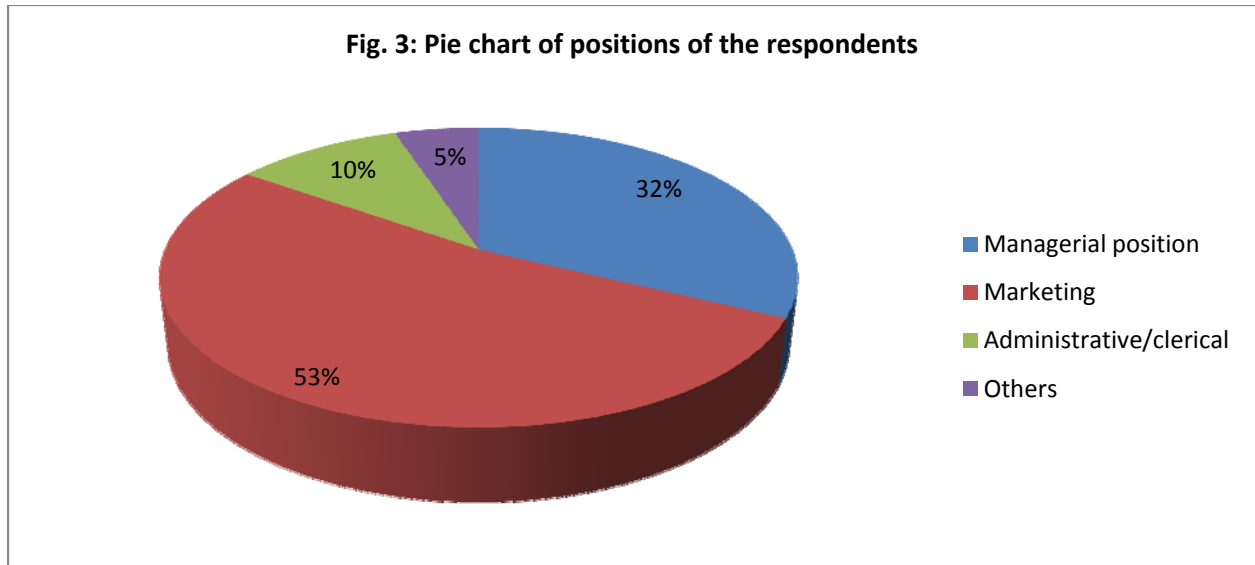
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253 **TABLE 2: DISTRIBUTION OF RESPONDENTS' POSITION**

Positions	Frequency	Per cent
Managerial position	19	32.2
Marketing	31	52.5
Administrative/clerical	6	10.2
Others	3	5.1
Total	59	100.0

254 *SOURCE: Author's computation using SPSS 20*

255 Table 2 above presents the respondents' positions. The result shows that 19(32.2%) of the
256 respondents are occupying managerial position; 31(52.5%) are marketers; 6(10.2%) of the
257 respondents are administrative/clerical officers while 3(5.1%) of the respondents are occupying
258 other positions which were not highlighted in this study. The result, therefore, shows that most of
259 the respondents are marketers. Fig 3 presents the pie chart.



260

261 *SOURCE: Field Survey 2016*

262

263 **TABLE 3: Descriptive statistics of the length of service of the Respondents**

	n	Min	Max	Mean	Std.	Skewness	Kurtosis
LENGTH OF SERVICE	59	1	10	4.71	2.407	.313	-.408

264 *SOURCE: Author's computation using SPSS 20*

265 The descriptive statistics above indicate that the average length of service of the
 266 respondents is 4-5years with a standard deviation of 2-3years. The minimum year of service of
 267 the respondents is 1year while the maximum is 10years. The Skewness and Kurtosis which
 268 measures the peakedness and departure from normality of the dataset indicate that the length of
 269 service of the respondents is skewed to the right without excess kurtosis.

270 **Discriminant Analysis**

271 The study utilized Fisher's function of discrimination presenting the degree of correct and
 272 wrong classification of the variables under study. From the discriminant result, we have the
 273 Box's M which ascertains an equal covariance matrix of the factors. The result here shows that
 274 the factors have equal population covariance matrices (Box's M = 4.131; p-value = 0.152).

275

276

277 **Table 4.** Box's Test of Equality of Covariance Matrices

Test Results	
Box's M	4.131
Approx.	1.892
F	2
df1	430.178
df2	.152
Sig.	

Tests null hypothesis of equal population covariance matrices.

278 *Source: Researcher Extract from SPSS output*

279 The canonical correlation with a coefficient value of 0.951 shows that the factors
 280 considered in the study explain about 95.1% of the organization's problems. This is significant as
 281 it was confirmed in the table of Wilks' Lambda.

Table 5. Test results showing Wilks' Lambda

Test of Function(s)	Wilks' Lambda	Chi-square	df	Canonical correlation	Sig.
1	.096	32.762	2	0.951	.000

282 *Source: Researcher Extract from SPSS output*

283 The Fisher's Function and classification result indicates that about 64.7% of the original
 284 group cases were correctly classified hence can be subjected to further analysis. The results are
 285 as shown below

Table 6. Functions at Group Centroids

group	Function
	1
competitive strength	-2.148
aspect of innovation	-1.937
factor	3.762

Unstandardized canonical discriminant functions evaluated at group means

288

Table 7. Classification Results showing factorial measures

	group	Predicted Group Membership			Total	
		competitive strength	aspect of innovation	factor		
Original	Count	Competitive strength	3	3	0	6
	%	Aspect of innovation	3	2	0	5
		Factor	0	0	6	6
		Competitive strength	50.0	50.0	.0	100.0
	Aspect of innovation	60.0	40.0	.0	100.0	
	Factor	.0	.0	100.0	100.0	

a. 64.7% of original grouped cases correctly classified.

289 *Source: Researcher Extract from SPSS output*

290 **Table 8(a): Sources of Competitive Strength of the Organization**

Source	VLE (%)	LE (%)	U (%)	SE (%)	VSE (%)	Mean	Std.
Sales volume/Market share	48(81.4%)	11(18.6%)	0(0.0%)	0(0.0%)	0(0.0%)	4.81	0.39
Product Quality/Innovation	47(79.7%)	12(20.3%)	0(0.0%)	0(0.0%)	0(0.0%)	4.80	0.41
Customer service/Care	20(33.9%)	31(52.5%)	8(13.6%)	0(0.0%)	0(0.0%)	4.15	0.72
Length of existence/Firm History	30(50.8%)	21(35.6%)	3(5.1%)	5(8.5%)	0(0.0%)	4.23	0.91
Brand Appeal	36(61.0%)	21(35.6%)	2(3.4%)	0(0.0%)	0(0.0%)	4.72	0.86
Firm Size	17(28.8%)	21(35.6%)	5(8.5%)	13(22.0%)	3(5.1%)	2.39	1.26
Cluster mean						4.18	0.76

291 **Note:** VLE = Very Large Extent; LE = Large Extent; U = Undecided; SE = Small Extent;

292 VSE = Verv Small Extent: VLE = 5: LE = 4: U = 3: SE = 2: VSE =1

293 draw its competitive strength to a large extent from sales volume; product quality/innovation;
 294 customer service/care; length of existence/firm history and brand appeal but not largely from
 295 firm size.

296

297 **Table 8(b). Factors showing mean and Z-score of variables**

FACTORS	Mean	Z-score	Critical value @ 0.05
SV/MKT	4.81	0.67730	1.96
PROQ	4.80	0.66649	1.96
CS&C	4.15	-0.03603	1.96
LEX	4.23	0.05044	1.96
BRAP	4.72	0.58003	1.96
FS	2.39	-1.93824	1.96
Total		3.948530 2	

298 *SOURCE: Author's computation using MINITAB 14*

299 The results above with Z-scores (in absolute term) > 1.96 shows that the organization
 300 draws its competitive strength individually from the factors. Hence, we take a further look at the
 301 joint statistics.

302 **Table 8(c). Z-Test results of studied factors**

Test of mu = 0.000 vs mu > 0.000						
The assumed sigma = 1.00						
Variable	N	Mean	StDev	SE Mean	Z-stat	P
Cluster mean	6	4.183	0.925	0.408	10.25	0.0000

303
 304 The Z-statistic value of 10.25 with the corresponding probability value of 0.0000 < 0.05
 305 confirms that the organization to a large extent draws its competitive strength jointly from the
 306 listed factors.

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313 **Table 9(a): Extent of Aspects of Innovation**

Aspects of Innovation	VLE (%)	LE (%)	U (%)	SE (%)	VSE (%)	Mean	Std.
Creation of new or improved goods and services that are launched to the market	48(81.4%)	5(8.5%)	0(0.0%)	0(0.0%)	6(10.2%)	4.19	1.02
Changes in the way in which goods and services are produced	34(57.6%)	11(18.6%)	3(5.1%)	5(8.5%)	6(10.2%)	4.05	0.58
Changes in the architecture of production	45(76.3%)	3(5.1%)	5(8.5%)	0(0.0%)	6(10.2%)	4.33	1.01
Improved ways of sourcing supplies of raw inputs or intermediate goods and services	42(71.2%)	5(8.5%)	0(0.0%)	6(10.2%)	6(10.2%)	4.21	0.55
Opening up new market opportunities	48(81.4%)	3(5.1%)	0(0.0%)	2(3.4%)	6(10.2%)	4.50	0.61
Cluster mean						4.26	0.75

314 **Note:** VLE = Very Large Extent; LE = Large Extent; U = Undecided; SE = Small Extent;
 315 VSE = Very Small Extent; VLE = 5; LE = 4; U = 3; SE = 2; VSE = 1

316
 317 The cluster mean value of 4.26 > 3.0 (likert average) indicates that the aspects of
 318 innovation contribute positively to a large extent to the achievement of long term competitive
 319 advantage.

320 **Table 9(b) Mean and Z-score of variable factors**

FACTORS	Mean	Z-score	Critical value @ 0.05
Creation of new products	4.19	-0.39109	1.96
Changes in way of production	4.05	-1.22067	1.96
Changes in the architecture of production	4.33	0.43849	1.96
Improved ways of sourcing supplies	4.21	-0.27258	1.96
Opening new market opportunities	4.50	1.44584	1.96
Total		3.76867	

321 **SOURCE:** Author's computation using MINITAB 14

322 The results above with Z-scores (in absolute term) > 1.96 shows that the respondents do
 323 not agree to a large extent that the listed aspect of innovation contributes positively to the
 324 achievement of the organization's long term competitive advantage.

325 **Table 9(c) Z-Test results for studied factors**

Test of mu = 0.000 vs mu > 0.000						
The assumed sigma = 1.00						
Variable	N	Mean	StDev	SE Mean	Z-stat	P
Cluster mean	5	4.256	0.169	0.447	9.52	0.0000

326
 327 The Z-statistic value of 9.52 with the corresponding probability value of 0.0000 < 0.05
 328 confirms that the listed aspect of innovation to a large extent contribute positively to the
 329 achievement of the organization's long term competitive advantage.

330

331 **Table 10(a) Extent of Aspects of Innovation**

FACTOR	VLE (%)	LE (%)	U (%)	SE (%)	VSE (%)	Mean	Std.
Providing goods and services that others are not yet offering or are not able to copy	32(54.2%)	0(0.0%)	0(0.0%)	9(15.3%)	18(30.5%)	3.32	1.87
Being able to offer products of comparable quality at a lower price because cost of production is lowest in the industry	32(54.2%)	5(8.5%)	0(0.0%)	17(28.8%)	5(8.5%)	3.71	1.55
Maintaining a configuration of resources and capabilities that cannot easily be imitated by competitors	32(54.2%)	0(0.0%)	0(0.0%)	3(5.1%)	24(40.7%)	3.22	1.97
Being able to attract customers from competitors due to a positive corporate	32(54.2%)	2(3.4%)	6(10.2%)	3(5.1%)	16(27.1%)	3.53	1.77

image							
Encouraging employees to improve their personal skills so that they can learn and develop	29(49.2%)	5(8.5%)	6(10.2%)	3(5.1%)	16(27.1%)	3.47	1.74
Encouraging employees to share their on-the-job experiences with their colleagues so that people learn from other experiences	34(57.6%)	6(10.2%)	0(0.0%)	13(22.0%)	6(10.2%)	3.83	1.54
Cluster mean						3.51	1.74

332

Note: VLE = Very Large Extent; LE = Large Extent; U = Undecided; SE = Small Extent;

333

VSE = Very Small Extent: VLE = 5; LE = 4; U = 3; SE = 2; VSE = 1

334

335 The cluster mean value of 3.51 > 3.0 (likert average) indicates that the above factors pose
336 challenges to the organizations as it concerns achieving sustainable competitive advantage
337 through innovation. Particularly encouraging employees to share their on-the-job experiences
338 with their colleagues so that people can learn from other experiences pose most challenges
339 followed by the organization's ability to offer products of comparable quality at a lower price and
340 lastly by maintaining a configuration of resources and capabilities that cannot easily be imitated
341 by competitors.

342 Table 10(b) Mean and Z-score of variable factors

FACTORS	Mean	Z-score	Critical value @ 0.05
SV/MKT	3.32	-0.84053	1.96
PROQ	3.71	0.85502	1.96
CS&C	3.22	-1.27528	1.96
LEX	3.53	0.07246	1.96
BRAP	3.47	-0.18839	1.96
FS	3.83	1.37672	1.96
Total		4.6084	

343 **SOURCE:** Author's computation using MINITAB 14

344 The results above with total Z-scores (in absolute term) > 1.96 shows that the listed
345 factors pose challenges to the organization in the process of achieving sustainable competitive
346 advantage through innovation. For further justification, we proceed to their joint significant
347 analysis adopting the one sample Z-test.

348 **Table 10(c) Z-Test results for studied**

Test of $\mu = 0.000$ vs $\mu > 0.000$						
The assumed sigma = 1.00						
Variable	N	Mean	StDev	SE Mean	Z-stat	P
Cluster mean	6	3.513	0.230	0.408	8.61	0.0000

349
350 The Z-statistic value of 8.61 with the corresponding probability value of $0.0000 < 0.05$ implies
351 that the listed factors mentioned above collectively pose to a significant extent challenges to the
352 organization in the process of achieving sustainable competitive advantage through innovation.

353
354 **DISCUSSION**

355 The results above with Z-scores show that the organization draws its competitive strength
356 individually from the factors. Hence, we took a further look at the joint statistics. The Z-statistic
357 value with the corresponding probability value confirms that the organization to a large extent
358 draws its competitive strength jointly from the listed factors.

359 There are further indications that the surveyed aspects of innovation contribute positively
360 to a large extent to the achievement of long term competitive advantage. The results further agree
361 to a large extent that the listed aspect of innovation contribute positively to the achievement of
362 the organization's long term competitive advantage. These sources according to our findings
363 include Creation of new products, Changes in way of production, Changes in production
364 architecture, improved ways of sourcing supplies and opening of new markets.

365 **CONCLUSION**

366 Conclusively, the surveyed factors jointly and severally represent sources of innovation
367 that essentially leads to a strong competitive advantage.

368 The cluster mean value indicates that the surveyed factors pose challenges to the
369 organizations as it concerns achieving sustainable competitive advantage through innovation.
370 Particularly encouraging employees to share their on-the-job experiences with their colleagues so
371 that people can learn from other experiences pose most challenges followed by the organization's
372 ability to offer products of comparable quality at a lower price and lastly by maintaining a
373 configuration of resources and capabilities that cannot easily be imitated by competitors.

374 The results total Z-scores in absolute term shows that the listed factors pose challenges to
375 the organization in the process of achieving sustainable competitive advantage through
376 innovation. For further justification, we proceed to their joint significant analysis adopting the
377 one sample Z-test.

378 The Z-statistic value with the corresponding probability value implies that the listed factors
379 mentioned above collectively pose to a significant extent challenges to the organization in the
380 process of achieving sustainable competitive advantage through innovation.

381

382 **Theoretical and practitioner implications:**

383 The proxies employed in this study for the measurement of sustainability agreed with
384 resource-based view strategies on sustainability of competitive advantage in an unstable business
385 environment. This has not been explored by prior researchers.

386 However, there is a dearth of empirical evidence on such a study in the area of
387 geography. The test statistic used in data analysis is an improvement over what prior research
388 findings employed.

389 **Disclaimer: - This manuscript was presented in a Conference.**

390 **Conference name: Los Angeles International Business & Social Science Research Conference ,**
391 **California,USA, At California, USA**

392 **July 2017 USA**

393 **Available link: -**

394 **<https://www.researchgate.net/publication/325253553> The Management Challenge of Sustaining Co**
395 **[mpetitive Advantage Through Innovation in Nigerian Business Environment 1](https://www.researchgate.net/publication/325253553)**

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