Determinants of Management Innovation in the Ghanaian Construction Consulting Sector

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Abstract

Determinants of management innovation (MI) within the Ghanaian construction consulting sector are examined. A sample of 70 consulting firms is surveyed using self-administered questionnaires. Data are analysed using descriptive statistics and factor analysis. Findings indicate that determinants of MI were interwoven among seven principal factors viz: community and market demands; financial and business management practices; human resource policies; creativity and organizational strategies; corporate social responsibility; prevailing conditions; and competitive leverage. The study adds to the discourse on evolution of innovation within the global consulting sector generally, while providing reference for practitioners and academics in the field with respect to MI determinants more specifically. It is envisaged that practitioners who adopt these findings in the construction consultancy sector would enhance their ability to provide innovative services to clients. Study recommendations include that future research should explore how innovation is diffused within consulting enterprises' value chains.

Keywords: Determinants, management, innovation, construction, consulting.

Paper Type: Research article

Introduction

Innovation is an important global business resource at both organizational and individual levels (Waychal, *et al.,* 2011). Amabile (1988) described it as the successful implementation of creative ideas within an organization, while Tidd *et al.,* (2001) suggested that innovation creates opportunity as a result of such. Birkinshaw *et al.*, (2008), added to this discourse by defining 'management innovation' as the invention and implementation of management practices, techniques or structures that are intended advance organizational goals.

Numerous commentators have extolled innovation in terms of its ability to create value, achieve incremental improvement to systems or products and ultimately, reduce costs (Drucker, 1995; Mohanty, 1999; Radjou, 2006; Owusu-Manu, *et al.,* 2012). Both Ashkenas (1998) and Mohanty (2006) contended that superior performance, competitive advantage, profitability and sustainability are all commensurate with an innovative culture – which in turn, underpins business survival (Holt, 2013). Studies on the adoption of organizational innovation have increased (Brockman and Morgan, 1999) and within those, two major classifications abound:

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managerial and technological. One distinction between these is that they require different types and amounts of organizational resources for successful implementation (Damanpour, 1988). For instance, Damanpour and Evan (1984) explained *technological innovations* as involving tangible changes, typically requiring physical alteration to a product, service or production process. In contrast, *management* innovation (MI) relates indirectly to work activities, resulting in change to organizational policies, responsibilities, processes, or routines. Hamel (2006) espoused MI as a marked departure from traditional principles, which can significantly alter the way management is performed, while Birkinshaw *et al.*, (2008) suggested this brings significant positive impact on productivity and efficiency (Hamel, 2000).

The changing business environment is forcing organizations to continually innovate and therefore, compete effectively. A key factor here is the ability to quickly adapt and meet strategic goals (Rasli, 2004). Hence, technology and management-enabled innovation grows; additionally driven by said competition, regulatory change, end users' demands and environmental agendas (Sorensen and Maultzsch, 2000). This in turn encourages research and development (R&D) (Damanpour and Schneider, 2006). But the literature suggests that most R&D is dedicated to understanding how organisations can stimulate technological innovations (and their interplay with business processes). MI remains under-researched and the determinants affecting it in the consulting sectors of developing countries, is particularly sparse in this respect.

Emerging knowledge advocates the benefits of MI and accentuates its importance to firm performance, both as a complement of technological innovation (Damanpour *et al.,* 2009) and as an independent phenomenon (Mol and Birkinshaw, 2009). The aim of this study therefore, is to identify the key determinants of MI that will be useful in driving innovation in the Ghanaian construction consultancy sector and accordingly, the following research questions were posed: What are the market demand related determinants of MI?; What are the human resources related determinants of MI?; and What management practices encourage MI in construction consultancy sector? It is envisaged that the results will provide clarity on the role of MI in this sector, whilst highlighting methods of MI adoption pertinent to the Ghanaian context.

Conceptualization of Management Innovation (MI)

MI proponents refer to the introduction of management practices, processes and structures that further organizational goals (Birkinshaw, *et al.,* 2008; Mol and Birkinshaw, 2009; Damanpour, *et al.,* 2009). Whilst Rasli (2004), Damanpour and Schneider (2006) and Owusu-Manu *et al.,* (2012) concluded that MI systematization is a critical business success factor. Hamel and Breen (2007) asserted that most businesses recognise continuous improvement *vis-a-vis* continuous innovation, so they know how to improve but not how to be different. MI involves transformation of institutional culture to enable integrated, organizational performance improvement involving technological, product and process innovation (Damanpour, *et al.,* 2009). MI changes how managers work, such that it enhances organizational performance and is conceptualized as exhibiting differences in form, quality or state over time of management activities – where change is a departure from 'tradition' (Hargrave and Van de Ven, 2006). In organizational terms, Birkinshaw *et al.*, (2008) espoused MI as the generation and implementation of management practice, process, structure or technique that is state of the art and furthers organizational goals.

Hamel (2006) identified twelve facets of innovation that can influence management: scientific studies (e.g. time and motion); cost accounting and variance analysis; commercial research (industrialization of science); investment analysis and capital budgeting; brand management; project management; divisionalization; leadership; multi-company collaboration; radical decentralization; formalized strategic analysis; and employee-driven problem solving. Thus MI is inextricably linked to the way companies allocate capital, motivate employees, organize activities, create strategies and set priorities. It can also solve organizational problems resulting from

perceived presence, of at least one of four conditions: structural economic changes (bureaucratization of organizational mechanisms); transformation of ownership with increase in size or complexity; labour unrest; and external pressures or opportunities.

The Birkinshaw *et al.,* (2008) framework comprised four MI phases: motivation; invention; implementation; and theorization. *Motivation* is concerned with facilitating factors that lead individuals to innovate whilst *invention* is the act of experimentation from which new practice emerges. *Implementation* establishes the value of innovation *in vivo*, while *theorization* legitimises MI. These phases build upon the intra-firm evolutionary perspective propounded by Burgelman (1991), who advanced that MI is shaped by the conscious actions of key individuals, whilst recognizing 'unintended' individuals' influences and random organizational change.

O'Mahoney (2010) outlined five crucial MI types occurring in the consulting sector. *Modification to existing services* is the most common, followed by *changes to internal processes* that improve the way a firm is run. *New thought leadership* is founded on differentiation – based on the way firms 'think'. *New consulting products and services* is the creation of same which are new to the market. The final type is *changes to internal structures.* Consulting MI is initiated either *formally* or *informally* (*op cit.*) and not normally developed without clearly articulated, market demand.

Consulting Typologies and their need for MI

Consulting refers to firms helping others improve performance, through analysis of problems and development of solutions. It may represent cross-fertilization of best practices, analytical techniques, change management and coaching skills, technology implementation, strategy development, or the simply an outsider's perspective (Owusu-Manu, *et al.,* 2012). It represents an 'advisory' service provided by specially trained and qualified persons who assist the client organisation in an objective and independent manner (Greiner and Metzger, 1983). Within the literature, two typologies of consultancy are identified: management consulting and engineering/ technical consulting (Pittinsky and Poon, 2005). *Management consultancy* includes provision of services as broadly defined above. *Engineering consultancy* is the application of physical laws and principles of engineering to a broad range of activities in the areas of construction, manufacturing, mining, transportation and environment (Consultancy Development Centre, 2006).

Consultants as individuals can be segmented into various categories. The 'mental adventurer' analyses intransigent problems. The 'strategic navigator' relies on a quantitative understanding of the market and competitive dynamics. The 'management physician' seeks a deeper understanding of the internal dynamics of a client organization, often sacrificing objectivity to gain a realistic perspective on what is achievable. The consulting profession, can be segmented into: independent consulting firms; autonomous/ semi-autonomous government organizations; universities/ research institutes; firms forming part of, or otherwise affiliated to, contractors or manufacturers; firms combining consultant functions with those of contractors/ manufacturers and individuals (Laufhütte, 2004). Consulting demand increases with economic development (Weller, 2001), stemming from a diverse range of clients – so consultancy business is directly proportional to economic activity (Consultancy Development Centre, 2006).

Consultancy of an intellectual nature embraces: preparation (master plans, feasibility, design); implementation (tenders, procurement assistance, supervision, quality management, commissioning); and advisory services (policy and strategy, reorganization/ privatization, institution building, training/ knowledge transfer, management advice and technical/ operating advice). Other services may be seen as: pre-investment studies (pre-feasibility and feasibility studies, regional or sectoral planning, policy and investment priorities) (Jobeus and Sikorski, 2000); engineering and design studies (preparation of drawings, specifications, detailed cost

estimates and tender documentation); and implementation or supervision (in accordance with contract, expenditure control, certification, etc.).

Advancements in consulting have evolved from research; a notable example being the models of consultation proffered by Schein (1990) and Naarmala and Tuomi (2006). Other developments have emphasized how consultants should engage clients (Nees and Greiner, 1985) to strive for relationship optimisation (Appelbaum and Steed, 2003). However, problems persist relating to the sector's lack of harmonization, structure, unionization and innovation. For instance, its absence of an innovative pricing framework is a specific challenge (Owusu-Manu *et al.,* 2012).

Research Method

The study analysed primary (questionnaire) data to derive the determinants of management innovation in the construction consultancy sector of Ghana using a sample of consulting Architects, Engineers, Quantity Surveyors and Project Managers. These individual categories represent the population of Ghanaian construction consultants. The questionnaire utilized closed-ended questions, to explore determinants by measuring respondents' perceptions of same on a series of Likert items, where: 1 = not important (determinant); 2 = some importance; 3 = average importance; 4 = high importance; and 5 = very high importance. This combines quantitative (numerical perception, representation and statistical analysis) with subjective (underlying individuals' perceptions) approaches (Holt, 2014).

Sampling Technique and Sample Size

Consultants within the sample were involved in the management of buildings, roads, civil engineering, water, sanitation, mechanical installation and quantity surveying projects and held a minimum of five years practical experience or more. All were registered with professional bodies in the Kumasi metropolis of Ghana. Snowball sampling was used; initially engaging with consultants who were most visible and subsequently accessing their networks to signpost additional participants (within the catchment area who met sample inclusion criteria). This 'snowball and convenience' sampling process continued until a representative sample size of 70 respondents was obtained.

Data Preparation and Statistical Tools

Oppenheim (1992) suggested a checklist of routines for analysing quantitative data. This includes: assigning numbers to instruments; giving each entry a name; entering them into a statistical package; producing a two way matrix of variables versus responses; assigning respondents unique serial numbers; and coding data for statistical analysis. Bryman (2004) noted the need to first identify the type of variable(s) and data to determine appropriate analytical methods. In relation to this, individual responses were processed and entered into the Statistical Packages for Social Sciences for (descriptive and Factor) analysis. Factor analysis was used to analyse interrelationships among the large number of issues identified in the literature and to explain these in terms of underlying dimensions.

Given 20 possible MI variables involved in this study (Table 1), it was suspected that some may yield the same or similar underlying effects. The factor analysis data reduction technique was therefore chosen to establish which of the variables could be measuring aspects of the same dimension (Field, 2005a; DeCoster, 1998). According to Ahadzie (2007), factor analysis is appropriate for establishing clusters of related variables and thus, ideal for reducing a large number into a more easily understood structure. It is also a way of condensing information contained in original variables, into a smaller set of dimensions (factors) with minimum information loss (DeCoster, 1998).

Table 1: Variable Definitions (Determinants of MI)

Variable	Determinants of MI in the Ghanaian Consulting Industry
• Financial pressure to decrease the cost of assignment/ project.	Increasing pressure to decrease the cost of services, projects delivery and cost of construction inputs/ outputs.
• Increased efficiency in service provision to clients.	Drive to improve efficiency thereby maximizing profits competitive advantage and enhancing project delivery.
• Increased competition among consultants in the construction sector.	Increasing number of competitors resulting in firms distinguishing themselves through innovative services/ methods.
• Providing value in service delivery to clients.	To meet the expectations of clients such as quality and value for money (VfM).
• Adhering to strict regulations in service provision to clients.	Governing a firm's activities (e.g. in respect to providing high quality services to clients).
• Providing service to meet industry/ community needs.	Continually adapting services and products to meet the ever changing needs and trends of society and adapting more environmentally friendly/ sustainable development.
• Increased demand for accountability.	Accountability from both clients and society as a whole, in respect to high quality services and value for money
• Corporate and social responsibility.	Responsibility of consultancy firms in relation to their community, their client base and the nation as a whole – giving back to the community, i.e. doing 'good'.
• Changes in clients' expectations regarding services provided to them.	Constant changes in clients' demand, preferences and taste.
• Improving the quality of service provided to clients.	Improving the quality of services to clients, by continually learning about customers, to understand trends and expectations.
• Availability of technologies.	Ability of the company to acquire and access technologies/ knowledge exogenously.
• Level of autonomy.	The level of freedom and responsibility given to employees.
• Good communication skills.	Well defined and established systems, management commitment to innovative communication.
• Type of recruit.	Appropriate qualifications and experience of all employees.
• Research and development.	Resources committed.
• Creativity in service delivery to clients.	Generating essential ideas for management innovations.
• Organization structure.	The way tasks are assigned (organization chart), how people co-operate, the flow of material and information, process management, how decisions are made (decision structure), how things are coordinated (deliberation structure).
• Willingness to take risk by exploring new business areas.	Boldness to venture into new fields.
• Attendance at workshops/ seminars.	Continual professional development of employees through constant training and attending workshops/ seminars.
• Professional workforce.	Professional registration and affiliation of employees to respective recognized professional bodies.

Data Analysis

Factor analysis (FA) is reliant on the correlation matrix of the variables involved (see Table 2). A large sample size is usually required for correlations to stabilize. Consequently, FA reliability is also dependent on (adequate) sample size. As a rule of thumb, a minimum of 10 observations per variable is necessary to avoid computational difficulties (*ibid.*). Conducting pre-FA is a routine task to check inter-correlation between variables because although variables have to be inter-correlated, they should not do so strongly (extreme multi-colinearity and singularity); this would cause difficulties in determining unique contributions to a factor (Field, 2005a). In SPSS, intercorrelation is checked for using the KMO test and Bartlett's test of spherity, while multicollinearity is detected via the determinant of the correlation matrix.

Table 2: Correlation Matrix

	FP	IE	IC	PC	SR	ICN	IDC	CSR	SMC	REP	AT	LA	GCS	TR	RD	CR	OR	WTR	AWS	PW
FP	1.00																			
IE	.04	1.00																		
IC	.27	.39	1.00																	
PC	-.05	.37	.13	1.00																
SR	-.24	.32	.01	.40	1.00															
ICN	.11	.00	.15	.33	.36	1.00														
IDC	.07	.21	.28	.40	.39	.39	1.00													
CSR	.07	-.17	.09	.22	.33	.19	.49	1.00												
SMC	.08	-.12	.21	.22	.52	.25	.48	.59	1.00											
REP	.44	.06	.30	.17	.03	.49	.52	.12	.26	1.00										
AT	.03	.33	.18	.12	.62	.11	.35	.13	.35	.12	1.00									
LA	-.30	-.24	-.03	.03	.055	.20	.21	.20	.24	.22	.01	1.00								
GCS	-.27	-.00	.02	.01	.104	-.30	.12	.29	.21	-.13	.20	.17	1.00							
TR	-.20	.09	.03	.08	-.03	.05	.27	.10	.04	.10	.28	.44	.35	1.00						
RD	.56	.15	.34	.10	.17	.04	.46	.56	.42	.40	.43	-.13	.08	.09	1.00					
CR	.12	.48	.17	.29	.10	-.16	.39	.22	.00	.12	.25	-.12	.23	.41	.42	1.00				
OR	.06	.35	.29	.39	-.04	.11	.29	-.13	.10	.29	.05	.09	-.04	.28	.06	.48	1.00			
WTR	.43	-.17	-.12	-.14	-.23	-.14	.08	.25	-.06	.12	.07	-.12	.263	.28	.53	.47	-.06	1.00		
AWS	.00	.01	.22	.37	.08	.49	.36	.24	.20	.46	.00	.35	-.22	.38	.19	.23	.44	.06	1.00	
PW	.14	.10	.18	.27	.09	.33	.45	.32	.18	.39	.21	.21	-.00	.61	.41	.43	.21	.37	.75	1.00

Determinant = 2.50E-007

The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was calculated; where the literature recommends a value of KMO >0.5) (Child 1990). For this study, data related to 20 variables (refer Table 1) and the KMO test was 0.529 (Table 3); confirming their being appropriate for analysis. Bartlett's test was highly significant ($p<0.001$) and therefore, FA was appropriate in this respect also. The determinant of the matrix is used in testing for multicollinearity or singularity and this, or the R-matrix should be greater than 0.00001. From Field (2005b) if less than this, then variables that correlate at R>0.8 should not be included. The determinant of the correlation matrix in this analysis was less than 0.00001, (2.72E-005) so no two variables correlated very highly (maximum R = 0.73).

Table 3: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy:		0.52
Bartlett's Test of Sphericity:	Approx.Chi-square	691.65
	df	190
	Sig.	0.00

After satisfying tests of reliability of survey instrument, sample size and population matrix data were subjected to FA using principal component analysis (PCA) with varimax rotation. Prior to this, communalities were first established. Communalities show how much of the variance among variables is accounted for by the extracted factors and is useful in deciding those to finally extract. Table 4 shows that the average of the communalities of the variables after extractions was >0.60.

Table 4: Communalities

Determinants	Initial	Extraction
Financial pressure	1.0	.843
Increase efficiency	1.0	.822
Increase competition	1.0	.709
Provide value	1.0	.758
Stricter regulations	1.0	.925
Industry and community needs	1.0	.756
Increased demand for accountability	1.0	.674
Corporate and social responsibility	1.0	.856
Social and market changes	1.0	.784
Raising client expectation	1.0	.713
Availability of technology	1.0	.882
Level of autonomy	1.0	.762
Good communication systems	1.0	.768
Type of recruits	1.0	.875
Research and development	1.0	.879
Creativity	1.0	.866
Organization structure	1.0	.730
Willingness to take risks	1.0	.874
Attendance to workshops	1.0	.831
Professionalized/ accredited workforce	1.0	.831
Extraction Method: Principal Component Analysis		

Using the Guttman-Kaiser rule and the Cattell scree test, the next phase determined underlying data constructs. Guttman-Kaiser suggests that only those factors with eigenvalues >1 should be retained, whilst the Cattell scree test (Figure 1) suggests that all further components after the one starting the 'elbow' should be excluded – accordingly seven components were highlighted.

Table 5 shows the total variance explained by each extracted component, from the first principal component that accounted for 25.43 per cent; to the seven extracted components combined that cumulatively explained 80.69 per cent of variation in the data set. This meets the cumulative proportion of variance criterion, which states that the extracted components should together explain at least 50 per cent variation (Field 2005a).

Components Detection and Extractions

Appropriating the results to varimax rotation, the rotated component matrix suggested seven principal components akin to that of the component matrix in Table 6. Norusis (2000) proposed that rotation suggests the behaviour of the variables under extreme conditions and maximizes the loading of each on one of the extracted factors whilst minimizing the loading on all others. Numerous commentators maintain that rotated factor solutions are the best for interpreting results of PCA (Ahadzie, 2007; Owusu-Manu and Badu, 2009).

Varimax (orthogonal) rotations were selected as suitable from its counterpart oblimin (oblique) rotations, as the conventional rule states there were no established theoretical grounds to suggest

that the factors correlate. The next step sought to determine the presence of a complex structure among the variables – which is present when a variable has a factor or component loading greater than 0.50 on more than one component) (Kline, 1994).

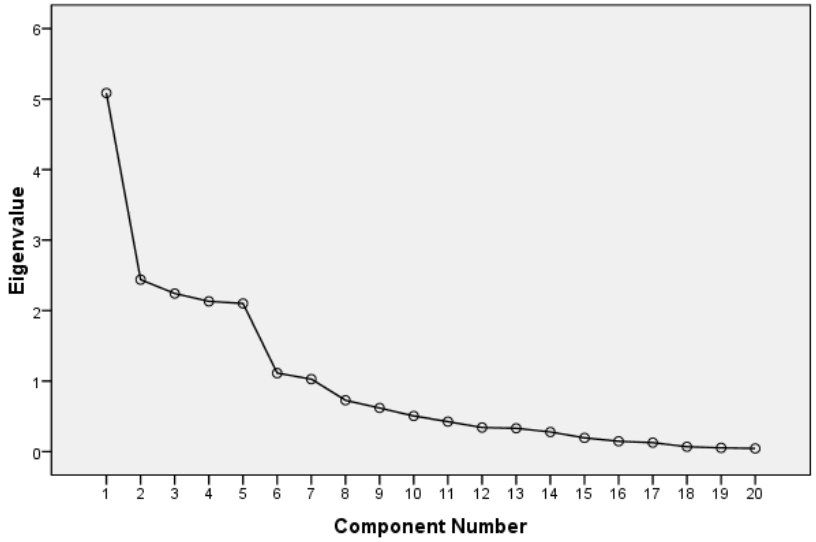

Figure 1: Scree Plot

Table 5: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings	
	Tot.	% Variance	Cum. %	Tot.	% Variance
1	5.086	25.430	25.430	5.086	25.430
2	2.439	12.194	37.624	2.439	12.194
3	2.242	11.211	48.835	2.242	11.211
4	2.131	10.654	59.489	2.131	10.654
5	2.101	10.505	69.995	2.101	10.505
6	1.113	5.563	75.558	1.113	5.563
7	1.028	5.139	80.697	1.028	5.139
8	.728	3.639	84.336		
9	.619	3.093	87.430		
10	.505	2.527	89.957		
11	.425	2.127	92.084		
12	.342	1.708	93.791		
13	.331	1.655	95.446		
14	.278	1.390	96.836		
15	.194	.972	97.808		
16	.146	.729	98.537		
17	.127	.635	99.172		
18	.068	.342	99.513		
19	.053	.265	99.778		
20	.044	.222	100.000		

Extraction Method: Principal Component Analysis

Table 6: Component Matrix

MI Determinants	1	2	3	4	5	6
Financial pressure	.236	.602	-.346	.099	-.536	.063
Increase efficiency	.310	.021	-.197	.733	.371	-.016
Increase competition	.419	.060	-.255	.331	-.087	.586
Provide value	.510	-.338	-.130	.281	.162	-.244
Stricter regulations	.432	-.493	.438	.430	-.114	-.299
Industry and community needs	.462	-.482	-.312	-.123	-.354	-.223
Increased demand for accountability	.793	-.128	.091	.041	-.074	.071
Corporate and social responsibility	.551	.023	.501	-.215	-.318	-.041
Social and market changes	.555	-.268	.413	-.004	-.391	.249
Raising client expectation	.599	.013	-.399	-.151	-.317	.210
Availability of technology	.490	-.025	.395	.389	.031	-.062
Level of autonomy	.244	-.446	.113	-.590	.171	.308
Good communication systems	.134	.143	.681	-.073	.364	.341
Type of recruits	.461	.056	.104	-.404	.627	.033
Research and development	.662	.521	.174	.114	-.353	.016
Creativity	.560	.462	.017	.210	.493	-.123
Organization structure	.437	-.044	-.463	.155	.422	.260
Willingness to take risks	.266	.787	.165	-.315	.015	-.241
Attendance to workshops	.644	-.222	-.426	-.386	.100	-.146
Professionalized/ accredited workforce	.734	.122	-.163	-.358	.176	-.272

Table 7: Rotated Component Matrix

MI Determinants	1	2	3	4	5	6
Financial pressure	-.012	.639	-.364	-.119	.263	-.089
Increase efficiency	-.256	-.018	-.134	.642	-.063	.493
Increase competition	.101	.000	-.017	.210	.017	.106
Provide value	.330	-.141	-.040	.736	.268	.088
Stricter regulations	.456	-.229	-.081	.189	.158	.751
Industry and community needs	.240	-.130	.102	.024	.800	.165
Increased demand for accountability	.554	.146	.233	.332	.235	.247
Corporate and social responsibility	.872	.279	.073	.037	.003	-.001
Social and market changes	.815	-.060	.063	-.054	.075	.220
Raising client expectation	.191	.229	.188	.016	.541	-.004
Availability of technology	.132	.151	.152	.008	-.037	.892
Level of autonomy	.269	-.311	.729	-.181	.117	-.105
Good communication systems	.352	.049	.359	.029	-.707	.109
Type of recruits	-.062	.207	.873	.185	-.072	.160
Research and development	.435	.714	-.080	.059	.055	.253
Creativity	.028	.530	.201	.688	-.216	.144
Organization structure	-.076	-.054	.240	.680	.091	-.141
Willingness to take risks	.051	.894	.164	-.046	-.134	-.087
Attendance to workshops	.168	.106	.488	.355	.633	-.143
Professionalized/ accredited workforce	.136	.477	.557	.283	.429	.104

Table 7 indicates that the seven components had more than one variable loading on them, thus resulting in two components being retained. What remains is the interpretation of the underlying dimension or construct of seven principal extracted components. Based upon examination of inherent relationships among those variables under each component, the interpretations discussed below were inferred as representing their underlying dimensions.

Discussion

Component 1: Community and Market Demands

Variables comprising component 1 largely border on community and market demand expectations of clients in relation to consulting and hence, it was labelled such. The component accounted for 25.43 per cent total variance (Table 5). Table 7 shows respective eigenvalues of these variables: *corporate social responsibility* (0.87); *social and market changes* (0.81); *and increased demand for accountability* (0.55). *Corporate social responsibility* (CSR) of MI is connected to the way companies integrate social, environmental, and economic concerns into their values and operations.

Social responsibility of consulting firms (in relation to the aspirations of the communities they serve) is defined by some CSR proponents as representing both business and community imperatives. This embraces satisfying demands in respect to services rendered and intangible contributions to society. *Social and market changes* is espoused in terms of fluctuations in demand and in order for consulting firms to sustain such, they must meet these demands whilst also innovating their services. *Increased demand for accountability* is concerned with growing demands of clients and society; mainly in terms of offering value. Hence, MI relates not only to new ideas and services, but is intrinsically linked to remaining competitive. Contextually, co*mmunity and market demands* as a determinant of MI emphasises a changing business environment and consultants' interface with the community in which they operate.

Component 2: Business Management Practices

Component 2 accounted for 12.19 per cent of the remaining variation. Table 7 shows that variables loaded onto it comprised of *willingness to take risks* (0.89); *research and development* (R&D) (0.71); and *pressure on consulting firms to decrease cost* (0.63). These three variables relate to issues of business management practices, hence, the component's label. *Willingness to take risks* relates to readiness to develop and implement innovations. This naturally encourages *research and development* – the formal research polices adopted by consulting firms that enhance (or implement) new methods and technologies. There is growing evidence that companies committed to R&D as an innovation driver reap rewards in sales growth and stock market value.

The *financial pressure to decrease cost* is not surprising; while there will always be a trade-off between cost and other client demands, consultants' objectives should be to sell their services such that they balance these demands with those of business survival. The component *financial and business management practices* represents a need to meet with increasing demands of fluctuating markets through value maximization and cost reduction, whilst achieving business goals (e.g. effectiveness, efficiency, profit maximization). Stemming from this, firms are continually seeking innovative ways of meeting the financial demands of both share- and stakeholders. Delbecq and Mills (1985) found that highly innovative organizations freely support such financially to fuel creativity.

Component 3: Human Resource Policies

The third component – comprising human resource policy variables, accounted for 11.21 per cent of total variance not explained by the first two components. Three variables loaded onto component 3 included *types of recruits*; *high levels of autonomy*; and *professional accreditation* recording respective eigenvalues of 0.87, 0.72 and 0.55. The implication here is that creative human capital underpins organizational innovation. The *type of recruit* is explained in terms of how employees' qualifications and experience impact innovation – analytical and creative minds feed much more positively into the process. *High levels of autonomy* relate to empowered and highly motivated people. When employees are encouraged to develop their own ideas, innovation often results. A

professional and accredited workforce relates to employees' registration with professional bodies that too (for instance, via continual profession development) can enhance human capital. Martinsons (1995), Youndt *et al.,* (1996) and Collins and Clark (2003) confirmed that innovation depends heavily on these employees' characteristics.

Component 4: Innovation Drivers

This component accounted for 10.65 per cent total variance not explained by the former three components. It encompasses four variables: *increased efficiency* (0.64); *organisational structure* (0.680); *creativity* (0.**688**); and *providing value to clients* (0.73). The component's variables have the inherent potential to drive innovation in the management of construction consultancy. *Increased efficiency* concerns optimised service delivery, profit, competitive advantage and enhanced project delivery through innovative mechanisms. *Organisational structure* suggests that the more permeable and organic the firm's structure, the greater is its potential to nurture MI. The way in which tasks are assigned, how people co-operate, information management, decision making, activity co-ordination and the infrastructure supporting these combined greatly impact MI promotion.

Creativity concerns the initiation of original ideas and from an MI viewpoint, calls for divergent thinking. Thus, MI is knowledge-driven (how do we apply new knowledge?) and vision-driven (this is our goal, what new knowledge do we need?). *Providing value to clients* is impacted by the latter's expectations that generally call for ever improving service delivery. Hence, firms that focus on their demanding customers (by solving their problems and adding value) in turn nurture innovation. The capacity to do this and produce radical, discontinuous innovation is increasingly seen as the new competitive organisational competency. Most theorists agree that organization structure can be designed conducive to innovation (Kanter, 1998; Hamel, 2006).

Component 5: Image Enhancement

Component 5, whose variables concerned image enhancement, accounted for 10.50 per cent total variance with three variables loaded onto it: *industry and community needs* (0.80); *good communication systems* (0.70); and *attendance at workshops and seminars* (0.63). *Good communications systems* underline their importance in enabling management to reinforce and control innovative ideas, while *attendance at workshops and seminars* centres on employees' continual professional development. Keeping abreast of appropriate new developments and technologies, encourages meaningful people contributions to the innovation movement. With businesses focusing on profits, sustainability was not a concern until recently, but in an era of globalization, destructive or unethical practices are bad for business. Increased media attention, pressure from non-governmental organizations and rapid global information sharing encourage the general public – including consumers – to favour sustainable corporations. Most companies now recognise that important ethical issues are inextricably linked to their image.

Component 6: Existing/Prevailing Conditions

The sixth component accounted for 5.56 per cent of total variance not explained thus far. Two variables loading onto it were: *availability of technology* (0.89) and *strict regulations* (0.75). The former relates to ability of a company to acquire and maximise current technologies and access to external knowledge. Such can impact positively upon the innovative capabilities of a firm. Similarly, s*trict regulations* concern how organisational governance controls commercial activity.

Conclusions

While research into innovation evolves principally around technological advancements, much less has critically examined management innovations (MI). This is particularly evident within the context of the Ghanaian consulting industry. A need to proffer sustainable methodologies to improve organizational efficiency of consulting firms stimulated this research which departs from the more traditional, technological focus. The study confirmed both convergent and divergent views in MI conceptualization and formalises MI as: *the invention and implementation of a management practice, process, structure, or technique that is new to the state of the art; is intended to further organizational goals; and involves the introduction of novelty in an organization that brings with it positive organizational change.*

Within the present global business environment, MI significance cannot be ignored. It can facilitate the attainment, or maintenance of a pre-eminent market position; encourage superior performance; nurture competitive advantage; and as a result, help maintain profitability. Exploring the MI determinants within the Ghanaian construction consulting sector, revealed that seven principal factors shape MI viz: community and market demands; financial and business management practices; human resource policies; creativity and organizational strategies; corporate social responsibility; prevailing conditions; and competitive leveraging. This framework highlights a culture of continuous MI as being essential for successful consulting organizations. The findings presented should be of utility to consulting firms seeking to exploit innovative management solutions, as a means to improve their business performance.

Limitations of the study relate to the boundaries of sample size and its geographic focus. While findings are specific to Ghana, the seven factors established may be more broadly applicable, but further research will need to confirm such. It is also recommended that further investigation is undertaken to: determine how innovation is diffused within the entire value chain of consulting enterprises; verify the relationship between MI and the identified MI determinants; and operationalize management innovations in the context of Ghanaian consulting industry.

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