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Does Innovation Type Influence Firm Performance? A Dilemma of Star-Rated Hotels in Ghana

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Abstract: Innovation, which leads to process changes and product development, tends to increase the sustenance of companies and helps firms to expand faster and more effectively, eventually more profitably than non-innovators. Innovation is commonly seen as a key source of sustainable competitive advantage in a changing environment. However, the success of the hospitality industry relies a lot on how well they gear their innovations towards preserving the natural and cultural attractions that make tourist/customers to visit their destinations. This study, therefore, is empirically designed to explore how innovation types, which include process, product, marketing, and organizational innovation, impact performance of hotel firms in Ghana. With top-level managers being our target respondents, 680 star rated hotels were purposely sampled from the hospitality industry, among which 550 hotel firms provided valid and accurate responses. Data obtained from the survey through the administration of a well-structured questionnaire was analyzed through SPSS statistical package. Through the estimation of series of regression models using the Hierarchical regression method of analysis, we witnessed that process, product, marketing, and organizational innovation employed as innovation types have palpable and statistically significant liaison with performance of hotel firms in Ghana. We, therefore, conclude that, for hotels to achieve high firm performance, personnel within the firm should be encouraged and empowered to develop innovative mentalities and abilities. In addition, hotel firms and the industry at large should be abreast of current trends of sustainability and endeavor to gear their innovation operations towards a more sustainability-oriented firm since incorporating sustainable innovative strategies into firms' operations will not only create a good image and reduce cost but would also safeguard the natural attractions that guests patronize.

Keywords: innovation types; product innovation; process innovation; marketing innovation; organizational innovation; firm performance; star rated hotels; sustainability; hierarchical regression

1. Introduction

Increased global and regional uncertainties have forced companies to decide whether to build or retain competitive advantage through innovation. A rapidly evolving world with frequent sudden changes makes it imperative for firms to develop their innovation capabilities [1,2]. Innovativeness is not only of interest to practitioners but has also attracted considerable academic attention, especially in investigating the impact of multiple innovation types on the performance of firms. In the midst of innovation types, process and product innovations are often discussed. Given rapid technological transition in recent decades, industries often experience changed goods or improvements in the way they are made [3]. The increasing interest in innovation was expressed in studies limited almost

explicitly to its technological aspects until the late twentieth century. Even so, the emergence of studies involving innovation [4,5] takes into account non-technological innovation or innovation's effect on the service sectors' firm performance [6,7]. Innovation can be classified as technological, as in the context of product and process innovations, or as non-technological innovation, mostly in the field of marketing and organizational innovations, as per Reference [8]. Arguably, research has been carried out on forms of innovation which assumes that each type affects different variables, and their effect on organization output varies. In reality, the main explanation for innovation is that businesses seek to achieve greater market success and improve their competitive advantage. According to the degree of importance they offer to developments, which are essential factors for businesses to develop a reputation in the marketplace and thus to grow their market share, businesses gain additional competitive advantage and market share.

While innovation tends to be associated with performance improvements, researchers remain uncertain in making a sweeping statement that innovation as a whole has a positive impact on firm performance [9,10]. Bloch and Metcalfe [11] claim that the competitive structure of firms fades away in an unstable conformation with little development when the flow of novelty and inventions desiccates. Therefore, innovation plays an important role in creating output and competition gaps between companies, regions, and countries. Research by Reference [12], for example, revealed that innovative nations have higher efficiency and revenue than less innovative ones. In fact, the impact of innovations on company performance varies across a wide range of industries. Ref [13,14] explored the connection between the success of companies and their experience with innovation empirically. In order to achieve greater competitive advantage, they discovered that the desire of businesses to innovate played a critical role in the competitive climate. González Álvarez and Argothy [15] also examined the impacts of major developments on various corporate performance metrics, such as accounting profitability, stock market yield rates, and corporate growth. The observed direct effects of innovation on corporate performance have been shown to be relatively small, and the benefits of innovation are more likely to be indirect. Innovative businesses, however, tend to be less vulnerable than non-innovative companies in terms of cyclical sectoral and environmental pressures. Reference [5,16,17] indicate that process innovation, specifically, is more effective and better able to help businesses [17] evidence back up the reverse claims. While literature has integrated many dimensions of innovation, little has been done to explore the effect on firm results, at least in a developing world environment, concerning the relationship between marketing and organizational innovation in addition to process and product innovation. An analysis of the impact that marketing and organizational innovation have on the performance of the hospitality industry, specifically hotels, in growing economies is important because innovation in developing countries appears to be dictated more by foreign direct investment, as well as external transfers of technology, than by integrated capability or domestic research expenditure compared with counterparts in more advanced economies [18].

The outcomes of innovation are also evaluated in many studies in terms of technological outputs, such as the quantity of development projects, increased revenue from existing products, or the amount of new product launches [19]. This emphasis, therefore, is obvious as it specifically applies to the effects of innovation. Nevertheless, the effect of innovation types on performance in general (for instance, overall revenue, income, or market share of all products/services, etc.) may also be considerably measured. Innovation is not only in order to enhance one or two products but can also impact product/service spectrum for companies. Thus, to fill this void, the present study will pursue answers to the question of how innovation types, which include process, product, marketing, and organizational innovation, influence the overall performance of firms (hotels), rather than innovation outputs. To Reference [19], a firm's innovation ability is invariably a significant way by which they can contribute to productivity and growth. From a comprehensive review, for the survival and sustainability of businesses and firms, in general, innovation is crucial. Present-day scholars claim that firms which do not take part in innovation put themselves in great risk [20]. Some argue that, as competition has become intense and product life cycles short-lived, a firm's ability to engender

innovation would be vital in improving firm performance and maintain a competitive edge [21]. Again, vulnerability to varying customer needs, tastes and preferences, new technologies, shortened product life cycles, and increased global competition exist [22].

Truly, there are innovations that take place in Ghanaian businesses, in both public and private sectors, manufacturing, and service sectors, as well through external innovation support programs or internal efforts to promote innovation. Yet, there is the need for extra effort regarding innovation for survival, growth, and sustainability in the present day highly competitive environment [23]. As part of the efforts, research directed toward innovation becomes of essence in establishing knowledge of innovation in a systematic, order to provide a practical and professional guide to owners, managers, and the government. Further, sustainability (the careful use of resources in a way that they are not depleted or damaged) plays an essential role in the hospitality industry [20]. In the past few years, hospitality industry practitioners are redefining their thinking process to coincide with a more continuous existence of the business, society and the environment at large. The hotel industry, particularly, has been moving toward being linked to technological and digital advancements for decades and is seeking to become even more personalized, connected, responsive, and tailored to the individual experience. In recent decades, major swings have been seen through the incorporation of not only technology but also scientific growth. During these years, the traditional ways or formats have given way to computers and intranets to establish a presence to assist in controlling systems compatibility with human direction [24]. Hotel outlets utilizing the latest technology mediums are paving the way for the future of the prospective consumers. The future of hotels furnished with expressive and empathetic listening skills permits more consciousness for sustainability in the markets. According to Reference [25], sustainability-oriented innovation relates to changing philosophy and organizational values, as well as product, processes, or practices, in order to attain specific purposes of creating and realizing social and environmental value, beyond economic returns. Reference [23] asserts that sustainable innovative practices make hospitality firms to be exceptional. Thus, in recent times, travelers, hotel clientele, restaurant patrons, and shoppers have become sustainability conscious. They care to know that the establishments they do business with carry out environmentally, socially, and economically sound practices.

Hence, hotel firms have realized the importance of adopting various innovation types in order to sustainably minimize negative social and environmental impacts that result from their activities and, consequently, achieve superior performance. Emphatically, society itself is demanding that organizations innovate in products, services, processes, and business models, to be accompanied by the responsibility for sustainable development. Such innovations contribute to business sustainability since it has a potential positive effect on a company's performance, in general [26]. In effect, such innovations greatly consider environmental and social aspects, as well returns [23]. Interestingly, various leading players in the hospitality industry have emphasized the importance of technological innovation in improving efficiency across the sustainability spectrum. The 2013 webpage of the Intercontinental Hotel Group, for instance, stressed its focus on pursuing to "innovate concepts and technologies" and reports that "it is committed to designing, building and operating more sustainable hotels through innovation". However, industry [20] suggested "much of the literature on sustainable consumption has focused upon technological solutions" and claims that advocates of technological solutions argue that more intelligent design and technological innovation can dramatically reduce or even stop the depletion of the ecological resources, as well as eliminate toxic chemicals and ecosystem disruption.

The study's significance cannot be overlooked. First, the findings of this study would help guide hospitality industry authorities, specifically hotels, to unveil effective strategies for innovation management that would boost the overall value of their businesses. Second, the study results will help policymakers devise tailored policies and initiatives that will positively encourage the growth and sustainability of the country's hotel firms in terms of innovation. The survey, finally, adds more up-to-date empirical evidence to Ghana's existing innovation-based literature. This is of tremendous value for the academic field because it is a guide for students and researchers who may want to examine

this current topic more closely. Different from other studies conducted in other developing countries pertaining to innovation-performance nexus, this current study contributes to existing literature in two main folds in the following manner;

(i)   Most empirical studies on innovation and business performance in emerging economies often examine the effect of process and product innovation as innovation types and firm performance. Nonetheless, only a handful of these studies take into account issues pertaining to omission of variable biasness (OVB). As reported by Reference [27], the aforementioned issue occurs when one or more variable(s) which is/are of more relevance is/are omitted from a specified model. Thus, in this our study, we would like to extend the work done by writers, such as, Albort-Morant, Henseler [28], Ramadani, Hisrich [29], Ueasangkomsate and Jangkot [30], whose writings have contributed immensely to the innovation phenomenon in recent times, mostly covering only process and product innovation. In extending this line of writing, we, in this current study, posit that, in as much as process and product innovation have been well espoused to lead the innovation study, we believe that organizational and marketing innovation hold the key to complement the complex model/web of innovation studies that contribute to firm performance, while being mindful of the continuous existence and preservation of the natural environment.

(ii)   The final contribution is that we perform investigations on innovations in Ghana, a developing country in West Africa, to be specific, that has gained relatively robust growth concerning strong focus on technological change for sustainability. Precisely, though Ghana and other developing countries in Africa, in general, rely heavily on innovation, a handful of research studies on innovation types have been conducted for these economies, to the best of our knowledge. Thus, we provide a concrete breakdown of the types of innovation, rather than just a composite index of innovation, to shed some light on the type of innovation star-rated hotel firms in Ghana may prioritize.

2. Literature Review

2.1. Research Background

Innovation literature suggests innovation is imperative as it is the source of success and continued existence for the company in such a highly dynamic and intellectual environment, but relatively little attention has been paid to innovation in the service sector [31]. Research into particular characteristics and problems in the insurance industry has, until recently, been very restricted and untested in contrast to the finance sector. A service sector is also distinct and is generally recognized as businesses that are not the same as each other when designing new business model or product or service process. For instance, according to Reference [32], as cited in Reference [33], they can be distinguished with regard to the type of service or activity and the extent of contact amid the service organization and the customers. Most scholars believe that service sector innovation has different characteristics from the manufacturing industries, as per Reference [32], and is mostly perceived as non-technological [31]. In addition, service sector innovation usually deliberates two factors, radically or incrementally, either of which are the launch of a utterly new product or service to the business or individually and the reconfiguration or enhancement of current services [34]. According to Reference [35], this can be modified in the manufacturing sector in issues, like the products or goods a business sells, and changes the manner in which they produce and distribute, and they refer to these as product and process innovation. However, in services, differences between product and process tend to draw a quite blurred picture. Due to the in-service product and process, innovation takes place spontaneously. Nonetheless, depending on the industry you are involved in, some service industries can apply this approach, but this may be entirely or slightly inapt to others [36], for example, in the insurance industry, where a company can introduce novel products which comes with added coverage, including additional bonuses or some additional benefits, such as foreign tours. That can be justified as innovation in the process.

Innovation will only come about if the business has the potential to innovate [37]. Innovation ability is understood to be the essential assets for an organization to achieve and maintain competitive lead and to execute an all-inclusive strategy; Reference [38,39] claim that it is composed by the company's key method and cannot be differentiated from others. This is implicit and non-modifiable, and closely related to experimental learning and internal interactions [40,41]. Innovation ability allows it to be easier for companies to rapidly launch new goods and implement new technologies, as well as is a significant factor in feeding ongoing competition. Quality in innovation may be defined as a combination of assets and resources. Hence, driving performance in a rapidly changing environment needs a wide variety of capital, assets, and skills [31,42,43]. According to Reference [44], as stated in Reference [31], innovation capacity is defined in four key ways: (1) the ability to develop innovative products that meet consumer needs; (2) the ability of suitable technology processes to manufacture those innovative products; (3) the ability to create and implement new products and processing technologies to meet future needs; and (4) the ability to adapt to unintended technologies and unexpected opportunities. Pang and Lu's [45] suggestions indicate that the success of organization exists within various hierarchical structures that reflect financial performance and operational performance, such as market share, as well as efficiency. Several research studies have focused on the effect of innovation and firm results. Relation between creativity and success in the organization is predominant. Past work has shown that the findings are always mixed. They swing between positive and negative outcomes. Innovative performance serves as a function mediator between styles and facets of performance. Innovation has a clear and direct effect on the efficiency of the organization. Positively related to innovation and innovative success, political, market, and development success serve as a mediator for their direct positive effects. Innovation policy is the main organization's success measure [45,46].

2.2. Hospitality Industry in Ghana

Ghana has been identified as one of the countries in Africa with a promising market for hospitality operations, such as hotels. This supposes that the growth of the hospitality industry in Ghana is substantial and advantageous for investors [47]. Ghana has a stable government and economy, which infers more safety, and offers a conducive environment for business establishment. In recent times, owing to globalization and urbanization, there has been a proliferation of hospitality operations, including hotels, and these have become a preference for Ghanaian people [48]. The hospitality industry is growing fast, and luxury chains from around the world, like Kempinski from Switzerland and Marriot, have opened hotel branches in Ghana since the year 2016. The Annual Ghana Social report 2016 has it that about 8 million of Ghana's population have an online existence and use mobile and internet technology. Social media permeation is up to about 40% [49]. This indicates the growth of technology, which is an innovation in Ghana. Ref [50] explained how innovation can be a great tool in improving the customer service experience. They expounded that innovation, if harnessed and used, can improve customer retention and profitability in businesses and that, to sustain relevance, firms must keenly innovate their goods and services [50]. It is therefore vital to understand how innovation can enhance the performance of hospitality firms in Ghana.

A research conducted by the Ghana statistical service discovered that the hospitality industry was one of the main contributors to economic activities in the service sector of Ghana [51]. Ghana keeps realizing sustainable means of developing and harnessing its tourism potentials to draw foreign and local visitors alike. Lately, the Tourism Ministry, with its implementing agency, the Ghana Tourism Authority (G.T.A.), continues to introduce and develop tourism-related programs and innovations to sustain interest and increase incomes within the sector, while being mindful that they are environmentally, socially, and economically responsive [52,53]. Innovations, such as the use of social media for travel decision-making by international tourists in Ghana, was assessed, and it was seen that travelers considered such innovative platforms introduced by hospitality firms as very worthwhile for travel and stay experiences [53]. They further ranked social media use to find out how it was faring as an innovation in the hospitality industry in Ghana, and their findings echoed the growing interest,

acceptance, and potential of social media as an innovation for business organizations, including hotels in Ghana [53].

2.3. Research Framework

This empirical study was essentially aimed at investigating the connection between the types of innovation and the explicitly star-rated hotels in Ghana with firm performance. Schumpeter [54], in theory, gave a conventional explanation for the positive correlation between innovation at the firm level and firm efficiency. Therefore, he argued that creative new goods face minimal competition at the initial stages, thereby allowing companies to make comparatively large profits. As a result of imitation and competition, these high profits are likely to decline after a while, but companies that continually introduce new products may realize new innovative products, as well as services, may achieve consistently higher profitability. Innovation is the major engine of productivity growth in service firms, according to Reference [55], but non-technological factors of service innovation are still considered very significant. Four kinds of innovation, comprising product, process, organizational, and marketing innovation, have been implemented, according to the Organization of Economic Cooperation and Development (OECD) [56] report. Product and process innovation closely related to technological innovations can be considered as the use of high-tech plant and equipment, especially in the service industry term of technology. The Oslo manual [56] definition may also be applicable to service innovation [57]. In line with our objectives, this research adopts the four-dimensional model of service sector innovation, covering two technological and two non-technological dimensions, as suggested by different authors [7,58–60].

The four dimensions of innovation are product innovation, process innovation, organizational innovation, and marketing innovation, as described below. Product/service innovation incorporates new product or service with dramatically enhanced performance features, such as technological design, and integrated software to meet the main customer needs better than the current product [7]. Service products' main characteristic is intangible, and new service product creation is called service product innovation [61]. Product/service innovation is a key success driver that provides the opportunity to grow into the new market and sectors [62,63] and helps businesses to dig up opportunities to gain an extraordinary profit and have a path to profit [64]. It is critical for service firms to continually update their operating system, business model, and value proposition in response to the drastic changes in customer–centric culture and increasingly technology-driven economy. They should also consider pursuing ongoing comprehensive product or service transformation, legacy structure, and business processes to accelerate sales growth, financial stability to enhance customer experience, and fend off rising competition [31,65]. Process innovation is the implementation of new or considerably enhanced methods of development or distribution changes in equipment, human resources, and working practices or a combination of these, such as implementing new or improved software to speed up the process of claim resolution and policy issuance [56], can be considered. Schumpeter emphasized the innovation processes as the implementation of new product or service strategies, or new methods of selling the product or service. Innovation in processes may affect efficiency, productivity growth, or competitiveness [66]. The process is needed to provide goods or services, which are not specifically paid for by the consumer. System innovation should, therefore, be an innovative shift in the act of manufacturing or distributing goods that substantially enables the value provided to the stakeholders to be increased [19,67,68]. Marketing innovation is the introduction of new marketing strategies involving major improvements in product design, product positioning, and product promotion or pricing [7]. Marketing innovation's main purpose is to better meet consumer needs, enter new markets, or place a company's product on the market with the intention of growing company revenue. Cuevas-Vargas and Parga-Montoya [69] analyzed the effect of private commercial banks in Jordan on marketing innovation. Based on their results, marketing innovation has been shown to have a beneficial impact on the development of long-term competitive advantage and the growth of companies. In addition, it is critical that managers align

themselves with the strategy and understanding of marketing innovation by companies to create sustainable growth. Organizational innovation is "the introduction of a new form of management in the corporate process, management, or external relations of the firm" [63]. Organizational creativity will lead to improved business efficiency by reducing administrative and operational costs; instead, it helps to increase satisfaction at the workplace. Thus, organizational change-oriented activities can be linked to organizational innovation [70]. Organizational innovations are thus closely related to all administrative activities, including the redesign of organizational structures, processes, practices to promote team unity, communication, cooperation, practice of information exchange, and knowledge sharing and learning [71–73]. Creativity should help absorb evolution and turn it into creativity to achieve exponential business growth, Reference [74] claims. It can also refer to any company that has technical and regulatory innovations. Firm performance is a reflection of company's achievement or productivity [75]. Firm performance is a pointer that reveals the degree to which an organization's goals has been reached [76]. Performance could also be described as the results achieved in meeting internal and external goals of a firm [77]. The concept of performance has been described as the desired outcome that can be achieved through multiple measures [78]. Literature in areas of management identifies various concepts and variables to measure performance. Performance has several classifications, similar to developments. Owen [79] has it that organizational performance comprises three specific arears: (a) financial performance (profits, return on assets, return on investment etc.), (b) performance of product market (sales, market share, etc.), and (c) shareholder profitability (total return of shareholders economic value added, etc.). In the analysis of the influence of innovation on environmental performance, authors opined that it is necessary to consider three vectors: the level of profitability (productivity), the age of the companies (young companies versus mature companies), and/or the degree of use of flexible technologies (traditional technologies versus flexible technologies). Performance could be financial or non-financial. Studies conducted by Reference [78] was based on various indicators, which measures financial performance of hotels, like total revenue, total gross profit, or the daily occupancy rate of hotels. March and Sutton [80] mentioned profits, sales, market share, productivity, debt ratios, and stock prices. Balance scorecard approach was used by Reference [81] to measure performance in four angles/perspectives, which are: financial, customers, internal processes, learning, and growth. According to Reference [46], organization's profits, returns on investment, and sales growth, business performance, and organizational effectiveness reflected firm performance. Ittner and Larcker [82] presented a difference between financial and non-financial measures of performance. Defining organizational performance in terms of effectiveness is an indicator of non-financial performance. Revilla-Camacho and Cossío-Silva [83] employed satisfaction as a performance measurement. In empirical research, availability of data is key to the performance measurement constructs chosen. Thus, this current study employs both financial (profitability, growth performance, and market value performance) and non-financial performance measures (customer satisfaction).

2.3.1. Hypothesis Development

Owing to intangibility, perishability, inseparability, and uncertainty, the effect of innovation on firm success in service firms will be more dynamic and distinct than the manufacturing sector [84]. Scholars, over the past few decades, have been committed to defining the relationship between the type of innovation and the success of a company (e.g., References [4,60,85,86]). This section, therefore, discusses the various hypothesis pertaining to the relation between the various innovation types (product, process, marketing, and organizational) and firm performance. In line with literature, product and process innovations are regarded as technological innovation, whereas marketing and organizational innovations are considered as non-technological innovations [87,88]. Based on this assertion, the hypotheses, with respect to the impact of technological innovation (process and product) and non-technological innovations (marketing and organizational) on firm performance, is separately formed as follows:

Technological Innovation (Product and Process) and Firm Performance

Yıldız and Baştürk [89], indicated that creativity has a positive influence on the success of businesses. Innovations linked to revolutionary or incremental have contributed interestingly to firm results, according to Reference [90]. Given the market, turmoil under which the company performs serves as a significant determinant of corporate success [91,92]. The innovation cycle can be seen as effective engines for enhancing the organization's innovation and trade efficiency [93]. Reliability, exceptionality, and novelty from their rivals have resulted in product innovation, rather than improving the overall efficiency of the company to improve the quality of new goods or services [19,94,95], in conducted research related to Taiwan's hotel industry to establish the relationship between customer focus, service innovation, and success in innovation. Findings exposed product innovation as a completely mediating impact on output of performance. A study by Reference [96] on various sectors of the industry in Malaysia revealed that both product and process innovations are linked positively to firm performance, where the former has a greater effect. Process innovation maintains the features of a product, yet reduces a steady percentage of manufacturing costs [97]. Progressions in process innovation result in decline in cost and price of product, which eventually put pressure on the profit level and increase the attractiveness of the product, in turn [98]. Process innovation brings about extra productivity growth at every level [99]. In addition, the study proposed that technology-based product quality should make it easier for businesses to achieve superior results in innovation. Ref [100] researched banking sector innovation. Their research found that product innovation improves productivity, while process innovation improves productivity and effectiveness. Implementing product, process, and operational innovation makes businesses more agile in their operations and pushes businesses to boost product quality, network expansion/acquired quality employees, and productivity in technology [31,101]. We, therefore, hypothesize that:

Hypothesis 1a (H1a). *Product innovation impacts positively on firm performance.*

Hypothesis 1b (H1b). *Process innovation impacts positively on firm performance.*

Non-Technological Innovation (Marketing and Organizational) and Firm Performance

On the other hand, a substantial body of research has shown that organizational innovation is positively linked to innovation performance (e.g., References [102–104]) and helps to better understand what kind of capabilities would affect the strategic advantage that could generate economic gain [105]. Yavarzadeh and Salamzadeh [106] investigated the relationship between organizational innovation and performance in the governance of Iran's tax affair. The study result shows that innovation (product, process, administrative/organizational) has a positive and important financial, development, consumer, and internal process impact on organizational efficiency. In addition, product and process innovation often play an important role in the success of organizations. In general, innovation is seen as a catalyst that can create several advantages for the company in order to gain competitive advantage [107]. Nevertheless, this method has been implemented without much success by a large number of businesses. In most cases, companies suggested that their inventions, for example, produce mild, very little, or no effects at all. Many research studies focused on product and process innovation (e.g., References [107–109]), rather than on organizational and marketing innovation. Several research models have implemented organizational innovations to recognize the impact on company performance, like Reference [108], and have examined the more important ways to enhance the company's level of success by embracing administrative and technical innovation. Fiore and Silvestri [110] indicated that, in order to improve their revenue and productivity, marketing innovation is crucially essential to businesses. Past studies have shown that creativity and firm efficiency connect positively (e.g., References [29,111–114]). Nevertheless, some suggested that the correlation between innovation and business success is negative [115,116]. Innovation efforts have benefited businesses in different ways from rising business performance. Past work has analyzed

four forms of results, which include productivity efficiency, market performance, financial efficiency, and creative performance, to understand frontier success (e.g., References [117–119]). Additionally, various research studies have found positive effects of organizational innovation on firm performance in so many arears of the organization (e.g., References [120–123]). Likewise, some writers discovered a positive effect of marketing innovation on performance of businesses, e.g., References [124–127]). Hence, we hypothesize that:

Hypothesis 2a (H2a). *Marketing innovation impacts positively on firm performance.*

Hypothesis 2b (H2b). *Organizational innovation impacts positively on firm performance.*

2.3.2. Research Framework

The research framework as illustrated in Figure 1 shows the components of innovation drawn from literature review on innovation theories and empirical literature. The research framework also draws from existing studies and knowledge on innovation and performance both on the local and international domains. This would be used to analyze the effect of the independent variables on the dependent variable, which are the innovation types and hotel performance.
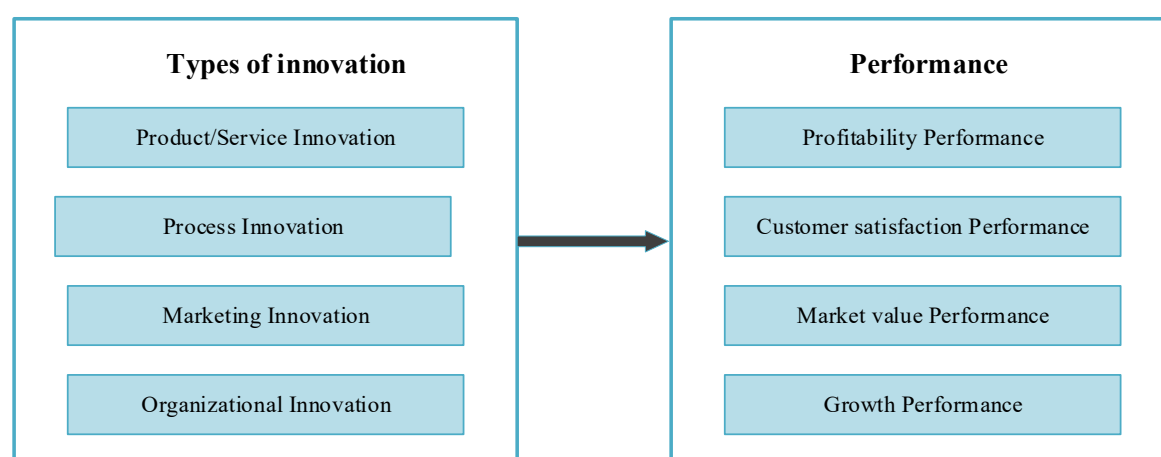
Figure 1. Research framework diagram of innovation types and hotel performance (by Authors).

3. Methods

3.1. Data

This current empirical study focuses on the survey data from hospitality industry, specifically hotel companies in Ghana. This work is a practical application. In our case study, which is being built in Ghana, a population of about 2969 hotel companies are estimated from the Ghana Tourism Authority (GTA) report in 2019. Given the hotels' population size in the nation, a survey without a sample will be difficult to perform. Punch [128] argued that this, as such, is explained by the fact that it is impossible to research every person, anywhere, doing anything, so sampling decisions are considered important. Based on this view, hotels are sampled as our sampling criteria by intentionally depending on their respective level of star ratings, along with their significant contribution to the industry and the economy of the country as a whole. Specifically, as hotels display their rooms online, part of their marketing requires star ratings; thus, high numbers of stars mean that a hotel has top-notch, high-class facilities because this premium comes with higher rates. According to the American Automobile Association, the main factors being measured in relation to the achievement of a specific ranking are outstanding facilities, improved amenities (such as technical innovations), and convenient stay. The research focused on star-rated hotel facilities (from one star to five star), based on aforementioned

assertions. Specifically, the number of star-rated hotels from GTA is estimated to be 900. For the analysis based on the purposive sampling process, a sample of 680 star-rated hotels was therefore used from the lump sum of star-rated of hotels in Ghana. This selection criterion excludes very small hotels and thus allows the analysis to obtain a larger sample, so that accurate results can be collected in order to draw huge policy recommendations.

Because of the survey aspect of this current research, a well-structured questionnaire was used as the core data collection instrument. The structured questionnaire was created using a set of prior designs in related studies. As the ratings of a subject cannot be isolated from its observer, this study polled informed respondents from each hotel, who are experts, to provide correct answers on each construct in the questionnaire. It is precisely from the sampled star-ranked hotels that the critical source of information is collected from various managers. In the sense of developments, this collection, according to Reference [129], provides highly relevant perspectives. Study respondents were contacted to respond to the structured questionnaires through their respective electronic mails. In order to ensure that they were appropriate and willing to provide correct answers, respondents' assumptions about their information on various construct variables used in the study were challenged. Reference [130] argues that the sample size must be 455 in order to have enough confidence and ability to recognize a 5% sampling error. Thus, with the expectation of a return rate of about 60 percent, each manager was mailed a questionnaire for the respective 680 star-rated hotels. The effective response rate was 80.9 percent, meaning that 550 questionnaires were answered correctly and returned successfully, while the remaining 130 questionnaires, comprising 19.1 percent, were either not correctly answered and/or returned. Among these, 78% representing 429 respondents were males, whereas 121 respondents representing 22% of the total sample of respondents were females. The aforementioned statistics are descriptively summarized in Table 1.

Table 1. Rate of responses from respondents.

Response	Frequency	Percentage
Number Responded	550	80.90
Number of incomplete responses	130	19.10
Total	680	100.0

3.2. Measurements of Constructs

The goal of this study was to examine empirically the effect of innovation on the performance of Ghana's hospitality firms (specifically hotels). The questionnaire was structured in the sense of construct measurements to evaluate the relationship that exists between two (2) main constructs, which includes innovation types and performance of hotel firms. All items used in measuring product innovation, process innovation, marketing innovation, and organizational innovation were adapted from Reference [31,131–133], respectively. The aforementioned dimensions of innovation with respect to their measurement items were all assessed on a seven-point Likert scales ranging from strongly disagree to strongly agree. Firm performance as the main dependent variable in our study model was, on the other hand, measured relative to ten (10) items based on growth performance, market performance, and financial performance, with an adoption from Reference [31,133,134], respectively. Respondents were asked to rate the performance of hospitality firms, specifically hotels, by indicating their strength for performance based on a five-point Likert-scale. Table 2 in summary outlines the various constructs and their respective measurement items.

Table 2. Summary of constructs and measurement items.

Code No.	Type of Innovation	Scale
PI	**Product/Service/Facility Innovation**	**Ordinal** [1–7]
PI1	We have luxury rooms with automated keycard.	
PI2	We use Nano technology textile products in guest rooms.	
PI3	We have free beverage kits tablet menus in guest rooms.	
PI4	We have new tourism products like health tourism and agri-tourism.	
PI5	We have loyalty programs.	
PRI	**Process Innovation**	**Ordinal** [1–7]
PRI1	We have wireless internet access.	
PRI2	We have computerized management and surveillance systems.	
PRI3	We have processes concerning communication with guests prior to visit and payment.	
PRI4	We use robots for cleaning services.	
PRI5	We have IT based reservation and booking system.	
MI	**Marketing Innovation**	**Ordinal** [1–7]
MI1	We invest in technology to expand our Internet booking system.	
MI2	We have launched a new loyalty program.	
MI3	We have implemented a new exclusive Information and Reservation Center.	
MI4	Marketing method used in our hotel before is different from the one used now.	
OI	**Organizational Innovation**	**Ordinal** [1–7]
OI1	Our hotel regularly examines and improves rules and operating processes.	
OI2	Our hotel rapidly responds to service questions.	
OI3	Our hotel strives to listen to employees and respond to their suggestions.	
OI4	Our hotel has quick speed for developing new project.	
OI5	Our hotel has a high level of cooperation between individuals and the organization.	
	Firm Performance	**Ordinal** [1–5]
FP1	Income growth appreciation	
FP2	Getting cash back for each cedi invested	
FP3	Favorable market fluctuations	
FP4	Increase in product value	
FP5	Market share	
FP6	Customer satisfaction	
FP7	Total sales	
FP8	Return on investment	
FP9	Return on sales	
FP10	Profitability	

3.3. Data Analysis

Raw data obtained from the questionnaire administration is useless unless it is converted into information for decision-making. Data analysis process included reducing data into manageable size, developing summaries, and applying statistical inferences. Thus, the following steps were taken to analyze the data for the analysis. After questionnaire administration, data based on responses from respondents were cleaned and then coded using a five-point Likert scale, as indicated already, with the exception of the demographic variables. A strongly agreed response meant the respondent was allocated response strength of 5 points. A strongly disagree response, on the other hand, was also allocated response strength of 1 point. With this completed, the process of the data analysis was done in three levels or stages. Data analysis of the study is categorized into two phases: the first involves the test of sampling adequacy, reliability and validity test based on PCA analysis, test of normality of constructs based on extracted measurement items, descriptive statistics, and correlation analysis concerning measurement constructs. Considering the second phase of the analytical procedure, the path analysis, which focuses on estimating the path coefficients of the respective variables used in the study model, is implemented in order to derive similarities and differences in the relationships, as well as

the hypotheses, which have been developed for the study. In this case, this investigation specified a series of Hierarchical Linear Regression models (HLRM) to be able to establish the relationships hypothesized to exist amid employed variables. Evaluation of the study data analysis was made possible using the Statistical Package for the Social Sciences SPSS 20.0 statistical software package (Norman H.Nie, Chicago, IL, USA)

3.4. Specification of Study Models

As aforementioned, the study centers on estimating the effect of innovation types on the performance of hotel firms in Ghana through Hierarchical Linear Regression models (HLRM). Specifically, the first set of variables (innovation types) are classified as explanatory variables, whereas the second variable that is firm performance, on the other hand, is the main response construct. Specifically, the innovation types to be assessed in this study includes product, process, marketing, and organizational innovations as innovation types. The HLRM analysis is a way to show if variables of researchers' interest explain the statistical significance of the amount of variation in the response variable after accounting for other variables. This is a framework for model comparison rather than statistical inference. In this framework, different linear regression models are formulated by adding explanatory variables to previous models at each step. In numerous cases, the interest is to determine whether the newly included variable shows a significant improvement in the proportion of the explained variance in the response variable by the model. Fundamentally, and in a standard format, a linear regression model in multivariate framework is mathematically formulated as:

$$y_i = \beta_o + \beta_1 x_{i1} + \beta_2 x_{i2} + \ldots + \beta_p x_{ip} + \varepsilon_i \tag{1}$$

where x_{ip} represents the *ith* observation on the *pth* independent variable, and β_o is the intercept or the constant term, whereas $\beta_1, \ldots, \beta_p$ are the slope coefficients that needs to be estimated, and y_i is the *ith* observation of the dependent.

Since the HLR, models consist of series of linear regression models, the present study groups the series of regression models based on the various hypothesis developed. Thus, estimating in the direct effects of product innovation, process innovation, marketing innovation, and organizational innovation as innovation types, the following series of linear regression models were developed in hierarchical framework as:

$$\textbf{MODEL 1}: \ FP_i = \alpha_0 + \alpha_{i1} PI_i + \varepsilon_i \tag{2}$$

$$\textbf{MODEL 2}: FP_i = \alpha_0 + \alpha_{i1} PI_i + \alpha_{i2} PrI_i + \varepsilon_i \tag{3}$$

$$\textbf{MODEL 3}: \ FP_i = \alpha_0 + \alpha_{i1} PI_i + \alpha_{i2} PrI_i + \alpha_{i3} MI_i + \varepsilon_i \tag{4}$$

$$\textbf{MODEL 4}: \ FP_i = \alpha_0 + \alpha_{i1} PI_i + \alpha_{i2} PrI_i + \alpha_{i3} MI_i + \alpha_{i4} OI_i + \varepsilon_i \tag{5}$$

where FP_i, PI_i, PrI_i, MI_i, and OI_i are, respectively, firm performance, product innovation, process innovation, market innovation, and organizational innovation; α_0, on the hand, is the constant terms, whereas $\alpha_{i1}, \ldots, \alpha_{i4}$ measured the rate of effect the respective explanatory variables have on the response variables. In addition, ε_i is the residual term.

4. Presentation of Findings

4.1. Reliability and Validity Test

Prior to estimating the specified linear regression models in a hierarchical framework, data in the first stage was analyzed to ensure instrument quality be convergent and discriminant validity. With the application of SPSS, as already mentioned, the principal component analysis (PCA) was conducted to measure the underlying dimensions associated with twenty-nine (29) items. The construct validity was measured using the Bartlett's sphericity test and Kaiser-Mayer-Olkin (KMO) measure of the sampling adequacy of individual variables. Specifically, Bartlett's sphericity test and Kaiser-Mayer-Olkin (KMO)

test help to indicate whether the data per the various constructs are suitable for structure reduction. Theoretically, according to Reference [135], the overall KMO test value should be more than 0.6. Per the results outlined in Table 3, Bartlett's sphericity test and Kaiser-Mayer-Olkin (KMO) tests correspondingly show that both are statistically significant and therefore suitable for factor analysis. The cumulative variance explained is 68.90%, which is greater than the acceptable threshold of 60%, with reference to the study of Reference [135]. The value of the Bartlett's sphericity test, specifically, indicates sufficient correlation between employed variables and thus gives an estimated value of 3405.49 with a significant probability value of 0.000 ($p < 0.000$).

Table 3. Bartlett's sphericity test and Kaiser-Mayer-Olkin (KMO) test.

KMO test	0.805
Bartlett's sphericity test	3405.49
df	549
Significant value	0.000

Further, in Table 4, the loading factors for all items measuring the respective types of innovation (product, process, marketing, and organizational innovation) surpasses the 0.5 threshold [136]. Specifically, two (2) firm output items (FP4 and FP5) were dropped, as their loading factors correspondingly were not appreciable or, in other words, did not reach the acceptance threshold throughout the process, so these values constitute proof of convergent reliability. As such, this data analysis indicates that the tests used in the study had a reasonable convergent reliability. According to Reference [137], the composite reliability of the measuring objects for the various models, based on theory must be at least 0.6. The findings showed that all the constructs exceeded values ranging from 0.719–0.881, resulting in far more than the threshold, indicating how accurate various constructs of the sample are to be used. However, the reliability coefficients were also evaluated using alpha statistics from the Cronbach to estimate the reliability for the collection of constructs used in the analysis. Relying on the Cronbach alpha-based measure, the overall reliability scales ranged from 0.704 to 0.850, which is far higher than the 0.7 mark. Notably, Reference [138] implemented the aforementioned threshold dependent on the Cronbach alpha [139]. An alpha value greater than 0.7 for a Cronbach indicates a strong reliability scale. The Cronbach's alpha ranges from 0.782 to 0.853 for the five factors used in the study that include product innovation, process innovation, marketing innovation, and organizational innovation (as innovation types) and firm performance. Therefore, this means that all variables or factors employed are considerably accurate for evaluation.

Table 4. Factor loading and reliability assessment.

Scale/Construct	Code	Measurement	Factor Loading	Cronbach's α	CR
Product innovation	PI1	We have luxury rooms with automated keycard.	0.823	0.820	0.801
	PI2	We use Nano technology textile products in guest rooms.	0.772		
	PI3	We have free beverage kits tablet menus in guest rooms.	0.801		
	PI4	We have new tourism products like health tourism and agri-tourism.	0.795		
	PI5	We have loyalty programs.	0.783		
Process innovation	PRI1	We have wireless internet access.	0.845	0.809	0.763
	PRI2	We have computerized management and surveillance systems.	0.823		
	PRI3	We have processes concerning communication with guests prior to visit and payment.	0.798		
	PRI4	We use robots for cleaning services.	0.604		
	PRI5	We have IT based reservation and booking system.	0.715		
Marketing innovation	MI1	We invest in technology to expand our Internet booking system.	0.842	0.719	0.704
	MI2	We have launched a new loyalty program.	0.826		
	MI3	We have implemented a new exclusive Information and Reservation Center.	0.812		
	MI4	Marketing method used in our hotel before is different from the one used now.	0.679		
Organizational innovation	OI1	Our hotel regularly examines and improves rules and operating processes.	0.815	0.814	0.835
	OI2	Our hotel rapidly responds to service questions.	0.819		
	OI3	Our hotel strives to listen to employees and respond to their suggestions.	0.778		
	OI4	Our hotel has quick speed for developing new project	0.851		
	OI5	Our hotel has a high level of cooperation between individuals and the organization.	0.802		
Firm performance	FP1	Income growth appreciation	0.593	0.836	0.850
	FP2	Getting cash back for each cedi invested	0.784		
	FP3	Favorable market fluctuations	0.719		
	FP6	Customer satisfaction	0.817		
	FP7	Total sales	0.603		
	FP8	Return on investment	0.881		
	FP9	Return on sales	0.804		
	FP10	Profitability	0.830		
Cumulative variance explained = 68.90%					

4.2. Normality Test

Table 5 presents the findings for all the constructs used in the research based on the normality test with respect to their respective number of measurement items as revealed by the factor analysis. The normality check is performed to assess the data distribution per analyzed variables. Notably, the type of analytical technique or method used to analyze data depends on the data distribution. If the data is skewed positively or negatively, the researcher may use a non-parametric test, while parametric testing is required for a normally distributed data (Gaussian distribution). The test criteria, as suggested by Reference [140], are to obtain a Shapiro-Wilks test values in excess of 0.5. From Table 5, the analyzed data shows that all the parameters obtained test values in excess of 0.5 and statistically significant; thus, this is an indication that the data pertaining the various constructs are normally distributed, hence the justification for the use of parametric test procedure for the entire analysis.

Table 5. Normality test of constructs.

Construct	Number of Items (Extracted)	Shapiro-Wilks Test	
		Test value	Sig. value
Product innovation	5	0.721 ***	0.000
Process innovation	5	0.652 ***	0.000
Marketing innovation	4	0.905 ***	0.015
Organizational innovation	5	0.853 ***	0.000
Firm performance	8	0.885 ***	0.000

Note: Sig. means significant value, *** represents 1% levels of significance correspondingly.

4.3. Descriptive Statistics, Correlation, and Multi-Collinearity Tests

Table 6 further outlines the brief summary of descriptive statistics, together with the correlation analysis and multi-collinearity test for the study constructs innovation types and firm performance, which are computed using the means of extracted measurement items after conducting the principal component analysis. Considering the summary of the descriptive statistics with respect to the mean and standard deviation values, it can be deduced based on the variable of interest that, firm performance, as the main response variable is averagely 4.083 with a standard deviation coefficient of 0.953. Averagely, process innovation, as an innovation type, recorded the highest mean value of 4.208 with a dispersion value of 1.016, followed by marketing innovation (*M = 4.169, SD = 0.997)* and then organizational innovation (*M = 4.144, SD = 1.014)*, while product innovation chronicled the least mean and dispersion coefficient of 3.905 and 0.895, correspondingly. In the case of the correlation analysis, it is deduced from Table 6 that all the innovation types, which includes process, product, organizational, and marketing innovation, are all having a positive and significant linear relationship with the performance of hotel firms. This, therefore, gives the implication that any progress in any of the innovation types implemented by various hotel firms in Ghana will trigger an upward trend in their respective performances. Comparatively, correlations coefficients among the innovation types, as Table 6 depicts, show positive linear associations. In other words, all the innovation types are positively correlated with one another. A further glimpse at the cross-correlation matrix amid the innovation types reveals fairly weak associations for all possible pairs, where correlation coefficients are well below 0.7 threshold. This, therefore, shows that there exist no issues of interdependencies among the innovation types and is thus supported by the VIF and tolerance tests, which are subsequently reported. Finally, Table 6 reports the test of multi-collinearity among innovation types employed as explanatory variables in the study model. To check for multi-collinearity among the innovation types, the variance inflation factor (VIF), together with the tolerance, are employed. As outlined, the VIF estimated values are far less than 5, whereas that of the tolerance are more than the threshold of 0.2 [141]. This, therefore, gives the

indication that there exist no issues of multi-collinearity among utilized variables; thus, a variable could be used as a linear combination of other explanatory variables.

Table 6. Summary of descriptive statistics, correlation and multi-collinearity test.

Construct	Descriptive Statistics		Correlation Analysis					Multi-Collinearity Test	
	Mean	SD	1	2	3	4	5	VIF	Tolerance
Firm performance	4.083	0.953	1.000					-	-
Product innovation	3.905	0.895	0.685 **	1.000				4.225	0.370
Process innovation	4.208	1.016	0.213 **	0.452 **	1.000			1.017	0.680
Marketing innovation	4.169	0.997	0.513 **	0.327 **	0.603 **	1.000		3.210	0.750
Organizational innovation	4.144	1.014	0.402 **	0.320 **	0.45 0**	0.207 **	1.000	1.770	0.507

Note: ** represent significance at 1% level. SD means standard deviation, VIF means variance inflation factor. 1, 2, 3, 4, and 5 represent firm performance and the innovation types correspondingly.

4.4. Path Estimation (Hypothesis Testing)

The hierarchical linear regression (HLR) analysis, as aforementioned, was implemented to estimate the relationship among constructs formulated in the study. Hence, analysis of the HLRM models was conducted using SPSS version 20.0. From Table 7, the outcome from the hierarchical linear regression analysis with respect to investigating the effect of innovation types (process, product, marketing, and organizational innovation) on performance of hotel firms are outlined. At this level of the analytical procedure, explanatory variables are chronologically added to the model to see their impact on the response variable, as specified (see Equation (2) to (5)). Thus, per this study, the hierarchical linear regression analysis was carried out in four main stages. Specifically, product innovation is employed as the only explanatory variable in the first phase of the model estimation, whereas both product innovation and process innovation are utilized in the second phase. Concerning the third stage, marketing innovation is introduced, together with product and process innovation, whereas, in the final phase, which is the full model, all four variables are employed, where organizational innovation is added to process, product, and marketing innovation. Findings from each model based on the hierarchical linear regression analysis provides some post-estimation tests for examining the validity of the proposed model. Precisely, the F-test values for each estimated model are evidenced to be statistically significant. This, as a result, infers that the proposed study models are of good specification and, as well, valid enough to provide efficient predictive outcome. Concerning the amount variance explained in each model, product innovation, as the only explanatory variable in Model 1, explained 1.6% of the variance in performance of hotel firms in Ghana, and it has a significant and positive effect on firm performance ($\beta = 0.142$; $p = 0.008$). In the case of the second model, process innovation is added to Model 1 as an explanatory variable in a bivariate framework. Thus, from Model 2, both process innovation and product innovation conjointly explained 7.4% of the variabilities in the hotel performance. Process innovation and product innovation, both in Model 2, possess a significant and positive effect on performance of hotel firms in Ghana, with an estimated parameter value of 0.257 and 0.305, respectively, all at 1% level of significance. Considering Model 3, marketing innovation, as a new variable, included, together with process and product innovation, explained 8.2% of the variations in performance of hotel firms. In this model, product innovation ($\beta = 0.280$; $p = 0.000$) and process innovation ($\beta = 0.304$; $p = 0.000$), together with marketing innovation ($\beta = 0.118$; $p = 0.010$), also have significant and palpable effect on performance of hotel firms. In the final phase of hierarchical linear regression analysis, organizational innovation is added to Model 3 to estimate Model 4. The four explanatory variables, which include process innovation, product innovation, marketing innovation, and organizational innovation, together explain 9.8% of the variance in performance of hotel firms. As estimation results of Model 4 depicts, the introduced variable (organizational innovation) ($\beta = 0.104$; $p = 0.074$), together with the explanatory variables in Model 3, all proofed to have significant and palpable influence on firm performance.

Table 7. Hierarchical regression model estimation.

	Response Variable: Performance of Firms			
	Parameter Estimates for Models 1 to Model 4			
Explanatory Variables	**Model 1**	**Model 2**	**Model 3**	**Model 4**
Product innovation	0.142 ***	0.275 ***	0.280 ***	0.299 ***
Process innovation	-	0.305 ***	0.304 ***	0.291 ***
Marketing innovation	-	-	0.118 **	0.058 *
Organizational innovation	-	-	-	0.104 **
Post- estimation tests				
R-squared	0.016	0.074	0.082	0.098
F-test	7.132 ***	17.180 ***	11.431 ***	9.090 ***

Note: ***, ** and * represent significance at 1%, 5% and 10% correspondingly.

4.5. Dealing with Potential Issues of Endogeneity

There is a potential endogeneity problem associated with the variables that account for innovation types. One possibility is that we have a causality direction in the way that a firms' performance is affected its adoption of innovation type. On the other hand, we may have the opposite causality direction from firm performance to the adoption of innovation type; a firm aiming to increase its performance may, for example, choose to adopt a specific innovation type in order to improve its reputation, which may in turn have positive impact on its performance. Thus, the causality may not only be that adopting innovation type can have an impact on firm performance but also that firm performance can affect the adoption innovation types. Since only firms with innovation activity have answered the question about innovation types in relation to firm performance, there is likely to be a potential issue endogeneity associated with the variable innovation type. According to Reference [142], issues of endogeneity results in inconsistent estimators in linear models. Thus, in order to address this potential issue of endogeneity, this current study further estimated the series of specified regression models using the two-stage least square (2SLS) approach as a robustness test. The applied approach is a way to account for possible issues concerning the variables that account for innovation types. Table 8, therefore, outlines the results from the 2SLS estimation approach. It is, therefore, strongly evidenced that, comparatively, the results still remain consistent with the main results for this study among all the specified models. This, therefore, gives the indication that the main results pertaining to the effect of innovation types on firm performance do not suffer from reverse causalities (endogeneity issues), as well as omitted variables, which could have resulted in correlated error terms.

Table 8. Two-stage least square regression results.

	Response Variable: Performance of Firms			
	Parameter Estimates for Models 1 to Model 4			
Explanatory Variables	**Model 1**	**Model 2**	**Model 3**	**Model 4**
Product innovation	0.450 ***	0.435 ***	0.258 ***	0.084 **
Process innovation	-	0.227 ***	0.128 ***	0.099 **
Marketing innovation	-	-	0.276 **	0.119 ***
Organizational innovation	-	-	-	0.104 **
Post- estimation tests				
R-squared	0.455	0.561	0.692	0.790
F-test	7.301 ***	7.390 ***	14.455 ***	16.472 ***

Note: ***, ** represents significance at 1% and 5% correspondingly.

4.6. Discussion

Innovation is a strategic tool for firms to survive and gain competitive advantages in the global market place. Innovative firms can improve their performance, defeat their competitors and provide

value to their stakeholders. It has, therefore, been argued that, due to the heightened level of competition and shortened product life cycles, firms' ability to generate innovations may be more important than ever in allowing firms to improve performance and maintain competitive advantage [143]. Relying on the previously mentioned assertions, this current paper, therefore, endeavored to investigate the relationship amid innovation types and firm performance of star-rated hotel firms in Ghana. This topic, in general, has attracted the attention of management scholars since the argument [54] portrays that continuous innovation activity is the key source of long-term firm success. Other current researchers continue to claim that firms, which fail to engage in innovation, put themselves into risk. For this reason, in today's intense competitive environment, it is not surprising to evidence that innovation has become a requisite objective for almost all firms. Thus, prior to estimating the effect of various innovation types, which includes product/service, process, marketing, and organizational innovation on firm performance (hotel firms), the study preliminarily conducted the reliability and validity tests, normality, together with correlation analysis and multi-collinearity tests. Specifically, a construct validity test based on Bartlett's sphericity test and Kaiser-Mayer-Olkin (KMO) measure showed sampled data is suitable for factor analysis and, as well, sufficient correlation exists between employed variables. Further, factor loadings through the factor analysis indicated that all items measuring the various innovation types correspondingly surpasses the 0.5 threshold, whereas only two items of firm performance were dropped, since their respective loadings were not appreciable. Considering the Shapiro-Wilks test of normality, various constructs are identified to be normally distributed. Cronbach's alpha estimates, on the other hand, showed a strong reliability scale for all constructs. This, therefore, gives the implication that all factors are considerably accurate for estimation.

In order to identify the relations among the various innovation types and firm performance, correlation together with hierarchical linear regressions analyses are performed. Taking into account the correlation analysis, considerable correlations are correspondingly found amid firm performance and each of the innovation types. This is, therefore, to say that there is significant positive affiliations exhibited between each innovation type and hotel firm performance. In tandem with the research of Reference [144,145], we can generally deduce that higher product, process, marketing, and organizational innovation are associated with increased firm performance. As a relevant issue, the empirical work involves a multiple independent variable (innovation types), which may give rise to issues of multi-collinearity. Thus, in addressing this concern, the correlation matrix together with variance inflation factor (VIF) and tolerance estimates are utilized. A glimpse at the cross-correlation matrix reveals weak associations for all possible variable pairs, where correlation coefficient are well below 0.70 with the VIF and tolerance statistics being far less than 5 and greater than 0.2, respectively. In view of such outcome among explanatory variables (innovation types), the problem of multi-collinearity is ruled out, thus corresponding estimated effects can be examined based on the study hypothesis. This, therefore, justifies the inclusion of the various innovation types as explanatory constructs. With the aim of estimating the probable effects of the various innovation types on hotel firm performance, the various hypothesis proposed in the study are assessed relying on hierarchical linear regression approach which is a method also efficiently used by Reference [134,146,147] just to mention a few. In evaluating the study hypotheses, four different models in a hierarchical manner are formulated, where Model 1 hypothesizes that product innovation affects positively on firm performance, and Model 2 also conjunctures that process innovation positively influence firm performance, whereas Model 3 and Model 4 put forward that marketing and organizational correspondingly impacts firm performance. Specifically, Model 1 shows a significant palpable relationship between product innovation and firm performance. This result is likened with Hypothesis 1a on the merits of product/service innovation on firm performance. This finding pertaining to the positive affiliation characterized by product/service and firm performance is in consonant with the studies of Reference [148] for manufacturing firms in Vietnam, Reference [134] in Turkish manufacturing firms, and Reference [147] in the case of Turkish automobile supplier industries. Contrarily to Reference [144], in Spain, hospitality sector together with Reference [4] also based on complementary approach rather reported a significant negative influence

from product/service innovation. This disparity is probably due to the fact that our study made use of firm performance as a response variable, whereas the analysis of the aforementioned researchers used environmental performance. With respect to Model 2, process innovation as an innovation type also does seem to positively and significantly influence the performance of star-rated hotel firms in the presence of product/service innovation. This outcome is thus in support of Hypothesis 1b. Similar result is evidenced in recent studies, which includes that of Reference [149] from pharmaceutical firms in Indonesia but deviates from the outcomes of Reference [150,151]. From our point of view, the statistically significant and positive impact of both product/service and process innovation may suggest that innovation makes the product/service more appealing in terms of features, aiding hotel firms in the sustaining market or even gaining more customers. Nonetheless, it may take more time before efficient performance is gained, since innovation is a highly costly activity. Further, process innovation leads to improvements in the methods of production or delivery of products/services, while product innovation delivers improved good and/or services in terms of use characteristics or components. Therefore, hospitality firms demonstrate a commitment to sustainability by switching to organic products. Organic products could include products made of all-natural ingredients and non-harsh chemicals. For example, hotel toiletries, cleaning supplies, and fragrances, among others, can come in organic forms. Thus, upgraded technologies, changing customer tastes, and shortening product life cycles become rational drivers of innovations within firms. The theory of creative destruction, hence, emphasizes the essence of innovation creating competitive advantage superior to that of non-innovative competitors. In other words, product and service innovations can be seen as sustainable channel to enhance the performance of star-rated hotel firms. Finally, a significant and palpable impact of organizational and marketing innovation classified as non-technological innovations are, respectively, identified on firm performance. This finding, therefore, is in tandem with Hypothesis 2a and Hypothesis 2b, correspondingly. Specifically, the possible explanation pertaining to the positive significant liaison amongst organizational innovation and firm performance owes to the innovation culture, which most large and medium hotels are building, as well as the willingness of the smaller and newer hotels to innovate. Again, hospitality firms, including hotels in Ghana, to a large extent focus on activities that have to do with organizational innovations. For instance, the incorporation of knowledge management practices (employee skill acquisition and quality management) and workplace organization procedures (decentralized decision-making, teamwork and inter departmental liaison), as well as external relations (franchise, alliances, partnerships, and outsourcing of certain operations), are crucial to fostering firm performance. Yet another factor that owes to the positive significance is the policy in which hoteliers and industry decision-makers, in general, provide to ensure that firm work in harmony with the environment while being mindful of their social and economic impacts. In the case of marketing innovation, the positive substantial effect on firm performance may be due to the reason that most hotel firms in Ghana are characterized by cooperate marketing; therefore, marketing innovations are well recognized by these firms. Further, in the case of advent of social media, most hotels are striving to have online presence to match the current, thus boosting their performance. Comparatively, the outcome regarding the positive liaison amid marketing innovation, organizational innovation, and firm performance is similar to the studies of Reference [110] but contrarily not in consonant with the research conducted by, e.g., References [76,87,152].

5. Conclusions

In Ghana, hotel firms play an important role in contributing to jobs and wages and are important drivers for the overall economy's modernization strategy. Throughout the modern age, the type of innovation, such as product innovation, process innovation, marketing innovation, and organizational innovation, promote the survival of companies as they help firms retain a competitive advantage throughout rising global and regional competitive markets. Nonetheless, literature remains limited in terms of the individual effect of styles of innovation with external collaboration on performance in Ghana's hotel industry. Consequently, this current study was undertaken to examine and grasp the

individual impact of aforementioned types of innovation on the performance of hotel firms in Ghana. Because of the large number of hotel firms in the country, the hotels used in the study were sampled by concentrating on their respective star rating scales, as well as their significant contribution to the country's humanity and economy, in general. Actually, the study focused on one to five-star hotel facilities. In the lump sum, a sample of 680 star rated hotels were analyzed in the study based on the purposive sampling method. Owing to the fact that the study is a survey, it employed the use of a well-structured questionnaire as the main instrument of data collection. Precisely, the essential source of information was solicited from various managers and manageresses from the selected star rated hotel firms. The questionnaire was structured to assess the relationship existing between two (2) main constructs, that is, innovation types, which has four main dimensions (process, product, organizational, and marketing innovation), and performance of hotel firms. With the implementation of a Hierarchical regression analysis as our main methods of analysis, a series of regression models were estimated to validate the study hypothesis developed. Interestingly, and as expected, results from the estimation revealed that process, product, organizational, and marketing innovation, as types of innovation, respectively, have a positive and statistically significant effect on performance of hotel firms in Ghana with product innovation having the highest impact in the full model (see Model 4). In particular, product innovation is a vital tool for efficiency, which is why top management of hotel firms in Ghana need to pay attention to enhancing innovation ability as it is the most significant successful element for innovation achievement. Moreover, establishments can be more innovative by choosing product that come in the form of recyclable or biodegradable packaging [153]. In addition, our findings painted a strong picture that innovation, as a whole, is the main strategic factor for hotels in Ghana to drive long-term growth and profitability, as well as being essential for the organization's continued existence. In a competitive environment that attaches importance to the production and execution of the innovation, in accordance with the business strategy of the organization, it also has a strong understanding of the imperative effect of innovations on the performance of companies. The path to having economically viable, sustainable hospitality facility through innovation is something hotel owners, operators, and firms need to be conscious of and advocate for largely [154,155]. Overall, the results of the study indicated that hotels in Ghana need to establish an organizational culture that can inspire innovation behavior and internal communication with employees to promote an innovation-driven attitude that incorporates ideas and concepts into an effective product, process, and business technique. This, as a result, provides sight for hotel firms to develop innovative abilities and to inspire and enable individuals within the organization to stimulate innovative mentality. Finally, hotel firms and the industry at large should be abreast of current trends of sustainability and endeavor to gear their innovation operations towards a more sustainability driven firm since incorporating sustainable innovative strategies into firms' operations will not only create a good image and reduce cost; it would also safeguard the natural attractions that guests patronize.

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