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## **SMEs CEOs characteristics and the creation of competitive advantage in Cote d'ivoire: the moderating effect of competitive intensity**

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**Abstract:** SMEs have been recognized as an essential tool for the development of Côte d'Ivoire as well as for many developing countries. However, small-medium enterprises there still meet some problems to remain competitive. Prior research has paid little attention to the relationship between Ivorian SMEs CEOs human capital and the competitiveness of their company. Using the upper echelons theory, this empirical research objective was to investigate the effects of Ivorian SMEs CEOs' type of education, functional experience, and openness to experience as a personality trait on the creation of competitive advantage for the company, specifically service innovation.

We collected data from a sample of 247 SMEs operating in the service industry and located in the economic capital Abidjan, through questionnaires, and use SPSS 22 version to perform the Pearson correlation analysis and generalized linear regression analysis. The findings showed that SMEs CEOs' level of general education, business education, and functional experience were not related to service innovation. Only openness to experience had a relationship with our dependent variable service innovation. Also, we notice a change in the relationship between CEO's characteristics and service innovation, while considering the competitive intensity as a moderating variable. This study shed light on the importance of certain characteristics of SMEs CEOs that can predict the competitiveness of their business in the Ivorian environment. At the sight of the findings, some recommendations are addressed to researchers, to the Ivorian government and to Ivorian SMEs managers.

**Keywords:** Upper echelons theory; micro, small, and medium-sized enterprises; competitive advantage; competitive intensity, CEO human capital; Cote D'Ivoire.

**Résumé :** Les PME ont été reconnues comme un outil essentiel pour le développement de la Côte d'Ivoire ainsi que pour de nombreux pays en développement. Cependant, les petites et moyennes entreprises y rencontrent encore quelques difficultés pour rester compétitives. Les recherches antérieures ont accordé peu d'attention à la relation entre le capital humain des dirigeants des PME ivoiriennes et la compétitivité de leur entreprise. En

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utilisant la théorie des échelons supérieurs, l'objectif de cette recherche empirique est d'étudier les effets du type d'éducation, de l'expérience fonctionnelle et de l'ouverture à l'expérience des dirigeants de PME ivoiriennes en tant que trait de personnalité sur la création d'un avantage concurrentiel pour l'entreprise, en particulier l'innovation des services.

Nous avons collecté des données auprès d'un échantillon de 247 PME opérant dans le secteur des services et situées dans la capitale économique Abidjan, au moyen de questionnaires, et avons utilisé la version SPSS 22 pour effectuer l'analyse de corrélation de Pearson et l'analyse de régression linéaire généralisée. Les résultats ont montré que le niveau de formation générale, la formation commerciale et l'expérience fonctionnelle des dirigeants de PME n'étaient pas liés à l'innovation des services. Seule l'ouverture à l'expérience avait un rapport la variable dépendante innovation des services. Aussi, nous constatons un changement dans la relation entre les caractéristiques du dirigeant et l'innovation des services, tout en considérant l'intensité concurrentielle comme une variable modératrice. Cette étude a mis en lumière l'importance de certaines caractéristiques des dirigeants de PME qui peuvent prédire la compétitivité de leur entreprise dans l'environnement ivoirien. A la vue des résultats, quelques recommandations s'adressent aux chercheurs, au gouvernement ivoirien et aux dirigeants des PME ivoiriennes.

Mot Clés : Théorie des échelons supérieurs ; les micros, petites et moyennes entreprises ; avantage concurrentiel ; intensité concurrentielle ; capital humain du dirigeant ; Côte d'Ivoire.

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## 1 Introduction

From the point of view of (Barney & Wright, 1988), human resources would be the source of sustained competitive advantage in the coming century. The human capital of a company is seen as being the pillar of competitive advantage, it is the intangible resource that best differentiates a company from competitors, and which allows it to be efficient and sustain competitive advantage. According to the Upper Echelons theory (UET), the characteristics of executives of the top management team can be useful in predicting the firm outcomes (strategic decisions, competitive advantage, performance) simply because these characteristics affect their choices (Hambrick & Mason, 1984; Wang, et al., 2016). The individual human capital is defined as the human capital held by a single person. Throughout the years, strategy researchers have paid considerable attention to the impact of CEO characteristics on the firm (Wang, et al., 2016; Garcés- Galdeano & García-Olaverri, 2019; Neely, et al., 2020; Hrazdil, et al., 2021; Liu & Ji, 2022).

Although research on CEO human capital evolve, we observe in the literature that most existing studies on the human capital of the CEO revolve around large or more established companies (Hambrick & Quigley, 2014). Meanwhile, the position of the CEO is very critical for SMEs where the CEO very often plays all the roles, and where his personality and characteristics carry more weight. Oppong, (2014) highlights the fact that Upper Echelons theory studies should be more directed toward the main leader which is the Chief executive officer (CEO), because the CEO has more power compared to the other members of the TMT, especially within small teams. Based on this observation, some empirical studies have been conducted on certain characteristics of SME managers to see their effect on the performance of SMEs (Nadkarni & Hermann, 2010; Galdeano & Olaverri, 2019; Tran & Pham, 2020). Although these few studies have been carried out on the level of the human capital of the manager of SMEs, they have been only carried out for the most part in America or Europe.

African SMEs are sometimes faced with the growth or long-term survival issues of their businesses. Practical examples are studies made in Uganda (Tushabomwe-Kazooba & Kemeza, 2006) and South Africa (Willemse, 2010) which posits that 1/3 of SMEs can't go beyond one year of operation after the establishment of their activities. However, they constitute important actors in the sustainable development of the continent (Endris & Kassegn, 2022). Compared to some African countries where SMEs participate in 50% of the GDP, in Côte d'Ivoire, they participate in only 20% of the GDP. Some authors pinpoint the issue of qualified human capital including top managers as well as employees within Ivorian SMEs (Kouame, 2016; Hongbo, et al., 2018). Much research made on African SMEs has focused on the management of human resources in general without paying particular attention to the impact that the CEO or the top management team can have on the competitiveness or performance of the company. Only a few African scholars have started to pay attention to this topic (Yeboah, 2015; Oumbe, et al., 2019).

As we were able to observe, in a global way, on an African scale as well as in Côte d'Ivoire, studies on the impact of SME CEOs human capital on the competitive advantage are insufficient. Regarding these different gaps in the literature, this current study aims to determine the impact of Ivorian SME CEOs level of general education, business education, and functional experience on the creation of competitive advantage. Besides the demographic characteristics of the CEO, we analyze also the impact of one personality trait which is Openness to experience on the creation of competitive advantage. In fact, research on the relationship of top executives or managers' personality on company strategic decision-making or performance has been less studied or ignored in favor of some observable CEO characteristics in the literature. In addition, more researchers have been done in the domain of human capital, especially the relationship between CEO human capital and performance, but there is less evidence of the impact of individual human capital on competitive advantage (Altarawneh, et al., 2020) (Van Gils, 2022). Although firm performance and competitive advantage are terms usually used in the strategic management field, some differences exist between them. In this situation, more research is needed using competitive advantage indicators rather than only using performance indicators. Finally, since the external environment in the industry is a major factor in the competition, we analyze how competitive intensity in the Ivorian environment moderates the relationship between Ivorian SME CEOs human capital and competitive advantage.

## **2 Theoretical background**

### **2.1 Upper echelons theory and CEO human capital**

The characteristics of top executives help to predict their decision-making styles, which in turn influence the managerial outcomes of the firm. Hambrick and Mason, (1984) have attempted to explain this fact using the term Upper Echelons theory for the first time. They divided upper-echelon characteristics into observable characteristics (age, experience, education, group characteristics, functional tracks...), and non-observable ones (cognitive base, psychological, values) (Djimta, et al., 2022). According to the Upper echelons theory, company results reflect how top executives interpret situations or take decisions based on their demographic traits, experience, values, and personalities (Hambrick, 2007). Empirical studies indicate that top executives' human capital participates to firm growth and impacts strategic decisions making (Tacheva, et al., 2020; Shenghui, et al., 2022; Yaoping, et al., 2021). An equally important point to note is that the influence of the characteristics of top executives on the results

of the company can be subject to the effect of certain moderators (Hambrick, 2007). For example, we can cite managerial discretion, which is defined as the level of freedom or autonomy given to top executives to be able to act or make decisions. Managerial discretion influences the impact of top executives on the company (Abatecola & Cristofaro, 2018).

The Upper echelon theory has been also used to study the human capital of one of the main members of the TMT, the CEO, and its impact on the performance or competitive advantage of the company. A CEO's particular human capital, as an individual, consists of his/her 'expertise, experience, knowledge, skills, age, gender, tenure, values, and personality (Hambrick, et al., 2015). Liu et al. (2018) have developed a more comprehensive model which goes in the same direction as (Hambrick & Mason, 1984). They showed that the characteristics of the CEO interact with the members of the top management team (TMT) who are in his immediate environment.

## **2.2 CEO human capital and competitive advantage**

Competitive advantage is defined as an advantage gained over competitors in an industry (Porter, 1985). Since its advent, this concept has been developed, studied, and used in several branches of management to understand the competitiveness of one company against another (Nayak, et al., 2022). To have a competitive advantage, the company must be able to produce an above-average result compared to rivals in delivering products or services in the industry by creating more economic value for consumers (Peteraf & Barney, 2003). There are two types of company resources. Tangible resources are physical, financial, and organizational resources. Intangible resources are human assets, brands, external relationships, intellectual property, company culture... These resources can be both internal and external. One of the most important internal resources which is the source of sustainable competitive advantage is people. Human resources as intangible resources are among the most delicate resources for business to create and sustain competitive advantage (Ployhart, 2021), especially for those in the service industry. Competitive advantage can be found at the level of a person, for example, the CEO, or a group of people such as the top management team, employees, suppliers... The CEO is a firm individual human resource, as well as a physical or financial resource. Thereby, as well as financial and physical capital can give a superior advantage to a firm, human capital is also a source of competitive advantage to the firm (Dunford, et al., 2001). The individual human capital which is unique and valuable can be seen as the first source of competitive advantage. This is explained by the fact that this tacit knowledge inside everyone which is not easily transferable like explicit knowledge, is rare in the market especially when it is specialized tacit knowledge. As an illustration, a longitudinal study on 110 firms in 10 industries emphasized that the competitive choices which are part of the strategic actions are greatly affected by the CEO characteristics compared to financial issues and resource allocation (Zacharias, et al., 2015). In the UK, the professional experience and the educational background of SME CEOs in the electronics industry have a significant impact on the formulation of business strategies and strategic plans to build a competitive advantage (Karami, et al., 2005).

In our study, we use the dimension of service innovation to measure competitive advantage. Several recent empirical studies also found that innovation strategy was being adequately used by the SMEs to gain or keep their competitive advantage (Distanont & Khongmalai, 2018; Taques, et al., 2021). Service innovation is a dimension used in a few studies to measure competitive advantage (Thatte, 2007). Service innovation is one of the safest

ways to be beyond the competition, and even create a sustainable competitive advantage (Bessant & Tidd, 2007). Innovation in services is characterized by technological improvement, unique or new solutions to customers through expertise in the field of inquiry, design of new ways to deliver services (Gallouj & Savona, 2009). Innovation in services, which had received less research compared to innovation in products, is now attracting a little more attention.

### **3 Hypotheses development and research model**

#### **3.1 CEO Level of general education and service innovation**

Based on the Upper echelons' theory, we expect SME CEO level of general education to have a positive impact on the creation of service innovation. Scholars have generally argued that education, moreover if it is higher, allows the CEO to participate in the growth of his company. The quality of education also affects the CEO's innovation ability. (Song, 1995) and (Mbizi, et al., 2013) mentioned that CEO characteristics are the most important points which influence the implementation of different types of innovation, especially for small businesses. The more educated the CEO is, the more he/she tends to implement differentiation and/or innovation in products, processes, and services in the business (Lin, et al., 2011; Dorcas, et al., 2021). CEOs with a higher level of education can bring innovation to the company through these cognitive abilities more developed by their formal education training. Compared to product innovation, there is an important emphasis on the quality of education and knowledge of human resources in service innovation for a company to get a competitive advantage, since there is a direct interaction with the customer in this case (Prajogo, 2006). A recent systematic review highlights the fact that education as a demographic trait of the CEO is associated with innovation (You, et al., 2020). A study made in Cameroun, in central Africa, showed that SME CEOs with a high level of education is likely to implement innovation in their services (Oumbe, et al., 2019). In contrast, a few studies prove that CEOs' education level does not necessarily influence competitive advantage, more particularly the innovative capacity of the firm. Studies carried out in Saudi Arabia (Hamza, et al., 2020) and China (Wang, et al., 2022), on companies in the service industry concluded that the level of education of the CEO does not affect his innovation ability. In sum, although the existence of some contradictions in the literature, we hypothesize that the CEO's formal education level may impact the competitive advantage of the SMEs through service innovation within the Ivorian environment. Thus:

**Hypothesis 1:** There is a positive relationship between the level of general education of Ivorian SMEs' CEO and service innovation.

#### **3.2 CEO business education and service innovation**

The business administration curriculum helps the individual to immerse himself in the world of business management and be able tomorrow when faced with entrepreneurial realities to make decisions based on these business skills. Generally, MBA and law degrees are mostly the educational backgrounds of large firms' CEOs. Managers with MBA degrees or with a business education background tend to take riskier corporate strategic decisions and bring more innovation (Bertrand & Schoar, 2003; Beber & Fabbri, 2012), compared to those with

an operational or technical education background who are more inclined to invest in R&D activities. In the same vein, (King, et al., 2016) who have made an investigation on CEOs in the banking sector argued that CEOs with an MBA are more able to create innovative business models. A CEO with a business education can make decisions to bring novelty to the provision of these services. However, some criticisms have been made against the business curriculum. Due to their managerial training which often emphasizes the calculation of risk, CEOs with this kind of background are risk-averse, and this inhibits their ability to innovate by trying new things (Hambrick & Manson, 1984). After conducting an empirical study, (Barker & Mueller, 2002) found that CEOs' MBA degree was not associated with the creation of innovation. Loukil, et al., (2020) affirm that CEOs having a degree in business majors are less inclined toward innovation inputs in the company. By making empirical research on companies in the service industry in Malaysia, Nakavachara, (2019), found no relationship between CEOs' business education and the creation of innovation. These assertions seem to go against the fact that a CEO with a business education can bring innovation to his company.

At the sight of these different views of scholars, we predict that SME CEO business education can help them to create or sustain their company's competitive advantage, through service innovation within the Ivorian environment. Hence:

**Hypothesis 2:** There is a positive relationship between Ivorian SMEs' CEOs' business education and service innovation.

### 3.3 CEO functional experience and service innovation

According to the Upper echelon's theory, SME CEOs functional experience affects service innovation. The way CEOs receive information, see and respond to internal weaknesses or strengths and external opportunities or threats differ based on the knowledge and information stored during their past functional experiences.

Functional experience is acquired at the level of the different classic branches of the business. There are divided into two types (Hambrick & Manson, 1984; Herrmann & Datta, 2002). CEO with an 'output' functional experience is CEO with experience in fields such as marketing, sales, and product R&D. Those with a 'throughput' background or experience in fields like accounting, operations, finance, and law who are stricter on efficiency, administrative control and the achievement of predefined objectives. For some authors, those who have 'output functional experience', are more inclined to new experiences or changes, and are more prone to bring innovation to their companies (Hamza, et al., 2020; Barker & Mueller, 2002). Hambrick & Manson, (1984) hypothesized that output functions experience can impact firm profitability in a turbulent and competitive industry with rapid growth, while throughput experience may have the same result in a stable industry where the level of capital intensity is high. Again, looking at the succession of CEOs across 134 manufacturing firms, Datta & Rajagopalan, (1998) revealed that in an industry characterized by strong product differentiation, a CEO with less throughput functional experience is more likely to succeed. For example, Chinese CEO with technology-related working experience invest easily and more in R & D activities (Gao & Hafsi, 2014), also those with a career experience in marketing and/or engineering (Barker & Mueller, 2002), compared to rivals. Following these various explanations, we are led to enumerate the following hypothesis:

**Hypothesis 3:** There is a positive relationship between SME CEOs' functional experience and service innovation.

### 3.4 CEO openness to experience and service innovation

Personality traits encompass the characteristics or dimensions of a person's thoughts, feelings, behaviors, and attitudes (McCrae & Costa, 2003; Matthews, et al., 2003). Over time, the CEO study didn't just boil down to demographic characteristics, but some researchers are also increasingly interested in the impact that personality traits can have on CEO decision-making, or even on competitive advantage and performance (Hambrick, 2007; Nadkarni & Herrmann, 2010). Openness to experience can be translated as being open to other people, and other ideas, curious about the external world, being creative, and accepting change or new things. Openness to experience is one main trait of the big five personality (McCrae, 1993), which was used in studies to access the impact of the personality of the CEO on innovation. A study of the CEO traits of some Indian SMEs showed that certain personality traits such as agreeableness, extraversion, and openness to experience (Nadkarni & Herrmann, 2010), have a different level of impact on strategic flexibility, than on innovation. Openness to experience as a personality trait is a catalyst for innovation at various levels within a company (Ensley, et al., 2002). They can take risks, through their creativity and their love of adventure, by innovating in products and services and by meeting customer expectations. Consequently, by having this quality, the CEO can create a competitive advantage (O'Reilly, et al., 2014). A study in Ecuador on SMEs too provided evidence that CEOs having extraversion and openness to experience as personality traits were able to initiate strategic change (Herrmann & Nadkarni, 2014). In Malaysia, openness to experience had a positive effect on innovation, learning, and growth and then on overall performance (Han, et al., 2017). In addition, the empirical study of (Nguyen, et al., 2021) on a sample of SMEs indicates that openness to experience, extraversion, and conscientiousness of SMEs managers were positively related to innovation. Based on previous research and reasoning, we suggest that Openness to experience as a personality trait has an impact on the creation of service innovation. Thus, the emerging hypothesis is as follows:

**Hypothesis 4:** There is a positive relationship between SME CEOs openness to experience and service innovation

### 3.5 The moderating effect of competitive intensity

Competitive intensity can be defined as the level of competition or the pressure of competition on each company within an industry (Chen, 1996). We have chosen the intensity of competition as a moderating variable between the characteristics of the SME CEO and the creation of innovation, because the context in which the company operates also has an important influence. Initially, the Upper Echelons theory simply tells us about the relationship between the characteristics of the CEO and the organizational outcomes. However, some authors have drawn the attention of researchers to the fact that this assertion would not be fully accepted without considering the impact of the external environment (Yamak, et al., 2013). We support the hypothesis that the intensity of the competition requires certain characteristics of the CEO depending on the situation. The environment in which the CEO operates can influence individual abilities while capturing different opportunities and using them as appropriate (Hitt, et al., 2011). The intensity of competition in the environment in which the CEO finds himself can influence the relationship that his type of education, his functional experience, and his personality trait may have on the creation of innovation. Added to this, the personality trait of openness to experience can allow the CEO not to resign himself to competition, but rather to adopt new and innovative ways to always exceed customer expectations.

Competitive intensity can to a certain extent impact CEO's decision-making (Amran, et al., 2014), and dictates to the company how to organize and deploy its resources, and the type of strategy to adopt, whether in terms of price, promotion, quality...An environment with strong competition can indeed impact the ability to innovate,

hence competitive advantage, because the company reacts according to the competitive actions of others, and positions itself according to that. Indeed, the competitive intensity outside the company defines how they can find opportunities and use them to their advantage for the creation of competitive advantage (Hitt, et al., 2011). At the sight of these arguments, we propose that:

**Hypothesis 5a:** The competitive intensity positively moderates the relationship between SMEs' CEO's level of general education and service innovation

**Hypothesis 5b:** The competitive intensity positively moderates the relationship between SMEs' CEO's business education and service innovation

**Hypothesis 5c:** The competitive intensity positively moderates the relationship between SMEs' CEO's functional experience and service innovation

**Hypothesis 5d:** The competitive intensity positively moderates the relationship between SMEs' CEO's openness to experience and service innovation

## 4 Methods

### 4.1 Sample selection

The target population are small-medium enterprises. The sample for the study is therefore composed of CEOs of SMEs particularly in the service industry in Abidjan, the economic capital of Cote D'Ivoire. The city of Abidjan was chosen because it is the business hub in Cote D'Ivoire and also because of its easy geographic location for researchers for data collection purposes. Also, we chose the service industry because it is one sector with the most SMEs in the Ivorian economy, alongside the manufacturing and agricultural industry. Since we don't have access to the exact number of the population, we have used the equation used to estimate the sample size from an unknown population (Krejcie & Morgan, 1970). For our study we chose a confidence interval of 95% and 5% as the margin of error. Hence, the sample size  $n$  is estimated at 384.

### 4.2 Data collection

We make the analysis with primary data directly obtained from participants. The data collection instrument is a structured questionnaire with close-ended questions and Likert scale questions. The questionnaire was a series of 22 questions divided into 4 sections and related to CEO level of general education, business education, openness to experience, service innovation, competitive intensity and the control variables.

In order to get contact with micro, small and medium enterprises in the service industry in Abidjan, the researcher sent the questionnaire, and a letter to governmental institutions as well as organizations in charge of SMEs in Cote D'Ivoire, in order to explain the objective of the research, and to have their agreement to have access to the micro and small enterprises affiliated to them for the collection of data. The governmental institutions were the Ivorian chamber of commerce and industry, and the Department of Assistance and Promotion of SMEs of the Ivorian Ministry of SMEs. Also, the FIPME (Ivorian federation of small and medium-sized enterprises), the MPME (Movement of Small and Medium Enterprises). We had finally a response rate of 52%, which is considered good in management studies (Mellahi & Harris, 2015).



**5 Data analysis and results**

Table 3 reports the means, standard deviations, and correlations of variables. Regression analysis was performed with the generalized linear model regression technique to verify the hypotheses. There was no problem of multicollinearity in our analysis since the correlation coefficients between independent variables were all under 0.9 as recommended (Noora, 2020). Table 4 provides the results of the regression analysis. Firstly, we created Model 1 which includes all the control variables. Then, the independent variables, level of general education, business education, functional experience, and openness to experience, were respectively entered from Model 2 to Model 5. All the models were significant according to the Likelihood ratio chi-square. Model 2 indicates that the level of general education was not related to service innovation. Thus, Model 2 rejects hypothesis H1. Next, Model 3 shows a non-significant relationship between business education and service innovation, this result also rejects the hypothesis H2, which states that a positive relationship exists between business education and service innovation. These results suggest that formal education or business education does not impact the innovation capability of Ivorian SME CEOs. Model 4 was created to test the third hypothesis H3. It was found that functional experience does not impact service innovation. So, we did not accept hypothesis H3. This result could suggest that few SME CEOs have the experience that could affect the creation of competitive advantage through service innovation. Hypothesis 4 predicts that there is a relationship between SME CEOs openness to experience and service innovation. As can be seen in Model 5, there is a significant positive relationship between openness to experience and service innovation ( $p \leq 0.001$ ). This result provides evidence to support hypothesis H4. These findings provide an important insight on the importance of personality traits for Ivorian SME CEOs wishing to build a competitive advantage.

To perform the moderation analysis, we create another table (Table 5) with Model 7 and Model 8. In Model 7, we first put together the moderating variable and the independent variables, to see the relationship with the dependent variable. Secondly, the interaction term of each combination of the independent variable and the moderator variable was added as predictors in Model 8. As seen in the table, the significant level of the interaction term of level of general education\*competitive intensity ( $p \leq 0.05$ ), and the interaction term between functional experience\*competitive intensity ( $p \leq 0.05$ ) is significant and positive. These results show that competitive intensity has a significant moderating effect on the relationship between the level of general education and functional experience on service innovation. On the contrary, the interaction between business education and competitive intensity, and between openness to experience and competitive intensity don't have a significant impact on service innovation. These findings reveal that the general education and functional experience of SME CEOs are important characteristics when the intensity of competition prevails. We can by consequence validate the assumptions made in hypotheses 5a and 5c while rejecting hypotheses 5b and 5d.

**Table 1.** Means, Standard deviations and correlations

Variable	Mean	Std deviation	1	2	3	4	5	6	7	8	9
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1-Company age	1.84	.825	1								
2-Company size	1.15	.831	.517**	1							
3-CEO position	2.01	.834	.263**	.302**	1						
4-Competitive intensity	3.33	.694	-.083	.067	-.091	.309**					
5-Level of general education	4.39	1.270	.111	.225**	.034	.046	1				
6-Business education	2.30	1.088	.017	-.139*	-.053	-.197**	-.156*	1			
7-Functional experience	1.77	.715	-.015	.047	-.145*	.044	.014	.118	1		
8-Openness to experience	4.36	.685	-.023	.135*	.184**	.365**	.045	-.055	-.008	1	
9-Service innovation	3.61	.988	-.011	.176**	.050	.423**	.060	-.015	.077	.292**	1

Note: N=247,

\*Correlation is significant at the 0.05 level (2-tailed).

\*\*Correlation is significant at the 0.01 level (2-tailed).

**Table 2.** CEO level of general education, business education, functional experience, openness to experience and service innovation.

	Model 1	Model 2	Model 3	Model 4	Model 5
	SI	SI	SI	SI	SI
<b>Controls variables</b>					
Company age	0.742* (0.353)	0.604 (0.460)	0.744** (0.260)	0.750* (0.374)	0.642* (0.330)
Company size	1.389* (0.706)	-1.289 (0.688)	-1.430 (0.711)	-1.383 (0.690)	-0.598 (0.688)
CEO position	-0.136 (0.317)	-0.196 (0.325)	-0.138 (0.325)	-0.195 (0.329)	0.202 (0.333)
<b>Predictors</b>					
EDU 1		0.252 (1.205)			
EDU 2			-0.038 (0.398)		
FUNC_EXP				-0.208 (0.359)	
OE					2.314*** (0.655)

Log likelihood ratio chi square 36.42 47.31 36.81 37.21 64.03

Note: N=247. Beta coefficients are provided, and std errors are in parenthesis (significance levels: \*\*\*  $p \leq 0.001$ , \*\*  $p \leq 0.01$ , \*  $p \leq 0.05$ , two-tailed tests). EDU1 level of general education, EDU2 business education, FUNC\_EXP functional experience, OE openness to experience, SI service innovation

**Table 3. Moderating effect of competitive intensity**

	Service innovation		Service innovation					
	Model 8		Model 9		Model 9		Model 9	
<b>Control variables</b>								
Company age	0.398 (0.370)	0.461 (0.365)	0.570 (0.366)	0.344 (0.419)	0.470 (0.390)	0.572 (0.481)	0.414 (0.387)	0.360 (0.383)
Company size	-0.844 (0.750)	-0.941 (-0.747)	-1.282 (0.726)	-0.310 (0.883)	-0.839 (-2.300)	0.977 (0.760)	-0.700 (0.775)	-0.195 (0.803)
CEO position	-0.315 (0.257)	-0.341 (-0.330)	-0.222 (0.333)	0.052 (0.380)	-0.579 (0.352)	-0.364 (0.336)	-0.436 (0.339)	-0.194 (0.357)
<b>Predictors</b>								
EDU 1	0.455 (1.255)				2.272 (1.927)			
EDU 2		-0.081 (0.399)				-0.351 (1.632)		
FUNC_EXP			-0.233 (0.380)				2.283 (1.737)	
OE				0.090 (0.080)				-2.760 (1.333)
<b>Moderating variable</b>								
Competitive intensity	3.268** (1.387)	3.559*** (1.024)	4.697*** (1.399)	2.390** (0.940)	-0.418 (2.089)	-2.172 (1.056)	-1.520 (1.823)	0.990 (2.453)
<b>Interaction term</b>								
EDU1*CI					2.704* (1.316)			
EDU2*CI						1.062 (2.078)		
FUNC_EXP*CI							4.024* (1.999)	
OE*CI								1.987 (1.654)
Log likelihood ratio chi-square	67.59	64.41	72.66	82.15	102.48	77.96	108.29	92.68

Note: N=247

Beta coefficients are provided, std errors are in parenthesis (significance levels: \*\*\*  $p \leq 0.001$ , \*\*  $p \leq 0.01$ , \*  $p \leq 0.05$ , two-tailed tests)

EDU1 level of general education, EDU2 business education, FUNC\_EXP functional experience, OE openness to experience, CI competitive intensity

## 6 Discussions and implications

In this study, based on the upper echelons' theory, we argue that SME CEOs characteristics have an impact on the creation of service innovation, to create a competitive advantage. We verify this assumption by empirically testing the relationship between SMEs CEO level of general education, business education, functional experience, openness to experience, and service innovation.

Foremost, we aimed to see if there is a relationship between the type of education, whether formal or business education, of Ivorian SMEs' CEO and the creation of a competitive advantage, namely in creating service innovation. The results of this study indicate that there is not relationship between the level of general education of Ivorian SMEs' CEO and service innovation. Also, our results demonstrated that no relationship was found between SMEs' CEO business education and service innovation. This study found that the fact of not having a high level of education does not prevent the ability to innovate for SME CEOs, which is in line with studies (Hamza

et al., 2020, Wang et al., 2022). An implication of this finding is the possibility that the educational system, globally, and more particularly at the level of the French-speaking African countries' educational system, do not put a great emphasis on teaching innovation. Meanwhile, creativity, intense curiosity, and passion, desire to change things which are the main characteristics of a person that brings innovation (Pratoom & Savatsomboon, 2012), are soft skills that are not taught in school the most times, or the formal educational system do not encourage enough innovation. In addition to general education, we hypothesize that SME CEOs with a business education background can bring innovation into their company. Contrary to expectations, we found that business education was not related to the aptitude to innovate for SME CEOs. Renowned scholars in the human capital research field mentioned that a CEO with an MBA or training in business administration can make different and more strategic decisions than one without a background in business administration (Finkelstein, et al., 2009). But innovation goes beyond the application of usual processes learned in business schools to start a company. A similar pattern of results was obtained in a few recent empirical studies (Nakavachara, 2019; Loukil et al., 2020), which have been made in Asia and Europe.

Thirdly, we proposed that the SME CEO job experience in a specific domain mainly related to business running, called functional experience, has an impact on service innovation. Contrary to expectations, this study did not find a significant relationship between functional experience, and the dependent variable service innovation. This result does not match those previous studies in the literature (Koyuncu, et al., 2010; Hamza et al., 2020). When comparing our results to prior research, it must be pointed out that studies on the importance of CEO functional experience revolve mostly around large or well-established companies (Barker & Mueller, 2002; Koyuncu et al., 2010), few of them around micro or small businesses. Also, it seems possible that these results are due to the dominant characteristic of SMEs CEOs in our studied sample of the population. Founder CEOs are those for the majority, without any functional experience, compared to manager CEOs, which are the type of CEOs having the most two types of functional experience. And an interesting point is that founder CEOs are those at the head of micro-enterprises, which accounts for 65% of the total studied sample. This finding raises the question about the qualifications of founder CEOs in the Ivorian environment, particularly the impact of their functional experience in gaining a competitive advantage.

In addition, we suggest that Openness to experience, which is one component of the Big Five personality traits, can be a source of competitive advantage for SMEs. Concerning the fourth research question, findings empirically demonstrated that there is a strong association between openness to experience and service innovation. Compared to the type of education, and the functional experience, openness to experience is the only predictor variable having a strong correlation with the dependent variable service innovation. These results agree also with the findings of other studies made on SMEs (Han, et al., 2017; Javed & Khan, 2018), who have found an association between openness to experience and innovation. Scholars support the fact that openness to experience is vital for innovation. Indeed, it helps to recognize and catch opportunities in the business world, to come up with innovative ideas, to take risks to implement those ideas, materialize innovative ideas into reality through strategic decisions, and then can help to create a competitive advantage, especially in a dynamic environment. It can therefore be assumed that having an openness to experience as a personality trait would also be beneficial for the SME CEOs in Cote d'Ivoire.

Finally, we suggest that competitive intensity can moderate the impact SME CEOs characteristics have on service innovation. From the results, we see that intensity of competition is a moderator of the association between the level of general education, functional experience, and service innovation. On the contrary, it does not affect the relationship between business education, openness to experience, and service innovation. When competitive intensity is added as the moderator, there is a change that takes place and we see that the level of general education and the functional experience have a relation with the service innovation (H5a and H5c), and the openness to experience no longer has any effect on service innovation (H5d). These findings corroborate the ideas of (Lahiri, 2013; Chen et al., 2015). In a very competitive environment, certain skills or characteristics are required by the company manager, to differentiate themselves and benefit the company and be above average. It can therefore be assumed that only having an open-minded personality to new things is good, but not enough in the Ivorian competitive environment to bring innovation in services for customers. Even if a contradictory result was found in the first regression analysis, showing us that the level of education and the functional experience was not related to the fact of innovating in the creation of services, the presence of high competition comes to prove the opposite.

## **7. Contributions, limitations and recommendations for future research**

This study adds several contributions. Firstly, a major contribution of this research is that it adds to the upper echelon's theory research stream by extending our knowledge of the importance of CEO human capital within SMEs. The main advantage of this research compared to the few ones made in Cote D'Ivoire concerning CEO human capital, it's that it combines both non-observable and observable human capital characteristics in one study, which was not widely seen in the literature (Kokot, et al., 2021). This study considers personality traits when studying SME CEOs with the variable Openness to experience. The viewpoint of (Anwar & Shah, 2018; Liu & Ji, 2022) is that research on the relationship of top executives' or managers' personalities with company strategic decision-making or performance has been less studied or ignored in favor of some observable CEO characteristics in the literature. Also, to the best of our knowledge, this is the first time that Ivorian SME CEO's business education and functional experience have been used as predictor variables in an empirical study. No previous research has tried to investigate the impact of business education of Ivorian SMEs managers on the creation of competitive advantage for their company. The existing one paying attention to work experience uses the duration in years of work experience on Ivorian SME CEOs (Diabate, et al., 2019), meanwhile, our study concentrates on the type of functional experience. Secondly, this study makes an empirical contribution concerning the impact of individual-level human capital as a resource for competitive advantage.

Talking about the two terms usually used in management, which are performance and competitive advantage, (Burgelman, et al., 2018) noticed that the relationship between individual-level human capital, more particularly that of the CEO, and performance was subject to more publications in the existing literature, compared to the relation with competitive advantage. Unfortunately, no study to date has examined the association between Ivorian SME CEOs human capital with the creation of competitive advantage. Recently, several authors who maintain that strategic human capital resources, which is the source of competitive advantage can be found at all levels (individual as collective), call for more research to understand how the individual level human capital can be a source of competitive advantage at the firm-level (Altarawneh, et al., 2020, Van Gils, 2022). Fourthly, an added

theoretical contribution is that our study responds also to a geographical gap. Indeed, most of the empirical studies on Upper echelons theory have taken place in the United States (Hambrick, 2007), or in other developed countries mainly in Asia and Europe (Kokot, et al., 2021; Liu et al., 2018). Thus, to see the generalizability of findings across different contexts, more research on the impact of the characteristics of the CEO on competitive advantage or performance should be done in other environments, in other countries, and more particularly in Africa. Moreover, by adding the moderator variable competitive intensity, this study emphasizes the impact of outside competition on the relationship between CEO human capital and the creation of innovation. A gap that is seen is that not many studies using UET put the factor of the intensity of competition in context.

This research has also several practical implications for SME managers, owners, or founders in the service industry. Firstly, this empirical study helps to identify potential strengths or weaknesses for competitive advantage in the Ivorian context, regarding SME CEOs characteristics. This study shows that the level of general education, or business education does not prevent being able to generate innovative ideas, on the other hand, there are required to run the company on a day-to-day basis and grow it. Added to this, this empirical study recommends particularly to Ivorian SMEs founder's CEOs in the service industry to have previous experience in a specific domain, or knowledge in at least a type of function that comes into play in a business, whether it is marketing, sales, accounting, operations, finance..., before starting their own business. It will be beneficial for them to cope with the intensive competition because specialization in a precise domain helps them to be more competitive. Founder CEOs' prior functional experience accounts for positive results in their entrepreneurship journey. The importance of this study also is to show the government agencies in charge of SMEs the importance of strategic utilization of human resources, especially the importance of human capital embedded in SME CEOs. They should pay attention to the education, training, and monitoring of human capital, instead of mainly paying attention to how to finance SME projects. This can be done by helping them to have access to programs financially sponsored by the local government to develop their business or general education. In addition, the institutions in charge of SMEs can help new entrepreneurs or CEOs of micro-enterprises to look for mentors from whom they can learn and experience in business management. At the level of the educational system, the Ivorian government should try to be able to inculcate programs on entrepreneurship, starting from primary school to university, to innately an innovative spirit from there. Due to the intense competition in the service industry, the Ivorian government also should prioritize local SMEs over foreign enterprises, to protect them from unfair competition.

Some limitations should be mentioned and could be addressed in future research. First, the scope of this research was geographically limited to the Ivorian political capital, Abidjan. Meanwhile, the capital city is a more competitive environment, compared to the interior of the country. At the sight of this fact, there is a need for future studies in other regions of the country. It also creates an avenue for cross-national research, to verify if our study results remain the same in other countries, especially in Western Africa. Another major limitation was related to the size of the sample. Further research could replicate this study on a larger sample of the population to confirm this novel finding. Data collection was done with distributed questionnaires online to participants with the use of the google forms tool. An apparent limitation of this method is that people in this environment are not used to this method of data collection, which is done using the internet, and are therefore reluctant to participate in the survey. This is an important aspect that future research should consider while gathering primary data, especially in the

West African environment. One way to remedy this would be to favor physical interaction with the respondents by adding interviews to the survey, to be able to get their feedback promptly. Regarding the studied variables of CEO human capital and competitive advantage, this current study was unable to determine which particular human capital trait is likely to have the most important effect or by which process these characteristics can be organized together. This provides a good starting point for discussion and further research.

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