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**INTELLECTUAL CAPITAL AND ITS IMPACT ON BUSINESS PERFORMANCE:
AN EMPIRICAL STUDY OF PORTUGUESE HOSPITALITY
AND TOURISM INDUSTRY**

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1. Introduction

The **intellectual capital (IC)** is an important **corporate asset**, able to generate **sustainable competitive advantages** and **higher financial income**.

In the literature is recognized as a **key element** of the **value creation** in contemporary economy.

One of the factors that emphasized the importance of **IC** in an organization was to **change the focus of tangible capital management for the intangible**, as a result of the affirmation of its *importance in the process of creating organizational value* (Abeysekera, 2006).

1. Introduction

The **tourism industry includes a variety of businesses**, offers different ways of tourist experiences, and provides diversity of supply services for the tourists. In addition, the **enterprises** are mainly **micro ones**, with a **small number of workers**.

The **talent of the human capital** in this sector emerges as a **significantly bigger challenge** than the one faced in all the other sectors.

2. Objectives

This work contributed with a study for the tourism sector, seeking to **understand the human capital in the sector**, as well as **identify the efficiency, value creation** and its impact on Portuguese **hospitality and tourism sector's business performance**.

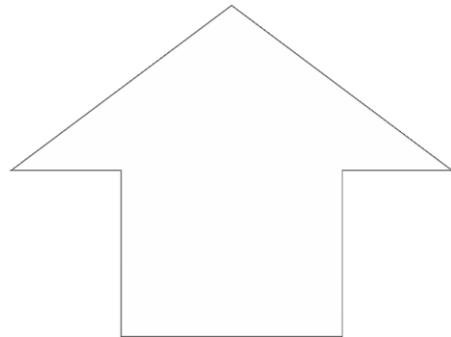
Thus, this research aims to aim to answer our research question:
“The Value Added Intellectual Coefficient and its components has a positive and significant association with the profitability of hospitality and tourism sector?”

3. Review of Literature

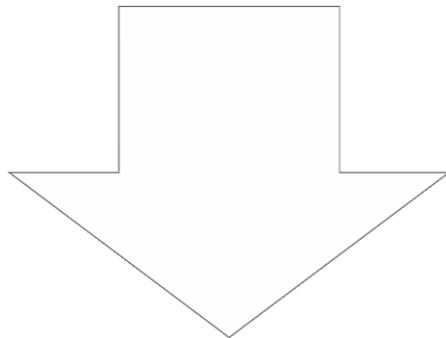
The new knowledge-based economy shifted attention to the **intangible assets of organizations** and how they are managed, being considered **IC as valuable because the intangible assets are more important than tangible assets**. So for organizations remain competitive should be performed a systematic approach of the IC assets.

VAIC (intellectual value added coefficient) **model** assumes that the **IC combines with the financial capital**, since this cannot create value by itself. This model is based on the relevant definitions of IC considering human capital as one of the most important parts of this IC.

4. Methodology and Data



This study is **based in secondary data** on Portuguese companies, so was applied and the practical data were collected from the **Simplified Business Information (IES)** through **SABI** (Iberian Balance Sheet Analysis System) data base.



Therefore, the economic and financial information was collected from balance sheets and financial reports of about fifty thousands (**46.951**) **Portuguese companies in the tourism sector**, during the **2007 to 2016 period**.

4. Methodology and Data

Independent variables:

VAIC is calculated as the direct sum of the main indexes of efficiency

$$VAIC^{TM} = HCE + SCE + RCE + CEE \quad (1)$$

Where:

- HCE - human capital efficiency coefficient,
- SCE - structural capital efficiency coefficient,
- RCE - relational efficiency coefficient and
- CEE - capital employed efficiency coefficient

4. Methodology and Data

Dependent variables:

ROA (Return on Assets) is calculated as the direct sum of the main indexes of efficiency

$$ROA = \frac{\text{Net Profit}}{\text{Total Assets}} \quad (2)$$

Where:

ROA is the return of invested assets or profitability of assets, reflects firms' efficiency in utilizing total assets, holding constant firms' financing policy.

Prior studies have used Return on Asset (ROA) for measures of profitability (Chen, Cheng and Hwang, 2005).

4. Methodology and Data

Empirical Models:

Following Public (2001), models of this study denotes all of the given variables that may affect firm's performance:

$$ROA_{it} = \beta_0 + \beta_1 (CEE)_{it} + \beta_2 (HCE)_{it} + \beta_3 (SCE)_{it} + \varepsilon_{it} \quad (3)$$

$$ROA_{it} = \beta_0 + \beta_1 (VAIC)_{it} + \varepsilon_{it} \quad (4)$$

Where:

β_0 = Intercept and Coefficients of Slope or Slope of Line $\beta_1, \beta_2, \beta_3$, and ε = Error Term.

Hypothesis:

In order to measure the empirical impact of intellectual amount of capital on return on assets (ROA), the following hypotheses has been formulated:

Hypothesis 1 - Human capital efficiency (HCE) has a positive and significant association with the Return on Assets (ROA) of hospitality and tourism sector.

Hypothesis 2 - Structural capital efficiency (SCE) has a positive and significant association with the ROA of hospitality and tourism sector.

Hypothesis 3 - Relational capital efficiency (RCE) has a positive and significant association with the ROA of hospitality and tourism sector.

Hypothesis 4 - Capital employed efficiency (CEE) has a positive and significant association with the ROA of hospitality and tourism sector.

Hypothesis 5 - Value added intellectual coefficient (VAICTM) has a positive and significant association with the ROA hospitality and of tourism sector.

5. Results and Discussion: Descriptive Statistics

Descriptive statistics of the study are present in the **table 1** - VAICTM and its components as well as the ROA profitability indicators for descriptive statistics such as the mean, standard deviation and minimum and maximum values for N=46.951 companies.

	Mínimum	Máximum	Mean	Std. Deviation	Skewness		Kurtosis	
					Statistic	Std. Error	Statistic	Std. Error
CEE	-106.27	98.53	.5201	2.17033	2.027	.012	711.643	.025
HCE	-98.35	107.90	1.5607	6.56975	4.260	.013	99.999	.026
SCE	-1833.76	736.60	.3342	16.89161	-78.698	.012	8026.497	.025
RCE	-168.26	217.08	.4681	5.75483	8.854	.012	404.283	.025
ICE	-98.52	108.89	1.9536	8.52301	2.393	.013	53.173	.026
VAIC TM	-99.96	125.84	3.0265	9.28434	2.043	.013	44.281	.026
ROA	-4401.78	380.32	-.6133	23.37733	-170.255	.012	31811.935	.025

Table 1. Descriptive Statistics (own elaboration)

5. Results and Discussion: Correlation analysis

The correlation analysis revealed several findings in terms of the relationship between the independent and dependent variables in the research model.

	CEE	HCE	SCE	ICE	RCE	VAIC™	ROA
CEE	1						
HCE	,040**	1					
SCE	-,054**	-,001	1				
RCE	-,003	,770**	,637**		1		
ICE	,019**	,009	-,205**	-,197**		1	
VAIC™	,238**	,722**	,397**	,810**	,370**	1	
ROA	,325**	,033**	-,015**	-,003	,005	,081**	1

Table 2. Correlation Analysis among Variables (own elaboration)

The correlation results indicated statistically significant association among all variables except between SCE and HCE, RCE and HCE, ROA and ICE, ROA and RCE.

5. Results and Discussion

There is a significant and positive association between ROA and VAICTM, HCE and CEE.

The HCE presented with a **high and statistically significant** association with the ICE and with the VAICTM, revealing that **human capital is the key element** that contributes to the **competitiveness and business success** of the entities of this sector.

The results show that in Portugal the **profitability of the tourism sector is more affected** by the value of HCE rather than SCE and RCE (such as in the study of Al-Musali and Ismail, 2014). Physical and financial capital (capital employed efficiency coefficient – CEE).

5. Results and Discussion

Taking into account results of statistical analysis, conclusions can be drawn regarding acceptance and rejection of hypothesis:

	Hypothesis	Acceptance / Rejection
H ₁	HCE has a positive and significant association with ROA of hospitality and tourism sector.	Accepted
H ₂	SCE has a positive and significant association with ROA of hospitality and tourism sector.	Rejected
H ₃	RCE has a positive and significant association with ROA of hospitality and tourism sector.	No statistically significant results
H ₄	CEE has a positive and significant association with the ROA of hospitality and tourism sector.	Accepted
H ₅	VAIC TM has a positive and significant association with the ROA of hospitality and tourism sector.	Accepted

Table 3. Acceptance and rejection of hypothesis (own elaboration)

6. Main Conclusions

Intellectual capital has as components **human capital, structural capital and relational capital**

Human capital is the **knowledge and skills of individual workers**, the **structural capital** is a **strategic asset** that includes infrastructure, information systems, internal processes and the **relational capital** is the value of the **relations established with the stakeholders**

The IC is recognized in the literature as the most important production factor in the current economy

6. Main Conclusions

Findings of the study support the concept that intellectual capital has the potential to become the new source of wealth in the Portuguese hospitality and tourism sector's, and support that intellectual capital has a direct and positive effect on business performance.

There is a **significant and positive association** between **ROA and VAICTM**, Human capital efficiency (**HCE**) and Capital employed efficiency (**CEE**), accepting the hypothesis 1, 4, 5.

On the other hand, the structural capital efficiency (**SCE**) presents a **negative association** with profitability, rejecting the hypothesis 2.

Finally, the results of the relationship between the variable **RCE and ROA do not present** statistical significance, not confirming the hypothesis 3.

6. Main Conclusions

It should be noted a limitation of this model considering is presented with a low explanatory power of the variance of the profitability of the asset (about 11.5%).

Future research on this subject should be undertaken, in particular can be done by testing with smaller samples, subdividing the sample by tourism subsectors and by different regions, analysing differences between these groups and including new control variables in order to increase the robustness of the model.

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THANK YOU FOR YOUR ATTENTION!

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