The Effectiveness of Human Capital on Business Performance : a Field Research in Algerian Companies

تأثير رأس المال البشري على أداء الأعمال : دراسة ميدانية على المؤسسات الجزائرية

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Abstract:

The purpose of the study is to investigate the effect of human Capital In Algerian Companies' Business Performance. The data was collected from 307 employees by means of a questionnaire. Statistical techniques such as descriptive statistics, t-test, ANOVA test, correlation and multiple regressions were employed. To confirm the suitability of data collection instrument, a Kolmogorov-Smirnov (K-S) test, Cronbach's Alpha and factor analysis were used.

The present study found that human capital exhibited weak relationship with business performance .

Human capital should be taken into serious consideration when formulating the companies' strategy. Finally, these results refer the necessary to increase the awareness of the manager to the importance of the human capital in result to increase the business performance .

Key Words: Human Capital - Business Performance- Algerian companies- field research .

الملخص :

تهدف هذه الورقة البحثية إلى دراسة تأثير رأس المال البشري على أداء الأعمال في المؤسسات الجزائرية . تم تجميع البيانات من 307 موظف بالاعتماد على قائمة الاستبيان ، كما تم استخدام مختلف الأساليب الاحصائية من التحليل الوصفي ، اختبار t ، اختبار ANOVA وتحليل الانحدار . إضافة إلى استخدام اختبار (K-S) Kolmogorov-Smirnov واختبار Cronbach's Alph.

توصلت الدراسة عن وجود تأثير ضعيف لرأس المال البشري على أداء المؤسسات ، بالتالي يتوجب على المدراء الأخذ بعين الاعتبار برأس المال البشري أثناء الاعداد للاستراتيجية و لابد من رفع الوعي لديهم بأهميته في الرفع من مستوى أداء المؤسسات .

الكلمات المفتاحية : رأس المال البشري — أداء الأعمال — المؤسسات الجزائرية — دراسة ميدانية .

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Introduction :

In the last century and following the classical approach of Adam Smith labor; land and capital were considered as an economic production factors. But today, the researchers emphasize that the main source to achieve the competitive advantage is based on a company's labor workforce also known as "Human resource".

Since 1494, the accounting system has seen evolutionary change in its conception. If the role of the accountants is to record, measure and report the assets of a company, how can they fulfill such role if they ignore what is nowadays a company's most valuable asset, intellectual capital – the intangible assets of skill – knowledge and information?

The global market is shifting from the industry era to the knowledge era when it is moving towards knowledge and technological innovation, seeking methods to boost competitive advantage .So the human capital is becoming an important source to achieve a competitive advantage . In this article we will try to test the impact of human capital on business performance through different companies in Algeria
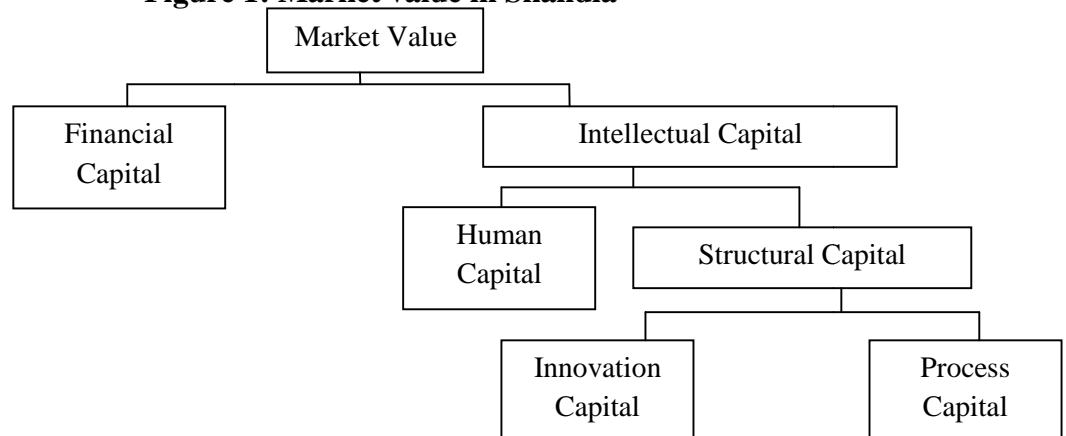
2. Literature review :

2-1 Definition :

Human capital :

Sandra M. Sánchez-Cañizares, Miguel Ángel Ayuso Muñoz, Tomás López-Guzmán, (2007) define Human capital as a Knowledge that groups and people possess, such as the capacity to generate it, which it is useful for the mission of the organization.

Human Capital is defined as the combined knowledge, skill, innovativeness, and ability of the company's individual employees to meet the task at hand. It also includes the company's values, culture, and philosophy. Organizations are increasingly looking at human resources as a unique asset that can provide sustained competitive advantage. (Bouguesri S,Benabou D and Tabeti .H,2013). Human capital cannot be owned by the company.It is a source that can be measured by innovation and creativity .(Bollen et al 2005)

Figure 1: Market value in Skandia

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                        Market Value
                    ┌───────┴────────┐
              Financial          Intellectual Capital
               Capital         ┌──────────┴──────────┐
                            Human          Structural Capital
                            Capital      ┌───────────┴───────────┐
                                    Innovation              Process
                                      Capital               Capital
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Source: Andriessen. D.(2004) , Making sense of Intellectual Capital: designing a method for the valuation, Elsevier, p 346.

2.2 Human capital Measurement :

2.2.1 *Human resource accounting (HRA*): The study of Hermanson in 1964 relating to evaluate assets caused numbers of debates among accountants and human resource theorists. The objective of HRA is to quantify the economic value of people to produce information help the manager making financial and managerial decisions (Chen J et al, 2004). Practitioners propose three models to account the human resource : cost models, HR value models and monetary emphasis models. It is acknowledged that HRA made significant contributions in the 1970s and it therefore can be regarded as an important branch of IC measurement. HRA models asses human capital using financial terms ; where human capital plays a significant role of the value of the company . All of these models, moreover, loss the reliability and uncertain in that their measures cannot be testified with any assurance. In addition , HRA models request too many assumptions, some of which cannot hold . HRA methods interest to the value of human capital without taking into account the importance of other elements , such as suppliers customer, organizational structure, the culture and innovation….

2.2.2 *Economic value added (EVA):* This methods of measurement is largely used among the companies . In 1980s , Stewart propose this tool to help companies to follow their prime financial directive by helping them to maximize shareholders value and wealth . (Stewart, 1994). EVA used to measure performance which attach the measurement of performance ,the set of goal , the communication with the shareholders and stimulus compensation simultaneously to account correctly for all ways in which value can be added or lost (Bontis, 1999), here   :

EVA = Net Sales – Operating Expenses –Taxes – Capital Charge

Although there is not an explicit relationship between EVA and the management of intellectual assets, EVA measurement remains considered as an alternative to stock the structure of IC, and it will increase the effective management of hidden assets, then often leaves top executives without clear instructions on its implementation. Additionally , it regards the firm as an industrial society instead the relation to the concept of knowledge management. It still concentrates to the financial indices.

2.2.3 Human capital's indicators :

 Roos et al (1998) developed the following indicators of human capital . (Liebowitz and Suen, 2000):

- Percentage of employees with advanced degrees
- IT literacy
- Hours of training/employee
- Average duration of employment
- Hours spent in debriefing
- Hours spent by senior staff explaining strategy and actions (overlap expertise)
- Leadership index
- Motivation index
- Saving from implemented employee suggestions
- New solutions/products/processes suggested
- Background variety index (individual and group level)
- Company diversification index

The indices developed by Leif Edvinsson of Skandia and Michael Malone of MIT are as follows (Liebowitz and Suen, 2000) :

- Leadership index
- Motivation index
- Empowerment index
- Number of employees/employee shares of the company (percentage of shares owned by employees, program for employees to buy company shares, etc.)
- Employee turnover
- Average years of service with company
- Number of managers
- Number of female managers
- Average age of employees and number with pertinent experience in trade and IT
- Time in training (days/years)
- IT literacy of staff
- Number of directors
- Number of female directors
- Number of full –time or permanent employees
- Average years with company of full time or permanent employees
- Average age of full time or permanent employees
- Annual turnover of full time permanent employees
- Annual turnover of full time permanent employees
- Per capita annual cost of training, communication and support programs
- Number of full time temporary employees
- Per capita annual costs of training and support programs for full time temporary employees
- Average years with company of full time temporary employees
- Number of part time employees or non–full time contractors, average duration of contract
- Company managers with advanced degrees, business, science and engineering liberal arts.

Ordonez de Pablos, 2002 shows that human area contains six sections form this area:

(1) *Employee profile*: this section provides data on gender and age distribution, number of employees working in the production, distribution, IT, sales and marketing, administration departments.

(2) *Staff turnover*: includes data on beginners, resigned staff and circulation percentage of personnel among others.   (3)
Education: includes employees' academic formation and experience (unskilled personnel versus skilled personnel, bachelors, PhD personnel, international experience .etc.).

(4) *Commitment and motivation*: two main indicator categories are set. Commitment indicators include, among others, seniority and percentage of promoted staff / total staff. Motivation indicators include percentage of promoted staff/total staff, percentage of staff feeling explicit recognition, percentage of staff feeling that their opinions are taken into account or that they are happy with the working environment.

(5) *Training*: includes indicators about formation provided by the firm. Indicators like training days per employees, ratio training hours/working hours (per year), training investment (employee/year) measure this category.

(6) *Results*: show global satisfaction with the job. Generally, it is measured with an employee satisfaction index. Other measures are also included, such as absence due to sickness and injuries with loss of working hours.
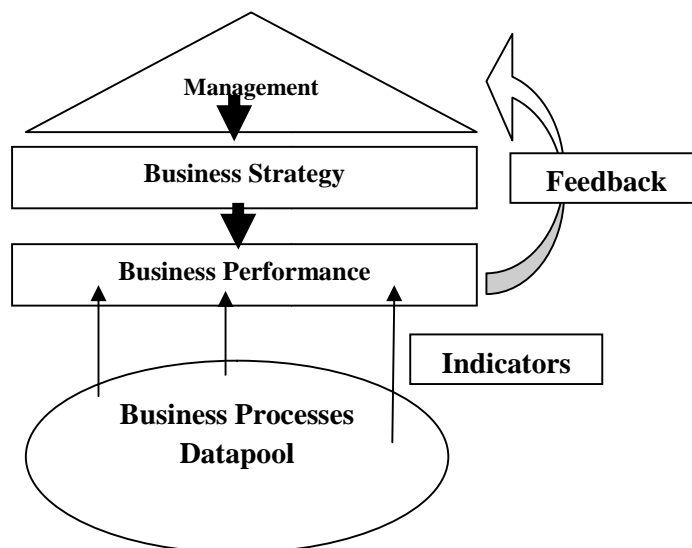
Business performance :

Firm performance is viewed in two perspectives; financial performance and non-financial performance. Financial performance contains productivity, market share and profitability, whereas, non-financial performance contains customer satisfaction, innovation, workflow improvement and skills development. It gives the companies information about their state (success, future outlook...). Business performance is a descriptive concept for the effectiveness and the efficiency of the action, process and strategy of the company. While the term "success" describes the positive effective overall turnout of a company´s activities, Business Performance can be characterized with attributes, for example as "well" or "poor", depending on the expectations of the individual analyzing the data he or she has chosen to examine, in order to gain insight into the state the company is in at a given moment.

It is clear from the figure that there are two approaches to Business Performance.

The first one is called **normative definitions**: that is described by the framework of business strategies such as TQM (top-down relation). The leadership's inherent responsibility is to set out a Business Strategy in which Business Performance is defined: Business Performance must meet or exceed the expectations of the leadership. The second one, (the bottom-up relation) called **descriptive measurements**: through indicators describing the status quo of the business process, and the management if expectations are met and gives vital information about necessary adjustments to the business processes that need to be made. However, newer developments in Business Strategies, such as the Bald ridge Performance Excellence Program and the EFQM model; include the descriptive components already in its strategy model. (Dd. Dipl.-Vw. Malte Kaufmann & Marieta Olaru, 2012)

Figure 7: Business Performance in the Business architecture

Source: Dd. Dipl.-Vw. Malte Kaufmann & Marieta Olaru.(2012) , THE IMPACT OF CORPORATE SOCIAL RESPONSIBILITY ON BUSINESS PERFORMANCE –CAN IT BE MEASURED, AND IF SO, HOW? The Berlin International Economics Congress, March 7th-10th, 2012, p4.

3, The relationship between human capital and business performance :

As it is stated bellow; skilled people or human capital, form critical source to attain the competitive advantage in many of today's companies. Skilled workers enable the company to increase its performance by both raising customer satisfaction and decreasing organizational costs . For example, human assets can help the company lowering cost process by developing new process and eliminating costly steps in the production , reducing inputs, and so on. The best employees have a positive impact on the performance of the company because it usually propose new ideas in the design of the service or product , innovating new process , and solving problems related to the customers…. all these actions can allow the company to increase the satisfaction of the consumers and reduce the organizational costs. Human capital have also an impact in improving customer benefits .Practitioners in Total quality management (*e.g.* Deming, 1986) have argued for years that people are the central to realize the total quality and form the foundation of quality improvement strategies. When smarter workers improve production and service delivery processes, they both reduce costs and increase product reliability and customer satisfaction. The human capital can also allows the company to become more flexible by quickly provide different products and services relating to the needs and preference of the customers in the time and the place they want them, this increase the customers satisfaction and benefits . Moreover, the innovations of the employees in the product and service provided are the heart and soul behind the increase customer value by better meeting their needs. (Mark A. Youndt and Scott A. Snell. 2004)

4.Methodology :

This study is designed to examine the relationship between human Capital and Business Performance in different Algerian companies using the model of Jyotirmayee Choudhury ,2010

Figure. 2 :Conceptual model
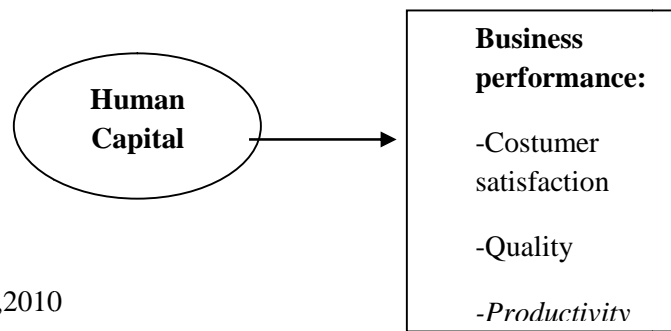
Source : Jyotirmayee Choudhury ,2010

4.1 Data collection :
   The respondents were all employees in Algerian companies . The questionnaire contained 64 statements to which respondents indicated the extent of their agreement on a 5-point Likert scale (1 = strongly disagree and 5 = strongly agree).
Our sample of this research was employees working in companies including : Banks, Industrial Goods and Services, Insurance , Telecommunications. Most of the respondents are situated in the medium level of the companies mentioned in the table follows..(Table 1)
 The response rate was 67.3 per cent. A description of the respondents is represented in table 2 .

Table 1 : List of the companies used as sample in the study

Company	The Sector
Pepsi Coca Cola	Drinks
Mobilis Djezzy Ooredoo	Telecommunications
Touring Voyage Algérie	Tourism
CNEP NATIXIS BDL CPA	Banks
Sancella	
Nestle LU La Vache Qui Rit	Foods

   Respondents were encouraged to ask questions about the purpose of the survey ,and to make sure that the meanings of the questions were clear. All such questions were answered during the administration of the survey.

Very few concerns regarding the meanings of the questions were reported. About 60% of the respondents were from financial services (Banks) and the remaining 40% were from no service industries (e.g., production). See Table 2 for descriptive information.

   Data collected through quantitative survey approach . The questionnaires is distributed to 320 employees that work in different companies .

   In order to evaluate the intellectual capital ,measurement for the three levels of IC had to be defined .

   In this study, the responses and information collected from the various statistical methods will be used to analyze the data that we will collect from the 307 respondents. The Statistical Package for the Social Sciences (SPSS, version 17.0) package.

4-2 Respondents Profile :

  The data for the study was collected from 307 respondents from various Algerian organisations. The data set covers various aspects of intellectual capital and business performance. As per the table-2 demographic profiles of the respondents consist of small, medium, and large organisation, where respondents from large organization constitute almost half of the total population in the study. Female participants in the study was one third where as male participants consisted of two third of the total population. Age wise distribution depicts 31-40 age group dominates in the study consisting of more than 40% of the total sample , The almost of the respondent have the license diploma ,it consists28,7%. . The respondents having less than 5years of experience at current organisation is very well present in the study consisting of 56,35%.

Table 2 :Respondents Profile

Parameter	Group	#	%
Sex	Female	181	59
	Male	126	41
Age	20-30	48	15,6
	31-40	139	45.3
	41-50	91	29,6
	>50	29	9.4
Education	Primary	60	19.6
	Medium	68	22,1
	Secondary	83	27
	License	88	28,7
	Post Graduation	8	2,6
Profession	General manager	54	17,6
	Account	46	15
	Branch manager	121	39,4
	Others	86	28
Total Experience	>5years	173	56,35
	< 5 years	134	43,65
Total		307	100

Source : from SPSS

4-3 Descriptive analysis :

4-3-1 The test of the reliability :

  In order to test for the reliability Cronbach's alpha was used to test the reliability of the measures. All variable and sub-variable items were confirmed valid since their factor loading values were more than 0.4. This result mirrors previous studies conducted by Bontis (1998), Bollen et al.(2005) and Bin Ismail (2005).; as shown in the table 3.

Table -3: The test of the Reliability and Normality

Items	Cronbach's alpha	(K-S)Z	Sig
Human capital	0.5602	0.768	0.456
Business performance	0.7846	0.923	0.234

  Source : from SPSS

4-3-2 The Kolmogorov-Smirnov test :

  The Kolmogorov-Smirnov test for normality was used to see whether the responses had a normal curve about the mean. All dependent and independent variables were tested for normality. If the significance level was more than 5 percent, normality was assumed .

Table (3) shows that all the independent and dependent variables are normally distributed.

Table- 4 : Statistical results of summary variables

Items	Mean	Std.Dev	t-value
Human capital	**3.24**	**1.212**	**47.861**
1- Our employees are highly skilled and talented	2.55	1.364	32.744
2- Our employees are widely considered one of the best in our industry	3.49	1.127	54.383
3- Our employees are very creative and innovative	3.20	1.282	43.738

4- Our employees have enough knowledge and skill to finish their own job	3.66	1.036	61.889
5- Employees generally use new idea and knowledge to develop a solution	3.32	1.251	46.554
Business Performance	**3.23**	**0,928**	**70.451**
Consumer satisfaction	**3.25**	**1.545**	**40.585**
16- Complaints on our products/solutions are negligible	3.46	1.123	54.087
17- Customers are delighted with our service capabilities	3.49	3.154	19.396
18- Our service turnover time is one of the lowest in our industry.	3.33	1.288	45.428
19- We give maximum importance to our customers commitments	3.26	1.269	45.002
20- Our employees understand current and future need of our customer	3.09	1.307	41.412
21- Meet customer expectations and strive to exceed customer expectations	2.92	1.343	38.187
Quality	**3,07**	**0.675**	**77,797**
22- Our solutions are very reliable and stable	3.36	0.981	60.001
23- Our solutions are cost effective	3.31	0.584	99.416
24- The defect injection rate is below the industry average	3.03	0.757	70.307
25- We usually prevent repeat mistakes	3.32	0.565	103.189
26- Our acceptance defects density is very low	3.19	0.728	76.884
27- The cost of quality is one of the lowest in the industry	2,21	0,435	56.987
Productivity	**3.22**	**0,673**	**86,916**
28- The solution cycle time is reduced drastically over the period.	3.34	0.735	79.725
29- Our productivity is continuously improving over the time.	3.29	0.713	80.913
30- Our in time solution delivery record is one of the best in industry.	2.77	0.881	55.068
31- Our people easily adapts to new platform compare to our counterparts.	3.32	0.565	103.189
32- Organisation's per person productivity is better than the industry average	3.32	0.565	103.189
33- We share the productivity benefits with our customer which in turn generates repeat business.	3.31	0.584	99.416
Innovation	**3.41**	**0.8215**	**76,507**
34- Usage of reusable components increases the productivity drastically.	3.66	1.036	61.889
35- Reusable components increase the product stability and reduce defect injection rates.	3.36	0.981	60.001
36- We use white papers, case studies, project artefacts in our solutions.	3.29	0.583	99.061
37- Our solution design is very robust	3.33	0.686	85.078

Source : from SPSS

Table 4 depicts the mean scores of each variable and its corresponding construct. Generally speaking, all items scored in the affirmative (1 strongly disagree, 5 strongly agree, with 3 the mid-point) with mean values greater than 3.0. The only item below the mid-point was the use of *question 1,question21* and *question30* at 2.55, 2.92 and 2.77.

4-4 Testing hypothesis :

Hypothesis: An organisation's level of human capital is positively related to business performance.

Since the population for the study is heterogeneous, a stratified random technique has been adopted to select the respondents for the study , 320 respondents were selected randomly from different levels of Algerian organisation. A linear regression model was drawn to explain the relationship between business performance and human capital.

Table 5 : Business performance Vs human capital

Business Performance	Human capital	Multiple R	R^2	Adjusted R^2	Std Error
Customer Satisfaction	HC	0.850	0.722	0.059	4.977
Service /Product Quality	HC	0.781	0.609	0.003	3.283
Productivity	HC	0.528	0.278	-0.002	3.292
Innovation	HC	0.783	0,613	0,077	3.159

Source : from SPSS

As defined in table-5 the linear regression equation customer satisfaction with human capital depicts that the model is well fit with adjusted R^2 all close to 0.6.

The regression equation of the service quality component with human capital influences significantly product or service quality with R^2 value close to 0.6.

The regression equation of productivity component with human capital clearly depict the model is poorly fit with R^2 less than 0.45*.*

The regression equation of organisational innovation with human capital clearly depict the model is well fit with R^2 above 0.6.

Table 6 : human capital Vs Business performance Summary

Performance		*Multiple R*	R^2	*Adjusted R^2*	*Std .Error*
Business Performance	*Human capital*	0.370	0.136	0.022	3.252

Source :from SPSS

As defined in table-25,the regression equation of the business performance with human capital.

The regression equation of business performance component with human capital clearly depict the model are well fit with R less than 0.5*.* Human capital is weak in explaining the relationship with R value 0.370.

The effect of human capital on business performance are significant with R value 0.370 as a whole has an influence on business performance with R value 0.485.

Hypothesis 2:Business performance is positively influenced by human capital

Business performance was regressed again of human capital

The equation for business performance was expressed in the following equation:

$Ys = \beta_0 + B_1X_1$, Where,

Ys = Business performance

β_0 = constant (coefficient of intercept)

X_1 = Human capital

B_1= regression coefficient

Table 27: Regression results of business performance based on the human capital (N=307)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	151.661	1	151.661	9.841	0.002
	Residual	4700.508	305	15.412		
	Total	4852.169	306			

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		Std. Error
1	(Con`stant)	1.005	1.805		6.098	0.000
	HC	0.311	0.131	0.370	3.137	0.002

p> 0.05

Source :SPSS

The relationship between the dependent and independent variables derived by this model can thus be expressed as:

Ys = 1.005+ 0.311X

In the regression analysis shown in Table 5, we investigated the influences of human capital on overall firm performance. The regression model is significant as a whole (F=9.841 : p< 0, 01) ; it explains %35 of the change of firm performance. These results provide empirical evidence human capital is related with firm performance..

In other words,the table also shows the results of the statistical analysis that mentions there is an influence of the intellectual capital dimensions on business performance, with F calculated equal 9,841 at the level of significance(a ≤ 0.05) that means the reject of the null hypothesis and accept the alternative hypothesis.

4-5 Discussion :

The present study found that human capital exhibited positive and weak relationship with performance lending no support to the widespread anecdotal evidence suggesting that talented people are critical ingredient in developing and delivering superior products and services that generate high consumer demand. Employees have argued for quite some time that many of the fastest growing companies over the past several decades (Pepsi, Coca Cola ….) achieved their phenomenal growth and competitive advantage through their talented people but in other

companies especially public sector , the employees say that there is a lack interest to the human capital as a main resource to achieve a competitive advantage .

These results refer the necessary to increase the awareness of the manager, the important of the component of the human capital in result to increase the business performance . The results are in line with J. Choudhury (2010)**.**

Conclusion :

At present , it is difficult to give a financial sense to the knowledge assets because of a lack of tangible collateral. Attempts to measure intangible assets have included treating employees as balance sheet items and measured in money, and using financial variables e.g., discounting a person's output during a lifetime, costing out sick leaves or personnel turnover to create personnel accounting calculations for managers' use.

The question being investigated in this research is : How human capital has an impact on business performance in Algerian companies, we found that human capital has a positive and weak relationship with business performance which the necessary to increase the awareness of the manager, the important of the component of the human capital in result to increase the business performance.

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