دور محاسبة الموارد البشرية في تنمية الموارد البشرية في المؤسسات الجزائرية

– دراسة حالة مؤسسة الخطوط الجوية الجزائرية–

The role of Human ResourceAccounting (HRA) in the Development of Human resources in Algerian enterprises
- Case Study:Air Algérie –

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ملخص: تعتبر محاسبة الموارد البشرية من التقنيات الإدارية الحديثة، التي تعتبر نتاجا لتفاعل نظريات إدارة الموارد البشرية بنظريات المحاسبة الاجتماعية الحديثة، والتي تعتبر أن المورد البشري مورد اقتصادي تفوق أهميته باقي الموارد الاقتصادية الأخرى، باعتباره المورد الوحيد القابل للتجديد، كما أنه مصدر لخلق القيمة وتحقيق الميزة التنافسية للمؤسسة من خلال دفع عجلة الإبداع والابتكار بها، وهو ما يدعو لأن يتم حساب وتحديد مختلف المصاريف المرتبطة به وحساب المداخيل التي يولدها للمؤسسة، لتحليل مستوى مردوديته ومدى فعالية الاستثمار فيه، والمؤسسات الجزائرية مطالبة بتفعيل هذه التقنية الهامة لضمان تنمية موارد البشرية وتطوير مختلف مهاراتها وقدراتها وكفاءاتها لتعزيز قدرتها التنافسية وتحسين مستوى أدائها الشامل.

و هذا البحث يركز على تحليل مستوى تبني المؤسسات الجزائرية لهذه الأداة الهامة، من خلال دراسة حالة إحدى أهم المؤسسات الاقتصادية الجزائرية وهي مؤسسة الخطوط الجوية الجزائرية، وتحليل مستوى تبنيها لمختلف إجراءات محاسبة الموارد البشرية من جهة، ومدى تنميتها لمواردها البشرية والاستثمار فيها من جهة أخرى، وتحديد طبيعة العلاقة بين المتغيرين، ومدى ارتباط تنمية الموارد البشرية بمحاسبة الموارد البشرية، وهو ما يفضي إلى اقتراح العديد من العناصر التي تمكن من تفعيل وتحسين مستوى تبني وتطبيق هذين العنصرين الإداريين الهامين في المؤسسات الاقتصادية الجزائرية.

الكلمات المفتاحية: الموارد البشرية، محاسبة الموارد البشرية، رأس المال البشري، تنمية الموارد البشرية، المؤسسات الجزائرية.

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Introduction

In the past, the value of an enterprise was measured within traditional balance sheets, and it was viewed as a sufficient reflection of the organization's assets. However, with the emergence of the "knowledge economy", this traditional valuation has been called into questions due to the recognition that human capital is an increasingly dominant part of an organization's total value, because all process of the organization are operated by human resources. Hence, the valuation of this resource is very necessary and all information about it should be given to investors, managers and other stakeholders through financial statements.

Over the last two decades, the philosophy of Human Resources Accounting is gaining active consideration. So, HRA is not a new issue in economics, and economists consider human capital as a production factor, and they explore different ways of measuring its investments ineducation, health, training and other areas, also this tool play an effective role in the development of human resources in the enterprise.

Human Resource Accounting is the process of assigning, budgeting, and reporting the cost of Human Resources incurred in an enterprise, including wages and salaries and training expenses. In another way, to measure the added value created by Human Resources and their contribution in the effectiveness of the enterprise, HRAcalculates the productive capacity of the workers, and we can definite it as the art of valuing, recording and presenting systematically the work of Human Resources in the books of accounts of an enterprise, what make it a necessity to improve the performance of human resources in Algerian enterprise.

Key Words: Human Resources, Human Resource Accounting, Human Capital, Human Resources Development, Algerian enterprises.

I- Methodological framework
1- Research Problematic

Due to the importance of variables of research in the scientific and the economic areas, and in order to study all dimensions of this subject, we formulate the following problematic:

- **What is the impact of the adoption of Human Resources Accounting on the Development of Human Resources in Algerian enterprises?**

To address this problem and take action on the aspects that make up the themes of this subject, we have divided it in the form of sub-questions, which are:

- Do Algerian enterprises apply in effective manner the procedures of Human Resources Accounting?
- Do Algerian enterprises improve the level of the process of Development of their Human Resources?
- Does Human Resources Accounting contribute in the Development of Human Resources in Algerian enterprises?

2- Research Hypotheses: To answer these questions, we offer the following hypotheses:

- ➢ Algerian enterprises do not apply in effective manner the procedures of Human Resources Accounting;
- ➢ Algerian enterprises do not improve the level of the process of Development of their Human Resources;
- ➢ Human Resources Accounting contributes in the development of Human resources in Algerian enterprises.

3- Objectives of the study: This study aims to shed light on the reality of Human Resources Accounting in Algerian enterprises by highlighting the development of human resource accounting and its definition, its benefits and models of measurement and evaluation methods, then analyzing its role in the development of Human Resources. And we can summarize the most important objectives of the study, which are:

- Illustrate the concepts and the elements of Human Resource Accounting;
- Determine the degree of application of Human Resources Accounting' procedures in Algerian enterprises;
- Measure the level of the Development of Human Resources in Algerian enterprises;
- Analyze the impact of HRA on the process of Human Resources Development.

4- Importance of the study: The added value of this study is the illustration of the growing importance of intangible resources in general

and the human ones in particular, As the human resources are the most important economic resource in the enterprise, and the opening of the accounting on behavioral sciences contributed to the development and improvement of methods of measurement in general and in the field of human resources in particular.

This subject is still in its beginning because there searches in this subject are rare, particularly in Algeria, which requires further studies on it. Therefore, this study comes in the context of attempts to highlight the theme of Human Resources Accounting exactly in enterprises that are the source of all kind of development in all dimensions economic, social, cultural and especially human development.

5- Research Method

We used the analytical descriptive approach in this study, and this approach is applicable in many researches and studies, especially those dealing with social and economic phenomena, where we read a number of books and studies published in specialized scientific journals, and we have analyzed it in order to serve the objectives of the research, and then we made some suggestions that contribute to giving a useful reference to Algerian enterprises. Also, we used one of their sub-approaches which is Case Study approach through the study of the case of an important Algerian enterprise which is Air Algérie.

II- Theoretical Framework of HRA

HRA is a new branch of accounting, It follows the traditional concept that all expenditure on Human capital formation is taken as a charge against the revenue of period as it does not create any physical asset. Modern view is that cost incurred on any asset as human resource need to be capitalized as it provides benefits measureable in monetary terms. Measurement of cost and value of the people in organization is highly important, costs incurred in recruitment, selection, hiring, training and development of employees along with there economic values are very much relevant for HRA.

1- The conceptual framework of HRA

1-1- Human Capital Theory

The Human Capital theory is an amportant approach proposed by Schultz (1961) and extensively developed by Becker (1964), This theory

has its roots from labor economics which is a branch of economics that focuses on general work force in quantitative term. According to the theory, the education or training raises the productivity of workers by imparting useful knowledge and skills, thus raising workers' future income as well, through increase in their lifetime earnings. The theory postulates that expenditure on education or training and development is costly, and should be considered as investment since it is undertaken with a view to increasing personal incomes. Human capital approach is used to explain or support occupational wage differential.

However, the position of this study is that education or training and development would not only increase employee personal income, it would also serve as a means of achieving corporate competitive advantage which reflects ultimately in organizational performance; and if asset is considered as any expense which benefit is derived beyond one financial year, then it follows that expenses incurred in training and developing the human resources of an organization qualifies to be so called and treated in its books since the benefits from such costs usually last for many financial periods.

Flamholtz and Lacey (1981) as noted by Baney and Wright (1997), opined that human capital theory distinguished between general skills and firm specific skills of human resources. General skills are skills possessed by individuals which provide value to a firm and are transferable across a variety of firms. For instance, all competitor firms have the potential to accrue equal value by acquiring employees with knowledge of general management, the ability to apply financial ratios, or general cognitive ability. On the other hand specific skills, provide value only to a particular firm, and such skill are of no value to competing firms. An instance of this is the knowledge of how to use a particular technology used only by one firm, or knowledge of a firms policies and procedures provided to that firm, but usually would not be valuable to other firms.

In the view of Becker (1964) Human Capital is similar to physical means of productionlike factories and machines. One can invest in human capital through education, training and even medical treatment while one's output depends partly on the rate of return on the human capital one owns. Thus, human capital is a means of productions into which additional investment yields additional output. Human capital is substitutable, but not transferable like land, labour or fixed capital.[1]

1-2- Origin ofHuman Resource Accounting (HRA)

Research during the early stages of development of HRA was conducted at the University of Michigan by a research team including the late organizational psychologist Rensis Likert, founder of the University of Michigan Institute of Social Research and well known for his work on management styles and management theory (Likert, 1961, 1967), faculty member R. Lee Brummet, and then Ph.D. candidates William C. Pyle and Eric Flamholtz. The group worked on a series of research projects designed to develop concepts and methods of accounting for human resources. One outcome of this research (Brummet, Flamholtz & Pyle, 1968a) was a paper representing one of the earliest studies dealing with human resource measurement, and the one in which the term "Human Resource Accounting" was used for the first time. Brummet, Flamholtz & Pyle (1968b) also published another article in which they assessed the impact that HRA can have on management. Flamholtz's (1969) Ph.D. dissertation, an exploratory study in the area of HRA, developed a theory of an individual's value to an organization and how it could be measured though HRA. Brummet, Flamholtz & Pyle (1969) focused on HRA as a tool for increasing managerial effectiveness in the acquisition, development, allocation, maintenance, and utilization of its human resources. The authors' work represented one of the first attempts to develop a system of accounting for a firm's investments and studied the application of HRA in R.G. Barry Company, a public entrepreneurial firm. The early work in HRA provided inspiration for the next phase of early HRA development, basic academic research developing measurement models. Interest in HRA was evident in the many studies conducted since its inception, as noted in Sackmann, Flamholtz & Bullen (1989), Flamholtz, Bullen & Hua (2002), and Flamholtz,Kannan-Narasimhan & Bullen(2004).[2]

1-3- Definition of HRA

HRA is a dynamic concept, which make its definition vary from an author to another, according to their vision and approach, and the most important definitions of this important tool are:

The first definition of Flamholtz which is " accounting for people as an organizational resource. It involves measuring the costs incurred by enterprises to recruit, select, hire, train, and develop human assets. It also involves measuring the economic value of people to the enterprise ".[3]

While his second definition in 1971 is " the measurement and reporting of the economic value of people in organizational Resource".

According to the American Accounting Association's Committee on Human Resource Accounting (1973), Human Resource Accounting is nothing but "the process of identifying and measuring data related to human resource and communicating this information to interested parties". [4]

From this definition, we could recognize that HRA is not only involved in the measurement of data related to placement, training and development of employees but also involved in the valuation of financial condition of people in an enterprise.

2- Issues OF HRA

The following are the major issues which should be considered for implementation of HR A. They are as follows:[5]

- ❖ The traditional accounting procedures, which have been practiced since long have come to stay as acceptable norms. As a result, whenever a new accounting system is developed, it is pitted against the strengths of the traditional system, which is considered to be comparatively objective and free from any bias. Similarly, in the case of HRA also, it is argued that it lacks symmetry with traditional resource as it cannot be included with in the traditional definition of an asset that of a human;

- ❖ There is little agreement concerning the procedure in accounting for human assets. There are proponents and critics of the various approaches like cost and value approaches. This factor has become responsible for the slow development of the concept of HRA;

- ❖ The historical cost approach to develop measures of HRA uses an amortization rate. But it is very difficult to develop norms in this regard. Physically and mentally, individuals grow and deteriorate at different rates. Some grow more capable as a result of their work experience, others do not. Given the difficulty of predicting such changes, it is even more difficult to develop a means of writing off an individual's value. So far, precise measures for amortization of human assets have not been developed;

- ❖ In the recent past, it has been observed that the value based measures of HRA are finding more acceptances with Flamholtz approach being progressively used. However, this approach

depends heavily on the measurement of an individual's or a group's contribution of valuation. But, measurement of contribution, especially at the managerial levels, is quite a difficult task. As a result, this factor proves to be a hindrance in the development of the concept of HRA;

❖ Another issue which has not been settled so far is about the rate at which the prospective stream of contribution is to be discounted or compounded to calculate its present and future value to the organization. A number of applications are available in this process;

❖ If an individual is to be valued normatively, the career path of individuals should be plotted over the span of his probable stay with the organization in the light of the current promotion, and retirement policies of the organization. But such exercise is tedious;

❖ It is possible that apprehension regarding the effect of HRA on human behavior may have forced the organization to be reluctant to use this system. HRA may lead to alienation as the people might feel that they have been reduced to as industrial input commodity. Publicizing of human resource data could have disastrous effect on the attitudes of employees;

❖ The physical assets can be owned and traded by an organization but the human assets cannot and can be only utilized in this regard. The physical assets have some realizable value of retirement but the human resources do not have any such value. They may involve payments of retrenchment, compensation, gratuity and other benefits. Human resources is an appreciating asset since manpower improves with time, with due regard to their ageing constraint, but for physical asset its increasing value at the time of its installation, starts immediately depreciating.

3- METHODS OF VALUATION OF HUMAN ASSETS

There are a number of methods suggested for the valuation of human assets. Many of these methods are based on the valuation of physical and financial assets while others take into account human consideration:

3-1- Historical Cost:

This method was developed by William C.Pyle and adopted in 1969 by R.G.Barry Corporation, a leisure footwear company in Columbus, Ohio, USA. Historical cost is based on actual cost incurred on human resources. Such a cost may be of two types – acquisition cost

and learning cost. Acquisition cost is the expense incurred on recruitment, selection, and placement. While calculating the cost of recruitment and selection, entire cost is taken into consideration including incurred on those who are not selected. Learning cost involves expenses incurred on training and development. This method is very simple in its application but it does not reflect the true value of human assets. For example, an experienced employee may not require much training and, therefore, his value may appear to be low though his real value is much more than what is suggested by historical cost method.[6]

3-2- Replacement Cost:

As against historical cost method which takes into account the actual cost incurred on employees, replacement cost takes into account the notional cost that may be required to acquire a new employee to replace the present one**.** According to this model the value of employee is estimated as the cost of replacement with anew employee of equivalent ability and efficiency. There are two costs, individual replacementcost and positional replacement cost in this model. Cost of recruiting, selecting, training anddevelopment and familiarization cost are account in individual replacement cost. When anemployee present position to another or leave the organization cost of moving, vacancy carryingand other relevant costs reflect in individual replacement cost. Positional replacement cost refersto the cost of filling different position in an organization and this model is highly subjective innature.[7]

3-3- Standard Cost:

Instead of using historical or replacement cost, many companies use standard cost for the valuation of human assets just as it is used for physical and financial assets. For using standard cost, employees of an organization are categorized into different groups based on their hierarchical positions. Standard cost is fixed for each category of employees and their value is calculated. This method is simple but does not take into account differences in employees put in the same group. In many cases, these differences may be quite vital.[8]

3-4- Lev and Schwartz Model

The Lev and Schwartz model (1971) aims to determine the value of human capital associated with an organization. The dichotomy in accounting between human and nonhuman capital is critical to the present authors. According to Lev and Schwartz (1971) Irving Fisher, one of the founders of the theory of human capital, human capital does not distinguish non-human capital. However, to Lev and Schwartz (1971) there is a fundamental difference between the two types of

capital: the ownership of human capital is transferable (not a society of slavery), while human capital is not traded in the market. In a context of certainty, this distinction has no impact in determining the value of capital, since it is understood that there is a perfect knowledge of future income, as well as the discount rate. In a context of uncertainty, it no longer applies. However, for non-human capital (physical capital) we can infer its value by the observation of market values that reflect the present value of future outcomes for the parties dealing in the market. But for the human capital we cannot do the same because it is not traded in the market. Thus, the authors conclude that in a world of uncertainty, there is an important distinction between human and nonhuman capital.

For this they propose that the value of human capital is determined as follows:

1. All employees are classified into specific groups according to their age and skills;

2. The average annual compensation is determined for different age groups;

3. The calculation of total compensation that each group mentioned in point 2. will be up to retirement age;

4. The total remuneration will be calculated at a rate discounted cost of capital. The value arrived at will be the value of the asset / human capital.[9]

4- Benefits and Obstacles of HRA
4-1- Benefits of HRA

Labor is the father of wealth and it should be taken in to consideration in estimating wealth. Cost incurred on any human resources need to be capitalized as it gives benefits measurable in monetary terms.

The major benefits of HRA are as follows:[10]

➢ It develops effective managerial decision making;
➢ It enhances the quality of management;
➢ It prevents misuse of human resources;
➢ It helps the efficient allocation of resources;
➢ It increases human asset productivity;
➢ It influences the individual behavior, attitude and thinking in desired direction;
➢ It helps in long term investment decisions;
➢ It facilitates good performance measurement assessing strengths and shortcomings of an enterprise;

➢ The success of an enterprise depends on quality working force at all levels. It develops business success rapidly;

➢ It provides good basis of human asset control;

➢ It helps the development of management principles;

➢ It ensures good monitoring of effective uses of human resources;

HRA helps also in:[11]

➢ giving valuable information to the management for effective planning and managing human resources;

➢ measurement of standard cost of recruitment, selecting, hiring, and training people and enterprise can select a person with highest expected realizable value;

➢ changing the attitude of managers completely, thereby; they would try to maximize the exempted value of human resources and effective use of human resources in the enterprise;

➢ It also provides necessary data to devise suitable promotion policy, congenial work environment, and job satisfaction to the people.

4-2- Obstacles of HRA application:

Although, the theory of HRA appears to be useful, there is still lack of adequate standards for the valuation of HR. The mere process of putting number to things can easily be taken outside the context of their proper use. It is likely that managers will treat human quantitative data not different from quantitative data regarding the physical plant and machinery.[12]

The most important obstacles in the application of HRA are:[13]

❖ There is no specific guideline for measuring the cost and value of human resources;

❖ Uncertainty of human resources creates uncertainty in its valuation in a realistic approach.

❖ Sometimes discouraging attitude of human resources may frustrate them leading to low

Productivity;

❖ While valuing the human assets, demand for rewards and compensation might be higher;

❖ The nature of amortization to be followed is yet to be fixed up;

❖ Tax laws do not recognize human assets and in that sense it might be theoretical only;

❖ Several methods are available in valuing human resources but there is lack of their wide acceptance;

❖ There is need for developing suitable methods for its valuation.

III- Empirical Study: HRA and its role in the development of HR within Air Algérie

This study is devided in 3 parts, the first part describes the methodology of research, the second part analyzes the data and results of research, and the third part presents hypotheses test results.

1- Research Methodology
1-1- Research Population

The population for this research is all senior executives in two important departments in Air Algérie, which are the department of finance and accounting and the department of human resources, because the senior executives in these departments know the variables of study more than other managers and senior executives in the other departements.

1-2- ResearchSample

From senior executives of this two departments, we selected 90 senior executives as sample of research, 45senior executives from each department, and we distributed 90 questionnaires,the number of recovered questionnaires which can be analyzed is 66 questionnaires, which present the percentage of 73,33% of total distributed questionnaires.

The size of sample is acceptable statistically, because the number of respondents is more than 30 persons, and in other way it is acceptable theoretically due to the validity of results of samples composed of 30 to 500 respondents in the majority of studies in economic and human sciences.[14]

1-3- Questionnaire Layout

In order to analyse the variables of study, the Questionnaire of this research is composed of two parts, the first part shows the data of personal and professional characteristics of respondents (Sexe, Age, Scientific Qualification, Experience, Salary,Department), whereas the second part includes the variables of study in the form of axes to analyze the hypthoses of research, and this study have exactly 2axes to test the validity of its hypotheses, which are:

- The first axis: Level of Application of HRA Procedures in the enterprise, and this axis contains 10 items.

- The second axis: Levelof HR Development in the enterprise, and this axis contains 5 items.

In another way, we used in this study LIKERT scale with five degrees, each degree has point, and those degrees are:

- Totally disagree: 1;
- Disagree: 2;
- Neutral: 3;
- Agree: 4;
- Totally agree: 5.

For means of answers, their classification is determined in the form of intervals, wich are:
- From 1,00 to 1,79: Totally disagree;
- From 1,80 to 2,59: Disagree;
- From 2,60 to 3,39: Neutral;
- From 3,40 to 4,19: Agree;
- From 4,20 to 5,00:Totally agree.

1-4- Statistical methods used in data analysis

The data of the questionnaire are analyzed and treated by the last version of Statistical Package for Social Sciences wich is (SPSS 22), using Cronbach's Alpha coefficient for measuring the reliability and validity of axis and items of questionnaire, and descriptive statistics (frequences, means, standard deviations) for analyzing the results of questionnaire items   and testing the validity of hypotheses.

Also, items of each axis are ranked by the test of Student (One Sample T-test), and it is also used to test the validity of hypotheses with the coefficient of correlation of Pearson which measures and determines the nature of relationship between two variables. In anothe way, to analyze differences between the answers of respondents of sample according to their characteristics we used the method of One Way ANOVA.

The level of significance used is 5% (0,05), which is the most used in human and social studies, and that is mean that the hypothesis is valid only if the value of probability calculated is less than or equals5%, contrary, the hypothesis is invalid if the value of probability calculated is more than 5%.

2- Analysis of data and results of questionnaire

2-1- Analysis of Reliability and Validity of questionnaire

The reliability of items of questionnaire are tested using Cronbach's Alpha coefficient wich measures the reliability of items for each axis and for questionnaire with all its axes, whereas the root of this coefficient measures the validity of items for each axis and for questionnaire with all its axes.

The results of reliability and validity analysis are illustrated in the following table:

Table n°01: Results of Test of Reliability and Validity of Questionnaire

Axis	Number of items	Reliability Coefficient% (Cronbach Alpha)	Validity Coefficient%
Level of Application of HRA Procedures in the enterprise	10	86,77	93,15
Levelof HR Development in the enterprise	5	92,59	96,22
All Axes together	**15**	**93,07**	**96,48**

Source: Results of questionnaire using SPSS

The reliability coefficient is so high for all axes of questionnaire, for all axes together this coefficient is more than 93%, and for each axis it is vary from86% to92%, what confirms the reliability of items and axes of this questionnaires, also the validity coefficient is so high for all axes of questionnaires, and it equals 96,48% for all axes together, and it is vary between 93% and 96% for each axis, what indicates the validity of its items.

2-2- Analysis of personal and professional characteristics of respondents

The sample of this study is composed of 66 respondents, these respondents are senior executives in Air Algérie company, and the data of their personal and professional characteristics show the following results:

- Sexe: 54,55% of respondents are men, whereas the percentage of women is 45,45%, which indicates the equilibrium between the two genders, and the strong existence of Algerian woman in economic enterprises as a manager, and the increase of her role in economic development;

- Age: 51,52% of respondents their ages is between 30 and 39 years, which indicates that the majority of senior executives are young people, what we can consider that is element of strength for this enterprise;

- Scientific Qualification: 72,73% of respondents are graduates, and they have license or master in economics or finance or accounting or management sciences, whereas 27,27% of them are post-graduates and they have PhD or magister in finance or management sciences;

- Experience: 37,88% of respondents their experience in this enterprise is less than or equal to 5 years, whereas 33,33% of them their experience in the enterprise is from 6 years to 10 years, and this confirm that the human capital in Air Algérie is consists of young manages, what ensures a bright future for this enterprise;

- Salary: the salary of 39,39% of respondents is vary between 40000 DA and 60000 DA, and the salary of 28,79% of them is less than 40000 DA, what indactes that the salary of senior exuctives in this two departments is average, and it is less than the salary of technical department;

- Department: 51,52% of respondents are senior executives in Human Resources department, whereas 48,48% of them are senior executives in Finance and Accounting department.

2-3- Analysis of items of axes of questionnaire

2-3-1- Analysis of items of first axis

The first axis of questionnaire presents Level of Application of HRA Procedures in the enterprise, and it includes 10 items shown in the following table:

Table n°02: Items of the first axis

Number of Item	Context of Item
01	The enterprise considers its human resources as an important economic resources.
02	The enterprise applies techniques and mechanisms of HRA.
03	The enterprise possesses a HRA Information System.
04	The enterprise gives a great importance to its employees data because it classify them with its economic resources.
05	The enterprise records and classify its Human Resources data.
06	The enterprise defines its Human Resources costs and fees.
07	The enterpriseapplies accounting procedures to determine the economic value added EVA created by its Human Resources.
08	The enterprise measures the performance of its Human Resources through the analysis of duality Returns/costs.
09	The enterprise measures and valuates the impact of training on its Human Resources performance.
10	The enterprise is looking to develop its HRA systems and ensure their effectiveness through the continuous improvement of all their elements and techniques.

Source: Questionnaire elaborated by searcher.Using statistical tools we analyzed the items of the first axis, and the following table show the results of this analysis:

Table n°03: Results of Analysis of items of the first axis

N° of Item	Mean	Standard Deviation	Degree of Approval	T-Test value	Sig.	Decision	Rank
01	2.95	1.14	Neutral	-0.32	0.75	Invalid item	03
02	2.50	1.10	Disagree	-3.70	0.00	Invalid	05

						item	
03	2.50	1.01	Disagree	-4.02	0.00	Invalid item	07
04	2.86	1.09	Neutral	-1.01	0.32	Invalid item	04
05	3.17	1.21	Neutral	1.12	0.27	Invalid item	01
06	3.15	1.15	Neutral	1.07	0.29	Invalid item	02
07	2.32	1.01	Disagree	-5.48	0.00	Invalid item	09
08	2.21	1.02	Disagree	-6.30	0.00	Invalid item	10
09	2.48	1.07	Disagree	-3.91	0.00	Invalid item	06
10	2.47	0.96	Disagree	-4.47	0.00	Invalid item	08
1st Axis	**2.66**	**0.73**	**Neutral**	**-3.76**	**0.00**	**The level of application of procedures of HRA in Air Algérie is so low**	

Source: Results of questionnaire using SPSS

From results illustrated in previous table, we can conclude the following elements:

- Air Algérie does not consider its employees as an important economic resources, what minimize the value of its Human Resources, especially its senior executives and managers;

- Air Algérie does not apply techniques and mechanisms of Human Resources Accounting, what makes the participation of HRA in the improvement of performance of this enterprise very weak;

- Air Algérie does not possess an information systems of HRA;

- Air Algérie does not consider its employees an economic resources, as a result it does not give a great importance to their data;

- Air Algérie records and classifies its HR data, but not in effective manner;

- Air Algérie defines its HR costs and fees, but not in effective manner;

- Air Algérie does not apply accounting procedures to determine the economic value added (EVA) created by its Human Resources, especially the EVA created by its managers;

- Air Algérie does not measure in effective manner the performance of its Human Resources, because it does not apply the analysis of duality Returns/costs of its HR;

- Air Algérie does not measure and it does not valuate the impact of training on its employees performance, what minimizes the utility of the programs of training, especillay the programs of training of professors in foreign countries;

- Air Algérie does not work on the continuous improvement of all elements and techniques of HRA systems, what minimize their effectiveness.

The previous elements confirm thatthe level of application of procedures of Human Resources Accounting in Air Algérie is so low.

2-3-2- Analysis of items of second axis

The second axis of questionnaire presents the Levelof HR Development in the enterprise, and it includes 5 items shown in the following table

Table n°04: Items of the secondaxis

Number of Item	Context of Item
11	The enterprise considers its Human Resourcesas its most important asset
12	The enterprise improves the competencies and the skills of its Human Resources
13	The enterprise givesa greatimportance to the investment in its Human Capital
14	The enterprise attempts to improve the level of performance of its Human Resources
15	The enterpriseadopts an effective system of Human Resources Development

Source: Questionnaire elaborated by searcher.

Using statistical tools we analyzed the items of the second axis, and the following table show the results of this analysis:

Table n°05: Results of Analysis of items of the second axis

N° of Item	Mean	Standard Deviation	Degree of Approval	T-Test value	Sig.	Decision	Rank
11	2.71	1.06	Neutral	-2.20	0.03	Invalid item	03
12	2.76	1.10	Neutral	-1.80	0.08	Invalid item	02
13	2.71	0.97	Neutral	-2.40	0.02	Invalid item	05
14	2.80	1.01	Neutral	-1.58	0.12	Invalid	01

						item	
15	2.74	0.92	Neutral	-2.28	0.03	Invalid item	04
2ⁿᵈ Axis	**2.74**	**0.89**	**Neutral**	**-2.32**	**0.02**	**The level of HR Development in Air Algérie is low**	

Source: Results of questionnaire using SPSS

From results illustrated in previous table, we can conclude the following elements:

- Air Algérie does not consider its Human Resources as its most important asset;
- The level of improvement of competencies and skills of Human Resources is low in Air Algérie;
- Air Algérie does not give a great importance to the investment in its Human Capital;
- Air Algérie does not improve the level of performance of its Human Resources;
- The system of Human Resources Development adopted in Air Algérie is not effective.

The previous elements indicate that The level of Human Resources Development in Air Algeria is low and need improvements in all its dimensions.

2-4- Analysis of Variance of answers of respondents

We will analyze the variance of answers of respondents according to 4 important characteristics, which are: Scientific Qualification, Experience, Salary, and Department.

2-4-1- Analysis of Variance of answers of respondents according to their Scientific Qualification

For the first axis, the results of ANOVA are illustrated in the following table:

Table n°06: Results of ANOVA of the first axis according to the Scientific Qualification

Scientific Qualification	Number of respondents	Mean	Standard Deviation			
Graduation	48	2.69	0.77			
Post Graduation	18	2.58	0.63	**F test Value**	**Sig.**	**Variance**
Total	**66**	**2.66**	**0.73**	**0.29**	**0.60**	**NO**

Source: Results of questionnaire using SPSS

It is seen from the above table that is no difference in the answers of respondents according to their scientific qualification, which emphasizes the lack of application of procedures of HRA in Air Algeria.

For the second axis, the results of ANOVA are illustrated in the following table:

Table n°07: Results of ANOVA of the second axis according to the Scientific Qualification

Scientific Qualification	Number of respondents	Mean	Standard Deviation			
Graduation	48	2.79	0.92			
Post Graduation	18	2.63	0.83	**F test Value**	**Sig.**	**Variance**
Total	**66**	**2.74**	**0.89**	**0.39**	**0.54**	**NO**

Source: Results of questionnaire using SPSS

It is seen from the previous table that is no difference in the answers of respondents according to their scientific qualification, which affirms that the level of development of Human Resources is low in Air Algeria.

2-4-2- Analysis Of Variance of answers of respondents according to their Experience

For the first axis, the results of ANOVA are illustrated in the following table:

Table n°08: Results of ANOVA of the first axis according to the Experience

Experience	Number of respondents	Mean	Standard Deviation			
Less than or equals 5 years	25	2.76	0.73			
From 6 to 10 years	22	2.50	0.63			
From 11 to 15 years	12	2.76	0.95			
More than 15 years	7	2.66	0.64	**F test Value**	**Sig.**	**Variance**
Total	**66**	**2.66**	**0.73**	**0.57**	**0.64**	**NO**

Source: Results of questionnaire using SPSS

It is seen from the previous table that is no difference in the answers of respondents according to their experience, which affirms the lack of application of procedures of HRA in Air Algérie.

For the second axis, the results of ANOVA are illustrated in the following table

Table n°09: Results of ANOVA of the second axis according to the Experienc

Experience	Number of respondents	Mean	Standard Deviation			
Less than or equals 5 years	25	2.90	0.68			
From 6 to 10 years	22	2.57	0.88			
From 11 to 15 years	12	2.72	0.95			
More than 15 years	7	2.80	1.46	F test Value	Sig.	Variance
Total	66	2.74	0.89	0.52	0.67	NO

Source: Results of questionnaire using SPSS

It is seen from the above table that is no difference in the answers of respondents according to their experience, which emphasizes that the level of development of Human Resources is low in Air Algérie.

2-4-3- Analysis Of Variance of answers of respondents according to their Salary

For the first axis, the results of ANOVA are illustrated in the following table:

Table n°10: Results of ANOVA of the first axis according to the Salary

Salary	Number of respondents	Mean	Standard Deviation			
Less than 40000 DA	19	2.74	0.85			
From 40000 to 59999 DA	26	2.56	0.59			
From 60000 to 79999 DA	9	2.63	0.87			
From 80000 to 99999 DA	7	2.81	0.84			
More than or equals 10000 DA	5	2.70	0.67	F test Value	Sig.	Variance
Total	66	2.66	0.73	0.24	0.91	NO

Source: Results of questionnaire using SPSS

It is seen from the previous table that is no difference in the answers of respondents according to their salary, which affirms the lack of application of procedures of HRA in Air Algérie.

For the second axis, the results of ANOVA are illustrated in the following table:

Table n°11: Results of ANOVA of the second axis according to the Salary

Salary	Number of respondents	Mean	Standard Deviation			
Less than 40000 DA	19	2.84	0.92			
From 40000 to 59999 DA	26	2.66	0.70			
From 60000 to 79999 DA	9	2.62	1.04			
From 80000 to 99999 DA	7	2.94	1.30			
More than or equals 10000 DA	5	2.76	1.08	F test Value	Sig.	Variance
Total	**66**	**2.74**	**0.89**	**0.23**	**0.92**	**NO**

Source: Results of questionnaire using SPSS

It is seen from the above table that is no difference in the answers of respondents according to their salary, which emphasizes that the level of development of Human Resources is low in Air Algérie.

2-4-4- Analysis Of Variance of answers of respondents according to their Department

For the first axis, the results of ANOVA are illustrated in the following table:

Table n°12: Results of ANOVA of the first axis according to the Department

Department	Number of respondents	Mean	Standard Deviation			
Finance and Accounting	32	2.44	0.55			
Human Resources	34	2.87	0.82	**F test Value**	**Sig.**	**Variance**
Total	**66**	**2.66**	**0.73**	**6.19**	**0.02**	**YES**

Source: Results of questionnaire using SPSS

It is seen from the previous table that is difference in the answers of respondents according to their department, The senior executives in the department of Finance and Accountingin Air Algérieaffirms the lack of application of HRA procedurees in the enterprise, whereas the senior executives in the depatement of Human Resources are neutral.

For the second axis, the results of ANOVA are illustrated in the following table:

Table n°13: Results of ANOVA of the second axis according to the Department

Department	Number of respondents	Mean	Standard Deviation			
Finance and Accounting	32	2.44	0.76			
Human Resources	34	3.04	0.92	**F test Value**	**Sig.**	**Variance**
Total	**66**	**2.74**	**0.89**	**8.26**	**0.01**	**YES**

Source: Results of questionnaire using SPSS

It is seen from the above table that is difference in the answers of respondents according to their department, The senior executives in the department of Finance and Accounting in Air Algérie affirms the weakness of Human Resources Development in the enterprise, whereas the senior executives in the depatement of Human Resources are neutral.

3- Test of research hypotheses
3-1- Test of the first hypothesis
It is clear from table n°3 that the first hypothesis is valid, what confirms that Air Algérie do not apply in effective manner the procedures of Human Resources Accounting;

3-2- Test of the second hypothesis

It is clear from table n°5 that the second hypothesis is valid, what affirms that Air Algérie do not improve the level of the process of Development of their Human Resources;

3-3- Test of the third hypothesis

To test this hypothesis we must analyze the correlation between HRA which present the independent variable, and HRD which present the dependent variable, and the following table shows the result of this analysis:

Table n°14: The Correlation between the application of procedures of HRA and HR Development in Air Algérie

Coefficient of Correlation%	Sig.	Observation
84.51	0.00	There is a positive strong correlation

Source: Results of questionnaire using SPSS

The above table shows that is a positive strong correlation between the application of HRA procedures and the Human Resources Development in Air Algérie, what means that if Air Algérie apply these procedures in effective manner the level of HRD will improve, what indicates that the third hypothesis is valid,Human Resources Accounting contributes in the development of Human resources in Algerian enterprises.

IV- Results and Recommendations of research

Through the theoretical and the empirical study, we determined number of results, and we decided to provide some recommendations in order to ensure the application of procedures of HRA in Algerian enterprises and the improvement of its role in the development of their HR, and we present these results and recommendations in the following elements:

1- Results of research

The study concluded a number of results, including the following:

- HRA develops effective managerial decision making, and it facilitates good performance measurement assessing strengths and shortcomings of an enterprise;

- HRA provides good basis of human asset control, and it ensures good monitoring of effective uses of human resources;

- HRA gives valuable information to the management for effective planning and managing human resources;

- HRA improves the measurement of standard cost of recruitment, selecting, hiring, and training people and the enterprise can select a person with highest expected realizable value;

- Algerian enterpises do not measure in effective manner the performance of its Human Resources;

- Algerian enterprises do not develop its HRA systems and it do not ensure their effectiveness;

- The level of improvement of competencies and skills of HR is low in Algerian enterprises;

- The level of application of procedures of HRA in Algerian enterprises is so low;

- HRA plays an effective role in the development of HR in Algerian enterprises;

- The level of HR Development in Algerian enterprises is low;

- If Algerian enterprises apply the procedures of HRA with effective manner, the role of HRA in the development of their HR will increase.

2- Recommendations of research

Through the empirical study, we can make the following recommendations:

- The adoption of integral systems of HRA in Algerian enterprises, and preparing programs of training on principles and procedures of HRA to their managers;

- Defining the elements of HRA with programming a seminars and a colloquies about its philosophy, systems, and all its compenents, and activating the cooperation between the university and the economic enterprises to improve the techniques of HRA in Algerian enterprises;

- The development of the measurement of performance of HR in Algerian enterprises through the integration of HRA in its accounting systems;

- The application of accounting procedures to determine the economic value added (EVA) created by HR in Algerian enterprises;

- The continuous improvement of all elements and techniques of HRA systems to ensure the effectiveness of their role in the development of HR in Algerian enterprises.

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Appendix (01): The Questionnaire distributed to excutive managers in Air Algérie

personal and professional characteristics (to fill)					
Sexe	Age	Scientific Qualification	Experience	Salary	Department

Axis I: Level of Application of HRA Procedures in Air Algérie	Totally Disagree	Disagree	Neutral	Agree	Totally Agree
01 The enterprise considers its human resources as an important economic resources.					
02 The enterprise applies techniques and mechanisms of HRA.					
03 The enterprise possesses a HRA Information System.					
04 The enterprise gives a great importance to its employees data because it classify them with its economic resources.					
05 The enterprise records and classify its Human Resources data.					
06 The enterprise defines its Human Resources costs and fees.					
07 The enterpriseapplies accounting procedures to determine the economic value added EVA created by its Human Resources.					
08 The enterprise measures the performance of its Human Resources through the analysis of duality Returns/costs.					
09 The enterprise measures and valuates the impact of training on its Human					

		Totally Disagree	Disagree	Neutral	Agree	Totally Agree
	Resources performance.					
10	The enterprise is looking to develop its HRA systems and ensure their effectiveness through the continuous improvement of all their elements and techniques.					
	Axis II: Levelof HR Development in Air Algérie	**Totally Disagree**	**Disagree**	**Neutral**	**Agree**	**Totally Agree**
11	The enterprise considers its Human Resources as its most important asset					
12	The enterprise improves the competencies and the skills of its Human Resources					
13	The enterprise gives a great importance to the investment in its Human Capital					
14	The enterprise attempts to improve the level of performance of its Human Resources					
15	The enterprise adopts an effective system of Human Resources Development					