# THE IMPACT OF ICT ON THE EFFICIENCY OF HRM IN CAMEROONIAN ENTERPRISES: CASE OF THE MOBILE TELEPHONE INDUSTRY

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## *Abstract*

*The objective of this study is to determine the impact of Information and Communication Technology on the efficiency of Human Resource Management in the Cameroon mobile Telecommunication Sector. It specifically seeks to investigate how the use of ICT affects the following human resources management practices; Human resource planning, training and development, selection and recruitment, human resource evaluation and compensation .An exploratory research design was employed in the study. A sample of 120 management, senior, junior and contract staffs of the 03(three) main mobile telephone operators responded to a structured questionnaire. The data collected was coded and entered into SPSS version 17. Pearson correlation coefficient was used to establish the relationship between the study variables. Regression analysis was used to establish the combined effect of study variables on the dependent variable. The results show a significant positive relationship between the use of ICT in selection and recruitment, training and development, Human resource planning, evaluation and compensation and human resource management efficiency. This highlights the use of ICT as an efficient tool in Human resource management of enterprises. The use of ICT assures Human resource management efficiency, we therefore suggest that regular Information and Communication Technology training and development should be enhanced so as to allow proper interactions between Human Resource Management and the different departments which could lead to the organizational efficiency.*

**Key words**: *ICT, HRM, HR functions, HRM efficiency, ANOVA test, Telecommunication sector*

## INTRODUCTION

Jimoh (2007) defines ICT as the handling and processing of information (texts, images graphs, instruction, etc) for use, by means of electronic and communication devices such as computer, cameras, telephone. Offodu (2007) also refer to ICT as electronic or computerized devices, assisted by human and interactive materials that can be used for wide range of teaching and learning as well as for personal use. The past decades has witnessed the transition of employee becoming the most precious capital in an enterprise and the ascent of Human Resource Management (HRM) (Schuler, 1990). Nowadays, the business world is undergoing a substantial change: the employee turnover rate becomes high and both the organizational structure and the management pattern change as well. The traditional HRM style fails to catch up with such rapid changes, the traditional style mainly focuses on supportive personnel activities for a company, for example, collecting employee information, monitoring individual performance, and implementing organizational policies (Yu long, 2009). This was a passive, submissive, execution, without self-motivated participation into strategic issue to foresee the challenges of tomorrow (Yu long, 2009). Therefore, there comes a demand for the new HRM that should understand the business strategy, formulate the corresponding management strategy on human resources to improve delivered service, and act as a strategic partner with top management team (Agarwala, 2009).

To meet the demand of today's need, there is an increasing pressure on HRM to support strategic objectives and to focus on value-adding activities, which consequently leads to the change in the job content and the expectations on Human Resource (HR) professionals. Shrivastava et al (2004), Stone et al (2006) note that one of such changes is that the wide, contemporary use of Information Technology (IT) is supporting various HR activities. Moreover, the researchers expect that the increasing use of Human Resource Information Technology (HRIT) can improve the performance of HR professionals and makes them involved in the company internal consulting activities (Albers et al. 1997). In addition, Ulrich (1997) mentions that the use of HRIT provides value to the organization and raise HR professionals' status in the organization.

As such there is little or no room for argument of the notion that "people" are one of the key assets determining the success or failure of an organization and hence the importance of knowledge, skills, attitudes and behaviors of these people for the betterment of an organization. "People" are the key assets that are capable of bringing growth and development in an organization. Though a company does not have absolute power over this asset, they can make use of certain tools and techniques to exert some vital influence over the way they perform towards achieving the mission of the organization. "The adoption of information and communication technology (ICT) in delivering Human Resources management functions, due to the digital revolution in the world is such a tool that

organizations have employ to manipulate the performance and behavior of the people on whom they rely on to achieve business success" (Kovach et al, 2002).

Today, we are living in a world where ICT is being diffused into almost all spheres of human resource activity at an unprecedented rate. Alongside this development, there is an intense debate on the contribution of this technology towards performance and growth on the one hand; and human welfare on the other hand in both developed and developing countries. Internationally, the spread and appropriation of ICTs has been a key dimension of globalization, urging societies to build communications systems, manage them well; develop infrastructure and capacity to use it; and implement good policy and regulation (Kuyoro et al, 2012).

The World Economic Forum acknowledges the role of ICTs as a critical enabler to sustainable socio-economic growth and also a vital ingredient for effective regional coordination in the creation of larger markets. Efforts to build infrastructure in the developing world, both by governments and development agencies, have predominantly focused on providing computer hardware, satellite connections and fiber-optic cabling, the Forum writes in its report on the Southern African Development Community's e-Readiness. (World Bank, 2002)

The development of ICTs brought about a major shift in the world. The Information Age is a contemporary meta-narrative that guides many studies in all fields. As a theoretical space within which to conduct contemporary research, the information age suggests we are moving beyond the industrial age into an era where the sharing of knowledge and ideas is the new driver of power and the world economy. Whether one discusses the emergence of global financial systems or growing citizen solidarity networks, one thing remains common and is at the core of the new society, the solicitation and exchange of the world's most valuable resource; "information". Defined as the new social morphology of our society, ICT is both a structure and a process that enables the exchange, the redirection, and the reception of information, on a global scale, without restraints of space or time. Distance is rendered irrelevant, allowing direct, simultaneous, decentralized, and expanding relations of collaboration, advocacy, trade, production, and innovation, generating new forms of power constellation and distribution (Castells, 2000). As tools that allow immense exchanges of information, ICTs impact many realms. The use of Internet in the quest to promote and defend human rights, international law, and democratic governance, is well documented and is perhaps the strongest asset for civil society struggles around the world today and one of the most positive examples of the space of flows.

Expressed both locally and internationally through ICTs, people's sense of self are increasingly generating a shared sense of experience, beyond the confines of geographic space. Through ICTs, we are experiencing increased exposure to

external influences which have deep impacts on humans and their performance (Greig, 2002). We can now experience "timeliness in a given task" the capacity to function in real-time across the world without delay and at our convenience, with blurred distinction between physical and digital experiences (Castells, 2000). The Information Age also affects us through its media and images, which alter our lives, communities, nations and states, and have tremendous impacts on our identities and our imagination (Appadurai, 1996). Cultural flows are travelling in all directions, to and from both developed and developing countries. Because of the digital divide, the use and benefits of ICTs are a reality and a strategy that still remain out of the reach of many people in the world (Shields, 2003), but we can imagine that few are truly sheltered from the impacts of ICTs. The communications that occur through these channels do spread beyond their initial medium through other means and therefore tend to reach much wider audiences. The contents of online communications have the ability of travelling between the physical and virtual worlds, and back again, both in developed and developing countries. (Lim, 2003).

Yet, recent empirical evidence from developing countries suggested that increased investment in ICTs does not necessarily lead to higher HR performance (Dewan and Kraemer, 2000; Lal, 2001; Chowdhury, 2006). This might reduce the enterprises' incentives to use ICTs, especially when they are facing tight budgetary constraints. In addition, many enterprises are still using traditional methods and these enterprises can switch to use ICTs only if the benefits derived are higher than the investment and maintenance costs. Human resource processes should be focused on the strategic objectives. These strategies are led to prepare an IT strategic plan that in turn translates into an appropriate human resource strategic plan in the field of IT (Sameni and Khoshalhan, 2006).

In the light of developed countries' experience, it appeared that the mere accumulation of ICT capital is not enough. How those technologies are used within the enterprise is determinant. For example, if enterprises introduce complementary organizational changes along with investments in ICT, the performance gains will be more important (Bryjolfsson and Hitt, 2000, Brenham et al, 2002). Note that these complementary investments require technical expertise and financial resources that might be limited in small and medium enterprises. The world today is shaped by the advancement in the field of ICT. The relevance of ICT to the development of corporate organization and the entire world cannot be over emphasized (Olubayo et al,2015). For instance, Cameroon like many countries of the world has realized the integration of ICT for the growth of her economy.

The problem in technological changes is frequently that people and technology do not meet and people do not participate. Walker and Whetton (2002) argue that clear and precise models of operation must be presented when a technology is introduced, and leading advocates should be recruited.

Motivated by advancement in technology, organizations are giving more emphasis to capitalization of their knowledge. To this end, the utilization of various automated techniques for capitalization on the increasing mass of digitized knowledge which organizations generate in the conduct of their business is receiving a great deal of attention. However, as noted by Stewart (1997), "the attempt to put all corporate knowledge on one huge server in the style of the 18th century French encyclopedists is doomed to fail". He continues to argue that the real value of ICT is in connecting people to people, so they can share knowledge and have at the moment, given that the cutting edge is always changing. Therefore, it remains evident that if technology is to foster the effective management of HRM performance in organizations, it has to be able to support not only access to documented knowledge but, most importantly, knowledge held by individuals who are the main resources (assets) for the organization. In addition to enhancing the visibility and traceability of such knowledge, technology need to aim at catalyzing collaboration and knowledge transfer among its holders both within and among organizations. It is with this premises that aiding the process of finding "The impact of ICT on the efficiency of HRM in Cameroonian enterprises" is conceived.

Although there are different explanations for the absence of a relationship between ICT and efficiency (such as, the difficulty of measuring costs and benefits), we propose that, unless organizations have complementary resources, they will be unable to make the most of ICT. According to the theory of complementarities (Gargallo et al, 2007) we consider that the benefits will be greater if ICT is used together with the adequate organizational resources and capabilities, specifically workers' qualifications, proactive direction and innovative culture, taking advantage of complementarities.

Some authors have also attempted to identify differences of the role of IT between services and process oriented industries, and found significant differences (Premkumer, G. 1992). Most of the existing studies were conducted in Western Europe and in the United States, and their result may not be applicable to the other parts of the world due to social and economic differences (Seyal et al, 2000). Comparatively, very little has been researched in this field in the developing countries.

Moreover, in contrast to the extent of interest in these issues in other countries, mainly USA, the organizational changes and labour productivity, impacts of ICT have received little research attention, particularly in Cameroon. Because of it, the main objective of this paper is to offer empirical evidence about the impact of ICT on the efficiency of Human Resource Management functions in Cameroonian enterprises, measured according to several efficiency measurements and taking into account the importance of complementary elements. It also seeks to fill the gap in literature given that no study to the best of our knowledge has been done in this industry.

## LITERATURE REVIEW

### Theoretical Framework

1. ***The Technology Acceptance Model (TAM).*** The most cited theory was the Technology Acceptance Model (TAM). Davis (1989) presented a theoretical model aiming to predict and explain ICT usage behavior, that is, what causes potential adopters to accept or reject the use of information technology. Theoretically, TAM is based on the Theory of Reasoned Action (TRA). In TAM, two theoretical constructs, perceived usefulness and perceived ease of use, are the fundamental determinants of system use, and predict attitudes toward the use of the system, that is, the user's willingness to use the system. Perceived usefulness refers to "the degree to which a person believes that using a particular system would enhance his or her job performance", and perceived ease of use refers to "the degree to which a person believes that using a particular system would be free of effort" (Davis, 1989, p320).

Theory of Reasoned Actions (TRA) The second most cited theory was the Theory of Reasoned Actions (TRA). The theory originates from social psychology, and it is a special case of the Theory of Planned Behavior (TPB) (Ajzen, 2010). Fishbein and Ajzen, 1975) developed TRA to define the links between the beliefs, attitudes, norms, intentions, and behaviors of individuals.
The theory assumes that a person's behavior is determined by the person's behavioral intention to perform it, and the intention itself is determined by the person's attitudes and his or her subjective norms towards the behavior. The subjective norm refers to "the person's perception that most people who are important to him think he should or should not perform the behavior in question" (Fishbein and Ajzen, 1975, p302). Ajzen and Fishbein's (1980) book is focused on the prediction and understanding of human behavior to help in solving applied problems and making policy decisions. The authors state that TRA is applicable, for example, when studying consumer behavior, women's occupational orientations, or family planning behaviors.

Theory of Planned Behavior (TPB), Ajzen (1991) presented a theoretical model, TPB, which focuses on cognitive self-regulation. It is very similar to the TRA model, but the difference is that it takes into account an additional construct, namely perceived behavioral control. Perceived behavioral control refers to the perception of control over the performance of a given behavior. In TRA rational considerations determine the choices and behaviors of individuals, and individual intentions determine behavior. Intentions refer to individuals' plans and motivations to commit a specific act. Intentions also reflect individual attitudes and the extent to which individuals perceive a specific act as desirable or favorable. The theory suggests that human behavior is governed by personal attitudes, but also by social pressures and a sense of control. Ajzen (1991) reviews that the theory was applied for example, theory provided useful

information to understand these behaviors, or to implement effective interventions to change them. In their studies Taylor and Todd (1995) and Mathieson (1991) compared the ability of TPB and TAM to explain behavior and predict an individual's intention to use ICT, respectively.

2. ***The Diffusion of Innovations (DOI).*** The second most cited theory was the Diffusion of Innovations (DOI). Indeed, Rogers' (1983) book "Diffusion of innovations" was the single most cited individual work, receiving 286 citations. DOI is a general theory of how new ideas are spread and adopted in a community, and it seeks to explain how communication channels and opinion leaders shape adoption. Rogers (1983) proposed the first process model, a five-stage model of the implementation and adoption of innovation in organizations. Moore and Benbasat (1991, 192) used DOI to develop "an instrument designed to measure the various perceptions that an individual may have of adopting an information technology (IT) innovation". The instrument was intended to be a tool for the study of the initial adoption and subsequent diffusion of IT innovations within organizations.

Unified Theory of Acceptance and Use of Technology (UTAUT) comes to blend the above cited theories. Venkatesh et al. (2003) developed the unified model through reviewing eight models which explain ICT usage, namely TRA, TAM, the motivational model, TPB, a model combining TAM and TPB, the model of PC utilization, DOI, and the social cognitive theory. The purpose of UTAUT is to explain a user's intentions to use ICT and the subsequent user behavior. The model considers four constructs as direct determinants of user acceptance and usage behavior, namely performance expectancy, effort expectancy, social influence, and facilitating conditions. There are four key moderating variables: gender, age, experience, and voluntariness of use. The authors stated that UTAUT provides a tool for managers to assess the likelihood of success of technology introductions and to understand the drivers of acceptance in order to design interventions, which include, for example; training or marketing. UTAUT focuses on users who may be less willing to adopt and use new systems.

3. ***The Model of the ICT Implementation Process.*** The third most cited theory was the Model of the IT Implementation Process. Cooper and Zmud (1990) took Kwon and Zmud's (1978) model of the ICT Implementation Process and developed it further. The model is based on the "organizational change", innovation, and technological diffusion literature. The purpose of the model is to offer a directing and organizing framework for ICT implementation research. Kwon and Zmud's (ibid.) stage model comprises six stages, namely initiation, organizational adoption, adaptation, acceptance and adoption, routinization, and infusion. Thus, the model covers an implementation process from the scanning of organizational needs to a full and effective use of the technology in daily practice. The model also identifies five contextual factors which impact the processes and products in each of the

implementation stage: the characteristics of the user community, the organization, the technology being adopted, the task, and the organizational environment.

Information Systems Success Model: The last most cited theory was the Information Systems Success Model. DeLone and McLean (1992) reviewed prior research and introduced a comprehensive taxonomy of factors contributing to the success of information systems. The authors examined the literature on Information System (IS) success and categorized success measures into six major categories: system quality, information quality, use, user satisfaction, individual impact, and organizational impact. These categories are interrelated and interdependent and provide a comprehensive view of Information System success. The target of the model is to guide future research efforts.

**Empirical Literature Review**

Human resources management (HRM) was recently re-defined by Armstrong (2009) as a "strategic, integrated and coherent approach to the employment, development and well-being of the people working in organizations… it covers activities such as strategic human resources management, human capital management, corporate social responsibility, knowledge management, organization development, resourcing (human resource planning, recruitment and selection, as well as talent management), performance management, learning and development, reward management, employee relations, employee well-being and health and safety and the provision of employee services".

According to Valverde et al. (2006), Human Resource function is "all managerial action carried out at any level regarding the organization of work and the entry, development and exit of people in the organization so that their competencies are used at their best in order to achieve corporate objectives". It includes the actors as well as their relevant responsibilities and tasks.

From the above concepts, many researchers have carried out different investigations in order to show the relationship between ICT and HRM performance. However, their views on the performance of HRM are all contradicting. Amongst these researchers, we can cite the following:

Mathur (2009) did financial analysis of ICT industry. He attempted to quantify the technical efficiency of the ICT in 52 countries. The proportions of the productivity growth attributable to efficiency and technical change due to ICT were also quantified. The study found that the productivity growth in the ICT sector is developing and newly industrialized countries is slightly lower than the growth in developed and transition countries, suggesting the catching-up of developing and newly industrialized countries. The main limitation of this study was that the data collected from all the countries was not firm level data to

determine how ICT affects the HR performance but most of the data was country level data.

Zafar (2009) studied the electronic HRM (e.HRM) practices in State Bank of Pakistan. The purpose of his study was to determine at which level ICT related changes are being adopted in the HR department and how they are contributing to the professional competence of HR department in Pakistan with focus on State Bank of Pakistan. The study identified that e.HRM practices are not yet fully visible in Pakistan; things will take time to improve. It was also found that employees are happy with technological changes in HRM as it is making their work easier. The major limitation of this study was that the researcher kept his more focus on already available literature which did not provide any evidence from Pakistan. No face to face interactions with the respondents took place that again limits the worth of the findings.

Zwick (2003) studied the impact of ICT investment on productivity for a large and representative German establishment panel data set. Those establishments without ICT capital were also included in the data set to compare the results with those having ICT capital. The data set of his study involved information on about 1400 German establishments. The cross sectional regression analysis of the data indicated that ICT investment substantially increases the average productivity of German establishments. The limitations of the study was that the corresponding size of the ICT investment was not known, the only thing known was an establishment invested in ICT.

Saleem and al (2011) study; attempted to measure Impact of ICT on Organizational Productivity (Efficiency and Effectiveness); which leads to Organizational Performance ( Cost, Time, and Quality) using IRA (ICT role and adoption model). Barriers in ICT Adoption and impact of ICT Literate human capital on organizational productivity were also explored. The target population included computer professionals, administrative staff and faculty members of Higher Education Institutes from various geographic locations of Pakistan, including Islamabad, Lahore, Rawalpindi, Peshawar, and Multan, DG Khan and Faisalabad and some other cities. The study found significant relations of ICT adoption on the effectiveness; nonetheless ICT adoption is insignificant on efficiency; however the relationship between the two is positive. The barriers to adoption were found to be less evident. The study has some limitations too which include the sample is just from those members who were IT literate not from other areas. The quantitative analysis was just based on correlation analysis.

A research paper by a Cincinnati, Ohio-based HRIS consulting firm, Insight Consulting Partners (CP), (2003), Notes that enterprise applications tend to push organizations toward more centralized and integrated HR and IT infrastructures. Thus, HRIS can support long-term planning with information for labour force planning as well as supply and demand forecasts, staffing with information on

equal employment, separations and applicant qualifications and development with information on training program costs and trainee work performance. It can also support compensation programs, salary forecasts, pay budgets, labor/employee relations with information on contract negotiations, and employee assistance needs (Kovach et al, 2002).

Doran, (2001) a consultant with more than 25 years of experience, insists that behind every successful HRIS implementation there is a thorough need analysis. Further, literature suggests that success in the implementation phase relies on the ability of managers to manage change. McDonagh, (2001, Spring), another organizational challenge is the creation of performance metrics to assess the value-added contribution of new HRIS initiatives (Hagood, and Friedman, 2002)

An extensive body of literature exists on the usage, adoption, implementation and application of ICT (Seyal et al 2000). However, most of the existing studies have focused on the use of IT in general (Ange and Koh, 1997). Regrettably empirical studies and the theory on how ICT influences organizations are still underdeveloped (Wang, 1997). One area receiving little attention in the research on successful ICT use is HRM practice (Othman and Teh, 2003). In particular, there are three new areas of development which need more empirical research and application: the information technology innovation and e-HRM developmental approaches, the globally distributed engineering and international technology entrepreneurship, professional service, and customer relations management modeling Wang, (2005). This is further supported by Shrivastava and Shaw 's (2003) observations that, despite evidence of increasing use of HR related technology by individual firms, there has been little theory development in this area. Similar observations demonstrate that the existing literature has paid little attention to assessing the impact of IT on HRM in various organizations in different sectors in a systematic way. Studies conducted by Elliott and Tevavichulada (1999) and Currie (1996) represent some progress in this direction. They have indicated that the sector in which the organization operates is significant in terms of influencing the structure of IT activities.

**Methodology of the study**

In order to achieve the objective of this study, data was collected from the workers of the 03(three) major telephone operators in Cameroon through face to face interviews with the help of a structured questionnaire. The choice of these enterprises is justify by the fact that this sector is concerned with the provision of information and communication technology services, these three enterprises also account for more than 75% of the market share of the mobile telephone industry in Cameroon. These enterprise are among the first 100 enterprises in Cameroon in terms of turnover. The sample was drawn to get information from all the categories of the work force of the three enterprises; management, senior, Junior and contract staff where interviewed. Hence we administered 125 questionnaires and recuperated 120, giving a recuperation rate of 96%.

Management staff constituted 16.7% of our sample while the senior staff account for 33.3% and junior staff account 20% while contract staff make up 30% of our sample.

The table below shows the distribution of the population by staff category.

**TABLE 1.A**: Staff Category

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Management | 20 | 16,7 | 16,7 | 16,7 |
| | senior | 40 | 33,3 | 33,3 | 50,0 |
| | junior | 24 | 20,0 | 20,0 | 70,0 |
| | Contract | 36 | 30,0 | 30,0 | 100,0 |
| | Total | 120 | 100,0 | 100,0 | |

Source: computed by author from the field work

**Data Collection Instruments**
Self-administered questionnaire were used to collect data from respondents. The questionnaire was anchored on 5 point Likert scale ranging from "5" strongly agree to "1" strongly disagree. The interview method was used to ensure the high rates of response, as well as allowing for clarification of possible ambiguities related to questions asked.

**Questionnaire**
Since our theories show that there exist a reality (positivism) that defines the relationship between the human resource management functions and the performance of enterprises, we believed that the questionnaire will help us to a precise and authentic evaluation of the concepts. We then administered our questionnaire on 120 voluntary and available workers and some managers. A questionnaire is an instrument of investigation which, according to Ghilione and Mathalon(1978) is rigorously standardized with its text as well as its order, containing questions posed in the same manner in order to guarantee the compatibility of the responds in the research.

The questionnaire used in this research; is constituted of a preamble and 02 parts the preamble had an as objective to define the theme of research, it equally constituted of some personal information of the respondents such as: age, gender, present occupation in the enterprise. The organization of the questionnaire is given below:

***Part I of the Questionnaire**:* This part is dedicated to capture ICT tools used in the different human resources functions. Four Human resource management

practices where used. Selection and recruitment, Training and development, HR evaluation and compensation, and finally Human resource planning. These HRM functions where sub divided into sub questions which permitted to efficiently capture the contribution of these tools to performance of the different human resource practices.

**TABLE 1.B:** The Different Variables of Human Resources Efficiency

| Variable | Type of variable | Description |
|---|---|---|
| Performance measurement in terms of efficiency (**efficiency)** | Dependent variable | Captures the efficiency of Human resource |
| The use of ICT assures the efficiency of Human resource planning (**HR planning)** | Independent variable | indicator of efficiency of ICT tools in HR planning |
| ICT usage for HR functions ensure better training and development (**training and development)** | Independent variable | indicator of efficiency of ICT tools in HR training and development |
| The use of an online platform for selection and recruitment ensure accuracy of information (**selection and recruitment)** | Independent variable | indicator of efficiency of ICT tools in HR Selection and recruitment |
| The use of computers for weekly planning of work assures efficiency of workers (HR evaluation and compensation) | Independent variable | indicator of efficiency of ICT tools in HR evaluation and compensation of workers |

Source: Author's conception.

***Part II of the Questionnaire:*** This part deals with the appraisal of human resource efficiency, it seeks to evaluate how the human resources perform due to the use of ICT tools at the different levels of human resource functions. In order to capture efficiency of human resources management, different variables where used. Variables which capture the efficiency of the use of the different ICT tools where used.

**Data Processing and Analysis**

Data from the field was compiled, sorted, edited and coded to have the required quality, accuracy and completeness. Then entered into the computer using the Statistical Package for Social Sciences (SPSS v. 17.0) for analysis. The data was analyzed according to the research questions. Tables and bar charts, Pearson correlation coefficient was used to establish the relationship between the study variables. Regression analysis was used to establish the combined effect of study variables on the dependent variable. The following variables are going to be used in this study.

Thus the following equation shall be estimated using the ordinary least square method.

$$efficiency = \alpha_i + \beta HR\ planning_i + \gamma training\ and\ development_i + \delta Selection\ and\ recuitment_i + \omega HR\ evaluation\ and\ compensation_i + \varepsilon_i$$

Where $\beta$,$\omega$, ,$\delta$ are coefficients and $\varepsilon$ the error term

**Results and Discussion**

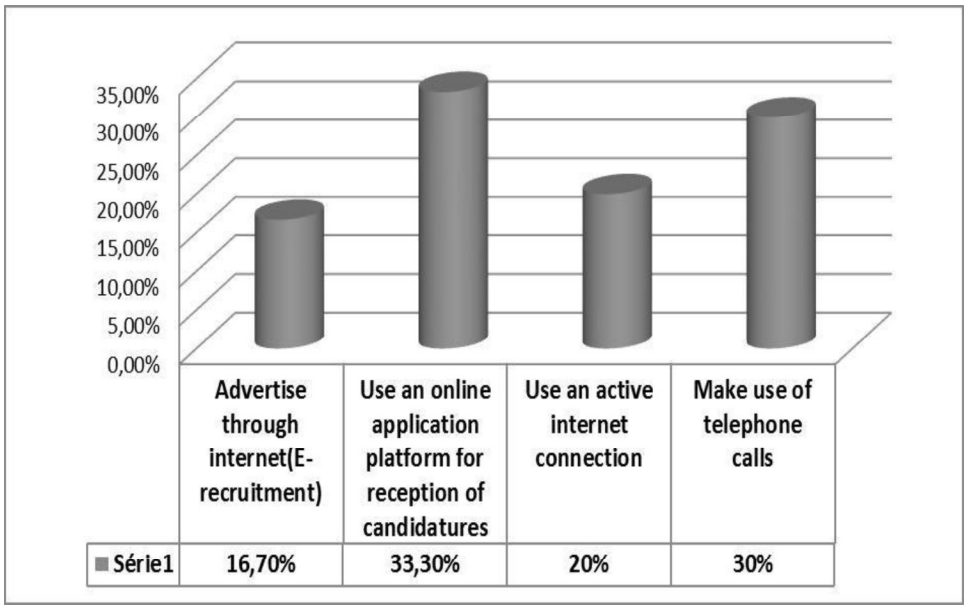
Before appraising the efficiency of the use of ICT tools in human resource management, it is important to first of all look at the various ICT tools used at different levels of the human resource management practice. The graphs below shows the main tools used. We are going to go further to look at the relationship between the variables through the Pearson correlation test before presenting the results of the regression analysis.

The graph shows that 33.30% of our respondent affirmed the fact that an online application platform for reception of candidature is mostly used during selection and recruitment, while 30% and 16.70% affirmed the use of telephone calls and internet recruitment (e-recruitment) respectively. Only 20% affirmed the active use of internet connection during selection and recruitment.

**ICT tools used in training and development of Personnel**

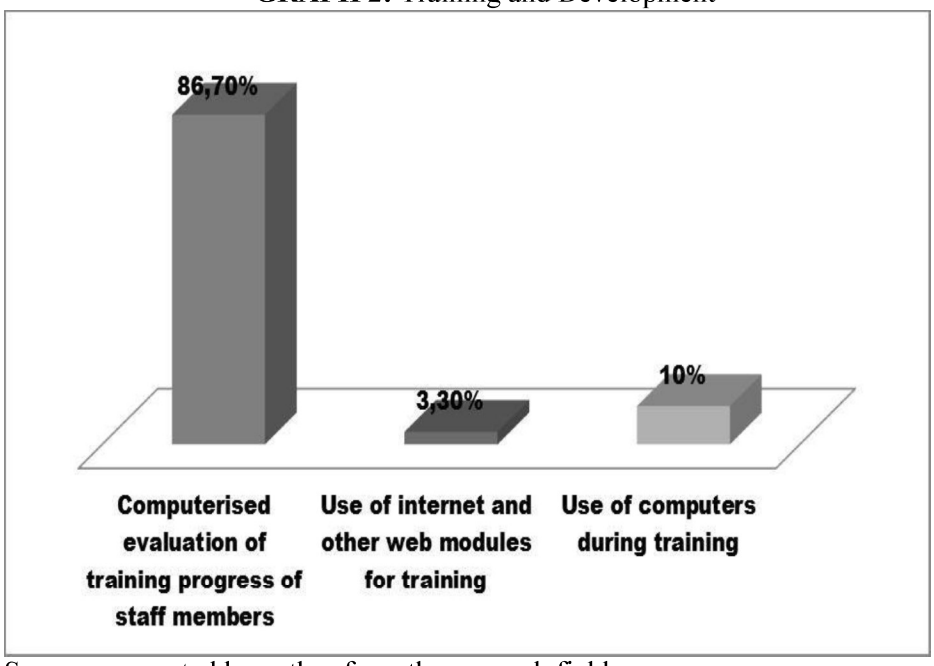
The graph below shows the principal ICT tools used for the selection and recruitment of personnel.

**GRAPH 1:** Tools used for Selection and Recruitment




Source: computed by author from the research field

**GRAPH 2:** Training and Development




Source: computed by author from the research field

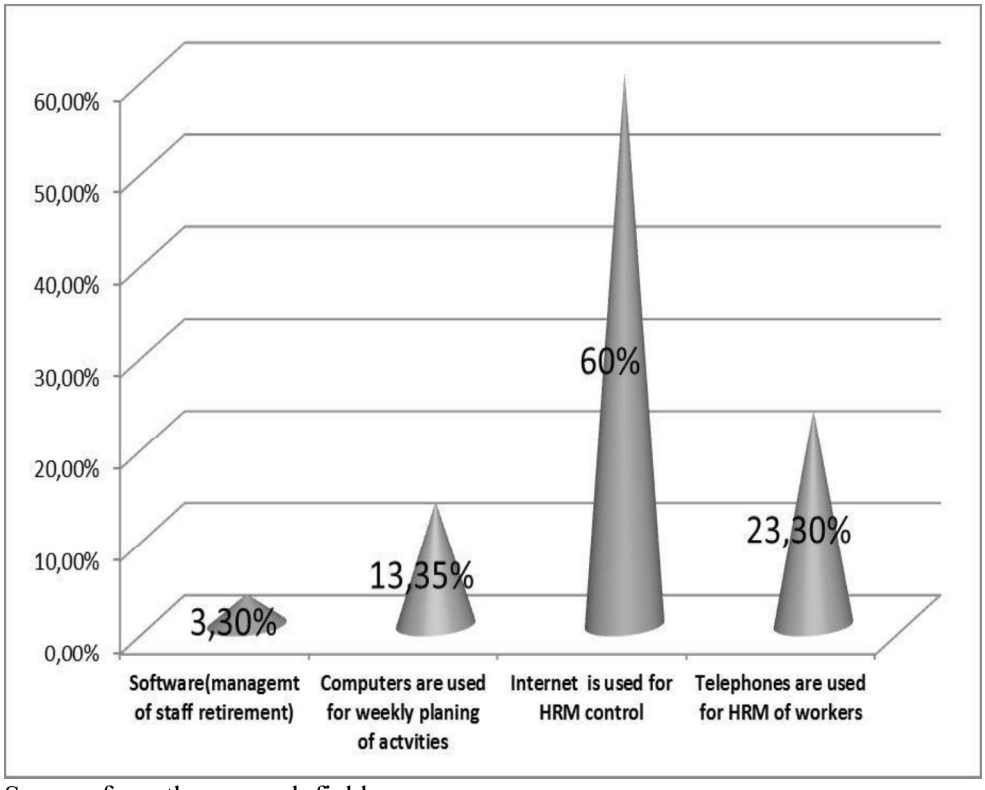
The table above show that 86.70% of our respondent affirmed that during training and development, a computerised evaluation of training progress of staff

members is highly used. While only 10% and 3.30% of the respondent confirmedthe use of computers and internet during training and development respectively.

**ICT tools use in HR planning**

The graph below shows the distribution of ICT tools use in HR planning. From the table, 60% of our respondent affirmed that HR planning make good use of Internet to plan and control human Resources. While 23.30% affirmed the use of a Telephone call to manage workers talents. On the other hand, 13.35% and 3.30% respectively confirmed that weekly and monthly activities as well as management of staff retirement make use of ICT tools during the HR planning.

**GRAPH 3: Tools Used In HR Planning**

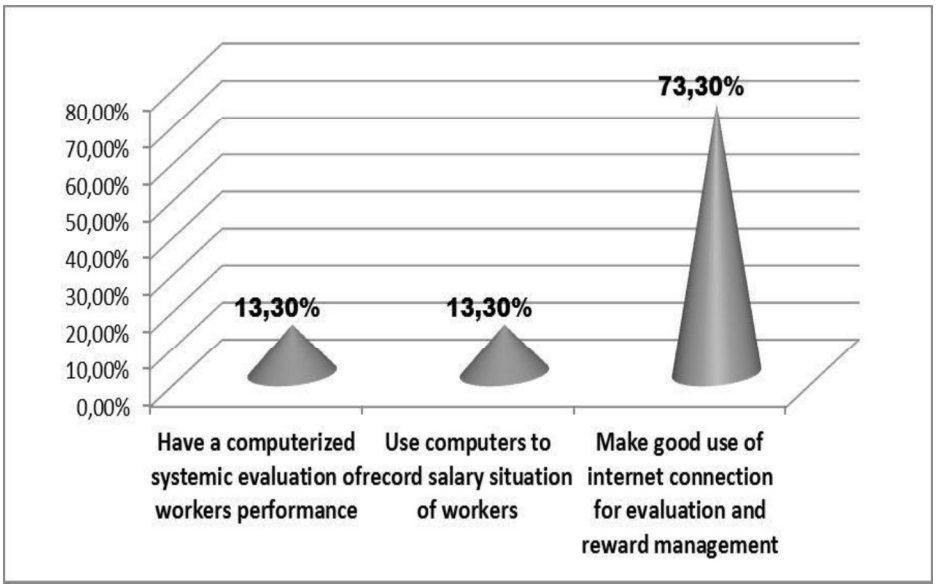



Source: from the research field

**ICT tools used in HR evaluation and compensation**

The graph below shows that 73.0% of our respondents affirmed that HR evaluation and compensation make good use of internet connection for evaluation and reward management, while 13.30% of our respondent respectively affirmed that HR have a computerised system for the evaluation of workers as well as uses a computer to record salary situation of workers.

**GRAPH 3:** ICT tools used in HR evaluation and compensation




Source: computed by author from the research field

**Impact of ICT Usage on Human Resource Efficiency**

Here we are going to look at the correlation analysis and equally going to see the results of the ordinary least square regression. Correlation permits us to see the relationship between the variables of our study; it shows the level of significance between these two variables. The following table shows the relationship between the variables of our study.

***Table 2: Pearson correlation test***
***Correlations***

Performance measurement in terms of efficiency. The use of ICT assures the efficiency of Human resource planning .ICT usage for HR functions ensure better training and development The use of an online platform for selection and recruitment ensure accuracy of information The use of computers for weekly planning of work assures efficiency of workers.

Here we seek to verify the relationship between the variables of our study, we are going to look at the relationship between the dependent and independent variables. The result shows that the use of ICT in human resource planning leads to a reduction in the efficiency of human resource, this is significant at 1% level. There is a positive and significant relationship between the use of ICT tools in training and development of workers and workers efficiency. This is principally

because ICT tools permits this training at a lower cost and at a faster rate leading to a faster acquisition of new skills.

**TABLE 2: Pearson Correlation Test**

**Corre lations**

| | | Performance measurement in terms of efficiency | The use of ICT assures the efficiency of Human resource planning | ICT usage for HR functions ensure better training and development | The use of an online platform for selection and recruitment ensure accuracy of information | The use of computers for weekly planning of work assures efficiency of workers |
|---|---|---|---|---|---|---|
| Performance measurement in terms of efficiency | Pearson Correlation | 1 | -,250** | ,720** | ,352** | ,770** |
| | Sig. (2-tailed) | | 0,007 | 0 | 0 | 0 |
| | N | 116 | 116 | 116 | 116 | 116 |
| The use of ICT assures the efficiency of Human resource planning | Pearson Correlation | -,250** | 1 | -,296** | -0,092 | -0,068 |
| | Sig. (2-tailed) | 0,007 | | 0,001 | 0,317 | 0,461 |
| | N | 116 | 120 | 120 | 120 | 120 |
| ICT usage for HR functions ensure better training and development | Pearson Correlation | ,720** | -,296** | 1 | 0,025 | ,284** |
| | Sig. (2-tailed) | 0 | 0,001 | | 0,783 | 0,002 |
| | N | 116 | 120 | 120 | 120 | 120 |
| The use of an online platform for selection and recruitment ensure accuracy of information | Pearson Correlation | ,352** | -0,092 | 0,025 | 1 | ,249** |
| | Sig. (2-tailed) | 0 | 0,317 | 0,783 | | 0,006 |
| | N | 116 | 120 | 120 | 120 | 120 |
| The use of computers for weekly planning of work assures efficiency of workers | Pearson Correlation | ,770** | -0,068 | ,284** | ,249** | 1 |
| | Sig. (2-tailed) | 0 | 0,461 | 0,002 | 0,006 | |
| | N | 116 | 120 | 120 | 120 | 120 |

Note: Figures in parentheses are t-stat. of the estimates; and ***, **, and * indicates 1%, 5%, and 10% significant levels, respectively

Source: Computed by author using SPSS version 17

The use of an online platform for selection and recruitment of employees exposes the position to a large number of potential employees or job seekers, this leads to the possibility for the human resource manager to select and recruit the best. This explains why there is a positive and significant relationship between these variables. The positive relationship is positive at 1% level of significance.

The use of computers for a weekly planning of the activities of the human resource assures the efficiency of human resource, this is seen through a positive and significant relationship between these two variables, the relationship is significant at 1% level.

**Results Regression Analysis**

Regression analysis permits us to verify the impact of each of our independent variables on our dependent variable. The table below shows results of our regression.

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | ,957[a] | ,915 | ,910 | ,29937114 |

Source: author's finding

We see from the table above that our coefficient of determination R square is 0.915 which means that 91.5% of HR efficiency is explained by our independent variables. This shows that our model is good and is well explained by our independent variables. We are going to verify the global significance of this model using the ANOVA test.

**TABLE 3:** The ANOVA Test

**ANOVA[b]**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 103,055 | 5 | 20,611 | 189,800 | ,000[a] |
| | Residual | 11,945 | 110 | ,109 | | |
| | Total | 115,000 | 115 | | | |

Source: Author's finding

We see that globally our model is good; the critical value of our F-statistics is significantly greater than that in the table of t- statistics thus indicating that globally our model is good.

The impact of ICT as an efficient tool for HRM Efficiency in the Cameroon context

The regression table shows how the different human resource tools contribute to the performance of human resource.

**TABLE 4:** Regression Result

| Coefficients[a] | | | | | | |
|---|---|---|---|---|---|---|
| | | Unstandardized Coefficients | | Standardized Coefficients | | |
| Model | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | -3,734 | ,176 | | -21,244 | ,000 |
| | ICT assures the efficiency of HR evaluation and compensation | ,184 | ,059 | ,091 | 3,102 | ,002 |
| | ICT usage for HR functions ensure better training and development | 1,067 | ,060 | ,535 | 17,647 | ,000 |
| | The use of an online platform for selection and recruitment ensure accuracy of information | ,380 | ,062 | ,203 | 6,145 | ,000 |
| | The use of computers for weekly planning of work assures efficiency of workers | ,958 | ,050 | ,593 | 19,063 | ,000 |
| a. Dependent Variable: Performance measurement in terms of efficiency | | | | | | |

Source: Computed by author using SPSS version 17

Thus we can summarize the table in the following equation

Performance in term of efficiency = -3.75 +0.184(HR evaluation and compensation) + 1.067 (training and development) + 0.380 (selection and recruitment) + 0.958 (HR planning).

The use of ICT in HR evaluation and compensation is efficient, a unit change in the use of ICT in HR evaluation and compensation leads an increase in HR performance by 0.184, this is significant at 1% level. This is because with a computerized system of evaluation favoritism and tribalism in evaluation is

reduced since there is a computerized system of evaluation, records are well kept and can easily be assessed and decisions made quickly.

ICT usage for HR functions equally stand out tall as an important factor that enhances training and development of personnel, this has a significant positive effect on the efficiency of human resource. A unit change in ICT usage for training and development would lead to an increase in efficiency by 1.067 points. Workers are now able to quickly acquire new skills and a cheaper cost especially with the coming of online education which is highly used by major corporations for the training and development of their HR.

The use of an online platform for recruitment is a significant contributor to the efficiency of HR, it permits the human resource manager to have access to the most qualified job seekers and also help them in selection and recruitment of the best staff. This is why this relationship is significant at 1% level, thus a unit change in the use of online platform for recruitment would lead to 0.380 unit change in the HR efficiency.

The use of computers for weekly planning of activities assures a good follow-up and globally the efficiency of our HR. thus a unit change in the use of computers for a weekly planning of work leads to an increase in HR efficiency by 0.958 points, this is significant at 1% level of significance.

We see that ICT tools used for the different HR functions contribute significantly to the efficiency of the HR. All our variables are significant at 1% level. These results corroborates with the findings of Mohammed (2015) who studied the effect of ICT on human resource practices in Algeria, although this study instead empirically verifies the role of ICT as an efficient tool in HRM in Cameroon. The method and instrument of our data collection as described above permitted us to verify our first proposition. We see therefore that ICT usage in HRM as an efficient tool permit the HR to execute her various functions efficiently. This is confirming at the 1% level of significance.

## CONCLUSION

It was confirmed that the use of ICT tools leads to the efficiency of HR management. We went further to empirically investigate this within the Cameroon context, we first determined the major ICT tools used in the different HR functions, we then went further to determine their impact on HRM performance measure in terms of efficiency. Using correlation and regression analysis we noticed that there is a significant positive impact of usage of ICT tools on the efficiency of HRM performance in terms of efficiency. This results shows that ICT has a significant positive effect on the efficiency of human resource management. However, this study did not just go through without any limitations. The first limitation of this study was that of time. The time allocated

for the research was too small for us to carry out the sample on a large scale. This makes us to limits our observations only to 120 (120 observations). This is however small when comparing or looking at similar studies of Zwick (2003) whose observation was based on 1400 sample. Equally, Access to information wasn't that easy.

**Areas for Future Research**

This study was based on the effect of the use of ICT as a tool for human resource efficiency in Cameroon with case study the Mobile telephone industry in Cameroon. Extending this research to other sectors so as to verify the divergence will be very interesting.

The impact of ICT on human resource management efficiency in the public sector in Cameroon will also be very interesting.

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