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## Usage and Acceptance Level of ICT in Human Resource Management and Development by Private and Government Institutions in Bangladesh

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### **Abstract:**

*Human resource is one of the most important resources for any organization. This paper examines the usage and acceptance level of ICT in human resource management and development at different institutions in Bangladesh. Frequency distribution, descriptive statistics, chi-square analysis have been used. The data are collected from 67 private, government and Public Private Partnership (PPP) organizations from different areas in Gopalganj, Bangladesh by purposive sampling technique. Descriptive statistics shows that the usage level of ICT in most of the areas of human resource management and development in the private institutions is much more than that of government institutions. On the other hand, the usage level of ICT in most of the areas of human resource management and development in the banking and financial organizations is much more than that of other organizations. In  $\chi^2$ -test, the selected human resource management and development related variables – recruitment, maintenance and development, management development, skills development and organizational development – have strong association with acceptance level of ICT in human resource management and development among different private, public private partnership and government institutions in Bangladesh.*

**Keywords:** Information and Communication Technology (ICT), frequency distribution, descriptive statistics,  $\chi^2$ -test and Bangladesh.

### **1. Introduction**

This is the age of information, an individual, whether in personal life or in professional life, spends much of his time to gather, record and process information. Computer enthusiasts like to claim that they have changed the world, and it is hard to deny that computers have had a significant impact. More the information is accurate and exact, more is the chance for better decision making for all types of professionals (Hossain and Haque, 2013). The computer is the most important tool which transforms information and data handling in all fields of human endeavor (Chan, 1999); and it is also one of the components of information and communication technology (ICT). ICT plays a crucial role in the present knowledge based economy hence, organizations tend to rely heavily on ICT solutions in order to develop and grow businesses (Asgarkhani and Young, 2010). The use of ICT increases the supply of information. ICT removes distance and time constraint in accessing required information flows, reduces the cost of production as knowledge is produced, transmitted, accessed and shared at the minimum cost (Spanos et al., 2002). It reduces the degree of inefficiencies and uncertainty (Buhalis, 2003). There is a growing requirement in recent times for stronger cost control and a demand for higher returns in businesses (Milis and Mercken, 2003) and the use of ICT in many organizations has assisted in reducing transactional cost, overcome the constraints of distance and have cut across geographic boundaries thereby assisting to improve coordination of activities within organizational boundaries (Shanker, 2008). ICT also leads to more transparency in organizations (Shanker, 2008; Kollberg and Dreyer, 2006). In general, the widespread use of ICT has been associated with numerous changes in internal business processes to improve flexibility as organizational structure, job design, requisite employee skills (Arabsheibani et al., 2004; Bartel et al., 2007; Bayo and Lera, 2007). More specifically, various studies make the link, theoretically and empirically, between the employment effect of firms' ICT investments and the impact of ICT diffusion on organizational aspects related to human resources (Arvanitis and Hollenstein, 2001; Bartel et al., 2007; Hunter and Lafkas, 2003).

Human Resource Management (HRM) is the utilization of human resources to achieve organizational objectives. Since overall business markets have increased great competitions, HRM gradually appears to be enormous and expanding (Sphr, 1999). Nowadays, the HRM system normally includes human resource planning, recruitment and selection, human resource development, compensation and benefits, safety and health, and employee and labor relations (Sphr, 1999). The performance of Human Resource Management (HRM) has a tremendous impact on growth, market and productivity especially in today's global competitive market (Wang, 2006). Technology and HRM have a broad range of influences upon each other, and HR professionals should be able to adopt technologies that allow the reengineering of the HR function, be prepared to support organizational and work-design changes caused by technology, and be able to support a proper managerial climate for innovative and knowledge-based organizations (Hempel, 2004). Technology has considerable potential as a tool that managers can utilize, both generally and in human resourcing functions in particular to increase the capabilities of the organization (Tansley

and Watson, 2000). Moreover, it frees HRM managers to become strategic members of the top management team (Strohmeir, 2007) and helps to connect HRM to business. Technological advances are being driven primarily by strong demands from human resource professionals for enhancement in speed, effectiveness, and cost containment (Buckley et al., 2004). The 'early bird' areas of HRM adoption of IT were e-recruitment and e-learning (Snell et al., 2001). In the developed world, advances in ICT has enabled automation of literally any function of HR-staffing, training and development, compensation, pay and benefits, performance management and career development (Wachira, 2010). Recently Bangladesh is trying to go under the umbrella of digital controlling systems with the slogan "Digital Bangladesh", it is only possible by ensuring use of computer technology in all aspects of life especially in the professional perspective (Hossain and Haque, 2013). Thus computer technology is now being used in human resource management and development areas by different private and government institutions in Bangladesh. Multinational corporations mainly brought the idea of HRM in Bangladesh during the mid-90s. Alongside the multinational corporations, a few other national organizations including Bangladesh Bank, Central Bank of Bangladesh, introduced the same practices in their personnel management in a very modern way. This current trend reinforces the new strategic roles of human resource management in attaining the goals by firms of Bangladesh. Initially, the human resource management practices were done manually by most of the organizations in Bangladesh. Now, almost, all modern organizations (manufacturing and service) are using computer based information systems in managing their human resource functions (Bhuiyan and Rahman, 2014). Application of ICT technologies requires human capabilities to handle technologies (Lee, 2001) and the successful implication of ICT technologies in human resource management and development in different private and government institutions and organizations depends on the usage level of ICT by these institutions and organizations.

In Bangladesh, very few researchers have conducted such kind of study. After being aware of the role of ICT in organizations' efficiency and effectiveness and human resource management and development, it is needed successful implications of ICT in human resource management and development areas because the successful implication and application depend on the usage level of ICT in human resource management and development by the organizations. Therefore, the objective of this study is to assess the usage and acceptance level of ICT in human resource management and development areas by the private and government institutions in Bangladesh. The sample size is comparatively small and it is the limitation of this study. Another limitation of this study is financial constraint for which it has not been possible to take random sampling technique for collecting sample. The limitations of this study will help the other researchers to fill up the study gap and further development. This paper would be benefitted to the HR policy makers, ICT policy makers, government, NGOs, academicians, researchers, students and other stakeholders of this arena.

## 2. Data and Methodology

The research design adopted for the study is descriptive in nature. Survey method was used for this study to collect primary data from these organizations and institutions through a structured questionnaire. The survey was conducted over 67 different private, government and public private partnership institutions' executives in Gopalganj district, Bangladesh from October-November, 2015. The respondents had been interviewed at their workplaces. It took 15-20 minutes for each respondent to interview. Respondents were selected using non probability sampling design (purposive sampling). The collected data have been coded into SPSS 15.0 software where descriptive statistics, frequency distribution analysis and  $\chi^2$ -test have been performed to find out the usage level of ICT in human resource management and development by different private, government and public private partnership institutions and to find out correlation and significance of the selected variables on acceptance level of ICT in human resource management and development.

## 3. Results and Discussion

| Particulars                               | Frequency | Percentage   |
|---|-----------|--------------|
| <b>Nature of ownership :</b>              |           |              |
| Private                                   | 17        | 25.4         |
| Public Private Partnership                | 4         | 6.0          |
| Government                                | 46        | 68.7         |
| Total                                     | <b>67</b> | <b>100.0</b> |
| <b>Nature of the organization :</b>       |           |              |
| Banking and financial institutions        | 19        | 28.4         |
| Educational and engineering institutions  | 20        | 29.9         |
| Communication and networking institutions | 4         | 6.0          |
| Health and medication institutions        | 6         | 9.0          |
| Others                                    | 18        | 26.9         |
| Total                                     | <b>67</b> | <b>100.0</b> |

Table 1: Characteristics of the sample size

Table 1 shows that the number of respondents whose nature of ownership is private is 17 and percentage is 25.4; the number and percentage of respondents whose nature of ownership is public private partnership are 4 and 6.0 respectively; the number and percentage of respondents whose nature of ownership is government are 46 and 68.7 respectively. On the other hand, the number of banking and financial institutions is 19 which is 28.4 % of the total; the number of educational and engineering institutions is 20 which is 29.9 % of the total; the number of communication and networking institutions is 4 which is 6.0 % of the total; the number of health and medication institutions is 6 which is 9.0 % of the total and the number of other institutions is 18.

Table 2 shows that about 94.1% of the total respondents whose nature of ownership is private use ICT in recruitment, whereas only 5.9% do not use ICT in recruitment. 100% of the total respondents whose nature of ownership is public private partnership use ICT in recruitment, whereas there is no single respondent who does not use ICT in recruitment and 58.7% of the total respondents whose nature of ownership is

government use ICT in recruitment, whereas 41.3% do not use ICT in recruitment. So, the usage level of ICT in recruitment by private institutions is much more than that of government institutions. 94.1% of the total respondents whose nature of ownership is private use ICT in maintenance and development, whereas only 5.9% do not use ICT in maintenance and development. 75.0% of the total respondents whose nature of ownership is public private partnership use ICT in maintenance and development, whereas 25.0% who does not use ICT in maintenance and development and 71.7% of the total respondents whose nature of ownership is government use ICT in maintenance and development, whereas 28.3% do not use ICT in maintenance and development. So, the usage level of ICT in maintenance and development by the private institutions is much more than that of other institutions.

Management planning is one of the areas of human resource management and 94.1% of the total respondents whose nature of ownership is private use ICT in management planning, whereas only 5.9% do not use ICT in management planning. 75.0% of the total respondents whose nature of ownership is public private partnership use ICT in management planning, whereas 25.0% do not use ICT in management planning and 73.9% of the total respondents whose nature of ownership is government use ICT in management planning, whereas 26.1% do not use ICT in management planning. So, the usage level of ICT in management planning by the private institutions is much more than that of other institutions. Communication is another area of human resource management and 100% of the total respondents whose nature of ownership is private use ICT in communication, whereas there is no single respondent who does not use ICT in communication. 100.0% of the total respondents whose nature of ownership is public private partnership use ICT in communication, whereas there is no single respondent who does not use ICT in communication and 100.0% of the total respondents whose nature of ownership is government use ICT in communication, whereas there is no single respondent who does not use ICT in communication. Management development is one of the most important areas of human resource development and 82.4% of the total respondents whose nature of ownership is private use ICT in management development, whereas only 17.6% do not use ICT in management development. 100.0% of the total respondents whose nature of ownership is public private partnership use ICT in management development, whereas there is no single respondent who does not use ICT in management development and 80.4% of the total respondents whose nature of ownership is government use ICT in management development, whereas 19.6% do not use ICT in management development. So, the usage level of ICT in management development by the public private partnership institutions is much more than that of other institutions.

| Particulars  | Nature of ownership |                                     |                     |                |
|--|---------------------|-------------------------------------|---------------------|----------------|
|  | Private<br>N (%)    | Public private partnership<br>N (%) | Government<br>N (%) | Total<br>N (%) |
| <b>Usage of ICT in recruitment</b>                 |                     |                                     |                     |                |
| Yes  | 16 (94.1)           | 4 (100)                             | 27 (58.7)           | 47 (70.1)      |
| No   | 1 (5.9)             | 0 (0)                               | 19 (41.3)           | 20 (29.9)      |
| Total  | 17 (100)            | 4 (100)                             | 46 (100)            | 67 (100)       |
| <b>Usage of ICT in maintenance and development</b> |                     |                                     |                     |                |
| Yes  | 16 (94.1)           | 3 (75.0)                            | 33 (71.7)           | 52 (77.6)      |
| No   | 1 (5.9)             | 1 (25.0)                            | 13 (28.3)           | 15 (22.4)      |
| Total  | 17 (100)            | 4 (100)                             | 46 (100)            | 67 (100)       |
| <b>Usage of ICT in management planning</b>         |                     |                                     |                     |                |
| Yes  | 16 (94.1)           | 3 (75.0)                            | 34 (73.9)           | 53 (79.1)      |
| No   | 1 (5.9)             | 1 (25.0)                            | 12 (26.1)           | 14 (20.9)      |
| Total  | 17 (100)            | 4 (100)                             | 46 (100)            | 67 (100)       |
| <b>Usage of ICT in communication</b>               |                     |                                     |                     |                |
| Yes  | 17 (100)            | 4 (100)                             | 46 (100)            | 67 (100)       |
| No   | 0 (0)               | 0 (0)                               | 0 (0)               | 0 (0)          |
| Total  | 17 (100)            | 4 (100)                             | 46 (100)            | 67 (100)       |
| <b>Usage of ICT in management development</b>      |                     |                                     |                     |                |
| Yes  | 14 (82.4)           | 4 (100)                             | 37 (80.4)           | 55 (82.1)      |
| No   | 3 (17.6)            | 0 (0)                               | 9 (19.6)            | 12 (17.9)      |
| Total  | 17 (100)            | 4 (100)                             | 46 (100)            | 67 (100)       |
| <b>Usage of ICT in skills development</b>          |                     |                                     |                     |                |
| Yes  | 13 (76.5)           | 4 (100)                             | 30 (65.2)           | 47 (70.1)      |
| No   | 4 (23.5)            | 0 (0)                               | 16 (34.8)           | 20 (29.9)      |
| Total  | 17 (100)            | 4 (100)                             | 46 (100)            | 67 (100)       |
| <b>Usage of ICT in organizational development</b>  |                     |                                     |                     |                |
| Yes  | 15 (88.2)           | 4 (100)                             | 42 (91.3)           | 61 (91.0)      |
| No   | 2 (11.8)            | 0 (0)                               | 4 (8.7)             | 6 (9.0)        |
| Total  | 17 (100)            | 4 (100)                             | 46 (69)             | 67 (100)       |

Table 2: Usage level of ICT in human resource management and development areas by private, public private partnership and government organizations in Bangladesh, (N= 67)

Skills development is another important area of human resource development and 76.5% of the total respondents whose nature of ownership is private use ICT in skills development, whereas 23.5% do not use ICT in skills development. 100.0% of the total respondents whose nature of ownership is public private partnership use ICT in skills development, whereas there is no single respondent who does not use ICT in skills

development and 65.2% of the total respondents whose nature of ownership is government use ICT in skills development, whereas 34.8% of the total respondents who do not use ICT in skills development. So, the usage level of ICT in skills development by the public private partnership institutions is much more than that of other institutions. Finally, organizational development is another important area of human resource development and 88.2% of the total respondents whose nature of ownership is private use ICT in organizational development, whereas only 11.8% do not use ICT in organizational development. 100.0% of the total respondents whose nature of ownership is public private partnership use ICT in organizational development, whereas there is no single respondent who does not use ICT in organizational development and 91.3% of the total respondents whose nature of ownership is government use ICT in organizational development, whereas only 8.7% of the total respondents who do not use ICT in organizational development. Now the table 3 shows that 73.7% of the total respondents whose nature of organization is banking and financial use ICT in recruitment, whereas 26.3% do not use ICT in recruitment.

| Particulars  | Nature of the organizations |                                   |                                    |                             |              | Total N (%) |
|--|-----------------------------|-----------------------------------|------------------------------------|-----------------------------|--------------|-------------|
|  | Banking and financial N (%) | Educational and engineering N (%) | Communication and networking N (%) | Health and medication N (%) | Others N (%) |             |
| <b>Usage of ICT in recruitment</b>                 |                             |                                   |                                    |                             |              |             |
| Yes  | 14 (73.7)                   | 16 (80)                           | 3 (75)                             | 5 (83.3)                    | 9 (50)       | 47 (70.1)   |
| No   | 5 (26.3)                    | 4 (20)                            | 1 (25)                             | 1 (16.7)                    | 9 (50)       | 20 (29.9)   |
| Total  | 19 (100)                    | 20(100)                           | 4 (100)                            | 6 (100)                     | 18 (100)     | 67 (100)    |
| <b>Usage of ICT in maintenance and development</b> |                             |                                   |                                    |                             |              |             |
| Yes  | 17 (89.5)                   | 17 (85)                           | 2 (50)                             | 4 (66.7)                    | 12 (18)      | 52 (77.6)   |
| No   | 2 (10.5)                    | 3 (15)                            | 2 (50)                             | 2 (33.3)                    | 6 (9)        | 15 (22.4)   |
| Total  | 19 (100)                    | 20 (100)                          | 4 (100)                            | 6 (100)                     | 18 (100)     | 67 (100)    |
| <b>Usage of ICT in management planning</b>         |                             |                                   |                                    |                             |              |             |
| Yes  | 18 (94.7)                   | 14 (70.0)                         | 3 (75.0)                           | 5 (83.3)                    | 13 (72.2)    | 53 (79.1)   |
| No   | 1 (5.3)                     | 6 (30.0)                          | 1 (25.0)                           | 1 (16.7)                    | 5 (27.8)     | 14 (20.9)   |
| Total  | 19 (100)                    | 20 (100)                          | 4 (100)                            | 6 (100)                     | 18 (100)     | 67 (100)    |
| <b>Usage of ICT in communication</b>               |                             |                                   |                                    |                             |              |             |
| Yes  | 19(100)                     | 20 (100)                          | 4 (100)                            | 6 (100)                     | 18 (100)     | 67 (100)    |
| No   | 0 (0)                       | 0 (0)                             | 0 (0)                              | 0 (0)                       | 0 (0)        | 0 (0)       |
| Total  | 19 (100)                    | 20 (100)                          | 4 (100)                            | 6 (100)                     | 18 (100)     | 67 (100)    |
| <b>Usage of ICT in management development</b>      |                             |                                   |                                    |                             |              |             |
| Yes  | 16 (84.2)                   | 16 (80.0)                         | 3 (75.0)                           | 5 (83.3)                    | 15 (83.3)    | 55 (82.1)   |
| No   | 3 (15.8)                    | 4 (20.0)                          | 1 (25.0)                           | 1 (16.7)                    | 3 (16.7)     | 12 (17.9)   |
| Total  | 19 (100)                    | 20 (100)                          | 4 (100)                            | 6 (9)                       | 18 (27)      | 67 (100)    |
| <b>Usage of ICT in skills development</b>          |                             |                                   |                                    |                             |              |             |
| Yes  | 15 (78.9)                   | 17 (85.0)                         | 2 (50.0)                           | 4 (66.7)                    | 9 (50.0)     | 47 (70.1)   |
| No   | 4 (21.1)                    | 3 (15.0)                          | 2 (50.0)                           | 2 (33.3)                    | 9 (50.0)     | 20 (29.9)   |
| Total  | 19 (100)                    | 20 (100)                          | 4 (100)                            | 6 (100)                     | 18 (100)     | 67 (100)    |
| <b>Usage of ICT in organizational development</b>  |                             |                                   |                                    |                             |              |             |
| Yes  | 19(100.0)                   | 17(85.0)                          | 3(75.0)                            | 5 (83.3)                    | 17 (94.4)    | 61 (91.0)   |
| No   | 0 (0)                       | 3 (15.0)                          | 1 (25.0)                           | 1 (16.7)                    | 1 (5.6)      | 6 (9.0)     |
| Total  | 19 (28.4)                   | 20 (30)                           | 4 (6)                              | 6 (9)                       | 18 (27)      | 67 (100)    |

Table 3: Usage level of ICT in human resource management and development areas by banking and financial institutions, educational and engineering institutions, communication and networking institutions, health and medication institutions and others in Bangladesh, (N= 67)

80.0% of the total respondents whose nature of organization is educational and engineering use ICT in recruitment, whereas 20.0% of the total respondents who do not use ICT in recruitment; 75.0% of the total respondents whose nature of organization is communication and networking use ICT in recruitment, whereas 25.0% do not use ICT in recruitment; 83.3% of the total respondents whose nature of organization is health and medication use ICT in recruitment, whereas 16.7% do not use ICT in recruitment and 50.0% of the total respondents whose nature of organization fall under others use ICT in recruitment, whereas 50.0% do not use ICT in recruitment. So, the usage level of ICT in recruitment by the health and medication institutions is much more than that of other institutions in Bangladesh.

89.5% of the total respondents whose nature of organization is banking and financial use ICT in maintenance and development, whereas only 10.5% do not use ICT in maintenance and development. 85.0% of the total respondents whose nature of organization is educational and engineering use ICT in maintenance and development, whereas 15.0% of the total respondents who do not use ICT in maintenance and development; 50.0% of the total respondents whose nature of organization is communication and networking use ICT in maintenance and

development, whereas 50.0% do not use ICT in maintenance and development; 66.7% of the total respondents whose nature of organization is health and medication use ICT in maintenance and development, whereas 33.3% do not use ICT in maintenance and development and 66.7% of the total respondents whose nature of organization fall under others use ICT in maintenance and development, whereas 33.3% do not use ICT in maintenance and development. So, the usage level of ICT in maintenance and development by the banking and financial institutions is much more than that of other institutions. 94.7% of the total respondents whose nature of organization is banking and financial use ICT in management planning, whereas only 5.3% do not use ICT in management planning. 70.0% of the total respondents whose nature of organization is educational and engineering use ICT in management planning, whereas 30.0% of the total respondents who do not use ICT in management planning; 75.0% of the total respondents whose nature of organization is communication and networking use ICT in management planning, whereas 25.0% do not use ICT in management planning; 83.3% of the total respondents whose nature of organization is health and medication use ICT in management planning, whereas 16.7% do not use ICT in management planning and 72.2% of the total respondents whose nature of organization fall under others use ICT in management planning, whereas 27.8% do not use ICT in management planning. So, the usage level of ICT in management planning by the banking and financial institutions is much more than that of other institutions. 100.0% of the total respondents whose nature of organization is banking and financial use ICT in communication, whereas there is no single respondent who do not use ICT in communication. 100.0% of the total respondents whose nature of organization is educational and engineering use ICT in communication, whereas there is no single respondent who do not use ICT in communication; 100.0% of the total respondents whose nature of organization is communication and networking use ICT in communication, whereas there is no single respondent who do not use ICT in communication; 100.0% of the total respondents whose nature of organization is health and medication use ICT in communication whereas there is no single respondent who do not use ICT in communication and 100.0% of the total respondents whose nature of organization fall under others use ICT in communication, whereas there is no single respondent who do not use ICT in communication.

84.2% of the total respondents whose nature of organization is banking and financial use ICT in management development, whereas only 15.8% do not use ICT in management development. 80.0% of the total respondents whose nature of organization is educational and engineering use ICT in management development, whereas 20.0% of the total respondents who do not use ICT in management development; 75.0% of the total respondents whose nature of organization is communication and networking use ICT in management development, whereas 25.0% do not use ICT in management development; 83.3% of the total respondents whose nature of organization is health and medication use ICT in management development, whereas 16.7% do not use ICT in management development and 83.3% of the total respondents whose nature of organization fall under others use ICT in management development, whereas 16.7% do not use ICT in management development. So, the usage level of ICT in management development by the banking and financial institutions is much more than that of other institutions.

78.9% of the total respondents whose nature of organization is banking and financial use ICT in skills development, whereas 21.1% do not use ICT in skills development. 85.0% of the total respondents whose nature of organization is educational and engineering use ICT in skills development, whereas 15.0% of the total respondents who do not use ICT in skills development; 50.0% of the total respondents whose nature of organization is communication and networking use ICT in skills development, whereas 50.0% do not use ICT in skills development; 66.7% of the total respondents whose nature of organization is health and medication use ICT in skills development, whereas 33.3% do not use ICT in skills development and 50.0% of the total respondents whose nature of organization fall under others use ICT in skills development, whereas 50.0% do not use ICT in skills development. So, the usage level of ICT in skills development by the educational and engineering institutions is much more than that of other institutions. Finally, 100.0% of the total respondents whose nature of organization is banking and financial use ICT in organizational development, whereas there is no single respondent who do not use ICT in organizational development. 85.0% of the total respondents whose nature of organization is educational and engineering use ICT in organizational development, whereas 15.0% of the total respondents who do not use ICT in organizational development; 75.0% of the total respondents whose nature of organization is communication and networking use ICT in organizational development, whereas 25.0% do not use ICT in organizational development; 83.3% of the total respondents whose nature of organization is health and medication use ICT in organizational development, whereas 16.7% do not use ICT in organizational development and 94.4% of the total respondents whose nature of organization fall under others use ICT in organizational development, whereas only 5.6% do not use ICT in organizational development. So, the usage level of ICT in organizational development by the banking and financial institutions is much more than that of other institutions.

Table 4 shows that 17.9% of the total respondents use ICT in recruitment, training and communication as the areas of human resource management and development in Gopalganj district, Bangladesh. 9.0% of the total respondents use ICT in motivation, maintenance and development and communication as the areas of human resource management and development.

| Particulars   | Frequency | Percentage |
|---|-----------|------------|
| <b>Usage of ICT in human resource management and development areas</b>  |           |            |
| Recruitment, training and communication                                 | 12        | 17.9       |
| Motivation, maintenance and development and communication               | 6         | 9.0        |
| Recruitment, training, maintenance and development and communication    | 41        | 61.2       |
| Recruitment and communication   | 7         | 10.4       |
| None of the above   | 1         | 1.5        |
| Total   | 67        | 100.0      |
| <b>Usage of ICT in maintenance and development areas</b>                |           |            |
| Training and human resource development                                 | 20        | 29.9       |
| Training and human resource development, employee relations             | 19        | 28.4       |
| Training, employee relations and absenteeism analysis                   | 5         | 7.5        |
| Performance evaluation, absenteeism analysis and employee relations     | 3         | 4.5        |
| All of the above  | 6         | 9.0        |
| None of the above   | 14        | 20.9       |
| Total   | 67        | 100.0      |
| <b>Usage of ICT in management planning areas</b>                        |           |            |
| Personnel files, compensation management and government reports         | 13        | 19.4       |
| Government reports  | 14        | 20.9       |
| Personnel files and government reports                                  | 16        | 23.9       |
| Personnel files and compensation management                             | 10        | 14.9       |
| None of the above   | 14        | 20.9       |
| Total   | 67        | 100.0      |
| <b>Usage of ICT in management development areas</b>                     |           |            |
| Decision-making programs  | 29        | 43.3       |
| Coaching and mentoring  | 6         | 9.0        |
| Orientation and decision-making programs                                | 9         | 13.4       |
| Coaching, mentoring and decision-making programs                        | 8         | 11.9       |
| All of the above  | 5         | 7.5        |
| None of the above   | 10        | 14.9       |
| Total   | 67        | 100.0      |
| <b>Usage of ICT in skills development areas</b>                         |           |            |
| Interactions with others  | 10        | 14.9       |
| Interactions with others, seminars and conference                       | 15        | 22.4       |
| Managing project, seminars and conference                               | 17        | 25.4       |
| All of the above  | 6         | 9.0        |
| None of the above   | 19        | 28.4       |
| Total   | 67        | 100.0      |
| <b>Usage of ICT in organizational development areas</b>                 |           |            |
| Monitoring  | 2         | 3.0        |
| Decision making and problem solving                                     | 27        | 40.3       |
| Monitoring, performance evaluation, decision making and problem solving | 17        | 25.4       |
| Performance evaluation, decision making and problem solving             | 12        | 17.9       |
| Two-way and open communication, decision making and problem solving     | 3         | 4.5        |
| None of the above   | 6         | 9.0        |
| Total   | 67        | 100.0      |

Table 4: Overall usage level of ICT in human resource management and development areas by different organizations in Bangladesh (N= 67)

61.2% of the total respondents use ICT in recruitment, training, maintenance and development and communication and 10.4% use ICT in recruitment and communication only. There is only 1 respondent who does not use ICT in human resource management and development areas. Maintenance and development is one of the areas of human resource management and development. 29.9% of the total respondents use ICT in training and human resource development as the area of maintenance and development. 28.4% of the total respondents use ICT in training and human resource development and employee relations as the areas of maintenance and development. The number of the respondents who use ICT in training and human resource development, employee absenteeism analysis and maintaining employee relations is 5 which is 7.5% of the total respondents. 4.5% of the total respondents use ICT in performance evaluation, employee absenteeism analysis and maintaining employee relations and only 9.0% of the total respondents use ICT in all of the areas of maintenance and development. On the other hand, 14 respondents which is 20.9% of the total respondents do not use ICT in any of the areas of maintenance and development. Management planning is another area of human resource management and 19.4% of the total respondents use ICT in managing personnel files, compensation and government reports as the areas of management planning. 20.9% of the total respondents use ICT in managing and submitting government reports as the area of management planning and 23.9% of the total respondents use ICT in managing personnel files, managing and submitting government reports. The number of the respondents who use ICT in managing personnel files and compensation is 10 which is 14.9% of the total respondents, whereas 20.9% of the total respondents do not use ICT in any of the areas of management planning. Management development is one of the areas of human resource development and 43.3% of the total respondents use ICT in decision making programs as the area of management development. 9.0% of the total respondents use ICT in coaching and mentoring and

13.4% of the total respondents use ICT in decision making programs, orientation and lecture. The number of the respondents who use ICT in decision making programs, coaching and mentoring is 8 which is 11.9% of the total respondents and only 7.5% of the total respondents use ICT in all of the areas of management development, whereas 14.9% of the total respondents do not use ICT in any of the areas of management development.

Skills development is another area of human resource development and 14.9% of the total respondents use ICT in developing interactions with others as one of the areas of skills development. 22.4% of the total respondents use ICT in developing interactions with others and managing seminars and conferences. 25.4% of the total respondents use ICT in managing project, seminars and conferences. The number of the respondents who use ICT in all of the areas of skills development is only 6 which is 9.0% of the total respondents, whereas 28.4% of the total respondents do not use ICT in any of the areas of skills development. Finally, organizational development which is one of the most important areas of human resource development includes areas like monitoring, decision making and problem solving, performance evaluation, two-way and open communication. 3.0% of the total respondents use ICT in monitoring only. 40.3% of the total respondents use ICT in decision making and problem solving as one of the areas of organizational development. 25.4% of the total respondents use ICT in monitoring, decision making and problem solving and performance evaluation. 17.9% of the total respondents use ICT in decision making and problem solving and performance evaluation. The number of the respondents who use ICT in two-way and open communication, decision making and problem solving is only 3 which is 4.5% of the total respondents, whereas only 9.0% of the total respondents do not use ICT in any of the areas of organizational development.

Table 5 shows that 71.6% of the total respondents use application software in human resource management and development areas and only 23.9% use both application and information system software in human resource management and development areas, whereas 4.5% of the total respondents do not use any types of software in human resource management and development areas. 46.3% of the total respondents use website and e-mail in recruitment, 11.9% use only e-mail in recruitment, 9.0% use mobile network in recruitment and only 3.0% use website, e-mail and mobile network in recruitment, whereas 29.9% do not use any types of ICT tools and techniques in recruitment. Training is one of the areas of human resource development and 10.4% of the total respondents use social network in training, 37.3% use interactive multimedia projector, films and slide show in training, 13.4% use interactive multimedia projector, films and slide and videoconferencing in training and 11.9% use interactive multimedia projector, films and slide and social network in training, whereas 26.9% of the total respondents do not use any types of ICT tools and techniques in training. In communication, 13.4% of the total respondents use mobile network, 7.5% use e-mail, 20.9% use e-mail, mobile network, social network and other tools like telephone in communication, 44.8% use e-mail, mobile network, social network in communication, 10.4% of the total respondents use mobile network and social network and only 3.0% of the total respondents use all types of ICT tools and techniques in communication.

| Particulars   | Frequency | Percentage |
|---|-----------|------------|
| <b>Types of software used in human resource management and development areas</b>      |           |            |
| Application software  | 48        | 71.6       |
| Application and information system software   | 16        | 23.9       |
| None  | 3         | 4.5        |
| Total   | 67        | 100.0      |
| <b>Types of ICT tools and techniques used in recruitment</b>                          |           |            |
| Career website and e-mail   | 31        | 46.3       |
| E-mail  | 8         | 11.9       |
| Mobile network  | 6         | 9.0        |
| Career website, e-mail and mobile network   | 2         | 3.0        |
| None of the above   | 20        | 29.9       |
| Total   | 67        | 100.0      |
| <b>Types of ICT tools and techniques used in training, motivation and development</b> |           |            |
| Social network  | 7         | 10.4       |
| Interactive multimedia projector, films and slide show                                | 25        | 37.3       |
| Interactive multimedia projector, films and slide show and video conferencing         | 9         | 13.4       |
| Social network, interactive multimedia projector, films and slide show                | 8         | 11.9       |
| None of the above   | 18        | 26.9       |
| Total   | 67        | 100.0      |
| <b>Types of ICT tools and techniques used in communication</b>                        |           |            |
| Mobile phone network  | 9         | 13.4       |
| E-mail  | 5         | 7.5        |
| Mobile phone network, e-mail, social networks and telephone                           | 14        | 20.9       |
| Mobile phone network, e-mail, social networks   | 30        | 44.8       |
| Mobile phone network and social networks  | 7         | 10.4       |
| All of the above  | 2         | 3.0        |
| Total   | 67        | 100.0      |
| <b>Types of ICT tools and techniques used in organizational development</b>           |           |            |
| MS-office and other software  | 28        | 41.8       |
| MS-office and other software, close circuit camera                                    | 23        | 34.3       |
| Videoconferencing, social sites, mobile phone network and MS-office                   | 9         | 13.4       |
| All of the above  | 1         | 1.5        |
| None of the above   | 6         | 9.0        |
| Total   | 67        | 100.0      |

Table 5: Usage level of different types of ICT tools and techniques in human resource management and development areas by different organizations in Bangladesh (N= 67)

Organizational development is one of the most important areas of human resource development and 41.8% of the total respondents use MS-office for decision making and problem solving which is one of the areas of organizational development, 34.3 % use close circuit camera and MS-office for monitoring and decision making and problem solving respectively, 13.4% use mobile network, social network, videoconferencing and MS-office for two-way and open communication and decision making and problem solving respectively, and only 1.5% use all of the ICT tools and techniques mentioned here in organizational development, whereas 9.0% of the total respondents do not use any types of ICT tools and techniques in organizational development.

Table-6 shows the results of association between selected HR related variables and acceptance level of ICT in human resource management and development among private, public private partnership and government institutions in Bangladesh. It is observed that private institutions have 25% impact on acceptance level of ICT in human resource management and development, public private partnership institutions have only 7% impact and the government intuitions have 68% impact on acceptance level of ICT in Gopalganj district, Bangladesh. The nature of ownership has no statistically significant impact on acceptance level of ICT in human resource management and development. So, the government institutions have high acceptance level of ICT in human resource management and development. Banking and financial institutions have 28% impact on acceptance level of ICT in human resource management and development, whereas educational and engineering institutions, communication and networking institutions, health and medical institutions and other institutions have 28%, 7%, 8% and 29% impact respectively. The nature of organization has also no statistically significant impact on acceptance level of ICT in human resource management and development. The respondents who use ICT in recruitment have 74% impact on acceptance level of ICT in human resource management and development whereas those who do not use ICT in recruitment have 26% impact and recruitment has statistically significant impact on acceptance level of ICT in human resource management and development. The respondents who use

| Variables                                 | Acceptance level of ICT |    | Total | % of Impact | X <sup>2</sup> cal and p value |
|---|-------------------------|----|-------|-------------|--------------------------------|
|   | Yes                     | No |       |             |                                |
| <b>Nature of the ownership</b>            |                         |    |       |             |                                |
| Private                                   | 15                      | 2  | 17    | 25          | X <sup>2</sup> = 0.562         |
| Public Private Partnership                | 4                       | 0  | 4     | 7           | P = 0.755                      |
| Government                                | 42                      | 4  | 46    | 68          |                                |
| Total                                     | 61                      | 6  | 67    | 100         |                                |
| <b>Nature of the organization</b>         |                         |    |       |             |                                |
| Banking and financial                     | 17                      | 2  | 19    | 28          | X <sup>2</sup> = 3.555         |
| Educational and engineering               | 17                      | 3  | 20    | 28          | P = 0.470                      |
| Communication and networking              | 4                       | 0  | 4     | 7           |                                |
| Health and medication                     | 5                       | 1  | 6     | 8           |                                |
| Others                                    | 18                      | 0  | 18    | 29          |                                |
| Total                                     | 61                      | 6  | 67    | 100         |                                |
| <b>ICT in Recruitment</b>                 |                         |    |       |             |                                |
| Yes                                       | 45                      | 2  | 47    | 74          | X <sup>2</sup> = 4.266         |
| No  | 16                      | 4  | 20    | 26          | P = 0.060                      |
| Total                                     | 61                      | 6  | 67    | 100         |                                |
| <b>ICT in Maintenance and development</b> |                         |    |       |             |                                |
| Yes                                       | 50                      | 2  | 52    | 82          | X <sup>2</sup> = 7.436         |
| No  | 11                      | 4  | 15    | 18          | P = 0.020                      |
| Total                                     | 61                      | 6  | 67    | 100         |                                |
| <b>ICT in Management planning</b>         |                         |    |       |             |                                |
| Yes                                       | 50                      | 3  | 53    | 82          | X <sup>2</sup> = 3.377         |
| No  | 11                      | 3  | 14    | 18          | P = 0.100                      |
| Total                                     | 61                      | 6  | 67    | 100         |                                |
| <b>ICT in Management development</b>      |                         |    |       |             |                                |
| Yes                                       | 53                      | 2  | 55    | 87          | X <sup>2</sup> = 10.655        |
| No  | 8                       | 4  | 12    | 13          | P = 0.008                      |
| Total                                     | 61                      | 6  | 67    | 100         |                                |
| <b>ICT in Skills development</b>          |                         |    |       |             |                                |
| Yes                                       | 45                      | 2  | 47    | 74          | X <sup>2</sup> = 4.266         |
| No  | 16                      | 4  | 20    | 26          | P = 0.060                      |
| Total                                     | 61                      | 6  | 67    | 100         |                                |
| <b>ICT in Organizational development</b>  |                         |    |       |             |                                |
| Yes                                       | 59                      | 2  | 61    | 97          | X <sup>2</sup> = 26.921        |
| No  | 2                       | 4  | 6     | 3           | P = 0.000                      |
| Total                                     | 61                      | 6  | 67    | 100         |                                |



*Table 6: Results of association between selected HR related variables and acceptance level of ICT in human resource management and development among private, public private partnership and government institutions in Bangladesh. (N= 67)*

ICT in maintenance and development have 82% impact on acceptance level of ICT in human resource management and development, whereas those who do not use ICT in maintenance and development have only 18% impact and maintenance and development has strongly significant impact on acceptance level of ICT in human resource management and development. The respondents who use ICT in management planning have 82% impact on acceptance level of ICT in human resource management and development, whereas those who do not use ICT in management planning have 18% impact but management planning has no statistically significant impact on acceptance level of ICT in human resource management and development.

Finally, the respondents using ICT in management development, skills development and organizational development have 87%, 74% and 97% impacts on acceptance level of ICT in human resource management and development respectively and those who do not use ICT in management development, skills development and organizational development have 13%, 26% and only 3% impacts on acceptance level of ICT in human resource management and development respectively. These variables have statistically significant impacts on acceptance level of ICT in human resource management and development. Finally, the selected human resource management and development related variables – recruitment, maintenance and development, management development, skills development and organizational development – have strong association with acceptance level of ICT in human resource management and development among different private, public private partnership and government institutions in Bangladesh.

#### 4. Conclusions

Early, the human resource management practices were done manually by most of the organizations in Bangladesh. Now all modern organizations (manufacturing and service) are using computer based information systems in managing their human resource functions. The result shows that 17.9% of the total respondents use ICT in recruitment, training and communication as the areas of human resource management and development, 9.0% in motivation, maintenance and development and communication as the areas of human resource management and development, 61.2% in recruitment, training, maintenance and development and communication and 10.4% in recruitment and communication only. There is only 1 respondent who does not use ICT in human resource management and development areas. It also shows that 71.6% of the total respondents use application software in human resource management and development areas and only 23.9% use both application and information system software in human resource management and development areas, whereas 4.5% of the total respondents do not use any types of software in human resource management and development areas. Though the usage level of ICT in human resource management and development areas by the government institutions is less than that of private institutions, the acceptance level of ICT in human resource management and development areas by the government institutions is much more than private institutions in Bangladesh. The study findings lead to the following policy implications to increase the usage level of ICT in human resource management and development areas in Bangladesh as to provide equal ICT facilities to both corporate and branch offices, use diversified ICT tools and techniques in human resource management and development areas, establish sufficient ICT training institutions to increase computer literates and provide financial and IT infrastructural facilities to the private and government institutions specially to the government institutions.

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