دور تقنية المعلومات في تحسين إدارة الموارد البشرية في الشركات والمؤسسات
"التطبيقات كدراسة"

The Role of Information Technology in improving Human Resource management in companies and institutions.
Applications as a study.

م. لقمان قادر عبدالرحمن قادر
Luqman Qader Abdulrahman Ruandzy
جامعة اربيل الطبية الحكومية
Physiotherapy Department, College of sciences, Hawler Medical University,
Luqman.qader@hmu.edu.krd

الملخص

بعد الانتشار الكبير للتكنولوجيا المعلومات و استخدامها في جميع المجالات اصبح لزاما لأي شركة او مؤسسة ان كان يريد ان يكون الريادة او زيادة في الانتاج ان يستفاد من الاجهزة او البرامج او التطبيقات التي صممت لهذا المجال، لذا نحن ان نبرهن اهميتها للشركات. التعرف بأحدث التطبيقات التي تستخدم في هذا المجال و كيف يستفاد الشركات و المؤسسات في حالة استخدامها لتكنولوجيا المعلومات و شرح طرق و كيفية استخدامها . كيفية الوصول الى انسب تطبيق او برنامج او جهاز جديد للمؤسسة او الشركة لكي يساعد في ارتفاع الانتاج و تنظيم الاعمال الادارية . تتكون هذا البحث من ثلاثة فصول اساسية: الفصل الاول نشرح فيه اهمية البحث و المشاكل التي نحاول ان نعالجها و الفصل الثاني تتكون اربع محاور اولها عرض الابحاث التي تم تنشرها في هذا المجال.   المحور الثاني تعريف الموارد البشرية و اهميتها و المحور الثالث ماذا نفصد بتكنولوجيا المعلومات و فوائده و المحور الرابع هو كيف تستفاد اي مؤسسة او شركة في حالة استعمالها و الفصل الاخير تتكون من الاستنتاجات و النتائج و التوصيات و اهم الاقتراحات. هنالك شركات و المؤسسات الكبيرة التي تعتمد اعتمادا كبيرا على تكنولوجيا المعلومات من خلال التطبيقات التي تستعملها في ادارة البيانات و التي صممت من قبل مبرمجين خاصة لهم لكي تعالج و تساعد في تبادل المعلومات, ادت الى زياده فى الانتاج و تقليل الايدي العاملة التي كانت تعمل في مجال الادارة و هذا ادت في الاخير الى زيادة في الميزانية و استقرار و بناء خطط مستقبلية ناجحة. نوصى بأن يكون الاهتمام الجدى لدى الشركات و المؤسسات بتكنولوجيا المعلومات لكونها تؤدى الى تنظيم الاعمال الادارية و تسهيل طبع التقارير و فرز و ارشفه البيانات بطريقة العلمية.

<u>الكلمات المفتاحية</u>: تكنولوجيا معلومات ، إدارة موارد بشرية ، تطبيقات ، برامج جاهزة.

Abstract

 After the great spread of information technology and its use in all fields, it has become an obligation for any company or institution, whether it wants to be a pioneer or an increase in production, to benefit from the devices, programs, or applications that are designed for this field, so we have to demonstrate its importance to companies. Learn about the latest applications that are used in this field and how companies and institutions benefit when using information technology, and explain the methods and how to use them. How to reach the most appropriate application, program, or device for a new institution or company to help increase

production and organize administrative work. This research consists of three chapters: The first chapter explains the importance of research and the problems that we are trying to address, and the second chapter consists of four axes, the first of which is the presentation of the research that has been published in this field. The second axis is the definition of human resources and its importance, and the third axis is what we mean by information technology and its benefits. The fourth axis is how any institution or company benefits in the event of its use, and the last chapter consists of conclusions, results, recommendations, and the most important suggestions. Some large companies and institutions rely heavily on information technology through the applications they use in data management, which were designed by special programmers for them to process and assist in the exchange of information, which led to an increase in production and a reduction of the manpower that was working in the field of The administration and this led in the end to an increase in the budget and the stability and construction of successful plans. We recommend that companies and establishments give serious interest to information technology, as it leads to organizing administrative work and facilitating the printing of reports and the sorting and archiving of data.

Keywords: Information Technology, Human Resource Management, Applications, Software Programming.

1.   Introduction:

 Recently, the world has witnessed a huge information revolution that has opened wide horizons for the development of various departments and the renewal of their methods and mechanism of work in them in order to accomplish various functions and services in a more advanced way. The latest means and technologies and employing them strongly in various institutions or companies due to their great role in various administrative aspects, and this is because of the speed they provide in completing the work and obtaining sophisticated services in the appropriate time and form

Most of the institutions or companies seek to achieve success in their work and activities in order to build their position among other institutions or companies and to improve their performance continuously in light of the environment in which they operate, as they form a subsystem of an environmental system that includes several different departments, including the Human Resources Department, which is considered one of the most important The jobs are to focus on the most important element, which is the "human element", which is the most valuable resource it has and the most influential in productivity. Institutions or companies work to benefit from their resource by working on their development, training, and development of their competence and capabilities to contribute to the latter's achievement. Its goals and profit.

Given that information technology is one of the most important developments and changes that have existed in the business environment, which opened wide horizons for the development and improvement of institutions or companies and the renewal of their methods and mechanism of work in them in order to accomplish various functions and services in a more advanced and high manner, what the world is witnessing of technical transformations Accelerating and tremendous developments in the field of computer hardware, software, communication devices, and their means, and the vast amount of information that grows and moves quickly, easily and easily, which made information technology an important tool in institutions or companies and has become a requirement for the latter, however, Their types and sizes keep pace with this tremendous progress, as they are forced to apply information technology in the management of their human resources in line with the requirements of the times. And its survival and thus achieving its desired goals.

Information technology has become an important issue that has an impact on business organizations, through its impact on the general strategy in light of the competitive environment.

1-1- Research aims
1- Highlighting the role of information technology in improving human resource management.
2 - Identify the extent of the contribution of modern means and technologies in raising the performance of employees.
3- Knowing the extent of the contribution of electronic management of human resources in creating competitive advantage
4- Identify the contribution of information technology to the development of human resource management functions.
5- The study problem was determined by the following main question: What is the role of information technology in improving human resource management?

1-2-Reasons for choosing the topic: -
1- The tendency to study such topics and the definition of their importance.
2- Considering human resources management the main engine for any institution or company, must be highlighted.
3- The widespread use of information technology in all institutions is one of the most important reasons for choosing a topic.
4- The topic is current, whether it relates to information technology or human resources management.

1-3- The Problem of the Research:
1- Does information technology help in developing human resource management functions?
2- Do modern means and technologies contribute to raising the performance of employees?
3- To what extent does the electronic management of human resources contribute to creating a competitive advantage in the organization?
4- Are workers and employees able to make good use of information technology and smart applications?
5- Is the administration able to absorb the information technology designed by major companies in the field of programming?

2. 1 Literature Review:
Snežana Lj. Lazarević, al. (2016). The two researchers looked at how information and communication technology (ICT) has penetrated and become an integral part of all areas of our lives and work. The success of modern organizations, regardless of their size and activity, is increasingly being shaped by information and communication technology. Hence, several studies have attempted to determine what determines the success of using this technique. In conclusion, employees, as the most important resource for every organization, along with the knowledge, skills, capabilities, and human capabilities, are one of the critical factors that determine the success of the application of ICT. The subject of this paper is to analyze the impact of contemporary information and communication technology on human resources. Besides the positive effects, the paper also presents the negative impacts of ICTs on employees, which are starting to show in practice.

Ewa Ziemba, (2017). The first edition of this book appeared in 2016 under the title Information Technology for Management. Given the rapid developments in information technology and its applications to improve management, his book provides a comprehensive overview of current research in the field of information technology for management. Its first

two parts focus on information technology and information systems for knowledge management and business transformation. The third part of this book presents a paper on the application and evaluation of information systems. This book included expanded and revised versions of selected papers presented at the 11th Conference on Information Systems Management and the Fourteenth Conference on Advanced Information Technologies for Management held in Gdansk, Poland, from September 13 to 16, 2016. These conferences were organized within the framework of the Federal Conference on Computer Science and Information Systems.

Luis O. Siguencia, (2018). The author reviews the growing state of research for new technologies used in the field of management, selects, collects, and explains terms used in business management, then discusses in detail all aspects of management, in which the Internet is used. Explaining basic concepts such as communication, functions, management objectives, and the essence of the Internet - becomes the basis and starting point for a multifaceted discussion of the Internet's role in conducting business online. The analytical approach to the topic also allows for conclusions that lead to the development of the project, hence the next topic discussed by the author is the role of the Internet in searching for new markets, new customers or specific target groups, (IT can be related to human resource management through applications that Designed for this purpose) which is in an era when globalization has become a common phenomenon in many companies and is used widely in my world.

Mohammed A. al. (2020). This Research aims to identify the effect of communication and communication skills on the environmental performance of the Jordanian industrial companies. The study sample included 165 employees in the Jordanian Industrial Company. The data were collected by means of a questionnaire distributed randomly to the Research methodology. 146 questionnaires were retrieved that were suitable for analyzing the statistical data. The results of this study mainly indicated that there is an indicative effect on communication skills and communication on environmental performance from the point of view of its employees

2.2. Human Resources:

Human resources: means focusing on the tasks of the employees; By dividing the company according to a group of activities that include training, recruiting new employees, directing people, providing benefits for employees, and human resources are defined as part of facility management, and it is concerned with managing and training employees as one of the most important business assets. Another definition of human resources is management that is concerned with the people who work in the company. Human resources are keen to follow the records of their appointment and disbursement of their financial dues until their retirement.

There is another definition for it, which is:

- Human resources are a set of processes such as planning, organizing, directing, and controlling all aspects related to individuals, in order to preserve, develop, educate and compensate them without the need for any specialized management,

- The responsibility of all managers in the facility, as well as a description of what the human resources specialists in people management do. Hendrickson A. (2003).

2.2.1. Main functions of human resources:

The main functions of human resources are: -

o   Benefit from individuals; By applying effective management

o   Provision of compensation and incentives to competent employees; By relying on the role of performance appraisal.

o   Enhancing organizational and individual performance; By taking care to develop employee competencies.

o   Support creativity and innovation; this contributes to enhancing competitiveness. Implement planning that contributes to employee development in conjunction with a new approach to work design.

o   Technology dependence; By integrating it with the work environment to contribute to the development of training, employment, and communication with all employees. Alok Mishra, and Ibrahim Akman (2010).

2.2.2. Human Resources Goals:

Training and development is the provision of human resources, the possibility of achieving development through various organizations. This contributes to identifying the special needs in training within the facility, as human resources are interested in establishing and planning employee training programs. This leads to the provision of programs appropriate to the special needs of the facility.

Employment is the role of human resources in achieving employment goals in enterprises. The human resources department is keen to provide information about candidates about a job, and then decisions related to their employment are made. In order to fill the vacancies available in the facility, and also human resources are interested in attracting job seekers; By relying on a group of means, such as the Internet, job fairs, and after selecting employees, human resources conduct job interviews with them; In order to evaluate them prior to hiring them.

Strengthening employee relations: it is the role of human resources within the special labor policies and laws for employees. The Human Resources Department seeks to enhance the companies' compliance with laws and regulations regarding employment. This contributes to maintaining an equal distribution of opportunities among employees in a fair manner, and human resources are also concerned with following up on relations between employees. In order to carry out many tasks, such as resolving existing disputes, and ensuring that all employees obtain their rights.

Providing assistance to employees: It is the responsibility of human resources to oversee the implementation of employee assistance programs, and these programs contribute to providing assistance to employees to achieve a balance between their normal and professional lives, and human resources employees seek to implement savings programs and provide retirement wages for employees. Carrilo, P., Ruikar, al. (2013).

2.3. Information Technology:

Information technology can be defined as a set of tools, methodologies, processes, and equipment that are used to collect process and store information. Examples of these tools are coding, programming, storage, retrieval, analysis, systems monitoring, and data transformation. Information technology also includes: office automation, communications, multimedia, and information technology is the tool by which information can be stored and processed within the system, in addition to everything related to computers, networks, software, websites, databases, and telecommunications.

We can say:

Information technology includes information technology, data management, whether in the form of text, sound, image, or any other form, and also includes things related to the Internet, and this gives information technology a completely new meaning because the Internet is its own world, and the Internet is an important part of information technology, as well as It has become an important part of daily life, and information technology is defined as the technology that uses computers to store, retrieve, transmit and process data. Valerie' Bryan, (2018).

2.3.1 Information Technology Department:

The management information system is a term widely used for a three-resource system needed to effectively manage an organization, and it refers to people, information, and technology resources from within and outside the organization with priority given to people, and the system is a set of information management methods that include a computer, which is a program, a computer, and a system It supports and improves the quality and efficiency of business processes and human decision-making. Information technology management is also used in the field of study and information services. Examples of the various fields of administrative information systems are the following:

o   Decision support systems.
o   Enterprise resource planning.
o   supply chain management.
o   Customer Relationship Management.
o   Project management.
o   Executive information systems. Jia, G., Yang, al. (2011).

2.3. 2. What is the impact of information technology on human resources?

 Information technology has entered the field of human resources and has made a clear and tangible change in it, as it changed the way in which human resources departments communicate with employees, how their performance is analyzed, and how information related to them is stored, and if the technology is used correctly and appropriately, it will make human resources more efficient, But in the event that technology is employed wrongly, it will hinder the process of managing the company's human resources, and among the great effects of information and communication technology on human resources in institutions and companies, we mention the following:

Recruitment via the Internet, before the spread of information technology and its great control over the employment of human resources, the methods of recruitment and communication with job seekers were by using the phone or interview in person or through letters. The Internet opens doors for job seekers to apply for the job through the company's websites and applications, and in general, the forms and applications for most companies are similar, but if they contain confusing instructions or questions or if there is a slow response, this may result in the job seeker being suspended from progressing.

Ease of communication within the organization, through text messaging, e-mail, and messaging applications, it has become very easy for employees in the human resources department to communicate with the rest of the company's employees in other departments. Also, if a manager wants to share data or tables with employees of a specific project, he can share it from Through a single email that is sent to everyone with all its attachments, to save time and effort.

Analyzing employee performance data, so employee evaluation is done based on personal evaluation and some clear criteria such as the ability to perform the task on time, and is this employee trustworthy by his manager or responsible, technology facilitates the process of data collection and division, and through it it appears that the employee performs better than Other, in addition to the possibility of achieving the goals set in the evaluation of last year, and determining the rates and causes of failure in the event that they occur and failure to achieve the goals

Collecting a lot of data about employees, and this matter may make employees feel the diminution and decline of their privacy at work, but it is also important. Problems that occur within the framework of the job.

Security and complete confidentiality of information, as before the intervention of information technology in human resources in the past, securing employees' transactions was to lock their records cabinet, but now digital security systems have appeared on data such as a

good firewall known as (firewall). Human resources have good policies governing who can access confidential data, whether it is printed or electronic.

The economic aspect: the information revolution greatly contributes to the success of economic development and includes the Internet's contributions in this field in creating new economic sectors dependent on the continuous flow of information, working to create new financial sectors that entail the introduction of additional improvements to credit-related operations, and the operations of depositing savers 'money. And operating them in new investment operations.

The emergence of new methods open to customers, especially with their possession of personal computers and their connection to the Internet (e-commerce), which forced the institution to train individuals, educate them and give them new competencies in order to be able to dispose of its products and services in an efficient and fast manner. Gardner, S.D., Lepak, D.P. and Bartol, K.M. (2003).

2.4 The Role of Information systems in Human Resource Management:

Continuous innovations in technology are the force with which human resource work is accomplished. These technological developments have created an interactive and information-based working environment in real-time. Personnel information systems have evolved from automated employee record-keeping to intelligent systems and more complex decision making.

In a traditional HRIS, we can practically only work on managerial issues, such as absence monitoring, salary structures, training and employment information, media response, access to current information, medical information, and global management. However, HRIS allows us to respond more quickly to changes and decision-making needs. . The Human Resources Information System (HRIS) allows budget monitoring, tracking, and examination, skills matching, evaluations, maintenance of new data, workforce planning, future planning, skills monitoring, training needs analysis, and comprehensive analysis of major issues. The human resource information system can be applied in several areas. , By integrating it into an HRIS, HR professionals primarily spend their time optimizing business processes, talent management processes, workforce metrics, HR strategy, workforce management and planning, and competency management. Look at Fig No. -1-

Fig -1- Maravas, A., & Pantouvakis, J. Project cash flow analysis in the presence of uncertainty in activity duration and cost. International Journal of Project Management, Vol. 30, No. 3, 2012

2.5. The importance of an electronic human resources management system:
 Perhaps we are in the context of information technology with regard to human resources management or, more precisely, electronic management of human resources, we do not need enough seats for employees, but rather computers, applications, advanced programs, and means of communication that enable each employee to spend his assigned work easily and quickly. At the utmost, until the time of the Corona pandemic, work at home became possible. Electronic management of human resources is of utmost importance through: Facilitating access to information, achieving a competitive advantage, controlling costs, and raising profitability in the future. So the electronic management of human resources plays important roles that can be summarized as follows:
o   E-management of human resources is that administrative portal that is based on providing and circulating information among employees of all levels within the organization, and involving them in decision-making processes, thus developing the degree of responsibility towards the company, ministry, or institution to which it belongs.
o   Information technology helps employees organize free service for them, and it also addresses the daily individual demands of the human resource department.
o   Improving the company's image thanks to the use of computers, and the staff develops a sense of modernity and a sense of appreciation for their company.
o   Improving relationships between employees within the organization, including higher management, and dealers from outside the company or institution, so the concept of "manager" has shifted from the person in charge of managing employees to the person responsible for implementing and performing informatics.
o   The use of information technology and advanced applications and programs gives him the right to experiment and analyze potential designs, in a way that ensures him maximizing

product performance at reasonable costs, avoiding erroneous potentials and the resulting high costs, and allowing them to see the results of organizational performance as information displayed on computer screens or reports. Statistical and graphical, which enables self-modification of personal information, and reduces the role of media.

o   Enable users to communicate with each other and coordinate together, through dialogue rooms, chats, discussion boards and video conferences.

o   Reliance on information technology is not limited to a specific job only, but also includes all the functions of the company or institution, including the human resources management, and the use of technology in human resources management in order to improve it is called electronic management of human resources, where information technology affects all functions of human resources management in order to develop it And serving the goals of the institution, as the tasks change to electronic from electronic planning to electronic employment and electronic wage management, electronic training.

o   he most important changes and developments caused by information technology to improve this function can be identified in the following: -

•   Putting human resources information in a database instead of several records that were characterized by duplication of data.

• The automated treatment is applied at the level of wages by calculating wage rates, the number of working hours and all determinants that are included in the wage, which leads to time profit and reduce errors.

• Helps the manager to acquire qualified human resources by referring to the database.

• Relying on networks facilitates and speeds up recruitment procedures and reduces their costs.

• Reliance on information technology in training reduces the time and procedures related to it, which motivates the organization to do to keep pace with developments and achieve competitive advantage.

• He was able to obtain human resources information without resorting to management.

• Networks, especially the Internet, encourage the exchange of knowledge and support innovation and learning.

• Transparency in honoring workers and employees by knowing the work that has been accomplished by them in a transparent manner and finding the difference between them. Cross Ogohi Daniel. (2019).

3.
3.1 . Suggestions:

It is necessary to develop the quality of human resources and their skills in a manner that is consistent with the advanced technology contained in the knowledge economy and its rapid development, in a manner that calls for the development of training and the provision of self-training requirements in a manner that allows the provision of practical and scientific capabilities capable of contributing to the generation of this technology and its efficient use to achieve All activities expand.

• The Human Resources Directorate must take the necessary measures to recognize the information technology cell and include it within the organizational structure of the Human Resources Directorate.

• It is necessary to exploit the intranet / extranet of the institution or the company in the implementation of electronic management applications for human resources to activate the human resources management of the central administration of the institution or company.

• It is imperative to support the Human Resources Directorate with individuals specialized in designing information applications and programs and managing the network so that all subsystems of the human resources management information system, especially the

management subsystem, are exploited. It provides better conditions for management and forecasting.

• The Directorate of Human Resources must expand the exploitation of the intranet at the level of the institution or company directed in particular to receive vacation requests from the employees of the central administration of the institution or company and to communicate information that would interest them throughout their professional lives, including information on the formation of retirement files and the file to benefit from various grants.

• Convincing the senior management of the importance of the role played by the human resources department and the desired benefits of supporting its functions with modern technologies, advanced devices, applications, and new programs.

3.2. Recommendations:

The Research concluded some recommendations as follows:

• The integration of information technology within the institution has become necessary to keep pace with the rapid technological developments and changes in the current era.

• Work to introduce information technology in its various components to the institution or company in order to be able to manage the human resources of those with competencies in all its practices because of its importance in raising and improving the level of performance and increasing production.

• The necessity of conducting training courses in order to increase the skills and expertise of human resources in order to enable them to deal with information technology and keep pace with its rapid development.

• That the basic training be in all forums of the company or institution to honor, develop and move to the career ladder.

• Trying to employ the newest software and electronic applications to take advantage of them.

3.3. Results:

We came to these results:

❖ We can say that information technology helps a lot in developing the employee who works in the management of companies and that by using the applications used by the company in which you work.

❖ Modern means and technologies contribute greatly to raising the performance of employees who work in managing companies and institutions through annual courses in which they learn the latest developments in the developments that have been designed in the field of corporate management.

❖ The interest and use of information technology in companies and institutions leads to the creation of a great competitive atmosphere, as it leads to an increase in production and improvement of its quality.

❖ The administration must be able to absorb the technology and the new information that appears in terms of purchasing new applications and programs.

3.4. Conclusion:

Increasingly, information technology becomes a profound influence on human resource management; it will also force human resource management to take on new features in each of its operations and practices. After the emergence of smart applications and information technology, human resources must respond to the need to make this change in the most fruitful way possible, taking into account improved accuracy, quick access to information, increased competitiveness and efficiency, and re-engineering of the human resource function.

It has been shown through our research that a successful institution or company is one that pays great attention to its human resource as it is a source of development and creativity, and this is if it provides the appropriate atmosphere for work and that through what it provides it

with facilities and services to achieve good job performance. The institution or company today is witnessing tremendous changes and developments that have led it to rely on information technology to ensure its survival and continuity so that the latter has given great importance to face these changes occurring.

We have tried, through our study, to uncover the role of information technology in improving human resource management in the institution or company, as we have concluded through it that information technology contributes significantly to reducing the effort and time required for work and thus facilitate work and accomplish various tasks with high accuracy and efficiency, which will contribute In increasing the performance of employees and by providing advanced means and devices as an effective and necessary tool for the success of any institution or company.

Finally, we find that information technology is an important part of human resource management that can be dispensed with for the role it plays in improving and developing it. This is what led it to pay great attention to it if it wants to succeed and develop.

Information technology has created new methods for measuring the training process, so we hear about the virtual reality of training at a distance. All these new patterns of training have proven their worth in developed countries by raising the reputation of the institution or company and increasing production.

Information technology has created a new type of institution and companies supervising the training process, so we hear about institutions without borders, as their headquarters and borders are the internets and they grant high-quality certificates that are internationally recognized, for example, Cisco.

References:
1. Akilandeswari, A., Dinesh Kumar, A., Pavithra, M., Thawlath Mariyam, A. and Nasreen Banu, J. *Elements of Effective Communication*. International Journal of Multidisciplinary Research and Modern Education I JMRME. ISSN (ONLINE), Vol, 1, No, 1.2020

2. Allen, B.A., Juillet, L., Paquet G., & Roy, J. E-governance & government on-line in Canada: partnerships, people and prospects. Government Information Quarterly, Vol,18, No. 2. 2001.

3. Alok Mishra, and Ibrahim Akman, Information Technology in Human Resource Management: An Empirical Assessment, Public Personnel Management Volume 39 No. 3 Fall , 2010.

4. Ana I. Irimia-Diégueza, Alvaro Sanchez-Cazorlaa, Rafaela Alfalla-Luquea, Risk Management in Megaprojects, The Authors. Published by Elsevier Ltd. Open access under CC BY-NC-ND license. Selection and peer-review under responsibility of the IPMA. 2014.

5. Beidleman, C. R., Fletcher, D. & Veshosky, D. On Allocating Risk: The essence of Project Finance. Sloan Management Review. Vol, 31, No. 3. 1990.

6. Bussler L, Davis E. Information systems: The quiet revolution in human resource management. Journal of Computer Information Systems. Vol. 42, No. 2 ,2002.

7. Carrilo, P., Ruikar, al. K., & Fuller, P. *When will we learn? Improving lessons learned practice in construction. International* Journal of Project Management, Vol. 31m No. 4, 2013.

8. Cross Ogohi Daniel. Influence of Information Technology on Personnel Management in Nigeria, International Journal of Engineering Research and Advanced Technology (IJERAT), Vol .5, No. 2. 2019.

9. Ewa Ziemba. Information Technology for Management New Ideas and Real Solutions, 14th onference, AITM 2016 and 11th Conference, ISM 2016, held as Part of FedCSIS Gdansk, Poland, September 11–14, 2016 Revised Selected Papers. Lecture Notes in Business Information Processing. Springer International Publishing AG . 2017.

10. Gardner, S.D., Lepak, D.P. and Bartol, K.M. Virtual HR: The Impact of Information Technology on the Human Resource Professional, Journal of Vocational Behavior, Vol. 63, No. 2. 2003.

11. Haines B, Lafleur G. Information technology usage and human resource roles and effectiveness. Human Resource Management. Vol. 47. No. 3, 2008.

12. Hendrickson A. Human resource information systems: Backbone technology of contemporary human resources. Journal of Labor Research. Vol. 4, No .3. 2003.

13. Hendrickson, A. R. Human Resource Information Systems: Backbone Technology of Contemporary Human Resources, Journal of Labor Research, Vol. 24m No. 3, 2003.

14. Jana Kostalova1 , Libena Tetrevova2, APPLICATION OF PROJECT MANAGEMENT METHODS AND TOOLS BY CHEMICAL INDUSTRY COMPANIES IN THE CZECH REPUBLIC , 10th International Scientific Conference "Business and Management 2018" May 3–4, 2018, Vilnius, LITHUANIA Section: Contemporary Business Management Challenges and Opportunities. 2018

15. Jana Kostalova1 , Libena, Abstract. The article deals with the application of project management methods and tools by chemical industry companies in the Czech Republic. There are identified significant project management, 10th International Scientific Conference , Business and Management. 2018.

16. Jia, G., Yang, al. F., Wang, G., Hong, B., & You, R. *A study of mega project from a perspective of social conflict theory*. International Journal of Project Management, Vol. 29, No. 7, 2011.

17. JOHN T. DELANEY, The Impact of Human Resource Practices on Perceptions Organizational Performance, Academy of Management Journal. Vol. 39, No. 4. 1996.

18. Laudon ,Kenneth and Laudon Jane , Management Information System ,7th edition , USA, Printice Hall, 2001

19. Luis Ochoa Siguencia, 2018, CONTEMPORARY INFORMATION TECHNOLOGIES IN BUSINESS MANAGEMENT, Ochoa Siguencia, L. Contemporary Information Technologies In Business Management. Publishing House of the Research and Innovation in Education Institute, Czestochowa .2018.

20. Maravas, A., & Pantouvakis, J. Project cash flow analysis in the presence of uncertainty in activity duration and cost. International Journal of Project Management, Vol. 30, No. 3, 2012.

21. Marlene Sofia Alves e Silva and Carlos Guilherme da Silva Lima, The Role of Information Systems in Human Resource Management, © 2018 The Author(s). Licensee IntechOpen. This chapter is distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/3.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. 2018.

22. Melnic, A., & Puiu, T. The Management of human resources within projects: The structures of the project team, the Responsibility Assignment Matrix. Economy Transdisciplinary Cognition, Vol. 14, No. 1 2011.

23. Mohammed A. Abu Rumman 1, Amani Abd Al-Hafeez Al-Ziadat 2 and Rania Jafar Qutieshat 3, Communication and Communication Skills in Work Environments and Their Impact on Environmental Performance in Jordanian Industrial Companies: "Empirical Study", 2020 DAR Publishers/The University of Jordan. Vol. 16, No. 3. 2020.

24. Müller, R., Glückler, J., & Aubry, M. A relational typology of project management offices. Project Management Journal, Vol. 44, No. 1, 2013.

25. Othman, R. and Teh, C. On developing the informated workplace: HRM issues in Malaysia. Human Resource Management Review, Vol. 13. No. 3, 2003.

26. Patanakul, P., Iewwongcharoen, B., & Milosevic, D. An empirical study on the use of project management tools and techniques across project lifecycle and their impact on project success, Journal of General Management, Vol. 35, No. 3 .2010.

27. Pitas, J., Stanicek, Z., Hajkr, J., Motal, M., Machal, P., No-vak, I., & Havlik, J. (2012). National standard compe-tences of project management – version 3.2 (1st ed.). Brno: The Czech Project Management Association. 2012.

28. Shrivatsava, S. and Shaw, J. B. Liberating HR through technology. Human Resource Management, Vol. 42, No. 3, 2003.

29. Snežana Lazarević ,Jelena Lukić, THE IMPACT OF INFORMATION AND COMMUNICATION TECHNOLOGY ON HUMAN RESOURCES, 2016, INTERNATIONAL SCIENTIFIC CONFERENCE ON ICT AND E-BUSINESS RELATED RESEARCH, SINTEZA . 2016.

30. Storms, K. Earned Value Management implementa-tion in an agency capital improvement program. Cost Engineering, Vol. 50, No. 12, 2008.

31. Unger, B. N., Gemünden, H. G., & Aubry, M. The three roles of a project portfolio management office: Their impact on portfolio management execution and success. International Journal of Project Management, Vol. 30, No. 5, 2012.

32. Valerie' Bryan, Information Technology Management, Information Technology Management, Vol. 32, No. 9. 2018.

33. Zadeh, Razieh Adineh, Jaffar, Romlah, Abual Shukor, Zaleha, Abdual Rahman and Riduaan Che. The Mediating Role of Environmental Performance in the Relationship between Corporate Government Mechanisms and Environmental Disclosure. Asian Academy of Management Journal of Accounting and Finance, Vol, 14, No. 1, 2018.