



Università
Ca' Foscari
Venezia

Department of Management

Master's Degree
in International
Management

Final Thesis

**The Evaluation of
Human Resource Management
with Technological Developments**

Supervisor

Ch. Prof. PONTIGGIA Andrea

Graduand

Osman Tayfun DALGIÇ

Matriculation Number 871097

Academic Year

2018/2019

Acknowledgments

This final research paper concludes my life as a student in the master degree, which is performed under the supervision of Ca'Foscari University in Venice. Doing this research not only improves my skills in literature searching but also helps me to gain more profound knowledge about HR.

During the research, I have got great support from several persons, and now, here is an opportunity to thank them.

At first, My honored supervisor Professor Andrea Pontiggia is the person to whom I would like to say my sincere and deepest thanks for allowing me to pursue my master's thesis in the light of his valuable knowledge, understanding, support, and tutoring. Until the beginning of the thesis, he was always interested and motivated about the research topic, and thus, this was always my inspiration. Even though his limited time due to the classes, exams, and other responsibilities, he always tried to create an available period to answer my questions during the writing process.

I want to thank the professors of Business Administration International management area at Ca'Foscari University. I would like to thank them all for the two years of experience they have gained with their unique knowledge, expertise, and different perspectives. I am grateful to the professors who have prepared me for the future with the practical experience they have given me. I would like to thank all present members of the Ca'Foscari University of Venice's Welcome Unit, and other Units which I have contacted all time to their availability and patience to my all questions and their help.

This list would continue without acknowledging the loving support of my family, my girlfriend, and my friends. I would like to say also thanks to my beloved mother and father for their unconditional love, support, encouragement. Also, thanks to my girlfriend to her supports and my closest friends, even if we stayed far away for months to standing behind my decisions and their motivation. Lastly, thanks to my friends here in Venice to all of the good times that we had during my study period.

Table of Contents

Summary

vii

1.General Introduction	1
1.1 Human Resource Management.....	2
1.1.1 <i>The Main Features of Human Resource Management</i>	4
1.1.2 <i>The Principles of Human Resource Management</i>	4
1.1.3 <i>The Importance and Purpose of Human Resource Management</i>	6
1.2 The Functions of Human Resource Management.....	6
1.2.1 <i>Human Resource Planing</i>	6
1.2.2 <i>Business Analysis and Definitions</i>	7
1.2.3 <i>Recruitment</i>	8
1.2.4 <i>Training and Career</i>	9
1.2.5 <i>Performance Evaluations</i>	11
1.2.6 <i>Valuation of Job and Pricing</i>	15
1.2.7 <i>Industrial Relations</i>	17
1.2.8 <i>Occupational Health and Safety</i>	17
1.2.9 <i>Personnel Operations</i>	17
1.3 Personal Management and Human Resource Management.....	18
1.4 Strategic and Human Resource Management	21
1.4.1 <i>5P Models in Strategic Human Resource Management</i>	24
1.4.2 <i>The Types of Strategic Human Resource Management</i>	25
1.5 The Future of Human Resource Management.....	28
2.Technology	29
2.1 The Concept of Technology	29

2.1.1 <i>The Advantages of Technological Developments</i>	30
2.2 The General Definition of Web	31
2.2.1 <i>Web 1.0</i>	31
2.2.2 <i>Web 2.0</i>	32
2.2.3 <i>Web 3.0</i>	34
2.2.4 <i>Web 4.0</i>	34
2.3 Generations.....	35
2.3.1 <i>Types of Generations</i>	36
2.4 The Relationship between Human Resource Management and Technology.....	38
2.4.1 <i>Enterprise Resource Planning</i>	49
2.4.2 <i>Information Technologies</i>	51
2.4.3 <i>Cloud Computing</i>	54
2.4.3.1 <i>Cloud Computing Models</i>	59
2.4.3.2 <i>Advantages of Cloud Computing Technology</i>	62
2.4.3.3 <i>Disadvantages of Cloud Computing Technology</i>	63
2.4.3.4 <i>Barriers to Cloud Computing Adoptions in the Enterprises</i>	63
2.4.3.5 <i>Cloud Computing for Human Resource Management</i>	63
2.4.4. Big Data	64
2.4.4.1 <i>The Main Components of Big Data</i>	68
2.4.5 Big Data and Cloud Computing Relationship	70
2.4.5.1 <i>The Main Differences Between Big Data and Cloud Computing</i>	70
2.4.6. Human Resource Information System	70
2.4.6.1 <i>Employee Self Service</i>	71
2.4.6.2 <i>Human Resource Portal</i>	71
2.4.6.3 <i>Manager Self Service Portal</i>	72

3. The merge of Technology and HRM	74
3.1 From HRM to E-HRM	74
3.1.1 <i>Types of E-HRM</i>	76
3.2 E-HRM activities	77
3.2.1 <i>E-Recruitment</i>	77
3.2.2 <i>E-Selection</i>	78
3.2.3 <i>E-Performance Management</i>	78
3.2.4 <i>E-Learning</i>	79
3.2.5 <i>E-Compensation</i>	79
3.3 Goals of E-HRM.....	81
3.4 The Key Requirements of E-HRM success	82
3.4.1 <i>Human Resource Skills</i>	82
3.4.2 <i>Training in E-HRM use</i>	82
3.4.3 <i>Engagement with E-HRM</i>	82
3.4.4 <i>Design of the E-HRM system</i>	82
3.4.5 <i>Familiarity with Technology</i>	82
3.5 An Example of Case Study Under Armour	83
3.6 Company Culture	83
3.7 Variables.....	88
4. Conclusion and Evaluation of Findings	92
List of abbreviations.....	95
List of Figures and Tables	97
Bibliography	98

Summary

This thesis aims to understand the development of Human resource management with the relationship with technological developments. The type of companies, sector that they compete, generations who work in the company mostly are mostly related to the use of technology. I have started to explain firstly, the evaluation of Human resource management like how it was, and how it will be such as; personnel management to strategic human resource management to e-HRM. Then I have told technology which are the important points for the evaluation of technology and how it discovered and how it started to use on human resource area, types of technological programs or applications. Lastly, for the second chapter, the relationship with human resource management. In the last chapter, We have explained how human resource management effected after technology, and what has changed on HRM. Finally, evaluates the findings as a conclusion, explains the challenges and risks as well as future recommendations.

“Take away my people but leave my factories, and soon grass will grow on the factory floors. Take my factories, but leave my people and soon we will have a new and better factory” – Andrew Carnegie.

Renee West one said – *“ You can have the best strategy and the best building in the World if you do not have hearts and minds of the people who work with you, none of it comes to life.”*

Chapter 1

General Introduction

In this paper, I am going to search on how human resource management and developing Technologies has relations. We can easily see how companies develop with globalization. In addition to this situation, the global perspective contributes to companies have developed their domains and the inner links between different departments in the companies getting stronger. This conversion contributes to improving the human resource role in the firms, especially expanding business areas of companies. The firms have to focus more on human resource while the competition which is developing and change. So Companies work on more human resource functions and advance them perpetually in terms of management in last years. Human source is essential for firms, especially where high-level competition and talent wars and the responsibility of the human resource department has increased automatically. Companies have been established by the investments such as; Technologies, Research, and development, machines yet these factors is not enough for success and continuity. Generally, all people who Work in the firm makes the human resource. According to achieve the targets, all human resource can use fertile. Shortly, human resource management aims to manage, motivate, and develop, human source productive to reach the business target. It does not matter how the company has strong and enough sources if they do not have enough human source to get success. Technological changes have been started in the human resource as all business processes. Attending online World is essential to find the right people to add value to the company. This way also took the place of the old recruitment ways and started to use widely. Workers are accepted one of the most crucial sources of the companies. Also, some comprehensive studies are carried out to manage fertile these sources. Today's World, human resource managers, has an essential role in the companies because they know how to manage maintainability of the company and the critical factors for the maintainability. The companies can stand against the change in the environment if they learn the new situation instead of trying to control it. So, a successful manager who solves instead of resistance, solution instead of plan, focus on the excitement instead of a scare of the change (Ulrich, 1996). The companies have developed recruitment ways to find the right people who make differences to adapt digitalization. In this situation, the most

important role belongs to the human resource manager to start the change and encourage people. However, first, these managers improve themselves. Finally, We will search what kind of innovations human resource departments prepare to find, hold, and develop human source in the talent wars which exacerbated.

1.1 Human resource management

Human is the most important source of today's business life. The right people, the right time and the right place, is the most important rule which is unwritten of human resource management. Human resource department is a discipline which has lots of responsibility like; recruitment, classification, promotion, fire, economic rights. Human is a source that makes differences in the competitive environment for the companies. "Human makes the differences although the devices or building are same" Charles Nielson. So the right use of human source is important for both the company and human. The department of human resource is responsible for the all human source of the company, such as from high-level managers of the company to the unskilled workers of the company.

Additionally, the department also responsible for the potential human source, which is located outside of the company. The human resource management is a way to find enough number of people, train them, improve their skills, motivate them, and evaluate their work to help the company to reach the target. Also, the human resource department is responsible for the use of the most efficient use of employees, their professional development in line with companies targets¹. The other responsibility of human resource management is to find the new human source and hold the human resource which is already in the roof of the company and improve them to realize the objectives of the company. In other words, the human resource department has to find necessary workers, train them, improve their business skills, and evaluate them for businesses to reach their predetermined target². Human resource management is a concept that expresses the duties of human resources managers. The human resource management is a concept that has developed for 50 years that is why we cannot explain with one or general concept it.

¹ Translated from Palmer & Winters, 1995

² Translated from Ferecov, 2011

Therefore, there are many explanations about human resource management in the literature from the different authors and researcher. The companies have five main inputs, which are machine, Money, materials, management, and man. They are also called 5M inputs. One of the inputs are more important than the others because this one cannot be irreplaceable we call it Man source. After these several explanations, we can say that human resource management is a discipline to recruit the right people, manage people, improve their skills, motive human for the reach the target of the company. The human resource management can be called all of the activities and functions that effectively manage the human resource by the law, in a way that is beneficial to the environment, individual, and organization. There is a significant amount of information about the fact that the most important source of an organization is the employees when any business book or business magazines.

Human resource management comes from personal management. The most important fundamental concept is "human capital" the strategic planning in human resource management. Human capital means; the human source quality, education level, experience. Also, knowledge, skills, and abilities can be included in human capital. The human resource provides a sustainable competitive advantage for the company because human resource is a power that cannot be copied and inimitable. Personal skills, knowledge, and abilities are the way to make differences and way to reach the target of the company. Human resource management starts from the job analysis, find the right amount of the human source which is compatible with job analysis, and recruitment them, orientation, find the necessary training program and implement it, make career plans, evaluate objectively and lastly make pricing plan for salaries. In general meaning, human resource management, manage people to work fertile and compatible and reach the company their target easily. All methods and techniques, including the most efficient and most fertile use and development of the human resource for the business process, can be defined as the functions of human resources management. HRM exist in all process of working life. Generally, human resource management has ten primary subtitles and has four main parts. These are;

- 1) High level of human resource managers who responsible for the human resource department in the first instance such as; HR managers, coordinators, and vice presidents.

2)HR managers is an expert who makes plans for the programs, use, start, conducts, coordinate, and audit them.

3)HR specialist is a position that first level of the human resource management department.

4)Others, such as; secretary, pc operators, programmers, and White-collar workers.

1.1.1 The main features of human resource management

Human resource management especially has lots of features. I have tried to write it down main ones. Firstly, HRM contributes to the effective achievement of the predefined objectives of the company. Secondly, to take competitive advantage human resource management combines the target of the company and the wants and needs of the workers as one. Thirdly, while market he targets maximizes for company and employee, add value to both company management and other departments. To provide motivation, high performance, the sustainability of efficiency, individual development is an essential element in human resource management. HRM generally sees companies targets and workers needs and wants, as a whole, instead of keeping separate. HRM is responsible for the coordination between the different departments as a whole. HRM cares while makes organization and support organizational change during a focus on more flexible roles and teamwork. HRM is a system which is not preferred hierarchical structure, try to find the creativity of employees and human-based system instead of knowledge. Finally, HRM makes a company spirit to motivate people and try to make one company culture that is shared between colleagues³.

1.1.2 The Principles of human resource management

- **Impartiality/ Neutrality:** Managers must focus on what is related to the job. They do not care about other points which are not related to job duties. This principle aims to provide an effective control system for HRM.

³ Translated from Gök, 2006

- **Equality:** All people are equal both the recruitment process and promotion times. No one should focus on religious differences or similarities, differentiation of languages, gender discrimination, or politics.
- **Qualification:** The people should be selected by the qualification or success for the job which is stated. They prepare exams which can be joined by all personal for this principle to work and application for these exams should be equal for everybody. The talent principle should be considered during recruitment, promotion, and pricing.
- **Career:** HRM responsibilities are not limited just recruitment of people who has knowledge, skills, and abilities, at the same time they have to find a way to hold them for a long time under the roof of the company. They have to provide opportunities for a career that gives a chance to increase in the company for them to hold them. So, they can easily hold people who have talents.
- **Training:** HRM department should provide training programs for the worker to catch the change and increase fertile.
- **Guarantee:** This is related to the career principle because If you want to make a career at the same company, you have to work long and it just happens with a guarantee. It has two types, which are job guarantees and Office guarantees. Job guarantee refers to the dismissal of the worker without a just cause and Office guarantee refers to allow the person to retain his/her position of Office.
- **Privacy:** This means the security of knowledge. All knowledge does not need to be known by all people; that is why the privacy principle can protect knowledge.

1.1.3 The importance and purpose of human resource management

Human resources management is the most critical tool that is being used to recruit qualified personnel within the enterprise organization in a continually intensifying competitive environment. In line with the company's objective, efficient use of labor force and the fulfillment of the needs of workers and the development are two basic thoughts of human resource management. Human resources is the most fundamental resource used by businesses in the production of goods and services in today's competitive environment. Today's business life needs workers who Works effectively and efficiently. One of the central parts of the hrm ensures that those who are required to achieve the predetermined objectives of the enterprise are provided and employed by most appropriate conditions — philosophy of human resource base on human. According to the HRM, the human is a source which should be grown. HRM should work integrated into all departments in the company. Success can be measured by how company performance has been increasing. Firms generally use personal, Money, materials, time, and place to produce goods and services. As we told before, humans are the most important main stones of the companies. Everything can be bought except human. The number of international companies is growing day by day. Also, HRM departments responsible for finding people who have enough knowledge and skills, who can adapt quickly to the cultural environment.

Moreover, HR departments train employees against the changing environment to catch the change. The HRM department implements regular improvement activities including everyone from the top-level managers to the unskilled workers, for improving performance at all level. Lastly, they are responsible for informing workers who have to get fired about their rights as a lawyer.

1.2 The functions of human resource management

1.2.1 Human resource planning

The quality and variety of human resources the company will need in the future will be determined by taking note of the existing workforce. It is the process of defining and examining the smallest parts of a particular job in detail. It provides to find an answer to the questions such as; what, when, how, where, by whom, why, cost. The long-

term plans of the company must be known for making efficient plans. Otherwise, failure will occur. Human resource department plans and firms plans should be parallel. Human resources planning is carried out by the collaboration of human resources personnel and other department managers in the organization at every step. Human resource department is responsible for the making coordination, a search of process, and making a synthesis. HR planning, in a narrow sense, refers to a series of development processes designed to identify HR strategies and implement them. In the broadest sense, HR planning is carried out in a manner consistent with the company's objectives by keeping the required qualifications and number of personnel ready depending on the targets of the institution⁴. As a result of HR planning studies, the number of staff that will be needed in the future, the quality of the personnel, and when the person will be required are determined. The planning process can be affected by both the internal and external environment.

External factors;

- Change in the economy
- Technological developments
- Changing in the competitive environment
- Change on the political environment or changes in-laws.

Internal factors;

- Budgets
- Change in activity format or capacity of production.

1.2.2 Business analysis and definitions

The definition of the work is the profile of the work. The more impressive the profile, the better. All work done in the enterprise is analyzed in detail, and the characteristics of the work are determined and then defined on the forms are made. During the business analysis process, the following topics are investigated;

- Title of the job
- Functions of the job

⁴ Transformed from Bilgin, Taşçı, Kağnicioğlu, Benligiray, Tonus, 1998

- Determination of what kinds of materials can be used while process of the necessary job
- What kinds of opportunities they have
- What kinds of skills they needed
- What kinds of products are produced and the amount of it
- Try to find an answer to when, to where and to how is it done
- What kinds of responsibilities or title they will have
- The point of the job and what is the relations with other departments.
- The audit from whom by

As a result of the work Analysis, job descriptions and job requirements and the qualifications required for them are determined and accordingly, job postings are created, and job finding stage is applied.

1.2.3 Recruitment

This is one of the most critical functions of the human resource management department because finding the right people is related to the manufacturing process, and also it is directly related to competition. It is necessary to find people who suitable and qualified to fill in the gaps in the company. This function has lots of subtitles such as; accept applications, the first interview, making some test or exams check the references or part of the candidate, medical check, and then lastly if the previous section ends up positively, they are responsible for choosing the candidate and placement of them. First of all, the nature of business, needs, and title are determined, after these some preparations are made to find the exact group of people and contact with candidates. There are two main ways to get the best employees in the company. These are internal and external. Internal means using existing materials. External means; to get the best employees on the labor market. Employability versus internal is the way to manage people using all the organization's mechanism, variables, and capabilities to create the people inside for the future for what we will need or employability your career or ability. Internal labor market and employability have to be used by the firms. Otherwise, it is too complicated to use just one out of two for all the organizations. The main merits of the internal labor market are that a firm is likely to know more about the strengths and weaknesses of existing employees than the outsider. The internal labor market has lots of advantages for both workers and employer when we compare with external one

such as; reduce the recruitment and test costs, employee training, employee turnover or workers stay to ascend in the job ladder. They already know the culture of the company. Culture has a vital position in the companies. Otherwise, companies have some problems if they want to use an external market like cultural differences, competition with competitors to take the right people in your company, and it contributes to pay more than average. The employment of middle and upper-level managers is usually provided either internally or via transfer. With this method, the personnel working in the enterprise are motivated to develop themselves and demonstrate high-performance efficiency. Human resources are significant for sustainability and competitiveness. Therefore, the recruitment process of the most suitable and qualified job for the business is an essential function today. The criteria in the planning and analysis phases form the building blocks of this stage.

1.2.4. Training and Career

The training process begins after the previous stages have been completed, and the staff has been found. After the completion of the recruitment process, the orientation related to the task undertaken is required. In the orientation process, both physical space harmonization or the introduction of the personnel of the institution should be done, and the training curriculum for the work to be done should be told to the new employees⁵. This is the first stage of in-house training. In general, these activities that are business training, focus on technical education, knowledge, skills, managerial development, social skills development, and orientation of new personnel. There are many stages in the training process. Determining priorities, determining educational issues, selecting methods, selecting trainers, determining location, tools, and equipment, and finally applying education. Various programs are organized both inside and outside the company for the existing personnel to work more efficiently. The responsibility of these belongs to the human resource department. It can be necessary for the staff to ensure that the company develops positive business relationships by providing essential information about mission, target, values, organizational structure, and functions. Especially with the newly developed technologies, the training phase has become more accessible and practical. Because the time factor for education with Technologies has eliminated. Those who are educated can follow the pieces of training at different times

⁵ Translated from Sabuncuoğlu, 2000

and places. Personnel training is divided into two. These are in-house training and job-based training. The first business training; training to work in the general sense; given general information about the job. The second is the work-based practice training, adaptation to the work environment, job responsibilities, expectations and tasks, policies, procedures, rules, and transfers to the employee and overtime this training continues in daily life with colleagues. Also, the internal and external factors can be used in education ;

Internal training;

- Orientations
- Internships
- Training with group work
- Training under the control of a manager

External training;

- seminars and conferences
- case studies
- laboratory training
- training on simulations
- sensitivity training

Generally, evaluations are made after each practice to determine whether educational activities have achieved their purpose, to measure the degree of achievement of targets, and to create educational programs accordingly. They are also made to demonstrate whether the training program has achieved the goals of the individual and the organization and decide whether or not to continue the training programs. These inspections are carried out to determine the suitability of the training techniques used and, if not appropriate, to collect information to improve the training program. Because these evaluations are not made and if the training fails, time, performance, cost, loss of trust, and personal dissatisfaction lead to the company. With this training, it is aimed to increase the creative power and efficiency of the personnel. The training aimed that the training personnel does the job better and the development of the personnel will work in the future. Education has benefits for both the staff and the company.

For the firms;

- it increases efficiency,
- ensures unity of purpose,
- reduces the staff's resistance to change,
- increases the organization's ability to make decisions and solve problems.

For the personal;

- team spirit develops,
- improves performance,
- it increases self-confidence,
- provides career development.

Effective career management includes the organization of training programs that meet the career goals of the staff. ⁶In particular, training based on institutional training, vocational-technical training, language training, and executive competencies are complementary elements of Career Management. Therefore, Career management has an impact that can be less measured as a process than performance management and wage management but can create corporate awareness and increase individual performance if it is used truly.

1.2.5 Performance evaluation

When we ask why we evaluate performance, we can give the following answers.

- To see the understanding of what you want to accomplish within the organization,
- To be able to analyze the effectiveness of using resources,
- To make a decision based on the real situation,
- To look organization as a whole,
- To be able to see the level of mission and vision sharing in the organization,
- To control processes in achieving goals,
- To see the positive results,
- To motivate the main behaviors,

⁶ Translated from Barutçugil, 2016

- To determine the needs of individual and firm education,
- To keep the organization's sustainability Index up always,
- To identify differences in individual or organizational perception within the same structure.⁷

Performance evaluation is one of the first processes needed to measure organizational effectiveness. It is the process of evaluating success in the business. It is a planned tool that assesses the contribution of the individual to the success of the enterprise. Performance is a measure of how much an individual, a group, or an enterprise can reach to the intended and planned target in a specified time frame or in a unit time frame⁸. Performance evaluation is one of the essential functions of Human Resources Management, and it is to analyze and use the results produced by individuals for organizational purposes and within a specified period⁹. The level of success achieved by the employees at the end of the term is determined, and the success of the employee can give awards such as wages and promotions. In other words, performance management can be defined as a chain of applications used by the enterprise to improve the performance of the target person or group in order to increase organizational performance. Performance appraisal is a comparison of the work performed by those who work within the scope of predetermined standards. Performance appraisal is not only focused on business but also includes the behavior of the employees within the company, their approach to business, their relations with colleagues, and superiors¹⁰. The main objective is not to punish failure, but to reward success. Performance evaluation can increase company productivity if done correctly. Performance evaluation has lots of advantages. Like ;

- the assessment of success encourages staff in the direction of continuous improvement,
- allows the team to complete missing aspects to be more efficient and productive,
- It enables the identification of training needs and the principles related to these needs,

⁷ Translated from Turgut, 2001

⁸ Translated from Akal, 2005

⁹ Translated from Akdemir, 2012

¹⁰ Translated from Gök, 2006

- Performance evaluation system provides the data that can be used in the award and penalty system,
- To enable employees to improve themselves by giving information about their inadequate aspects, and to motivate them in this direction.

There are many performance appraisal methods used to determine the performance levels of the employees. Some of these methods are the first traditional methods of performance evaluation; some of them are modern methods developed after the detection of missing aspects of traditional methods. Performance appraisal systems have emerged in organizations with a large amount of staff and the need to get more comprehensive and accurate feedback from different perspectives on employees. The 360-degree performance evaluation system has a varied and continuous role in performance evaluation methodology. Also, 360-degree performance evaluation system, as well as supervisors and managers, the evaluation itself, colleagues, subordinates, and customers are available in the business line and provide feedback on performance¹¹. It is intended to provide objective, honest feedback with the valuation method. It also contributes to the increase of the product and service quality of the company by participating in the process of its customers. The 360-degree performance appraisal system focuses on;

- leadership qualities: To create confidence and to be honest, being a leader, distributing authority and responsibilities.
- Communication skills: Listen to others, knowledge about the process, to have effective written and oral communication skills.
- Relations to people: Developing personnel relations, to manage and encourage team success.
- The power of management: Work effectively, being able to use technology to add and create value to the system, to be diligent and talented in the business.
- Develop subordinates: Individual skills to be discovered and trained, being a patient, helpful and effective leader, a monitoring successful motivation policy, the reward for the extra effort.

¹¹ Translated from Barutçugil, 2016

- Development of personal: Demonstrate a responsible and stable demonstration in applications, to be in the search for improvement, having a positive thinking system.
- Adaptation to changes: to adapt the conditions and environment, creative thinking and implementation of it, to be able to recognize the dynamics of change before.

These evaluations are guiding the career and personal development of people and increase the satisfaction and productivity of employees within the company. 360-degree performance evaluation is the most vital source of administrative structure in terms of providing feedback to both the organization and the employees. The 360-degree performance appraisal feedback system is thought to be more developed and useful than the feedback provided as a result of the evaluation of the superiors in the classical sense. It has been used as a supporting element for the evaluator rather than replacing the current valuation system. One of the most prominent features of our time is in the process of constant and rapid change. In the globalizing world, it is essential that businesses develop new management styles and implements them so that they can compete with their competitors. Increasing their productivity is one of the most significant components of competition resistance. Planning and implementing performance evaluation activities will enable the company to adapt to rapid changes. The 360-degree performance appraisal system provides a versatile feedback tool for improving performance. The 360-degree performance appraisal system has both advantages and disadvantages.

Some advantages are

- Comprehensive and objective feedback; Because it is not only connected to a single person, so it is a comprehensive and accurate method for taking ideas from more than one person,
- The diminish of the risk of discrimination; Because the ratings come from different people in different positions, the misleading effects of evaluations based on factors such as race, gender, age are reduced,
- To determine the development and training requirements,
- To satisfaction about related to service who takes (Gravan, Morley, & Flynn, 1997).

Disadvantages are

- To errors in the design phase,
- Unrealistic expectations about the process,
- Assessment by his colleagues and subordinates,
- Missing information¹²

1.2.6 Valuation of job and pricing

First of all, it should be determined why and for what purpose before work evaluation is performed. Then, Job Analysis, job descriptions, and job requirements should be prepared, and the work to be valued and the method to be used must be selected. According to the level of importance of the current jobs are grouped first, then a fair wage system is established by taking into consideration other factors. Work valuation can be expressed as the determination and comparison of the weight of work according to other jobs. The company's wage structure and policy are created through job evaluation and wage research on real wages in the market. Business valuation never deals with people; it focuses only on the conditions related to business and the construction of the business. Issues such as assessing employees and measuring their success excluded from the scope of job evaluation. Business valuation methods divided into two groups, numerical and non-numeric. In the non-numerical work valuation method, the work compared with each other as a whole. In statistical work evaluation, the score or factors are compared. Principles of business valuation are at the below;

- Evaluation of the job, not the employee,
- To be given equal pay for equal work,
- Based on honesty and correctness,
- No privacy,
- Update business valuation data,
- Use of the data obtained as a result of business valuation in decisions related to remuneration.

Purpose and benefits of business valuation

- To be Fair discrimination on wages between jobs,

¹² Translated from Uyargil, 2008

- Determination of wage inequalities and elimination of them,
- Create a consistent wage policy in companies,
- Establishing a useful wage control tool,
- The establishment of a wage structure based on rational principles rather than an uncertain wage structure based on factors and thoughts such as the habits of businesses, the favoring of people,
- Providing a tool for real comparison between salary and wage levels,
- Prevention of unrest, demands, and complaints on wage and salary levels,

The data and findings obtained after performance evaluation and the results obtained from job evaluation take an active role in the pricing phase. Performance evaluation and wage determination are two closely related issues. In many institutions, salaries and wages are determined not only on certain degrees or working hours but also based on the performance shown. A charge is a concept that motivates workers and sets living standards. Pricing systems should be systematic to be fair. After the job evaluation, topics and stages are created, and specific pricing is made first according to the branches to which the employees are affiliated, then within them, seniority, education, and so forth. Such as performance management, compensation management has a dynamic structure. Therefore in some periods, the wage system needs to be restructured. Some of the most apparent objectives of wage management are as follows ;

- Attracting qualified workers to operate,
- Keeping current workers in the company,
- Motivate them,
- Improving organizational performance.

Wage management objectives

- To comply with legal regulations which are related to fees,
- To reward employees ' knowledge, skills, competence, and seniority,
- The market he fees payable fort he company,
- Establish a fair and balanced wage system,
- Reward high performance,
- To promote performance increase,
- To increase and maintain business satisfaction,

- Attract and retain qualified workers and provide a competitive advantage with other businesses.

1.2.7 Industrial relations

As a result of the negotiations with the unions, there is a consensus on wages and social issues, and finally, collective agreements are arranged.

1.2.8 Occupational Health and safety

In the health and safety of workers, especially work accidents and occupational diseases, are protected. Occupational health and safety is a cross-disciplinary area which is dedicated to defending the security, health, and well-being of individuals working or working. All occupational health and safety programs are aimed at fostering a safe working atmosphere. It may require relationships among many topics, including occupational medicine, occupational hygiene, public health, security engineering, and so on.

1.2.9 Personnel operations

The recruitment and fire of the personnel, record keeping, and bureaucratic procedures are required.

To achieve success in human resource planning, human resource personnel should pay attention to the following issues:

- To create short and long-term plans and to find the right staff in light of them by making accurate determinations to reach the objectives and targets of the enterprise,
- To provide training for the needs of the personnel and to increase their commitment to the operation,
- To be economical in personnel employment, operations, and activities, to realize the recycling of expenditures and investments,
- To act by all laws and procedures at a legal level and to adhere to them in all activities,

- To follow all technological and social changes and to provide the necessary innovations in this direction,
- Monitoring compliance with all activities related to organization and personnel,
- Using the information to contribute to all the units of the organization,
- By minimizing the margin of error in recruitment, placement, and career management.

1.3 Personal management and Human resource management

Spending time and money for personal management was weird before World war I. because human power was too much and cheap, and there was no think like human resource management. Personal management thinking was born in the 1930s in the organizations. The effectiveness of personnel management did nothing other than keeping records in the 1940s. During the World war 2, the problem of shortage of labor power emerged, and companies began to do psychological research and implement to solve it. Some laws removed in the 60s and 70s to regulated personal management and then in 1980s human resource management concept started to use after personal management started to get wider and change (Çetin, 2012)¹³. The companies began to see workers human resource instead of personal after this situation changed. Before people who do just specific duties have evolved in time to the people who analyzed problems and give some advice to these problems, and now, human resources are an indispensable part of a firm. The companies who want to take advantages for the market, can not work without human resource management. Human resource management has human-oriented thinking and tries to answer how human source work with machines and how they can find it, employment it, how they manage. Also, HRM is not an alternative to personnel management; it is a complement of personnel management. In addition to these, the aspect of management that is concerned with the workforce and their relationship with the entity is known as personal management while the branch of management that focuses on the most effective use of the workforce of an entity, to achieve the organizational goals are known as human resource management. Also, personnel management has the traditional approach, and HRM has a modern approach. Personal management focuses on routine functions, HRM strategic

¹³ Translated from Çetin, 2012

functions. In individual management pay for job evaluation, Human resource management pay for performance evaluation. Personal management has indirect communication, while HRM has direct. Labor management is based on collective bargaining contracts in personnel management, and individual agreements are in human resource management. Decision making is slow in personnel management and the opposite in human resource management.

Job design is based on a division of labor in personnel management and groups or teams in human resource management. Moreover, personnel management has a static structure, while HRM has a dynamic structure. Lastly, Personal management focuses on primarily on mundane activities like employee hiring, remunerating, training, and harmony and HRM focus on treat workforce of the organization as valued assets, to be valued, used and preserved. Generally, personnel management is like an operational concept; HRM is a consultancy service¹⁴. Above, we talked about the differences between human resource management and personnel management, but human resource management is called to cover personal management.

COMPARISON BASIS	PERSONNEL MANAGEMENT	HUMAN RESOURCE MANAGEMENT
Meaning	The management aspect that concerns the workforce and the entity's relationship is known as Personnel Management.	The branch of management is known as Human Resource Management, which focuses on the most effective use of an entity's workforce to achieve organizational goals.
Approach	Traditional	Modern
Treatment of workforce	Machines or Tools	Asset

¹⁴ Traslated from Sabuncuoğlu, 2000

COMPARISON BASIS	PERSONNEL MANAGEMENT	HUMAN RESOURCE MANAGEMENT
Type of function	Routine function	Strategic function
Basis of payment	Job Evaluation	Performance Evaluation
Management Role	Transactional	Transformational
Communication	Indirect	Direct
Labor Management	Collective bargaining.	Individual Contracts
Initiatives	Piecemeal	Integrated
Management Actions	Procedure	Business needs
Decision Making	Slow	Fast
Design of jobs	Division of Labor	Groups/Teams

COMPARISON BASIS	PERSONNEL MANAGEMENT	HUMAN RESOURCE MANAGEMENT
Focus	Mainly on mundane activities such as hiring, remuneration, training, and harmony of employees.	Treat the organization's human resources as valued assets for valuation, use, and preservation.

Table 1 Comparison of Human Resource Management and Personal Management

Source: (Ismajli, Krasniqi, & Qosja, 2015)

1.4 Strategic human resource management

The strategy has been discussed in the military field for many years. As a military concept, the strategy involves planning and taking action by determining what the other party is going to do. It has been started to use in the second half of the 20. Century in terms of management. In this context, the strategy has a technical understanding that activates the resources in capturing competition by organizing the relations of the enterprise with its environment. Strategic human resources management is the evolution of human resources management with the development of technology. If you want to take more effect from strategic human resource management, mission and vision should be known, make SWOT analysis well, define the strategic targets, to achieve this target prepare alternative ways and choose them, and finally, use these strategies and evaluate them. All aims of human resource management targets are carried out to take competitive advantage where the company active and to ensure that life is motivated a better position. The reasons of this situation, one of the most important thing is today's word to bring the workforce to the company who can use new technologies, who achieve growth and who develop and compete with the new competitive market with harmoniously and use them fertile. Therefore, human resource management has a strategic role instead of traditional (Hayri Ülgen, 2018)¹⁵. Companies have advantages in the competitive market, if their human resource is strategic; it means the benefits are related to how your company has strategic human resource

¹⁵ Translated from Ülgen, 2018

management. Strategic human resource management has several duties such as; make the environmental analysis, know well both inside and outside of the company and adapt change, make a plan which is long term, focus on people means to put people in the center of the idea, adapt strategies to the company. Also, companies make differences with these strategies and duties, and the company, which makes differences grow fastly and always be in front of their competitors. Human resource management has to be more strategic to make these differences. That is why the role of human resource getting more and more decisive. In today's World getting more globalization, for this reason, companies ensuring their sustainability in a competitive environment should be at the same level with, how they should be prepared themselves before the change, take precaution for change, follow the change. (Becker & A.Huselid, 2006). Human resource management and strategic planning should be together in strategic human resource management like homogeneous. Strategic HRM that can be expressed to a combination of the strategic choices and some kinds of human sources to improve the performance of the firm and sustainable competitive advantage focus on three main titles. These are like;

- 1) Human resource management should exact integration with the strategic needs of the company and general strategies of the company.
- 2) The consistency of HRM should be provided for both politics and hierarchical systems.
- 3) Human resource activities should be combined with both managers and workers in daily life as a part of daily work life (Cingöz, 2011)¹⁶.

¹⁶ Translated from Cingöz, 2011

Global Challenge	Sustainability challenge
<ul style="list-style-type: none"> • Hrm strategy is matched to business strategy • Knowledge is shared • Work is performed by teams • Pay systems reward skills and accomplishments • Selection system is job-related and legal • Flexibility in where and when work is performed • Employee engagement is monitored 	<ul style="list-style-type: none"> • Continuous learning environment is created • Discipline system is progressive • Customer satisfaction and quality are evaluated in the performance management system • Skills and values of a diverse workforce are valued and used • Technology is used to reduce time for administrative tasks and to improve HR efficiency and effectiveness.
Technology Challenge	

Figure 1 The Challenges of Strategic Human Resource Management

Source: (Pontiggia, 2016)

For human resource management to be more strategic

- Management should be proactive, not reactive.
- The high integration between politics.
- High-level managers should do the coordination.
- The plans should be integrated with all part of the company by control of high-level managers (Oktal, Benligiray, Taşçı, Ceylan, & Tosun, 2013)¹⁷.

In addition to these strategic human resource management has been applied on four main steps, which are;

- In the first step; the group of strategic planning and HRM departments work separately and try to take place in the company.
- In the second step; the relationship between strategic human resource management planning group and HRM started to grow. HRM department

¹⁷ Translated from Benligiray, 2013

provides information that is related to the workforce to the group while determining the strategy.

- In the third step; the relationship between these two-part is getting intensify in this step. It can be seen that human resource management started to provide help to choose the right strategy and implement it. The link between human and policy can be started to use for better strategic human resource management.
- In the fourth step; Strategic human resource management starts to find solutions to deal with the problems that unexpected. It also has to find a company strategy in line with changes while getting an active role in human resource management.

1.4.1 5P models in strategic human resource management

Human resources management is an integrated approach that includes policies, competencies, cultural values, value-building skills, and implementation. According to the research of Schuler (1992), this model has occurred, and it integrates the changing human resources expectations and the strategic expectations of the organization. The 5p model is classified as follows:

- **Human Resources Psychology:** Psychology is concerned with how events related to organizational and cultural values affect employees. It means this model cares their employees psychology while rewarding them. Expresses hot to treat and value people.
- **Human Resources Policies:** Policies that allow to take into account business needs that must be met strategically such as; recruitment of qualified workforce, increasing performance and productivity, by this way, to save costs and ensure that employees work in a safe work environment to review the business environment, and covers the work in the field of meeting the career expectations of the employees. Policies establish guidelines for action on people-related business issues and HR programs.
- **Human Resources Programs:** The programs include strategic business activities that are strategically required by the business, ensuring that this is spread throughout the business and human resources practices explicitly designed for this area. Coordinates efforts to facilitate change to address major

people-related business issues. HR policies shape them. HR programs represent coordinated HR efforts specifically intended to initiate, disseminate, and sustain strategic organizational change efforts necessitated by the strategic business needs. These efforts may begin at the top of the organization and filter down. It has several elements like; they receive their impetus from the firm's strategic intentions and directions. They involve human resource management issues. They represent major people-related business issues that require a significant organizational change effort to address. Additionally, they share the reality of having strategic goals against which program effectiveness can be measured.

- **Human Resources Practices:** Practices are an indispensable requirement for the effective implementation of leadership management for an enterprise at an operational level. The behavior that is expected from the leader stands out as a feature that improves performance. Motivates needed role behaviors.
- **Human Resources Processes:** Processes represent the integration and cooperation efforts of all current activities in the enterprise. It is a definition of how, where, and when planned initiatives will be made in the interval of time (Eren, 2018)¹⁸. Defines how these activities are carried out. This part deals with "how" all the other HR activities are identified, formulated, and implemented. Thus, it is a significant strategic human resource management activity. (Zhou, 2012)

The most important benefit of the 5p model is to examine the compatibility of the applications performed with each other.

1.4.2 The types of strategic human resource management

Strategic human resource management's strategic qualification has an essential role in company performance. Especially, human resource practices like; financial performance, workforce cycle, and fertile. The meaning of this situation is that company performance is affected by human resource practices most than the other change in the company. It is not possible to say that a single approach in explaining strategic human resources management is sufficient and correct. Each method has contributed to a better

¹⁸ Translated from Eren, 2018

understanding, better explanation, and development of the concept of Strategic Human Resource Management. These are;

- 1. Global approach:** This one is the basic way that can be used for explaining the strategic human resource management. According to Delery and Doty, this approach can be defined as a study to convert the traditional human resource to the correct procedure and politics (Delery, 1996). There is no consensus about best HRM practice contribute positively to the company performance, although there are lots of study in the literature. (Bakan, 2014)¹⁹. It can be said that the integration of cultural elements, institutional variables, and human resource management practices with organizational strategy is neglected (Belizon, Morley, & Gunnigle, 2016).
- 2. Situational approach:** In this approach, the relationship between HRM practices and company performance can be affected by the situations, differently from the global approach. (Bakan, 2014)²⁰. In this approach, there is always the third variable, which is different from the stable relationship between hrm practices and performance (Akgün, 2010)²¹.
- 3. Based on source approach:** “The organization, its employees or its staff, can transform these resources into “scarce”, “impersonal”, “valuable” and “impersonal” by properly combining or bringing together all the resources that make up the business, and thus these resources are the source of sustainable competitive advantage. In a resource-based approach, organizations employ quality and qualified personnel to ensure competitive advantage (Ceylan, 2016)²².
- 4. Configurational approach:** “The structured approach, which is an extension of situational theory, has taken Human Resources function as a complex and interactive system, tried to synthesize the information collected about the organization instead of analysis, and has brought a holistic perspective. This is more complicated than the global and situational approach. Although the models do not deny situational approaches, they define human resource function as a

¹⁹ Translated from Bakan, 2014

²⁰ Translated from Bakan, 2014

²¹ Translated from Akgün, 2010

²² Translated from Ceylan, 2016

complex and interactive system. A most important part of this approach is preparing strategies for organizations. The reason for this is that the cooperation between the sub-systems, in other words, will provide the human resource for integration to accomplish the task of the organization. The propositions of this approach are more complex than universal propositions. This is because this approach focuses on more complex relationships than simple linear relationships, such as the universal approach. This approach involves the existence of an intermediate variable. In such studies, internal harmony and external harmony and ways to reach them are sought. The adaptation of human resource practices to organizational and environmental factors is one of the foremost of these pursuits" (Akgün, 2010)²³. It is like the continuation of the situational theory.

5. **Contextual approach:** This approach proposes a broad model that can be applied to more general, diverse geographical, and industrial conditions than others by introducing a defining and global explanation of strategic human resources. The strategic human resources management is insufficient to focus solely on internal functioning and the role of the organization in achieving its goals. The contextual approach has brought a review of the relationship between Strategic Human Resources Management and its environment to a statement that exceeds the organizational level and considers it a part of a more extensive macro system. In this approach, human resources strategies should be explained not only within the framework of their contribution to organizational performance but also their effects on the elements of the organization and its external environment. This approach, which is closer to theoretical foundations in the field of industrial relations, again touched upon the importance of environmental factors such as the impact of public enterprises, trade unions, social and institutional developments, which were ignored in previous studies. The contextual approach includes similar institutional foundations when the Universal, conditional methods discussed earlier are evaluated in general and criticizes the rational and normative theory. (Bakan, 2014)²⁴

²³ Translated from Akgün, 2010

²⁴ Translated from Bakan, 2014

1.5 The Future of Human resource management

Today, Human Resources Management has become an essential position with changing conditions and investment in human beings, as mentioned previously. With the development of technology, there have been changes in the human resources field in every field. Some areas in human resource management more interact with technology while others interact with less technology. One of the essential trends in human resources was an effort to keep human resources. Companies are doing serious work to protect the adult staff. Because, for a new employee to be able to contribute directly to production, he must have passed through the vital training process. This is a material and moral burden for the company. Recently, the introduction of robots in the production of business life has led to the creation of question marks in the minds. The rapid mechanization and life in the control of machines increase the concerns about the future of Human Resources Management. In the future, new models and concepts will emerge in Human Resource Management, and new strategies will be determined with these type of developments. Also, man's management will exist as long as Man exists. The Y Generation will determine the development of human resource technologies because the Y Generation will be more involved in business for the next ten years. Also, The use of social media will play an essential role in the development of human resources technologies, as the Y Generation is increasingly integrated with new technologies and is part of their social media lives. In this way, technology will be used more in recruitment, training, and performance evaluation areas. The use of technology in recruitment will develop and become widespread because it is crucial to reach the increasing number of candidates and to be able to perform these operations in less time.

For this reason, the human resources department will have to integrate technology and find different ways to reach better candidates. Also, the new technologies provide easy measurement, analysis, reporting, decision making, and strategic decisions to facilitate the process will facilitate. Thanks to these, the company will be able to save material and spiritual sense and will contribute positively to the company.

Chapter 2

Technology

2.1 The Concept of Technology

The Latin translation of technology is ‘ Technoslogos". When it means to make Technos, logos mean to know if it is. It refers to the knowledge and the ability to do things such as tools. Technology is everything human beings do to make human life easier by using science. For example, phones, cars, machines, computers are the most basic ones. So, as you can see, the concept of technology has a vast usage area. Many kinds of technological developments have been experienced from the past to the present and continue to be experienced. Although there is no common opinion which is more important than technological developments from the past to the present, printing and printing techniques are accepted according to the general judgment. As we said, technology coverage is comprehensive and varied. In general, we will focus on the direction in which companies produce services, not products, as well as the ones they use in the human resources department. When we look at the technological developments of recent years, the most important ones are;

1) Wifi: In the 90s, there was a possibility for the Internet, of course, but your phone line had to be open all the time to connect to the internet, and most importantly, your computer had to be connected to the internet by cable. With the development of WiFi technology, it is now possible to connect to the internet easily even during the flight. In short, you do not have to be in a fixed place to access the internet with the development of WiFi. Nowadays, Wi-Fi 6 technology is gradually starting to be applied. The evaluation of WiFi in history also like this;

802.11ax (2019): Wi-Fi 6

802.11ac (2014): Wi-Fi 5

802.11n (2009): Wi-Fi 4

802.11g (2003): Wi-Fi 3

802.11a (1999): Wi-Fi 2

802.11b (1999): Wi-Fi 1 (Al-Alawi, 2006). (Powell, 2008)

2) Internet search engines: Especially Google, Yandex, Yahoo, Bing, Opera, such as search engines are indispensable in our lives because they provide us with any information we are looking for easily. It has given freedom to reach everything at any time, and now it is possible to reach anything that is desired with just one click. For example, they provide the opportunity to obtain information about companies more easily and exactly.

3) SmartPhones: Phones have evolved with the touch of technology over time and have taken their current form. Previously, we could only perform simple operations such as searching or sending messages. Although brands such as BlackBerry and Nokia important for the phone market, the first examples of smartphones have made by iPhone, which has been adapted to technological changes. We have started to do on smartphones what we did before on computers in the past.

2.1.1 The advantages of technological developments

Apart from these applications, programs, and software used by companies have started to be developed. With these developments, the advantages and disadvantages of technology emerged. Some of the advantages are, like ;

- 1) Provide easy communication ways. People can communicate with each other although they are in different parts of the World or narrow view different departments of the firm.
- 2) They can learn all change and can share with people.
- 3) Save Money and time for the companies, Such as, Sharing knowledge faster than before, or sharing knowledge just one button.
- 4) Distances decrease.
- 5) Makes to take education easier.

6) The capability of production increase.

Today, technology is integrated into business life so quickly and one of the biggest reasons for understanding the Y generation to begin to be involved in business life, and the next ten years will have a say. Moreover, of course, close future integrates with technology more than now, because the next generation comes with technological knowledge and capabilities and this generation called Z or internet generation.

2.2. The General Definition of WEB

In general, 'web' technology is at the base of these developments. So what is web? Also, what are the types of web-like Web 1.0, 2.0, 3.0?

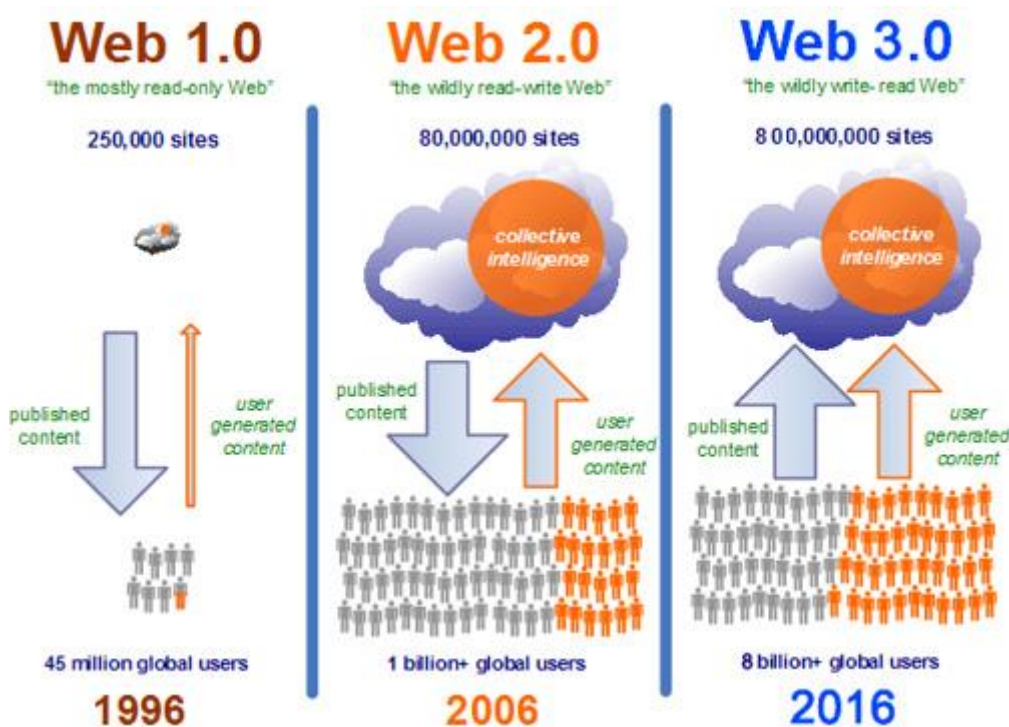


Figure 2 Web Evaluation

Source: wholedigitech.com

2.2.1. Web 1.0: Although the full definition of web 1.0 is a source of controversy, it can be said that it is a set of static websites that do not provide interactive content in general. The technology used in the early stages of the web. During this period, users use the internet only for information purposes. Enters the site, reads the information, receives it, and live the site. In other words, that is no possibility of contributing to content or producing original content. We are talking about a world where a client-

server structure is valid. However, passive information in the internet environment began to be not a native, technology developed, people needed information, information exchange needs to be increased, and information needs to be eliminated from the internet to the users to transmit information was necessary. This is why improvements have made, and Web 1.0 evolved to enable the creation of Web 2.0.

2.2.2. Web 2.0: According to Tim O'Reilly, who first introduced this concept, the definition of web 2.0 is to develop programs and new technologies that allow more people to use the internet actively." Before Web 2.0, the internet was one-way. Users could only use what was presented to them. However, with the development of Web 2.0, the understanding of internet usage has changed, and users have started to produce content. At the same time, social media is the way people communicate with each other without time or space limitation, including audio or visual sharing (Vural, 2010)²⁵. Everyone was able to create their profile and share things with people. In some definitions, a new technology, some definitions, described as a new era in the internet world, Web 2.0's most significant development offered to the user is to change the format of the internet environment and enable all clients to be content providers at the same time. A person's share could reach others in seconds. Today, the most important representatives of Web 2.0 are social networking sites such as Facebook, YouTube, image sharing, and Wikipedia and, sites for business life, such as LinkedIn. It started in a new era with Web 2.0. The purpose of social media facilitates communication between people. Email, messaging applications, various phone applications are also called Web 2.0 technologies.

Some urgent situations during Web 2.0 evaluation;

- 1971- It was realized by e-mail sent by researchers in Switzerland to ensure communication between them.
- 1980- With Usenet, people started sharing all kinds of information with others through a dashboard.
- 1991- Born of WWW.

²⁵ Translated from Vural, 2010

- 1994- The first blog page was published. It is also the first example of the pioneers of social media.
- 1995- Classmates.com appeared, Facebook-style and ancestors.
- 1998- HTML application introduced. People began to write articles with an open house and share them with people, and they came to include notes and comments.
- 2000- Published online dictionary of open source.
- 2002- LinkedIn was installed but was released in 2003.
- 2003- WordPress was established as a competitor to blogs.
- 2004- Facebook was established.
- 2005- Youtube was started to use.
- 2006- Twitter appeared, messages with 140 characters in short text could be published and could be written very quickly, interacting with people.
- 2009- Foursquare was established.
- 2010- Instagram was established, and Facebook bought it in 2012.
- 2012- Pinterest was established, and Twitter video content has been started to use.
- 2014- Facebook, bought WhatsApp (Coşkun, 2018)²⁶.

Even if the businesses were not in social media, they had to follow-up to see and raise awareness about the company. So, as a result, businesses could not be indifferent to social media. The most significant factor in the acceptance of SM is that the Y Generation is using SM effectively and has started to play an active role in business life. From time to time, SM began to make it easier to reach qualified employees in employee

²⁶ Translated from Coşkun, 2018

procurement and to facilitate the recruitment process and save time (ÖZ, 2015)²⁷. The widespread use of SM contributed to the rapid access of published job postings to a broader audience because social media is universal. Also, it has been actively used not only in achieving the job, but also in reference checks, which have an essential role in CV reviews. Also, social media research can be carried out to learn more about people. Since it gives advantages to the processes of human resources such as speed and cost, it is becoming increasingly preferred (Erhan, 2017)²⁸. For example, companies can publish their business advertisement directly from their social media accounts at no cost. The main differences between social media and Traditional media are ;

- Innovation: The time difference in traditional media is long. The fast reaction rate is valid in social media.
- Permanence: Traditional media cannot be changed after it is published, but social media can always be edited.
- Freedom: This is the most critical difference between traditional and social media. Traditional media is always under pressure. Social media not, because everyone can write what they think with freely.
- Accessibility Entry: Anyone can use social media without charge.
- Usability: There is no need for expertise talent in Social media, but it is in the traditional media.

2.2.3. Web 3.0: It can be called a world where Web 3.0 content control is in the hands of software. It is a web system that understands what we like and offers solutions to us using database systems that are in contact with each other. Web 3.0 has become an 'Artificial Intelligence,' which means that Web 2.0 has transferred its old state to the virtual world.

Moreover, also, the most current and emerging web 4.0 appeared. This is the technology that moves away from the physical disks and is wholly built on virtual

²⁷ Translated from Öz, 2015

²⁸ Translated from Erhan , 2017

networks. Today, Web applications like Yours, Ghost, glide, Desktoptwo, and Google Docs & spreadsheet for online Office are Web 4.0 applications. The most important features of these applications are the office applications that run on the web, the HTML editor, content management tools, notepad, installer, calendar, calculator, address book, chat, document creation, image viewing, independent of time and space, without having to install any programs on the computer. In short, everything we can do on the computer is to do it on the internet. Real-life is moving into a virtual environment.

2.3. Generations

The generation is a general name given to the group/generation of people born in a certain period. Today, it is often used to emphasize the social or cultural structure of a period. The differences between generations are felt in every century, every period, every age. While intergenerational conflicts turn into important problems in society, it is important for who are the old generations to try to understand the new ones. Generations are signs that express the periodic differences of employees in business life. The X generation is gradually retired from the business world, and the Z generation is almost being incorporated into the business world. Intergenerational expectations and perceptual differences have affected the business world due to the organizational behavior of individuals. These characteristics affect management styles and leadership as managing and managing. One of the things built in today's businesses is change. The architecture and technology of global competition are constantly evolving and often changing and adding a large number of young generations in the workforce is the most difficult changes in the participation of. It is essential to run different generations harmoniously and get efficiency from them. Especially in recent years, managers have begun to realize that the younger generation is different.

2.3.1 The Types of generations ;

- 1) **Baby Boomer generation (1946-1964):** In 1991, after the publication of the book “Generation X: Tales for an Accelerated Culture” by Canadian author Douglas Coupland, the concept of X was widely used in the literature (Demirkaya, 2015)²⁹. They respected authority just like their fathers. Born in the years of the “population explosion” just after the Second World War, these billion babies are called Baby Boomers. They had a high sense of loyalty; they were judgmental; they worked in the same place for a long time. Some of the technology was close to the others; they could not adapt much.
- 2) **X Generation (1965-1979):** Born between 1965-1979 X Generation. It is called The Generation X generation that has serious problems in adapting to technology, has difficulty in accepting change, has been trained within a certain discipline framework, has been patient and respectful of authority. They believe they can step up after a certain working time and are patient. X generation has witnessed many innovations from the internet to iPads and smartphones. Loyalty depends on the situation; they seek better career opportunities; they began to use most of the technology from the necessity of the technological revolution. In particular, they have tried to adapt to the transformation of computer systems and the changing ways of doing business.
- 3) **Y Generation (1980-1999):** Y Generation is the demographic generation in American culture after the X generation. Although the start and end dates of this generation are not precise, population scientists and researchers often include those born from the early 1980s to the mid-1990s or the early 1980s (Ng, 2010). Born After X generation, y demographic group is a digital generation that tries to integrate rapidly changing technology into their lives, but its values, behaviors, and attitudes differ significantly from previous generations because the internet is the economy and technology (ADIGÜZEL, 2014). ³⁰Y generation consists of individuals who have high ambitions of being a manager, highly talented but unfaithful, self-confident, self-indulgent, selective, passionate about speed and Technology, High adaptation, self-employed, individualistic, sometimes

²⁹ Translated from Demirkaya , 2015

³⁰ Translated from Adigüzel , 2014

narcissistic and entrepreneurial spirit (KAPLAN, 2018)³¹. According to özeltürk and Bozyigit, Y generation consists of people who are self-confident, who can establish good relations with people, take risks, who are addicted to freedom, who are dominated by technology and socialized in a technological world, who shop over the internet, who can easily understand the information from different sources and tools at the same time and who can be online. The fact that Y Generation has grown up in a world full of computers, the internet, mobile phones, led businesses to use social media, mobile phones, and internet-based media by directing marketing activities (ÖZELTÜRKAY, 2015)³². The characteristic features of the Y Generation vary from region to region, depending on social and economic conditions.

Generation Y is a generation who does not like to work in the hierarchy, wants to be the boss of his own business as soon as he is thrown into business and works to spend money. There is technology in everything they do or buy because they are technology-focused individuals. Technology can be defined as an element that facilitates their lives, helps them perform complex tasks, and allows them to make quick decisions. It is technologically-dependent and not wholly separate from the X-generation; it is a complete bridge between the X-and Z-generation. Social media plays a dominant role in social relations. They are always sharing information with people whom they meet new and expressing their feelings openly, but the differences from past generations are that they do this on Facebook, Myspace, or personal blogs, which are social media sites. They can communicate and share with people from any culture through social media, which makes them multicultural (Berk, 2009). They started to focus on how the job is done, instead of how much time has been spent in the company.

John Thompson, General Manager of Best Buy, summarizes the following sentence: "I have been focusing on the wrong unit for years. I was checking to see if the people were here. I had to see what they were doing." Every generation has its characteristics, values, attitudes, strengths, and weaknesses. Significant differences can be observed between ages in terms of character and working methods as well as expectations from the workplace (Gibson, 2009). Individuals

³¹ Translated from Kaplan , 2018

³² Translated from Özeltürkay , 2015

of this generation often use communication and media technologies and digital technologies more intensively. They have little sense of loyalty. Technology is the element of many things in their lives. They do not like to work; they like to have fun; they like to win. They have high expectations, but they do not want to pay the price. They consume fast.

4) Z generation (2000-2012): According to some experts, the Z generation is called a millennium or internet generation. Born in 2000 and later, it is called the Z generation. Z generation is a generation that is born into technology, and that can adapt to technology in a brief period. Unlike other generations, this generation prefers to socialize with the internet; they play with iPads, laptops, play stations, and grow up with technology. It is a fast-consuming generation. Systems do anything that requires them to decide when they are launched into business life, and it will be decided on the side of artificial intelligence.

By offering staff with possibilities for professional growth and development, organizations can provide staff with the instruments to fulfill their job duties more effectively, which affects the felt equilibrium between work and non-work activities. (Gilley, 2015)

2.4 The Relations between HRM and Technology

Digitalization and digital change need time to establish and implement new technologies besides awareness. For many organizations, realizing the requirements, planning the budget, and adopting new technologies is still not straightforward. Organizations invest more, day by day in digital transformation. The use of technology to facilitate HRM has considerably improved. It offers many benefits, such as cost savings, enhanced effectiveness, facilitated strategic goals, and improved customer service, all of which are extremely beneficial from the company's view. Every day, web-based technologies become broader. It also seeks to improve HR services and strategically oriented services. (Stanton, 2004), (**Lepak, 1998**). In the context of controlling digitalization and digital transformation, organizations firstly needed to alter their attitudes and to think, as growth does not take place without modifications and innovations. Digital transformation leads organizations to digital innovations in the quickly developing world of innovation and technology.

Today's world globalization and information communication technologies have a role in shaping the organizational environment. The use of technological developments by enterprises is one of the main objectives of technology production. Businesses are also pioneering in the pursuit of innovations in innovation, management, and production processes. The sustainable corporate strategies do not produce the desired effects is because of these strategies do not integrate HRM in their strategic planning and implementation processes. If firms want to be successful in the competition, they must combine general strategies and HRM processes. Thus technology has a critical role in this situation. It contributes these to policy combine fast and easily understandable (Fenwick, 2017).

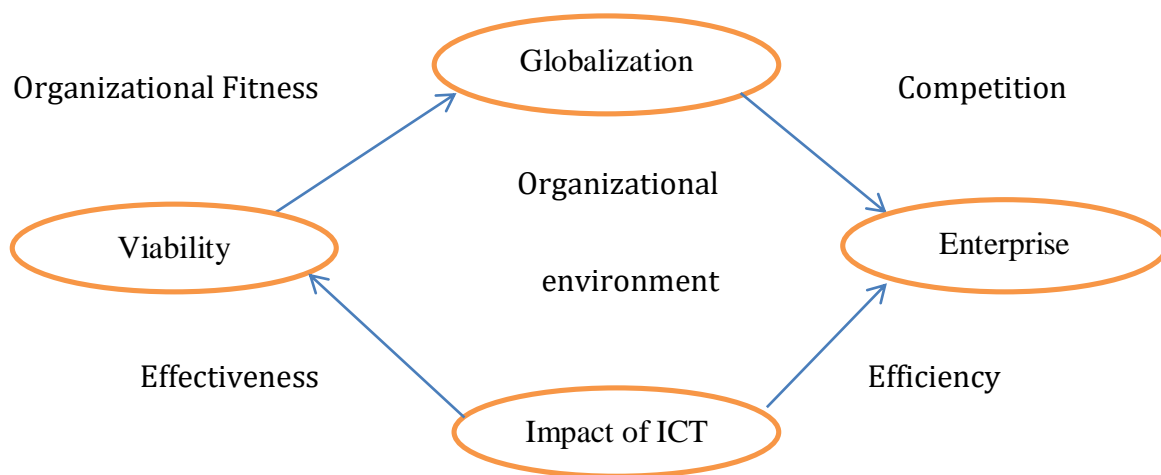


Figure 3 The impact of globalization and ICT on IHRM

Source: (Pontiggia, 2016, p. 375)

However, three important elements are mentioned to create the advantages expected from information technologies. These elements are;

- high-quality information technology employees,
- the information technology infrastructure that can be reused,
- It is an intense and sound relationship between management and information technology employees.

In short, we can say; it is not possible for enterprises aiming to achieve effective management, competitive power in the market, quality of service, establishing effective

customer relations and increasing productivity, without making use of information technologies. One of the most significant variation in human resources management in recent times, which emphasizes the importance of information society and the strategic importance of information, is the widespread use of human resources information systems. These systems, which are used as information producers and practitioners to increase the effectiveness of human resources in the management process, are the systems used to provide, store, use, examine and distribute information about human resources in organizations.

Technology is utilized in pretty much every office in an association. With regards to a human asset, innovation helps in all procedure from selecting to resign capacities, and it has drastically changed the way administrators, and workers access human resource information. Be that as it may, it is an important test to utilize innovation as a human resource device as a result of its complex, however, if it is all around connected, the association will save time and cash amid the procedure. Manual methods are insufficient in order to make the functions such as recruitment process, success evaluation, promotions, and pricing in enterprises on time and without diminishing. Therefore, the use of computer technologies and the internet in order to prevent such problems has started to increase its effectiveness in HRM processes. The need to increase the number of personnel or reach potential employees has also brought about these problems. New requirements brought about by technological changes necessitate businesses to renew themselves. Also, companies are making great efforts to ensure that their employees comply with changing environmental conditions. The HRM evolved and became a method that distinguished its dynamic and creative aspects from it is mechanical and routine. Since the workspace is enormous and has many tasks, HR staff should be able to benefit by keeping up with the technologies. Since human resource is the key to productivity and quality, it must be continuously improved, and the changes must be continually updated. Human resources have been carried out in electronic environments following the increase in the use of computers, internet, and intranet in organizations. Big data, mobile apps, social media, cloud technology, and the SaaS business model are among the latest trends that redefine HR. These affect how organizations manage their workforce, hire new staff, comply with regulations, and manage HR data. The innovation of technologies can enable you to

computerize and streamline forms in the representative lifecycle from contracting, onboarding, and preparing to remuneration, advantages, maintenance, and exit. Today, every part of HR is affected by the tools of innovation to upgrade individuals procedures and workforce capacities additionally. These patterns will enable you to discover, oversee, and draw in the correct representatives and will allow you to concrete your competitive edge in the business additionally. Having taken different names such as 'Personal management,' ' human resource management,' 'strategic human resource management' in its development ' Human resource management' has also been named as ' electronic, human resource management,' which is a new concept.

As described in the definition of technology, ' software' without ' management and approach,' 'software ' without 'computer ' or 'device' does not make any sense on its own. Therefore, when it comes to ' HR technologies,';

- All systems, methods, approaches developed in this area,
- All the formulas that are contained in this system, approach and methods,
- The software used in these formulas and
- All devices are expected to work on this software.

Software and hardware are the backbones of these type of technological developments. Software and hardware are the subsidiaries of each other. Without the software alone, the software cannot make any sense, and without the hardware, the software itself cannot make sense. There are severe developments in the field of human resources technologies, but none of the developments happen to be what software developers invent themselves. HR specialists first observe and form their own needs meanwhile, while technological developments are taking place, the need arises, and technological developments are taking place to solve the needs through joint efforts. Especially in the 21st-century enterprises that can use the information and human resources most effectively by focusing on information technologies and HR issues become superior in competition. Human resources management is influenced by many factors, such as globalization, technological advances, and emerging labor markets, as in all areas. Human resources management needs to adapt to age and make these effects

useful in order to survive. Information and communication technologies make effective use of many functions of HR in their work. In particular, it is used extensively in organizational communication, recruitment, placement, training career planning, and performance evaluation. Organizations focus on information and communication technologies in order to better utilize their human resource practices while determining their strategic goals and practices for the future. Therefore, HR managers have to deal with developing information and communication technologies. They also have a detrimental effect except for benefits. They have stated that as long as they have portable inf.

Moreover, com. Technologies such as; phones, pcs, tablets. They are obliged to do business outside of work as long as they carry it. In addition to these, this type of technologies has been removed the working hour's barriers and has increased the workload considerably. Because of competition, companies are looking for ways to manage their internal organizations most efficiently and effectively. No matter how high quality the services or services offered, companies are less likely to compete if a successful HR management is not achieved and in this case, companies compete on a global scale by reducing costs while providing flexibility to themselves using its technologies. Since, Information Technologies provide,

- 1) increases internal efficiency rate,
- 2) lowers production cost,
- 3) provides quick access to information,
- 4) contributes to global scale competition,
- 5) decreases the error rate while increasing productivity in production.

With the introduction of technology and the internet into our lives, our ways of communicating and acquiring information and so much more have changed. Continuous development of technology and constantly taking place in our agenda makes it compulsory to change in every aspect of our lives. With the improve in the number of use of technology every day, we are in a continuous loop in our business life. As a result

of these changes, many functions in the field of human resources have become done over the internet. With the increase in mobility, it is more important to have access to information from anywhere. Accordingly, changes in recruitment processes are observed by employing methods. Application forms in old times are gradually becoming history. Applications have started to be received online to include little and core information. As a result, the island has become more accessible from its professional to its student, and also, because it has no cost, everyone has become eligible to apply, in which an effective elimination, filtering method has to be applied. As technology is equal speed, interviews are started on the internet; this accelerates processes to provide advantages to both parties, however, both the company and the personnel looking for a job soon became able to meet with more places or candidates. The effects of natural technology have not only been effective in recruitment and interview.

Today's technological developments enable a good information process to be achieved through information systems. With technological developments, all the information required for human resources management can be stored in an electronic environment. It can be easily processed or transmitted in case of need. Thus, a decision to be made is based on more robust foundations, and the necessary decision can be taken faster. IT systems are the first to come to mind when it comes to computer and other inputs and outputs related to computer. The use of computer software and hardware technologies is expressed by Information Systems. (Laudon ve Laudon, 1996). Information Collection, processing, storage, transmission from place to place or access to information in a place according to the conditions of the day, Electronic, Optical, and such techniques automatically enable this all of the technologies are expressed with information systems. (Ceyhun ve Çağlayan,1997)³³. In other words, IT systems is a computer-based system that provides information for data processing or decision-makers (ŞAHİN, 2014)³⁴. Another definition of IT systems can also be made as a series of programs and management processes that lead the decision-maker to meaningful information in order to achieve predetermined objectives. In this respect, the main task of IT systems is to organize and collect the information from the decision-making process in the enterprise and to store it next to the storage. General database concepts.

³³ Translated from Ceyhun & Çağlayan , 1997

³⁴ Translated from Şahin, 2014

The general purpose is to store the personal and company information of the personnel working in any organization in the same environment. Providing quick access to this information provides easy access to reporting, querying, and updating activities.

Modern society, which is based on the physical strength of people and mechanization, has started to become an information society with significant changes and developments — a transformation from machine to man. While technology and HR are so intertwined, while there are so many different programs, platforms, and applications that can be used, it is necessary to take them into the process and take advantage of them instead of lowering productivity by leaving IK out of technological developments. As the industry moves from society to Information Society, the critical element is the developments in accessing, processing, storing, and sharing information. In other words, in parallel with developments in technology and Information Systems, the importance of data has increased considerably. People's knowledge and acceptance skills directly affect the competitiveness of companies today. It is observed that many structures have been developed in order to ensure and enable the flow of information that increases the importance of our age. As in every department of enterprises, there are many developments in the HR department with the contributions of technology. Adapting to technological developments to keep pace with competition plays an important role today. In other words, rapid reaction provides advantages in the competitive environment. Even the technologies used to store information from the simplest are speeding up the business processes and creating an absolute basis. Also, the type of businesses is related to the use of technological developments in the roof of the company.

- International companies: They are importers and exporters; they have no investment outside of their country of origin. They have no employees in foreign, warehouses or sales offices. International organizations do not have any foreign direct investment(FDI) in the outside nations where they trade export or import from their items/ administrations. The decision-making function is always like wall-mart in the company's domestic country.

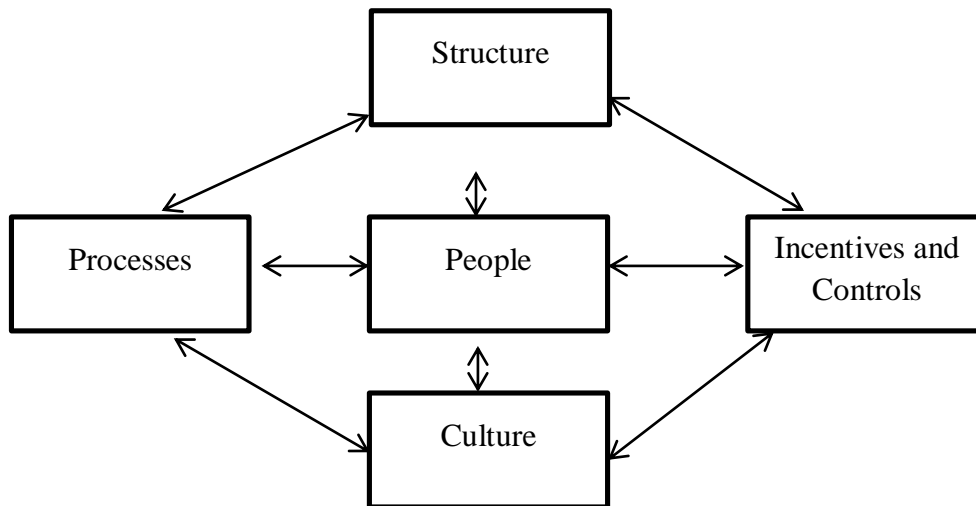


Figure 4 Structure of transactions in international companies

Source: (Pontiggia, 2016)

- **Multinational companies:** Multinational companies cross the FDI threshold. They invest directly in foreign assets, whether a plant on foreign soil or a campaign for foreign marketing. They focus much more than multinational companies would being responsive to local preferences. Multinational companies have multicountry locations or facilities, but each location Works in its way, primarily as its entity. They do not have coordinated product offerings. More concentrated on adapting to each local market their products and services. Most of them have a ‘ centralized’ structure of organizations and critical function-making decisions. These capabilities are based on the company's underlying principles that guide HRM; are reflected in distinct HR practices that are supported by various HR function roles, leading to a set of desired organizational outcomes. One of the biggest multinational corporate HRM challenges ensuring effective execution of strategy and business plans. Implementation is largely about managing change. These four fully integrated components of the overall HR system determine how HRM works in multinationals. The dynamic and interdependent relationship between these four elements can be called HR Wheel.
- **Global companies:** Global firms invest in dozens of countries, but have a strong headquarters in one, usually their home country. In order to maintain costs low, they will homogenize products as much as the market will allow. To ease local tastes and preferences, their marketing campaigns often span the globe with one message (although in different languages). Global companies also have locations

in multiple countries, but they have created a unique corporate culture with a set of processes that facilitate a more efficient and effective single global organization. They market their products in all markets by using the same coordinated image/brand — generally a corporate Office in charge of global strategy. The structure of the organization and the critical decision-making function have a ‘centralized’ approach like mergers or the launch of new products — for example, Coca-cola.

- Transnational companies: These are often very difficult to manage and very complex.

They invest directly in dozens of countries and are under severe pressure to reduce costs and react locally. These companies may have global headquarters. However, they also distribute decision-making power to different national headquarters and devote R&D activities to different national markets. One of the major benefits of a transnational company is its ability to maintain a greater degree of responsiveness to local markets where it maintains facilities. These type of companies are relatively flexible in terms of global operation through the adoption of local cultures and consumer behaviors and their ultimate marketing strategy decentralized organizations.

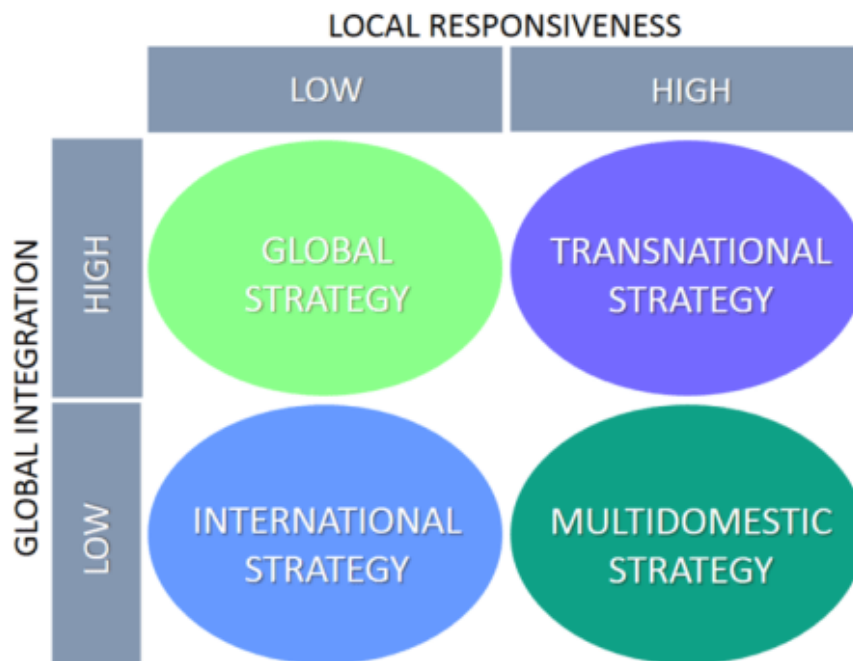


Figure 5 Scheme for companies types

Source: business-to-you.com

Today, the increasing number of the labor force and the difficulty of gathering this information have been the first step in the development of technological developments and these developments have reduced the time and effort spent on them. Today, the institutions can survive and maintain their existence in competitive market conditions where the borders are eliminated, depending on the efficient and efficient use of the resources they have. Also, Social media plays a functioning in HR today, particularly with regards to enlistment. HR divisions can utilize internet based life not just for recruitment and furthermore for representative commitment. Enterprises can utilize web-based life channels to achieve the intended interest group with employment postings and other organization-related data. It is a decent source to recognize what present and potential representatives are stating about your company. Social media offers innumerable advantages to HR experts and gives them a chance to stay aware of the news, innovation, and patterns.

On the other hand, in this business environment where borders are eliminated, businesses face rapid change and new opportunities and threats brought by it. The beginning of human resource management software is based on the 1970s. In these years of digitalization, companies realized that automating cumbersome processes could reduce time and costs. Only then could technology be used to perform basic operations. In the early 1980s, the first examples of today's modern enterprise resource planning software designed for business use were introduced.

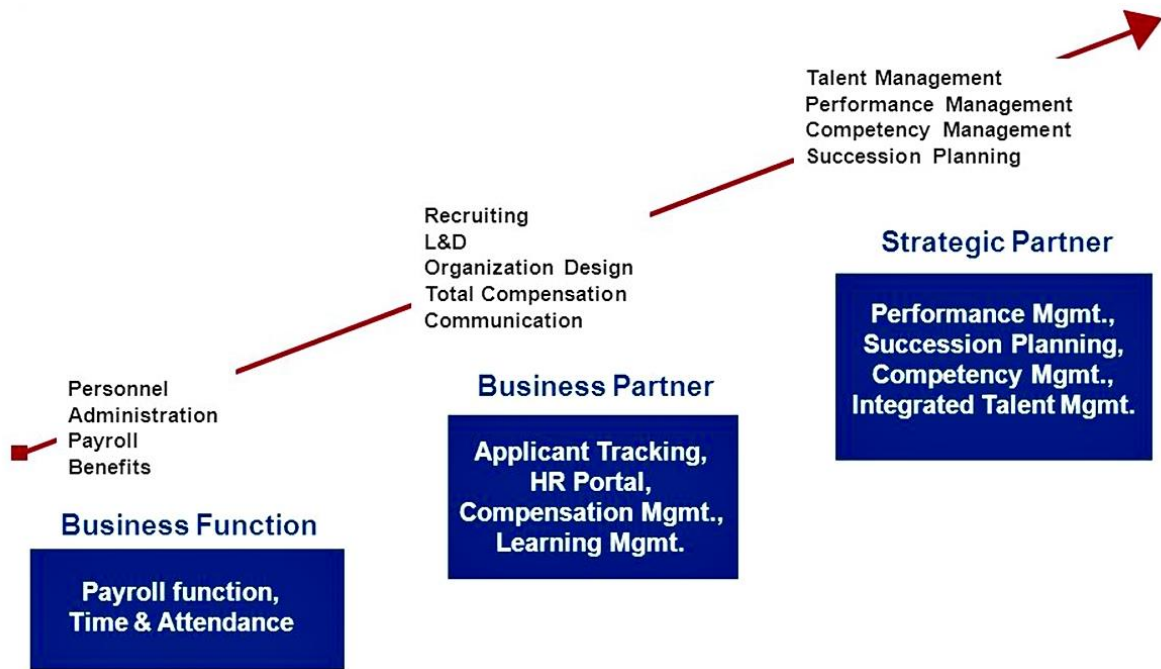


Figure 6 Human Resources as a Business Function

Source: corehr.wordpress.com

Advanced drives many enormous implications for both business and human asset division. Some of the advantages are ;

- Pretty much every part of HR will be streamlined.
- Collaboration and new authoritative structure will be evolved.
- HR can break down worker information and make altered ability contributions.

The above advantages related to human resource management. Now, the benefits for the business;

- HR office plays a progressively strategic role.
- Workers will turn into the leaders
- The ability the boarding procedure turns out to be better

- Ability practices will assume a key job

2.4.1 ERP Systems

ERP enables companies to consolidate their important corporate data into a host environment, access, and monitor it in real-time. HR functions were also presented as additional functionality in the ERP database, along with issues such as production planning, material management, finance management. In general, ERP is a commercial software package that enables the integration of all information flow in an enterprise (Rajagopal, 2002). In this way, businesses can establish real-time connections between one business process and another business process, one business unit, and the other business unit, one company, and the other business. Get faster and better quality information. ERP systems mainly use an integrated database where different data can be stored. The main goal to be achieved with ERP is to bring together the data of the enterprise and achieve meaningful results that can be decided on. Many factors make ERP applications necessary. To create an institutional resource to meet the company's consistent information needs, to reach up to date and reliable data in the first attempt, to integrate business systems under a single roof as possible are the main ones (Karakanian, 1999).

The general characteristics of ERP systems can be summarized as follows, although they may differ according to the sector, the size of the company or the customizations made by the company (Bayraktar, 2006)³⁵.

- They are standard software packages that target all sectors and can be customized during installation. Sectoral solutions can also be developed with additions (add-on).
- ERP is application software, rather than a database management software, middleware software, or an operating system. The application runs in a client/server architecture consisting of three layers, database, and server.
- It is an application with an integrated database that holds both the master data and the data from the business processes.

³⁵ Translated from Bayraktar , 2006

- It offers solutions to fundamental business processes with the best business Practices it has.
- The event has a functional structure, as many organizations aim to support its function.
- ERP packages are designed to provide solutions that are independent of country and region concepts worldwide. However, local accounting transactions vary from country to country, unique documents, and human resources management functions such as the creation of the local needs to be done.
- ERP software can be applied in all sectors thanks to its functionality that enables worldwide use.

ERP packages; It supports repetitive and continuous business processes such as procurement management, order management, and payment transactions.

- It has consistent graphical interfaces in all application areas.
- Although it is independent of the operating system and hardware, its use in combination with the hardware and software recommended and approved by the ERP supplier minimizes the potential risks.
- Although the complexity of management is not specific to ERP software, the number of systems that are critical to these systems is small.

Other reasons leading institutions to choose ERP can be listed as follows (Davenport, 2000):

- Automation of background work(back office),
- Better coordination between business processes
- Coordination between geographically remote units from each other,
- Ensuring the provision of terminology among different units of the institution,

- To have consistent application logic, consistent knowledge and interface that make it easier to understand and work on information technology infrastructure,
- Presence of a single system that simplifies managing information technology infrastructure,
- Easy access to data to improve strategic business decisions,
- Reduction in operating costs,
- Expectations of customer contribution in processes,
- Integration between business functions.

Then, with the 'web' development mentioned above, it started to diversify and develop human resources functionality. The chance to compete in small companies has increased. Co-ordinated work in the company with Self-service portals increased. Instead of being seen as human resources, it was seen as capital, and so the thought passed from human resource to human capital management.

2.4.2 Information Technologies

According to Google's research, 10% operating expenses will be reduced with Cloud Computing, and information technologies will be reduced by 35% in the enterprise, while an efficiency increase of 10% and efficiency increase of 50% will be achieved. Information Technologies set of tools that allows to Access information. These tools can be defined, such as; programming, data communications, data conversion, storage and database systems, retrieval, system analysis, and design, system control. In broad terms, information Technologies include Office automation, multimedia, and telecommunications. Either small or big firms, will need to scale out a plan to utilize opportunities, have been brought by "IT". Businesses use information Technologies in four ways to support;

- 1) Information-processing tasks,
- 2) Decision-making tasks,

- 3) Shared information through computing,
- 4) Innovation (Brynjolfsson, 2008).

So, IT tools not only support information processing tasks or decision-making tasks or shared information through decentralized computing but also enable innovation. Tools such as; Internet present us with the opportunity to make research on any subject. Nowadays, IT is the primary supportive infrastructure of organizations. Companies are using information technologies to support their main businesses and to help inner communications and storing knowledge. Data, Information, and Knowledge are the main terms of Information Technologies. It seems to be the same meaning, but in IT, they do not have the same meaning.

Data, information, and knowledge terms are often used synonymously. However, the meaning is not the same. The conditions first need to be defined to comprehend the differences and relations between data, information, and understanding. Data are facts of the World, as a description of the World. However, data can be related to information. For example, 1 and 12 is a data which can be stored in anywhere like paper or any databases. If we combine months of the year with these 12 numbers (data), then it is meaningful. Therefore, it needs to be connected. Information is useful data. Data reaches a more sophisticated level and becomes information by integrating them into a context. The information provides expertise about facts or persons.

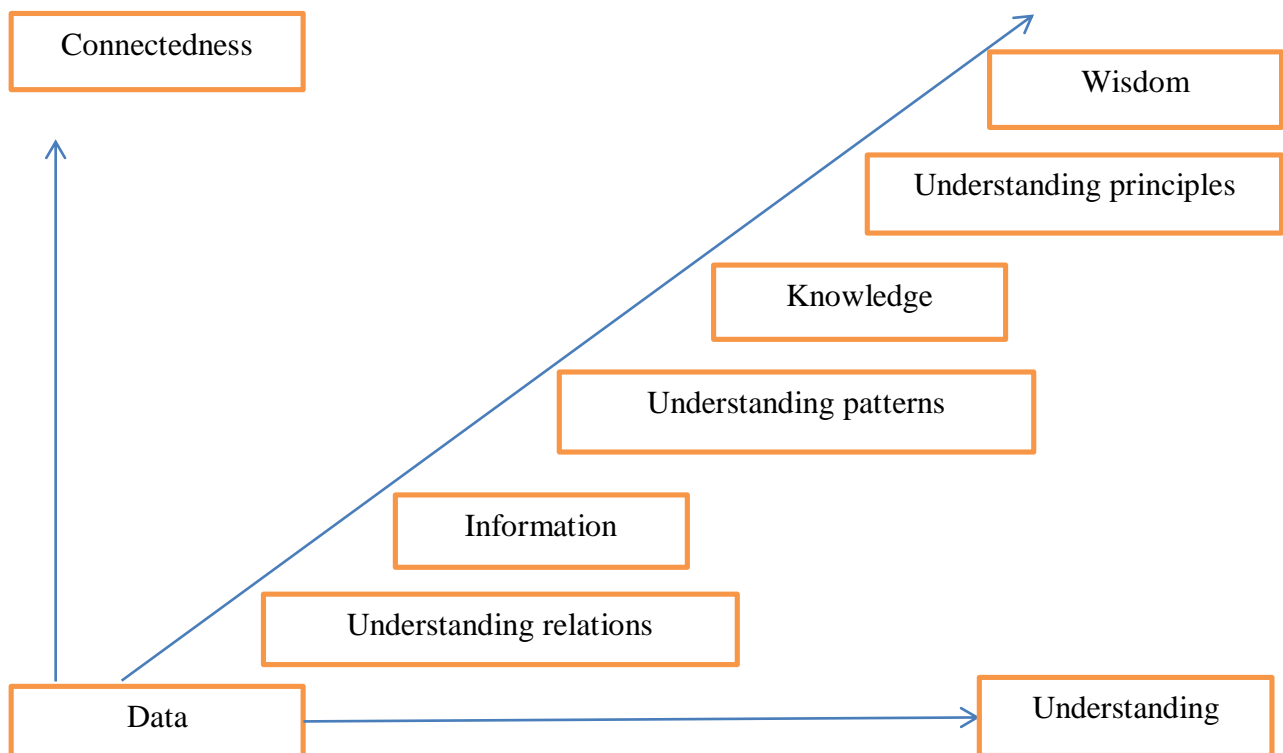


Figure 7 From data to knowledge evaluation

Capture data in information. Knowledge is a combination of this information and can be used by organizations. Organizations do not have biological brains and memories. However, they can store information and knowledge with the help of Information Technologies, therefore storing, accessing, reusing, terms are the perfect metaphor for memory World (Walsh, 1991). Knowledge this describes the collected information that is available about a particular factor a person. Knowing this situation allows informed decision-making and problem-solving. Knowledge, therefore, influences people's thinking and actions. Knowledge is the knowledge gained, and information gathered for the purpose. Machines can also make decisions based on the knowledge that is newly generated by information. We need the information to gain knowledge. Knowledge is what is known.

What are the differences between them? The definitions reveal the differences and a process can be identified that transforms data to information to knowledge through appropriate processing steps. Data transforms into information by assigning

meaning or context to date. Furthermore, the accumulation of a data bundle or the linking of various data can also represent information. The moment the information is processed, linked, and stored, whether, by a machine or a human being, it becomes knowledge. If you trace the path back, the data represents the knowledge and information at a formal level. Alternatively, another way to explain them; When people confuse data with information, they can make critical mistakes. Data is always correct, but information can be wrong. The information captures data at a single point — the data can be changed over time. The most crucial viewpoints understand the differences between data, information, and, knowledge, then you can understand better than before, how to make better decisions based on accurate facts.

The increasing environmental pressure and the increasing speed of the employee recruitment cycle have created the necessity of organizational memory. So, this necessity is satisfied by the evaluation of Information Technologies. Especially, IT helps to extreme knowledge transfer between organization workers. Another reason is with the help of the It organizational memory become more structural and systematic. In order to make organizational knowledge more effective on organizational performance and organizational learning, it needs to be stable, integrated, open, and clear. Due to the information Technologies nature, IT can quickly adapt; therefore, when we merge information technology with organizational memory; we get a flexible structure.

2.4.3 Cloud Computing

Cloud-based applications are unavoidable in the present business condition. Gathering and information stockpiling have been so troublesome until the advancement of the cloud. The seamless, integrated, and fast solutions provided by applications simplify classical human resources processes. Cloud computing has emerged as the natural evolution and integration of advances in several fields, including utility computing, distributed computing, grid computing, web services, and service-oriented architecture (Foster, 2008). “everything as a service” can be served under the umbrella of cloud computing. Cloud computing, also known as cloud computing, refers to the storage of all applications and data on a virtual server. With the appearance of cloud advances, all the data, for example, reports and other relevant data can be effectively

gotten to on the web. Representative data can be chronicled and sorted out in a protected area. One needs to gauge potential difficulties against the advantages to comprehend whether the cloud can defeat the business dangers. With the rapid development of technology for processing and storage and internet success. Resource for computing has become cheaper, more powerful, and more available than ever. In recent years, the curious notion of “cloud computing” in the information industry has not been defined as a single consensus, but a standard definition of the relevant sources is made by the Institute of national standards and Technology (NIST) of the United States of America. (NIST 2009). “Cloud computing is a technology that allows access to a common pool of configurable computing resources, in appropriate conditions and, optionally, anytime, anywhere. This model supports accessibility and includes five key elements, three service delivery models, and four positioning models.” Cloud computing represents a convergence of two significant trends in IT;

- IT efficiency, whereby the power of modern computers is utilized more efficiently through highly scalable hardware and software resource and,
- Business agility, whereby IT can be used as a competitive tool through rapid deployment, parallel batch processing, use of compute-intensive business analytics and mobile interactive applications that respond in real-time to user requirements (Buyya, 2009)

Cloud is a parallel and distributed computing system consisting of a collection of inter-connected and virtualized computers that are dynamically provisioned and presented as one or more unified computing resources based on service-level agreements (SLA) established through negotiation between the service provider and consumers (Sriram, 2010). Cloud technology companies, universities, established and shared by large organizations. Using this technology reduces the burden of personal computers, and the cloud server provides a variety of applications. Typically, users do not want to download and install applications on their computer. The cloud system provides all transactions and storages. All the applications, programs and data that we hold on the internet are stored in the cloud on a virtual machine with the most commonly used name, and each location with the device connected to the internet can be easily accessible to this information, programs and data. Improved performance, enhanced data security, and easy integration of cloud computing technologies provide companies with many opportunities. Cloud computing has been the buzzword in the IT

industry for a decade now. It has become central to technology. Cloud computing has even reached the Human Resources (HR). Cloud computing is rapidly growing and will continue to grow (Motahari-Nezhad, 2009). With the development of cloud computing technology, the storage of large data on the internet and the availability of such data have become possible. In line with these opportunities, the definition of big data, which is one of the building blocks of Industry 4.0, has the opportunity to be applied in the industry. Organizations from small to big have embraced cloud computing and its different functions. The reason for the application has been the new software's ability to boost performance, maintain high-quality and effective talent management, and do all of this cost-effectively. The big impact of cloud computing in HR management is the ability to bridge the gap between the HR department and other parts of the organization. Traditionally, HR has often suffered from a communication gap. There has often been a communication gap and a delay in accessing information. However, with cloud computing, all the data in the organization becomes centralized. It can be accessed anywhere without having to rely on being physically present in the HR department. The flow of information has become instant, which has made the analysis of this data much easier. Companies that adopt cloud computing and cloud-based HR solutions can stay ahead of the technology trends. Personnel management, which is difficult to achieve in parallel with the increase in the number of employees, becomes complicated for every company regardless of their size. HR applications, which provide fast and practical solutions by reducing the time loss of managers in managing important matters such as managing permits, organizing personal information, and monitoring employee expenses, emerge as practices that employees and managers can manage all their problems from a single point online. It makes it more convenient to adapt and to adopt new solutions – this has made it easier for small companies to compete with larger corporations. Overall, the impact of cloud computing has also been positive in terms of user experience. Switching to cloud computing can help the HR department simplify the user experience. This, in turn, will help make HR data and information more accessible to other departments and more specifically to the employees. This means the employees are more involved in decision-making, and they have more agency over their employment. The outcome of this is enhanced employee retention – employees feel more engaged in the company, and they can find it a happier place to work. The better the HR practices in the firm, the better the overall productivity will be. Also, With cloud computing,

flexibility is much easier because access to information is not restricted to a physical location. This means HR personnel and the employees can work from home, work flexible hours, and have access to information even when they can not make it to the office. No one has to worry about missing information or causing delays in different HR processes. The impact of cloud computing in HR management is undeniable. It has also been largely positive, installing better HR practices to the workplace and helping small companies fight with the big corporations. Cloud technology is already delivering its mandate and empowering human resource departments to be more vibrant and more productive. Cloud computing is also not so much a technology as a combination of numerous pre-existing technologies. These Technologies have matured at different rates and contexts and have not been designed as a coherent whole; however, they have come together to create a cloud computing technical ecosystem. Three pillars of cloud technology are; SaaS (Software as a Service); presenting the software as a service, PaaS (Platform as a Service); ve IaaS'tır (Infrastructure as a Service); server infrastructure service. PaaS enables SaaS users to develop add-ons, and also develop standalone Web-based applications, reuse other services and develop collaboratively in a team.

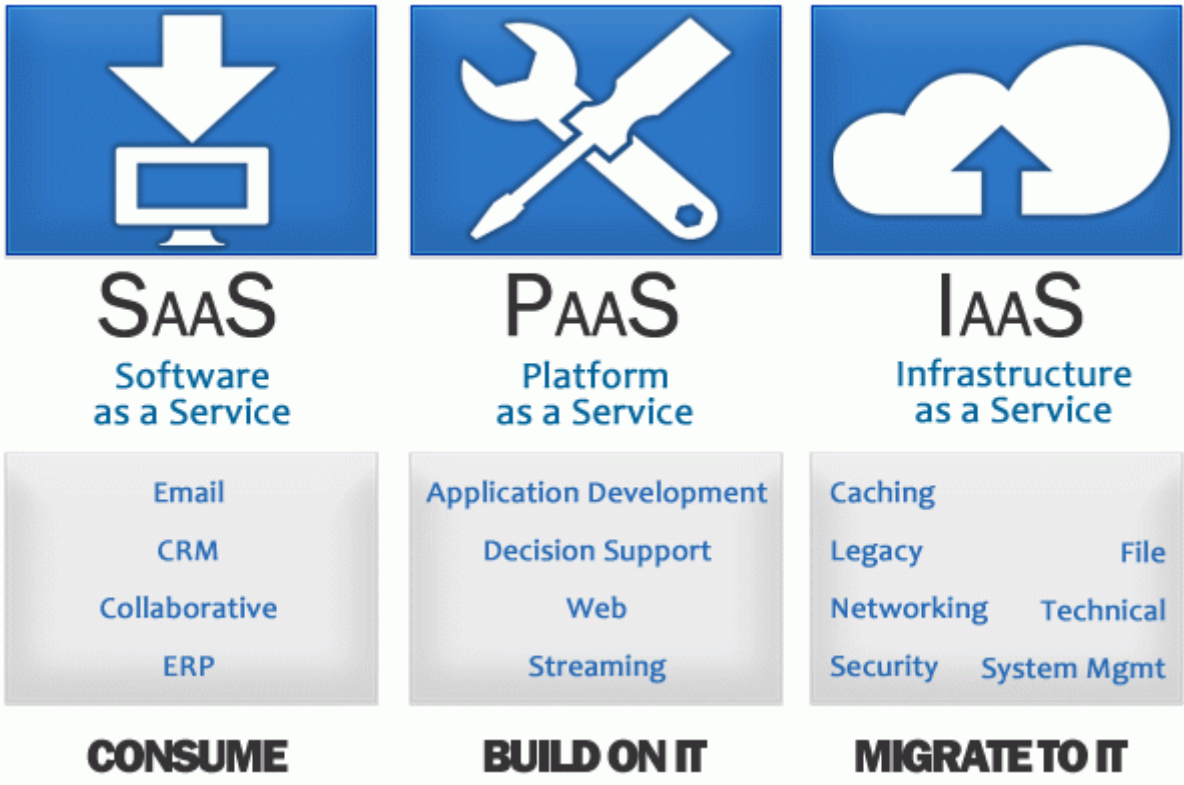


Figure 7 Types of Cloud Computing
 Source: thecloudinfographic.com

- **Software As A Service (SaaS):** By accessing cloud computing applications, users can access apps on their system without any installation on any internet connection to the internet. Office 365, Semrush, Asana, Salesforce, Planning Pod, Dropbox. The lowest cost among other cloud solutions comes with the highest level of reliance on the software provider. Be it a web application or a local application; SaaS applications assume a crucial role in each division, including the HR. The best example of SaaS is Gmail. With this service ensured by Google, you can send mail, edit your documents, and back up your files. You can perform all your transactions even without software knowledge. SaaS represents the most significant cloud market. CRM, ERP, finance, and accounting software users need on programs such as cloud providers. Personal applications such as; Salesforce.com, NetSuite or Gmail, TurboTax Online, Facebook, or Twitter. Enterprise-level applications like Google apps (Marston, 2011).
- **Platform As A Service (PaaS):** The service provides the customer with a platform for developing and running their application. This platform includes complimentary services and the necessary technological infrastructure as well as the environment for developing and operating the application. Microsoft Azure Services Platform, Salesforce Force.com, Google Application Engine, Amazon Relational Database Services, and Rackspace Cloud Sites are available (Marston, 2011). PaaS systems are generally easy to use, so businesses do not feel the need to operate specialists to improve their applications. Instead, an application can only be developed within the company through a web browser.
- **Infrastructures as a service (IaaS):** The customer can configure the processor, storage, network resource and other basic IT resources in the model of providing the infrastructure as a cloud service and can install the required operating system and applications on it. Hardware resources (such as storage) and computing power (CPU and memory) are offered as services to customers. This enables businesses to rent these resources rather than spending money to buy dedicated servers and networking equipment. In this model, storage and computing capabilities are offered as a service (Bhardwaj, 2010). Amazon's S3 storage service and, Rackspace Cloud Servers, Joyent, and Terremark are some of the most prominent examples of IaaS (Marston, 2011) It is the most basic service

of Cloud Computing. A virtual server is created with IaaS, and users are offered a cloud server service. You have a flexible infrastructure with IaaS. Instead of buying Computer, Dis, and Network cards, you can rent them from the cloud and install the desired operating system and continue your path. Google Cloud Platform, Amazon Web Services, IBM Cloud, HP Public Cloud, Cisco Metapod, DigitalOcean, Linode, Rackspace

The founder and CEO of Ofisim, Serdar Turan stated that Human Resources practices have many advantages: "Cloud-based HR applications support the transformation of classical human resources management, alleviate the increased workloads of personnel management, and enable rapid movement in these processes and effective use of time." The word cloud is used to represent the internet within it (Velte, 2010). Information technologies have experienced much development. Some attract more attention than others. Like; The prominence of personal computers in the early 1980s, the internet revolution, which has existed since the beginning of the 2000s, can be cited as one of the best examples of these profound changes. For many technology professionals, cloud computing is the most prominent change in the 2010s.

The five characteristics of cloud computing defined by Mel and Grace, are as follows: (Mell, 2011)

- Optional Self Service,
- Broadband Access,
- Resource Sharing,
- Speed and flexibility
- Measurability

2.4.3.1 Cloud Computing Models

This technology, which is presented with four different types, enables them to be used in different areas and different ways.

- **Public Cloud:** A cloud technology was built with the servers on the Internet. You move the entire computing infrastructure out of your business in the general cloud. In other words, you carry out all your computing activities on the resources that you rent on the infrastructure set up by third-party firms. This

solution is particularly suited for personal use. The general cloud also provides low-cost solutions for small and medium-sized enterprises. Usually works with the system of pay-per-use. There are even payment-based monthly payment systems. The best-known examples are Salesforce and Amazon. Small and medium companies will use this model to pay as much as you can use; e-mails can be shown.

- **Private Cloud:** It is a cloud technology preferred by large companies whose information is important, and data security is important to the company from any size. The company builds its cloud. The closed cloud is used jointly within the company. Although it does not provide significant savings as much as the general cloud, it offers significant advantages in computing investments and expenses. All information is at the founder's hand, and access security and confidentiality are high. Microsoft provides you with the help of Hyper-V and the System Center Product Family.
- **Hybrid Cloud:** In a hybrid cloud, private cloud and public cloud are used together. Means, It consists of a combination of Public and Private Cloud. For some applications where privacy or reliability is not critical, it is the systems where the private cloud is used in areas where public clouds privacy and security are important. For example, a private cloud is used for data storage, and the general cloud is preferred for word processing. Your needs determine which one to choose. Depending on the volume of the companies, there may be differences in the joint ratios.
- **Community Cloud:** Cloud technology is one of the few services that are shared with several companies. Community members can access applications and data.

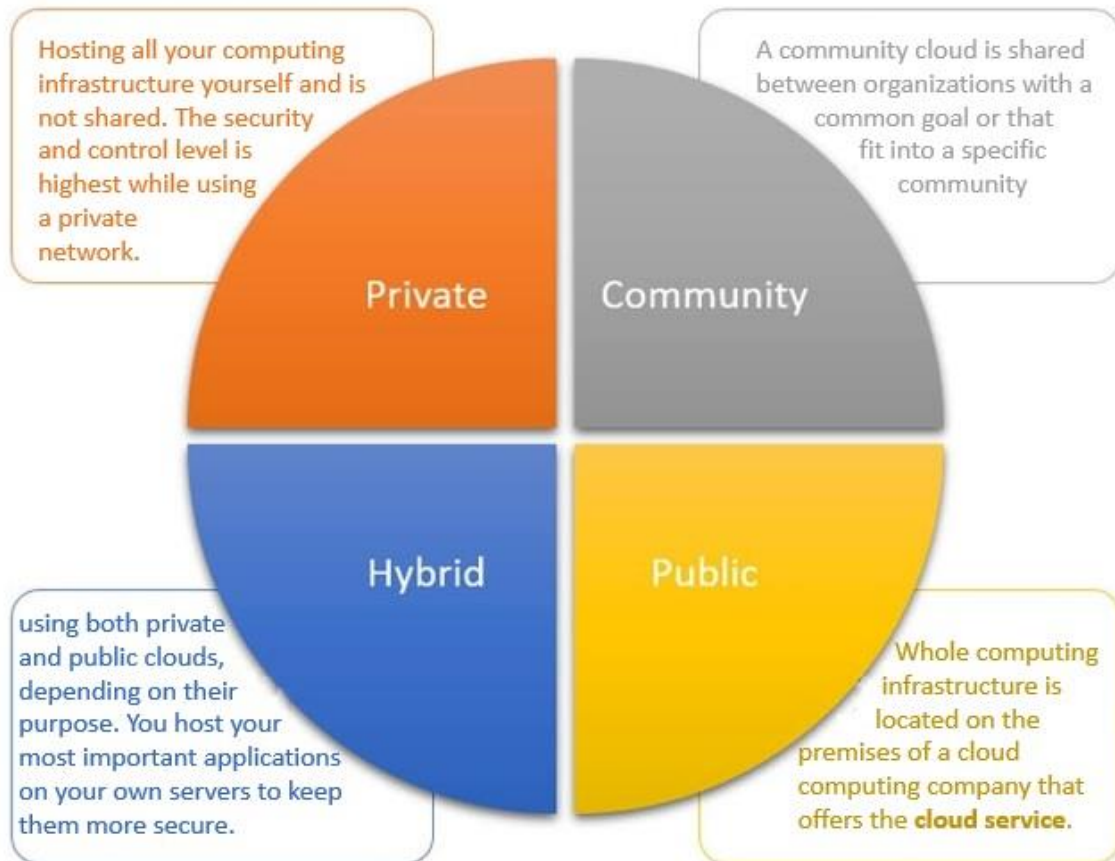


Figure 8 Community Cloud

Source: esds.co.in

Current cloud info samples ;

- **Google Docs (Google Apps):** The word processor, which you can use in the cloud, which you can create and save, provides a package that includes email and calendar services and presentation. Applications, together with personal use, it creates an innovative solution platform for companies with its collaborative working technologies.
- **iCloud:** it is a web application and a data storage location that downloads the file storage and synchronization between the devices into the simplest like every Apple product, even if only for MAC and IOS apple users. You can view the photos

you take on iPhone on your MAC without doing anything; you can instantly access the address book you updated on MAC from your iPhone.

- **Office 365:** it is an infrastructure that runs MS office, which is branded in Microsoft office software on the cloud. These programs let us use and record files, office programs online.
- **Dropbox:** By allowing us to store your files in the cloud, it will save your time and hard drive usage. You can also use it for online backup jobs, or if you are working on different hardware or where a different area can be accessed and used by different people.

2.4.3.2 Advantages of Cloud Technology

In terms of price, velocity, worldwide scalability, productivity, efficiency, and reliability, cloud computing has many advantages. It is now feasible to develop new apps and services with cloud services from a cloud supplier, test and construct apps, store, back up and recover information, analyze information, embeds intelligence, stream audio, and video, and offer software on demand.

- ▶ Cloud computing systems provide fast user-friendliness with APIs (application programming interface).
- ▶ More storage, high-speed data transfer, and cost savings on this backup provide several possibilities.
- ▶ Continuously increasing data archiving, user authorization, and follow-up issues such as the complexity of the infrastructure are eliminated.
- ▶ Cloud technology software works on web browsers, protecting you from platform dependence by using computers, tablets, smartphones, and Smart TVs.
- ▶ The servers where the cloud software services are kept are more secure than the host because they take security measures 7/24 software and hardware.

Cloud Computing is a service that supports work from anywhere, much cheaper, without installation.

2.4.3.3 Disadvantages of Cloud Technology

- ▶ Storing data using the cloud technology service, risking user data, cannot provide information security and user privacy. Security vulnerabilities are quite high.
- ▶ The most crucial problem is to have an internet connection to access the stored data. In other words, with the absence of the Internet, it is not possible to access our information. Depending on the internet, your data exchange rate will be slower if you have low-speed internet.
- ▶ One of the last disadvantages is the decline in the costs of hardware and software maintenance and repair as a result of the development of its services, and therefore the shrinking of the business areas of Information Technology (IT) experts engaged in this work

2.4.3.4 Barriers to CC adoption in the enterprise;

Although there are many benefits to adopting CC. There are also significant barriers to adaption;

- Security and privacy,
- Connectivity and open access,
- Reliability,
- Interoperability,
- Economic value,
- Changes in IT organizations
- Political issues due to global boundaries.

2.4.3.5 Cloud Computing for the human resource department

- Centralized information
- Easier recruitment process
- Access to innovation
- Reduction of workload

- Boosting employee well-being (Fill the communication gaps between manager and junior staff).

2.4.4 Big data

The Management Revolution Exploiting vast new flows of information can radically improve your company's performance. However, first, you will have to change your decision-making culture. By analyzing the most significant occurrences of this term in both academic and business literature, we have identified four key themes to which Big Data refers: Information, Technologies, Methods, and Impact (Zikopoulos, 2011). Big data is, which is high-volume, high-velocity, and high-variety information assets that require cost-effective, innovative forms of information processing that enable enhanced insight, decision-making, and automation of processes (De Mauro, 2015). The concept of big data is perceived as perceptively high volume data, and parallel definitions are made (Marr, 2015). Big Data gives HR staff a reality-based perspective on the present workforce and causes them to distinguish rising patterns. Also, investigation enables selection representatives to evaluate potential workers and let you settle on better hazard the executive's choices. Extensive data is too large to be processed by traditional methods, but it also includes the fact that data can be collected and analyzed in a way that is not possible with traditional methods. Large data defines an integrated knowledge management strategy, incorporates and integrates many new types of data and data management, as well as conventional data. One such technological pattern is Big Data, which is assisting HR experts with understanding their clients, market to target gathering of people gathering and speak with forthcoming clients. At the point when incorporated with different advancements, Big Data increases profound understanding and enables HR experts to settle on choices controlled by fundamental data. The developments in information technologies have caused the fact that the concept of big data has been so curious in recent times. Society, as well as organizations, are vigorously affected by the ascent of Big Data: the invitation to battle for getting crucial aptitudes and innovation to be focused on an information-driven market suggests a genuine reevaluation of the firm association and the full domain of business forms.

It is bulky and complex, which cannot be stored and analyzed by conventional methods in terms of large data processing and storage (Dumbill, 2013). Developments in information technologies help to eliminate this problem. Another advantage of technological developments and digitalization is that it facilitates the transfer of data to digital media.

Four main points of Big data

- **Information: Fuel of Big Data.** The present degree to which data can be created and made accessible is one of the major purposes behind the Big Data wonder to exist. The decent variety of information types is one of the difficulties that associations need to handle to utilize the present broad data resources. The Internet of Things (IoT) is, in other words, one of the most promising fuels of Big data.
- **Technology: Equipment for working with big data.** The term big data is frequently connected with the particular innovation that permits its utilization. Strict storage and computational performance are required for the size of the data set and the complexity of the operations required for its processing.
- **Methods: Transforming big data in value.** Knowing the limitations of big data methods and potential methodological issues is a key resource for organizations that want to drive data-based decision making.
- **Impact: How big data changes our lives.** Big data can also impact society negatively, such as; privacy. In addition to the present freedom, the predictability of future actions made possible by the analysis of behavioral patterns also raises the ethical issue of protecting free will in the future.

Datawarehouse

Generally, they are used for data querying and reporting from multiple databases and other information systems to obtain data. First of all, it should be known the data warehouse is not a program or product. A data warehouse is an architectural structure that is an environment. A data warehouse is an architecture, not a technology. It extracts data from data sources based on SQL varieties (mainly relational database) and helps to generate analytical reports. In terms of definition, data repository was

generated from one process, which is nothing but the data warehouse, using it for any analytical reports. The data warehouse collects data from different operational systems, call centers, and similar sources, collects and replaces them, collects them in an understandable and easily accessible structure, and creates a repository for historical data. The data passes through the ETL process before entering the data warehouse. In this way, the data is inserted into the desired format according to how the data is used.

ETL;

- Extract: Import data from the source system,
- Transform: The data must go through certain transformations to suit our structure. In other words, cleaning and improving the quality of data,
- Load: Means to upload data to the target system.

ETL in brief; the data is taken from the source system, changed appropriately and loaded to the data warehouse.

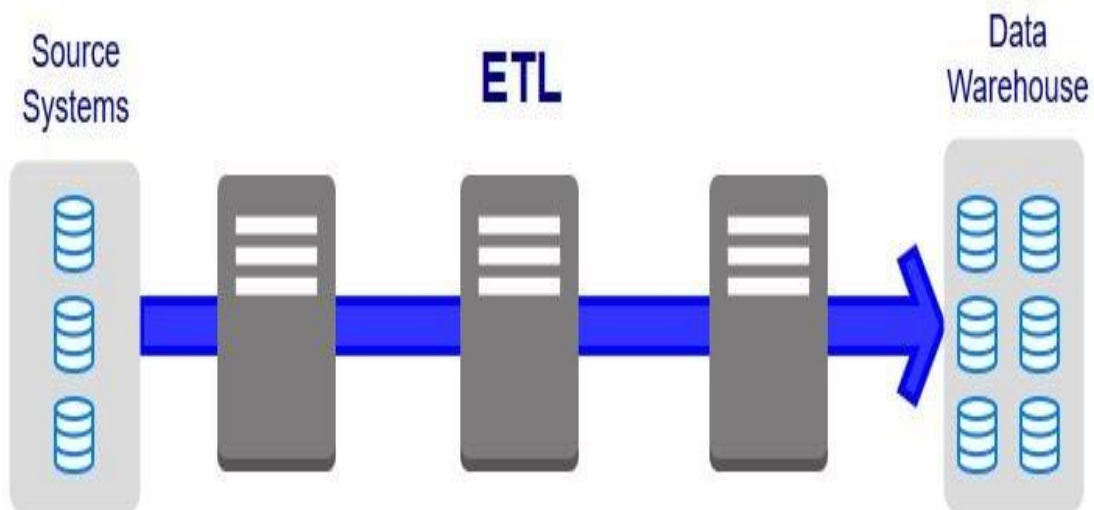


Figure 9 How ETL Works

Source: webopedia.com

The Differences between data storage and big data:

- Data Warehouse is a data storage or data repository architecture. While Big Data is a technology for handling large amounts of data and preparing the repository.

- Data warehouse only uses (relational or non-relational) structural data, but big data can handle structure, non-structure, semi-structured data.
- From a business perspective, as big data has a lot of data, analytics on that would be very fruitful, and the result will be more meaningful in helping to make the right decision for that organization. Whereas data warehouse primarily helps analyze information that is informed.
- Data Warehousing (totally unstructured data) can never handle humongous data. Big data is the only way that humongous data can be handled.
- If an organization wants to know some informed decision (such as what's happening in its corporation, planning next year based on current year performance data, etc.), they prefer to choose data warehousing as they need reliable or credible data from the sources for this type of report. If organizations need to compare with a lot of big data, which contain valuable information and help them make effective decisions (such as how to generate more revenue, more profitability, more customers, etc.), they preferred Big Data (Sağiroğlu & Sinanç, 2013).

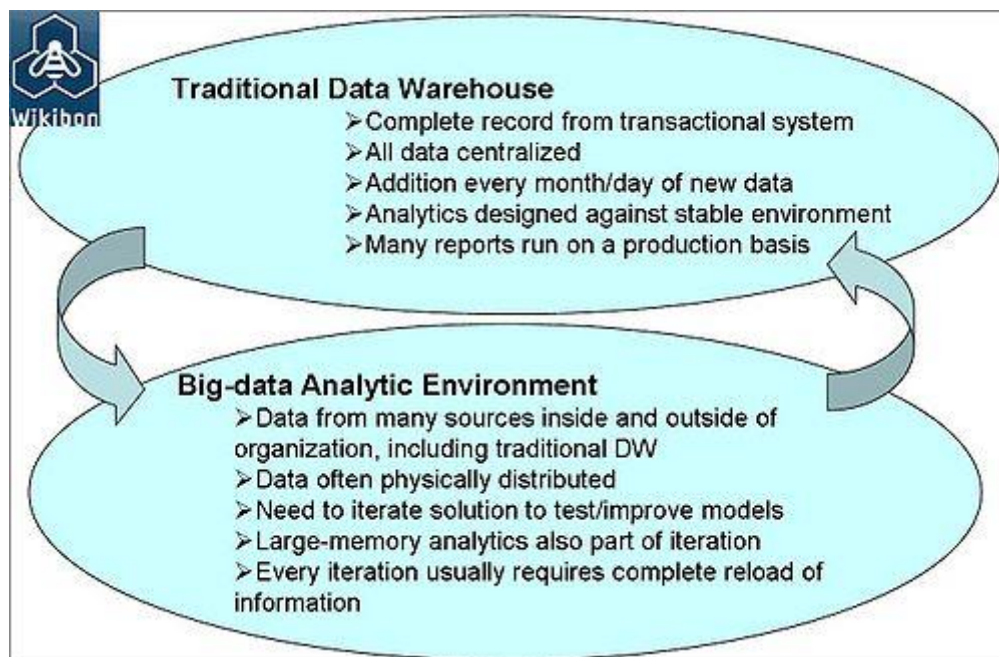


Figure 10 Comparison of Traditional DW & Big Data Analytical Characteristics

Source: wikibon.org

2.4.4.1 Big Data Components

➤ **Variety**

Different forms of the data source. Different types of structured and unstructured data. Data from many data sources come together in a large data system. More data sources mean more data types in various formats. All data from traditional databases, GPS signals, smartphones, documents, videos, and other data sources are all in different data formats. With the advancement of technology, data diversity also increased

➤ **Velocity**

Speed of change needs to be analyzed quickly. Data is getting bigger every day, and it is getting bigger in seconds. The faster the data produced, the greater the diversity in this rate (Schaeffer, 2014). Speed is an indication of how fast the data is received. When we think about Twitter, Twitter has to deal with a pile of writing and photos every day. They must be all processed, stored, and restored if necessary.

The traditional decision-making approach for fast-paced organizations such as Amazon is very slow. None of the companies want to make bad decisions, but most of them are waiting for this decision. This waiting period causes some opportunities to escape. If speed is related to business, companies need to resolve any problems that might limit their ability to respond to analyzes on time. A swift and fast work environment should be established where data analysis can be successful, and there is no obligation to engage in processes. Their investment in large data technologies is critical to instant decision making and data processing.

➤ **Volume**

It means data size, a large amount of data. Volume is the most known and most important of big data. The size mentioned here is almost undetectable. More than ten

years ago, the sources that produced data were not so diverse. Almost everyone has a smartphone, every device has internet access, and most of the environments we have are smart sensors. That means that data reaches high volumes in seconds.

➤ **Variability/ Veracity**

Variability in the concept of big data means more than one. The inconsistencies in the data are the first. These anomalies must be present to create a meaningful whole. In order to homogenize the data, it is important to identify them. Big data comes in different amounts from too many sources.

➤ **Value**

The value is the output of large data. It is an important item for companies. Analysis of complex and high volume data results in meaningful information.

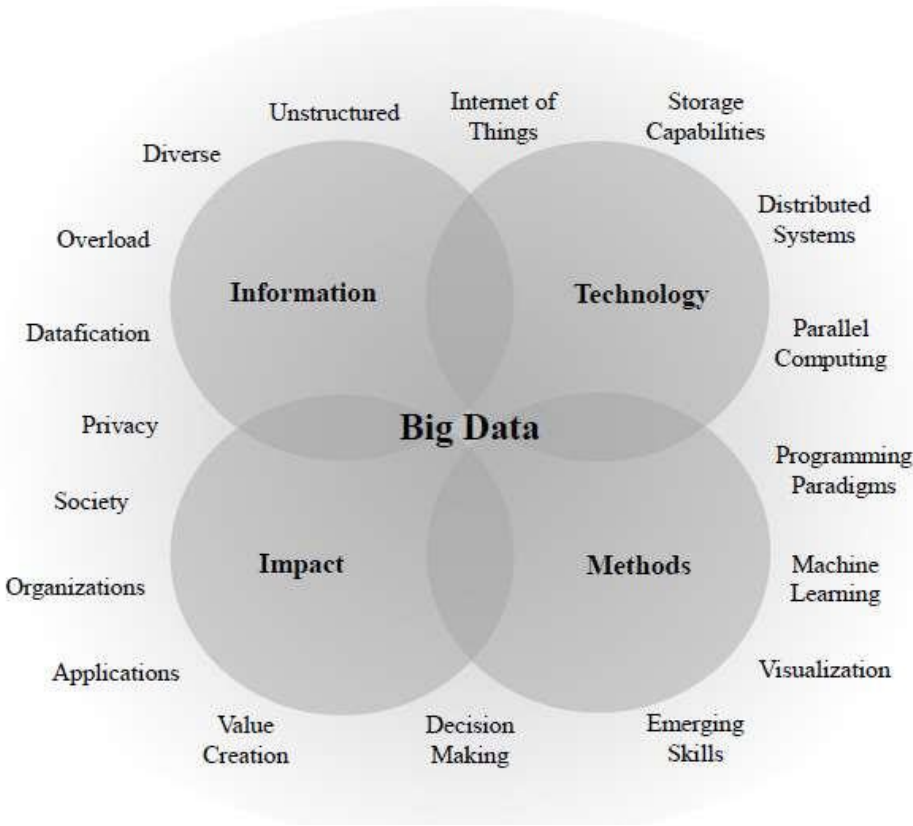


Figure 11 Big Data Key Topics

Source: (Monaco, 2015)

2.4.5 Big Data and Cloud Computing Relationship

Both the cloud and extensive data emphasize increasing the value of a company while reducing investment costs. By eliminating cloud computing capabilities, storage, and computing power limits, it has helped to pave the way for big data. In recent years, it has been ensured that the data will continue to grow and grow in terms of size, diversity, and complexity, and to become a solution focus together with cloud computing. It is software technology that goes into giving service offerings at all level. Virtual machines are the infrastructure of clouds. Companies can consume services instead of implementing and maintaining hardware and software in-house.

2.4.5.1 Main Differences Between Cloud Computing and Big Data

1. Cloud computing is an on-demand computing service using on-line computing resources distributed over the Internet. On the other hand, large data is a large set of computer data, including structured, unstructured, semi-structured data that cannot be processed by conventional algorithms and techniques.
2. Cloud computing provides a platform for users to use services such as Saas, Paas, and Iaas on demand and also charges for the service according to usage. In contrast, the primary purpose of large data is to extract confidential information and patterns from a collection of data.
3. High-speed internet connection is a must for cloud computing. In contrast, extensive data uses distributed computing to analyze data and do mining.

2.4.6 Human Resource Information Systems

Walker described HRIS as a systematic process for the collection, storage, maintenance, retrieval, and validation of human resources, staff operations, and organizational unit features of an organization. (Walker, 2001). HRIS must help both human resources and line executives in decision-making through an efficient e-HRM platform that is connected to the accomplishment of strategic company goals by systematically producing precise, timely and relaxed data (Van Heerden, 2012). An HRIS should also be designed to accommodate several different approaches of access in addition to meeting the needs of various users. Some of them are ;

2.4.6.1 Employee Self Service Portals (ESS)

Employee self-service is a commonly used human resource technology that allows staff to perform any job-related functions, such as requesting reimbursement, updating personal information and accessing information on company benefits — once largely paper-based, or otherwise maintained by managers or administrative personnel. The portal Employee Self Service is a functional and easy-to-use solution for intra-organizational communication updating and improvement. The portal adds value to the employees of an organization. ESS makes HR actions more efficient by providing the employee with direct access to activities and information. ESS allows employees to view and upgrade personal details, apply for training, leave or vacation, and select or renew flexible benefits packages. Managers tend to have more privileges of access and authorization to ESS systems than employees and can access information about employees. Self-service employees can help many businesses save hours of work and increase efficiency. The option may not be right for any business, though.

Benefits of Employee Self Service Portal (ESS Portal)

- Connected
- Accessible
- Cost reduction
- Personalized
- Leave estimations

2.4.6.2 Human Resource Management Portals

The HR portal allows individuals to access the relevant resources and data for their situation and work. In order to view the most relevant data, each employee can design an interface. Today, the inclusion of an HR portal in any system upgrade should be considered a significant strategic opportunity.

2.4.6.3 Manager Self Service(MSS)

These tools enable supervisors to manage many online HR transactions and receive real-time HR reports.

- It allows managers to view information and create reports on the employees working for them without having to rely on HR.
- Allowing managers to complete transactions previously handled by HR, such as authorizing pay raises, promoting, approving leave requests, or changing an employee's classification.
- Allows managers to manage HR functions such as performance management, succession planning, and onboarding (Bitner, 2002).

With these technological developments, human resources practices and roles change and diversify;

1) It plays the role of a strategic business partner to align HR strategies and practices with the organization's overall strategy. It is also obliged to motivate employees to perform effectively and to guarantee the skills needed.

2) You must be a process expert to design and use HR services and processes effectively.

In order to apply them, the human resources department;

1) Competent

2) Curious

3) Bold

4) It must have a relevant structure.

The role of a strategic partner is becoming increasingly widespread. Human resources should be business partner-not support, be principle-non relational, not leading the change-leading, be proactive- not reactive, be manager-not performance evaluating, and should be fate is not decisive – guiding that support openness,

teamwork, entrepreneurship and creativity and create a motivated, efficient and respected working community. So, in short, if we want to focus on the future, it is necessary to use human resources management actively in order to get rid of the classical personnel management logic in our enterprises.

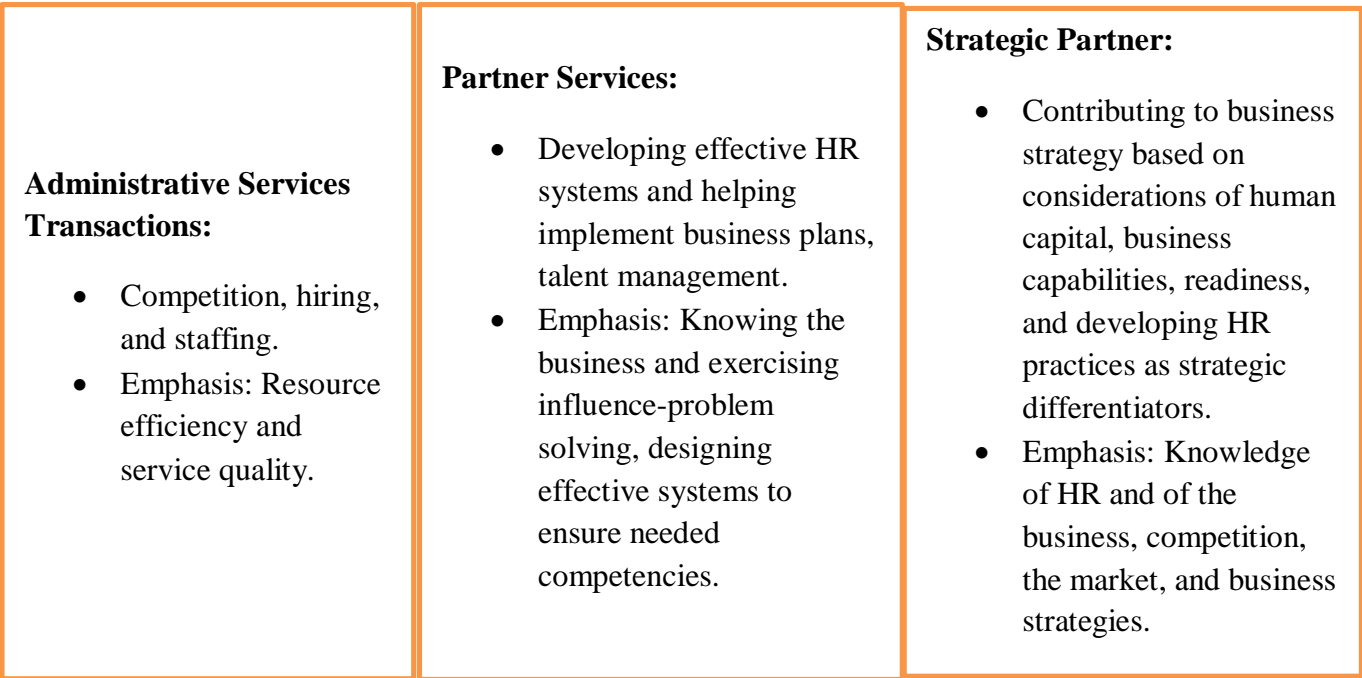


Figure 12 HR as a Business with three product lines

Source: (Pontiggia, 2016)

Chapter 3

The Merge of Technology and HRM

3.1 From HRM to e-HRM

E-HRM is a way to implement HR strategies, policies, and procedures in organizations by consciously and directly supporting and making complete use of web-based technology channels (Ruël, 2004). HR is evolving into a more technology-based profession because organizations need to:

- Streamline HR processes and reduce administrative burdens.
- Reduce HR administration and compliance costs.
- Compete more effectively for global talent.
- Improve service and access to data for employees and managers.
- Provide real-time metrics to allow decision-makers to spot trends and manage the workforce more effectively.
- Enable HR to transform so it can play a more strategic role in the business (Chapman, 2003).

HR's face today is often a portal, not a person. Approximately all companies now offer universal access to HR services through technology and web-based applications, changing human resource management practices dramatically. HR function transformation requires powerful tools to assist and assist managers and employees in doing things better and doing better things. The use of technology to support HR analytics will undoubtedly continue to evolve, and organizations should pay attention to the advances in these techniques and how they can improve HR effectiveness (Chapman, 2003).

On the other hand, it's application makes the transformation of HR function realistic, and to some extent radically changes the HR function – it requires HR professionals to learn new and mixed skills for HRIT, and attracts HR professionals to pay attention to it's supporting and transformative activities. New technological

development can lead to changes in organizational restructuring and work design that change the outcome of HR practices. Since the technologies first change the structure of the work, such as virtual global workgroups, the HR function needs to evolve to support these changes. Human resources department, along with technological developments, started to use web-based technologies from the paper, pcs, and electronic databases. HRM has evolved e-HRM with these technological developments. E-HRM is the integration of all web-based technologies with all HR systems and activities. E-HRM is an information technology application for networking as well as supporting personnel members of human resources in their shared results of HR operations. Through the intranet or other web technology channels, HR staff access these features.

Using E-HRM empowers HR professionals to fulfill their duties by concentrating more on HR's strategic aspect and enabling them to lighten administrative burdens. E-HRM system facilitates the performance of human resource functions, resulting in time and effort savings for staff in the human resource department, improving the services provided, reducing paperwork, and eliminating the complexities of daily work. Besides, information collection and high velocity and precision made accessible to decision-makers. It merely becomes an e-HRM when HR uses the internet or related technologies to support its operations, procedures and, process. With technological developments, time and costs are reduced; training is rapidly increased. Today, information technologies are as important as the capital and human resources for enterprises. Rapid developments in information technologies reveal that businesses need to take care of speed, flexibility and cost advantages to survive in a highly competitive environment. They also need information technologies to improve business processes and to take advantage of these advantages. HR professionals get more dominant technologies by managing creative and knowledgeable employees to promote changes that have occurred within the organization. Information is growing day by day; new types of data are available; information is shared by companies. The available data is enormous and valuable. To be an important player in organizations and add value for organizations HR professionals must understand the business, industry and business strategies (Alrahahle, 2014). HR professionals who are already involved in the redesign process need to have a deep understanding of the company on both operational and strategic sides to manage and support innovation. They need to know about finance, marketing, supply chain management, manufacturing, logistic, customers, competitors,

financial markets and globalization (Alraahle, 2014, s. 264-271). The businesses primarily depend on three issues which are defining strategy, asset management, and, driving business execution. The HRIT provides the ability to store and use the information repetitively as an electronic database that can also be accessed to anyone at any time and wherever within the organization. HRIS systems ' key elements are employee administration, staffing, time and attendance, training and development, pension administration, work equity, performance evaluation, administration of compensation and benefits, organizational management, health and safety, labor relations, and payroll interface. For the first time in history, HR plays a real leadership role in business execution through technology.

An HRIS's primary purpose is to create reports and support managerial decision-making. Organizations are engaged in a three-step process to select an HRIS. The first step is the phase of adoption, whereby organizations perform a needs analysis to determine requirements, The secondly, the implementation phase, where project teams are created, the software is tested, and issues about privacy and security are addressed, The third step is the institutionalization phase, which highlights the activities of training and change management. The most successful organizations generally manage their HR departments as a strategic asset and measure HR performance in terms of its strategic impact. When each part is in the right place, it creates a high-performance work system(HPWS), a set of management practices aimed at creating an environment in which the employees are more involved and accountable within an organization. Also, E-HRM has disadvantages too, and some of them are; Not useful for small scale industries. Human relations may be replaced with just technical & inorganic connections.

1.1.1 Types of e-HRM

- **Operational e-HRM:** It deals with HR's operational functions, such as payroll, data management, and Which constitute the bulk of the HR department's workload. In this regard, several authors supported the cost-cutting benefits and increased efficiency generated by e-hrm. (Ruël, 2004)
- **Relational e-HRM:** The supporting business processes such as training, recruitment, selection, etc. are concerned. It includes those HR activities that

support a relationship between the HR department and other departments, both within and outside the organization.

- **Transformational e-HRM:** It concerns HR strategies and activities such as knowledge management, strategic orientation. It focuses on HRM's strategic activities, such as processes of organizational change, strategic reorientation, strategic skills management, and strategic knowledge management. E-hrm can transform the function by improving the strategic orientation of HRM. (Ruël, 2004). A strategic HR function connects HRM activities with the business ' strategic leadership process and strategic goals. Thus, contributing to the strategic alignment of the HRM feature is a key objective of e-HRM. E-HRM systems provide managers with accurate and reliable employee data that may be critical in business decisions. (Ghazzawi, 2014).

3.2 E-HRM activities;

- **3.2.1 E-Recruitment:** online Recruiting is widely used by companies these days. The E-Recruitment, also known as Online Recruitment, is the process of recruiting empty positions for job applicants using electronic resources, particularly the Internet. E-Recruitment includes the whole process of finding, evaluating, interviewing, and hiring prospective candidates according to the job requirement. Recruitment is done more efficiently and effectively through this. The e-performance evaluation module is designed to identify the deficiencies of the employees, the added value, redundancy, and competencies they provide to the enterprise in line with their business strategies and vision and to determine and reward the employees' training plans in line with these determinations. Online recruitment helps organizations automatically outsource unqualified candidates. Also, provide valuable data and information on the competitors ' compensation offer, etc. which helps the HR managers to take various HR decisions like promotions, salary trends in industry. E-recruiting's web-based technology helps organizations attract a stronger and more diverse pool of applicants. Several business goals drive the choice to move to an e-recruiting model, including the need to: Improve recruiting efficiency and reduce costs, Increase the quality and quantity of applicants. Establish, communicate, and

expand brand identity, Increase the objectiveness of, and standardize recruiting practices, Increase applicant convenience. The increase in the number of users has increased the number of internet employees. Also, Social media pages have an important role on e-recruitment proses such as; companies can share their posts on their pages and they can quickly reach a massive amount of people and also some special social media pages especially LinkedIn provides direct communication between employee and employer. According to the digital in 2019 reports; almost 604.4 million people use it in the worldwide. It gives a 7/24 access possibility. Reduction in the time for recruitment. By matching the candidate's CVs with the job profile, the right people for the right job can be easily found through E-Recruitment.

- **3.2.2 E-Selection:** The business drivers behind e-selection technology adoption include; Reducing the time and resources required to manage the selection process, Increased flexibility in the management of selection tests, Improve the usefulness of selection tests, Improving the ability of an organization to provide applicants with adaptive testing. The HR department that uses the online selection process must ensure that each step meets the vendor selection procedural requirements, evaluation steps, candidate feedback, etc. E-selection's purpose is to use the maximum human capital in less time and at a reduced cost. The first step is to bring the talent to the company. The second is the retention of the employees. The second step is important in terms of investment and productivity. It reduces the time needed for other techniques of selection. Also, reduce the overall cost of the selection process. However, judgment based on the E-selection process cannot be as perfect as traditional process.
- **3.2.3 E-Performance Management:** E-performance management uses technology to automate performance data collection, monitor employee work, and support performance assessment development and delivery (Chapman, 2003). Many companies use web-based technology to assess an individual's performance. This may be done either by using the computer monitoring tool where an individual's entire work can be recorded or by writing the reviews and generating feedback on the performance of the employee through the web portal. There are many motivations for organizations to implement e-performance management, including; Improve access to data on the performance, Reducing

biases in the analysis, linking performance data with other HR data — a practical approach for identifying potential employees. Completion and review are easier than paper-based systems. Maximize performance feedback at all management levels. Some of the benefits of e-Performance management are easy for employees and managers to review previous performance reviews. Ensure higher staff acceptance.

- **3.2.4 E-Learning:** We learn our the readings, listening, observing, or practicing, and we learn from training forums, work experiences, and life experiences of others. Training should be well planned and systematic, and e-learning provides it. It means using the intranet of the internet or organization to facilitate workforce training and development programs. Obtaining online training modules can cover a large number of employees, regardless of their location. Also, Reduce the cost of training, Increase the flexibility of employees and control of learning, Better monitoring, and management of training for employees. In addition to these, e-learning has disadvantages such as; Not all exercise is supposed to be online, Can't be ready for e-learning for everyone.
- **3.2.5 E-Compensation:** Today's e-compensation systems offer much more value than basic payroll process automation. E-compensation uses web-based technology to help executives design, implement, and administer policies for compensation. An organization that uses online compensation management enables it to collect, store, analyze, and distribute data or information on compensation to anyone at any time. Furthermore, from anywhere in the world, the individual can access electronically distributed compensation software, analytical tools. It made internal information process quicker.



Figure 13 E-HRM Tools

Source: jadbm.com

If the company has fully developed E-HRM, it can provide; data gathering tools and, analysis capabilities, decision support resources for HR professionals to hire, pay, promote, etc. The use of technology in the area of human resources frees many loads and provides many advantages to the enterprise. As there is an increase in the use of electronic, human resources management practices, there are several advantages to the organization. These advantages can be listed as follows:

- Reduce paperwork by modernizing workflow
- Ensure that employees benefit from the self-service HR system,
- Ensuring that HR systems respond in a shorter time,
- Time management development,
- Automating HR processes that require extra time,
- Ensuring that the employees of the Company are aware of all critical corporate events and HR issues,
- To ensure that decisions are taken with more information,
- Presenting a flexible HR model for the differentiating needs of the globalizing and changing workforce,

- Reduce cost,
- To ensure that transactions are completed without encountering paper and bureaucratic obstacles,
- To improve the image of the organization,
- The candidate profile is much broader during recruitment (Dülek, 2018).

3.3 Goals of E-HRM;

- To improve services to HR department clients,
- Improving efficiency and cost-effectiveness in the human resources department
- To enable HR to become a strategic partner in the achievement of organizational objectives,
- Reduce the time spent on rutin jobs and help to change HR responsibilities.
- Improve the strategic direction of the HRM department, thus convert human resource management to a strategic partner of the organization. (Foster, 2008).

There are several factors in today's workforce's modifying function of HR, such as modernized business duties, the adaption of technology in the department of human resources, and HR's responsibility to help create and maintain workplace culture. The technological change has enabled HR professionals to take on more strategic roles or has enabled HR professionals to address more effectively the administrative tasks associated with their role. E-human resource management tools now would allow employees to perform all but the most complicated tasks themselves, from signing up and managing insurance to tracking their working hours and moving towards professional goals. Managing talent is easier than ever with the development of HR technologies and ensuring that employees achieve their targets and get what they want out of work. For example, talent management systems (TMS) allow HR workers to keep track of everything from recruitment and performance management to management of learning and development and compensation. Now it's not about time; it's about what's going on with these changes. While HR change with the contribution of technology, creating a company culture takes an important role in HR duties. Since culture almost has a relationship with different variables of HR.

3.4 The Key Requirements for E-HRM success

If technology adaptation is done successfully, it may have benefits. On the contrary case, it can do more damage than good. However, the time spent on simple tasks is shortened, and more strategic issues can be focused on. In this way, employee motivation can increase, which can affect performance and productivity. Some requirements are also required for these to happen. These can be listed like ;

3.4.1 Human Resource skills: It can be explained like the development of new skills. Practitioners must possess constancy, Strategic thinking, analytical, advanced communication, negotiation, process engineering, Project management, and business writing skills (Parry E. a., 2011).

3.4.2 Training in e-HRM use: Provide sufficient training. Since, in some cases, employees are not aware of the full functionality of the system and are. Therefore, this can not take complete advantage of it. (Parry E. a., 2011).

3.4.3 Engagement with e-HRM: This one is important for both managers and employees to engage with new types. The adaption of e-hrm may also be influenced by cultural factors, as the national culture in which a company is situated may in turn impact the culture of the organization. (Bondarouk, 2016). For instance; a culture based on face-to-face interactions and personal relations can discover less private e-hrm practices and therefore more hard to adapt and communicate with.

3.4.4 Design of the E-HRM system: Concentrating on organizational uniqueness to competitive advancement during e-hrm design.

3.4.5 Familiarity with Technology: It is a direct relationship with the use of technology in your company. It also could be more manageable with the high level of the usage of technology that is used by your staff. In this part there are some matching points with the generations as well.

3.5 An Example of Under Armour digitized employee recruitment and enhanced employee experience

Today's one of the most popular sportswear companies Under Armour, an American sports and casual apparel and footwear manufacturing organization which is a global company. With more than 130 global outlets and 8500 employees, their Application Tracking system ATS received more than 30,000 job applications in a month. Thereby, hiring was a cumbersome process for them as well as candidates applying for a job. The problem is here to track all applications without missing anyone's application, but it is getting hard every day.

Then the company started to use the e-recruitment system to reduce the intensity of applications. They have been involved in a digital recruitment system called Hirevue. With Hirevue, executives could use pre-recorded questions to build interviews with applicants. This screening process enabled managers to call just employees met their webcam or mobile interviews criteria.

Finally, Managers were now able to employ the latest staff much faster. The recruiting process was reduced by 35% in the general interview. Quality of talent has also enhanced. These case studies demonstrate the evolving trend of integrating analytics in business management's HR function. It can also be seen that recruitment and retention procedures have beneficial outcomes.

3.6 Company Culture

Culture is not a material 'thing' that can be touched or held in hand, but something within us. (Pontiggia, 2016). Organizational culture plays a main role in the equilibrium between work and life (Cegarra-Leiva, 2012). If you're aiming for achievement, you need to lay the corporate basis and create a corporate culture by incorporating technology and variables. There may be incredible miscommunications and misunderstandings when cultures cross, even in nations that share a common heritage and language. Corporate culture can be defined as the shared attitudes and ways of the members of the organization. If procedures are to be effective, it is vital the organizational culture supports the work-life balance. (McCarthy, 2013). Corporate culture components range from tangible items such as an office's dress code and architecture to intangible items such as the mission and values of an organization.

Because a unique corporate culture can help a company stand out, it is a critical element that can be used to winning a competitive advantage among competitors and attract talented workers. At the core of the business, culture is the cultural values that exist in society. Members who support and has active involvement in almost every business is expected. The culture, which is tried to be created outside the demands and needs of the employees, can negatively affect the human resources and make them inefficient. The more coherent the business culture with the strategy determined by an enterprise, the higher the probability of management being successful. Companies that have positive cultures have better performance, productivity, and profits than others which do not. HR departments have a unique ability to influence and change the commitment and culture of employees. HR affects the culture of the company in several ways. Establish a process in which regularly evaluate the culture of an organization and then work to adjust which steps you can take to maximize the impact on the bottom line of your culture. Just as the marketing team of the company makes the company look appealing to external prospects and customers, it is up to expert HRM professionals to make their company attractive to internal talent with a genuinely resonating organizational culture. As we told before, HR roles have been changed, and now the HR department also responsible for creating the company culture and maintaining it now. While creating a culture, HR department focuses on mission, beliefs, core values, ethics, competitiveness, holiday and festivals, body languages, and attitudes. Because culture is the software of the company. In addition to these, culture is important for corporate strategy. Also, the company culture is related directly or indirectly to the happiness, productivity, satisfaction, performance variables. Since the creating company culture is the beginning point of everything. For example; When the Company culture is created, everything would be easy because in today's world people almost spend more time with their coworkers than their family. It contributes to increase similarities between workers because it based on general culture. After these, of course, contribute to satisfaction, and then productivity and these are going to affect the competitiveness of the company. In addition to these, By collecting the personal data more regularly and listing the necessary filters, the employees can find common areas of interest and work on it, and the productivity can be improved by supporting them with non-work activities. Company culture is not a fixed stat; it evolves with changing demographics, workforce norms, strengths of industry, and other factors. One of the important points is creating a culture in today's

world. The HR managers has lots of duties to done it successfully such as ; Be a proactive consultant in culture means HR leaders need to evaluate and understand the current culture, develop a strategic culture strategy that matches up with the values and goals of the organization, and then work with certain executive leaders to improve and implement the plan. Also, they need a clear definition and well communicated to explain it. Moreover, HR Usually, involve staff in the process because not just using something they read or heard in a paper at a seminar is enough that's why they work with employees who work in the company from different cultures. Sustainability is important too for company culture that is why while creating company culture HR should integrate the brand. Also, during the creation of the culture, it has to be parallel with your company strategy. Focus on the feeling of culture as well. Focus on to combine company values with training programs. HR is the biggest advocate of values for the company since they are so unique within the company that they have the greatest impact. Focus as early as possible on your culture. Culture is not ' HR's Job. ' It is the priority of all and should be a strategic topic critical. The corporate culture is one of the key factors in employee satisfaction and retention. Some of the cultural management requires can be listed as ;

- A deep understanding of factors that influence human behavior across cultures,
- Employees from various parts of the corporation are involved in the process,
- Attention to how organizational members interpret decisions and actions across units and boundaries,
- Carefulness in realigning the entire range of HR practices in all parts of the company,
- A long-term viewpoint that recognizes the need for change in culture
- Awareness of the key elements of the existing culture that the company wants to retain and those it wants to change.

The seven dimensions of organizational culture are:

- innovation and the courage to take risks
- attention to detail
- result orientation
- people direction
- team orientation

- aggressiveness
- stability (Schwartz, 1999).

Various generations have specific desires and expectations about the culture of an organization. Generation Y is taking a more prominent role as baby boomers retire. Human Resource leaders need to assess how the expectations and needs of each generation shape-changing company culture and whether current values cohere. Culture is a significant difference in attracting and retaining great people as well as being a highly successful business. If your new hires align with your lifestyle and values, moving in the same direction is easier for everyone. As a new hire goes through the process of onboarding, they naturally feel the work environment and feel more comfortable with their colleagues. As part of the onboarding system, the new person should be introduced to everyone on the team and encouraged to work together whenever possible. With a basic onboarding program, you can help your employees build department-wide and company-wide relationships. The idea behind this simple process is that by breaking down barriers and opening up interdepartmental communication, employees learn about the company's various areas and, in general, improve culture. Because this process has a relationship with performance, it's like a snowball effect well design work environment, performance, profitability, effectiveness, all they have a relationship with each other. Not just HRM issues have changed, but also variables have been affected by technological developments. We measure effectiveness in several different ways, including employee engagement questionnaires, employee referral rates, voluntary turnover rates, employee ratings, and sites for review. These measures help us to tell if we are on the right track to develop the kind of company culture. Technology also affects the culture of an organization. Team members have to work across various cultures, geographies, and time zones as businesses become more global. Departments of Human Resources need to develop policies and practices that stronger qualify their organizations ' intellectual capital, resources, and labor to better align these resources with existing and future globalized world markets, including ever-expanding labor and manufacturing markets.

There are various organizational cultures in the world. S. Ronen distinguished the following culture circles:

- Anglo-Saxon (US, Canada, the UK, New Zealand, Australia, Ireland);

- Germanic (Germany, Austria, Switzerland);
- Nordic (Sweden, Denmark, Norway, Finland);
- Middle Eastern (Turkey, Greece, Iran);
- Arabic (Saudi Arabia, Oman, Kuwait, the United Arab Emirates, Bahrain, Abu Dhabi);
- Far Eastern (Thailand, Taiwan, Indonesia, Vietnam, the Philippines, Hong Kong, Singapore, Malaysia);
- Latin American (Colombia, Peru, Mexico, Chile, Venezuela, Argentina);
- Latin European (France, Belgium, Italy, Spain, Portugal);
- non-standard cultures (Brazil, Japan, India, Israel). (Wiśniewska-Mikosik, 2015)

Human resource roles have been changed by technology. Also, variables have been affected by this situation. Like; productivity, satisfaction, employee engagement, and so on. These variables almost have a relationship with each other. The main point is that creating only common company culture provides a positive work environment. With the positive atmosphere, employees can work with high motivation that is one of the most important parts of productivity. Employee participation and flexibility in job design can enhance performance. (Armstrong, 2006).

Today's global world almost borders came down, and companies work cross-cultural ways. That's why to be careful about this diversity. An organization confronts significant challenges in making employee diversity work to its advantage. These include;

- Valuing the diversity of employees,
- Equalization of individual needs with group fairness,
- Coping with change resistance,
- Retain valuable performers,
- Managing competition for opportunities,
- Promoting cohesiveness among groups,
- Ensure open communication.

Besides, this company needs to change its mind from individual to the group. It will get success. Companies generally focus on the company's resources, processes, and success measurement to implant innovation. The elements can be easily measured.

Companies often pay much less attention to people-oriented innovation culture determinants that are more difficult to measure, such as values, behaviors, and organizational environment. Organizational culture can contribute to the growth of the company's operation. After we create a well-done design company culture, the rest directly come.

3.7 Variables

When we started to use technology, the change has been started. First, the role of HR change and the job duties get different. Then, these situations affect the variables directly or indirectly. For example, creating company culture related to the motivation, performance, and lastly productivity, Working hours strict types has been changed by technological effects because, Instead of being physically present at the workplace, the efficiency of the work is observed because technology lets managers control the job efficiently and fastly whenever or wherever they want. For this reason, it provides flexibility, the workers spend more time with their families, and it contributes to high motivation as well. An "engaged-employee" is one who is fully engaged and enthusiastic about their work and will, therefore, act in a manner that fosters the interests of their organization. After this type of changes or effects, employee commitment, employee engagement, or employee vitality increased directly. The competition is becoming harder and harder as a result of the constant and rapid increase in technology and education, the development of multinational corporations, and frequent changes in economic status and structures. Hence, Human Resources has become the organizations ' most efficient and reliable department of management. This possible change leads to a shift in research on HRM. Competitors in a successful strategy do not easily replicate valuable resources because they are the result of a unique development path. There is also a causal ambiguity between resources and performance because they do not have a clear or direct relationship with performance. An organization's human resources provided they are valuable, rare, and hard to imitate, can contribute to higher performance and become a source of sustainable competitive advantage. Employers are faced with the challenges of maintaining productivity, profitability, and keeping

employees engaged and satisfied with their jobs. High productivity, motivation and low employee turnover are critical to job satisfaction. Employers are faced with the challenges of maintaining productivity, profitability, and keeping employees engaged and satisfied with their jobs. Leaders, in their organizations, can improve motivation with these processes;

- Evaluate and measure of job satisfaction,
- Provide a positive working environment,
- Involve and engage the workforce,
- Develop worker's skills and potential: Education and training motivate people and makes them more innovative and productive. Learning never stops, and testing continues during their career.

Motivation can be high with the working environment, and it related to the one common company culture. If people feel at ease in the company, they can get motivate quickly and perform well in addition to these, and these increasing contribute to company competitiveness. With the technological developments as we told before HR roles generally move basic HRM to e-HRM that's why the processes generally develop and contribute to employee commitment, employee engagement, employee vitality, effectiveness, loyalty, motivation, etc. For example; The development of the performance evaluation part let the people evaluate realist, real, non-discrimination, and it improves employee commitment, continuity, employee vitality. Moreover, change in the learning and training part to e-learning provide people career chance at the same company, and they can feel more loyal to their company. It also contributes to their performance during new learning types. The management of whichever organization can motivate employees with rewards, incentives, participatory leadership, job satisfaction, and a right working environment. Motivation is the productivity of the organization. If we want to get higher productivity, we need to keep motivation high. Similarly, an adequate performance management system is required in order to understand the critical skills, and proper performance evaluation helps motivate the employee. Training and development is also a vital component of motivation. Employee engagement is also an essential component of motivation. People generally spend almost more than half of their waking hours at work, and the significance of interpersonal dynamics in the workplace is not hard to comprehend. By considering their views and presenting

opportunities for employees to demonstrate their talents and effective communication, management can show support for their staff. Promoting elements that maintain a healthy work environment fosters employees who are satisfied and engaged. An ideal work environment includes components such as encouraging work projects, ensuring personal and organizational well-being, and dedicated teammates. If you can give a chance for your employee to make a career in your firm for the long-term. They can feel more secure and focus more their duties, instead of thinking economic conditions. It also reduces stress and increases motivation and job satisfaction. Thus, a well-designed work environment can contribute the job satisfaction. Since, If someone feels comfortable and can communicate with their colleagues, they can perform well to provide during company reach their goals. Coordinating different department-wide projects can help build a more coherent message for the external audience of the organization and strengthen its brand. Like these situations can contribute to firm getting a better position in the competitive environment. This can only be achieved by integrating technology to your company. Employee engagement is also important for the company for productivity. Employee engagement is affected for several reasons. For example;

- Relationship with colleagues,
- Connection with a direct supervisor who you belong to the work environment,
- Contribution of work to the business objectives of the organization means If they can know how they contribute it, it can encourage them to more.
- Overall corporate culture, If they know the culture, they can act more efficiently,
- Recognition of employee performance by management, it would be comfortable with technological developments in HR.
- Training specific to the job, Technology also affects it with e-learning programs, whenever or wherever they want, they can contact the learning stuff.
- Opportunities to develop a career also crucial for employee engagement. It increases with the e-performance management programs because this type contributes to accurate, equal, and objective performance evaluation for the employee. (Noe, 2017).

Also, companies have several ways to get a high return from employee engagement. Employee engagement can be increased such as; Provides innovative

benefits for the employee, promote the balance between work and life, perfect the process of the onboarding process, encourage the best strengths of your staff and so on.

According to the Tracy Maylett; employee engagement has a MAGIC which is the shorter version of the meaning, autonomy, growth, impact, and connection.

- Meaning: give the sense for your job to more meaningful goals.
- Autonomy: consult your manager to help your growth.
- Growth: Both the individual and the company benefit.
- Impact: Employees would have learned to see and celebrate their differences.
- Connection: Employees need to feel connected to their surroundings. (Maylett, 2014).

These drivers of engagement should be taught for new employees who got the job to be stronger, happier, productive, and more profitable as soon as they got the job. All employees are the one member of the company team in the broad view, and productivity is a linear relationship with the employee happiness. Since the cost of holding employee happy is not high, but its return is high. The use of technology can contribute to Tracking these kinds of situations, and then features.

Chapter 4

Conclusion and Evaluation of Findings

Technology is an integrated part of our lives today. Most of us highly depend on technology these days. Undoubtedly, more intensive use of information and technology provides significant advantages. The competitive advantage of enterprises, increasing efficiency, and profitability through cost reduction are the most important of these advantages. In the information society, the concepts of information and technology have become the most valuable asset of human beings. Businesses must succeed in predicting the future to be successful or at least survive in an increasingly competitive environment. This is possible by making accurate predictions for the future and developing plans and strategies that can capture future changes. Improving the efficiency of the business means not only the outcome of a healthy working structure, but also the implementation of effective HR policies that attract, recruit, and retain motivated, skilled, and engaged staff. The company should go beyond paperwork on HR strategy to start adopting appropriate HR functions based on long-term HR practices that help achieve the desired impact on organizational performance. In order to make the right assumptions about the future, businesses should have access to the necessary information in the fastest and healthiest way. Interdepartmental harmony and discipline are essential for full efficiency in the organization. Organizational culture should not be forgotten when switching to the electronic environment, and electronic environment should not be passed without compliance with the corporate culture. Human resources systems should follow an integrated structure as well as company strategies. Outputs of one human resources system constitute input to another. Therefore, systems should be developed in an integrated and supportive manner.

HR departments are the building blocks that enable businesses to work as a whole. Many organizations now believe that people should have a capital that needs to be an investment rather than a resource that needs to be managed to avoid falling behind in competition. The HR department cannot stay away from digitalization because it runs employee relationships. Digitalization is required in order to make processes more transparent and error-free. Therefore, for technology integration, we must first accept developments and learn how to benefit from them. One of the most important

points is that technological developments have to learn by the employees and transferred to the other employees correctly. That's why be sure your team understand the process and give a meaningful answer to the questions which are why, where, when, how to change. In line with these changes, the digital world is directly concerned with the future of HR. Nearly all departments actively use technology. We can use these developments, especially in the sub-branches of HR, such as planning, analysis, performance management, and so on.

HR can contribute significantly to firm results when HR practices support organizational capacities and relate to how parallel to the company's policies. This enables the business to compete effectively. In particular, the international context adds extra complexity to the management of people in a purely national environment. IHRM must, therefore, examine how global organizations, in these distinct domestic situations, handle their HR. Not all companies have the newest and most advanced technology and not all companies need the latest technology, but all companies have HR-related data requirements. HRIS has dramatically altered the way HR services are delivered and managed by organizations. HRIS can make HR staff more productive, better informed, and communicate better how they add value to the business.

There is just a small line between failure and success for the managing, understanding, and even exploiting the cultural differences. Nowadays, with the growth of globalization and information society, the environment where investment for individuals is the most significant element for businesses, and the rate of change has risen more than ever. Besides these, HRM's function is evolving and altering day by day. Mainly through difficult possibilities and assignments, leaders continue to grow. Any executive's capacity to work in a cross-cultural setting becomes a more precious asset when boundaries come down. The HR focuses more strategy on technology assessment because the technology enables the routine jobs to be accomplished quickly and helps save time. HR experts now need to master not only traditional abilities and expertise but also be able to use this understanding through technology. Multilateral developments are becoming more preferable than unidirectional developments. Organizations that efficiently combine HR leadership with efficient HR systems, will be more productive and profitable than those who don't. HRM is directly related to the results of the business. The concentration of HR on employee performance affects team performance.

Hence, if we want the business to deliver high output, we should begin with the individual performance leadership.

With the new generations being more active in business life, the expectations and desires of the generations started to change according to the past. Because there are distinct property differences between generations, today, the generation X is slowly withdrawing from business, Y is becoming more active, and generation Z will become more influential in a few years. Lifestyles, expectations, ways of communication, goals are very different from each other. These naturally affect variables of the business-life. Technology enables us to figure out what motivates people to contribute to performance. Motivation is one of the aspects of performance improvement. In a short time, comprehensive data can be easily accessible. Besides these, decision-making becomes quick and useful for decision-making officials.

Finally, technology integration and the success of the company almost parallel. That's why the companies have to solve the integration part of the technology. So, it starts with how much employees in the human resources department understand these changes and how they try to integrate the workers. Because in order to make these changes, first of all, it is necessary to inform those responsible for transferring these changes to other people. Therefore, it is important how relevant your employees are to technology. Otherwise, it will waste time and Money. So, there are lots of variables about how technology and human resource management come together successfully such as; generations in the company, type of company like it is global, transnational, international, and, multi-domestic, location.

List of Abbreviations

HR: Human resource

HRM: Human resource management

PM: Personal management

SHRM: Strategic human resource management

SWOT: Strength, weaknesses, opportunities, and threat

GA: Global approach

SA: Situational approach

BOSA: Based on source approach

CA: Configurational approach

Wi-Fi: Wireless Fidelity

SM: Social media

CV: Curriculum vitae

GPS: Global Positioning System

HTML: HyperText Markup Language

SAAS: Software as a system

IAAS: Information as a system

PAAS: Platform as a system

IT: Information system

ERP: Enterprise resource planning

NIST: National Institute of Standards and Technology

DW: Datawarehouse

CEO: Chief Executive Officer

CRM: Customer Relationship Management

API: Application Programming Interface

PC: Personal computer

WWW: World wide web

ETL: Extract, Load, Transfer

SQL: Structured Query Language

HRIS: Human Resource Information System

HRIT: Human Resource Information Technology

HPWS: High-Performance Work System

MSS: Manager Self Service

ESS: Employee Self Service

TMS: Talent Management System

FDI: Foreign Direct Investment

ICT: Information and Communication Technology

List of Figures

<i>Figure 1 The Challenges of Strategic Human Resource Management</i>	<i>23</i>
<i>Figure 2 Web Evaluation</i>	<i>31</i>
<i>Figure 3 The impact of globalization and ICT on IHRM.....</i>	<i>39</i>
<i>Figure 4 Structure of transactions in international companies</i>	<i>45</i>
<i>Figure 5 Scheme for companies types.....</i>	<i>46</i>
<i>Figure 6 Human Resources as a Business Function.....</i>	<i>48</i>
<i>Figure 7 From data to knowledge evaluation.....</i>	<i>53</i>
<i>Figure 8 Types of Cloud Computing</i>	<i>57</i>
<i>Figure 9 Community Cloud</i>	<i>61</i>
<i>Figure 10 How ETL Works</i>	<i>66</i>
<i>Figure 11 Comparison of Traditional DW & Big Data Analytical Characteristics.....</i>	<i>67</i>
<i>Figure 12 Big Data Key Topics</i>	<i>69</i>
<i>Figure 13 HR as a Business with three product lines.....</i>	<i>73</i>
<i>Figure 14 E-HRM Tools.....</i>	<i>80</i>

List of Tables

<i>Table 1 Comparison of Human Resource Management and Personal Management</i>	<i>21</i>
--	-----------

Bibliography

- ADIGÜZEL, O. B. (2014). KUŞAKLARIN DEĞİŞEN YÜZÜ VEY KUŞAĞI İLE ORTAYA ÇIKAN YENİ ÇALIŞMA TARZI: MOBİL YAKALILAR. *Süleyman Demirel Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 165-182.
- Akal, Z. (2005). *İşletmelerde performans ölçüm ve denetimi : çok yönlü performans göstergeleri*. Ankara: Milli Prodüktivite Merkezi.
- Akdemir, A. (2012). *İşletmeciliğin Temel Bilgileri*. Bursa: Ekin Basım Yayın.
- Akgün, F. (2010). *Stratejik insan kaynakları uygulamalarının, girişimci odaklılık ve öğrenme odaklılık ile firma performansına etkisi*. Master's Degree Thesis, Gebze Yüksek Teknoloji Enstitüsü, Kocaeli.
- Al-Alawi, A. I. (2006). WiFi technology: Future market challenges and opportunities. *Journal of Computer Science*, 2(1).
- Alrahahe, A. S. (2014). The Impacts of E-Management and the Role of Human Resource Development in Improving the Performance of the Organization. *International Journal of Business and Social Science*, 5(10).
- Armstrong, M. (2006). *Performance management: Key strategies and practical guidelines*. London: Kogan Page.
- Bakan, İ. S. (2014). *İnsan kaynakları yönetimi*. Ankara: Gazi Kitabevi.
- Barutçugil, İ. (2016). *Stratejik İnsan Kaynakları Yönetimi*. KARIYER.
- Bayraktar, E. &. (2006). Kurumsal Kaynak Planlamasi (Erp) ve Yazılım Seçim Süreci. *Selçuk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, (15), 689-709.
- Becker, B. E., & Huselid, M. (2006). Strategic Human Resources Management: Where Do We Go From Here? *Journal of Management*, 32(6), 898-925.
- Belizon, M. J., Morley, M. J., & Gunnigle, P. (2016, April). Modes of integration of human resource management practices in multinationals. *Personnel Review*, 45(3), 539-556.
- Berk, R. A. (2009). Teaching strategies for the net generation. *Transformative Dialogues: Teaching & Learning Journal*, 3(2), 1-23.
- Bhardwaj, S. J. (2010). Cloud computing: A study of infrastructure as a service (IAAS). *International Journal of engineering and information Technology*, 2(1), 60-63.
- Bilgin, L., Taşçı, D., Kağnoğlu, D., Benligiray, S., & Tonus, H. Z. (1998). *İnsan Kaynakları Yönetimi*. Eskişehir: Anadolu University.

- Bingöl, D. (2013). *İnsan Kaynakları Yönetimi*. İstanbul: Beta.
- Bitner, M. J. (2002). Implementing successful self-service technologies. *Academy of management perspectives*, 16(4).
- Bondarouk, T. D. (2016). e-HRM adoption in emerging economies: The case of subsidiaries of multinational corporations in Indonesia. *Canadian Journal of Administrative Sciences*, 124-137.
- Brynjolfsson, E. &. (2008). Beyond computation: Information technology, organizational transformation, and business performance. *Journal of Economic Perspectives*, 14(4).
- Buyya, R. Y. (2009). Cloud computing and emerging IT platforms: Vision, hype, and reality for delivering computing as the 5th utility. *Future Generation computer systems*, 25(6), 599-616.
- Cegarra-Leiva, D. S.-V.-N. (2012). Understanding the link between work-life balance practices and organisational outcomes in SMEs: The mediating effect of a supportive culture. *Personnel Review*, 41(3).
- Ceylan, H. (2016). Stratejik İnsan Kaynakları Yönetiminin Çalışanların Verimliliği Üzerindeki Etkisi İspark A.Ş. Örneği. *Anadolu Bil Meslek Yüksekokulu Dergisi* 43, 10-15.
- Chapman, D. S. (2003). The use of technologies in the recruiting, screening, and selection processes for job candidates. *International journal of selection and assessment*, 11(2-3), 113-120.
- Cingöz, A. (2011). *SIKY ve SIKY'im Orgütsel performans ve İç Girişimcilik Uzerine Etkileri*. Doctarate Thesis, Erciyes Universitesi, Sosyal Bilimler İşletme Anabilim Dalı, Kayseri.
- Coşkun, F. A. (2018). *Sosyal Medyanın İnsan Kaynakları Seçiminde Kullanımı: Ankara İlinde Bir Uygulama*. Master's Degree Thesis, Ufuk Üniversitesi, İnsan Kaynakları Yönetimi, Ankara.
- Çetin, C. &. (2012). *Temel işletmeciliğe giriş*. İstanbul: Beta Yayınları.
- Davenport, T. H. (2000). *Mission-critical: Realizing the promise of enterprise systems*. Brighton, Massachusetts: Harvard Business Press.
- De Mauro, A. G. (2015). What is big data? A consensual definition and a review of key research topics. *AIP conference proceedings*, 97-104.
- Delery, J. E. (1996). Modes of theorizing in strategic human resource management: Tests of universalistic, contingency, and configurational performance predictions. *Academy of Management Journal*, 39(4).

- Demirkaya, H. A. (2015). Kuşakların yönetim politikası beklentilerinin araştırılması. *İşletme Araştırmaları Dergisi*, 187-199.
- Dumbill, E. (2013). *Making sense of big data*. Mary Ann Liebert, Inc.
- Dülek, M. E. (2018). *Yöneticilerin E-İnsan Kaynakları Yönetimi Uygulamalarından Duyduğu Memnuniyet*. Master's Degree Thesis, Hasan Kalyoncu Üniversitesi, İşletme, Gaziantep.
- Eren, E. (2018). *Stratejik Yönetim ve İşletme Politikası*. İstanbul: Beta Basım Yayım.
- Erhan, E. (2017). İNSAN KAYNAKLARI TEDARİKİNDE SOSYAL MEDYANIN ROLÜ. *Ekonomi, İşletme ve Yönetim Dergisi 1.1*, 53-63.
- Fenwick, T. (2017, September 25). Developing organizational practices of ecological sustainability. *Leadership & Organization Development Journal*, 28(7), 632-645.
- Ferecov, R. (2011). *İnsan Kaynakları Yönetimi Performans Değerlendirmesi ve Uygulamaları*. Bakü: Qafqaz Üniversitesi.
- Foster, I. e. (2008). Cloud computing and grid computing 360-degree compared. *Department of Computer Science, University of Chicago*.
- Ghazzawi, K. P.-K. (2014). *The effect of implementing technology in HRM on the level of employee motivation*. Human Resource Management Research.
- Gibson, J. W. (2009). Generational differences in the workplace: Personal values, behaviors, and popular beliefs. *Journal of Diversity Management (JDM) 4.3*, 1-8.
- Gilley, A. W. (2015). Manager behavior, generation, and influence on work-life balance: An empirical investigation. *Journal of Applied Management and Entrepreneurship*, 20(1), 7-10.
- Gök, S. (2006). *21. Yüzyılda İnsan Kaynakları Yönetimi*. İstanbul: Beta.
- Gravan, T., Morley, M., & Flynn, M. (1997). 360-degree feedback: its role in employee development. *Journal of Management Development*, 16(2), 134-147.
- Hayri Ülgen, S. K. (2018). *İşletmelerde Stratejik Yönetim*. İstanbul: BETA BASIM YAYIM.
- Ismajli, N., Krasniqi, I., & Qosja, E. (2015). Career development and advancement of human resources –how they influence the performance qualities of local government administration. *Issues in Business Management and Economics*, 17-23.
- KAPLAN, B. T. (2018). İş Dünyasında Jenerasyonlar: X, Y ve Z Jenerasyonları Üzerine Kavramsal Bir İnceleme. *Balkan and Near Eastern Journal of Social Sciences 04 (01)*, 25-32.

- Karakanian, M. (1999). Choosing an ERP implementation strategy: the Year 2000. *Practitioner*, 2(7), 1-6.
- Latham, G. (1992). Organizational Dynamics. *Elsevier*, 48, 18-32.
- Lepak, D. P. (1998). Virtual HR: Strategic human resource management in the 21st century. *Human resource management review* 8.3, 215-234.
- Marr, B. (2015). *Big Data: Using SMART, big data, analytics, and metrics to make better decisions and improve performance*. United Kingdom: John Wiley & Sons.
- Marston, S. L. (2011). Cloud computing—The business perspective. *Decision support systems*, 51(1), 176-189.
- Maylett, T. a. (2014). *Magic: Five keys to unlock the power of employee engagement*. Greenleaf Book Group.
- McCarthy, A. C. (2013). Employee work-life balance outcomes in Ireland: a multilevel investigation of supervisory support and perceived organizational support. *The International Journal of Human Resource Management*, 24(6).
- Mell, P. a. (2011). The NIST definition of cloud computing. *The National Institute of standards and technology*, 2-3.
- Monaco, D. (2015). *WorldReUsable: un Sistema low-cost per la consapevolezza energetica*. Bachelor's Degree Thesis, Computer Sciences.
- Motahari-Nezhad, H. R. (2009). Outsourcing business to cloud computing services: Opportunities and challenges. *IEEE Internet Computing*, 10(4), 1-17.
- Ng, E. S. (2010). New generation, great expectations: A field study of the millennial generation. *Journal of business and psychology* 25.2, 281-292.
- Noe, R. A. (2017). *Human resource management: Gaining a competitive advantage*. New York: NY: McGraw-Hill Education.
- Oktal, Ö., Benligiray, S., Taşçı, D., Ceylan, R., & Tosun, H. (2013). Örgütlerdeki İnsan Kaynakları Yönetimi. *Açıköğretim Fakültesi Yayınları*(1803), 128-143.
- ÖZ, M. K. (2015). İNSAN KAYNAKLARI TEDARİKİNDE SOSYAL MEDYANIN ROLÜ ÜZERİNE BİR ARAŞTIRMA. 23. *Ulusal Yönetim ve Organizasyon Kongresi* (pp. 592-597). Muğla: 23. Ulusal Yönetim ve Organizasyon Kongresi, 14-16 Mayıs 2015, MUĞLA.
- ÖZELTÜRKAY, E. Y. (2015). Y KUŞAĞI TÜKETİCİLERİNİN HEDİYE VERME GÜDÜLERİ ile GELENEKSEL ve DİJİTAL MEDYADAKİ REKLAMLARDAN ETKİLENMELERİ ARASINDAKİ İLİŞKİ. *Akademik Sosyal Araştırmalar Dergisi*, Yıl: 3, Sayı: 21,, 275-290.

- Parry, E. a. (2011). Desired goals and actual outcomes of e-HRM. *Human Resource Management Journal*, 335-354.
- Parry, E. a. (2011). *Desired goals and actual outcomes of e-HRM*. Human Resource Management Journal.
- Pontiggia, A. (2016). *International Human Resource Management and Organization*. McGraw-Hill Education.
- Powell, A. (2008). WiFi publics: producing community and technology. *Information, Communication & Society*, 11(8).
- Quinn, R. W. (2006). The development of strategic human resource professionals at BAE systems. *Human Resource Management: Published in Cooperation with the School of Business Administration, The University of Michigan and in alliance with the Society of Human Resources Management*, 45(3), 477-494.
- Rajagopal, P. (2002). An innovation—diffusion view of the implementation of enterprise resource planning (ERP) systems and development of a research model. *Information & Management*, 40(2), 87-114.
- Ruël, H. T. (2004). *E-HRM: Innovation or irritation. An explorative empirical study in five large companies on web-based HRM*. Management of Revenue.
- Sabuncuoğlu, Z. (2000). *İnsan Kaynakları Yönetimi*. Ezgi.
- Sağiroğlu, Ş., & Sinanç, D. (2013, July 25). Big Data: A Review. *International Conference on Collaboration Technologies and Systems (CTS)*.
- Schaeffer, D. M. (2014). Big data options for small and medium enterprises. *Review of Business Information Systems (RBIs)*, 18(1), 41-46.
- Schwartz, S. H. (1999). A Theory of Cultural Values and Some Implications of Work. *Applied Psychology: An International Review*, 48(1), 23-47.
- Sriram, I. &.-H. (2010). Research agenda in cloud technologies. *arxiv preprint*.
- Stanton, J. M. (2004). Turbulent waters: The intersection of information technology and human resources. *Human Resource Management*, 43.2-3, 121-126.
- ŞAHİN, Ş. (2014). BİLİŞİM SİSTEMLERİ UYGULAMALARININ İŞLETME PERFORMANSINA ETKİLERİ. *Dicle Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi* 2.6, 43-56.
- Turgut, H. (2001). Geleneksel Performans Değerleme Yöntemlerine Yeni Bir Alternatif : 360 Derece Performans Değerleme Yöntemi. *Sayıştay Dergisi*(42), 56-68.
- Ulrich, D. (1996). Human resource champions. *Human Resource Development Quarterly*, 8(2), 281.

- Uyargil, C. (2008). *İşletmelerde Performans Yönetimi Sistemi*. Arıkan Basın Yayın Dağıtım.
- Van Heerden, J. M. (2012). The impact of the implementation of e-HRM on the human resource function. *6th International Business Conference*. Mombassa, Kenya: Business Schools Partners Network.
- Velte, A. T. (2010). *Cloud computing: a practical approach*. New York: McGraw-Hill.
- Vural, Z. &. (2010). YENİ BİR İLETİŞİM ORTAMI OLARAK SOSYAL MEDYA: EGE ÜNİVERSİTESİ İLETİŞİM FAKÜLTESİNE YÖNELİK BİR ARAŞTIRMA. *Journal of Yasar University*, 5(20), 3349-3355.
- Walker, A. J. (2001). *Web-based human resources*. New York: McGraw-Hill Professional.
- Walsh, J. P. (1991). Organizational memory. *Academy of management review* 16.1, 57-91.
- Winters, M. P. (1995). *Human Resource*. Istanbul: Rota.
- Wiśniewska-Mikosik, J. (2015). Organizational culture as a variable that determines effective cross-cultural management. *Journal of Intercultural Management*, 143-155.
- Zhou, Y. X.-Y. (2012). When Western HRM constructs meet Chinese contexts: validating the pluralistic structures of human resource management systems in China. *The International Journal of Human Resource Management*, 23(19), 3983-4008.
- Zikopoulos, P. &. (2011). *Understanding big data: Analytics for enterprise-class Hadoop and streaming data*. McGraw-Hill Osborne Media.