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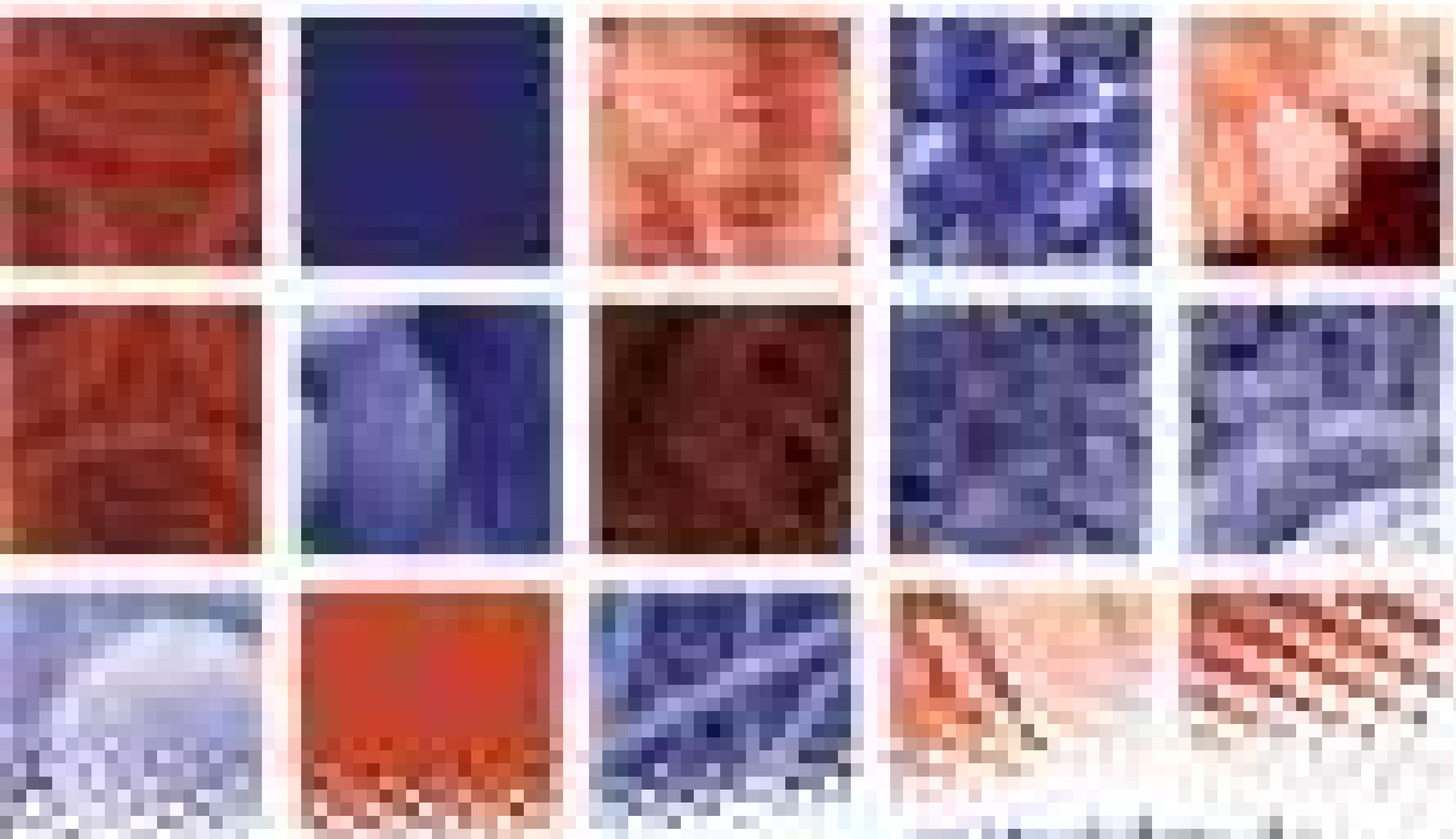

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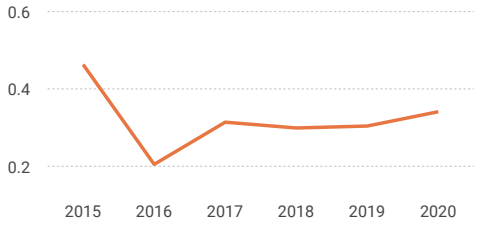

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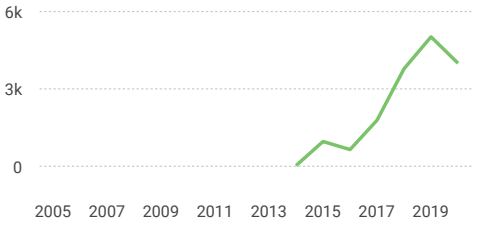

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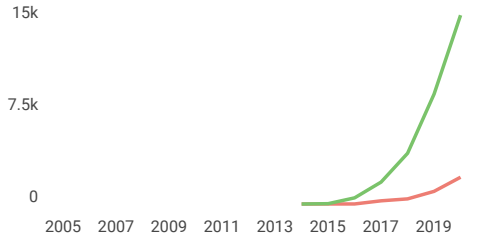

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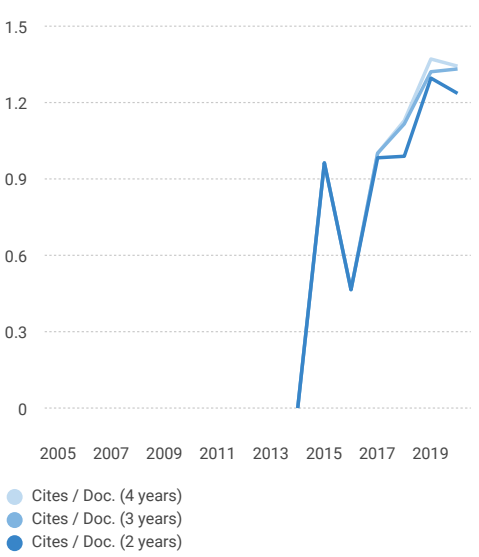

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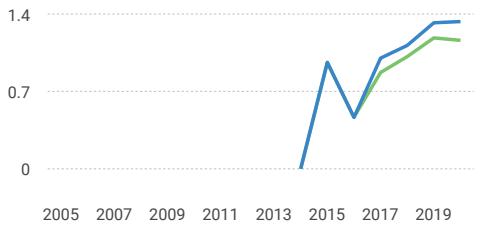

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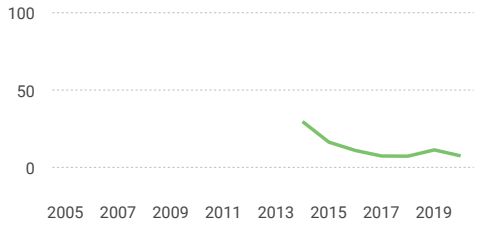

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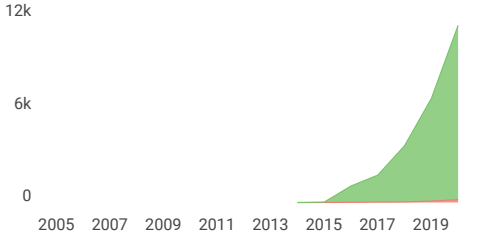

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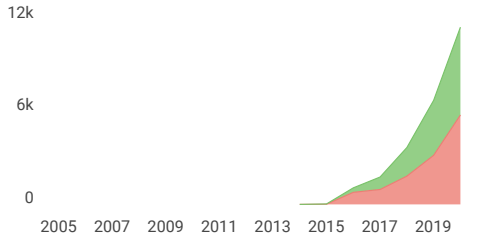

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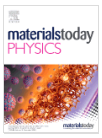

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Impact of Internet of Things (IOT) on Human Resource Management: A review

Zuchri Abdussamad [a], Isaac Tweneboah Agyei [b], Esra Sipahi Döngül [c], Juriko Abdussamad [d], Roop Raj [e], Femmy Effendy [f]

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Abstract

Every organization is now becoming technology-based to manage the operations of the business and there are no choices for HR (Human resource) Leaders instead to adopt the innovation in the HR functions. Requirement, management, and payroll are few processes that require Human Resource Management (HRM). Internet of Things (IoT) is the most fascinating term for media and it attracts lots of organizations for adopting. In the present time, IoT has become an increasingly delightful subject of discussion inside the workplace as well as outside. Technology has a great impact on every area of life along with the various modes of communication gadgets including laptops, tablets, mobile phones, smart phones, etc. The most important thing is to understand the impact of the Internet of Things on Human Resource Management as people spend most of their time in the workplace, on smart phones, tablets, etc connected to the internet.

The IoT has a positive impact on Human Resource Management and now job seekers move

to mobile phones rather than searching in newspaper articles. The present way of running a business and organization is helpful to understand the impact of IoT on HRM. Industry 4.0 is related to the value creation process and industries, it is the digital transformation of industries production and manufacturing. Big data, IoT, and social components such as an attractive workplace are produced through Industry 4.0 as the production of services and goods with technical support. The working function of HR is changed with the involvement of the IoT in organizations and businesses and the process of managing the organization.

Keywords

Internet of Things (IoT); Technology; Workplace; Human Resource Management (HRM); Industry 4.0

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ABSTRACT

Every organization is now becoming technology-based to manage the operations of the business and there are no choices for HR (Human resource) Leaders instead to adopt the innovation in the HR functions. Requirement, management, and payroll are few processes that require Human Resource Management (HRM). Internet of Things (IoT) is the most fascinating term for media and it attracts lots of organizations for adopting. In the present time, IoT has become an increasingly delightful subject of discussion inside the workplace as well as outside. Technology has a great impact on every area of life along with the various modes of communication gadgets including laptops, tablets, mobile phones, smart phones, etc. The most important thing is to understand the impact of the Internet of Things on Human Resource Management as people spend most of their time in the workplace, on smart phones, tablets, etc connected to the internet.

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1. Introduction

1.1. Background of the study

Internet of things (IoT) is now becoming an extremely attractive word among all people connected with technology like organizations and customers. Technology plays an important role in changing human beings' lives and has a great impact on the workplace as well. IoT is the most intriguing thought which gathers the attention of the media. IoT is not the thing that just changes human lives at home; however, it completely modifies the human resource management and workplace of the organization. The study deals with the impact of the Internet of Things (IoT) on Human Resource Management (HRM) with different aspects and viewpoints.

The study consists of various aspects regarding IoT and HRM including a literature review that describes IoT along with HR development, detailed adaptive technologies for organizations, digital human resource management, and the process of HR, IoT data and data analysis, and usefulness of data. The used material and methods are also highlighted in the study the data type used for the study is a secondary data type. The objective of the study is fulfilled through applying positivism research philosophy. The

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function of HR and application of IoT, management for in-house and outsourcing, and risk compliance and regulatory framework are described as the result of the study. Fig. 1.

1.2. Objective of the study

The objectives of the study are as follow:

- To determine the impact of the Internet of Things (IoT) on Human Resource Management (HRM)
- To determine the relationship between the Internet of Things (IoT) and Human Resource Management (HRM)
- To examine the functions of Human Resource (HR) on the application of Internet of Things (IoT)
- To examine the results of compliance risks and regulatory framework
- To establish a comparison between in-house and outsourcing management for Human Resource Department.
- To determine the Smart Human Resource Competencies in Industry 4.0 and Human Resource Management in Industry 4.0

1.3. Significance of the study

The Interworking of physical devices, buildings, vehicles, and other devices is referred to as smart devices or connected devices and in other words Internet of Things (IoT). IoT is embedded with software, sensors, network, and actuators that are capable of collecting these things and interchange the data. Technology is developing very fast and people are adapting daily whether in-home or organization. The study helps scholars and researchers to understand the impact of the Internet of Things (IoT) on Human Resource Management (HRM). The research gap of the previous work is fulfilled in the study including the description of functions of Human Resource and detailed information about the application of Internet of Things on Workplace. [11]

The prime objective of the study is to determine the link between the Internet of things and Human Resource Management. Scholars and researchers get help through the study for further study related to IoT and HRM. The study will help students to understand the smart competencies in Industry 4.0 and provide detailed information related to the application of IoT and its result on functions of Human resources. Difference between the in-house and outsourcing for Human Resource Management is well highlighted in the study to understand which one is better and why.

2. Literature review

2.1. Human Resource development and the Internet of Things

The use of web things into the scholarly community and industry is yet in its early stage and can be considered as post advancement of the fourth modern upset or Industry in brief. The IoTs are required in association overall and HRM specifically to oversee effectiveness, security, objectivity without inclination and straightforwardness. Consequently, investigations have been carried out to determine the noteworthiness of the innovation and its application in future. Be that as it may as it were, a constrained investigation has concerned itself with the HRM domain and the application of IOT [9]. Prior considers related human assets to data innovation per se instead of IOT for obvious reasons of innovation nascence. The direct relationship of application of data innovation to human assets and innovation resources to improve firm execution. A com-

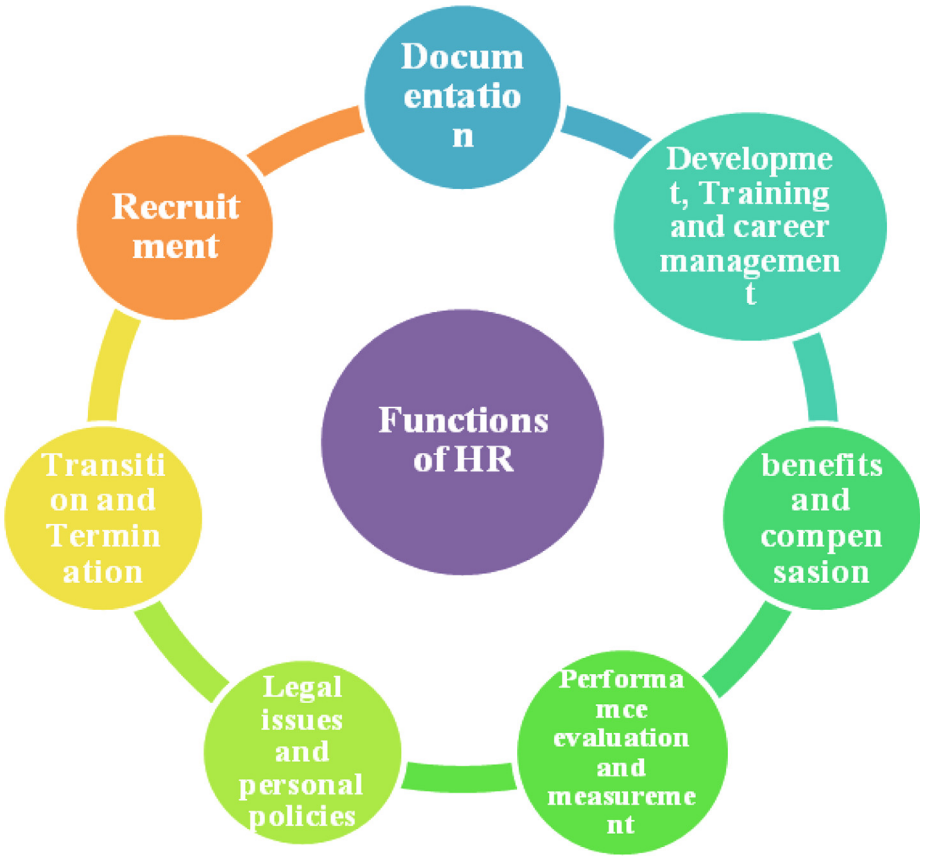


Fig. 1. Representation of HR Functions. (Source: Shet, Sateesh V., et al. 2021) [4]

prehensive demonstration for information innovation for measuring key organizational factors. A fusion outline of data innovation and administration distinction counting human resource management. The studies investigating linkage among HRM and IOT worried about the future prospects of change in workplace because of mechanized work environments, particularly if work updating was required themselves with keen things that HR data framework would require e.g. revealing time and plan, capability hole, break using time productively, staffing and so forth.

2.2. Bringing adaptive technology in organizations

Duality of innovation portrays innovation as expecting underlying properties while being the result of human activity. Accordingly, innovation is made by entertainers in a social setting, and socially built by entertainers by joining various implications to it, and consequently, innovation results from the continuous connection of human decisions and institutional settings clarifies that past research concentrates in the area of innovation and associations have zeroed in on the perspectives that innovation is either an even handed, outside power that deterministically affects authoritative properties, for example, structure or that human activity is a part of innovation whereby innovation is a result of vital decision and social activity [4].

2.3. Digital Human Resource Management (HRM)

To urge a more profound understanding of what advanced HRM is, it is fundamental to characterize the meaning of HRM. Concurring to the finest HRM hones regions are recruitment and determination, socialization, work plan, preparation and development, support, career development, performance examination, worker compensation and work security. Relationship between employee and organisation is maintained properly with the involvement of Human Resource Management. With the help of few resources, it is noticed that development of the organization is maintained properly with the help of Human Resource Management processes. Evolution of Human Resource Management is maintained properly with the help of high-performing information technology. Digital technologies are used increasingly to maintain transformation of HRM towards attracting recruitment process. All HRM works are technologically, managed with the help of Digital HRM system.

All the more explicitly, HR rehearses for an unpredictable workplace cover staffing movement to look for and employ substantial staff for the ideal job. Then, at that point, HR rehearses including preparing exercises to get ready specialists for their work position and team up innovations and practices to support faculty's superior, for example, execution evaluation framework and information the board and prize frameworks. HRM is additionally responsible for making a changing society and great conditions for the reception. That contributes to lessening stay away from protection from change and low inspiration of labourers that need to utilize advances [12].

2.4. Flexibility, cost effectiveness, cloud computing and talent acquisition

Deftness and adaptability are the genuine benefits of distributed computing through IOT. Associations at their will can undoubtedly increase and scale down the assets necessities on the cloud dependent on their business utilization and development. Functional deftness is the most favoured cloud advantage which associations are betting on. Heaps of desk work in HR is disposed of with the utilization and portability segment added. There is consistently moment admittance to the data notwithstanding of being away from the area. Table 1

The key differentiator of cloud computing technology is its fetched adequacy. Not at all like numerous other software upgrades and bundles which are accessible in the market requiring a parcel of assets and infrastructure for their execution, cloud computing may be a guardian angel. It does not come at the cost of higher fetch and resources and hence littler organizations can too compete with greater organizations in terms of superior employee management, enlistment and maintenance methodologies [14].

The greatest advantage of computing technologies on IOT is that organizations require not to contribute in buying unused computer programs for their preparation or maybe they can utilize the shared assets on the cloud on persistent premise and can pay as it are the usage fee. The ease in sharing and actualizing the required software makes a difference for the HR to oversee their preparation like payroll management, enrolment, ability administration and so on effectively. The cost for utilizing this cloud-based software is much less than the conventional program bundles. Even small to medium measure organizations can procure the benefits of cloud computing and can remain upgraded with the technology management, enrolment, and maintenance methodologies [1].

The greatest advantage of cloud computing collaboration with IOT is that organizations require not contributing in buying modern computer programs for their use or maybe they can utilize the shared assets on the cloud on persistent premise and can pay as it were the usage fee. The ease in sharing and executing the required software makes a difference for the HR to oversee their handling like payroll management, enrolment, and ability administration and so on effectively. The toll taken for utilizing this cloud-based software is much less than the conventional computer program bundles. Even small to medium estimate organizations can procure the benefits of cloud computing and can remain upgraded with the innovation [5].

Cloud computing in collaboration with IOT can yield numerous benefits for HR professionals. IOT can offer assistance in sharing a gigantic sum of information related to employees and their related forms coming about to provoke decision making, sharing suppositions, encounters and making the working environment more adaptable and push free.

A cloud-based enlistment prepare can emphatically eliminate the pitfalls of conventional recruitments procedures. Choices dependent on the insight, bias, poor data and miscommunication can be totally supplanted by coordinating the innovation part into dynamic. Utilization of calculations (profiling of job applicants), and information explanatory measurements like fetched per hire, time to fill, inside contracting proportion, offer acknowledgment proportion and many other can bridge the crevice by killing the missing links within the ability procurement prepare [6].

2.5. Human Resource process

The Human Asset Administration handle is based on people. Without the arrangement of individuals, the forms cannot be seen. In the current days almost all the forms are robotized with the digitalization. Hence, all the exercises can be drained in an accurate way with a restricted time period. The Human Resource management handle incorporates the exercises like selection, Training, surveying execution, inspiration, compensation and other exercises which would bolster the Organization's growth. The Human Asset Administration handle classifies into top level, middle level and low level management. In top level management, Beat level directors are mindful of the by and large management of the Organization and they set up Organizational goals and arrangements. They ought to have more conceptual skills because they have to be and analyze complex circumstances [5] In middle level management, they are basically capable of actualizing arrangements which

Table 1
Representation of Mean and Standard deviation of HR functions.

Functions of HR	Weighted Mean	Weighted SD	Un-Weighted Mean	Un-Weighted SD
Selection and Requirement	3.01	1.01	3.00	1.0
Performance Management	3.00	0.75	2.85	0.85
Development and Training	3.35	0.78	3.41	0.91
Compensation Management	3.00	0.85	2.86	0.85
Information and analysis of HR	3.51	0.75	3.26	0.75

(Source: MOHANTY, Sasmita, and Padma Charan MISHRA) [10].

were set by the best management. They ought to have more interpersonal abilities since they want to work with individuals and persuade individuals. And in low level management, moo level directors work with the specialists in the organization. They are the individuals who are mindful of daily routine and operations within the Organization. These managers should have more specialized aptitudes since they need to apply specialized information or ability in every day operations in the organization [4].

2.6. IoT as the technological context of HRM

As the canter alters within the mechanical setting, the major characteristics of the IOT are briefly explained as follows. The IOT refers to the capacity to associate physical objects ('things') to the Internet. Since any physical question can be associated to the Web, there's a heterogeneous wealth of connectable things – such as cars, shades, pacemakers, flying machine turbines or affect torques – that's beyond any enumeration. The coming about functionalities of things associated to the Web alludes to the three interrelated specialized capacities of detecting, inciting and association [9].

The consequences of the investigation uncover the use of the IOT in HRM to be seen as a possible improvement. The outcomes additionally uncover different results of the IoT in HRM. The normal reception of the IoT in HRM will initially change HR innovations, i.e., the equipment, programming and information of HRM. Second, the progressions additionally include bigger adjustments of HR exercises. In any case, these exercises are influenced in various powers. Third, the use of the IoT is additionally expected to recognizably change undertakings and capabilities of HR entertainers. In rundown, the current investigation demonstrates that savvy HRM will comprise both a conceivable and applicable future advancement that needs further thought [2].

2.7. Data analytics and its usefulness

Data analytics allude to the utilization of the information driven method for the administration of individuals at the work environment. The people are being educated regarding the practices, the projects, just as the cycles. The insightful methodologies range from the announcing just as measurements to the prescient investigation of the test research. The heads of the business are fit for settling on the choices concerning individuals relying upon the inside and out examination of the information rather than the conventional strategies utilized for the individual connections, settling on the choices, and the danger aversion. Individual investigation by data driven method is helpful in the present business climate in that it helps with inspecting the viability of individuals' practices, the cycles, and surprisingly the projects [7]. It likewise helps with understanding the manner by which the information on the social and the information sciences might be of help in settling on educated and surprisingly target choices concerning individuals.

They additionally help with uncovering the new sights, tackling the issues of people; just as coordinating the activities of the HR. Individuals' examinations are utilized as the fundamental square, which cautions every one of the things that individuals are doing. The customary strategy is occupied with the consistent discussion when confronted with the difficult issues concerning individuals or fundamental choices about individuals dependent on the feelings, accounts, and teach. Consequently, the scientific strategy will fuse current realities and science, which will bring about more effective and reasonable arrangements along with the choices [8].

2.8. Big data and IOT on smart HRM

The Internet of Things ('IoT') alludes to the capacity to put through physical objects ('things') to the Internet, and this association empowers things to act independently in a context-adequate way and in this way to ended up 'smart'. The IOT shapes a worldwide computerized apprehensive arrangement of different gadgets and the sensors, which is competent in connecting diverse gadgets with one another and with individuals. It impacts the administration of the human asset in that it assimilates the HRM huge information. Hence, it gives the HRM the techniques that they can utilize to maximize the nimbleness, which includes the rights of composing the workforce. In this way, it offers the ideal adjustment of the advanced basic abilities, such as the collaboration, the nimbleness, the organizational advancement, the cognitive adaptability, and indeed the imagination. It moreover teaches as well as plans the organization to retain the enormous information from the IoT. In that case, it'll create an exceptional sum of information, which is related to the people and the way in which they perform in different ways [10].

3. Materials and methods

3.1. Materials

The study is intended to analyze the impact of IoT (Internet of Things) on HRM (Human Resource Management) and the required material for the study is the study of HR functions, Industry 4.0, and HRM of an organization. The major findings of the study are Smart HR compliance and reveal the role of HR professionals as strategic business partners and talent managers is essential compliance of HR in creative innovators. Industry 4.0 and mitigate that associated challenge are provided through its advantages and opportunities [2].

3.2. Research methodology

Research methodology can help to maintain basic aspects of the research. growth and development of the study depends on efficiency of research methodology research methodology is conducted with the involvement of few effective components such as research philosophy, research approach, research design, data collection and data analysis processes. On the other hand, research methodology is consist of ethical consideration that can maintain ethics of this study. Source and nature of the study is maintained with the help of research philosophy. Belief of researcher is increased with the involvement of research philosophy. Research

philosophy is classified into four categories such as positivism, interpretivism, realism and pragmatism. This study is conducted with the involvement of positivism research philosophy. Purpose of the research is maintained with the help of positivism research philosophy. Stability of the study is improved with the help of positivism research philosophy.

Development of the study is maintained properly with the help of research philosophy. Research approach is also treated as an effective component of research methodology that can maintain hypothesis of the study. Research approach is classified into two categories such as inductive research approach and deductive research approach. Plan and procedure of the study are maintained. This study is conducted with the involvement of deductive research approach. Mixed type of data is also clarified with the help of deductive research approach. On the other hand, 2 types of data analysis processes are used in research such as primary and secondary. Primary data is collected from fresh sources such as focused group, interview, survey and observation. Secondary data is collected from secondary sources such as published journal, article, government report and media.

Research design provides a selected framework of research methods and techniques. Descriptive research design is applied in the study as the study requires secondary data types to be collected and analysed. Descriptive Research Design is used while we access data from existing research and experiments. Data are of two type's primary and secondary data and in this study secondary data is used. Secondary data are the data that are obtained or collected through published journals, books, websites, etc [3]. The data of the study is collected and analysed to answer the research question, fulfil the objective, and provide a quality summary.

4. Result and discussion

4.1. HR Function's results on IoT application

Internet of Things (IoT) made companies capable of connecting, monitoring, tracking, analyzing, and evaluating machines and humans in a digital structure. IoT helps companies to deal with both personal and organizational gadgets of the employee and the organization to seek jobs and to connect the population through driven applications. The facilities provided by the IoT to the companies are effective dealing of human resource (HR), planning of HR, compensation, and recruitment, employee management data, security measures, HR interview data, etc. The study considered 5 functions of HR that contribute basic functions of HR to the companies and are related to the objective of the organization. The functions of HR are recruitment and selection process of HR, HR development and training, Compensation management of HR, HR performance management, and lastly HR information and analytics. The questionnaire consists of questions related to these functions of HR and each segment is represented through these question sets. The list of questions rather than being an inadequate set of HR functions provides measurement to the IoT on functions of HR [14].

The above table represents the mean and standard deviation of the functions of HR; functions of HR are selection and requirement of HR, Performance Management, Development and Training, Compensation Management, and Information and Analysis of HR. The informatics of HR or analytics is subject to change with automation and HR activities that undergo systematic changes with the impact of IoT. The mean and standard deviation of HR functions is represented for weighted and un-weighted divisions [13].

The above figure represents the functions of HR and IoT application to the functions of HR. Online job seekers are now highly dependent on the technology of mobile and mobile applications to access information as well as jobs and companies. Fast deliverance of recruitment procedure and process, as a result, identify fast skills set, procedure selection, etc. However, the organization also creates applications that manage employees including coaching, training, evaluation, performance appraisal apps that have prime criteria to evaluate conveniently and efficiently performed. The Internet of Things (IoT) whole ecosystem in effect makes systems obsolete manually.

4.2. Compliance risk and regulatory framework

The compliance risks and fraud are well versed with the success of workers for the Human Resources that leans completely and ill behaviour of repercussions for finding more followers. The items under each segment of HR functions while collecting secondary data had questions that dealt with compliance problems and inherent risks in the case of IoT adoption. The important thing to understand risk and making precautions that protect the organization is majorly experts that have noted that monitors and evaluates. The study shows that IoT aids could help ward off the threat of extinction for the reputation, maintenance, and existence of the company. Sensor data can provide socio-metric measurement on the social behaviour of employees and it may be dangerous after falling into the wrong hands. HR must consider for which important issue is to be installed and solution of the problems is taken out before installing connective watches and employees ID badges. Socio-metric qualification of employees is also similar to compartmentalize employees, creativity and uniqueness vanished [6].

4.3. In-house management or outsourcing management

Outsourcing and in-house management result smartly to make HR diverse. The most important task for Human Resource Management is to ensure compliance along with managing performance. Therefore HR management could either develop regulations for outsourcing and in-house to other agencies. The sources of data collection describe that compliance of employees could result in saving time and energy of the employee who is performing regular jobs. Experts mentioned that while there are outsourcing, the most important thing is to involve employees from time to time and their opinions must be asked for the same. Therefore a perfect balance in outsourcing of company and HR department could help in providing work hand to hand to save time and money. Outsourcing has certain parts like regulation compliance that expert in more companies. Administrative hazards could result in reducing the compliance of strategic HR [1].

4.4. Smart HR competencies in Industry 4.0

Competencies required in Industry 4.0 consist of technical, social, and managerial in broadest terms. The technical competencies for HR require knowledge, abilities, and skills that are essential for performing specific work. The HR competencies in Industry 4.0 provide an overview and helps in identifying the domains of fundamental competencies which is a strategic positioned and referred to interpret external trends ability. Strategic partners, change agents, and creative innovators are the basic aspects that combine to form HR competencies. The core component of the HR competencies is participants which include Strategic leaderships and help to understand the well-read trends. Business partnering engages the strategic leaders in the entire organization systematically to differentiate parts and facts of interaction [4].

A phenomenon in Industry 4.0 that is based on people and making profits with advantages of competition, organizations need to

change their approach according to the change in the environment. The role of Human Resource Management is to perform, namely human capital developer, functional expert, employee advocate, leader, and strategic partner. The essential role is to develop human capital that entails the HRM and development of employees to meet future requirements of an organization. Managerial competencies in Industry 4.0 refer to the abilities and skills of the employees for decision making and solving problems whereas social competencies refer to the maintenance of interpersonal relationships among the employees in an organization along with communication skills. HR competencies along with total reward stewards, compliance, and analytics manager are also important.

4.5. Discussion

The above table represents the ratio variable for the invited experts and usable return for the HR practitioner expert and HR Research Expert for HR technology and HR Management expert. The mean, standard deviations for the function of HR are properly calculated. The Agreement Rates (AR) and Disagreement Rates (DAR) are interpreted to simplify the calculation. The AR and DAR both combine to check whether the study shows agreement or disagreement. The agreement requires AR greater than 0.5 and DAR less than 0.2 meanwhile disagreements require AR to be less than 0.2 and DAR more than 0.5 and for polarization AR must be less than 0.30 and DAR is greater than 0.30 for each item. The study accepted the dissensus for making it interesting and to provide accurate results [2].

The objective of the study is fulfilled in the research findings as the study is projected at an initial exploration of further application and effects of the Internet of Things (IoT) in Human Resource Management. The application of IoT in HRM and for the realization of Smart HRM is applied to future development. Human Resource Management requires HR technologies and HR Management initially and necessarily to refer to technologies that adopt smart things and hardware and software will be changed through the sensors of HRM. The application of the IoT is expected to identify the modification that occurs in the work and qualification of HRs. Although the results offer initial attractive insights, smart HRM is indicated for further development.

Automation and mechanization have been in practice since the early '30 s. Similarly, the Internet of Things could throw employees out of the job and build large anomalies in an organization's workplace. New technologies with the emergence of innovation are essential to identify the disadvantages of the technologies implemented and aware HR department regarding this to achieve quality transition in the new sharing information era. The key performance indicator is best to justify whether the in-house solution is better or the outsourcing for an organization. The parameters that could be implemented to justify the performance are the transition of workflow and streamlined workflow. Compliance with organization or company policies and industry is important for the IoT in the Human Resources and that later subject to the reporting procedure, auditing, and fines of other compliances. The regulation compliance for outsourcing is required and employees are kept in the loops to solve complex issues and to maintain compliance [1].

Graphical comparative

4.6. Graphical comparative analysis

From the Fig. 2, it can be seen that IoT platforms are widely accepted by the discrete manufacturing, industries, transportation and logistics and utilities. Graph shows that human resource management of the discrete manufacturing, utilities and health care sectors are growing at a compounded annual growth between 8 and 15 %. HRM of industrial products lead all the industries to adopt IoT at 45%. HRM of the company has realised that IoT has potential to reduce costs in the business models and can enhance the growth of the business models. IoT can be referred to as one of the most effective emerging markets and became most popular in the global markets. From the Fig. 4 it is clear that operating profit, total delay time and number of incidents can be introduced through the IoT technology. Technology ID is represented by the horizontal axis and it is shown in Table 2.

Standard deviation has been shown through the error bar. Baseline performance of the IoT has been introduced by ID 0. Fig. 3 shows that ID 6 is best as its main focus is on reducing the number of incidents. Load control systems can reduce the number of incidents. Failures of multiple locations can be easily reduced by the

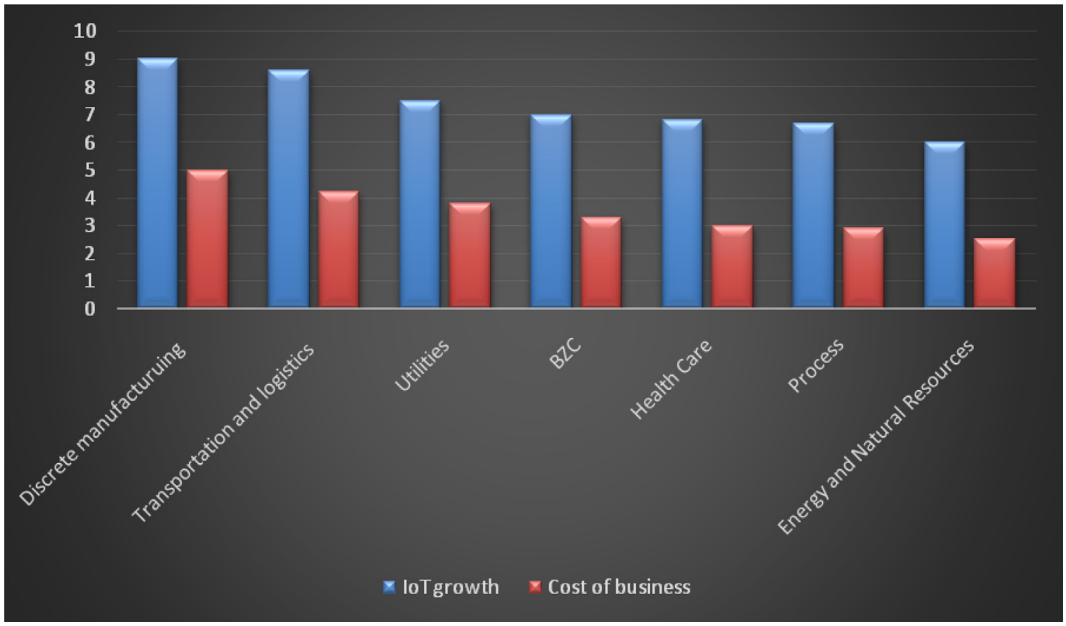


Fig. 2. Growth of IoT in various field of HRM.

Table 2
Representation of invited experts/ usable return.

Serial No.	Participant	HR Technology expert	HR Management Expert	Total
1	HR practitioner expert	10/10	10/08	20/18
2	HR Researcher Expert	10/07	10/10	20/17
3	Total	20/17	20/18	40/35

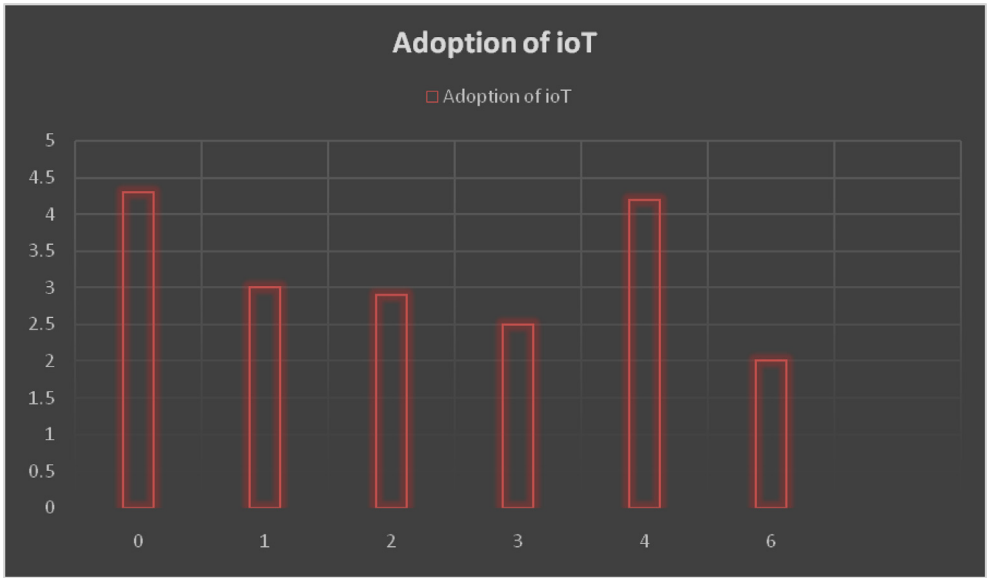
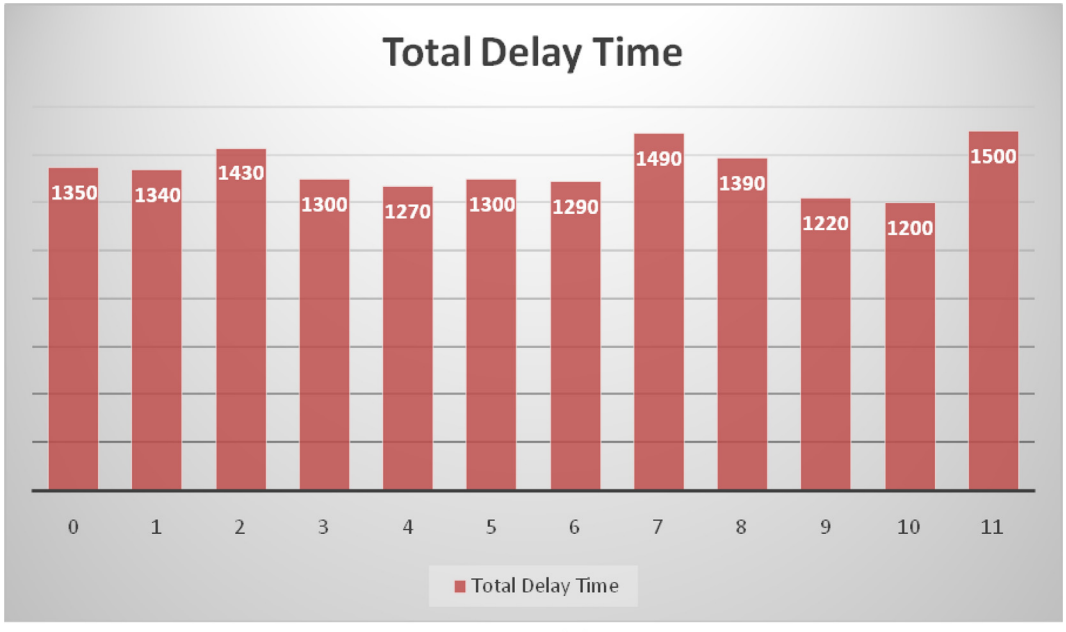


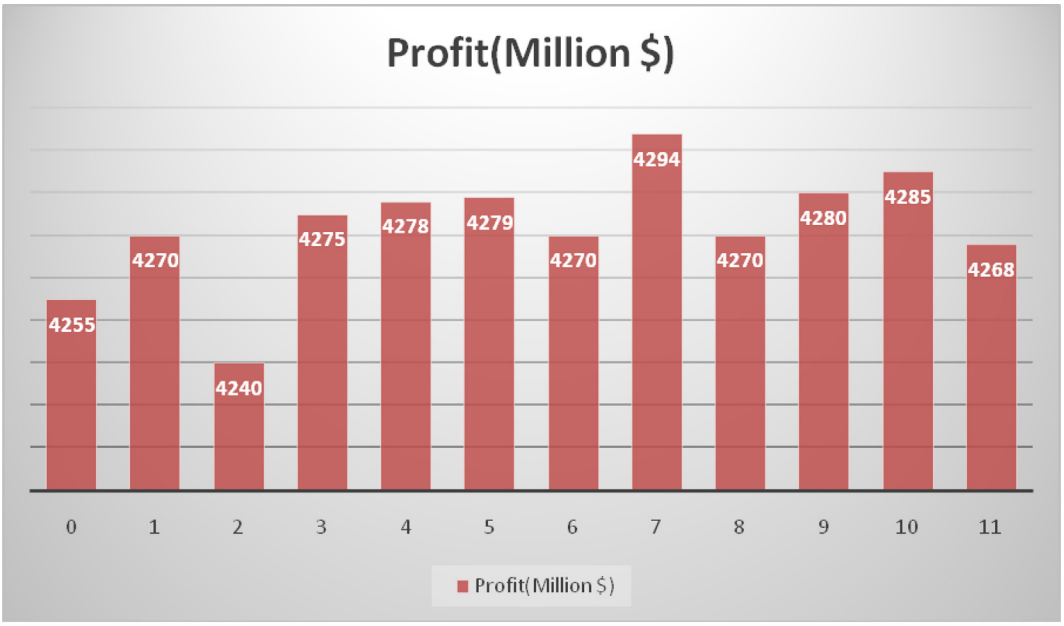
Fig. 3. No of cases of adoption of IoT by the company.

technology. Hull fatigue and marine equipment level can be reduced through implementing IoT. Fig. 2 shows the evaluation result of profit by the combination of technologies. Non-dimensional values are shown through the vertical direction. Interaction between some of the technologies has been shown through the Fig. 5. In Fig. 6 hull weight can be reduced by controlling loads. Construction costs are reduced by ID 11 by making the production more efficient.

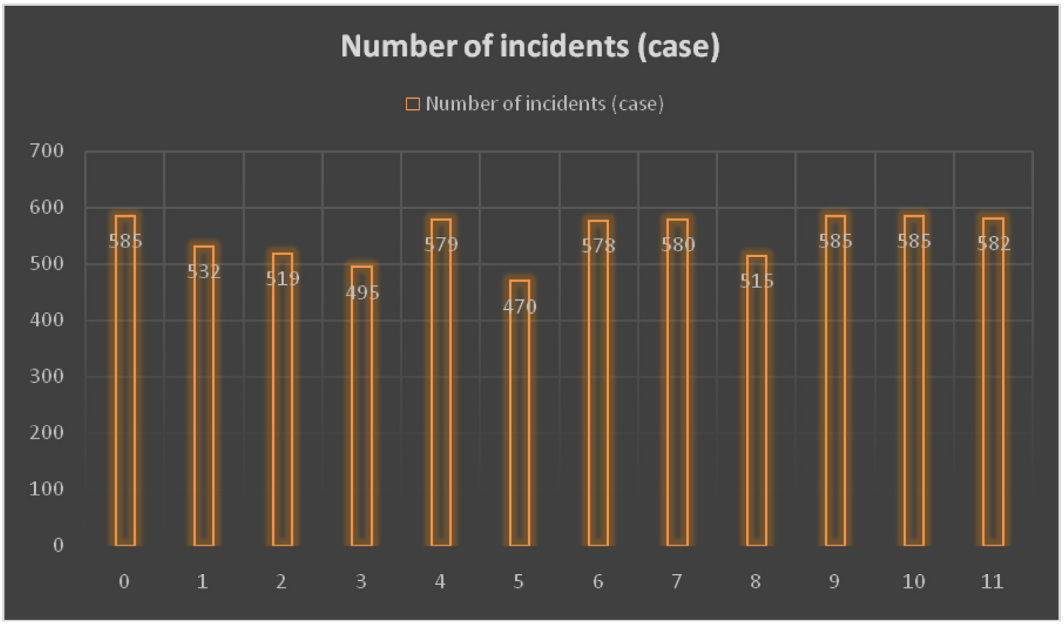


(a)

Fig. 4. Evaluation result of individual introduction of each IoT technology. (Source: Shet, Sateesh V., et al. 2021) [6]



(b)



(c)

Fig. 4 (*continued*)

5. Conclusion

The study concluded that the Internet of Things is now becoming a new trend in the technical field and emerges as the market trend and technical advancement. Internet of Things (IoT) consists of computer concepts, networks, and even sensors that help in monitoring and controlling different devices. The Study shows that the IoT has a great impact on Human Resource Management positively and that results in making the workplace of the organization better. A complicated and evolving series of social and technological developments are involved in the IoT which further considers the diverse set of policies of stakeholders of any organization [15].

IoT highly impacts the HRM and makes it better and provides various applications to make the workplace of an organization better.

The function of HR helps in understanding the depth of Human Resource Management. Risk compliance and regulatory framework help in solving the problems and inherent risks in the case of IoT adoption. Outsourcing management is far better than in-house management for the HRM of the organization. Industry 4.0 is the new revolution in the technology industry and helps in insights the role of HR professionals and smart HR competencies for Industry 4.0 describe the social, technical, and communication skills and maintenance of interpersonal relationships. Therefore the study

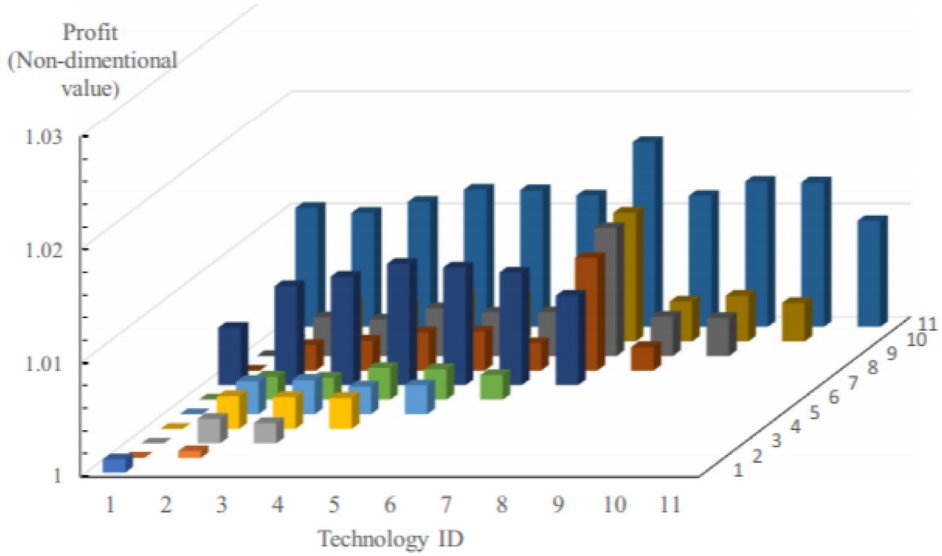


Fig. 5. Evaluation result of profit by combinational introduction of two IoT technologies.(Source: Shet, Sateesh V., et al. 2021) [6]

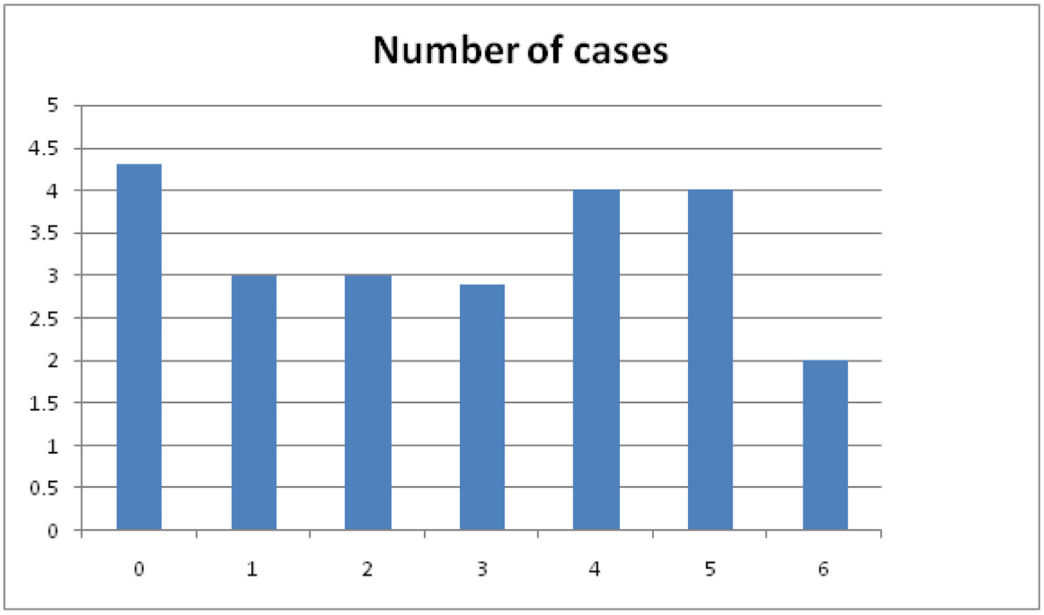


Fig. 6. No of cases of adoption of IoT by the company.

shows in the next few years there must be a chance that changes the working ways of many organizations.

CRediT authorship contribution statement

Zuchri Abdussamad: Investigation, Writing – original draft. **Isaac Tweneboah Agyei:** Conceptualization, Writing – review & editing, Supervision. **Esra Sipahi Döngül:** Formal analysis, Data curation. **Juriko Abdussamad:** Conceptualization. **Roop Raj:** Writing – original draft. **Femmy Effendy:** Conceptualization.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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