Impact of Industry 4.0 on Human Resource Process

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Abstract

This paper is aimed at understanding the impact of industry 4.0 on the Human Resources Management Process by use of specific technologies. Industry 4.0 made HR Processes easy, accurate, and fast. The study focuses mainly on, the efficiency of AI and HR automation based on time consumption and error-free process and how far it is efficient in engaging employees with Data Analytics. In this research, the impact of Industry 4.0 on HR is assessed by getting responses from HR Managers and HR Staff in the organisation. Descriptive research design is used in this project and the Judgmental sampling method is used for samples. Here the impact of these technologies is assessed with respective employee engagement, process automation, and cost-effectiveness.

Keywords: HR Process, Industry 4.0, Green HRM, Artificial Intelligence, Internet of Things

1. Introduction

The Fourth Industrial Revolution (or Industry 4.0) is the continuous computerisation of conventional assembling and modern works, utilising present-day brilliant innovation. The huge scope of machine-to-machine correspondence (M2M) and the web of things

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(IoT) are coordinated for expanded robotisation, further developed correspondence and self-checking, and the creation of shrewd machines that can examine and analyse issues without the requirement for human intercession.

These new advances will affect all disciplines, economies, and enterprises, and even test our thoughts regarding being human. HR pioneers should zero in on recognising the new abilities and capacities expected for the business in the future. The ongoing workers' readiness to adjust and capacity to upskill should be recognised. New ability should be drawn in, held, and coordinated into the business. HR Leaders ought to be ready for reclassifying obtaining and enrollment, coordinating computer-generated simulation in onboarding, eliminating overt repetitiveness in HR, rethinking learning and make it more pertinent to Industry 4.0. Furthermore, the business needs to continue to work and the business should continue to develop. HR ought to create everybody to comprehend the open door and ability to shape the Fourth Industrial Revolution and direct it towards a future that mirrors the association's qualities and achievements.

Agreeing "Territory of HR Technology in India 2019-2020 Report" to Nearly 70% of firms in the nation have robotised half of their HR capacities, including everyday activities like the execution of the board, enlistments, cooperation, and correspondence. Their center goals to robotise these cycles are to build the adequacy of the HR capacities, enable pioneers to oversee work processes, develop execution/execution of HR strategies, and save money on costs being the fundamental purpose for the speculation. While assessing specific advancements for the HR division, 74% of associations search for the capacity to coordinate different capacities in the human asset framework. Just 37% of organisations have an incorporated framework or a typical stage where directors and company pioneers can screen all human asset capacities. 34% of the organizations say that they have various HR advances secured from numerous sellers, working across various capacities inside HR, which are not completely coordinated.

HR the board (HRM) with Information and Communications is profoundly vital for making the HR cycle and practices successful and effective (Heikkila, 2010) future improvements in data and

correspondence innovation (ICT) and its suggestions for a human asset to the executives (HRM). The improvement of innovation shapes various fields of business, and the HR capacities are likewise exceptionally influenced (McCartney, 2011) point is to recognize parts of driving edge HR practice that gives a brief look at "next training" that will shape HR's future. Stage one of the undertaking included interviews with creative HR specialists in Europe, while stage two attracts interviews with pioneers of 27 organisations working across the Asia Pacific locale. Improvement of Artificial knowledge and sending in different fields diminishes the time and paves the way for mechanising the normal assignments (Singh & Doval, 2012) concentrate on how AI will robotise the tedious, dull cycles, upgrade wellbeing, wipe out employing predispositions, and further helping with preparing the recruit. Data Technology became a significant angle in each capacity (Bondarouk & Brewster, 2016) look at the job of data innovation (IT) straightforwardly on one focal part of work in the twenty-first hundred years, its effect on HRM itself. Industry 4.0 on the HR cycle pays all the more method for doing the HRs to work decisively than dreary undertakings (Shamim et al., 2016) examined one of the underlying endeavors to draw the consideration towards the significant job of the executives rehearses in industry 4.0, as a large portion of the new examinations is talking about the mechanical perspective. This paper likewise proposes an exact and quantitative examination of these administration approaches concerning industry 4.0 and (Dotsenko et al., 2017) dissects the essential cycles of human asset. Effect of these advancements on each capacity of business (Seeck & Diehl, 2017) audits the developing assortment of observational on the effect of HRM on development that has been distributed during the beyond 25 years (1990-2015). Our most conclusive tracking down highlights the effect of packaged HRM rehearses, which can be solidly connected to development, and (Uppin, 2017) looks at the view of representatives for HR process mechanisation concerning both people as well as authoritative level. Savvy HR idea is like computerising and remembering AI for HR capacities (Sivathanu & Pillai, 2018) and features the significance of Smart Human Resources 4.0 (Smart HR 4.0) and its job as an impetus in the disturbance cycle in the human asset space. (Di Romualdo et al.,

2018) The motivation behind this paper is to look at the extraordinary effect of advanced innovation on the sorts of administrations presented by HR and how those administrations are conveyed. (Ismail et al., 2019)

The current review gives a commitment to the area of industry 4.0, among the assembling area of SMEs. This paper presumed that the elements like picking the right reason and snapshot of mediations, embracing suitable strategies for examination, cooperative intercessions, and increasing HR as a mark of mediations are appropriately expected to carry out for ideal effect on being brought about by HR investigation in the associations. (Madhvapaty & Rajesh, 2018) means to lay out the requirement for experts and industry to get together on a typical stage to participate in conversations, distinguish developments, and set norms. The development of workers from disorderly to coordinated section is speeding up and thus the expense of overseeing representatives is going to increment complex for Indian associations. Furthermore, (Ms. Anjali T V, 2018) was to figure out what HR examination holds the commitment of both lifting the situation with the HR calling and filling in as a wellspring of upper hand for some associations that have effectively utilised it for an industry that can go quite far to make India achieve greater heights (Wan and Roshidi, 2019). Artificial Intelligence (AI) is an innovation in software engineering which makes machines that can work and respond like people. On the other hand, it can be said that AI can cause machines or PC frameworks to reproduce the human insight processes. Discourse and picture acknowledgment, picking up, arranging and critical thinking are among the exercises carried out by PCs utilizing AI.

This paper plans to investigate how the HR capacity can accomplish how things are moving from "enlightening and analytic" to "prescriptive and prescient." (Dr. Sharma & Sakpal, 2019) This Paper examines how the rapid industrial upheaval and progression in mechanical technology, enormous information, and man-made reasoning will meaningfully affect different elements of an association explicitly on HR. Isari et al., 2019 proposed that HR devolution doesn't involve "go big or go home" yet it requires

various arrangements, which likewise rely upon the idea of the particular HR practice and (Agostini & Filippini, 2019) concentrated on whether and how hierarchical and administrative practices are related to various degrees of reception of Industry 4.0 innovations.

Balasundaram and Venkatagiri (2020), the creators recommend a four-stage approach - approval, appraisal, assessment, and grouping - to investigate processes and check their reasonableness for mechanisation utilising RPA. Human Resources is unavoidable in the development and advancement of the association.

2. Research Gap

In this research, the impact of Industry 4.0 on HR is assessed by getting responses from HR Managers and HR Staff in the organisation. The impact of these technologies on respective employee engagement, process automation, and cost-effectiveness will be assessed.

2.1. Problem Description

The main problem identified in implementing or adapting to the 4.0 technologies in the HR Process is the High-cost factor and High skill factor. If a company needs to implement these technologies, it requires more fund to get these technologies for their business and they need highly skilled people to do so. Training existing employees to make them adopt those technologies will be a cost and time-consuming process. All these technology implementations will remove some job profiles for the company; these people will be pushed to the situation of searching for another job.

Objectives of the study

- ✦ To analyse the impact of industry 4.0 on the HR process Secondary
- ✦ To analyse the effectiveness of Industry 4.0 on the Recruitment and Selection Process.

✦ To analyse the influence of Industry 4.0 on the HR Planning Process.

✦ To Identify whether there is an effect of Industry 4.0 on Payroll Management.

2.2. Scope of the study

In this study, the impact of Industry 4.0 technologies like Artificial Intelligence, Machine Learning, Robotic Process Automation, and Data Analytics will be assessed based on the responses of HR Managers and HR Staff in their organisation. The study focuses mainly on, the efficiency of AI and HR Automation based on time consumption and error-free process. How is it helpful to predict the Attrition and Retention rate using AI & ML? How does it reduce repetitive tasks and paves more way for a strategic role for the HR department and so on.
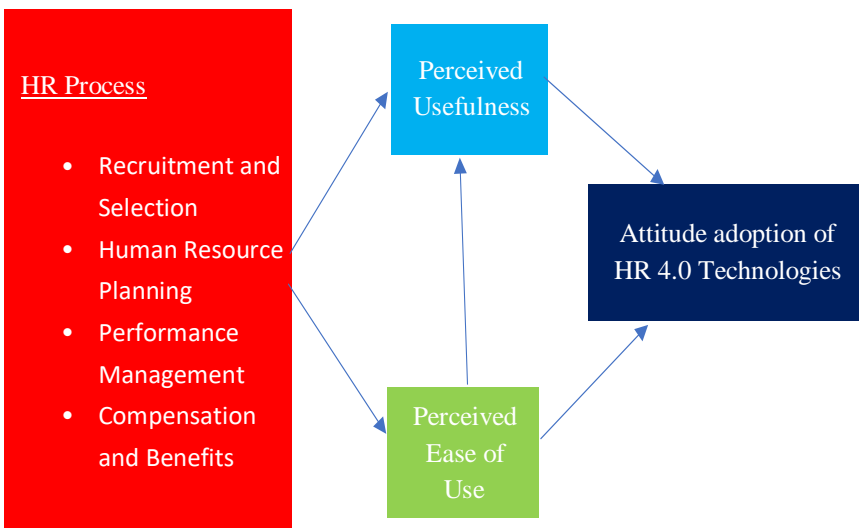
2.3. Research Framework

Fig 4.1 Research Framework using TAM (Technology Acceptance Model)

3. Analysis and Interpretation

3.1. Recruitment and Selection process

Coefficientsa							
	Unstandardised Coefficients		Standardised Coefficients	t	Sig.	Collinearity Statistics	
Model	B	Std. Error	Beta			Tolerance	VIF
(Constant)	1.099	.763		1.440	.157		
Benefits	.074	.096	.106	.773	.444	.867	1.153
Challenges	.307	.130	.306	2.362	.022	.976	1.025
HR Managers Preferences	.287	.127	.308	2.258	.029	.881	1.135
a. Dependent Variable: Recruitment and Selection							

Table 5.1.1(iv) Coefficients - Recruitment and Selection

3.2. Data Interpretation

Here **R Square** value is **0.248.** So, there is **a 24.8%** variation in Recruitment and Selection.

3.2.1. Influence of Industry 4.0 on Recruitment and Selection Process

By looking at the Beta value, it can be found that

- The benefits of those technologies over recruitment and selection create an impact of 0.106.

- Challenges and Lack of Awareness of those technologies over recruitment and selection have an impact of 0.306.

- Positive Attitude of HR managers over these technologies on recruitment and selection processes making the impact of 0.308.

So, it can be interpreted that there is a high lack of awareness of these technologies and their benefits and those who are aware of these technologies have the attitude to use them.

4. HR Planning

Correlations					
		HR Planning	Benefits	Challenges	HR Managers Preferences
Pearson Correlation	HR Planning	1.000	.470	-.037	.494
	Benefits	.470	1.000	.152	.343
	Challenges	-.037	.152	1.000	.085
	HR Managers Preferences	.494	.343	.085	1.000

Coefficients[a]							
	Unstandardised Coefficients		Standardised Coefficients			Collinearity Statistics	
Model	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	.850	.442		1.924	.061		
Benefits	.156	.055	.358	2.825	.007	.867	1.153
Challenges	-.078	.075	-.124	-1.039	.304	.976	1.025
HR Managers Preferences	.224	.074	.382	3.042	.004	.881	1.135
a. Dependent Variable: HR Planning							

Table 5.1.2(v) Coefficients – HR Planning

Here **R Square** value is **0.361.** So, there is **a 36.1%** variation in HR Planning.

4.1. Influence of Industry 4.0 on HR Planning

By looking at the Beta value, it can be found that

- The benefits of those technologies over HR Planning create an impact of 0.055.

- Challenges and Lack of Awareness of those technologies in HR Planning have an impact of 0.075.

- The positive Attitude of HR managers over these technologies in HR Planning made an impact of 0.074.

So, it can be interpreted that there is a high lack of awareness of these technologies and their benefits and those who are aware of these technologies have the attitude to use them.

5. Performance Management

Coefficients[a]							
	Unstandardised Coefficients		Standardised Coefficients			Collinearity Statistics	
Model	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	.647	.484		1.337	.188		
Benefits	.113	.061	.250	1.862	.069	.867	1.153
Challenges	.083	.082	.127	1.003	.321	.976	1.025
HR Managers Preferences	.212	.081	.351	2.629	.012	.881	1.135
a. Dependent Variable: Performance Management							

Table 5.1.3(iv) Coefficients – Performance Planning

Here **R Square** value is **0.361.** So, there is **a 36.1%** variation in Performance Management.

5.1. Influence of Industry 4.0 on Performance Management

By looking at the Beta value, it can be found that

- Benefits of those technologies over Performance Management creating impact of 0.061.

- Challenges and Lack of Awareness of those technologies over Performance Management have an impact of 0.082.

- Positive Attitude of HR managers over these technologies on Performance Management making the impact of 0.081.

So, it can be interpreted that there is a high lack of awareness of these technologies and their benefits, and those who are aware of these technologies have the attitude to use them.

6. Payroll Management

Coefficients[a]							
	Unstandardised Coefficients		Standardised Coefficients			Collinearity Statistics	
Model	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	-.416	.418		-.993	.326		
Benefits	.111	.052	.258	2.113	.040	.867	1.153
Challenges	.113	.071	.182	1.582	.120	.976	1.025
HR Managers Preferences	.257	.070	.447	3.697	.001	.881	1.135

Table 5.1.4(iv) Coefficients – Payroll Management

Here **R Square** value is **0.407.** So, there is **a 40.7%** variation in Payroll Management.

6.1. Influence of Industry 4.0 on Payroll Management

By looking at the Beta value, it can be found that

- Benefits of those technologies over Payroll Management creates an impact of 0.052.

- Challenges and Lack of Awareness of those technologies over Payroll Management have an impact of 0.071.

- The positive attitude of HR managers over these technologies on Payroll Management made an impact of 0.070.

So, it can be interpreted that there is a high lack of awareness of these technologies and their benefits and those who are aware of these technologies have the attitude to use it.

7.   Compensation and Benefits Management

Coefficients[a]							
	Unstandardised Coefficients		Standardised Coefficients			Collinearity Statistics	
Model	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	-.103	.436		-.235	.815		
Benefits	.102	.055	.246	1.867	.068	.867	1.153
Challenges	.013	.074	.021	.172	.864	.976	1.025
HR Managers Preferences	.231	.073	.416	3.182	.003	.881	1.135
a. Dependent Variable: Compensation and Benefits							

Table 5.1.5(iv) Coefficients – Compensation and Benefits Management

Here **R Square** value is **0.307.** So, there is **a 30.7%** variation in Compensation and Benefits Management.

7.1. Influence of Industry 4.0 on Compensation and Benefits Practices

By looking at the Beta value, it can be found that
- Benefits of those technologies over Compensation and Benefits Management create an impact of **0.246.**
- Challenges and Lack of Awareness of those technologies over Compensation and Benefit Management have an impact of **0.021.**
- Positive Attitude of HR managers over these technologies on Compensation and Benefits Management made an impact of **0.416.**

So, it can be interpreted that there is a high lack of awareness of these technologies and their benefits, and those who are aware of these technologies have the attitude to use them.

8. Findings

It is found that the industry 4.0 technologies pave more way for strategic roles than the mundane task for HR managers. Industry 4.0 created an impact on HR processes. Even though these technologies are powerful and fast, they will not match any HR manager in decision-making based on assessing a candidate by questioning and getting to know about that candidate. From this project it shows that 22% of the HR managers said that their organisation uses AI and ML, 12% said that they are using RPA – Robotic Process Automation, 46% said that they are using Cloud computing technology, and 44% of them mentioned they use People Analytics in their organisation, 18% of them said that they use Big Data Analytics. Awareness of these HR 4.0 technologies is less, considering this project survey 20% of the HR personnel mentioned that their organisation don't use any of these technologies.
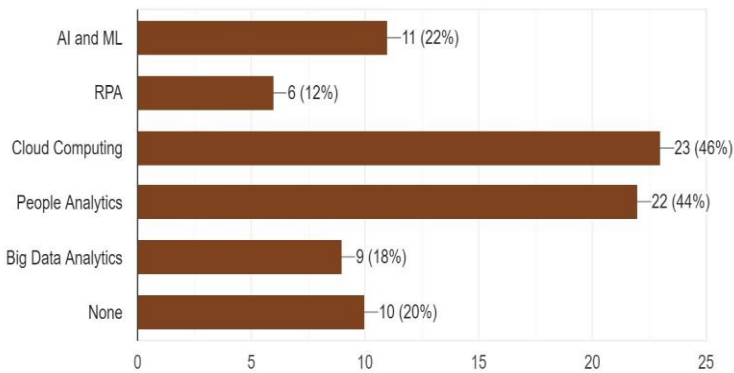

Fig. 5.2.5.1 Response chart based on 4.0 technologies

9. Suggestions

HR Managers need to analyse the available technologies which can be used in their organisation to improve productivity. The learning and Development department should update them with updated technologies to train employees. Every organisation should try

these technologies to improve their process efficiency and find out the best before investing large in that technology. Here are some of the suggestions of the HR People from various organisations.

"You might have to consider the budget that a company might be allocated for embracing these kinds of technologies. Not all companies (esp. the small scale and mid-size) would have the budget sanctioned for these."

- Lakshmi V, Director of Culturelligence Pvt Ltd | Agile People Operations Coach

"Every industry not able to adopt above technologies."

- Bharath Kumar V, Senior Executive, Milky Mist Dairy Food Pvt Ltd

"HR is more about personal touch and strategy, not operational tasks"

- Sachin Puri, Global Head HR (VP), Hitech iSolutions LLP

"Automation helps to shortlist the efficient applicants. However, face to face interview is very important in deciding the final candidate. This would help you to explore more about technologies in the HR domain."

- G Susmipriya, T A, Altimetrik

"Even though techno development takes place the rate of unemployment increases and it is uncertain that all the employees will be able to take up and do well with the training provided."

- Leonal A, Recruiter, Acies Global Pvt Ltd

"It's good and makes sure that everything will not be automated that too in HR"

- Sanchayprathap, HR Executive, HCL Technologies

10. Conclusion

In this study, it is proved that Industry 4.0 technologies created an impact on HR Processes in terms of each HR function and process. Influence/effect of industry 4.0 technologies on the recruitment and selection process, HR Planning process, and Payroll management process are assessed and proved that the 4.0 technologies create a significant impact on HR processes individually. Having said that these technologies are most helpful in the operational task and pave more way for an HR manager to work on strategies than regular tasks.

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