

Impact of ICT on Human Resource management Practices: a study on selected manufacturing industries of western Odisha

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Abstract—

Technology has affected every aspect of human life. Every field of business has been affected by ICT. It has a great impact on private and business sector as well. It provides huge opportunities to help the development of business by reducing cost and time. Today the face of Human Resource totally changed to traditional HR practices to the Technology based HRM practices. All Industries competing with each other and all are trying to expand their services and cut their cost to lead in the market. This paper focuses on explore the impact of Information and communication Technology on HRM practices in selected manufacturing industries of Western Odisha. In this research 100 respondents (20 from each industry) are taken from five different manufacturing Industries of Western Odisha. A structured questionnaire involves response rate rank from 1 to 4. By using sign test for data analysis it is found that there is a positive impact of ICT usages on HRM practices by reducing cost and time, enhance transparency, ease of operation and safety and security of every Industries of Western Odisha.

Keywords— Information and communication Technology, HRM Practices, Western Odisha, cost and Time, Transparency, Ease of Operation, Safety and Security

I. INTRODUCTION

Today the world is framed by evolution in the field of ICT. Every business organization realizes that ICT is very useful for their business to sustain in this modern economy. Most organizations implement ICT in their HRM practices to enhance speed, ease of operation, accuracy, time saving, effective decision making, and transparency in their work. ICT provides reliable and adequate information to the decision makers which help to get the right information at the right time for making any kind of strategic decisions. Different HRM practices Human resource planning, recruitment, selection, training and development, performance appraisal, employee payroll and compensation, communication and so on. ICT led the business to a higher level of production and communication. IT increased the efficiency and effectiveness of Human Resource practices also it decreases the cost and time of operation (Mete and Una, Khadim et.al. 2012).HRIS is very beneficial for the operational and functional HRM practices (Saleem, 2012). Electronic Technology enhance the productivity, and the efficiency of HR practices (Geetha and Sheriff,2011). ICT enhance HRM strategies and it have positive impact on e- business (Moomal and Masrom,2015).IT always fulfill company's defined objectives, enhance work ,productivity and increase the value of human capital (Mamoudou and Joshi,2014).

ICT increase the competitiveness of HRM and develop every aspect of Human Resource Department (Ali and Shanfari, 2019). Technology development is an important activity for the innovation process in every organization. ICT have great impact on business and leads to greater efficiency and performance.

In this context the industries of western Odisha uses ICT for their HRM practices to enhance their operations and effective management and to sustain in this competitive business world. Western Odisha is in developing stage and lots of manufacturing Industries are established here before and also in this recent year.

II. REVIEW OF LITERATURE

According to **Gerardine De Sanctis (1986)** that HRIS support HRP, selection, administration, decision making, placement, payroll, benefit management and pension plan. **Bukley,et.al. (2004)** studied the role of HRIS in US Universities and found that usages of HRIS can cut the employee turnover and staffing cost and also increase the efficiency of recruitment and selection process. **Kundu and Kadian(2012)** studied the application of HRIS in Indian Organizations. They found that mostly HRIS used for technical and strategic HRM activities and performance and Reward Management. Also they showed most frequent use of HRIS is done for “employee record” followed by “payroll” in India. **Khera &Gulati (2012)** studied the role of HRIS on HRP and found that HRIS is very much helpful in training and development, applicant tracking in recruitment and selection, manpower planning, succession planning and also more useful instrategic activities of HR personnel. **Vohra, et.al.(2015)** studied the impact of ICT on HRM performance by taking professionals from various private organizations of Indore, Madhya Pradesh and found that ICT improves the efficiency and innovation and performance of the employees and also it reduce the work time.**Piabuo, et al. (2017)** studied the impact of Information and Communication Technology on the efficiency of Human Resource Management in the Cameroon mobile Telecommunication Sector and found a significant positive relationship between the use of ICT in selection and recruitment, training and development, Human resource planning, evaluation and compensation and it enhance human resource management efficiency. **Olajide (2015)** studied the influence of ICT on HRM of manufacturing companies in south west, Nigeria. He found that there is a positive relationship between ICT and HRM performance of manufacturing companies. So he recommended that managers must give adequate attention to ICT though it tends to improve on their HRM performance for increased productivity and competitiveness. **Elhazzam,(2015)**. In his paper “The effect of ICT on Human Resources Management Practices (case of number of organizations in southwest Algeria: Bechar city) explores the effect of ICT on HRM practices. Information communication technology (ICT) improves the efficiency; innovation reduces the time help in easier functioning of the organisation. It improves the performance of the employee. It helps to reduce the work time. **Muriithi, et al. (2014)** in his paper “Effects of Human Resource Management Practices and firm performance in listed commercial Banks at Nairobi Securities Exchange” explores the factors affecting the success of HRIS adoption in the listed companies at the Nairobi Securities Exchange and how the use of HRIS strategically and positively impacts on firm performance.

III. OBJECTIVES

General objective:

- To find out the impact of ICT on Human Resources Management Practices in selected manufacturing Industries of Western Odisha.

Specific Objectives:

- To find out the impact of ICT on Human Resources Management Practices with respect to time.
- To find out the impact of ICT on Human Resources Management Practices with respect to cost.
- To find out the impact of ICT on Human Resources Management Practices with respect to ease of operation.
- To find out the impact of ICT on Human Resources Management Practices with respect to transparency.
- To find out the impact of ICT on Human Resources Management Practices with respect to safety and security.

IV. HYPOTHESES

H1: There is a significant reduction of cost after usages of ICT on HRM practices.

H2: There is a significant reduction of time after usages of ICT on HRM practices.

H3: There is a significant improvement in ease of operation after usages of ICT on HRM practices.

H4: There is a significant improvement in transparency at work after usages of ICT on HRM practices.

H5: There is a significant improvement in safety and security after usages of ICT on HRM practices.

V. METHODOLOGY

The research was conducted in top 5 manufacturing Industries of Western Odisha namely ACC (Associated Cement Companies Limited) cement Limited, ESPL (Eastern Steel and power Ltd.) steel Limited, Aryan Ispat and power (p) Limited, SMC Steel (Sponge Iron manufacturing Industry) , Shyam Mettalics. We have selected 100 respondents through purposive sampling method, 20 employees from the HR department who used of every company from each company for data collection. The questionnaire involved response rate from 1 to 4(one should give points from 1 to 4 by their experience by using ICT for their day to day work) .Sign Test is used for data analysis.

V. DATA ANALYSIS

1. ACC Cement Ltd. Bargarh

H1: There is a significant reduction of cost after usages of ICT on HRM practices.

TABLE 1

Reduced Cost (Rank 4-1),

Employees	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Before	2	3	3	2	2	3	3	3	2	3	2	1	2	1	3	1	2	4	3	3
After	4	4	3	4	4	3	2	4	3	4	4	3	3	2	3	3	4	3	2	3
	-	-	0	-	-	0	+	-	-	-	-	-	-	-	0	-	-	+	+	0

No. of "+" = 3, No. of "-" = 13, No. of "0" = 4

TABLE 2

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between before and after equals 0.	Related-Samples Sign Test	.021 ¹	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

¹Exact significance is displayed for this test.

Table 3

P-value	Null Hypothesis	Alternate Hypothesis
.021	Rejected (there is no reduction of cost due to use of ICT on HRM practices)	Accepted (there is a significant reduction of cost after usages of ICT on HRM practices)

H2There is a significant reduction of time after usages of ICT on HRM practices.

TABLE 4

Reduced time

Before	2	3	3	1	2	4	3	3	2	3	4	2	2	2	3	1	2	4	3	1
--------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

After	3	4	4	3	4	3	2	4	3	4	2	3	3	4	3	3	3	4	4	4
	-	-	-	-	-	+	+	-	-	-	+	-	-	-	0	-	-	0	-	-

No. of "+" = 3, No. of "-" = 15, No. of "0" = 2

TABLE 5

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between before and after equals 0.	Related-Samples Sign Test	.008 ¹	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

¹Exact significance is displayed for this test.

Table 6

P-value	Null Hypothesis	Alternate Hypothesis
.008	Rejected (there is no reduction of time due to use of ICT on HRM practices)	Accepted (there is a significant reduction of time after usages of ICT on HRM practices)

H3: There is a significant improvement in ease of operation after usages of ICT on HRM practices.

TABLE 7

Improved ease of operation

before	2	3	3	1	1	4	3	1	2	3	2	3	3	2	2	2	2	1	2	1
after	3	4	3	4	3	3	2	2	3	4	3	4	2	3	1	3	4	2	4	1
	-	-	0	-	0	+	-	+	-	-	-	-	-	-	+	0	-	-	-	0

No. of "+" = 3, No. of "-" = 13, No. of "0" = 4

TABLE 8

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between before and after equals 0.	Related-Samples Sign Test	.031 ¹	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.
¹Exact significance is displayed for this test.

Table 9

P-value	Null Hypothesis	Alternate Hypothesis
.031	Rejected (there is improved ease of operation due to use of ICT on HRM practices)	Accepted (there is a significant improvement of ease of operation after usages of ICT on HRM practices)

H4: There is a significant improvement in transparency at work after usages of ICT on HRM practices.

TABLE 10
Improvement in transparency

before	4	1	2	3	2	3	4	4	2	3	2	3	1	4	3	3	2	3	2	1
after	4	3	4	3	4	4	3	3	3	4	3	3	2	3	1	4	4	4	2	3
	0	-	-	0	-	-	+	+	-	-	-	0	-	+	+	0	-	-	0	-

No. of "+" = 4, No. of "-" = 11, No. of "0" = 5

TABLE 11

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between before and after equals 0.	Related-Samples Sign Test	.077 ¹	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.
¹Exact significance is displayed for this test.

Table 12

P-value	Null Hypothesis	Alternate Hypothesis
.077	Accepted (null hypothesis there is no improve of transparency due to use of ICT on HRM practices)	Rejected (there is a significant Improvement in transparency after usages of ICT on HRM practices)

TABLE 13
Improvement in safety and security

before	2	4	1	2	2	2	3	1	3	4	3	3	4	2	1	3	2	3	1	2
after	3	3	4	3	4	4	3	4	4	3	4	4	2	4	3	3	3	3	2	3
	-	+	-	-	-	-	0	-	-	+	-	-	+	-	+	0	-	0	-	-

No. of "+" = 4, No. of "-" = 12, No. of "0" = 3

TABLE 14

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between before and after equals 0.	Related-Samples Sign Test	.013 ¹	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

¹Exact significance is displayed for this test.

Table 15

P-value	Null Hypothesis	Alternate Hypothesis
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.013	Rejected (there is no Improvement in safety and security after use of ICT on HRM practices)	Accepted (there is a significant Improvement in safety and security after usages of ICT on HRM practices)
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ESPL Steel Ltd.

H1: There is a significant reduction of cost after usages of ICT on HRM practices.

TABLE 16

Reduced Cost (Rank 4-1)

Employees	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Before	3	2	4	2	3	3	1	4	2	2	3	1	4	3	3	3	2	4	3	3
After	4	3	3	4	4	4	4	3	3	4	4	2	3	2	4	3	4	3	3	4
	-	-	+	-	-	-	-	-	-	-	-	-	+	+	-	0	-	+	0	-

No. of "+" =4, No. of "-" = 14, No. of "0"= 2

TABLE 17

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between before ¹ and after ¹ equals 0.	Related-Samples Sign Test	.096 ¹	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

¹Exact significance is displayed for this test.

Table 18

P-value	Null Hypothesis	Alternate Hypothesis
.096	Accepted (there is no reduction of cost due to use of ICT on HRM practices)	Rejected (there is a significant reduction of cost after usages of ICT on HRM practices)

H2 There is a significant reduction of time after usages of ICT on HRM practices.

TABLE 19

Reduced time

Before	2	3	3	1	2	2	4	3	2	3	1	2	2	2	3	3	2	4	3	4
After	3	4	4	3	4	3	2	4	3	2	2	3	4	4	4	3	3	3	4	4
	-	-	-	-	-	-	+	-	-	+	-	-	-	-	-	0	-	+	-	0

No. of "+" =3, No. of "-" = 15, No. of "0" = 2

TABLE 20

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between before and after equals 0.	Related-Samples Sign Test	.008 ¹	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

¹Exact significance is displayed for this test.

Table 21

P-value	Null Hypothesis	Alternate Hypothesis
.008	Rejected (there is no reduction of time after use of ICT on HRM practices)	Accepted (there is a significant reduction of time after usages of ICT on HRM practices)

H3: There is a significant improvement in ease of operation after usages of ICT on HRM practices.

TABLE 22

Improved ease of operation

before	2	4	4	3	3	3	2	2	3	2	3	2	1	2	2	3	4	4	3	2
after	4	4	3	4	2	4	2	4	4	2	4	3	4	4	2	4	1	3	2	4
	-	0	+	-	+	0	0	-	-	0	-	-	-	-	0	0	+	+	-	-

No. of "+" = 4, No. of "-" = 10, No. of "0" = 6

TABLE 23

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between before ₂ and after ₂ equals 0.	Related-Samples Sign Test	.210 ¹	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

¹Exact significance is displayed for this test.

Table 24

P-value	Null Hypothesis	Alternate Hypothesis
.210	Accepted (there is no Improved ease of operation due to use of ICT on HRM practices)	Rejected (there is a significant improved ease of operation after usages of ICT on HRM practices)

H4: There is a significant improvement in transparency at work after usages of ICT on HRM practices.

TABLE 25

Improvement in transparency

before	2	4	2	3	4	3	1	2	2	3	3	3	1	2	4	3	4	3	4	4
after	4	2	4	3	2	4	3	4	2	4	4	4	4	3	4	4	2	4	2	3
	-	+	-	0	+	-	-	-	0	-	-	-	-	-	0	-	+	-	+	+

No. of "+" = 5, No. of "-" = 12, No. of "0" = 3

TABLE 26

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between bef3 and aft3 equals 0.	Related-Samples Sign Test	.143 ¹	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

¹Exact significance is displayed for this test.

Table 27

P-value	Null Hypothesis	Alternate Hypothesis
.143	Accepted (hypothesis there is no improve of transparency due to use of ICT on HRM practices)	Rejected (that there is a significant Improvement in transparency after usages of ICT on HRM practices)

H5: There is a significant improvement in safety and security after usages of ICT on HRM practices.

TABLE 28

Improvement in safety and security

before	3	4	2	2	3	3	3	1	4	3	2	3	3	2	4	3	2	4	3	2
after	2	3	3	3	3	4	4	3	4	2	3	3	2	3	1	4	4	3	4	3
	-	+	-	-	0	-	-	-	0	+	-	0	+	-	+	-	-	+	-	-

No. of "+" = 5, No. of "-" = 12, No. of "0" = 3

TABLE 29

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between before and after equals 0.	Related-Samples Sign Test	.332 ¹	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

¹Exact significance is displayed for this test.

Table 30

P-value	Null Hypothesis	Alternate Hypothesis
.332	Accepted (there is no Improvement in safety and security due to use of ICT on HRM practices)	Rejected (there is a significant Improvement in safety and security after usages of ICT on HRM practices)

3. Shyam Mettalics

H1: There is a significant reduction of cost after usages of ICT on HRM practices.

TABLE 31

Reduced Cost (Rank 4-1),

Employees	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Before	2	2	3	2	4	3	2	4	4	2	2	4	2	3	2	2	1	4	3	2
After	2	3	4	3	3	3	3	3	3	3	3	4	4	2	1	4	4	3	4	3
	0	-	-	-	+	0	-	+	+	-	-	0	-	-	+	-	-	+	-	-

No. of "+" =5, No. of "-" = 12, No. of "0"= 3

TABLE 32

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between before and after equals 0.	Related-Samples Sign Test	.332 ¹	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

¹Exact significance is displayed for this test.

Table 33

P-value	Null Hypothesis	Alternate Hypothesis
.332	Accepted (there is no reduction of cost due to use of ICT on HRM practices)	Rejected (there is a significant reduction of cost after usages of ICT on HRM practices)

H2 There is a significant reduction of time after usages of ICT on HRM practices.

TABLE 34

Reduced time

Before	1	2	3	2	1	2	4	3	2	3	4	2	2	2	3	1	4	3	2	1
After	2	3	4	3	4	3	2	4	3	3	2	4	4	3	4	1	3	4	4	3
	-	-	-	-	-	-	+	-	-	0	+	-	-	-	-	0	+	-	-	-

No. of "+" =3, No. of "-" = 15, No. of "0"=2

TABLE 35

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between before and after equals 0.	Related-Samples Sign Test	.013 ¹	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

¹Exact significance is displayed for this test.

Table 36

P-value	Null Hypothesis	Alternate Hypothesis
.013	Rejected (there is no reduction of time after use of ICT on HRM practices)	Accepted (there is a significant reduction of time after usages of ICT on HRM practices)

H3: There is a significant improvement in ease of operation after usages of ICT on HRM practices.

TABLE 37

Improved ease of operation

before	2	2	1	4	4	3	2	3	1	3	4	2	3	3	4	3	2	2	2	1
after	3	4	4	3	2	4	2	4	3	4	3	4	2	3	1	4	3	4	4	1
	-	-	-	+	+	-	0	-	-	-	+	-	+	0	+	-	+	-	-	0

No. of "+" = 6, No. of "-" = 11, No. of "0" = 3

TABLE 38

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between before and after equals 0.	Related-Samples Sign Test	.143 ¹	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

¹Exact significance is displayed for this test.

Table 39

P-value	Null Hypothesis	Alternate Hypothesis
.143	Accepted (there is no Improved ease of operation due to use of ICT on HRM practices)	Rejected (there is a significant improved ease of operation after usages of ICT on HRM practices)

H4: There is a significant improvement in transparency at work after usages of ICT on HRM practices.

TABLE 40

Improvement in transparency

before	3	1	2	1	2	3	2	1	2	3	2	3	1	2	1	3	2	1	2	1
after	4	4	3	3	2	3	3	3	4	3	4	4	2	3	1	3	1	3	2	3
	-	-	-	-	0	0	-	-	-	0	-	-	-	-	0	0	+	-	0	-

No. of "+" = 1, No. of "-" = 13, No. of "0" = 6

TABLE41

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between bef7 and aft7 equals 0.	Related-Samples Sign Test	.002 ¹	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

¹Exact significance is displayed for this test.

Table 42

P-value	Null Hypothesis	Alternate Hypothesis
.002	Rejected (there is no Improvement in transparency after use of ICT on HRM practices)	Accepted (there is a significant Improvement in transparency after usages of ICT on HRM practices)

H5: There is a significant improvement in safety and security after usages of ICT on HRM practices.

TABLE 43

Improvement in safety and security

before	4	3	3	3	2	3	3	4	4	3	2	3	2	2	2	3	4	2	2	2
after	4	3	4	4	2	4	4	3	3	3	2	4	3	4	4	4	3	3	2	3
	0	0	-	-	0	-	-	+	+	0	0	-	-	-	-	-	+	-	0	-

No. of "+" = 3, No. of "-" = 11, No. of "0" = 6

TABLE 44

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between bef8 and aft8 equals 0.	Related-Samples Sign Test	.057 ¹	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

¹Exact significance is displayed for this test.

Table 45

P-value	Null Hypothesis	Alternate Hypothesis
.057	Accepted (there is no Improvement in safety and security due to use of ICT on HRM practices)	Rejected (there is a significant Improvement in safety and security after usages of ICT on HRM practices)

4. Aryan Steel

H1: There is a significant reduction of cost after usages of ICT on HRM practices.

TABLE 46

Reduced Cost (Rank 4-1),

Employees	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Before	3	4	3	3	3	2	2	3	4	2	2	1	3	3	3	3	4	2	1	3
After	4	4	1	4	4	3	3	3	2	3	4	3	4	4	4	4	3	4	1	4
	-	-	0	+	-	-	-	0	-	0	-	-	-	+	-	+	0	0	-	-

No. of "+" =3, No. of "-" = 12, No. of "0" = 5

TABLE 47

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between before and after equals 0.	Related-Samples Sign Test	.013 ¹	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

¹Exact significance is displayed for this test.

Table 48

P-value	Null Hypothesis	Alternate Hypothesis
.013	Rejected (there is no reduction of cost due to use of ICT on HRM practices)	Accepted (there is a significant reduction of cost after usages of ICT on HRM practices)

H2 There is a significant reduction of time after usages of ICT on HRM practices.

TABLE 49

Reduced time

Before	1	2	3	2	3	2	4	3	2	2	4	2	2	2	3	1	4	3	2	1
After	3	4	4	4	3	3	2	4	3	3	4	4	4	3	4	2	3	3	4	2
	-	-	-	-	0	-	+	-	-	-	+	-	-	-	-	-	+	0	-	-

No. of "+" = 3, No. of "-" = 15, No. of "0" = 2

TABLE 50

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between before and after equals 0.	Related-Samples Sign Test	.002 ¹	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

¹Exact significance is displayed for this test.

Table 51

P-value	Null Hypothesis	Alternate Hypothesis
.002	Rejected (there is no reduction of time due to use of ICT on HRM practices)	Accepted (there is a significant reduction of time after usages of ICT on HRM practices)

H3: There is a significant improvement in ease of operation after usages of ICT on HRM practices.

Improved ease of operation

TABLE 52

before	3	1	3	4	2	3	4	1	2	3	2	3	4	2	3	3	2	1	4	2
after	3	2	4	3	2	3	3	3	2	4	4	4	2	3	4	3	4	3	2	3
	0	-	-	+	0	0	+	-	0	-	-	-	+	-	-	0	-	-	+	-

No. of "+" =4, No. of "-" = 11, No. of "0" = 5.

Table 53

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between bef10 and aft10 equals 0.	Related-Samples Sign Test	.118 ¹	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

¹Exact significance is displayed for this test.

Table 54

P-value	Null Hypothesis	Alternate Hypothesis
.118	Accepted (there is no Improved ease of operation due to use of ICT on HRM practices)	Rejected (there is a significant improved ease of operation after usages of ICT on HRM practices)

H4: There is a significant improvement in transparency at work after usages of ICT on HRM practices.

TABLE 55
Improvement in transparency

before	2	3	3	2	2	3	2	3	2	4	2	3	3	4	3	3	2	2	4	2
after	4	4	3	4	2	4	2	4	4	3	2	4	4	3	3	4	4	3	2	3
	-	-	0	-	0	0	0	-	-	+	0	-	-	+	0	-	-	-	+	-

No. of "+" =3, No. of "-" = 11, No. of "0"= 6

TABLE 56

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between bef11 and aft11 equals 0.	Related-Samples Sign Test	.035 ¹	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

¹Exact significance is displayed for this test.

Table 57

P-value	Null Hypothesis	Alternate Hypothesis
.035	Rejected (there is no Improvement in transparency after use of ICT on HRM practices)	Accepted (there is a significant Improvement in transparency after usages of ICT on HRM practices)

H5: There is a significant improvement in safety and security after usages of ICT on HRM practices.

TABLE 58

Improvement in safety and security

before	4	2	2	3	4	3	3	2	2	3	3	2	2	2	1	2	2	1	2	4
after	4	3	3	3	2	4	4	3	3	4	4	4	4	3	3	4	4	1	4	3
	0	-	-	0	+	-	-	-	-	-	-	-	-	-	-	-	-	0	-	+

No. of "+" =2, No. of "-" = 15, No. of "0"= 3

TABLE 59

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between bef12 and afr12 equals 0.	Related-Samples Sign Test	.002 ¹	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

¹Exact significance is displayed for this test.

Table 60

P-value	Null Hypothesis	Alternate Hypothesis
.002	Rejected (there is no Improvement in safety and security after use of ICT on HRM practices)	Accepted (there is a significant Improvement in safety and security after usages of ICT on HRM practices)

1. SMC Power Generation Limited

H1: There is a significant reduction of cost after usages of ICT on HRM practices.

TABLE 61

Reduced Cost (Rank 4-1),

Employees	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Before	4	3	3	2	2	3	2	3	3	2	4	3	4	2	3	2	4	2	1	4
After	3	4	4	3	4	4	4	3	4	4	3	3	3	3	4	4	3	2	2	3
	+	-	-	-	-	-	-	0	-	-	+	0	+	-	-	-	+	0	-	+

No. of "+" =5, No. of "-" = 12, No. of "0"= 3

TABLE 62

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between before and after equals 0.	Related-Samples Sign Test	.143 ¹	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

¹Exact significance is displayed for this test.

Table 63

P-value	Null Hypothesis	Alternate Hypothesis
.143	Accepted (there is no reduction of cost due to use of ICT on HRM practices)	Rejected (there is a significant reduction of cost after usages of ICT on HRM practices)

H2There is a significant reduction of time after usages of ICT on HRM practices.

TABLE 64

Reduced Time

Before	1	2	3	1	3	2	3	3	2	1	4	2	2	2	3	1	4	3	2	3
After	3	3	4	4	4	4	2	4	2	3	4	4	4	4	4	3	4	4	4	2
	-	-	-	-	-	-	+	-	0	-	0	-	-	-	-	0	-	-	+	

No. of "+" =2, No. of "-" = 15, No. of "0" = 3

TABLE 65

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between before and after equals 0.	Related-Samples Sign Test	.002 ¹	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

¹Exact significance is displayed for this test.

Table 66

P-value	Null Hypothesis	Alternate Hypothesis
.002	Rejected (there is no reduction of time after use of ICT on HRM practices)	Accepted (that there is a significant reduction of time after usages of ICT on HRM practices)

H3: There is a significant improvement in ease of operation after usages of ICT on HRM practices.

TABLE 67

Improved ease of operation

before	3	3	2	2	2	3	2	1	2	3	2	3	1	2	1	3	2	1	2	1
after	2	4	3	4	4	4	3	3	4	3	4	4	2	3	1	3	1	3	2	3

	-	-	-	-	0	0	-	-	-	0	-	-	-	-	0	0	+	-	0	-
--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

No. of "+" =1, No. of "-" = 13, No. of "0"= 6

TABLE 68

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between before and after equals 0.	Related-Samples Sign Test	.004 ¹	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

¹Exact significance is displayed for this test.

TABLE 69

P-value	Null Hypothesis	Alternate Hypothesis
.004	Rejected (there is improved ease of operation due to use of ICT on HRM practices)	Accepted (there is a significant improvement of ease of operation after usages of ICT on HRM practices)

H4: There is a significant improvement in transparency at work after usages of ICT on HRM practices.

TABLE 70

Improvement in transparency

before	3	2	2	1	2	3	4	1	3	3	2	3	1	2	3	4	2	4	2	3
after	3	3	4	3	4	3	3	4	4	4	4	3	2	4	4	3	1	3	4	4
	0	-	-	-	-	0	+	-	-	-	-	0	-	-	-	+	+	+	-	-

No. of "+" =4, No. of "-" = 13, No. of "0"= 3

TABLE 71

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between bef2 and aft2 equals 0.	Related-Samples Sign Test	.049 ¹	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

¹Exact significance is displayed for this test.

TABLE 72

P-value	Null Hypothesis	Alternate Hypothesis
.049	Rejected (there is no Improvement in transparency after use of ICT on HRM practices)	Accepted (there is a significant Improvement in transparency after usages of ICT on HRM practices)

H5: There is a significant improvement in safety and security after usages of ICT on HRM practices.

TABLE 73

Improvement in safety and security

before	2	2	3	1	2	3	2	1	2	2	2	4	1	2	1	3	2	2	4	1
after	3	4	3	3	4	3	3	4	3	3	4	3	1	3	4	4	4	4	2	3
	-	-	0	-	-	0	-	-	-	-	-	+	0	-	-	-	-	-	+	-

No. of "+" =2, No. of "-" = 15, No. of "0" = 3

TABLE 74

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between bef3 and aft3 equals 0.	Related-Samples Sign Test	.002 ¹	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

¹Exact significance is displayed for this test.

Table 75

P-value	Null Hypothesis	Alternate Hypothesis
.002	Rejected (there is no Improvement in safety and security after use of ICT on HRM practices)	Accepted (there is a significant Improvement in safety and security after usages of ICT on HRM practices.

VI. CONCLUSIONS

Here we are taking 5 different companies of western Odisha and collected data and after analyze data for **ACC cement Limited** the we got different p- value for different variables

Reduced cost, p-value= .021(<0.05, reject null hypothesis)

Reduced time, p-value =.008(<0.05, reject null hypothesis)

Improved ease of operation, p-value=.031(<0.05, reject null hypothesis)

Improved transparency, p-value=0.077(>0.05, accept null hypothesis)

Improved safety and security, p-value=.013(<0.05, reject null hypothesis)

For ESPL

Reduced cost, p-value= .096(>0.05, accept null hypothesis)

Reduced time, p-value =.008(<0.05, reject null hypothesis)

Improved ease of operation, p-value=.210(>0.05 accept null hypothesis,)

Improved transparency, p-value=0.143(>0.05,) accept null hypothesis

Improved safety and security, p-value=.332(>0.05, accept null hypothesis)

For Shyam Metallics

Reduced cost, p-value= .332(>0.05, accept null hypothesis)

Reduced time, p-value =.013(<0.05, reject null hypothesis)

Improved ease of operation, p-value=.143(>0.05, accept null hypothesis)

Improved transparency, p-value=0.002(<0.05, reject null hypothesis)

Improved safety and security, p-value=.057(>0.05, accept null hypothesis)

For Aryan Steel

Reduced cost, p-value= .013(<0.05, reject null hypothesis)

Reduced time, p-value =.002(<0.05, reject null hypothesis)

Improved ease of operation, p-value=.118(>0.05, accept null hypothesis)

Improved transparency, p-value=0.035(<0.05, reject null hypothesis)

Improved safety and security, p-value=.002(<0.05, reject null hypothesis)

SMC power Ltd.

Reduced cost, p-value= .143(>0.05, accept null hypothesis)

Reduced time, p-value =.002(<0.05, reject null hypothesis)

Improved ease of operation, p-value=.004(<0.05, reject null hypothesis)

Improved transparency, p-value=0.049(<0.05, reject null hypothesis)

Improved safety and security, $p\text{-value}=.002(<0.05)$, reject null hypothesis)

Most of the cases we found of rejection of null hypothesis which is positive impact of ICT on HRM practices and

The analysis of the data demonstrated that there is a significant positive impact of ICT on human resource management practices of industries of Western Odisha because ICT can cut down the cost involved in business, reduced the time used, improved the transparency in work, improve safety and security and make the operation easy. ICT can always enhance the operation effectively and efficiently. For this every organization must implemented ICT smoothly in their organization.

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