

Determining ‘Acceptability of E-HRM (Electronic - Human Resource Management)’ in Indian Food Processing Industry using Augmented Technology Acceptance Model (TAM)

Arunangshu Giri, Satakshi Chatterjee, Manigrib Bag, Pradip Paul

Abstract: E-HRM is defined as the adoption as well as the implementation of specific technology which are characteristically web enabled for the processing of various HR activities. It is responsible for directly contributing to the effectiveness of the organisations and it is also responsible for the creation of various alternatives in order to get the total work done. The total work is also done in a relatively shorter period of time. Technology is growing by leaps and bounds; however, this arena has seen a lesser number of research projects. Thus, the full potential of this field is not anticipated. This research paper aims at a quantitative analysis of the acceptability of the adoption of the E-HRM technology by HR Professionals with the help of the augmented TAM (Technology Acceptance Model) model. This study is specifically carried out in the food processing industry of India. 136 sample elements (HR Professionals) were collected from selected 5-categories of food processing industries (Diary, Confectionery, Soft Drink, Edible Oil & Spices) in India. The acceptability of E-HRM has been judged by determining the influence of relevant factors (extracted from Literature Review) on ‘Attitude towards Using E-HRM’ and ‘Intention to Use E-HRM’ through Path Analysis and Structural Equation Modeling (SEM). Proper adoption of E-HRM technology in the food processing industry of India will help HR Professionals as this technology can accomplish HR related work effectively. It will also help HR Professionals immensely to handle work pressure related to their respective job profiles.

Keywords: E-HRM; Augmented TAM model; Indian Food Processing Industry; Attitude; Intention to use

I. INTRODUCTION

Information as well as Communication Technologies is on its way of becoming the new norm of the modern society. It is evolving continuously on a regular basis. The HR departments of the various industries are trying to adapt to these types of new technologies. This immensely helps them to meet the unstable demands of the market (Gloet & Berrell, 2003)¹.

E-HRM is further defined as the planning and implementation of the various information technologies within the organisation which are used for the support and networking functions. The concept E-HRM can be adopted by the firms with the help of the web-enabled technology channels.

The effectiveness of the organisations is consequently increased. Other functions of e-HRM adopted by the firms are the creation of social and intellectual capital which can be achieved through knowledge enhancement of HR Professionals (Lengnick-Hall & Moritz, 2003)². The majority of the HR processes are becoming automated, especially the functions related to administration. This automation can be done with the distinct help of the various kinds of technology and also the effectiveness of the organisation is improved drastically especially in the terms of communication (Mukherjee, 2001)³. According to Ulrich (1997)⁴, majority of the HR work is related to administration which revolves around human resources of the organisation. Thus, the quality of the work depends on the efficiency of the process being carried out. These may include staffing, training, appraising, rewarding as well as promoting. These technologies also help in the development of efficient channels of communication such as employee surveys, suggestion programmes, team meetings, etc. However, the success of the organisation does not solely depend on the adoption of the E-HRM technology within the organisation. It must be found out by the HR department that whether the technology adopted is user friendly or not and any other factor that needs to be analysed well in advance. The TAM model helps in analysing the needs of the HR Professionals pertaining to the selection of the E-HRM technology to be used in the organisations. The acceptability of a particular technology can be better understood as well in reference to the TAM Model. The TAM (Technology Acceptance Model) is a customized version of another theory known as TRA (Theory of Reasoned Action) Model which mainly deals with the IS. The TAM model was first invented by Davis, in 1989⁵ and it was consequently modified by another researcher, Venkatesh, in 2000⁶. This was done by the integration of the TAM Model with other different kinds of models such as Theory of Planned Behaviour, Theory of Reasoned action, Innovation Diffusion Theory, Self Determination Theory, TAM 2, TAM 3, etc. (Venkatesh & Bala, 2008)⁷. The TAM model, basically, helps in the understanding of the acceptance level as well as the attitude towards the particular IT systems which have been adopted by the organisation.

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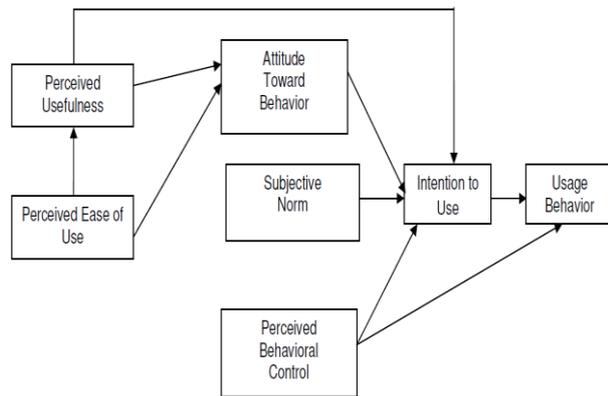
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The two internal factors such as the perceived usefulness and the perceived ease of use are taken into consideration. These internal factors are on the basis of the perception of the employees while using the technology. A positive perception would lead to the actual usage of the system (Dosajh & Sujlana, 2012)⁸. The basic TAM model was further modified by Taylor and Todd in the year 1995⁹. In this model, the social influences (subjective norms) as well as the behavioural control is incorporated. This model has been used to distinguish the usage of the technology between the experienced users as well as the inexperienced users. Perceived usefulness and ease of use directly affects the attitude of the employees towards the technology. The attitude coupled with the subjective norms and perceived behavioural control impacts the intention to use which has an impact on the usage behaviour of the employees.

Figure 1: Augmented TAM Model



Source: Taylor & Todd, 1995

The TAM model has some limitations. It is an assumption that the intention of using a particular technology would have an end result of an actual usage. However, this theory also has some practical constraints. The freedom of action is actually limited by various different conditions such as environmental limits, organisational limits, ability, time, etc (Winarto, 2017)¹⁰. However, despite the limitations of this model, this study aims at figuring out the factors that affects the technology acceptance level of HR Professionals in the food processing industry.

II. LITERATURE REVIEW

Perceived usefulness is considered as an external variable which has a direct impact on the employee's attitude. There is a relationship between perceived usefulness with that of attitude of the employees. This aspect has been extensively studied. The research works reveal that the attitude of the employees is deeply influenced by their own mind sets about the level of usefulness of the particular technology. From the context of the students, their perceived usefulness helps them to engage in various e-learning management systems which further helps in the inculcation of the attitude which motivates them to use a particular technology (Ho, 2010)¹¹. Perceived ease of use is also responsible for affecting the attitude of the employees. A study regarding the attitude level of the use of e-commerce portals by the senior citizens depicts that the websites which are easy to comprehend are in high demand amongst them. Complicated systems are not preferred as they are not

understood easily and it builds up a negative attitude in their minds, thus, suspending their use. A positive impression would be favourable in all cases as it will build a positive attitude in the minds of the people which will further increase the chances of using that particular product (Lin, 2011)¹². Subjective norms also play a very important role in influencing the persons' intention to use particular technology. Subjective norms refer to the social influence being exerted by the usage intentions of the employees. Also, several cognitive instrumental processes such as job image, job quality, job relevance, result demonstrability, etc. plays a very crucial role in the acceptance of the technology by the users (Venkatesh & Davis, 2000)¹³. Behavioural control is another factor that determines the intention to use E-HRM technology by HR Professionals. It is responsible for distinguishing the experience of the users who have previously used the products and the users who have not used the technology. This feedback mechanism helps in fixing any errors that might crop up. This data can be also used to render the technology for effective and efficient to the users by doing certain modifications according to the needs and demands of the users. Research studies have indicated that enjoyment during the course of using a particular technology is very important in the development of the intention of using the technology (Sun & Zhang, 2006)¹⁴. Perceived enjoyment can be a factor which the user feels after using a particular product and finding the experience enjoyable or not (Yi & Hyang, 2003)¹⁵. Attitude of the users significantly affects their intention of adopting a particular technology (Robey, 1979)¹⁶. The augmented TAM model indicates that the first two factors of perceived ease of use and perceived usefulness directly affects the attitude of the users. This indirectly has an effect on the behavioural intention of the usage of a particular technology. Other factors like subjective norms, behavioural control and perceived enjoyment has a direct impact on the intention of the users to use that particular product. Attitude is a passive urge. It must directly influence the behaviour of the users for it to have any impact. Hence, the users must have an intention to use the product. It is considered as an intrinsic factor; however, it might be influenced by many extrinsic factors (Thiruselvi, et al., 2013)¹⁷. Intention to use a particular technology increases the chances of the technology being used by the respondent and the frequency of its usage changes as well. Adoption of technology to carry out HR activities, furthermore, results in effective and efficient processes in the long run.

III. HYPOTHESES AND RESEARCH MODEL

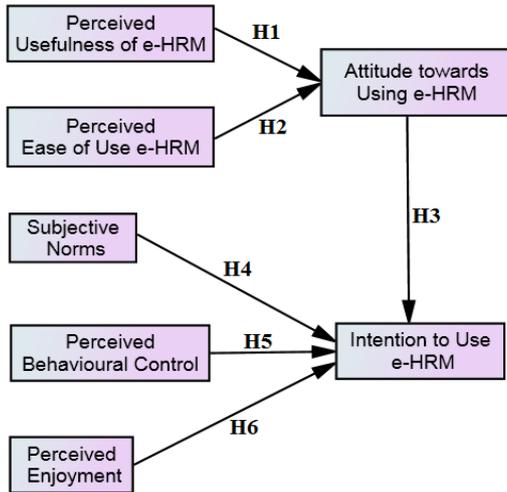
H1: 'Perceived Usefulness' positively influences 'Attitude towards using e-HRM' in Food Processing Industry.

H2: 'Perceived Ease of Use' positively influences 'Attitude towards using e-HRM' in Food Processing Industry.

H3: 'Attitude towards using e-HRM' positively influences 'Intention to Use e-HRM' in Food Processing Industry.

- H4:** ‘Subjective Norms’ positively influences ‘Intention to Use e-HRM’ in Food Processing Industry.
- H5:** ‘Perceived Behavioural Control’ positively influences ‘Intention to Use e-HRM’ in Food Processing Industry.
- H6:** ‘Perceived Enjoyment’ positively influences ‘Intention to Use e-HRM’ in Food Processing Industry.

Figure 2: Hypothesized Research Model



IV. RESEARCH METHODOLOGY

Research Design	Descriptive Research
Data Sources	Secondary as well as Primary data
Model	Hypothesized Research Model from Secondary data (Figure2)
Survey Instrument	Structured questionnaire for collecting Primary data (Annexure 1)
Survey Method	Cross-sectional Survey
Targeted Industry	Food Processing Industry
Selected Categories of Food Processing Industry	Diary, Confectionery, Soft Drink, Edible Oil & Spices
Scaling Technique	5 Point Likert Scale (Strongly Agree-5 to Strongly Disagree-1)
Sampling Method	Convenience Sampling (Both Companies & Respondents)
Sampling Elements	HR Professionals
Sample Size	136
Period of Study	January 2019 – April 2019
Statistical Tools	Exploratory Factor Analysis & Structural Equation Modeling
Statistical Software	SPSS-21 & AMOS-21

V. ANALYSIS AND RESULTS

A. Reliability & Validity Testing:

Overall reliability of collected data has been checked through Cronbach’s Alpha value (**0.798**) which proved acceptable range (>**0.70**) of reliability with 16 items. Also primary data was validated through Exploratory Factor Analysis (EFA).

Table 1: KMO Measure and Bartlett's Test (Source: Authors)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	0.847
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Bartlett's Test of Sphericity	Significance Level	<0.001
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Sampling Adequacy for factor analysis has been proved through KMO value (0.847) and significant Bartlett’s Test proved appropriate correlations among items which created a particular factor. EFA (Exploratory Factor Analysis) was carried out because of the desirable value of KMO Measure and Bartlett’s Test (Table 1). 6 separate factors (Collaged variables with ‘factor loadings’ (Table 2) more than 0.5) have been created through Rotated Component Matrix (RCM) by EFA.

Table 2: Exploratory Factor Analysis and % of Variance Explained (Source: Authors)

Factors	Questions	Factor Loading	% of Variance Explained
Attitude towards using e-HRM	q3	.950	16.910
	q1	.928	
	q2	.903	
Intention to Use e-HRM	q5	.917	15.239
	q6	.893	
	q4	.842	
Perceived Usefulness	q10	.934	11.672
	q9	.905	
Perceived Ease of Use	q11	.945	11.651
	q12	.924	
Subjective Norms	q14	.923	10.918
	q13	.914	
Perceived Behavioural Control	q8	.919	10.851
	q7	.892	
Perceived Enjoyment	q16	.788	7.592
	q15	.749	

Extraction Method: Principal Component Analysis, Rotation Method: Varimax with Kaiser Normalization.

The fitness indexes (Table 3) proved the fitness of research model in this study.

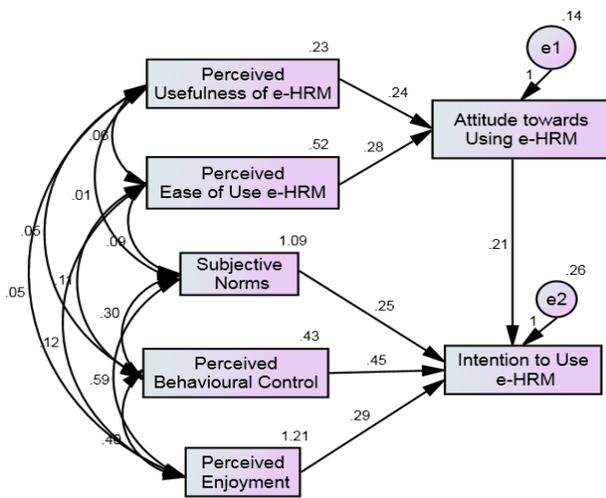
Table 3: Fit Indices (Source: Authors)

Fit Index with Tolerable Range	Research Model Values
$\chi^2/df (< 3)$	1.619
RMSEA (< 0.06)	0.048
GFI (> 0.90)	0.984
AGFI (> 0.90)	0.908
NFI (> 0.90)	0.975
CFI (> 0.90)	0.990

For testing hypothesis, Path Analysis was done through Structural Equation Modeling (SEM).



Figure 3: Result of Structural Equation Modeling



The following table (Table 4) showed 'Variance Inflation Factor' (VIF) values with acceptable range (< 3) which proved that factors were Multi-co-linearity-free.

Table 4: Co-linearity Statistics for Different Dependent Factors (Source: Authors)

'Intention to Use' as dependent factor		
	Tolerance	VIF
Attitude	.901	1.110
Subjective Norms	.681	1.469
Perceived Behavioural Control	.612	1.635
Perceived Enjoyment	.601	1.663
'Attitude' as dependent factor		
	Tolerance	VIF
Perceived Usefulness	.969	1.032
Perceived Ease of Use	.947	1.224

VI. HYPOTHESIS TESTING AND FINDINGS

Table 5: Path analysis through Structural Equation Modeling (SEM) (Source: Authors)

Measurement Path	Estimate	P-Value	Hypothesis
Attitude ← Perceived Usefulness	.237	<0.01*	H1 (S)
Attitude ← Perceived Ease of Use	.281	<0.01*	H2 (S)
Intention To Use ← Subjective Norms	.248	<0.01*	H4 (S)
Intention to Use ← Perceived Enjoyment	.293	<0.01*	H6 (S)
Intention to Use ← Perceived Behavioural Control	.450	<0.01*	H5 (S)
Intention to Use ← Attitude	.209	0.034**	H3 (S)

Note: * & ** indicate 1% & 5% level of significance (S)- indicates 'Hypothesis is supported'

H1: 'Perceived Usefulness' positively influences 'Attitude towards using e-HRM' in Food Processing Industry.

Research model supported the hypothesis because path coefficient is having significant value (<0.01) and expected positive sign (+.237). The HR Professionals develop a positive attitude towards a particular technology if they find it as useful (Cakmak, et al., 2011)¹⁸. Thus, perceived usefulness of particular technology can urge an individual to utilize that particular technology. As a result of which, the work becomes very smooth and efficient. Also, records are available for each and every data set.

H2: 'Perceived Ease of Use' positively influences 'Attitude towards using e-HRM' in Food Processing Industry.

Significant P-value (<0.01) with positive (+.281) path coefficient supported the hypothesis. There is a positive relationship between the 'perceived ease of use' with that of the attitude of the respondents in using that particular technology. The easier it is to use the product, the more the user will be attracted towards it. The respondents generally tend to avoid complicated systems as it takes a lot of effort out of them to get used to the system.

H3: 'Attitude towards using e-HRM' positively influences 'Intention to Use e-HRM' in Food Processing Industry.

Research model supported the hypothesis because path coefficient is having significant value (p=0.034) and expected positive sign (+.209). A positive attitude regarding particular technology would further influence the behavioral intention of the person to use that technology. As a result, the initial perception of the user regarding a particular technology matters a lot.

H4: 'Subjective Norms' positively influences 'Intention to Use e-HRM' in Food Processing Industry.

Significant P-value (<0.01) with positive (+.248) path coefficient supported the hypothesis. Certain instrumental processes such as job image and job quality play a very important role in influencing the intention to use particular technology. Technology must not be so nominal that it fails to deliver the kind of services being expected by the users. Also, on the other hand, it must not be that complicated so that it becomes a hindrance for the user.

H5: 'Perceived Behavioral Control' positively influences 'Intention to Use e-HRM' in Food Processing Industry.

Research model supported the hypothesis because path coefficient is having significant value (<0.01) and expected positive sign (+.450).

HR Professionals who have already used the technology must be happy with the experience. This will further propagate the agenda of using that E-HRM technology again and again.

H6: 'Perceived Enjoyment' positively influences 'Intention to Use e-HRM' in Food Processing Industry.

Significant P-value (<0.01) with positive (+.293) path coefficient supported the hypothesis. It is extremely crucial that the usage of the E-HRM technology is a delightful and pleasurable experience for the users. The interface must be designed in such a way that the work does not become monotonous. This will help in the development of the intention to utilize the technology repeatedly.

VII. IMPLICATION

Globalisation is on a rising spree as a result of which the human resources need to take care of the job deliverables on time. This can be done with the help of technology. The food processing industry needs to maintain the quality of its products in order to maintain a steady reputation in the market. Quality can be achieved by training the HR Professionals with the use of various E-HRM technologies. The job gets done within a stipulated period of time. Communication is also made easy. Recruitment of a Global workforce is made possible and their compensation is also taken care of. Performance appraisal of the HR Professionals could be done and special training could be given to those who are in need of them. Work can be made enjoyable for the HR Professionals so that it does not become monotonous and in this manner, errors are also minimised. Entire systems have become self automated making the work relatively easier. Food is a basic necessity of life and hence the demand of the food processing industry is very high. This has social as well as economical consequences. E-HRM technologies could be used to recruit individuals into this industry and training could be provided to them as well. This would improve the employment index of the nation as individuals would have an income source which would help them immensely to support their family. A centralised database for the employees can be created through E-HRM so that the data is accessible to all during times of need.

VIII. CONCLUSION

E-HRM technology helps the HR department to develop process efficiency. The role of the HR department is to deal with people both internal as well as external to the company on a daily basis. The activities include from all the brackets of the organisation right from the top management to the middle management and finally, the lower management. This paper delves into the food processing industry of India. The objective is to figure out the attitude and intention of acceptability of different technologies related to E-HRM by HR Professionals. The respondents in this study have showcased a positive dimension of thinking towards adopting E-HRM. The quantitative analysis of the determination of the degree of inclination to adopt E-HRM depends on various factors such as perceived usefulness,

perceived ease of use, subjective norms, behavioural control and perceived enjoyment. All these factors are important to convince the user to use E-HRM. It is becoming increasingly obsolete to depend on conventional methods. Web based technology is the new way of life as jobs are getting done by using emails, LAN network, printers, centralised system for storing information and many more. Thus, the food processing industry is making immense progress in terms of adoption of new and innovative technologies related to E-HRM but new dimensions need to be explored.

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ANNEXURE: 1

Factors	Structure Questionnaire with Different Items / Variables
Attitude towards using e-HRM	q1: The interface of the E-HRM technology helps in the development of a positive attitude among HR Professionals.
	q2: A positive attitude of the adoption of E-HRM technology results in the development of the intention to use the same.
	q3: A positive attitude regarding E-HRM increases its chances of being used by the HR Professionals.
Intention to Use e-HRM	q4: Intention to adopt the E-HRM technology increases its frequency of usage.
	q5: Intention to adopt E-HRM technology can result in more efficient and effective processes.
	q6: Intention to use E-HRM technologies increases the probability of the actual usage of the technology.
Perceived Behavioural Control	q7: Perceived behavioral control positively influences the intention to adopt E-HRM technologies.
	q8: The experiences of HR Professionals regarding E-HRM technology create positive perception regarding that particular technology which they have already used.
Perceived Usefulness	q9: Perceived usefulness of E-HRM technology influences positively the attitude of the HR professionals regarding its usage.
	q10: Perceived usefulness of the E-HRM technology positively affects the mindset of the HR professionals regarding the usage of the technology.
Perceived Ease of Use	q11: Perceived ease of use of E-HRM technology positively influences the attitude of the HR professionals regarding its usage.
	q12: Perceived ease of use of a particular E-HRM technology helps HR professionals to clearly understand it which will help in its usage.
Subjective Norms	q13: Subjective norms positively influence the intention to adopt E-HRM technologies.
	q14: Subjective norms of the E-HRM technologies must match with the job quality and job image of HR Professionals who are using the technology.
Perceived Enjoyment	q15: Perceived enjoyment positively influence the intention to adopt E-HRM technologies.
	q16: The experience of the users of the usage of the E-HRM technologies is enjoyable and pleasurable.

AUTHORS’ PROFILE



Dr. Arunangshu Giri (arunangshugiri@gmail.com) has over 10 years of experience in Industry, research and teaching. He is presently serving as an Associate Professor in the School of Management and Social Science, Haldia Institute of Technology, West Bengal. He is also acting as visiting professor at Vidyasagar University and study counsellor at Indira Gandhi National Open University (IGNOU). He teaches courses on

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