

## **APPLICATION OF INTERNET OF THINGS IN INDIAN AGRICULTURE BASED ON TURMERIC CULTIVATION.**

Mrs.M.Sangeetha<sup>1</sup>, Dr.K.Brindha<sup>2</sup>

### **ABSTRACT**

In India, the most imperative issue ascends in conventional technique is the unevenness in the configuration of climatic conditions (occasional precipitation, soil disintegration and so on) because of which the efficiency is diminished to a noteworthy degree. Another real disservice is these gadgets are yet to reach in the Indian market. The mindfulness is inadequate in the Indian farmers. To decide the dirt ripeness and profiling he needs to movement to adjacent agriculture based on turmeric cultivation focuses, which might possibly be available. The data in regards to the dirt conditions are not adequately utilized by the Indian farmers. The main objective of the study is to analyse the level of awareness among farmers about IoT in marketing process. For this purpose a sample of 75 was collected from the farmers of Coimbatore region based on random sampling method were percentage analysis, one way Anova, multiple regression and Kruskal Wallis test were used as samples to analyse the data. The conclusion is that the respondents don't have awareness towards access to web for IoT in marketing, display of notices/ circulars through news papers by the government, checking availability of Books/ lend out and the respondents (farmers) also have a negative opinion towards the process of IoT in marketing.

**Key words:** Agriculture based on turmeric cultivation, Awareness and Farmers

### **INTRODUCTION**

Internet of Things is shaped out of squares working in which sensors, e-gadgets are incorporated. There won't be any human to human communication because of the inclusion of IoT in marketing. It is a self - mechanized process. The IoT in marketing innovation is more powerful because of: Peter J. Ryan (2017)

- Effective administration of Time.
- Communication and Connectivity.
- Faster get to and decreases human endeavors.

IoT in marketing gadgets are relatively utilized as a part of each segment including agriculture based on turmeric cultivation. These gadgets give answer for the angles like enhancing the nature

---

<sup>1</sup>M.Com., M.Phil., (PhD), Research scholar, LRG Government Arts College for women, Tirupur.

<sup>2</sup>M.Com., M.Phil.,PGDCA.,MBA.,NET.,PhD, Assistant Professor, Department of Commerce, LRG Government Arts College for women, Tirupur.

of the harvests, soil quality, robotizing water for water system lastly the imperative part – estimating of climate. Empowering these gadgets in agriculture based on turmeric cultivation would help us to balance out our generation and supply, it starts to make more request and draws out an appropriate harmony between the request and supply. A reasonable development is guaranteed by empowering the utilization of IoT in marketing gadgets in the agriculture based on

## **APPLICATION OF INTERNET OF THINGS IN INDIAN AGRICULTURE BASED ON TURMERIC CULTIVATION.**

turmeric cultivation area. In spite of the fact that Indian market is considered as a monster in the agriculture based on turmeric cultivation division they are still in the early stages level in productively utilizing the most recent advancements, particularly IoT in marketing gadgets. Gubbi, J(2013).

### **Review of literature**

Raheela Shahzadi (2016) presented an ES for Cotton crop based on the concept of IoT in marketing. They attempted to create and starting casing for IoT in marketing-based farming. They built up an IoT in marketing-based ES. It's based ES comprises of three modules; the initial segment comprises of the sending of WSN in the cotton fields. WSN has utilized for the checking of the cotton edit condition. The Waspote agribusiness sensor board has utilized for the checking of the cotton trim condition. It comprises of temperature sensors, stickiness sensors, leaf wetness sensors and soil sensors.

Vinayak N. Malavade (2016) focused on position of IoT in marketing in agriculture based on turmeric cultivation that leads to smart agriculture based on turmeric cultivation. It was found out that IoT in marketing minimizes human efforts.

### **Private label Vs National label**

The utilizations of IoT in marketing-based shrewd cultivating target customary, vast cultivating activities, as well as be new levers to elevate other developing or normal patterns in rural like natural cultivating, family cultivating (intricate or little spaces, specific steers as well as societies, safeguarding of specific or superb assortments and so forth.), and improve very straightforward cultivating.

As far as natural issues, IoT in marketing-based brilliant cultivating can give awesome advantages including more productive water utilization, or improvement of data sources and medications. Presently, we should talk about the significant utilizations of IoT in marketing-based savvy cultivating that are upsetting agriculture based on turmeric cultivation. Pallavi Sethi (2017).

### **Need of the study**

The Internet of Things (IoT in marketing) has the capability to transform the world we live in; more-efficient industries, connected cars, and smarter cities are all components of the IoT in marketing equation. However, the application of technology like IoT in marketing in agriculture based on turmeric cultivation could have the greatest impact. The need of the study is that lack of knowledge among the Indian farmers in adapting the latest technology for better growth.

### **Research gap**

The past studies were done internationally and nationally and no study was conducted with Coimbatore region. And maximum of the studies conducted was made through secondary data were the awareness towards (IoT in marketing) with the farmers were not verified.

### **Theoretical framework**

The worldwide populace is set to touch 9.6 billion by 2050. Along these lines, to nourish this much populace, the cultivating business must grasp IoT in marketing. Against the difficulties, for example, outrageous climate conditions and rising environmental change, and natural effect

coming about because of concentrated cultivating hones, the interest for more nourishment must be met.

Brilliant cultivating in light of IoT in marketing advancements will empower cultivators and farmers to diminish waste and improve efficiency extending from the amount of compost used to the quantity of voyages the ranch vehicles have made.

In IoT in marketing-based brilliant cultivating, a framework is worked for observing the harvest field with the assistance of sensors (light, stickiness, temperature, soil dampness, and so on.) and mechanizing the water system framework. The farmers can screen the field conditions from anyplace. IoT in marketing-based brilliant cultivating is profoundly proficient when contrasted and the traditional approach.

### **Objective of the study**

- To analyse the level of awareness among farmers about IoT in marketing process.
- To analyse about the acceptance towards IoT in marketing process among farmers.
- Improving quality in terms of production and supply, avoid wastage and better understanding of environmental conditions (soil quality, weather & climatic changes).
- 

### **RESEARCH METHODOLOGY**

The research methodology deals with the research design, data collection methods, sampling method, fieldwork, and the analysis and interpretation of research work.

**Research design:** The study was conducted in order to find out the farmers awareness towards IOT in marketing.

### **SAMPLING DESIGN & TOOLS APPLIED**

#### **Sampling techniques**

Sampling Unit:

Sampling unit can be defined as the basic unit containing the farmers with Coimbatore city.

Sampling Size:

In this research, the sample size amount to one hundred and fifty, which are surveyed from farmers with Coimbatore city.

And also, the statistical tool are applied viz.

- (a) Chi-square test
- (b) Percentage analysis.
- (c) Anova
- (d) Multiple regression

### **DATA COLLECTION**

The primary data the respondents which or collected with a questionnaire schedule and secondary data were collected from the manuals, journals, magazines and newspapers etc.

**Research Tool:** Structures self administered questionnaire had been used as a research tool for collecting.

Reliability analysis: A total of 15 samples were taken for the purpose of testing the reliability of the study and the reliability for the factors used with study is greater than 0.7 which shows that the dimensions of the study are reliable and can be proceeded further.

### **LIMITATIONS**

## APPLICATION OF INTERNET OF THINGS IN INDIAN AGRICULTURE BASED ON TURMERIC CULTIVATION.

- There may be a bias in collection of primary data towards the research.
- The research was conducted with Erode region only.
- The study time was limited to three months so a deep analysis about the study was not made.

### DATA ANALYSIS AND INTERPRETATION

Demographic profile of the farmers	Particulars	Frequency	Percent
Gender	Male	46	61.7
	Female	29	38.3
	Total	75	100.0
Age	Below 28	16	20.8
	28-35	38	50.0
	36-45	22	29.2
	Total	75	100.0
Place of living	Semi rural	18	23.3
	Rural	26	34.2
	Urban	15	20.0
	Semi urban	17	22.5
	Total	75	100.0
Income	Below 5000/month	36	48.3
	5000-10000/month	26	35.0
	10000-20000/ month	9	12.5
	Above 20000/month	3	4.2
	Total	75	100.0

### Interpretation

The above table shows about the demographic variable of the respondents were out of 75 respondents taken for the study male respondents are higher (61.7%) than the female respondents (38.3%). On analyzing the age group of the respondents the farmers from the age group between 28-35 are higher (50%) than the other age group of the study. The respondents living in rural area (34.2%) are more than other area people and the income group 5000/month are higher than other income group farmers taken for the study.

### ONE WAY ANOVA

#### Comparison between age and acceptance towards usage of IOT in marketing with various parts of agriculture based on turmeric cultivation

**Ho:** There is a significant difference between age and acceptance towards usage of IOT in marketing with various parts of agriculture based on turmeric cultivation

#### Descriptives

		N	Mean	Std. Deviation	Std. Error	F	Sig
Acceptance towards maintaining Agriculture based on turmeric cultivation warehouse based on IOT in marketing	Below 28	16	3.28	1.595	.319	.504	.006
	28-35	38	3.15	1.560	.201		
	36-45	22	2.89	1.659	.280		
	Total	75	3.10	1.590	.145		
Acceptance towards farm monitoring based on IOT in marketing using Various marketing methods	Below 28	16	2.84	1.491	.298	.328	.021
	28-35	38	3.13	1.567	.202		
	36-45	22	3.00	1.553	.263		
	Total	75	3.03	1.539	.140		
Acceptance towards IOT in marketing helping in real time monitoring of marketing performance	Below 28	16	3.04	1.620	.324	.046	.955
	28-35	38	3.15	1.549	.200		
	36-45	22	3.09	1.687	.285		
	Total	75	3.11	1.592	.145		
Acceptance towards IOT in marketing used for home gardening for Indoor Irrigation Project	Below 28	16	3.24	1.535	.307	.253	.777
	28-35	38	3.17	1.553	.201		
	36-45	22	2.97	1.654	.280		
	Total	75	3.12	1.569	.143		
Acceptance towards IOT in marketing used in implementation of new concepts	Below 28	16	2.96	1.620	.324	1.803	.169
	28-35	38	3.43	1.630	.210		
	36-45	22	2.83	1.562	.264		
	Total	75	3.16	1.619	.148		
Acceptance towards IOT in marketing is used in agriculture based on turmeric cultivation for harvesting crops	Below 28	16	3.32	1.520	.304	.429	.652
	28-35	38	3.15	1.614	.208		
	36-45	22	2.94	1.571	.266		
	Total	75	3.12	1.575	.144		

### Interpretation

The above table shows about the difference between age and acceptance towards usage of IOT in marketing with various parts of agriculture based on turmeric cultivation. It depicts that there is a difference between age and Acceptance towards IOT in marketing helping in real time monitoring of marketing performance (0.955), Acceptance towards IOT in marketing used for home gardening for Indoor Irrigation Project (0.777), Acceptance towards IOT IN MARKETING USED in remote control (0.169), Acceptance towards IOT in marketing is used in agriculture based on turmeric cultivation for harvesting crops (0.652) as the level of significance is greater than 0.05.

### KRUSKALWALLIS

### COMPARISION BETWEEN GENDER AND AWARENESS TOWARDS FACTORS RELATED TO IOT IN MARKETING

## APPLICATION OF INTERNET OF THINGS IN INDIAN AGRICULTURE BASED ON TURMERIC CULTIVATION.

### Ranks

	Gender	N	Mean Rank	Sum of Ranks	Assumed Sig
Awareness towards Access to Web for IOT in marketing	Male	29	62.08	4594.00	0.516
	Female	46	57.96	2666.00	
	Total	75			
Awareness towards E- Mail	Male	29	64.78	4793.50	0.009
	Female	46	53.62	2466.50	
	Total	75			
Awareness towards Electronic Communication to users	Male	29	61.30	4536.00	0.743
	Female	46	59.22	2724.00	
	Total	75			
Awareness towards Display of Notices/ Circulars through news papers by the government	Male	29	59.15	4377.00	0.578
	Female	46	62.67	2883.00	
	Total	75			

### Interpretation

The above table shows about the relationship between gender and awareness towards factors related to IOT in marketing. It shows that there is a relationship between gender and awareness towards E-Mail (0.009) were male respondents have higher influence towards E-Mail. There is a significant difference between age and Access to Web for IOT in marketing (0.516), Electronic Communication to users (0.743), Display of Notices/ Circulars through news papers by the government (0.578). It depicts that while taking decision on the factors related to IoT in marketing based on agriculture based on turmeric cultivation there is no need of taking age in to consideration for these factors.

## REGRESSION ANALYSIS

### COMPARISION BETWEEN GENDER AND ACCEPTANCE TOWARDS IOT IN MARKETING WITH VARIOUS PARTS OF AGRICULTURE BASED ON TURMERIC CULTIVATION

<b>Coefficients<sup>a</sup></b>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.383	.296		4.671	.000
	Acceptance towards maintaining Agriculture based on turmeric cultivation warehouse based on IOT in marketing	-.035	.040	-.117	-.856	.395
	Acceptance towards farm monitoring based on IOT in marketing using Various marketing methods	.017	.042	.055	.416	.678
	Acceptance towards IOT in marketing helping in real time monitoring of makreting performance	-.021	.043	-.066	-.487	.628
	Acceptance towards IOT in marketing used for home gardening for Indoor Irrigation Project	-.004	.038	-.012	-.099	.921
	Acceptance towards IOT in marketing used in implementation of new concepts	.008	.037	.027	.220	.826
	Acceptance towards IOT in marketing is used in agriculture based on turmeric cultivation for harvesting crops	.036	.039	.116	.930	.356
a. Dependent Variable: Gender						

### Interpretation

The above table shows about the relationship between gender and acceptance towards IoT in marketing with various parts of agriculture based on turmeric cultivation were the R square vale is at 0.219 which shows a moderate correlation between the factors.

Based on the correlation coefficient it shows that gender is inversely proportional to Acceptance towards maintaining Agriculture based on turmeric cultivation warehouse based on IOT in marketing (-0.305), Acceptance towards IOT in marketing helping in real time monitoring of marketing performance (-0.021), Acceptance towards IOT in marketing used for home gardening for Indoor Irrigation Project(-0.004). It depicts that while taking decision on the above factors there is no need of taking gender in to consideration for these factors.

### FINDINGS

- With the demographic variable used for the study male respondents are higher than the female respondents. The age group between 28-35 are higher than the other age group of the study. The respondents living in rural area are more than other area people and the income group 5000/month are higher than other income group farmers taken for the study.
- Most of the respondents strongly disagree towards maintaining Agriculture based on turmeric cultivation warehouse based on IOT in marketing.

## **APPLICATION OF INTERNET OF THINGS IN INDIAN AGRICULTURE BASED ON TURMERIC CULTIVATION.**

- Maximum of the respondents strongly disagree towards farm monitoring based on IOT in marketing using Various marketing methods.
- Most of the respondents strongly disagree towards IOT in marketing helping in real time monitoring of marketing performance .
- Maximum of the respondents strongly disagree towards IOT in marketing used for home gardening for indoor irrigation project.
- Most of the respondents strongly disagree towards using IOT in marketing in implementation of new concepts.
- Maximum of the respondents strongly disagree towards using IOT in marketing in agricultural crops.
- Most of the respondents are unaware towards access to web for IOT in marketing.
- Most of the respondents are unaware towards access to web for IOT in marketing.
- Maximum of the respondents are unaware of display of notices/ circulars through news papers by the government.
- Most of the respondents are unaware towards status of checking availability of Books/ lend out.
- Maximum of the respondents strongly disagree towards IOT in marketing helpful during all the phases of the agricultural ecosystem.
- Maximum of the respondents strongly disagree towards IOT in marketing helping for efficient crop management irrigation control.
- While taking decision on awareness towards E-Mail age should be taken in to consideration for the decision making process.
- While taking decision on farm monitoring based on IOT in marketing using Various marketing methods, IOT in marketing used for home gardening for Indoor Irrigation Project, IOT in marketing used in implementation of new concepts, IOT in marketing used in agriculture based on turmeric cultivation for harvesting crops gender should be taken in to consideration for decision making process of the study.

### **CONCLUSION**

The conclusion is that the respondents don't have awareness towards access to web for IOT in marketing, display of notices/ circulars through news papers by the government, checking availability of Books/ lend out and the respondents (farmers) also have a negative opinion towards the process of IoT in marketing.

### **REFERENCES**

- Gubbi, J., Buyya, R., Marusic, S., & Palaniswami, M. (2013). Internet of Things (IoT): A vision, architectural elements, and future directions. *Future generation computer systems*, 29(7), 1645-1660.
- Malavade, V. N., & Akulwar, P. K. (2016). Role of IoT in agriculture. *IOSR Journal of Computer Engineering*, 2016, 2278-0661.
- Mortenson, M. J., Doherty, N. F., & Robinson, S. (2020). Creating a typology of analytics Master's degrees in UK universities: Implications for employers and educators. *Journal of the Operational Research Society*, 71(9), 1327-1346.
- Ryan, P. J., & Watson, R. B. (2017). Research challenges for the internet of things: what role can or play?. *Systems*, 5(1), 24.



- Shahzadi, R., Tausif, M., Ferzund, J., & Suryani, M. A. (2016). Internet of things based expert system for smart agriculture. *International Journal of Advanced Computer Science and Applications*, 7(9), 341-350.