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Aims and Scope

Journal of Knowledge Management & Information Technology (JKMIT) is a bi-annual peer reviewed journal that focuses on fostering original research in the areas of knowledge management and information technology. Every single issue carries empirical and qualitative research papers, impressions of the industry by the academicians and people from industry on the burning topics of the society. JKMIT aims to propagate research in the areas not restricting to only knowledge management and Information Technology and covers other functional areas of business management including economics, environment and education technology. The journal is committed to influence the thought process of management thinkers and technology strategists.

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JKMIT is published in January and June every year. Its targeted readers are research scholars, academicians engaged in research and corporate with an inclination towards research. The journal provides a platform to exchange research ideas among researchers across the globe in the realm of scholarly contributions to foster empirical and theoretical research on the most burning issues faced by the corporate world and the society as a whole. Each issue comprises of scholarly contributions come from the desks of eminent researchers.

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The Role of Information Technology in Commerce

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ABSTRACT

The Information Technology has given the best platform to procure new online business ideas with the use of E-commerce. In 1970, business technology was known as Data Processing (DP) and in the 1980 it was Information Systems (IS).

The Information Technology is the component of Information System. The researcher can provide detail information about the impact of Information Technology in commerce and E-commerce through this topic. Researcher is giving the brief overview of the role of Information technology in commerce. This paper also tries to explore several Roles of Information Technology in Commerce.

Keywords: Information Technology, Commerce, business technology, E-commerce,

1.1. INTRODUCTION

Concepts of information technology and commerce

Information Technology is the design, creation, utilization, support and management of computer-based information systems in fostering the transactions of information product and services. The Information Technology is used in each and every aspect of Commerce.

Commerce includes the exchange of goods and services in small as well as in large scale. The information Technology created the best impact in Commerce. Information technology is very important for automating the complex problems by introducing simple solutions.

It satisfies the customer demands in the best possible way. It has both tangible and intangible benefits that will help to make money and produce the results for customer demands.

Meaning of Electronic Commerce

The emergence of the internet has given rise to electronic commerce in carrying out business transactions and services. Here the internet is the infrastructure that fosters electronic or online transaction of goods and services.

"The Electronic commerce or E-commerce means buying, selling and exchanging of goods, services and information via computer network."

E-commerce is related to business or commercial transaction. It involves transfer of information using internet. It covers different types of businesses such as retail sites and trading sites. It is currently one of the most important aspects of the Internet.

Now a day's customer's expectation of shopping are increases day by day, they are not easily satisfied in few list of product, they want to see all brands of product in one click and all this expectation is possible using E-commerce. Different websites like Flipcart, Amazone, Snapdeal, Jabong, Myntra, eBay, Paytm are available for selling and purchasing with the help of E-commerce. We can compare product with different websites and then purchase it from anywhere.

Customer can order all types of product with the help of internet. Not only we can purchase product but the travelling is also possible using E-commerce., we can book a cab, auto, railway tickets as well as air tickets also. For this purpose customers are having different websites like OLA, Uber, MegaCabs, BookMyCab.com, IRCTC, and MakeMyTrip etc. These types of websites provide the facility related to cab booking.

Customer can order food on their demand with the help of E-commerce. Instead of going to different hotels, food corner they can order food as per their choice. For this different kinds of websites are available such as Zomato, Foodpanda, swiggy etc. Thus, E-commerce solves the problem related to shopping, travelling, food ordering and many more.

The term E-commerce gives an overview of how business are being conducted online. E- commerce helps to bridge the geographical boundaries and eliminate the physical traditional market for the transaction of goods and services. As all transactions is online based.

Growth of E-Commerce in India

The E-commerce and Information Technology has transformed the way of business done in India. The most valuable & most visited top 10 E-commerce companies in India are Flipkart, Amazon India, Snapdeal, PayTM, Myntra, Ebay, Shopclues, Make My Trip, IRCTC, GoIbibo. These all are considered on the basis of their popularity, traffic, number of visits and market value. All are most valuable and biggest online shopping websites in India. Growth of Ecommerce in India is explained with the help of different charts.

1.2 NEED OF STUDY

The IT industry is rapidly growing and popular in the field of commerce. The Information Technology plays a vital role to ensure the smooth functioning of all the departments including Human Resources, Finance, Manufacturing and Security. The aim of the study is to highlight the performance of current scenario of the E-commerce Industry.

1.3 OBJECTIVES OF STUDY

To evaluate the impact of Information Technology in Commerce. The main objectives of the study are as under:

i) To evaluate the E-commerce growth in India.

ii) To study the relationship between Information Technology and Commerce

iii) To examine how business is conducted using E-commerce techniques.

iv) To evaluate the sales of E-commerce for different years in India.

v) To find out the most preferred way of payment in India to do E-commerce transactions.

1.4 HYPOTHESES

H0: Online payment and quality of product is most prominent cause of E-commerce among citizens of India

H1: E-commerce reduces the complexity of processes using online payment and thus improves the relationship between business and citizens of India.

1.5 DATA COLLECTION

The analysis of different types of transactions in E-commerce based on secondary data which is collected from various sources like online journals, books, other published online material and published reports of Internet and Mobile Association of India. Internet & Mobile Association of India (IAMAI) is a not-for-profit industry body registered under the Societies Act, 1986. The data is concerned with the year 2010 to 2018.

1.6 SCOPE OF STUDY

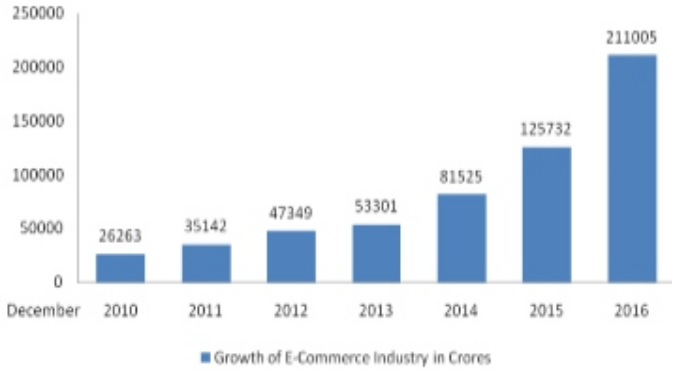
1. To analyse different business models with types of transactions.
2. Many ways of payment are available for doing transaction in E-commerce.
3. Cashless economy can have some positive and some negative impacts on Indian Economy.
4. This study concern to the period of 2010-16. Researcher can explore several different scopes over time.

1.7. RESULT ANALYSIS

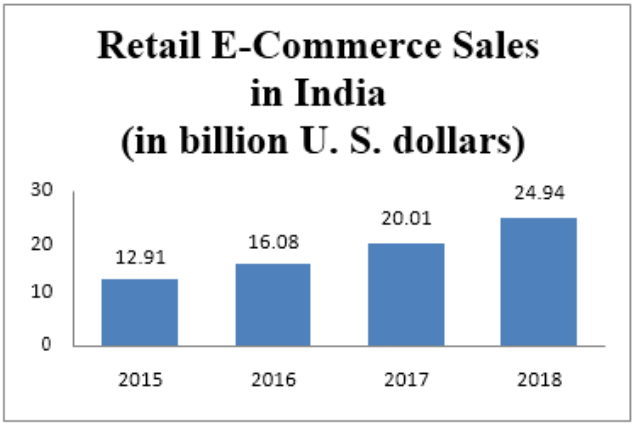
E-Commerce business models:-

Transaction Type	Name	Description
B2B	Business-to-business	Transactions between companies.
B2C / C2B	Business-to-customer/Customer-to-business	Companies making transactions between companies and the end customer.
C2C	Customer-to-customer	Transactions between end customers.
G2C/C2G	Government-to-customer/ customer-to-government	Transactions between government and end customers.
B2G/G2B	Business-to-government/ government-to-business	Transactions between government and Companies.
G2G	Government-to-government	Transactions between government Departments.
P2P	Peer-to-Peer	Transactions between two individuals

The above table depicts different types of transactions possible in E-commerce. These all types are useful in doing E-commerce business. This classification of E-commerce is based on who orders the goods and services and who is selling the goods or services.

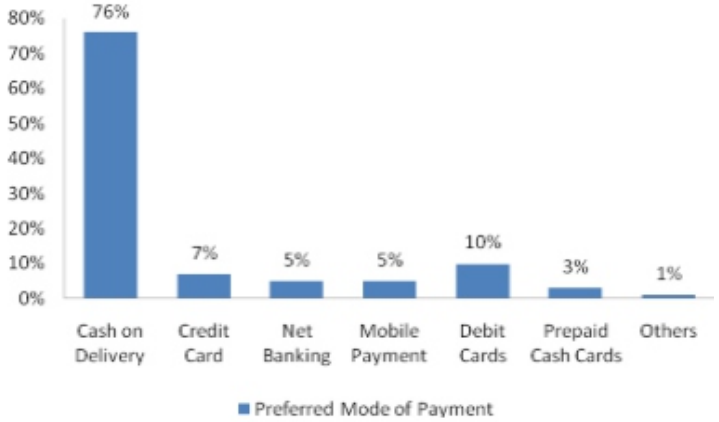


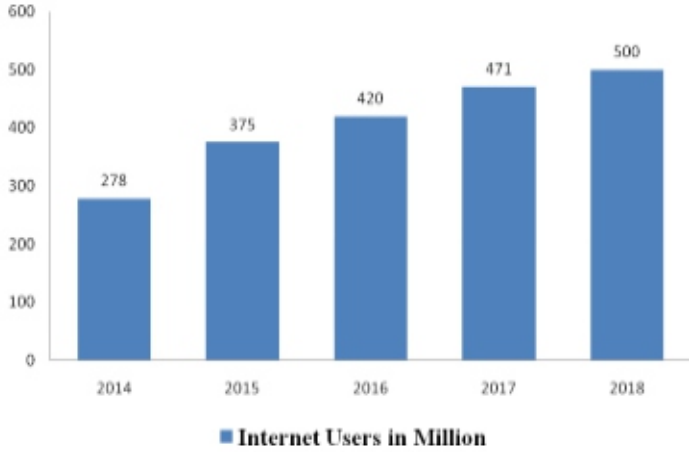
Internet and Mobile Association of India (IAMAI) has found that, Indian digital commerce was standing at 26263 crores in 2010. It is gradually increasing in the preceding years. In 2016 the Indian digital commerce stands at Rs. 2,11,005 crores.



It is clear from the graph that the retail E-commerce Sales is showing an increasing trend in India from 2015 to 2018 (in US billion dollars). The retail E- commerce Sale for the year 2015 was 12.91 US Billion $, in 2016 it was 16.08, in 2017 it was 20.01 and in the year 2018 it has increased to 24.94 US Billion $.

According to IAMAI Study Cash on Delivery (COD) remains to be the most preferred way of payment in India. Online payment options like Credit Card 7%, Net Banking 5%, Mobile Payment 5%, Debit Card 10%, Prepaid Cash Cards 3% and others 1% are less contributed as compared to Cash on Delivery.





According to Internet and Mobile Association of India (IAMAI) report in 2014 there was 278 million users using internet which has been increased to 500 million users in 2018. These figures are including both urban as well as rural. The growth rate of rural India seems to be higher. The overall internet users in rural India are still critically low as compared to the urban area.

The E-commerce sector is rapidly growing in India. The internet user's base in India is much less as compared to developed nations of the world, but it is expanding day by day. This growth of E-commerce in India is due to internet penetration and easily available smart phones. Retail sector is one of the largest growing sectors in India at present, which is expected to grow in future with an increasing rate.

In E-commerce we use cashless system. It has an effect on financial performance of banks in India. The introduction of cashless system significantly accounts to banks. It is found that the increased cost has both positive and negative impact to the financial performance. This led to the diversifying of banks and their resources. This reduces the subscription fees for POS banking, mobile banking as well as Internet banking.

1.8 SUGGESTIONS

1. Customers need to be aware of the new technology. Without use of technology it is not possible to setup the electronic market.
2. Technology has to aware in rural areas also so that they can use Internet facility for E- commerce.
3. Delivery boys must have insurance when he has joined the job. Because it might possible to get accident while delivering the product.
4. It can improve the productivity and thus it helps to increase the revenue of Indian economy.
5. To maintain the hygiene while delivering the product.

1.9. CONCLUSION

From the whole study, it can be concluded that E-COMMERCE plays a very vital role in the development of the whole Nation, society and the Indian economy.

- By the inception of the internet and E-commerce the business and customers get better opportunities and different payment options to do business smoothly. E-commerce is continuously progressing and becoming more important for any type of business. It creates better opportunities for the profit in business and it gives more options to the customers.
- Day by day new technologies will create the next best things in the field of E-commerce for doing transactions because customers continue to desire their products and services better, faster and cheaper way.
- The study aimed at investigating whether cashless system had any, positive or negative, impact on the financial performance. It was established that cashless system had a positive impact on the services offered as more customers have been able to transact different services electronically.
- It has been also very easy to access their accounts and therefore saving on valuable time. On the other side E-commerce is harmful in accidental and fraud cases.

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Understanding Barriers of Knowledge Management Implementation (Interpretive Structural Modelling Approach)

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A B S T R A C T

Knowledge management is an important aspect for organizational success acting as a valuable tool for organizational survival to sustain competitiveness and achieve higher performance Five hundred questionnaires were distributed to employees of top five IT companies of Maharashtra state and three hundred and fivequestionnaires were returned. The paper finally concludes with presenting the managerial implications of results of the study, helping managers of IT industry to implement KM successfully.

Keywords:Knowledge Management, Knowledge Management Implementation, Barriers, Interpretive Structural Modelling

INTRODUCTION

Knowledge, which is the bundle of facts, theories and principles,is an essential part of human Life.According to Karadsheh et al. (2009), business results can be enhanced through knowledge only. Also, Martínez-Sánchez et al., (2011) highlighted innovation is only possible through elusive constituent called as knowledge. .Through this study, we intend to showcase KM as an important aspect for organizational success acting as a valuable tool for organizational survival to sustain competitiveness and achieve higher performance. It requires the involvement of three key components i.e. people, processes and technology, which may act as a barrier to effective implementation of KM which is the focus area of this study. Hence, the prime focus should be to connect these three key components for the purpose of leveraging knowledge, which is only possible by minimizing barriers of KM implementation. This study is probably the first of its type to identify barriers of KM in Indian IT industry. This study identifies the most probable barriers of KM implementation and evaluates the importance of these barriers in improving KM implementation through presenting a three-layered framework. This study is focuses on key domains of KM related to employees, organizations, and technology.

Barriers to KM

Many basic hindrances to successful implementation of KM have been identified by many researchers and practitioners so far. The barriers mainly include the culture, understanding of the importance of KM and support from top management (Lang, 2001; Plessis and Boon, 2004).

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Hubert and Lopez (2013) on the other hand stressed on understanding organization culture which is key to drive employee attitude and behaviour before implementation of any organizational level change.

Riege (2005) had identified as many as 40 barriers categorized as personal, organizational and technological.

Conceptual Framework

This study considers barriers categorized under individual factor, organizational factor and technological factor suggested by Riege (2005). The first type includes human related factors like attitude and behavior of users. The second type includes factors related to organization like culture, support from management and motivation. The third type of barrier is related to technology adapted within the organization in implementing it.

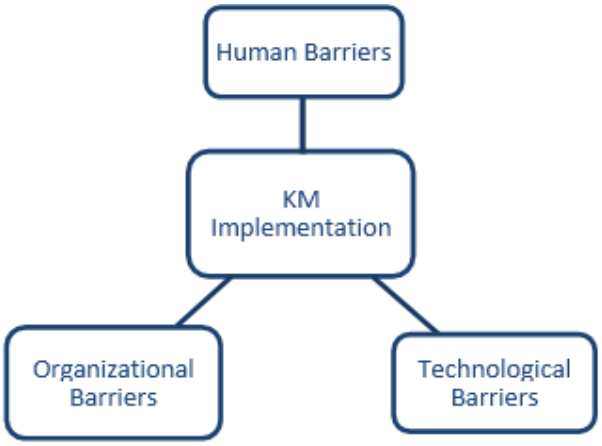

Figure 1: Barriers of KM Implementation Model

All the factors were tested to identify the most ruinous barriers of KM implementation in the IT industry.

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Research Methodology Research Questions

1) What factors act as barriers for implementation of KM?
2) What factors are most effective barriers to implement KM to gain competitive advantage in IT industry of India?

Research Objectives

1) To identify the barriers of KM implementation in IT industry.

2) To evaluate the impact of barriers on KM implementation in IT industry.

3) To present a comprehensive framework of barriers for successful implementation of KM in IT industry.

Research Variables

Table 2: Barriers of KM Implementation		
Independent Variables	**Source**	**Dependent Variable**
Human Barriers (H)	Riege (2005); McLaughli, Paton and Macbeth (2008); Herman (2011); Yiu and Lin	KM Implementation (X)
Organization Barriers (O)		
Technology Barriers (T)		

Research Model

To accomplish the identified research objectives, a 'KM Implementation Model' is proposed with three barriers as shown in figure 2. Three barriers viz. Human barriers, Organizational barriers and technological barriers have been identified to have an impact on KM Implementation.

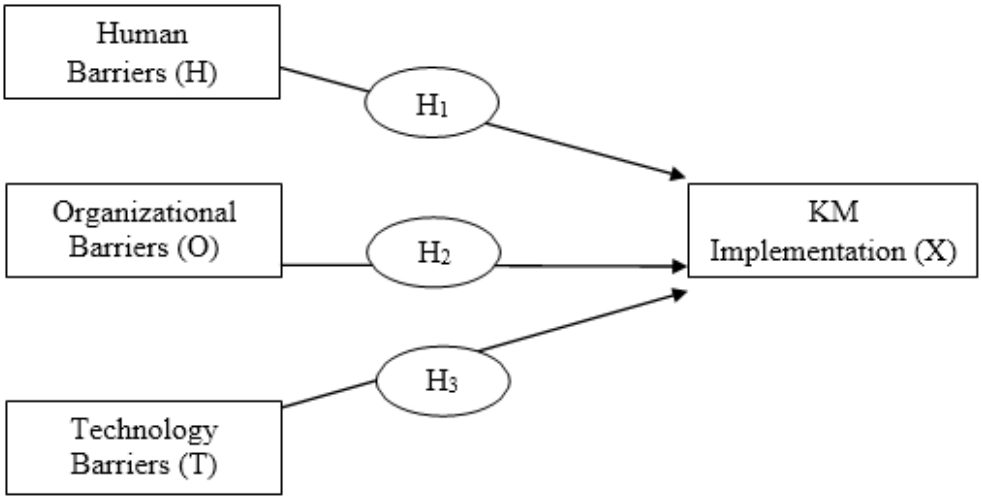

Figure 2: KM Implementation Model Research Hypothesis

Research Hypothesis 1 (H_1): Human barriers have significant impact on KM Implementation.

Research Hypothesis 2 (H_2): Organizational barriers have significant impact on KM Implementation.

Research Hypothesis 3 (H_3): Technological barriers have significant impact on KM Implementation.

Research Instrument

Table 3: Human Barriers (H)			
Sr. No.	**Items**	**Critical Human Barrier Factors**	**Sources**
1	H1	Perceived usefulness of knowledge creating and sharing	AtilaKarabag (2010)
2	H2	Self Interest – Unwillingness for knowledge sharing	Ahmad and Daghfous (2010); Lin, Wu and Yen (2012)
3	H3	Trust issues from origin of knowledge	Riege (2005); Herman -2011
4	H4	Perceived fear that sharing may reduce security	McLaughli, Paton and Macbeth (2008)
5	H5	Lack of trust in how the knowledge is used by its receiver	Riege (2005)
6	H6	Fear of losing personnel results	Kumar, Singh and Haleem -2014
7	H7	Unwillingness to use technology	Riege (2005); Singh and Kant (2008); Ahmad and Daghfous (2010)
8	H8	Lack of communication	Riege (2005)
9	H9	Staff Defection - Lack of expertise in executing KM	Singh and Kant (2008)
10	H10	Individual differences (age, education, experience level, gender)	Riege (2005); Wong (2009); Lin, Wu, & Yen (2012)
11	H11	Differences in culture, values and belief systems	Riege (2005)
12	H12	Lack of self-confidence and worrying too much about other's opinion	Riege (2005)

Table 5: Organizational Barriers (O)			
Sr. No.	**Items**	**Critical Organizational Barrier Factors**	**Sources**
1	O1	Lack of knowledge sharing culture	Lin, Wu, & Yen -2012
2	O2	Excessive bureaucracy or adherence to official rules and formalities (Red tape)	Kurt and Herbert (2001); Lin, Wu and Yen (2012)
3	O3	Ineffective communicationof KM benefits	Riege (2005); Lin, Wu and Yen
6	O4	Less priority for Knowledge retention (staff defection and retirement)	Riege (2005); Lin, Wu and Yen (2012)
8	O5	Lack of motivation monetary and non-monetary	Ahmad and Daghfous (2010); Lin, Wu and Yen (2012)
10	O6	Lack of technological training	Riege (2005); Singh and Kant (2008); Ahmad and Daghfous (2010); Lin, Wu and Yen (2012)

Table 6: Technological Barriers (T)			
Sr.No.	**Items**	**Critical Technological Barrier Factors**	**Sources**
1	T1	Lack of compatibility between technology and organizational process	Riege (2005)
2	T2	Lack of technical support	Riege (2005)
3	T3	Lack of compatibility between technology and people	Riege (2005); Kim &Ju -2005
4	T4	Redundant Information overload	Krcmar (2005)
5	T5	Improper planning and evaluation of technology	Singh and Kant (2008); Wong (2009); Ahmad and Daghfous (2010)

Table 7: KM Implementation (X)				
Dependent Variable	**Antecedents**	**Items**	**Scale**	**Sources**
KM Implementation (X)	Socialization (X1)	X11	Gathering information from others.	Nonaka et al. (1994); Lee et al. (2005)
		X12	Sharing information with others	
		X13	Creating a work environment of knowledge sharing	
	Externalization (X2)	X21	Creative communication with colleagues.	
		X22	Deductive and inductive knowledge sharing	
		X23	Provide subjective opinions in dialogues.	
	Combination (X3)	X31	Use IT systems for knowledge creation and sharing.	
		X32	Create documents to build up databases	
		X33	Creating database from technical information	
	Internalization (X4)	X41	Liaisoning with other departments	
		X42	Sharing results with other departments	
		X43	Sharing information with other departments	

Research Methods

For empirical testing of the hypothesis, primary data was collected through structured questionnaires measured on 7 point likert scale ranging from 1 as strongly disagree to 7 as strongly agree for each statement sending through emails to500 employees of top five IT companies of Maharashtra state i.e. TCS, Infosys, Wipro, Accenture and Capgemini through convenience sampling technique. Responses of 305 employees were finally considered for data analysis from 367 received responses after discarding incomplete questionnaires. Validity & reliability of the instrument was checked through exploratory factor analysis and cornbach coefficient alpha respectively, whereas regression was used to evaluate the impact of barriers on KM implementation. Interrelation between barriers was identified using ISM approach.

Data Analysis

Descriptive Statistics: Presence of KM Barriers

The extent of the presence of three barriers of KM implementation was identified using mean values of each barrier.

The result shows that human barriers is present in larger extent with mean value of 5.7, whereas organizational barrier and technological barrier are absent with mean value of 3.0 and 3.4 respectively. The overall mean of KM barriers is 4.0. It also depict that implementation of KM is little with mean value of 3.3.

Table 8: Descriptive Statistics: Presence of Barriers & KM Implementation							
Human Barriers		**Organizational Barriers**		**Technological Barriers**		**KM Implementation**	
Items	**Mean**	**Items**		**Items**	**Mean**	**Items**	**Mean**
H1	5.6	O1	2.9	T1	3.6	X11	3.3
H2	5.9	O2	3.3	T3	3.5	X12	3.2
H5	5.9	O5	2.7	T4	3.2	X13	3.3
H9	5.6	O6	3.2	T5	3.1	X31	3.3
H10	5.6					X32	3
H11	5.9					X33	3.1
H12	5.8					X41	3.6
						X42	3.6
						X43	3.7
Total Mean	5.7	Total Mean	3	Total Mean	3.4	Total Mean	3.3

Validity & Reliability of the Instrument

Exploratory factor analysis (EFA) was conducted for data validation on 35 items of the instrument developed comprising of 23 items for 3 barriers i.e. human (H), organizational (O) and technological (T) barriersas independent variable and 12 items for 4 antecedents of KM implementation (X)as dependent variable.

Table 9: KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.833
Bartlett's Test of Sphericity	Approx. Chi-Square	4356.146
	df	276
	Sig.	0

The result of factor analysis shows that 7 items of human barrier (H) were retained under 1st component whereas 5 items were discarded due to low loading values. 4 items of Organizational barrier (O) were retained loaded under 3th component. 4 items of technological barrier were retained loaded under 2nd component. All the 3 items for 3 antecedents of KM implementation i.e. Socialization (X1), combination (X3) and internalization (X4) were retained under 4th, 6th & 5th components respectively, whereas one antecedent i.e. Externalization (X2) was discarded due to low loading values. Therefore, after factor analysis, 24 items were considered from both independent and dependent variables for further multivariate analysis. Variance explained (%) are mentioned for each component making it 64.17% of total variance explained by all the components. The Extraction Communality Coefficient (h^2) is also mentioned for each item in table 10.

Table 10: Exploratory Factor Analysis							
Items	**Factors**						
	1	**2**	**3**	**4**	**5**	**6**	
Variance Explained (%)	23.8	10.4	13.8	6.5	4.7	4.9	**h^2**
H1	0.568						0.34
H2	0.572						0.363
H5	0.667						0.465
H9	0.751						0.581
H10	0.723						0.532
H11	0.857						0.748
H12	0.788						0.637
O1			0.829				0.691
O2			0.71				0.53
O5			0.913				0.837
O6			0.87				0.761
T1		0.784					0.619
T3		0.866					0.758
T4		0.798					0.654
T5		0.864					0.75
X11				0.824			0.68
X12				0.837			0.707
X13				0.858			0.74
X31						0.777	0.611
X32						0.949	0.908
X33						0.635	0.414
X41					0.879		0.783
X42					0.818		0.673
X43					0.777		0.619
Notes: Total variance explained = 64.17%. h^2 = Extraction Communality Coefficient.							

After factor reduction total 24 items will be considered comprising of both independent and dependent variables. internal consistency reliability to test unidimensionality was assessed by cronbach's alpha. The resulting alpha values ranged from 0.70 to 0.87, which were above the acceptable threshold 0.70 suggested by Babbie (1992). According to Babbie (1992), the value of cronbach Alpha is classified based on the reliability index classification where 0.90-1.00 is very high, 0.70-0.89 is high, 0.30-0.69 is moderate, and 0.00 to 0.30 is low. The cronbach alpha value for all the variables were higher than 0.70 which falls into the classification of high. The mean values for Human Barrier (H) is greater than average (i.e. more than 4), which confirms the agreement of employees on the lacking of the human factors conducive to KM implementation, mean value for Organizational Barrier (O) is greater than average (i.e. more than 4), which confirms the agreement of employees on the lacking of the organizational factors conducive to KM implementation, mean value for Technological Barrier (T) is

less than average (i.e. less than 4), which confirms the disagreement of employees on the lacking of the technological factors conducive to KM implementation. As per the calculation of standard deviation, not much deviation in data was found from mean as shown in table 11.

Table 11: Mean, SD And Cronbach's Alpha

Variables	Sample Size	Items	Mean	SD	α
H	305	7	5.7	1.2	0.883
O	305	4	3	1	0.907
T	305	4	3.4	0.8	0.874
X	305	9	3.3	0.9	0.789
SD - Standard Deviation; α – Cronbach's Alpha					

Hypothesis Testing

The Statistical Package for the Social Sciences (SPSS) (Version 21) was used to facilitate the analysis. The regression analysis was performed to evaluate the impact of barriers on KM implementation.

Regression statistics in table 12 shows that correlation value R is 0.538, which depicts that there is a moderate relationship between barriers and KM implementation. The value of R Square is 0.29 i.e. the model explains 29% of variable which effect KM implementation and there might be other reasons for implementation of KM other than used in this study. The value of Durbin Watson test (2.01) depicts that the model is good as the value is near to 2.

Table 12: Regression statistics

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.538	0.29	0.283	0.5697
Predictors: T, H, O; Dependent Variable: X				

Table 13 reveals that barriers have significant impact on KM implementation as F (calculated value) (40.977) is greater than F (table value) (3.00), moreover, the p value (significant value) is 0.00 which is less than 0.05 significance level. Therefore, the research hypothesis is accepted i.e. barriers have significant impact on KM implementation.

Table 13: ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	39.902	3	13.301	40.977	0
	Residual	97.701	301	0.325		
	Total	137.603	304			
Predictors: T, H, O; Dependent Variable: X						

All the three barriers, human (H), organizational (O) and technological (T) barriers have significant impact on KM implementation with p values of 0.004, 0.000 and 0.000 respectively as shown in table 14. Therefore, all the three sub hypothesis i.e. H1, H2 and H3 are accepted.

Table 14: Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	4.408	0.27		16.35	0
	H	-0.108	0.038	0.139	2.865	0.004
1	O	-0.207	0.04	-0.258	-5.188	0
	T	-0.313	0.039	-0.398	-8.007	0
Predictors: T, H, O; Dependent Variable: X						

The beta coefficients for the significant barriers i.e. human, organizational and technological barriers are -0.108, -0.207 and -0.313 respectively. It depicts that if each barrier is decreased by unit's equivalent to their respective beta coefficients, the KM implementation will be increased by 1 unit as shown in figure 3.

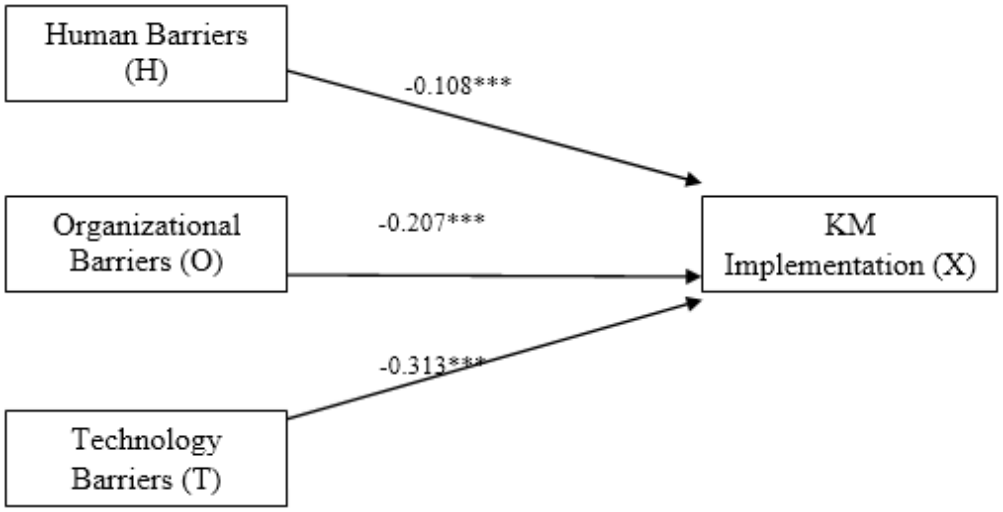

Figure 3: Empirical Model of KM Implementation

Interpretive Structural Modeling

Five experts, one from each IT company were identified for a personal interview on the subject matter with structured questionnaire, which helped to create contextual relationship between the identified barriers. Four symbols were used to denote the direction of relationship between any two barriers (i and j):

- A, If 'i' is predictor of 'j'.
- B, If 'j' is predictor of 'i'.
- C, If 'i' and 'j' predict each other.
- D, If no predict each other.

Structural Self-Interaction Matrix (SSIM)

Consultation and discussions with the five experts, helped in identifying the relationships between the identified barriers. On the basis of contextual relationship, the SSIM has been developed. Final SSIM is presented in table 15.

Table 15: Structural Self Interaction Matrix for Barriers				
Barrier No	**Barrier**	**3**	**2**	**1**
1	Human	B	B	1
2	Organizational	A	1	
3	Technological	1		

Reachability Matrix

The next step is to develop the reachability matrix from the SSIM by transforming the information of each cell of SSIM into binary digits (i.e., 1s or 0s). This transformation has been done by substituting A, B, C, D by 1 and 0 as per the following rules. Rules for transformation are given below:

- A, If 'i' is predictor of 'j', then (i,j) is 1 and (j,i) is 0
- B, If 'j' is predictor of 'i' then (j,i) is 1 and (i,j) is 0
- C, If 'i' and 'j' predict each other then (i,j) is 1 and (j,i) is 1
- D, If no predict each other then (i,j) is 0 and (j,i) is 0

Following these rules, Reachability matrix is prepared as shown in table 16.

Table 16: Initial Reachability Matrix forBarriers				
Barrier No	**Barrier**	**1**	**2**	**3**
1	Human	1	1	1
2	Organizational	0	1	1
3	Technological	0	0	1

Level Partitioning of Reachability Matrix

Level identification process of these barriers is completed in three iterations.

Table 17: Level Partition – Iteration 1				
Barrier	Reachability Set	Antecedent Set	Intersection Set	Level
1	1,2,3	1	1	
2	2,3	12	2	
3	3	123	3	I

Table 18: Level Partition – Iteration 2				
Barrier	Reachability Set	Antecedent Set	Intersection Set	Level
1	12	1	1	
2	2	12	2	II

Table 19: Level Partition – Iteration 3				
Barrier	Reachability Set	Antecedent Set	Intersection Set	Level
1	1	1	1	III

Table 20: Final list of Level Partitions		
Level	**Barrier No**	**Barrier**
I	3	T
II	2	O
III	1	H

RESULT AND DISCUSSION

The descriptive statistics of the data shows that human barriers are present to large extent in the IT industry, whereas organizational and technological barriers are absent. The result depict that it is the human resource of the organization which create hindrance in the effective implementation of KM, whereas organizational systems and practices as well as technological facilitates available in the organization are very much conducive for the effective implementation of KM. Data also revealed that the implementation of KM is very little in the IT organizations, which means it is the human resource, which pose the most hindrance and can be termed as the most ruinous barrier.

On testing the hypothesis of the study, it was identified that all the three barriers, human (H), organizational (O) and technological (T) barriers have significant impact on KM implementation, which signifies the acceptance of all the three hypothesis proposed in the study. The beta coefficients for the significant barriers i.e. human, organizational and technological barriers are -0.108, -0.207 and -0.313 respectively. It depicts that if each barrier is decreased by unit's equivalent to their respective beta coefficients, the KM implementation will be increased by 1 unit.

The results of the regression analysis in this study are in line with the results of the various studies on KM implementation barriers like following authors claim for human barriers Cantoni, Bello and Frigerio (2001), Yiu and Lin (2002), McLaughli, Paton and Macbeth (2008), Herrnman (2011); following authors claim for organizational barriers Yiu and Lin (2002), Herrmann (2011); following authors claim for technological barriers Cantoni, Bello and Frigerio (2001), McLaughli, Paton and Macbeth (2008), Herrmann (2011); as all proved that these three barriers significantly impact KM implementation.

The various factors of all the three barriers, which significantly affect the implementation of KM in IT industry proved on the basis of the result of this study, are mentioned below:

Individual Barriers

1) Perceived usefulness of knowledge sharing and creating,
2) Self Interest - People are not willing to share knowledge,

3) Lack of trust in how the knowledge is used by its receiver,

4) Staff Defection - Lack of expertise in executing KM,

5) Individual differences (age, education, experience level, gender),

6) Differences in culture, values and belief systems,

7) Lack of self-confidence and worrying too much about other's opinion

Organizational Barriers

1) Lack of knowledge sharing culture,

2) Excessive bureaucracy or adherence to official rules and formalities (Red tape),

3) Lack of monetary and non-monetary motivation

4) Lack of technological training

Technological Barriers

1) Lack of compatibility between technology and organizational process,

2) Lack of technical support,

3) Redundant Information overload,

4) Improper planning and evaluation of technology

Implications

IT Organizations, if willing to have a successful KM implementation strategy, they need to focus on potential factors of three KM barriers. Having identified many barriers, comprising of human, organizational and technological, this study suggests the first extensive accumulation of likely bottlenecks of KM implementation in IT industry.

Most importantly, little research has been conducted so far on overcoming barriers except few that attempted to provide some insights on these issues like studies conducted by Husted and Michailova (2002); Michailova and Husted (2003) and Riege (2004). Future studies on KM may address these issues more rigorously by covering more companies and in varied industrial sector to better assist managers in overcoming the barriers to enhance the effectiveness of KM implementation, and thus achieving competitive edge in the business world.

In short, knowledge dissemination has no value unless the recipient of knowledge receives it, agrees to accept it, and put it into effect. Conceptualizing the practical results of studies related to KM implementation is that there is no general formula or there is no shortcut of knowledge- sharing practices that will ensure success. Hence, it is impendent for every organization to ensure that the implementation

of KM rightly. The creation of KM environment and culture does not involve any investment but understanding between employees is enough.

Now that we identified the most ruinous barriers that organization may face in terms of KM implementation, managers can estimate the extent of the presence of barriers in their organization and can systematically address the issues. All the challenges must be addressed, keeping in mind the structural and cultural influences that discourage knowledge sharing practices.

CONCLUSIONS

he question arises that what organizations need to do for effective KM implementation? This study identified the most ruinous barriers of KM implementation in IT Industry and suggests strategies to implement it effectively. It is believed that an organization is a important medium to implement KM, which is only possible when technology, people and organization as a whole work in synchronized manner to make the incremental efforts. For this purpose sequence of overcoming barriers has also been suggested in this study. At human level, unless and until a harmonious relationship is not developed between employees, they will be least interested to share knowledge. A system which keeps employees motivated is desired to promote knowledge sharing culture. Organizations' values, mission and vision also is of vital importance clearly defines the message of knowledge sharing. Organizations for more effective KM can use individual solutions tailored to a specific employee as per there requirement and expectations. The organization must understand them and respond to them in a better way to keep them motivated and committed towards maintaining a knowledge sharing culture.

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A Study on Factor Affecting E-Shopping Behavior of Customer with Special Reference to Bilaspur City

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ABSTRACT

Role of internet in everybody's life is increasing. It is accessible to almost everyone. It has changed the way we live. Marketers are also using Internet as the medium to sell their products to customers. Marketers need to represent their company on the internet to attract more customers and enjoy larger market share in today's competitive business environment. So it becomes important for them to understand the factors which consumers consider while making online purchase. The objective of this study is to examine the factors influencing online shopping and to find out that how these factors affect willingness to purchase online.

Keywords: Online Buying Behavior, competitive business environment, willingness to purchase, Internet.

INTRODUCTION

E-commerce has made life simple and innovative of individuals and groups; consumer Behavior in online shopping is different from the physical market where he/she has access to see the product. E-commerce is the buying and selling of the goods and services online; internet is the best source to use this tool. Online shopping provides all type of goods to be available in the virtual world. It is just like a shop in the neighborhood.

Nowadays, the concept "DIC" i.e. double income couples are becoming all the more prominent in India. With the long working hours and increased distances to travel, they are not having enough time to devote it to shopping as people don't feel like going out for buying day to day things after a very hectic day at office. They want to reserve it for other works like socializing, entertainment etc.

OBJECTIVE OF THE STUDY

The general objective of a study states what researchers expect to achieve by the study in general terms. Following objectives have been framed for the research:

1. To study the awareness of e-shopping among customer of bilaspur city.
2. To identify the factors affecting e-shopping behavior of customer.
3. To identify the factors affecting e-shopping on retail market.

LITERATURE REVIEW

According to Davis (1993) consumers‟ attitudes regarding Internet shopping are depending on the direct effects of relevant online shopping features. Online shopping features can be classified into consumer‟s perceptions of functional and utilitarian dimensions such as “ease of use” and “usefulness”, or into their perceptions of emotional and hedonic dimensions like “enjoyment” Holbrook (1994), Internet shoppers can be described as „problem solvers‟, others can be regarded as seeking „fun, fantasy, arousal, sensory stimulation, and enjoyment‟. The problem solvers merely shop online in order to acquire a specific product or service, in which case shopping is considered to be „a task‟ or „work‟.

According to (Jun and Jaafar, 2011)(4),business revolution is a good example which is provided by online shopping. Ecommerce is experiencing a period of rapid development currently in China; for the expansion of the online shopping market, large number of Internet users provides a good foundation. After studying and analyzing different variables this research found that there were relationships between the perceived usability, perceived security, and perceived privacy, perceived after-sales service, perceived marketing mix, perceived reputation and consumers‟ attitude to adopting online shopping in China. However, only marketing mix and reputation were significantly influence consumers‟ attitude to adopt online shopping. After studying this journal we able to understand consumers‟ online purchase behaviour.

(Gao, 2012)(7), presents that, Online seekers are the main sources of online shopping. Online shoppers always want to seek information within few clicks and reach to the most relevant information according to their requirements such as competitive brands, best price offers, product specification and consumer word-of-mouth.

According to Agarwal, 2013, “A study of factors affecting online shopping behavior of consumers in Mumbai region”, factors that affect online shopping are time saving, money saving, no risk in transaction, easy to choose and compare with other products and delivery of product on time. With advancements in Online shopping, there have been changes in the methodology for business transactions. India, being a rapid adaptor of technology is apace with the current scenario of electronic data exchanges and has taken to e-commerce. Though Online Shopping provides many advantages, there are still a significant number of customers who refuse or reluctant to adopt the facilities of online services. In India the adoption rate of the technology is significantly different from other nations because of the country‟s unique social and economical characteristics. The aim of this research study is to investigate the factors influencing the adoption of Online Shopping in West Bengal, India (Chatterjee and Ghosal, 2014).

In a study by Raval Tulsi,2014,"Study of effectiveness of online shopping", explained that privacy of personal information is a significant issue for some consumers. Many consumers wish to avoid spam and telemarketing which could result from supplying contact information to an online merchant. In response, many merchants promise to not use consumer information for these purposes. To increase online purchases, businesses must use significant time and money to define, design, develop, test, implement, and maintain the web store as it is truly said that it is easier to lose a customer than to gain one. In a findings by Sen Rahul, 2014, showed that the cost factor, convenience factor, product factor and seller related factor are the four important factors influencing the online purchase of products in Kolkata.

RESEARCH METHODOLOGY

Sample size

This sampling size targets a sample population drawn from consumers who have experienced online purchasing in bilaspur. We have targeted 100 people of colleges, housewife, unemployed, employees etc. Basically we are targeting on young customers who using smart phone.

Research Instrument

For conducting research we need data and for my research work primary data is needed ,for this structured questionnaire was used.

Sampling method

Convenience sampling, as the name implies is a specific type of non-probability sampling method that relies on data collection from population members who are conveniently available to participate in study. For this the same was used.

DATA ANALYSIS AND INTERPRETATION

Data analysis and interpretation means extracting meaningful information from the data collected and analyzing the information statistically.

- Descriptive statistics including frequency charts and histograms on sample characteristics i.e. demographic variables, Buying awareness, Shopping Behaviour and Factors affecting the e-shopping behaviour.
- One way ANOVA is carried out to test the formulated hypothesis.
- Test of Regression to know the impact of factors affecting buying behavior over shopping behavior of the respondents.

LIMITATIONS

- Sample size of 100 respondents is very small to withdraw conclusion for such a vast population.
- Study is limited to Bilaspur city of Chhattisgarh State.
- Time and Cost is also a very big limitation.

RESULTS AND DISCUSSION

Demographic Details of The Respondents						
Particulars		**Frequency**	**Percentage**	**Cumulative Percentage**	**Mean**	**Std. Deviation**
Gender	Male	89	89	89	1.11	0.314
	Female	11	11	100		
Age	18 - 25	48	48	48		
	26 - 30	32	32	82		
	31- 35	8	8	88	1.84	1.012
	36 - 40	12	12	100		
Education	High School	43	43	43		
	Bachelors	16	16	59		
	Masters	37	37	96		
	Doctorate	2	2	98	2.04	1.033
	Others	2	2	100		
Occupation	Full time employment	26	26	26		
	Part time employment	58	58	84		
	Students	10	10	94	1.98	0.84
	Housewife	4	4	98		
	Retired	2	2	100		

From the given table it can be clearly observed that the sample population is skewed towards male population at about 89% indicating the greater participation by male diaspora whereas female respondents are only 11%. It was also found that majority of the respondents are in the age group of 18 - 25 years (about 48 %) followed by the age group of 26 – 30 years (about 32%), 12% are from age group of 36 - 40 years, whereas only 8% belongs to the group of 31 - 35 years. The sample has also the largest chunk of respondents as higher school at about 43% with bachelors at16%, about 37% with master‟s degree, whereas doctorate and others accounts for only 2%. Majority of respondents are part time employed (58%), followed by full time employed (at 26%), students (at 10%), housewives (at 4%) and retired persons (at 2%). Overall the sample for study is a fair representation of the population since the survey was conducted in Bilaspur district.

FACTOR ANALYSIS

(a) Factor Analysis of Buying Behaviour

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.531	30.623	30.623	1.531	30.623	30.623	1.531	30.623	30.623
2	1.168	23.357	53.980	1.168	23.357	53.980	1.168	23.357	53.980
3	.885	17.706	71.686						
4	.733	14.662	86.348						
5	.683	13.652	100.000						

Extraction Method: Principal Component Analysis.

(b) . Factor Analysis of Variables Affecting Buying Behaviour

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.823	36.459	36.459	1.823	36.459	36.459	1.780	35.607	35.607
2	1.022	20.443	56.902	1.022	20.443	56.902	1.065	21.295	56.902
3	.878	17.565	74.467						
4	.715	14.302	88.769						
5	.562	11.231	100.000						

Extraction Method: Principal Component Analysis.

TESTING OF HYPOTHESIS

H01: Demographic variables of the respondents does not have any relationship with their buying behavior in Bilaspur.

One-way Anova was carried out on dependent variable as buying behavior related aspects and independent variable as sum total of all the demographic variables. It was found that null hypothesis is accepted for all the dimensions of buying behaviour showing no significant relationship between variables except “Experience of using”. So it was concluded that demographic variables of the respondents has a significant positive relationship with their previous experience of online shopping

H02: Buying awareness of shopping do not have any significant relationship with buying behaviour of people in Bilaspur.

One-way Anova was carried out on dependent variable as buying behavior related aspects and independent variable as profitability of online shopping. It was found that null hypothesis is rejected for all the dimensions of buying behaviour showing a significant positive relationship between variables except two cases “Experience of using” and “Why do you prefer online shopping”. So it was concluded

that profitability of online shopping does not have any relationship with the previous experience of using online shopping and reason behind adoption of online shopping.

H03: Factor affecting e-shopping does not have any impact on buying behaviour of the people in Bilaspur.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.798	6	1.133	2.199	.050[b]
	Residual	46.876	91	.515		
	Total	53.673	97			

a. Dependent Variable: Experience of using

b. Predictors: (Constant), Do you think information posted for online shopping are secure enough, Do you think online shopping cost is cheaper than retail shopping, Do you think detail information about the product effect you for online shopping, Do you think online shopping is much than retail shopping, Do you think online shopping is is time saving, Do you think online shopping product purchase through are secure in compare retail shopping

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11.647	6	1.941	4.265	.001[b]
	Residual	41.414	91	.455		
	Total	53.061	97			

a. Dependent Variable: Search for product information

b. Predictors: (Constant), Do you think information posted for online shopping are secure enough, Do you think online shopping cost is cheaper than retail shopping, Do you think detail information about the product effect you for online shopping, Do you think online shopping is much than retail shopping, Do you think online shopping is is time saving, Do you think online shopping product purchase through are secure in compare retail shopping

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	20.592	6	3.432	1.980	.077[b]
	Residual	157.745	91	1.733		
	Total	178.337	97			

a. Dependent Variable: What type of product you consider by online shopping

b. Predictors: (Constant), Do you think information posted for online shopping are secure enough, Do you think online shopping cost is cheaper than retail shopping, Do you think detail information about the product effect you for online shopping, Do you think online shopping is much than retail shopping, Do you think online shopping is is time saving, Do you think online shopping product purchase through are secure in compare retail shopping

FINDINGS

- Analysis revealed that there is no significant relationship between gender and buying behavior of the respondents.
- No significant relationship was found between age of the respondents and their buying behaviour.
- It was found that educational status of the respondents has a significant positive relationship with the reasons of adopting online shopping.

- It was found that Occupation of the respondents has a significant positive relationship with online search of products and mode of payments.
- It was revealed that demographic variables of the respondents has a significant positive relationship with their previous experience of online shopping.
- Analysis revealed that usage of online shopping does not have any relationship with buying behavior.
- Majority of respondents are part time employed (58%), followed by full time employed (at 26%) and students (at 10%).
- It was revealed that the majority of people sometimes to do online shopping (52%) and about 40 – 60% of youth is awared (at 46%) about the phenomenon of online shopping and thinks that it is profitable (at 43%).

CONCLUSION

The marketers that they need to focus on the income and occupation of the people for designing the marketing strategy for leading people to buy online by making their websites more informative and making reliable mode of payments as gender and age does not have any relationship with buying behavior. Marketers need to design their marketing plans targeted to the educated people for leading them to buy online rather than anonymous patterns of promotion as educational status of the respondents has a significant positive relationship with the reasons of adopting online shopping. Proper and detailed information regarding each product need to be posted to enhance credibility of e-retailer as people search for information regarding product before making actual purchase

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Factors Contributing to Low Levels of ICT Adoption by SMES in Gweru City, Zimbabwe

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A B S T R A C T

Information communication technology has made immense contributions to economic development across the globe. But the adoption of ICTs among many SMEs faces many challenges that have left many governments" developmental goals in limbo. The main purpose of this study is to explore factors contributing to low levels of ICT adoption by SMEs in Gweru city, Zimbabwe. The qualitative research approach was used in this study. The study used open ended questionnaires, face to face in-depth interviews, focus groups and document analysis in line with the merits of data triangulation to authenticate the collected data. 30 purposively selected participants came from building material shops, micro business shops, small steel businesses, car spare shops and grocery shops. The issues emerged from the data were analysed thematically. The research revealed a low capacity of ICT adoption among entrepreneurs and this has been ascribed to lack of finance, poor supply of electricity, inadequate infrastructure, inadequate support from government and other financial institutions. Due to the immense contribution to economic development the government and other stake holders must support, sustain and fund ICT adoption among SMEs to revive the economy. Minimization of excessive regulations, bureaucracy and red tape in accessing loans and policies that maintain stable operating rules for SMEs must be the way to go. However, it is the author"s view that a national survey research be conducted to authenticate these results without any reservations of bias.

Key words: ICT usage, SMEs, adoption, ICT skills.

1. BACKGROUND INFORMATION

SMEs form more than 99% of all enterprises in the world (Capital Markets Authority, 2010). Their importance has earned great research attention across the divide. The critical role played by Small to Medium Enterprises (SMEs) in organisations has taken centre stage through the adoption of Information and Communication Technology (ICT) in developed and developing countries Zimbabwe included. Ongori (2009) agreed that the use of ICT would help to change the way business operate in this era of globalization by changing business structures and increasing competition, creating competitive advantage for business operations. Irefin, Abdul- Azeez and Tijani (2012) are of the opinion that many organizations of all types are currently utilizing Information and Communication Technology (ICT) around the globe, not only for cutting costs and improving efficiency, but also for providing better customer services. ICT has brought about changes in the way businesses are conducted amongst SMEs as they play a major role in storing, retrieving, processing and disseminating information (Apulu and Latham, 2009). Ihua (2009) maintains that about 97% of the entire enterprises in Nigeria are SMEs and

c). Research Objectives

- To establish the main factors which contribute to low levels of ICT adoption by SMEs in Gweru urban.
- To establish the main benefits of ICTs and SMEs to businesses in Zimbabwe.
- To proffer interventions to mitigate low levels of ICTs adoption in Zimbabwe.

d). Research Questions

- What could be the factors responsible for low ICT adoption by SMEs?
- What are the main benefits of ICT and SMEs to businesses in Zimbabwe?
- How can SMEs improve ICT adoption in Zimbabwe?

2. REVIEW OF RELATED LITERATURE

ICT is defined as any technology that facilitates communication and assists in capturing, processing and transmitting information electronically (Apulu & Latham, 2009c). Ideally ICT is responsible for the transaction of data to give meaning which is critical for decision making. The World Bank (2004) further defines ICT as consisting of the hardware, software, networks and media for the collection, storage, processing, transmission and presentation of information in the form of voice, data, text and images. This research adopts Mpofu et al."s (2009) definition of ICT which states that ICT is any technology used to support information gathering, processing, distribution and use. As there are as many definitions of ICT, there are as many varying definitions of SMEs in many countries whose economic development levels are also varying. South Africa (2004) categorise small organisations into four categories namely micro enterprises, including survivalist enterprises; very small enterprises; small enterprises; and medium enterprises. In Zimbabwe the SMEs are grouped into Micro Enterprises which have fewer than 10 employees, Small Enterprises have between 10 and 49 employees and Medium- sized Enterprises, have fewer than 250 employees (European Union,2003). This study adopts the SMEs definition from the European Union.

Research on "The Role of ICT in Doing Business" by The World Bank (2004) found out that ICT is playing an important role in allowing businesses to grow faster and become more productive. To this effect firms that embrace ICT services are poised to harvest growth in profits and investments. Empirical studies by Brynjolfsson and Yang (1996) confirm the positive effect of information and communication technologies (ICT) on firm performance in terms of productivity, profitability, market value and market share. Sajuyigbe and Alabi (2012) in their research agreed that ICT play an important role in SMEs by cutting costs through improving internal process and product, fast communication with their customers. Also Ojokuku and Sajuyigbe, (2012) argued that SMEs have the opportunity to achieve

they employ an average of 50% of the working population as well as contributing up to 50% to the country‟s industrial output. This is a critical point for Zimbabwe to take notes and learn better lessons to revamp its economy along the robust support channelled to boost SMEs operations. ICT being known for its immense contribution to economic development, researchers lament that adopters of ICT remain with no option other than to embrace the innovation and foster better operations of SMEs in all spheres of life. Gagnon and Toulouse (1996) ascribe the use of ICT in business as no longer a matter of choice but rather one of survival, with a better understanding of the process of adopting new technologies as both essential and urgent. Where as Kotelnikov (2007) also suggested that SMEs „who have not yet adopted ICT will have trouble in surviving‟ and will lose out to competition. It is therefore becoming more ever important for SME operators to adopt ICTs in their businesses in order to improve the quality of service to customers. However, the degree of adoption may not be the same but having fixed lines, mobile phones, a personal computer may be the starting point. While there are multiple benefits of ICT adoption there are several constraints that impede the levels of adoption mostly in developing countries and in Zimbabwe critical attention to unravel the factors contributing to low levels of ICT adoption has been long overdue. Such is the case because the environment in which an organization operates is an important factor to be considered while studying challenges to technology adoption (Kapurubandara & Lawson, 2006). Zimbabwe has got an environment of its own kind confronted with political and economic forces which are still yet difficult to arrest. The country has been going through a gradual economic and political evolution for more than a decade, and like any other sectors the ICT sector has been affected (Tafirenyika, 2010). According to Mazango (2008), the country has received less attention from researchers in part due to the recent tension between the state and private operators.

a).Purpose of the study

The main purpose of this study is to explore factors contributing to low levels of ICT adoption by SMEs in Gweru city, Zimbabwe.

b).Statement of the problem

Information and communication technologies (ICTs) have become a priority among developed and developing nations. The adoption of (ICTs) plays a significant role in supporting growth of SME businesses. Several research studies have investigated and found SMEs constrained in taking advantages of ICTs. This study sought to unravel the factors inhibiting ICT adoption among SMEs in Gweru city, Zimbabwe.

a competitive advantage from the advances in ICT through innovation, marketing, efficiency gains, better quality and customer responsiveness and better promoting their products through online presence. Also Apulu and Latham (2011) agreed with other researchers‟ views and commented that with ICT, organisations can exchange real-time information and build closer relationships with their customers, suppliers and business partners.

Further researchers have made it clearly known and loudly heard that SMEs are the corner stone of economic development. Okongwu (2001) argues that SMEs are recognized as the main source of economic growth and a major factor in promoting private sector development and partnership, in developed and developing countries. Empirical research findings from Nyambonga et al, (2014) opined that the global economy is heavily dependent on the success of Small to Medium Enterprises (SMEs) which create employment, poverty alleviation and balanced developments which bring about economic growth in rural and urban setups. Furthermore, Ongori (2009) states that in the present era of globalization, SMEs must have an ability to compete and dynamically respond to rapidly changing markets as it plays a significant role in an organization‟s growth and success.

2.1 Factors affecting ICT adoption in Zimbabwe

ICT adoption is facing daunting challenges among the SME operators mainly in developing countries (Ahiakwo, 2002; Anao, 2002; Longe and Chiemeke, 2006). Have cited the challenges of sustainable wired and wireless networks cost of connection, security issues, political instability/policy inconsistencies and lack of effective coordination. Previous studies on ICT adoption report that SMEs in developing countries have not fully capitalised on technological developments to extend their businesses beyond traditional borders: off-line identification of customers, use of multiple intermediaries and marketing channels constrained by distance (Humphrey et al, 2003; Shemi and Procter, 2013).

Despite being recognized as the key to economic growth, the SME sector in Zimbabwe remains grossly under-funded and unsupported (Mambo, 2010). “The Zimbabwe government is yet to recognise that they cannot afford to be the sole driver of economic growth without, the intervention of SMEs and the private sector” (Machona, 2006: 63). Kapurubandara (2006) in his research also highlights that lack of telecommunications infrastructure such as poor internet connectivity, lack of fixed telephone lines for end user dial-up access, and the underdeveloped state of the Internet Service Providers are factors affecting the proper utilization of ICT amongst SMEs in Sri Lanka. According to Arendt (2008), most SMEs do not develop ICT training plans for their businesses. The majority of Nigeria SMEs managers are sceptical of investing in ICT due to the high cost of training their employees and also, due to the high

cost of maintaining the various ICT equipments. Lack of support from government and banks and lack of education and skills are also attributed to as barriers to ICT adoption in developing countries. Baker (2008) in his study identified that less than 20% of the Nigerian population have access to stable electricity supply. The same factor is even catastrophic in Zimbabwe where there are epileptic incessant power cuts. In developing countries some of the ICT challenges include legal and regulatory issues, weak ICT strategies, lack of research and development, excessive reliance on foreign technology and ongoing weaknesses in ICT implementation (Dutta et al 2003). Furthermore, other factors discovered to contribute to low levels of ICT adoption include lack of infrastructural facilities, lack of funds, cost of implementation, lack of awareness, lack of appropriate government policies, lack of skills and training, cultural factors, electricity constraints, corruption, low levels of education, illiteracy, lack of proper information, and so on (Adenikinju, (2005, Sajuyigbe and Alabi 2012, Lal 2007, Apulu and Emmanuel, 2011, Apulu and Latham 2011). After breaking all inflation records, experiencing a chronic shortage of capital and international political isolation, Zimbabwe's ICT sector is showing signs of recovery (Kwinika, 2009). Besides this assertion there is long way to go specifically for Zimbabwe SMEs to adopt and benefit their businesses through ICTs. To be driven by a political will is different from to be driven by self motivation to revive and resuscitate businesses of SMEs especially during these days of globalisation. It becomes imperative to weigh the factors that contribute to ICT adoption by SMEs in Zimbabwe. Besides Zimbabwe is not operating from a normal business environment like other countries in Africa, so this research is mostly ideal given that Zimbabwe is pulling a load of 90% unemployment.

3. RESEARCH METHODOLOGY

This research was conducted using a qualitative research approach. Qualitative research is defined as "the use of qualitative data, such as interviews, documents, and participant observation data, to understand and explain social phenomena (Myers. (1997)". The decision to use a qualitative research approach stemmed from the nature of the research propositions. This approach enabled the researcher, through the analysis of people‟s spoken words, to gain new understandings and make sense of situations, experiences and processes. In line with the qualitative research approach observation, focus group discussions, open-ended questionnaires and face to face interviews were used to gather primary research data. The secondary data came from the documents analysed as evidence of ICT products such as company reports and memos. Two Focus groups of eight entrepreneurs each were conducted from individual micro businesses mainly in the steel fabrication. The data from questionnaires and interviews came from building material shops, micro business shops, and car spare shops and grocery shops. Individually interviewed were eight owner managers and all the responses were captured and thematically analysed in line with qualitative research approaches. All the participants of this study were

purposefully selected. This study had chosen to use various sources of data analysis so that diverse points and views cast light up on a topic. Thus qualitative researchers generally use this technique to ensure that an account is rich, robust, comprehensive and well-developed, (Denzin, 1978).

4. FINDINGS AND DISCUSSION

4.1 Factors contributing to low levels of ICT adoption

The major objective of the study was to establish the factors contributing to low levels of ICT so that mitigating interventions can be employed to bring sanity to SMEs businesses.

4.2 Financial related factors

There are disparities noted in the adoption of internet services in the SMEs. An array of reasons has been levelled to unequal usage of the internet in the organisations. Mambo (2010) warns that despite being recognized as the key to economic growth, the SME sector in Zimbabwe remains grossly under-funded and unsupported. All of the SMEs are self sponsored and finance has proved a set back for these businesses to afford adoption of the ICT in full force, while some external barriers can be addressed by sharing expenses, resources and facilities (Molla, 2005). The lack of financial resources in this study was found to be a significant constraint to ICT adoption. From the perspective of the interview participants, the cost related to ICT investments was the main issue. The following statements illustrate the view points of the participants.

"ICT adoption comes along with its costs and some of us we sponsor our businesses from our own coffers. There are purchase costs, installation costs to maintenance costs. These require huge sums of money."

"Huge investments require huge amount of money while small ones require less but the support institutions like SEDCO still requires collateral security up front, which is beyond our capacity"

"My business is too small and there is no need for me to get into financial cost when I can just use a cell phone for any other communications with customers and suppliers."

In light of the above statements made by SME operators financial challenge is a barrier that impedes ICT adoption. Out of the 50 participants 90% highlighted financial resources as obstacle to the adoption of information technology. In both developed and developing countries SMEs have been found to be financially constrained due to lack of access to external financing. Some studies attributed this to weak

and absence of well developed institutions (Beck and Demirguc- Kunt (2006). Taking cognisance of sponsorship Apalu and Emmanuel, (2011) asserted that finance is a major factor that determines the ICT adoption in SMEs especially in developing countries. Most of the SMEs owner- managers agreed that the cost of deploying ICT systems and services is high and could be an inhibitor.

4.2 Poor electricity supply

Yu (2010) considers ICT as a range of technologies that allow the gathering, exchange, retrieval, processing, analysis and transmission of information. This understanding may exist sparingly among the SME operators but the biggest issue of concern is the availability of electricity. The study revealed that poor supplies of electricity in Zimbabwe seem to affect adoption and usability of ICTs. Some small business owners have raised concern due to power cuts which affects the benefits brought by ICT tools.

"While ICTs improve our businesses in several ways we are compound by challenges because electricity power cuts are rampant. Switching to generators increase the costs of benefiting from the adoption and use of this technology."

"If electricity supply is reliable we can achieve mile stones, such as through fast communication with our customers and suppliers, tracing and tracking our business growth and many other benefits that come along with this innovation."

In light of the above statements from owner managers electricity supply plays a pivotal role to gainfully benefit from ICT adoption. Members of the focus group who are one, two or three in their businesses concurred with these findings and highlighted that "our micro businesses have suffered loss as a result of power cuts that are not even planned. We have lost businesses to those who can operate with generators during the long stay waiting for electricity to come back." These findings were confirmed by Baker (2008) who investigated the adoption of ICT in SMEs in Nigeria and in his study identified that less than 20% of the Nigerian population have access to stable electricity supply. Similarly Mangwengwende (2005:1) underscored that "Zimbabwe"s producers and consumers experience very high levels of electricity unreliability." Apparently it is clear that lack of electricity affects all forms of businesses ad SMEs included.

4.3 Lack of communication net work

The empirical findings of this study pointed out that infrastructure are most important factor that predicts the adoption of ICT that is from the point of view of the participants. Both views from the interviews, focus group and owner managers highlighted the following opinions. "We may not have the

adequate knowledge to use and manage ICTs but there seems a very slow and little motivation from those who provide ICT infrastructure development. Yes we have cell phones, calculators and computers but no internet connections. Significant challenges with wireless internet have been raised over and over again but the prompt action is invisible." This revelation may seem to mean that the SMEs may hold a positive desire to have ICT but it is not getting the support that encourages adoption. Lawrence and Tar (2010) indicate that most developing countries are characterised by unreliable and poor internet connections due to poor telephone communication and erratic power supply. The results of this study augers well with Kapurubandara (2006) who highlights that lack of telecommunications infrastructure such as poor internet connectivity, lack of fixed telephone lines for end user dial-up access, and the underdeveloped state of the Internet Service Providers are factors affecting the proper utilization of ICT amongst SMEs in Sri Lanka.

4.4 Lack of education

The study also revealed that skills and training have significant effect to ICT adoption. This may imply that the knowledge and experiences in ICT have a strong bearing in adopting the technology. The participants in this study echoed varying perceptions on the use and adopting ICT. "Sometimes we hail this new development but there is dire need to undergo some training so that we are able to understand, adopt and use the ICT, provided it brings benefits that make our businesses live and prosperous. I can not vie for change which I do not understand, some changes do suffocate people." This understanding may seem to mean that adoption of ICT may depend on familiarity and otherwise the easy with which one can use it. Lack of knowledge and skills among SME work force becomes a major barrier in adopting ICT. These findings are in agreement with a study findings from Cragg and King (1993) who found that one of the strongest inhibiting factors for small firm to implement information technology was the lack of information system knowledge. This study also revealed that some owner manages do not want to make rush adoptions since the cost of training is to be bone by the owner. One operator said "I incur the cost of employee training and with that knowledge he leaves for better paying companies, therefore there is no prudence in that." This observation does not accelerate IT adoption rather its use is minimally accepted. These findings follow what Macgregor et al (1996) who put forward that small businesses tend to avoid ICT into their business, if it is seen as complex to use, this is not surprising because SMEs may always lack skills amongst workforce to use ICT.

4.5 Lack of government interest and support

In most cases the effective support of programmes that are in line with government initiatives used to get the government support. The results of this study have failed to establish even one entrepreneur who had got government support within the past five years. The participants from the focus group lamented that:

"Yes SMEs may be hailed for its economic development but the government has taken long rest to assist SMEs. Despite the fact that support institutions have been put in place to assist SMEs but there is nothing taking shape. Small to Medium Enterprise Ministry is in the president's office and Small Enterprise Development Corporation (SEDCO) are both mandated to assist SMEs but nothing is materialising." The results seem to point out that the Zimbabwe government has interest and is willing to support SMEs but absence of financial support has turned out to be is a big set back for SMEs growth. "One owner manger said it is difficult to get finance from support institutions because they demand collateral security which way beyond our capacity. Our country is still sieged by sanctions and liquidity problems are the order of the day. I can not blame any one." The situation prevailing during the time of the study blatantly shows absence of support to SMEs. Let alone support to adopt ICT during these testing times is difficult. Similar results to a research like this one seems to echo similar findings. Presently in Nigeria most banks do not give out loans to SMEs and some banks such as the Agricultural Development Banks that are mandated to give loans to SMEs require collateral such as landed properties, shares and capital but the inability of most SMEs to present the required collateral remains a major setback (Owoseye, 2010). This situation has left many SMEs at risk of business failure and the mindset of adopting ICT is seriously discouraged.

On the same note this study revealed that the attitude of the owner manager has implications in adopting ICT. Caldeira and Ward's (2003) study confirming that positive attitude of top management has brought about the relative success of IS/IT adoption in SMEs, especially in manufacturing ones. Where the attitude of management is negative adoption of ICT is very low presumably. Most of the SMEs Owner/Top Managers agreed that the cost of deploying ICT systems and services is high and could be an inhibitor. Thus this study found out that the decisions of the owner manager can either hinder or encourage ICT adoption.

5. CONCLUSIONS

The empirical findings of this study come up with the following conclusions.

This study found out that the SME operators were found to use the following IT resources in their businesses:- Calculators, cell phones, desk tops, fixed lines,

- There are benefits that come from the investment of ICT in SME businesses and these include increased service delivery, faster communication, quality service and products.
- Most of the SME operators who make online orders of raw materials from countries like China and South Africa have adopted and use ICT for such specific purposes.

- Most of the SMEs have access and use internet wireless using personal modems and the heavy users of internet, access it either through lap tops, fixed lines or cell phones. Emails, whatsup, sms and direct phoning are mode of communication with made to reach their clients.
- The major deduction from the study is that the extent of awareness, skills and working knowledge has not yet approached the adequacy level to increase adoption of ICT among many SME operators. Most SMEs are in early stages of ICT adoption.
- Financial resources, poor infrastructure, poor supply of electricity, attitude of the owner manager, communication networks, lack of education and skills and lack of government support are factors that inhibit effective adoption of ICT by entrepreneurs.

6. RECOMMENDATIONS

- The government needs to try to minimize excessive regulations, bureaucracy and red tape in accessing loans and policies that maintain stable operating rules for SMEs must be put in place (Mabhanda and Kurebwa, 2015).
- In this study the government is advised to provide adequate electricity and infrastructure as the most important factors to determine levels of ICT adoption in SMEs.
- The government needs to create an environment that is conducive for ICT development as well as improve public awareness and access to technology through establishing „Telecenters" and introducing computer programmes in educational institutions.
- SMEs should invest time and money in educating staff and management about benefits that come with ICT adoption and this will also assist SMEs to utilize ICT which, in turn will help to drive the country"s economy.
- In addition, there is need for the banks in Zimbabwe, to review their policies in terms of supporting ICT and the normal request for collaterals as most SMEs can hardly meet up with their demands.

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Technopreneurship

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ABSTRACT

Purpose :- *The purpose of the paper is to study What is Technopreneurship & Technopreneur .Its importance ,impact on growth and economy . Potential of technnlogy on venture Investment .*

Keywords :- Technopreneur , technopreneurship , Technology .

Technopreneurship is a jargon that stands for the merging of technology with the entrepreneurial skills. Simply put, a Technopreneur is an entrepreneur who is tech savvy and is using technology for the purpose of entrepreneurship. So, The term "technopreneur" or "techpreneur" means an entrepreneur involved in the technology industry.

Entrepreneurship is a way of thinking and acting that is opportunity obsessed, holistic approach and leadership balanced for the purpose of wealth creation. Searches for change , responds to it, and exploits it as an opportunity. Innovation is the specific tool of entrepreneurs, the means by which they exploits change as an opportunity for a different business or a different service. Entrepreneurship pursuit of opportunity without regard to the resources currently under one's control.

Technopreneurship it is a simple entrepreneurship in a technology intensive context. It is a process of merging technology prowess and entrepreneurial talent and skills. Technopreneurship is not a product but a process of synthesis in engineering the future of a person, an organization, a nation and the world. In a digital, knowledge based society, strategic directions or decision-making processes will be demanding and complex. This requires tertiary level and professional development programs and training to produce strategic thinkers who will have the skills to succeed in a dynamically changing global environment..

A technoprenuer is an entrepreneur who is technology savvy, creative, innovative, dynamic, dares to be different and take the unexplored path, and very passionate about their work. They take challenges and strive to lead their life with greater success. They don't fear to fail. They take failure as a learning experience, a stimulator to look things differently and stride for next challenge Technoprenuers continuously go through an organic process of continual improvement and always try to redefine the dynamic digital economy.

Technopreneurs are entrepreneurs who are into the core businesses involving technology-based industries. They make use of technology to come out with new or innovative products through a process of commercialization. The businesses are generally marked with high growth potential and high leverage of knowledge and intellectual property Potential Technopreneurs must be equipped with both technical and business skills. Technopreneur Development and Innovation Division (TDID) is the centre responsible for coordinating, promoting, managing and supervising all activities pertaining to technopreneur development and innovation.

Technology and entrepreneurial skills are driving many economies to prosperity. The most famous of them all is, Bill Gates, who makesMicrosoft a household name all over the world. Steve Jobs well known for his innovations. iPod – most carried gadget by young population. Look at the success of Google – brain child of Sergey Brin and Larry Page. Who don't know Google?

EXAMPLES OF TECHNOPRENEURSHIP

FROM START UP (ORGANIC & EARLY ADOPTOR)

I. Search in Google
II. Social Network in Facebook
III. Online auction in eBay
IV. Skype
V. From corporation
VI. iPhone from Apple (Hardware & OS)
VII. Logistic Tracking in UPS

Microsoft, Facebook, Google, Yahoo and Apple are household brands today and perhaps the biggest and most well known examples of Technopreneurship. Steve Jobs, Bill Clinton, Larry Page, Michael Dell are Technopreneurs who have changed the face of entrepreneurship.

From the clichéd definition, they have brought forth a form of entrepreneurship so remarkable. They have cleared in minds of everyday people the doubt of whether it was possible to earn from technology. Various websites that enable online education through student teacher interactions or other services that are provided online are other examples of Technopreneurship ventures. Naukri.com, ebay.com and other such sites also serve the same purpose.

Recently, renowned Indian singer, Shankar Mahadevan has expressed his interest in starting a Technopreneurship venture to provide coaching in the field of music to students from all corners of the world for a fixed amount decided upon the nature and duration of training.

Technopreneurship has assumed more importance today for the role it plays. It provides the much needed employment to thousands who despite of being a part of the "educated elite" do not have jobs to fulfil their needs. Secondly, this form of entrepreneurship has also enabled the centralization of resources. By allowing almost all forms of services to be available online and technically advanced, pooling in resources is not so much of an arduous task as it used to be. Moreover, with the internet and rapidly changing technology assuming utmost importance in everyday lives, Technopreneurship is bound to encourage and kindle the entrepreneurial spirit within.

The Department of Scientific & Industrial Research (DSIR), Ministry of Science & Technology, Government of India runs a very interesting programme aimed at technology entrepreneurs called PRISM.
Via PRISM's Technopreneur Promotion Programme (TePP), DSIR offers grants for individual innovators and budding entrepreneurs to demonstrate proof of concept and/or prototypes of novel ideas.

The Department of Scientific and Industrial Research (DSIR) is a part of the Ministry of Science and Technology, and has a mandate to carry out the activities relating to indigenous technology promotion, development, utilization and transfer. The primary endeavour of DSIR is to promote R&D by the industries, support a larger cross section of small and medium industrial units to develop state-of-the art globally competitive technologies of high commercial potential, catalyze faster commercialization of lab-scale R&D, enhance the share of technology intensive exports in overall exports, strengthen industrial consultancy & technology management capabilities and establish user friendly information network to facilitate scientific and industrial research in the country.

The Technopreneur Promotion Programme (TePP) TePP along with its network partners provide grants, technical guidance and mentoring to independent innovators to emerge as entrepreneurs by incubating their idea and enterprise in two phases. Till date 250 innovations have been supported. Proposals are now invited on for support in the year 2008-09.

However, as gory as Technopreneurship and technology in particular might seem, it too has a dark side that most choose to ignore or rather overlook. The most obvious of these is the fact that technology and hence some forms of Technopreneurship is addictive. Take for example a simple device known as a

mobile phone. Industry giants like Nokia, Samsung, Sony and Motorola innovate their exiting models or invent new ones rather frequently. These handsets having become as essential as food or water and so common that even a beggar on the streets possess one of these. However, has anyone considered the health hazard that one faces due to continuous and excessive usage of these devices? A lot of messages have been issued by authorities in about the same and yet we hold on to them with our dear lives and refuse to let go off them even for a moment. It causes great concern and a feeling of loneliness for many if one does not receive a message. It is then as if the whole world has resorted to ignoring the person. Such is the extent of addiction.

Facebook is another form of Technopreneurship which has become an addiction amongst most people today. Critics openly announce the "faceless" world we live in today. It is evident that we have become too dependent on technology and our world is far worse than incomplete without it. Of course, all a Technopreneur is doing is to take advantage of this booby trap mankind laid for itsel

CONCLUSION :-

Technopreneurship Has Greater Potential for Success

I realize this is a bold statement, I believe this greater potential for success is another critical, defining feature that distinguishes technopreneurship from entrepreneurship. Contrast a tech startup with a new retail product, for example:

Tech startups can typically identify a product the market will pay for more efficiently with a minimum viable product (MVP) since the developer absorbs the cost of the MVP build. Build out of a scalable tech product is often far less costly than building a physical product, purchasing inventory, and setting up brick-and-mortar locations (or partnerships). Well-built tech solutions can be carefully developed from top to bottom for risk mitigation where the environment (servers and clients) are highly predictable. Executing the go-to-market strategy can therefore be the primary use of any seed round funding. Technopreneurs are entrepreneurs with a different set of tools and greater potential for success. Arkansas is at the early stages of building communities where technopreneurship can flourish, and it's a thrilling time to be a part of that process.

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