ICT Force Towards The Indian I.T. Software Entrepreneurship

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Abstract
This paper aims to explore the role and impact of Information on Communication Technologies towards the Indian I.T. Software Industrial sector. It surveys to examine the factors influencing the Indian I.T. Software Entrepreneurship. It searches for indicators effecting the professional environment and investigates if the Indian I.T. Software Entrepreneurs or Organizations are successful in achievement of a good Professional Development.
Throughout the study, only Primary data is used. Structured Questionnaire Module is set. Cluster sampling and Random sampling is used. Sampling frame is South India. Data collection methods are: Mails, Interviews and Schedules. Source list comprises of important Indian Software Entrepreneurs/Organization. A Pilot Testing is undertaken. To meet objectives, hypothesis test is applied. For statistical analysis, multivariate regression, Analysis of Variance and Factor Analysis is used. Test Statistics ***F***, ***t*** is also used. For coding and computations, a suitable statistical software and Microsoft Office Excel along with embedded Q1Macros 2012 is used.
Key Words: Information on Communication Technologies, Indian, IT, Software, Factors, Industry, indicators, achievements, Entrepreneurship, Sector.

OVERVIEW

This paper comprises of 6 chapters in all. Chapter 1 is introduction to ICT and the Objectives of the paper. Chapter 2 is about the review of literature. Chapter 3 is about the methods used. Chapter 4 deals with Coding, Observations, Results and Discussion. Chapter 5 is towards meeting the objectives of research. Chapter 6 is bibliography.

1. Introduction to ICT and objectives of this paper

1.1. Familiarity with ICT

ICT or Information on Communication Technologies has become an essential tool for the technical, economic, or social improvement of any country in the modern world today. Hence, it is embraced by all developing countries. Today, ICT related area is one of the most leading area of research . It can be viewed as an integrated term. It is also considered as an interdisciplinary area of research. India has also embraced ICT for its economic, social and technical growth.. ICT buzz includes, ICT towards education, ICT towards Women empowerment, ICT for Child Development, ICT towards Health and Pharmacy, ICT towards libraries, poverty eradication, rural development , agriculture, industrial promotion, unemployment and ICT towards Software Industries . ICT tools have shown its increasing impulse as a global force. Above all, it is equally important how a country frames the policies and strategies and how it implements ICT Tools for its own benefit.

1.2. Objectives of research

1.2.1. Objective A. To study the Impact, importance and achievement of ICT towards the Indian IT Industry, particularly the Software Entrepreneurship, by focusing towards Professional development.

1.2.2. Objective B. To point out that knowledge is a factor of production and reveal that knowledge in the field of I.T. had developed the concept of Entrepreneurship.

2. Review of literature

2.1. Proximities and innovation evidence from Indian Information Technology industry in Bangalore

The paper by Florian Arun Taeube **[1] has a** hypothesis that some Indian regions are more apt to economic development and innovation due to their higher affinity to education and learning as well as their more general openness.

2.2 Software industry and India's economic development

The Case of the Indian Software Industry is a research project report **[2]** submitted to the Sloan Foundation jointly by Arora, Ashish Athreye, Suma.

2.3. Assessing Software reuse in Indian Information Technology companies: A structural equation modelling approach

The paper by Padmanav Chary and Biswajit Mahanty **[3]** discusses on access to software reuse in Indian technology firms. Software reuse generates a lot of interest amongst the cross-section of people in the industry. The article **[4]** reviews the present status of software reuse practices in the Indian information technology firms.

2.4. Role of NASSCOM

NASSCOM under the aegis of Ministry of Commerce, Government of India had initiated a Project called NASSCOM's India-Europe Software Alliance (NIESA).

2.5 Performance, challenges and opportunities of Indian software export

India has emerged as an 'IT Super power', especially in the field of software and related services export. The paper **[5]** by Asheref Illiyan throws light on this.

3. Materials and methods

3.1. Types of data

3**.1.1. Primary Data**. Our main study is based only on the primary data**.[6]**

A Pilot Testing of the Questionnaire was conducted and there after, the required changes were made in the questionnaire**.**

3.1.2. Secondary Data. This is collected through articles, research papers, journals, Indian e-Readiness Assessment reports, Reports from Indian Government Departments and Centres [7],[8],[9],[10],[11],[12], Software Technology Parks of India **[13],** News **[14],** NASSCOM publications **[15].**

Table 1. Details of primary data collection

	MODULE 1	MODULE 2
Data collection Methods	Mailing Interviews Schedules	Mailing Interviews Schedules
Sample size	60 (Out of 75 respondents, only 60 responded).	32
Sampling technique	Cluster Sampling.	Random Sampling
Type of universe	Finite Population	Finite Population
Sampling design	Informal experimental design (Before-and-after without control design) Formal experimental designs (Simple Factorial Design,Latin Square Design)	Informal experimental design (Before-and-after without control design) Formal experimental designs (Simple Factorial Design Latin Square Design)
Sampling unit	Bangalore	South India
Source list	Important Indian IT/ Software Companies / Entrepreneurs	Important Indian IT/ Software Companies/Entrepreneurs

3.2. Methods/tools used

The following other statistical tools are used and multivariate analysis is also done .

- Mean, Mode, Standard deviation,

variance, covariance and correlation are used as tools for statistical measures.

- ANOVA
- Factor Analysis (Principle Component method is used to extract factors of interest)
- Latin Square design is used to compute Covariance matrix/Correlation matrix.
- Multivariate Regression
- Hypothesis Testing is set to meet the objectives of the research study
- For further hypothesis testing we use **F** statistic and /or **t** statistic.

3.3. Other materials used

SPSS and Excel is used. Q1 Macros 2012 incorporated/embedded with Microsoft Works (Excel) has also been used for further analysis and computations.

4. Coding, observations, results and discussion

4.1. Coding to compute important statisticl measures of variables

The Data Base File is Processed in SPSS. Computations have been done using both SPSS and Q1 Macros 2012.

4.1.1. SPSS syntax and Output to generate the various statistical measures.

Table 2. SPSS coding notes

Output Created		03-Dec-2012 11:03:38
Comments		
Input	Data	C:\Users\baby\Documents\RANKA1_NUMRC.SAV_1.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	No. of Rows in Working Data File	60
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data.
Syntax		FREQUENCIES VARIABLES =X9 X10 X11 X12 X14 X15 /STATISTICS=STDDEV VARIANCE MEAN MEDIAN MODE /ORDER=ANALYSIS.
Resources	Processor Time	0:00:00.016
	Elapsed Time	0:00:00.017

4.1.2. Output

Table 3. Statistics of the various factors

Variable	Valid	Mean	Std. Error of Mean	Median	Mode	Std. Deviation	Variance
X9	60	6.0	.269	6.0	4	2.083	4.339
X10	60	8.8	.234	10.0	10	1.811	3.281
X11	60	9.65	.121	10.0	10	.936	.875
X12	60	8.07	.225	8.00	8[a]	1.745	3.046
X14	60	9.93	.058	10.0	10	.446	.199
X15	60	9.67	.123	10.0	10	.951	.904

4.2. Observations

Frequencies of Rank wise Salary Satisfaction of the variables

Table 4. Rank wise satisfaction of variables

RANK	X9	X10	X11	X12	X14	X15
4	24	0	0	0	0	0
5	4	4	0	4	0	4
6	8	8	0	8	0	0
7	8	0	0	12	4	0
8	12	12	12	16	4	4
9	0	0	4	0	4	4
10	0	32	37	16	44	44
Missing	4	4	7	4	4	4
Total	60	60	60	60	60	60

Let the variable X9 = RANK WISE SALARY SATISFACTION.
The higher the rank the more the salary satisfaction. It has found that no respondents contribute for ranks less than 4. That is 40% of the respondents have 40% of salary satisfaction. Only 20% of respondents have 80% salary satisfaction.

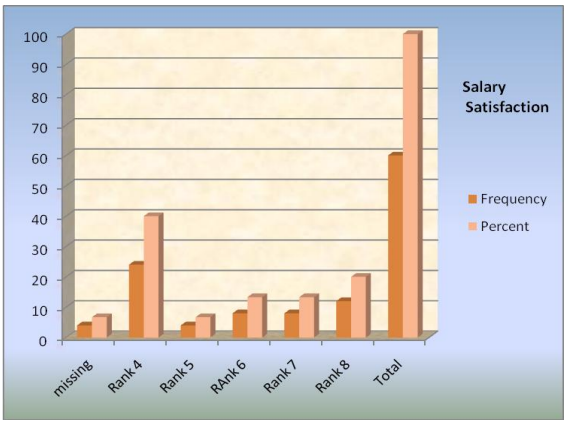

Figure1. Graph of salary satisfaction

Let the variable X10 = RANK WISE LEISURE SATISFACTION.

It has found that no respondents contribute for rank less than 5. 53.3% of the respondents seem to have full 100% leisure satisfaction.

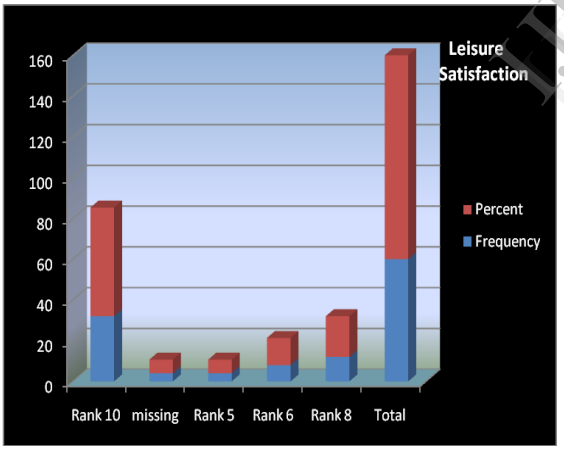

Figure 2 Graph of leisure satisfaction

Let X11= Relationship with colleagues. 62% of the respondents seem to have 100% satisfaction with their colleagues relationship.

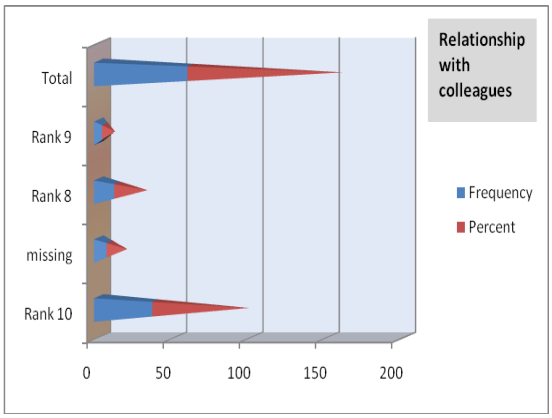

Figure 3. Relationship with colleagues

Let the variable X12 = the factor RELATIONSHIP WITH BOSS..It has found that no respondents contribute for ranks less than 4.Only 26.7% of the respondents are fully satisfied with their relationship with Boss. Again 26.7 % of them have 80% satisfaction with their Boss relationship.

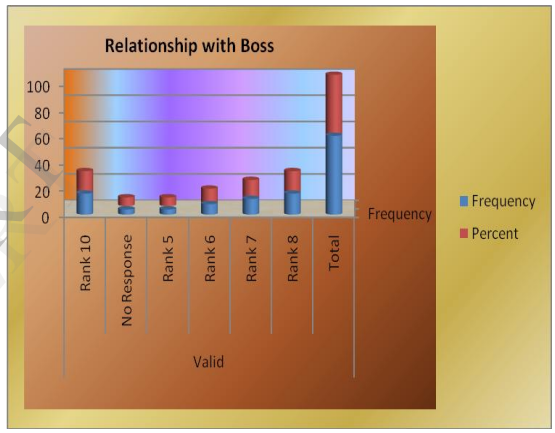

Figure 4. Graph of relationship with boss

Let the variable X14 = the factor **TEAM CO-ORDINATION .** It has found that no respondents contribute for ranks less than 7. 73.3% of the respondents are fully satisfied (100%) with their Team Co-ordination.

Figure 5. Graph of team co-ordination

Let the variable X15 = the factor **PROFESSIONAL ENVIRONMENT.**
It has found that 73.3% of respondents report for having 100% satisfaction with their Professional Environment.

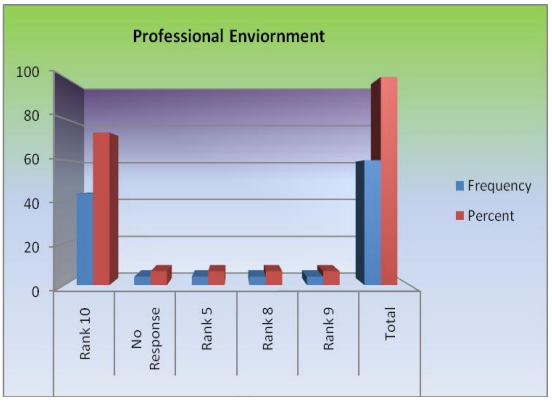

Figure 6. Graph of professional environment

5. Meeting the objectives

5.1. Objective A

*To study the Impact, importance and achievement of ICT towards the Indian IT Industry, particularly the Software Entrepreneurship***.**
To meet this objective, we shall implement Test 1 comprising the testing of a set hypothesis.

5.1.1. Test 1. To meet this objective, we shall study the impact of ICT towards the Professional Development of the Indian IT Software Entrepreneurs. Hence we set the testing hypothesis as follows:

H_0: *Indian IT Software Entrepreneurs are unsuccessful or lack behind to show the positive impact of ICT achievements towards the Professional Development of their Organization.*

The following steps are involved.

- To compute the rank wise correlation between the variables.
- To determine the covariance matrix.
- To perform ANOVA
- To use a Test Statistic (**F** or **t** statistic)
- To Construct a linear multiple regression Model
- To test the set Hypothesis .
- Results

We construct a regression model with factor Y = Professional Development as the Dependent variable.
The variable names are as follows: X9 = Salary satisfaction; X10 = Leisure Satisfaction ; X11 = Relationship with Colleagues; X12 = Relationship with Boss; X4 = Team Co-ordination and X15 = Professional Development.
The following model is regressed using SPSS statistical software. ANOVA and other results are summarized/tabulated.

Table 5. Covariance matrix for computation of total variance

Cov.	X9	X10	X11	X12	X14	X15
X9	**55.04**	**-8.96**	**-21.76**	**10.24**	**-23.36**	**-24.96**
X10	**-8.96**	**93.44**	**119.04**	**39.04**	**114.24**	**115.84**
X11	**-21.76**	**119.04**	**170.24**	**37.44**	**167.04**	**167.04**
X12	**10.24**	**39.04**	**37.44**	**45.44**	**34.24**	**31.04**
X14	**-23.36**	**114.24**	**167.04**	**34.24**	**167.04**	**165.44**
X15	**-24.96**	**115.84**	**167.04**	**31.04**	**165.44**	**167.04**

SYNTAX:

DATASET ACTIVATE DataSet1.
CORRELATIONS
/VARIABLES=X9 X10 X11 X12 X13 X14 X15
/PRINT=TWOTAIL NOSIG
/MISSING=PAIRWISE.
REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS CI(95) R ANOVA
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT X15
/METHOD=ENTER X10 X11 X12 X13 X14.

Table 6. Correlation matrix

	X9	X10	X11	X12	X13	X14	X15
X9	1	.485**	.191	.597**	.584**	.308*	.285*
X10	.485**	1	.118	.304*	.487**	.197	.399**
X11	.191	.118	1	.367**	.756**	.629**	.663**
X12	.597**	.304*	.367**	1	.528**	.626**	.636**
X13	.584**	.487**	.756**	.528**	1	.586**	.724**
X14	.308*	.197	.629**	.626**	.586**	1	.815**
X15	.285*	.399**	.663**	.636**	.724**	.815**	1
N	60	60	60	60	60	60	60

Regression

Table 7. Regression variables

Model	Variables Entered	Variables Removed	Method
1	Team Co-Ordination, Leisure Satisfaction, Relationship with Colleagues, Relationship with Boss, Relationship with Team Members[a]	.	Enter

a. All requested variables entered.

Table 8. Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.884[a]	.781	.761	.670

a. Predictors: (Constant), Team Co-Ordination, Leisure Satisfaction, Relationship with Colleagues, Relationship with Boss, Relationship with Team Members

Table 9. Variable coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
1 (Constant)	-6.68	2.548		-2.624	.011	-11.794	-1.578
Leisure Satisfaction	.122	.061	.162	1.993	.051	.000	.245
Relationship with Colleagues	.220	.172	.150	1.279	.206	-.125	.566
Relationship with Boss	.096	.069	.122	1.391	.170	-.042	.234
Relationship with Team Members	.510	.398	.166	1.283	.205	-.287	1.308
Team Co-Ordination	.742	.141	.515	5.265	.000	.460	1.025

a. Dependent Variable: Professional Environment

Table 10. ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	86.663	5	17.333	38.564	.000[a]
	Residual	24.270	54	.449		
	Total	110.933	59			

a. Predictors: (Constant), Team Co-Ordination, Leisure Satisfaction, Relationship with Colleagues, Relationship with Boss, Relationship with Team Members

Using tables, the critical values at 5% confidence level and 1% confidence level of F(5,59) is less when compared to a high computed value of F =38.564.That is, we reject the null hypothesis.

Result1 of Test 1.. *Indian IT Software Entrepreneurs are successful in showing a positive impact of ICT achievements towards the Professional Development of their Organization.*

5.2. Objective B

To point out that knowledge is a factor of production and reveal that knowledge in the field of I.T. had developed the concept of Entrepreneurship.

The following two graphs are sufficient enough to prove that knowledge is a factor of production and reveal that knowledge in the field of I.T. had developed the concept of Entrepreneurship.

5.2.1.Purpose of Internet Use

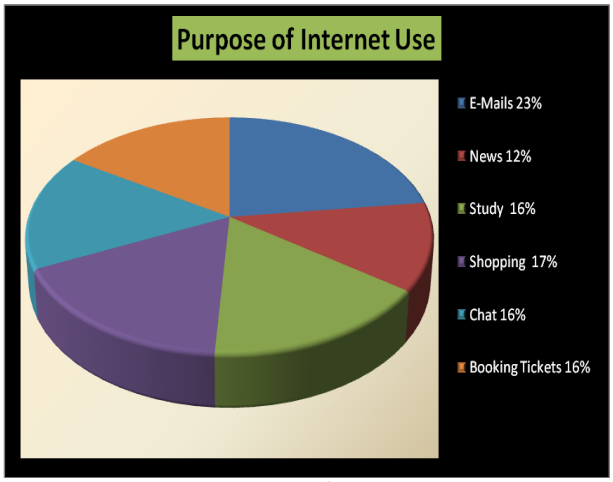

Figure 7. Purpose of internet use

5.2.2. Internet Use Has Made Life Easier

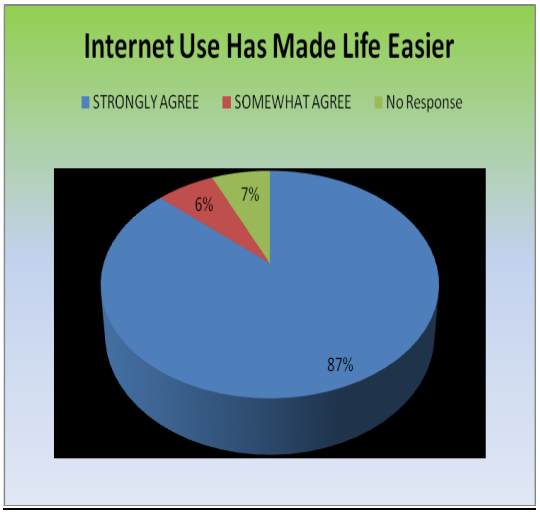

Figure 8. Internet use has made life easier

Result 2. *A Strong Agreement of the respondents towards the fact that ICT Applications are required for their present job and also that their life has become easier due to these applications further support to meet this objective. Hence we conclude that knowledge is a factor of production and reveal that knowledge in the field of I.T. had developed the concept of Entrepreneurship.*

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- AP Online, Govt. of Andhra Pradesh Institute of Electronic Governance HITEC City, Hyderabad
- International Institute of Information Technology (IIIT), Hyderabad
- Hyderabad Software Exporters Association (HYSEA)

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