

Role of ICT in Sustainable Growth of Entrepreneurship in Bangalore Rural District

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ABSTRACT--*Entrepreneurial growth has become synonymous with economic growth of a nation. To achieve sustained development, every nation has to focus on sustained entrepreneurship development. This can be achieved through urban and rural entrepreneurial development. But, Rural India remains far behind Urban India indicating the urgent need to initiate steps to reduce the gap. Globally, e-business has become parallel to traditional business and has become an important feature of sustained growth in entrepreneurial ventures. It is in this background, a research study titled 'Role of ICT in sustainable growth of Entrepreneurship in Bangalore Rural District' was carried out. Data was collected from five taluks of Bangalore Rural District (Sample of 302 rural entrepreneurs) using random sampling method. The findings of the study revealed that, among all the demographic variables, education emerged significant in the use of ICT in business and impact of use of ICT in **business**. Gender was another demographic profile which was significant in use of ICT devices and facing the challenges in the use of ICT. The use of ICT was found to be very low in various aspects of business. But, where ICT was used, the impact on business was positive. The findings indicate the crucial need to focus on education, infrastructure development and understand the importance of removing the rural-urban divide and the digital divide.*

Keywords-- *entrepreneurship, e-business, ICT, rural entrepreneurship, sustained development*

I. PREFACE

In the present age entrepreneurship has been recognized as a key to economic growth and index of economic development of a nation. Schumpeter (1934) visualized the entrepreneur as the key figure in economic development because of his role in introducing innovations. Parson and Smelser (1956) described entrepreneurship as one of the two necessary conditions for economic development, the other being the increased output of capital. Harbison (1965) includes entrepreneurs among the prime movers of innovations, and Sayigh (1962) simply describes entrepreneurship as a necessary dynamic force. [1] Further, it is also opined that development does not occur spontaneously as a natural consequence when economic conditions are right; a catalyst or agent is always needed, and this requires an entrepreneurial ability.

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Harbison (1965) includes entrepreneurs among the prime movers of innovations, and Sayigh (1962) simply describes entrepreneurship as a necessary dynamic force. [1] Further, it is also opined that development does not occur spontaneously as a natural consequence when economic conditions are right; a catalyst or agent is always needed, and this requires an entrepreneurial ability. The Government of India has taken many initiatives for development of entrepreneurship and innovation in the country. Programmes like Start up India, Make in India, Atal Innovation Mission, Biotechnology Industry Research Assistance Council (BIRAC), Support to Training and Employment Programme for Women (STEP), Pradhan MantriKaushalVikasYojana (PMKRVY) have been launched in the last decade to develop an entrepreneurial environment in urban and rural India.

The steps initiated by the government have given a push to entrepreneurial activity in the country. But the global rating of the entrepreneurial activity does not concur with the expected outcome from the efforts in this direction.

The global rating of India on various parameters of entrepreneurial activity is as follows:

World Bank Ease of Doing Business Rating (2020) – 63/190 [2]. GEM 2016/17 has ranked India as follows:
New business ownership rate – 15/64
Established business ownership rate – 50/64
Discontinuance of business – 1/64

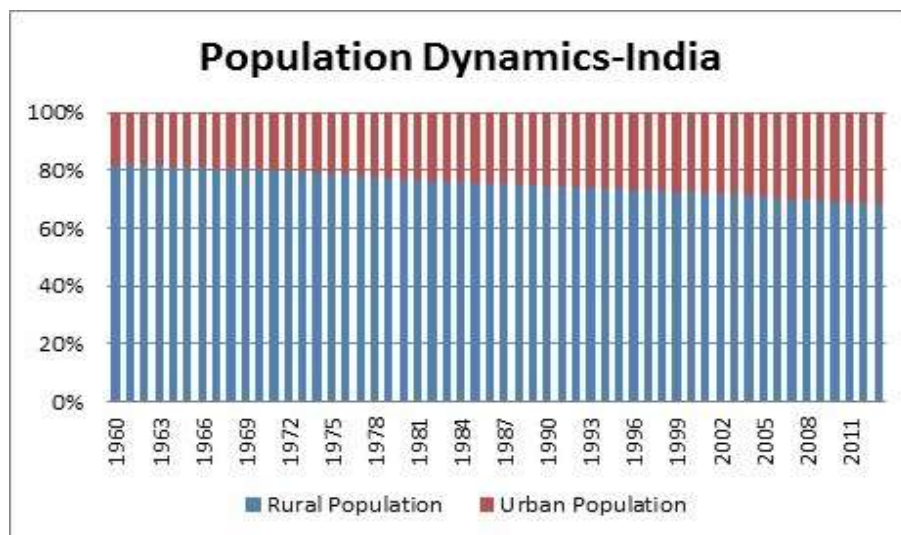
GEM also classifies India as a Factor Driven economy as against higher levels of Efficiency Driven economy and Innovation Driven economy. Thus, India has a long way to go in the direction of entrepreneurship development. India has the lowest entrepreneurial exit rate among factor-driven and BRICS countries surveyed by the Global Entrepreneurship Monitor (GEM), a global consortium researching on entrepreneurship. [3]

Urban entrepreneurship has started to gain momentum in the country but rural entrepreneurship has failed to take off at a pace expected for overall and sustained economic growth of the nation. To ensure sustainable development of the Indian economy it is crucial that the rural-urban divide is removed. The government needs to give a fresh look to the schemes focused on rural development and address the key issues like development of alternate occupations other than agriculture, investment in human capital in rural areas, land reforms, Infrastructure development and availability of affordable credit.

To provide alternate occupation to the unemployed and underemployed rural population and prevent migration of the rural poor to urban areas, facilitating and promoting entrepreneurship in rural areas is essential.

II. RURAL ENTREPRENEURSHIP

“India lives in villages” were the golden words of Mahatma Gandhi many decades ago. Ironically after 70 years the data does not seem to have changed. Today a majority of the Indian population still lives in villages. Though there is substantial migration from rural to urban areas in India, still almost 68% of India lives in rural areas.



Graph 1: Population Dynamics in India

THREE DIMENSIONS OF INCLUSIVE RURAL DEVELOPMENT

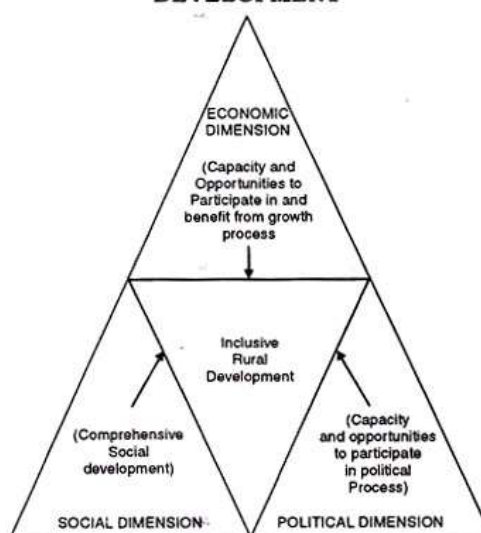


Figure 1: Three Dimensions of Inclusive Rural Development [5]

According to the socio-economic census data (2011) [4] almost 73% of the households were in rural areas (Graph 1). On the contrary, India’s vision today is focused on urban development. Growth of infrastructure, ICT development, benefits of globalization, high levels of literacy and global information has increased the pace of development in urban areas. The standard of living and purchasing power of the urban population has increased exponentially, increasing the rural-urban divide. Cities are tipped to be the catalysts of growth in the future. The fear of decay of villages looms large on the Indian nation. There is an urgent need to understand the existing ground realities and focus on inclusive rural development alongside urban development towards sustained economic growth of the nation.

Inclusive rural development covers three interrelated dimensions – economic dimension, social dimension and political dimension (Figure 1). The economic dimension encompasses providing both capacity and opportunities for the poor and low-income households in particular to benefit from the economic growth. Social dimension supports social development of poor and low-income households, promotes gender equality and women

empowerment and provides social safety nets for vulnerable groups. Political dimension improves the opportunities for the poor and low income people in rural areas to effectively and equally participate in the political processes at the village level.

In the era of globalization, to achieve inclusive rural development, entrepreneurship in the rural areas is the only solution. Rural entrepreneurship can be defined as entrepreneurship emerging at the village level which can take place in a variety of fields of endeavor such as business, industry, agriculture and act as a potent factor of economic development.

III. ICT AND RURAL ENTREPRENEURSHIP

ICT can be defined from the point of view of Information Technology (IT) and Communication Technology (CT). IT includes different kinds of technology used for manipulation of data or information (e.g. machine and software equipment, equipment for data transfer and maintenance)(IT Standards 2012) while ICT includes different kinds of video and audio transfer solutions (e.g. internet network, email, phones) (Education-Portal 2012). [6][7][8].

Information and Communication technologies (ICT) are transforming all human activities, including agriculture which is the mainstay of rural India. One of the main reasons for the inequitable distribution of economic gains between the haves and have-not is the gap in access to information. ICT plays an important role in bridging this gap and eventually will help in poverty alleviation. Farmers can get access to knowledge to improve their production and even get better price for their produce through variety of ICT systems. The advancements in ICT can be utilized for providing accurate, timely, relevant information and services to the farmers, thereby facilitating an environment for more remunerative agriculture. ICT is a powerful and productive system which can accelerate economic and social development in rural areas. This new age technology can help rural India live a better life.

One of the most effective tools of ICT is the internet, which has seen a remarkable growth in our country in the last one decade. However, despite the thunderous growth in ICT technology one of the main problems in adoption of ICT in rural segments are ICT illiteracy, availability of relevant and localized contents in their own languages, easy and affordable accessibility. Community radio is another technology which is being used by the rural people in their local language. The country is going through an ICT revolution [9] and this can become an enabling force for those living in rural India to become active participants in the growth of the country.

Despite so much around the "Digital India" initiative, the urban-rural divide is actually more acute than it appears when it comes to Internet penetration across the country. While Internet penetration in urban India was at 64.84 per cent in December 2017 compared to 60.6 per cent in December 2016, the rural Internet penetration has grown only a little -- from 18 per cent in 2016 to 20.26 per cent in December 2017 and 35% in 2018.[10]

As per digital report of the Govt. of India 2014, the share of internet economy is approximately 5% of the GDP. Table 1 shows that the share of Information Technology in GDP has declined from 6.4% to 4% in the period 2011 to 2016. It appears that ICT sectoral dominance within the economy in general is diminishing in the period 2011 to 2016 later increased in 2018-19. This is a sign of concern for policy makers as it is believed that there is a

positive correlation between GDP growth and the growth of the ICT industry. It is also observed that there is increase in the use of internet in the rural area as per TRAI report.

Table 1 –Sectoral Contribution to Economic Growth

Sector	2011-12	2012-13	2013-14	2014-15	2015-16	2018-19
GDP	6.69	4.47	4.86	4.6	7.5	6.8
Agriculture & Allied activities	5.02	1.42	4.64	4.8	3.8	2.9
Industry	7.81	0.96	0.65	1.5	3.5	6.5
Services	6.57	6.96	6.86	6.3	8.1	7.9
ICT share in GDP %	6.4	7.5	8	5.2	4	7.9
Internet users in rural areas	0.12	4	25	32	19	35
Teledensity in rural areas	26.43	33.79	39.22	9.07	41.02	57.49

Source: *Digital Report, Govt. of India 2014, 2016 ,*TRAI Report March 2019

*Economy Survey Report 2018-19

Rural entrepreneurship through its contribution – economic and social – can ensure sustained rural development through the following:

- Rural industries can generate large scale employment opportunities
- Rural industries can check migration of the rural population to urban areas
- Rural industries can increase per capita income and reduce urban-rural disparity.
- Rural industries can reduce concentration of industry in cities and promote balanced economic growth
- Rural entrepreneurship facilitates infrastructure development
- Rural entrepreneurship will empower the rural people by making them economically self-sufficient and socially responsible.

Sustained development of a nation can be ensured through promoting and facilitating rural development through entrepreneurship. The use of ICT tools in business can bring about crucial changes in the management and functioning of a business and pave the way for sustained rural development.

IV. REVIEW OF LITERATURE

The success of Indian techno-entrepreneurs in the US and the rapid growth of the Indian software and IT enabled service industries reflect the potential for economic growth of India using ICT. Developments in three directions are expected to help realize the potential that ICT holds out for a developing country like India: a) significant export gains that would result in substantial increases in income and employment, b) use of relatively cheap ICT skills in the restructuring and reorganization of the “brick-and-mortar” economy to spread the benefits derived from new technologies, c) improve human development through the application of highly developed and

dispersed ICT skills to improving governance, facilitating empowerment of poorer households and communities [11]. Rural entrepreneurship is a necessity to solve the problem of rural unemployment and rural migration to cities [12]. Both the Government of India and NGOs have been focusing on rural entrepreneurship as a key route to solving the need for economic and social employment. Small, local enterprises together account for a large number of jobs in the country and have shown the positive impact that they can have on individuals and communities. The limitations of existing programmes have been lack of meaningful and viable enterprise options and the inadequacy of market, technical and financial linkages. There is need for capacity building support throughout an enterprises' life-cycle, a facility that is largely non-existent. Information and Communication Technologies (ICT) has the possibility to remove some of the constraints as it substantially enhances the delivery of services at much lower cost than current resource intensive solutions (ICTD Project Newsletter (2006) [13] "Innovative technologies are reshaping the global economic landscape, by improving speed and ease of communication and interactions among the various economic actors involved in the production cycles". [14]

E-business in developing countries is challenged by two key factors: the prospects and timeframe for improving infrastructure such as affordable, reliable Internet access (no Internet = no e-business); and the likelihood of current and future demand for e-business transactions and web-based services in developing countries. In matter of fact, there are a number of obstacles facing e-entrepreneurs in developing countries, as there are many issues in expanding and diversifying sales in both international and domestic markets. Key limitations include lack of information about market opportunities, inadequate access to financing, and insufficient capacity to satisfy the quality, cost and logistical requirements of overseas customers (Intel 2011) [15]. The value of ICT exceeds far beyond direct economic benefits. ICT is a driving force in the acceleration of entrepreneurship and innovation, making it easier to identify and develop good ideas, and create and disseminate new products and services. The pervasive use of ICT – including hardware, software, applications and telecommunications – drives entrepreneurship and innovation in virtually every market sector, from farming to computing and government services.(Intel (2011) [15] ICT usage leads to product, process, market and organizational innovations which leads to improved business performance through market growth and higher financial performance [16].

V. IMPORTANCE OF STUDY

According to the NSSO Census 2011-12, the shares of self-employment in total workforce were 55 per cent for rural males, 59 per cent for rural females, 42 per cent for urban males, 43 per cent for urban females. The corresponding shares of casual labour were 36 per cent, 35 per cent, 15 per cent and 14 per cent for rural males, rural females, urban males and urban females, respectively.

The census surveys indicate the fact that, in rural India, entrepreneurship (self-employment) is an important source of income for the rural families. To make a meaningful contribution to rural development, improved standard of living for rural families, creation of employment opportunities for the rural youth; entrepreneurship should be successful and thriving. Entrepreneurial success is measured in terms of growth in business and increasing profits. Rural entrepreneurship, by its very nature, is caught in the vicious cycle of small investment and small size of business; unable to reap the fruits of successful entrepreneurship through growth in the size of

business firms. Thus, small businesses in rural areas should aim at sustainable growth – a growth in sales which the firm can finance from its internal sources without resorting to debt.

Indian art and handicrafts occupy a place of pride in the national and international markets due to their heritage value. The craftsmen of Bangalore Rural District comprising of eight taluks (Devanahalli, Doddaballapura, Hosakote, Nelamangala, , Ramanagar)are highly skilled in pottery, wooden crafts, weaving and such other ornamental crafts. Majority of them are small entrepreneurs who make a living by selling their creations in exhibitions and fairs in India. Most of them have limited access to urban markets. They are also faced with the challenges related to marketing such as lack of standardisation, quality control, branding and packaging. Such barriers to survival, growth, expansion and sustenance of rural entrepreneurship can be overcome by adopting e-business strategies.

Research findings indicate that entrepreneurs in rural Karnataka have limited access to national and international markets. Their products have limited reach and therefore the rural handicraft industry is struggling to survive. A few retailers like Fabindia, Mother Earth, Global Desi etc. are encouraging and promoting rural artisans, yet a large number are unable to sustain. The products face global competition and need to be equipped to survive, grow and make a place in the export market. The small craftsmen who have not adapted to the changing demands of the national and international markets are gradually shifting out of their traditional occupations. This trend can be thwarted by opening up the frontiers of international markets by use of ICT where demand for Indian art and craft is huge. ICT can play a major role in ensuring that the market for traditional art and handicraft thrives nationally and globally. Thus, the role of ICT in sustainable growth of entrepreneurship in Bangalore Rural District cannot be undermined. Use of ICT in development of entrepreneurial ventures assumes relevance due to the accessibility of the IT hub to entrepreneurs in Bangalore Rural district. The knowledge and skills required to use ICT as a tool for sustainable growth is readily available to rural entrepreneurs. Therefore, the significance of this study.

VI. OBJECTIVES OF THE STUDY

- To analyze the use of ICT by rural entrepreneurs in various aspects of business
- To study the extent of use of ICT tools by rural entrepreneurs.
- To study the impact of use of ICT devices on business of the rural entrepreneurs.

VII. RESEARCH METHODOLOGY

- **Scope of the study:** The study was carried out in Bangalore Rural District covering Devanahalli, Doddaballapura, Hosakote, Nelamangala and Ramanagarataluk. A total of 302 respondents (rural entrepreneurs) from trading, manufacturing and service sector were considered for the study.

- **Sampling plan**

Sample size: This study covers entrepreneurs in Bangalore Rural District. The study covered Devanahalli, Doddaballapura, Hosakote, Nelamangala and Ramanagara. With this broad objective, to cover all entrepreneurs using ICT and non ICT a representative sample was selected from these taluks. While selecting samples caution was taken, that sample should be sufficient in size to arrive at significant conclusions and generalizations beyond

the study sample. A sample of 350 respondents was selected for the study and after the editing of data only 302 was considered for the study.

➤ Sample area: This empirical study based on primary data was collected from Bangalore Rural District. The taluks covered were covered Devanahalli, Doddaballapura, Hosakote, Nelamangala and Ramanagara. The area was selected because it is a representative character in terms of the size of rural entrepreneurs in Bangalore Rural District, and because these districts broadly represent the southern, northern eastern and western part of Bangalore Rural District.

➤ Sample method : Random sampling method was considered

VIII. DATA ANALYSIS & FINDINGS

8.1 .Demographic Profile

- 86% of the rural entrepreneurs who formed the sample were less than 50 yrs. of age. This indicates that entrepreneurship in Bangalore Rural district is a relatively new phenomenon or entrepreneurship has not survived or sustained leading to closure of businesses.

- 75% of the entrepreneurs in Rural Bangalore district have been in business for less than 10 years and 84% are in business for less than 15 years. A very small proportion of the entrepreneurs (16%) have sustained their business for more than 15 years. This indicates lack of sustainability of entrepreneurship in Rural Bangalore.

- 44.04% of the rural entrepreneurs were PUC, followed by 42.05% of them who were SSLC. An extremely small proportion of respondents were graduates (8.28%) and post graduates (5.63%). From this analysis it can be inferred that in the Bangalore Rural district, most people who are literate with a SSLC or a PUC start a business venture and do not pursue graduation. Further, those with a graduate or post-graduate degree could be migrating to urban areas seeking employment.

8.2. Use of ICT in various aspects of business:

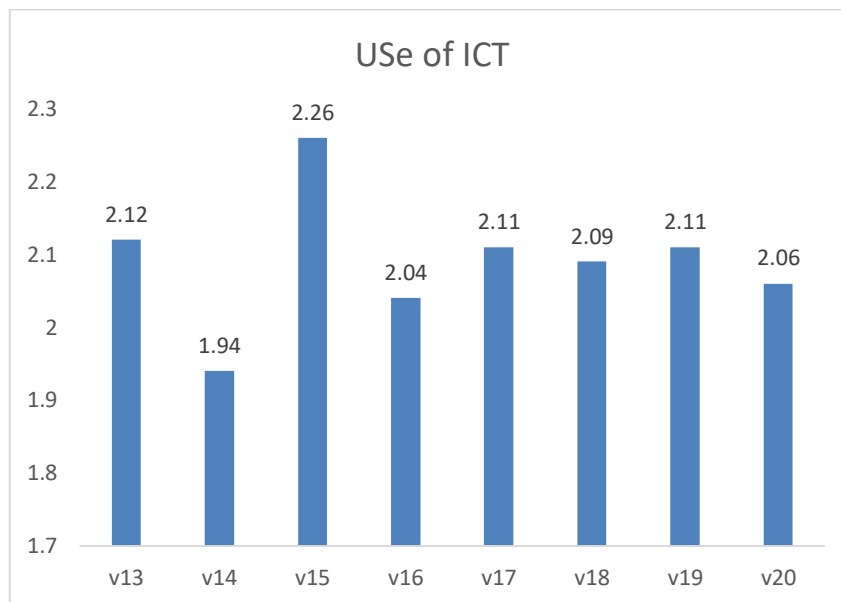
On the analysis of Table 2, v15 (Inventory Management) achieved the highest mean score of 2.26, followed by v13 (Marketing / Advertising) with a mean score of 2.12, v17 and v19 (Cash Management and Collection of payments) with a mean score of 2.11, v18 (Employee Management) with a mean score of 2.09, v20 (Credit Management) with a mean score of 2.06, v16 (Product improvement) with a mean score of 2.04 and v14 (Accounting / Billing) with a mean score of 1.94. A mean score in the range of 1.94 to 2.26 shows use of ICT in business by entrepreneurs in Rural Bangalore is to a small extent.

Table 2: Use of ICT in various aspects of business

Variable No.	Use of ICT	Mean Score	S.D	Skewness	Kurtosis	S.E
v13	Marketing/Advertising	2.12	1.09	0.52	-0.91	0.06
v14	Accounting/Billing	1.94	1.05	0.77	-0.62	0.06
v15	Inventory Management	2.26	1.12	0.35	-1.06	0.06
v16	Product Improvement	2.04	1.03	0.61	-0.76	0.06
v17	Cash Management	2.11	1.06	0.46	-1.02	0.06

v18	Employee Management	2.09	1.06	0.47	-1.02	0.06
v19	Collection of Payments	2.11	1.03	0.54	-0.80	0.06
v20	Credit Management	2.06	1.04	0.67	-0.52	0.06

For all the above construct Std. Dev. varied from 1.03 to 1.12 indicating consistency in the distribution of data. The values of measures of skewness less than 1 and measure of kurtosis within 3 indicate that the distribution is not non-normal. This indicates that the sample mean is close to the population mean and increases its reliability.



Graph 2: Descriptive statistics - Use of ICT

8.3. ICT Devices used in business

Table 3 –ICT devices used in the business

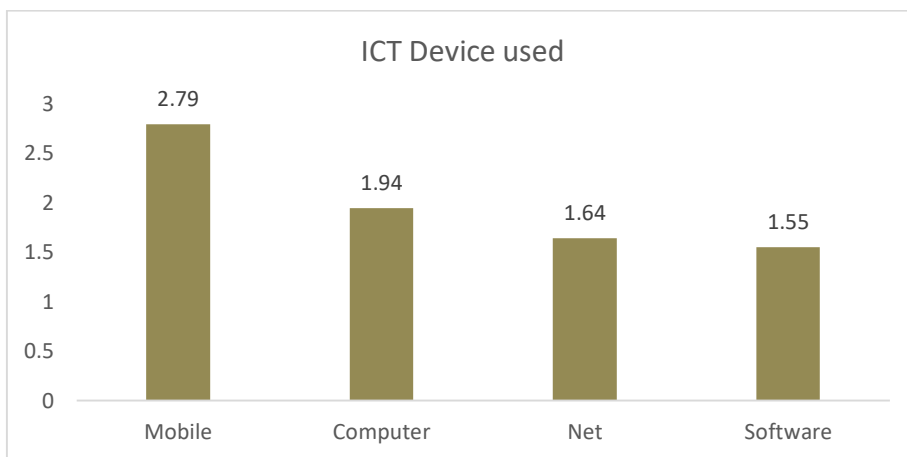
ICT Device used	Mean Score	Std. Dev.	Skewness	Kurtosis	S.E.
Mobile	2.79	0.95	0.28	-0.64	0.06
Computer	1.94	1.14	0.89	-0.42	0.07
Internet	1.64	0.97	1.49	1.41	0.06
Software	1.55	0.93	1.83	2.99	0.05

On the analysis of Table 3, Mobile achieved the highest mean score of 2.79, Computer achieved the mean score of 1.94, Internet achieved the mean score of 1.64, while software achieved the lowest mean score of 1.55.

Thus, the rural entrepreneurs are using the Mobile Phone to some extent. Use of computer, Internet and Software in business is very low (less than an average of 2.5). For all the above construct Std Dev varied from 0.93 to 1.14 indicating fair amount of consistency in the data and the reliability of the mean score. For the use of the mobile phone in the conduct of business the Std. Dev.(0.95), very small amount of skewness (0.28) and kurtosis (- 0.64) indicate that the distribution is not non-normal. The use of internet and software by the entrepreneurs in

Rural Bangalore shows high skewness, indicating the distribution of use of internet is non-normal. A positive skewness indicates that most of the respondents have rated the use of these two ICT devices at a rating lower than the mean (Mean>Median>Mode). The measure of kurtosis being within 3 indicates a mesokurtotic distribution (normal distribution).

The Standard Error for the mean score of the use of ICT devices is in the range of 0.06 to 0.07. This low Standard Error indicates that the sample mean is close to the population mean.

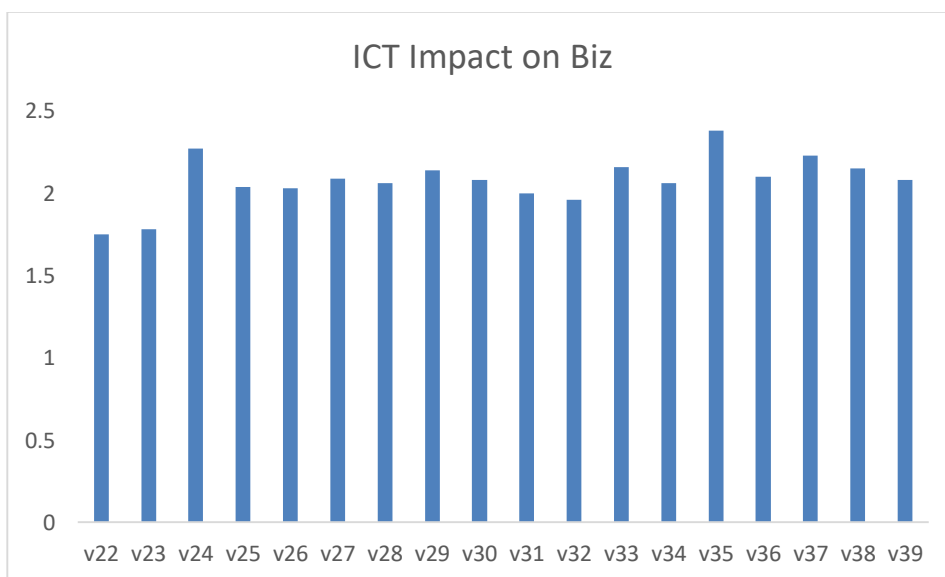


Graph 3: ICT Devices used in the business

8.4. Impact of use of ICT on Business

Table 4: Reliability and Descriptive Analysis

	Constructs Name	Cronbach Alpha	Mean	Std	No of items
1	Use of ICT	0.96	2.09	0.94	8
2	ICT Device	0.87	1.99	0.85	4
3	Impact of ICT use	0.95	2.07	0.65	18



Graph 4: Descriptive statistics - ICT Impact on Business

Cronbach's alpha is a coefficient of reliability. It is commonly used as a measure of the internal consistency or reliability of construct. An analysis of Table 4 brings out that Cronbach alpha for the construct is more than 0.7. The test result ensures the consistency of the instrument and reliability of the data.

Table 5.: Impact of use of ICT on business

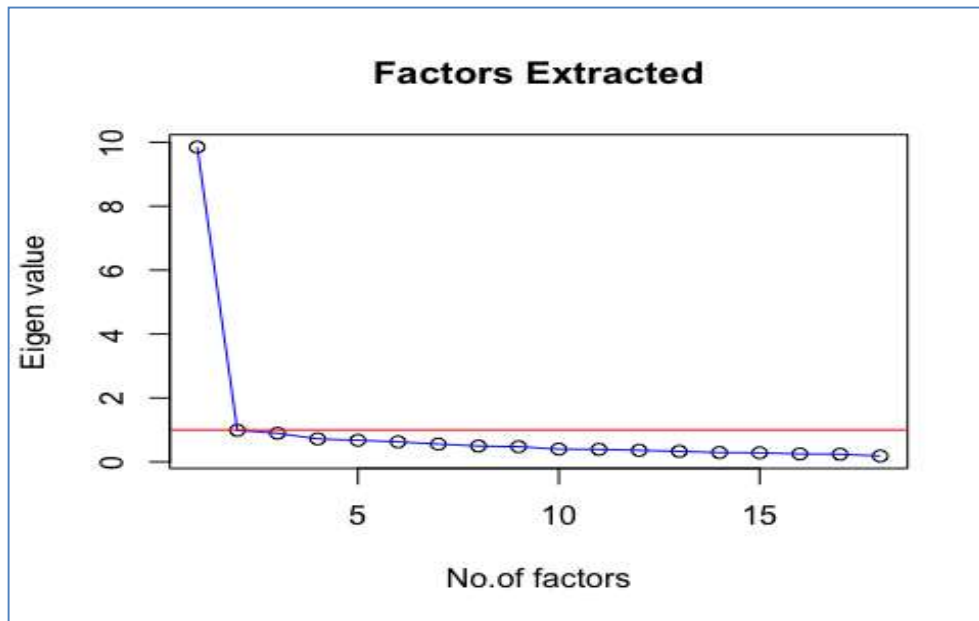
Variable No.	Impact of use of ICT on Business	Mean Score	S.D.	Skewness	Kurtosis	S.E
v22	Increased geographical coverage	1.75	0.83	0.87	0.13	0.05
v23	Increased market information	1.78	0.82	0.75	-0.29	0.05
v24	Increased product information	2.27	0.92	0.34	-0.36	0.05
v25	Direct contact with customers	2.04	0.94	0.45	-0.81	0.05
v26	Ease in receiving orders	2.03	0.94	0.52	-0.57	0.05
v27	Ease in collection of payments	2.09	0.89	0.43	-0.59	0.05
v28	Ease of promotion	2.06	0.88	0.59	-0.14	0.05
v29	Reduced cost of advertising	2.14	0.85	0.30	-0.45	0.05
v30	Reduced working capital requirements	2.08	0.91	0.45	-0.40	0.05
v31	Reduced bad debts	2.00	0.86	0.52	-0.29	0.05
v33	Increased sales turnover	2.16	0.85	0.26	-0.46	0.05
v34	Increased number of customers	2.06	0.84	0.43	-0.45	0.05
v35	Increased product innovation	2.38	0.95	0.11	-0.83	0.06
v36	Standardisation of products	2.10	0.90	0.43	-0.65	0.05
v37	Quality improvement	2.23	0.91	0.18	-0.74	0.05
v38	Expansion of business	2.15	0.88	0.37	-0.47	0.05
v39	Increased rate of return	2.08	0.82	0.25	-0.68	0.05

On the analysis of Table 5, v35 (Increased product innovation) achieved the highest mean score of 2.38, followed by v24 (Increased product information) with a mean score of 2.27, v 37 (Quality improvement) with a mean score of 2.23, v33 (Increased sales turnover) with a mean score of 2.16 , v38 (Expansion of business) with a mean score of 2.15, v29 (Reduced cost of advertising) with a mean score of 2.14 and v36 (Standardisation of products) with a mean score of 2.10. The mean score indicates the average of ranking on a scale of 1 to 5 for each of the variables.

The other variables had a mean score between 2 and 2.10, reflecting an impact to a small extent of ICT on business of rural entrepreneurs. Increased geographical average and increased market information showed a low impact (mean score of 1.75 and 1.78 respectively).

For all the above construct Std Dev. varied from 0.82 to 0.95 reflecting consistency in the mean values and indicating that the mean score represents the mean of the sample. The measure of skewness < 1 and measure of

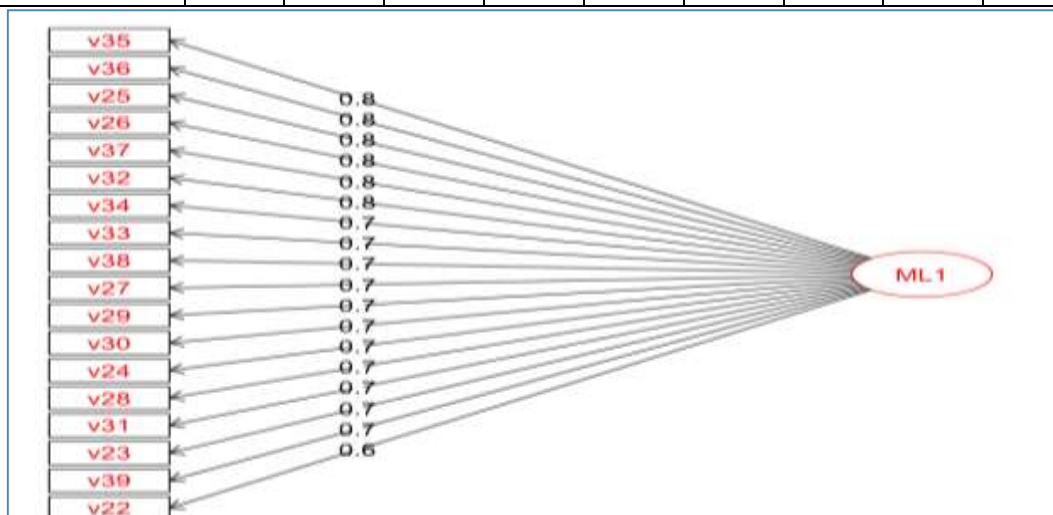
kurtosis less than 3 indicate that the distribution is not non-normal. A low Standard Error also indicates the accuracy of the sample mean.



Graph 5.: Eigen value and Factors Extracted

Table 6: Eigen values

Items	1	2	3	4	5	6	7	8	9
Eigen value	9.85	0.99	0.89	0.72	0.68	0.63	0.56	0.50	0.48
Items	10	11	12	13	14	15	16	17	18
Eigen value	0.40	0.39	0.36	0.33	0.29	0.28	0.25	0.24	0.18



Graph 6 –Factor loadings using ML Estimation method

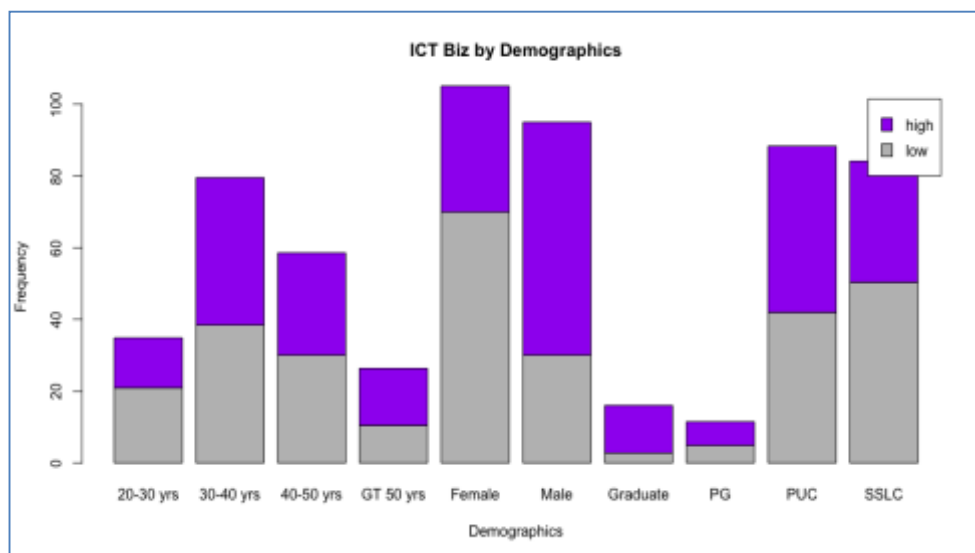
The Graph6 indicates the relation between items and their constructs, v35 (increased product innovation, v36 (increased standardization of products, v25 (direct contact with customers, v26 (made receiving orders easy), v37 (led to quality improvement). V32 (reduced time between receiving orders and delivering goods) and ICT use dimension is .78 or .8, the arrow moves from construct to items, which is reflective indicators..v22 (increased

geographical coverage) showed the least relation with ICT use dimension- .6. All the other items showed relation with the construct ICT use of 0.7.

Table 7 –Factor Loadings

Items	Factor loadings	Communalities	
v22	0.61	0.37	0.61
v23	0.67	0.45	0.67
v24	0.7	0.49	0.7
v25	0.77	0.59	0.77
v26	0.76	0.58	0.76
v27	0.71	0.51	0.71
v28	0.7	0.49	0.7
v29	0.71	0.51	0.71
v30	0.7	0.5	0.7
v31	0.69	0.47	0.69
v32	0.75	0.57	0.75
v33	0.73	0.54	0.73
v34	0.74	0.55	0.74
v35	0.78	0.62	0.78
v36	0.78	0.61	0.78
v37	0.76	0.58	0.76
v38	0.72	0.51	0.72
v39	0.67	0.44	0.67

Since the loading is more than 0.50, (Table 7) there is a substantial association between all the variables relating to use of ICT in various aspects of business and Impact of Use of ICT in business.



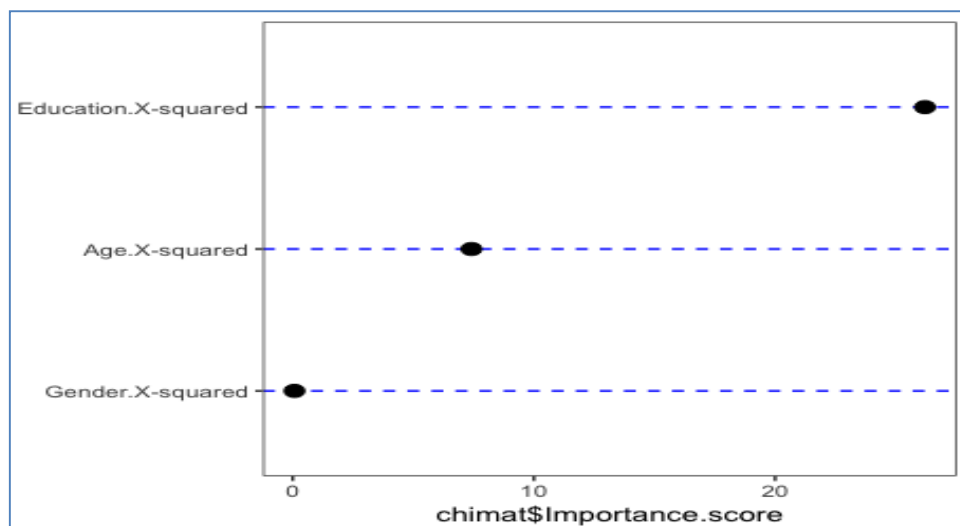
Graph 7: ICT business by Demographics

Table 8: Chi square Analysis- Importance score - Demographics by Impact of ICT Biz

	Importance. Score
Age-squared	7.411*
Gender-squared	0.072
Education-squared	26.213*

*P<.05

)



Graph 8: Chi square Analysis

Importance score is chi square value between each demographic variables and Impact of ICT. Among these, Education attained high score, which proved high association with Impact of ICT in business, while compared with other demographics. (Graph 8)

- Using regression analysis and relative importance scores, it was found that among the demographic variables, education has been ranked the highest towards use of ICT, Impact of use of ICT, ICT devices used. Other demographics of gender and age play a relatively less role. The difference is statistically significant at 5% level.

Use of ICT in business by entrepreneurs in Rural Bangalore district and its impact on their business: A prediction model

Regression Analysis

Multiple linear regression is employed to predict the outcome of the Impact of ICT in business based on use of ICT in business. As a procedure to predict the model, whole data set is split into two, 2/3rd of total data set, n=184, is considered for training the data, and 1/3rd of data, n=86, is used for testing of predicting the model. Model is based on OLS estimation. The variables and their relation are shown below in the form of equation.

DV: Y- Impact of ICT

IV: X-Use of ICT

e- error term

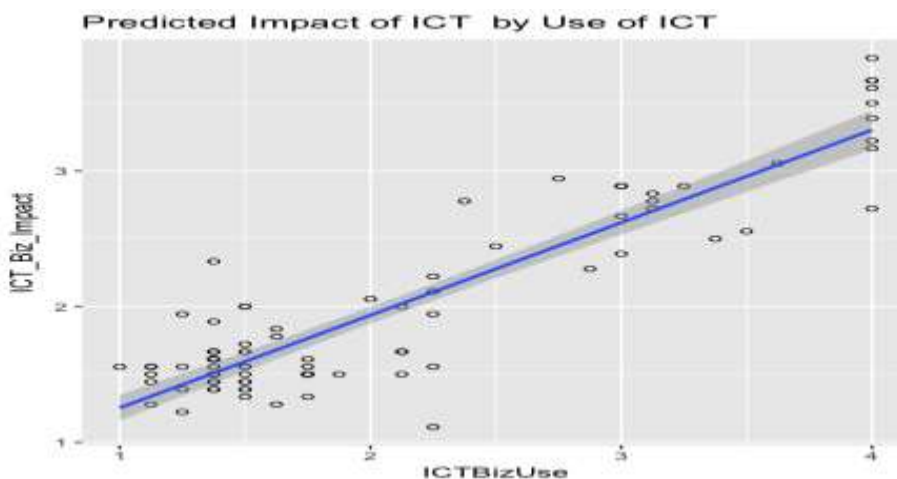
$$Y = a + \beta_1 * X_1 + e_i$$

From the above equation it is understood that, Impact of ICT as outcome variable, R square is .76 for training model and for test model it is .83. It is shown in train model. 1 unit increase in use of ICT may lead to change in Impact of ICT in business by 0.57. For the test model it is 0.68 and the model is statistically significant. This shows that there is linear relation between Use of ICT and Impact of ICT in business.

Table 9: Regression Analysis

	Train-Model	Test-Model
(Intercept)	0.90*** (0.05)	0.57*** (0.08)
Use of ICT	0.57*** (0.02)	0.68*** (0.03)
R ²	0.76	0.83
Adj. R ²	0.76	0.83
Num. obs.	184	86
RMSE	0.31	0.29

*** p < 0.001, ** p < 0.01, * p < 0.05



Graph 9: Predicted Impact of ICT by use of ICT

An analysis of Table 9 and Graph 9 shows:

- All the variables related to impact of use of ICT in business – increased product innovation, increased standardization of products, direct contact with customers, made receiving orders easy, led to quality improvement, reduced time between receiving orders and delivering products – and ICT use in business dimension had a relation of . indicates a good/strong relation.
- The variables – increased market information, increased product information, collection of payments, ease of promotion, reduced cost of advertising, reduced bad debts, expansion of business, increased rate of return, increased number of customers – related to impact of use of ICT in business had a relation of 0.7 with the dimension ICT use in business.
- The variable – increased geographical coverage due to use of ICT in business had the least relation with ICT use in business

- There is a substantial association between all the variables relating to use of ICT in various aspects of business and Impact of use of ICT in business.

IX. CONCLUSION

Globally, India is recognized as the fastest growing nation with a growth rate higher than most nations. ICT has played a major role in this growth with the last decade witnessing tremendous growth in the ICT sector. But the paradox is that the GEM indices rank India low in entrepreneurial growth and top in discontinuance of business. Sustainable growth of entrepreneurship is a challenge which needs to be addressed by policy makers, experts in the field of entrepreneurship, academicians and the successful entrepreneurs who are the role models for the present generation.

This study titled 'Role of ICT in sustainable growth of Entrepreneurship in Bangalore Rural District' was carried out to understand the nature of rural entrepreneurship in Karnataka, the extent of awareness and adoption of e-business by the rural entrepreneurs in the use of ICT in business. The study has revealed that though ICT is used to a very minor extent by the rural entrepreneurs, there is a positive and significant correlation between use of ICT and Impact of ICT on the growth of business. Thus, it is crucial for the government to facilitate use of ICT in rural areas with necessary infrastructure facility, entrepreneurship and ICT training, to enable sustained growth of rural entrepreneurship.

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