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Case of MSEs in South Indian State of
Kerala, India**

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2010

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Adoption of Information and Communications Technology in Rural Micro and Small Enterprises (MSEs)

ICT plays a significant role in the life of enterprises. Micro and Small Enterprises (MSEs) have to be familiar and in tune with ICT applications, within the context of fast evolving global market dynamics. However, how far MSEs of rural India could address this challenge of adoption of ICT within their enterprise level? What are the challenges and opportunities that rural MSEs could accrue from ICT adoption?

Introduction: Background and Context

The proposed study would focus on rural MSEs, how are they confronting the challenge of ICT adoption. Thus, necessitates a detailed review of literature to help identify right parameters and indicators for measuring ICT adoption within MSEs. The world has now come to recognize the role of MSE sector in economic growth and for promoting equitable development, as it constitute over 90% of total enterprises and its credible role in employment generation. Also, MSEs contribute majorly to industrial production and exports.

In India MSEs play a key role in the overall industrial sector, with an estimated contribution to the tune of 39% of the manufacturing output and 33% of the total export of the country. Further it generates employment to approximately 40 million people as per latest available statistics.

MSEs in India: an overview	
Number of MSE Units	13 million
Employment	41
Share in GDP	8 – 9 percent
Share in manufacturing output	45 percent
Share in exports	33 percent

Source: MSME Ministry, DC of MSME www.dcmsme.gov.in

While there is no universally accepted definition of small enterprises, in several of the countries employment happens to be the sole criterion. In some cases it is used in conjunction with assets, turnover, shareholder funds, nature of activity, etc. However there is one thing common and that is the vast majority of enterprises are relatively small and over 90% of them employing less than 100 people. However, MSME Development Act 2006 has the following classification:

Defining MSEs as per 2006 MSME Development Act	
Manufacturing MSEs(Investment in Plant & Machinery)	
Micro	Up to Rs. 0.25 Cr /\$ 62,500
Small	Up to Rs. 5 Cr / \$ 1.25 Million
Service MSEs (Investment in equipment)	
Micro	Up to 10 lakh / \$ 25,000
Small	up to 2 Cr. /\$ 0.50 Million

Source: MSME Ministry, DC of MSME www.dcmsme.gov.in

The largest employment generating enterprise segment, MSEs, occupies a prominent role, particularly in the context of its role in poverty reduction, for further employment generation, enhanced contribution to GDP, industrial production and above all its linkage with world economy so as to boost Indian exports are very important for attaining and sustaining India's growth above 8 % per- annum. Further, MSEs role is crucial as far achieving inclusive growth. Here, comes the importance of ICT adoption in MSEs. As ICT adoption would help MSEs:

- Reach out to new customers, markets: telemarketing, Cyber marketing
- Showcase their products globally: Online display of product & service catalogues

- Network for business expansion: Communication channels and networks through emails and internet
- Collect information related to technology, finance, products, markets, policies etc: Market and Business Intelligence management through ICT
- Brand building through media reach out programs: Promotional activities, image building etc
- Strengthening and stream lining of internal business process: financial, accounting and HR management and monitoring made easy with ICT
- Managing project effectively and efficiently: Project management software like primavera
- Gateway is opened with 24X7 presence through a website
- E-learning, advanced in house trainings electronically can be organized

Overview of Literature

An overview of literatures highlights the fact, studies to understand the level of ICT adoption within rural MSEs are almost none or rare. However, there are studies and surveys, carried out in developed countries as well as in countries such as SriLanka to determine the level of ICT adoption in small and medium enterprises. The proposed study, it is hoped, would be a first of its kind study to ascertain the ICT adoption stage in rural MSEs in any part of the world. A detailed literature review is needed to identify the status of already done research studies and their focuses. Also a careful study of is required so that identification of right parameters and indicators for measuring ICT adoption within MSEs. At this stage, the researcher made an effort to review some of the works that have been accessible such as reports, survey results on ICT adoption from other countries, research papers etc.

ICT adoption crucial for survival of MSEs

Some of the study reports by international agencies present a framework for developing a deeper agenda for systematically analyzing various aspects ICT adoption for small scale sector. Comprehensive documents on ICT adoption for small scale sector, these reports, present the rationale behind the need of MSEs adopting ICT as well as their potential use and a detailed survey of ICT

policies and programs. (OECD 2004; UNDP- APDIP 2003, Accenture, Markle Foundation, UNDP 2001; UNDP- APDIP 2007;)

According to Kotelinkov reliance on ICT in the knowledge economy is crucial and those MSEs, which are reluctant to adopt ICT would have trouble surviving in the global market. Procurement is now *e-procurement*. Just for instance 60 percent of intel's material orders are done electronically. MSEs that do not have the e-capability would get sidelined and won't be chosen as business partners. (Kotelinkov 2007, p 5). ICT help connect MSEs at a very economical rate to clients and markets, locally and globally. All this naturally results in enhanced productivity and efficiency. Manalo and Camacho states that IT capital contributes significantly to the output of the firm and outweighs the contribution of the non-IT inputs (Manalo and Camacho, 2007). The Advantages to SMEs may be identified from literature as:

- Better accounting and financial management practices. It handles financial planning and accounting much easier with a fraction of capital investment in buying software such as Talley, accounting software etc.
- Improved communication between different departments through internet and sharing of information.
- More informed decisions.
- A platform for providing e- learning within the enterprise to employees.

(Kotelinkov Vadim ,UN-APCICT, 2007, p.9)

- Reaching out to the local & global market more easily
- Reaching out to the customers, input suppliers, technology providers and government agencies;
- Dealing with regulatory aspects more quickly.

ICT help gain competitive advantage

In a study a conducted among 200 UK SMEs , Magurie & Koh observe that SMEs could gain competitive advantage with the use of ICT. The survey reveals that 70 percent of SMEs, participated in the study, confirmed that ICT help their businesses in diverse ways in gaining a competitive advantage in the global market. (Magurie and Koh, 2007). ICT help MSEs reduce costs and could be used to improve internal processes; more rapid communication with customers; and online presence help in

promotion and marketing. It further help improve the core strengths of MSEs. (Kotelinkov, UNDP- UN-APCICT 2007).In another study conducted among 378 UK SMEs by Harindranath et.al, observes that often the cost factor involved in ICT adoption keep owners and managers away from experimenting with it. (Harindranath, Dyerson and Barnes 2008).

ICT can replace the time and costs necessary for face-to-face communication. Adopting more advanced ICT tools would further brings enormous benefits. Advanced communication technologies such as e-mail, fax would help firms communicate faster and cheaper with both its suppliers and clients. (Kotelinkov, UNDP- UN-APCICT- 2007 p.12). Evidence suggests that with the introduction of ICT, resulting in improved production process at every level and thereby results in an enhanced economic efficiency and performance.

ICT helps to benefit SMEs in three ways: (UNDP-APDIP e-note 4/2005)

1. Increase productivity in the production process.
2. Increase efficiency of internal business operations.
3. Connect SMEs more easily and cheaply to external contacts.

Barriers to ICT adoption

But there are a number of constraints MSEs face while they face with the question of adopting ICT at their enterprises. They include:(UNDP-APDIP e-note 4/2005)

- poor ICT literacy both among owners and employees,
- high cost of hard ware, software and skilled manpower,
- Inadequate ICT infrastructure
- inefficient ICT infrastructure,
- high cost of accessing ICTs/Internet/telephone and inexperience in integrating ICTs into the business process

Lack of ICT skills and business skills are widespread impediments to ICT adoption which calls for e-literacy and training in ICT beginning from school. (OECD 2004). In a study conducted among

SriLankan SMEs by Kapurbandara and Lawson, on barriers to adoption of ICT and e-commerce in Sri Lankan SMEs, observes that SMEs are not often keen on ICT adoption when internal and external barriers, related to infrastructure, legal, political, social and cultural factors, come its way. Barriers are lack of skills, lack of awareness about possible return on ICT spending, , little support and policies for SMEs from the State , lack of suitable software standards and low internet penetration. (Kapurbandara and Lawson, 2006). Whereas Harindranath et al observes that barriers to ICT come from costs and skill requirement. (Harindranath, Dyerson and Barnes, 2008). Lack of ICT literacy is being cited as a major barrier in every part of the world. Improve the e-skills of the general workforce is critical to the successful ICT adoption and e-strategies in businesses. (Commission of the European Communities, 2003; Kotelinkov,; UNDP- APCICT, 2007,)

ICT network infrastructure is the most significant aspect in ICT adoption in addition to human resource aspects in terms of knowledge workers, growing technical skills among users, raising local entrepreneurial and managerial capabilities. (UNDP 2001). Developing local content and applications that could be understood by non-English users also matters a lot and demand-driven information that are apt for MSEs should be on the top of the agenda for ICT service providers (UNDP 2001). OECD report 'ICT, E-BUSINESS AND SMEs' , is of the view that SMEs are slower than large enterprises to adopt ICTs as lack of applicability and small incentive to change business models when returns are indefinite (OECD, 2004). Technology obsolescence requiring frequent updates, which cash-poor, SMEs find it difficult to fund is being cited as another barrier to ICT adoption.

Overcoming barriers to ICT adoption

A UN- APCICT report on SMEs and ICT suggests measures that the State can undertake, to tide over the barriers to ICT adoption. And they are; reduced connection cost, infrastructure expansion, subsidies and encouragement to service providers to offer special discounts for SMEs. (Kotelinkov UN-APCICT, 2007).

How this study would fill the knowledge gap and Contributions

The literature review draws attention to the gaps and calls for a better understanding about the status of ICT adoption in MSEs.

- Presently available studies on ICT adoption have a thrust on Large scale and Medium sized enterprises

- Studies that were referred for this short review reveals that though the studies on SME (Small and Medium Sized Enterprises) have definite focus on those enterprise which are at high end spectrum ,i.e. small and medium enterprises.
- Also studies pertaining Small and Medium sector within India are limited.
- Available studies reviewed had a urban bias as sampling done at the urban based SMEs in both SriLanka and UK study
- The level of adoption that would be possible at rural MSE side differ from SMEs with an urban base
- Rural MSEs ICT adoption has not studied in the Indian context

In this context, the present study focused on the following and attempted to address

- ICT adoption among rural MSEs
- What are the specific ICT tools that are relevant for rural MSEs
- Barriers to ICT adoption in Rural MSEs
- A list of parameters and indicators would be identified to measure ICT adoption among rural MSEs
- A model would be developed based on the indicators which could be used to measure adoption in any MSE
- The survey that is proposed would be then applied to this model so that an MSE could be ranked

Policy level contribution:

- Understanding the status of ICT adoption of rural MSEs would help the State to intervene and facilitate more adoption
- an elaborate review of policies and programs of other countries would done to bring in forth a set of best practices

- A program and work plan involving MSEs, training institutes, academic institutes and MSE and SME associations would drawn
- Further a set of suggestions and recommendations that evolve from the study would help improve the situation as far as ICT adoption within MSEs are concerned

Conceptual Framework

Adoption of ICT within MSEs is a very important topic as far as strengthening their presence within the context of global market. It is to be further noted that for medium and large player's affordability do not matter much, unlike cash stripped MSEs especially those enterprises located in the rural area. For Large and Medium players, investments in ICT, computers, expensive software wont concern much often including employing skilled people IT, computer software and hardware technicians and professional engineers. Whereas the case of small players are different and following aspects come into focus here:

- MSEs are slow in adopting ICT
- Not much data with regard to ICT adoption within MSE s are available
- Further, considering their status this segment, largest enterprise segment, needs initiatives and specific attention from the policy makers for promotion of ICT adoption
- Studying ICT adoption among MSEs help suggest remedial policy inputs as this as a dominant sector with wide ramifications in the life of vast majority of people.

The importance of MSE sector to the national economy, in terms of its contribution to employment generation, exports, manufacturing output, services sector and to the GDP is now well established. Here comes the role of ICT adoption in MSEs as ICT adoption benefits rural MSEs.

Strengthening MSE sector would go a long way in poverty reduction and further job creation and sustainable growth. Whereas fact remains that rural industries often shy away from adopting new technologies as well as ICT. While benefits that rural MSEs could accrue from adoption is manifold considering the vast potentials of the diverse set of product portfolio of the rural industries?

From the literature review substantiates that ICT adoption could benefits MSEs in a number of ways. Whereas ICT with regard to rural MSEs would not be that of high end ICT instruments. Expensive software may not find apt utility there even.

Following are the stages that lead to adoption:

- Educational requirement: E-literacy, ICT literacy
- Awareness about ICT tools
- ICT infrastructure: Telecom penetration, internet reach, mobile, wi max
- Readiness to invest in ICT instruments: Telephones, mobiles, fax, computers, internet connection/ broadband, websites
- Application of ICT web tools: Telemarketing and Cyber marketing

Considering the state and requirement of Indian MSEs especially rural based ones, an evaluation of ICT adoption is proposed to be done in the following manner, as being suggested in a similar study for Small and Medium sized enterprises by CII (Verma)

ICT ADOPTION REQUIREMENT AND TOOLS

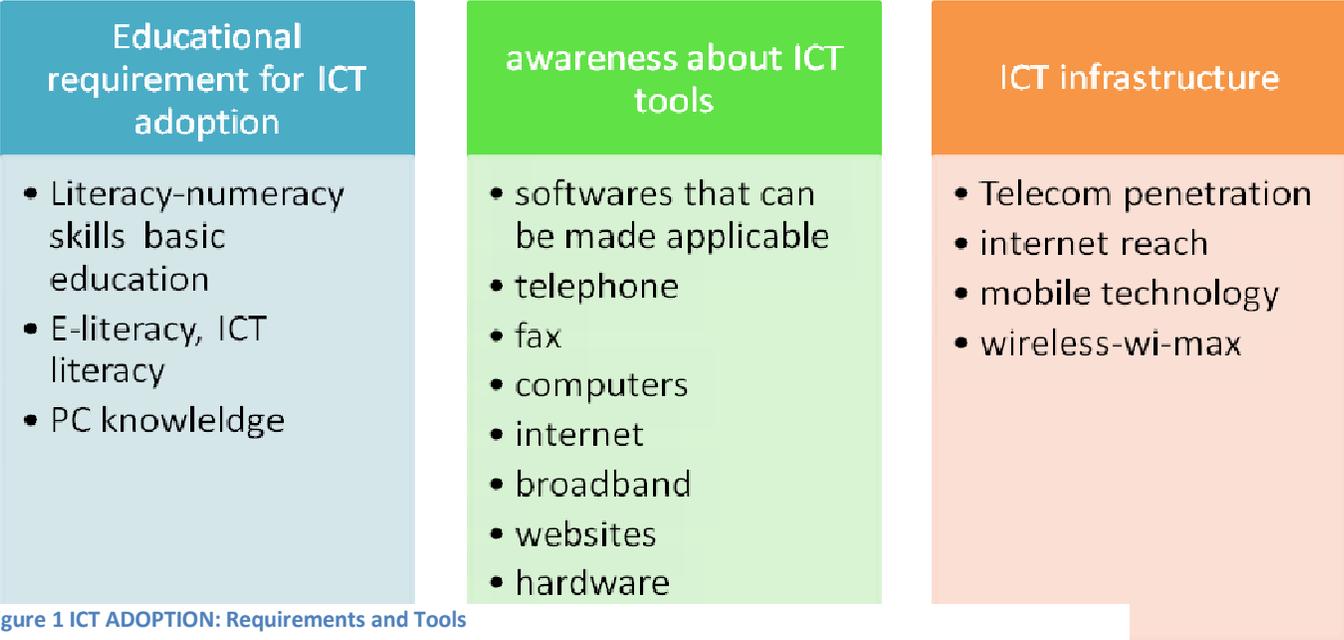


Figure 1 ICT ADOPTION: Requirements and Tools

A Model for measuring ICT adoption in rural MSEs

Following model would be used to evaluate ICT adoption of an MSE. Parameters are the following: Awareness level; Educational status and Human resource preparedness for ICT adoption; Training and Skill development centre availability; ICT Infrastructure; ICT tools present; Application of ICT tools Office Automation application, marketing, promotion and other communication purposes; Use of ICT for marketing and reaching out to customers; ICT in selective functions ; Computerization in Core business Process; Computerization in business network. And further it has several sub-parameters or indicators.

Parameters to measure ICT adoption	Indicators
Awareness level	ICT literacy(awareness about ICT tools
	E-literacy(Computer and internet literacy)
	Awareness about how ICT tools could be applied at enterprises
Educational status and Human resource preparedness for ICT adoption	% of Skilled manpower within an enterprise
	% of Unskilled but who can be trained
	Readiness to get trained
Training and Skill development centre availability	IT training centers
	Availability of trainers within the organization
ICT Infrastructure	Telecom network
	Internet service providers
	Reach of wireless and mobile networks
	Telephones
ICT tools present	Fax
	Mobile telephones
	Computers

	Internet
	Intranet/LAN
Application of ICT tools	Word processing
Office Automation application, marketing, promotion and other communication purposes	Spreadsheets
	Data base management
	Drafting, Graphics
	Intranet, internal communication system
	Email use
	Website and online product catalogues
Use of ICT for marketing and reaching out to customers	Telemarketing
	Cyber marketing
	Presence in B2B Websites
ICT in selective functions (Computerization)	Computerized accounting
	Material accounting in Stores
	Payroll account in HR
	Invoicing in Sales
Computerization in Core business Process	Resource Planning and rationale management with ERP or DSS
	Project Management Tools such as Primavera, MS Project, or Sure Track etc
	E-commerce application
Computerization in business network	e-procurement
	Use of ICT channels for business networking
	Online presence and website

The proposed study would further develop this as a model on which an MSE's ICT adoption could be evaluated and ranked. The study would allocate scores for each parameter and sub-parameters.

Research questions

- What is the level of ICT literacy?

- How aware are MSE owners about the benefits of ICT adoption?
- What are relevant ICT tools within the rural Indian context and global market challenges?
- What is the status of ICT infrastructure?
- What is the level of ICT adaptation in MSEs in rural India?
- What are the barriers to ICT adoption in rural MSEs in India?
- How the state is tackling the issue of adoption?
- Policies and programs, incentives if any ?
- Some of the Best practices?
- How MSEs are benefiting from ICT adaptation in the case of those adopted ICT?
- What ICT tools are being made applicable in those MSEs?

Method adopted and coverage

- The study would cover randomly selected rural MSEs from the state of Kerala, district Pathanamthitta, Kottayam, Trissur to gauge the general trend
- Discussions with ICT service providers, MSE owners, managers and other stakeholders
- Further the study would also cover ICT vendors such as computer hardware and software service providers nearby MSEs that would studied.

Data collection could be done by three ways

1. A questionnaire was distributed to collect data from randomly selected MSEs
2. Interviews managers, owners etc
3. Secondary data : research papers, reports, annual reports, monographs,

Data Processing and research process

Data processing has been done in a systematic way and meticulously in the following manner:

1. All the secondary materials consulted carefully at initial phase

2. The secondary data helped to identify problems and areas to further strengthen the skeleton model for evaluating ICT adoption in MSEs
3. On the basis of secondary analysis and interviews and discussions, each parameter was accorded with a value to measure ICT adoption in MSEs
4. A questionnaire was designed to collect data from MSEs
5. Questionnaire distributed using various
6. All the primary data collected, classified for further analysis, in a very meticulous manner, using excel programs, charts and figures.
7. Master tables were made with the collected data for Micro as well as Small enterprises separately,
8. Tabulations would also done for each parameter as below:
 - Awareness level
 - Educational status and Human resource preparedness for ICT adoption;
 - Training and Skill development centre availability;
 - ICT Infrastructure;
 - ICT tools present;
 - Application of ICT tools Office Automation application, marketing, promotion and other communication purposes;
 - Use of ICT for marketing and reaching out to customers;
 - ICT in selective functions ; Computerization in Core business Process;
 - Computerization in business network. And further it has several sub-parameters or indicators.
9. A macro picture as well as a micro picture would then emerge.

10. In the data analysis appropriate statistical tools as well as software assistance would be sought, for instance SPSS, wherever applicable.

Other details

The proposed study was undertaken in consultation with experts in the field of micro and small enterprise development and Information and communications technology.

Results

The objective of the survey conducted among Rural MSEs to get more information on the level of ICT adoption. Survey has been conducted among 36 randomly selected enterprises from Pathamthitta, Kottayam and Trissur.

As mentioned earlier, while study, has been focused, to gauge the level of ICT adoption, it is admitted that the survey provides a trend and a general level of ICT adoption in rural MSEs, as the results may not provide a comprehensive picture of ICT adoption, as that was not expected out of this study. However, the study clearly reflects to a large extent, how Information and Communication Technology has penetrated in the day to day life of enterprise .

How was the questionnaire designed and patterned

A total number of 25 questions were distributed among those surveyed MSEs (Refer to Appendix 1)

- General MSE profile: Question number 1 to 5 aimed at understanding the profile of the enterprises surveyed. Questions were asked to know whether it is a service, manufacturing or any other type of company; years of operation, turnover and their specific activity.
- ICT Awareness level: There were questions, from 6 to 8, to know how aware MSEs are about ICT tools and specific knowledge about ICT tools one by one from telephone to internet.
- Adoption of basic ICT tools: The next set of questions, from 9 to 12, aimed at gaining an understanding about entry level ICT tool adoption at enterprise level.
- Familiarity with advanced tools: Then questions, from 16 to 20, moved on to understand how MSEs are familiar with advanced ICT tools and their adoption at their enterprise level.

- Application and adoption of advanced tools: To know more about adoption of advanced ICT tools was the purpose of the next set of questions from 20 to 22.
- ICT infrastructure in rural Kerala: To know more about reliability, question number 23, enquired about frequency of failed attempts.
- Other questions: The questionnaire also, for instance contained questions like how important are ICT tools for their enterprise and if they are not ICT users, why are not they using them etc.

Findings

Following are the major findings from the study.

Question 1: Service enterprises dominates

For this study we considered those units coming under infrastructure sector, as manufacturing units. There were 3 companies coming under construction sector. .

Out of 36 enterprises surveyed, an overwhelming 32 enterprises, i.e., 89% answered that they belong to services. And only 4 enterprises, i.e., 11% of them were belonging to manufacturing sector (Refer to Chart 1).

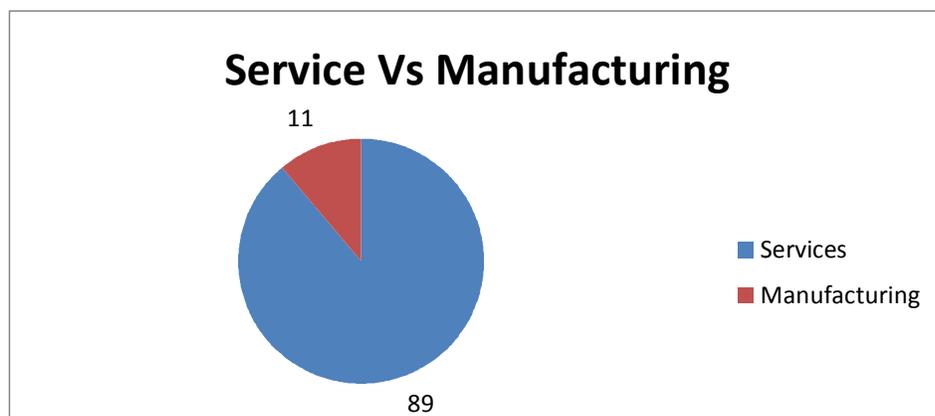


Chart 1

Question 2: Categorizing by age

A relatively large number of enterprises or around 66% percent of surveyed enterprises are there in the business for more than 7 years. Among them, 33 % or 12 enterprises were in the businesses between 7 to 14 years and another 12 enterprises or 33 % was there in businesses for more than 15 years, suggesting that there exist a favorable climate for small businesses in Kerala.

Among the surveyed enterprises only 2 enterprises came up recently and can be termed as new start-ups, as they are less than 3 years in business and 4 were between 4 to 6 years in business. These two groups together constitute a combined 17 %.

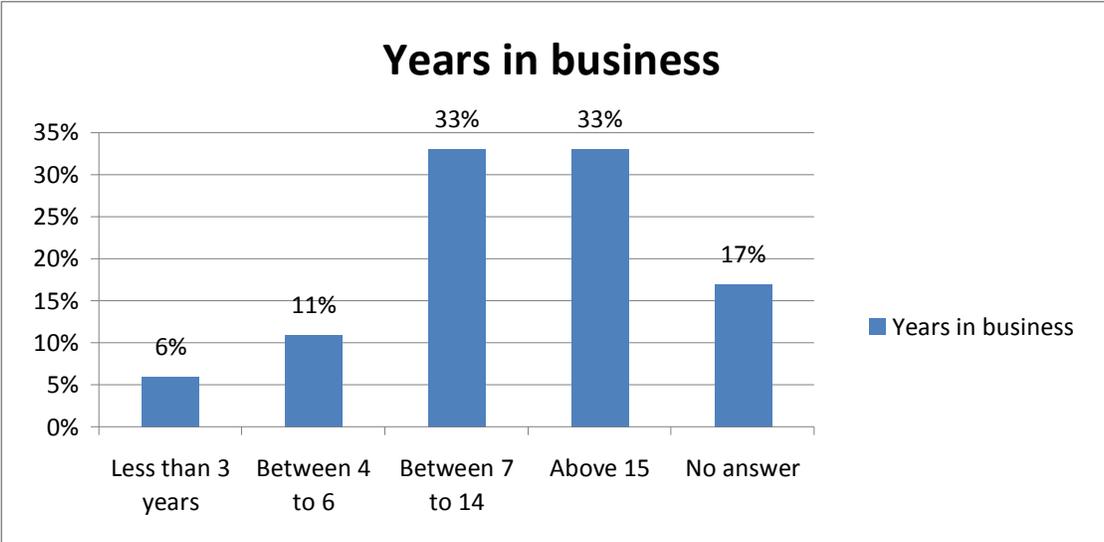


Chart 2: How old is your enterprise?

Business activity: Categorizing by nature of business

An overwhelming 50% or 18 units were from whole sale and retail businesses selling a wide range of products. Four or 11% of the enterprises belong to agro processing, building or infrastructure sector. Two each or 6% belong to rubber related, repair, electronic, printing, consultancy & professional firms; 3 % of the units did not specify.

Which sector best describes your activities

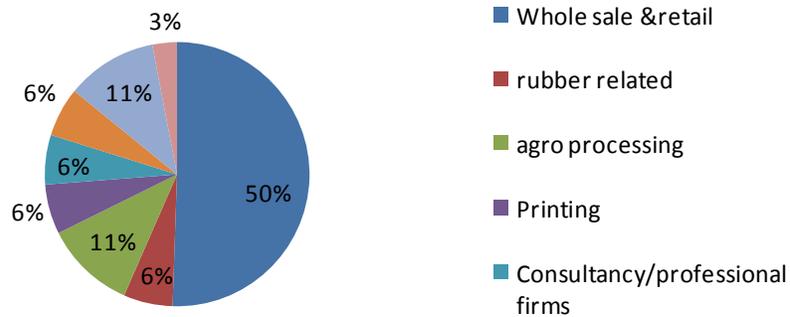


Chart 3: Sector of business activity

Manpower Strength: The surveyed enterprises coming under the category of small and micro enterprises, for the study purpose the researcher considered it to be between 1 to 21. Out of 38 units surveyed, 14 units or 38% have employee strength between 13 to 21. 16% or 6 units have between 8 to 12 people working with them, whereas 45% of the units have between 1 to 7, even in that 17 % of them have just between 1 to 3 people.

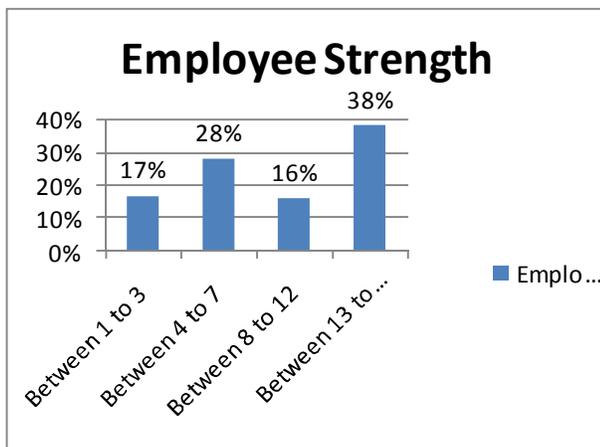


Chart 4: Number of employees in your company

Company Financial Data: Turnover To gauge the financial details of the company, the researcher sought to enquire the turnover of the enterprise. It was revealed that 16 (44%) MSEs had their turnover below INR 500,000 per annum and out of these 10 enterprises come under the lower segment with turnover below INR 200,000 per annum and 6 MSEs have turnover between 200,000 to 500, 000 per annum. 39% of the total 36 MSEs surveyed have an annual turnover above INR 100,000 and below INR 25,000,00. Another 17 % of the enterprises fall in the higher level, with turnover above INR 25,000,00.

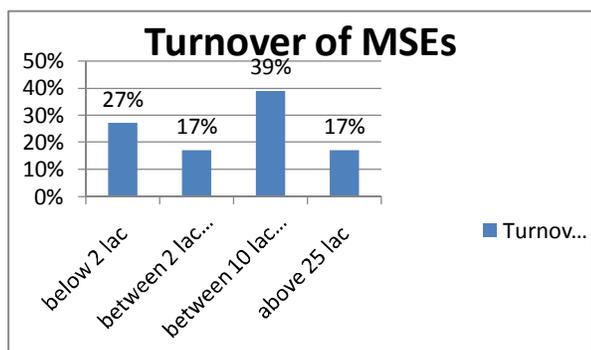


Chart 5 On the basis of annual turnover in INR

Basic Awareness level With regard to ICT among MSEs

72 % or 26 out of total 36 enterprises participated in the survey, have awareness about Information and Communications Technology tools that are being used in business. 17 % of the respondents have no awareness about ICT tools, whereas 11% or 4 enterprises could not answer.

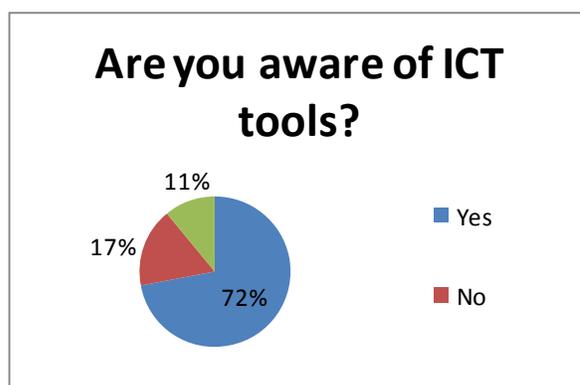


Chart 6: Awareness of Information and Communication Technology tools

This is suggestive of general awareness level among MSEs. 72 % of the enterprises are aware of the ICT tools is a considerable enterprise population. However, how to take advantage of ICT tools and advanced ICT tools adoption is not as wide as the awareness level which is shown in the chart 6.

Basic awareness of ICT does not mean that there is a high level of adoption. Basic tools like telephone, fax and mobiles are much prevalent among all enterprises types these days, could also be a reason for high awareness level which is as high as 72 %.

Adoption of ICT tools within MSEs: Telephones/Mobile, Fax, Computers, and Internet

An average of 88% percent enterprises uses ICT tools within their enterprises. It is to be noted that, ICT tools have become an unavoidable feature in today's businesses. For some or the other reason, an enterprise use them without even being aware of the fact that they are taking advantage of a new technology which has got extensive applications and benefits, if used intelligently.

All the enterprises have a telephones/mobiles connection that can be accessed within its premises itself, while only 94% got a fax machine too. When we come to computer it is still less, i.e. only 89 % of them have got a computer within their premises. It is much less when we come to computers with internet connection, which stands at 72%.

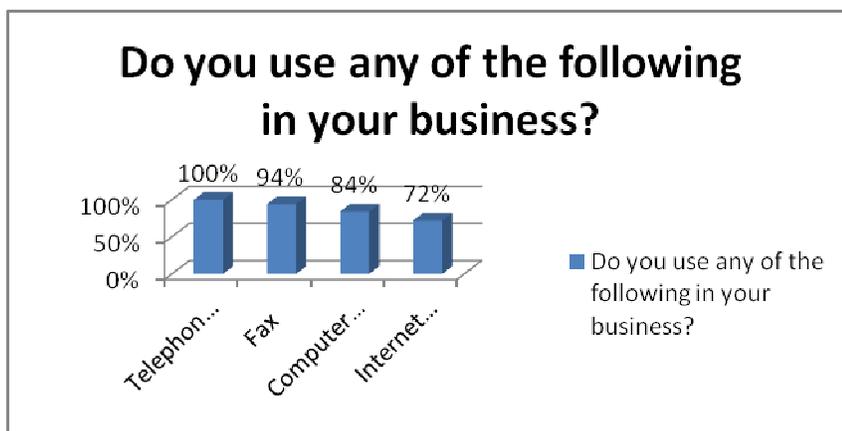


Chart 7: Adoption of ICT Tools in MSEs

It is to be noted that while adoption of basic tools such as telephone, mobile and fax are near to 100%, more advanced tools like computers and internet enabled PCs are much less.

Awareness level and adoption of basic ICT tools such as mobiles, telephones and faxes require not much of skills for application. Whereas to use computers and internet require technically skilled people who are trained to use them.

Why using ICT tools at enterprise level?

A majority, i.e. 88% of the surveyed MSEs says that ICT tools are being used so that customers can contact them. And 83 % of them use ICT tools to reach out to the customers or for marketing their services.

It is only 72% of them use internet for collecting information or use e-mails and other internet tools in their businesses. Furthermore, it is only 67% of them use account software like tally or any other software for documentation.

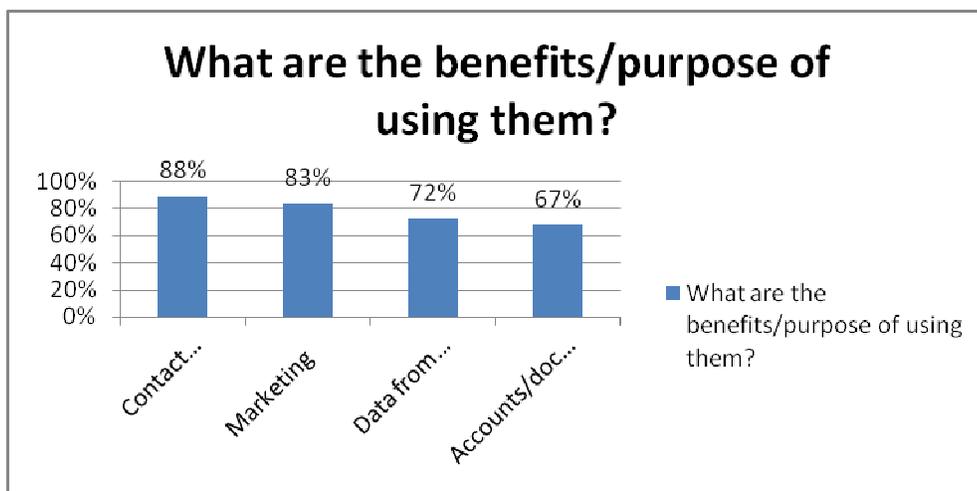


Chart 8: Use of ICT tools?

How do you access internet? Dial up or Use Broad Band

A total 72 % of the respondents use internet.

Broad band and Dial up: Out of 36, 4 units or 11% of the enterprises use either dial up and broad band or have both a dial up and broad band connection within their premises.

Broad band: Out of total 36 units, 44% have only broad band connection for accessing world wide web/internet.

Dial up: Out of 36 units, 17% have only dial up connection.

Non- respondents: 28 % of the enterprises could not answer or do not use internet at all.

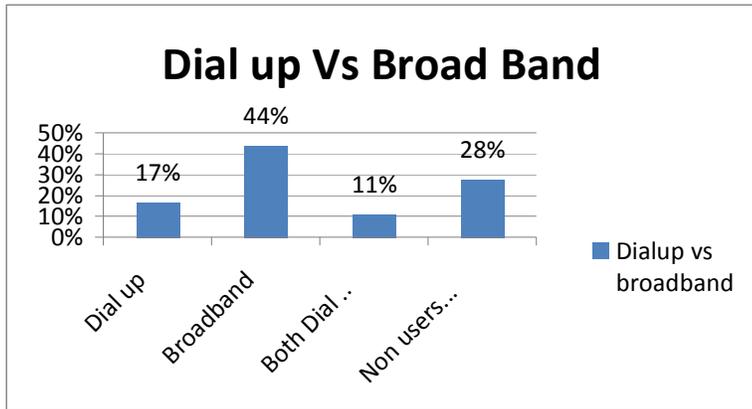


Chart: 9 Use of a dial-up or broad band or both for accessing internet

Awareness/adoption/ use of Advanced ICT tools in MSEs

E-commerce

A majority of 56% of enterprises do not know about e-commerce or e- business. 44% of the are aware of e- commerce. While comparing with awareness of basic level ICT tools, advanced tools are not much known among MSEs.

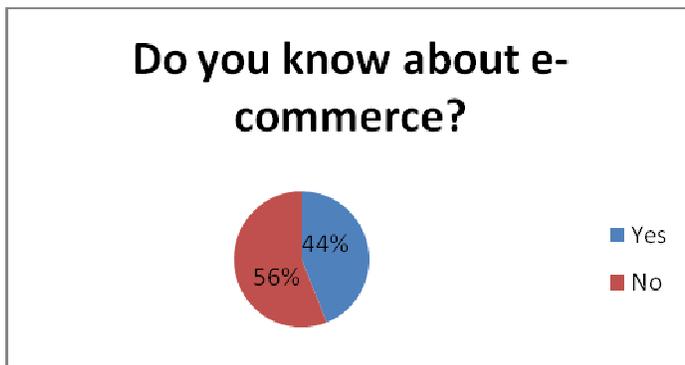


Chart 10

Enterprises with their own websites

Only 8 out of 36 enterprises have got a website, i.e., 22% of the surveyed MSEs. And 28 or 78% of MSEs do not have a website.

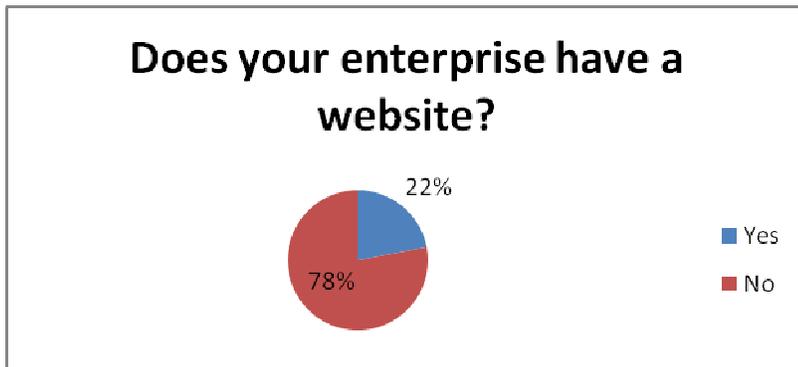


Chart 10

Though enterprises answered positively about knowledge about e-commerce are 44%, only 22% of them have a website. Awareness level about e-commerce and e-business is one aspect, having technical know how and developing a proper system for engaging in e-commerce is another aspect. It is to be noted that very few companies, only 8 companies, have skill sets and infrastructure to engage in e-commerce within their own system or e- environment.

Importance of ICT tools: MSE Perception

22 % of the MSEs consider that ICT tools are very important, 28% as important, while a majority i.e. 39 % of the units considers them to be not important at all. And 11% of them could not answer the question about the importance of ICT for their enterprise.

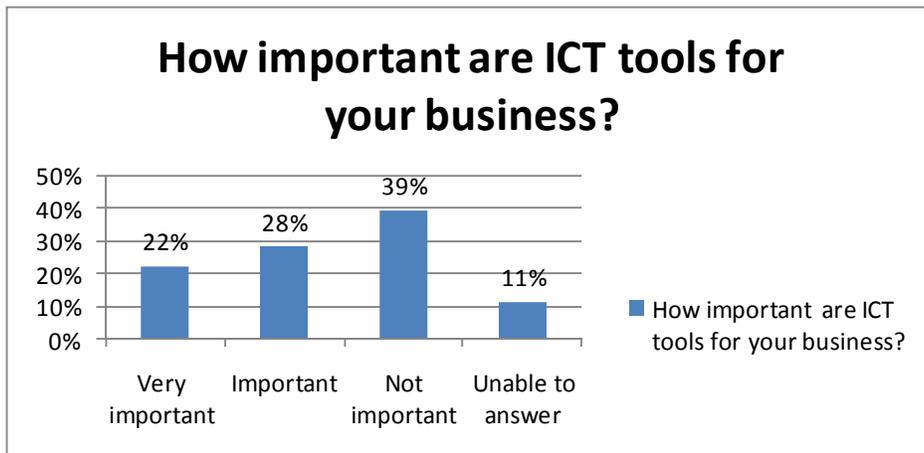


Chart 12

Though the awareness level among MSEs and adoption of basic tools is averaged at 88%, merely 22% of them consider ICT as very important. Important and very important together have a combined 50% of the enterprises vouching for Information and Communications Technology.

Internet/World Wide Web: www: Business to Business Websites and MSEs

A majority of the 89 % of the enterprises do not use B2B websites to promote their services, while 11% of them use B2B sites which show how ICT applications and adoption in the real business world is very limited.

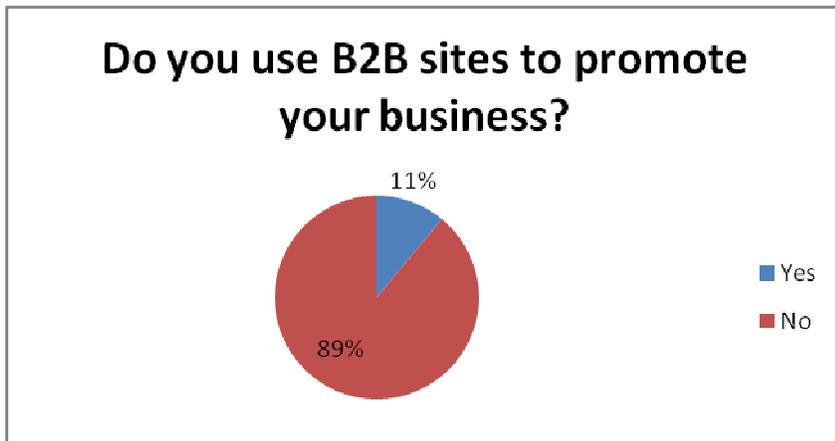


Chart 13: How active are you as a B2B user

It is only four out of 36 enterprises that use B2B websites such as Aliababa.com for instance. This shows that though there is awareness and infrastructure available for as large as 72% of the enterprises, it is just 4 that enterprises that are taking advantage of possibilities of Information and Communication Technology among surveyed MSEs. This calls for the need to create further awareness.

How active you are as a B2B website user?

Majority of the firms i.e. 61 % of them do not use them at all and 28% could not answer, together making 89% of the firms, which are non users of B2B tools, 11 % of them coming under very active and quite active B2B website users category.

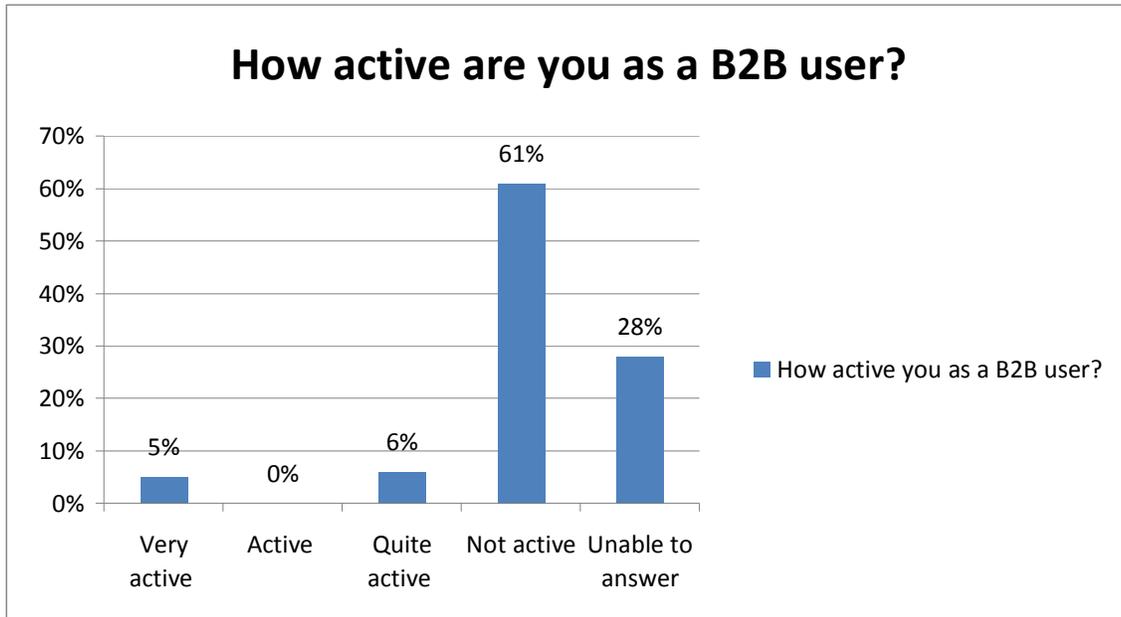


Chart 14

Cyber marketing and Tele marketing: Awareness

Awareness about Cyber marketing and Telemarketing, two useful ICT tools, is as high as 50%. Whereas 11% of the firms know or have heard only about Telemarketing, while 22% of the firms are not aware of both and the rest 17% could not answer.

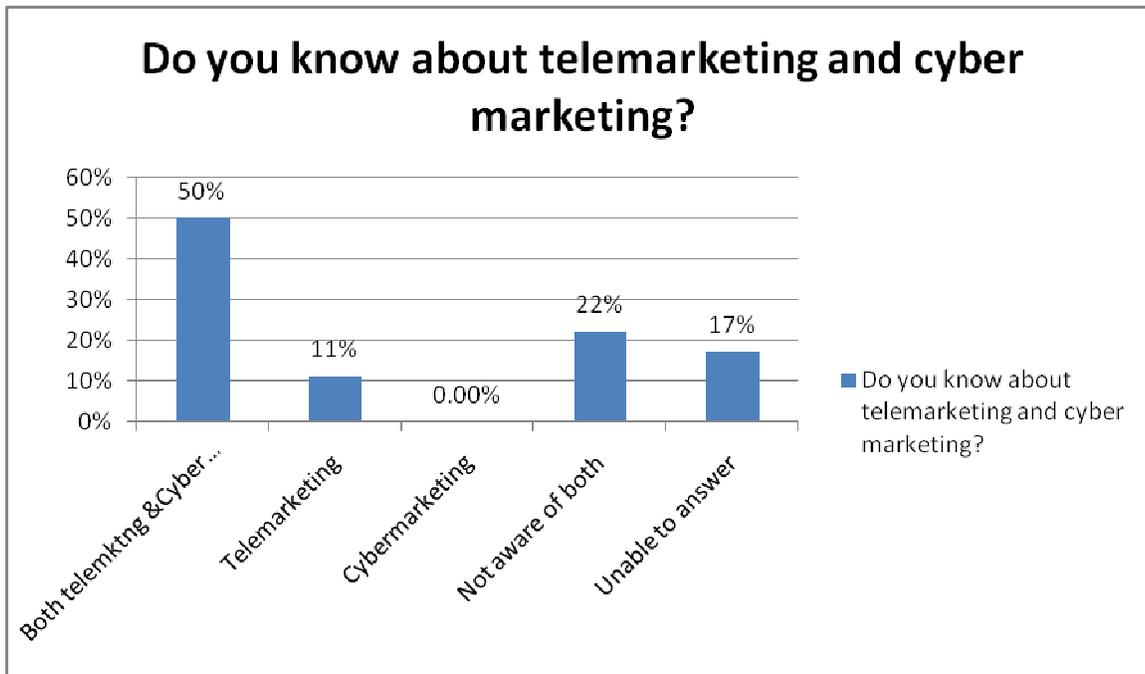


Chart 15: Cyber marketing and Telemarketing

Cyber marketing and Telemarketing: Adoption at enterprise level

Answer to the question, 'Does your enterprise use any of these ICT tools such as telemarketing, cyber marketing for reaching out to large number of customers', resulted in 11% MSEs answering yes, as they use both cyber marketing and telemarketing. 67% of them don't use them at all and 22 % could not answer.

Does your enterprise use telemarketing or cybermarketing to reach out to large number of customers?

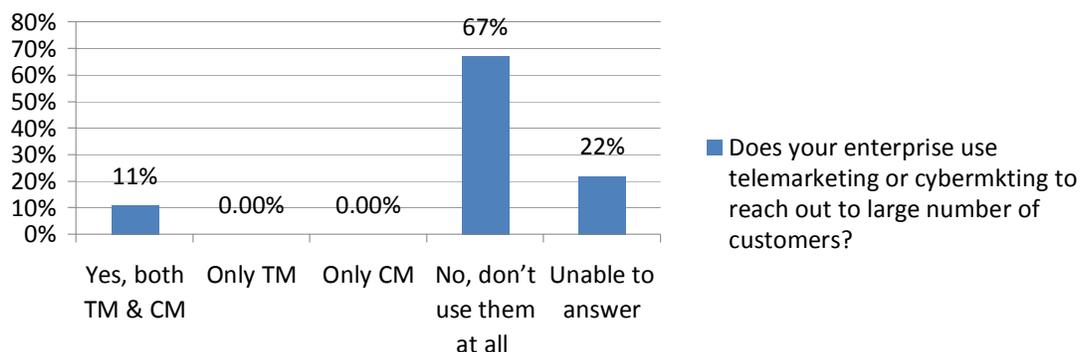


Chart 16

Reliability of Infrastructure: How reliable is access to ICT tools. Frequency of failed attempts.

A close look at the data shows that there is high level of reliability as the firms have not reported any considerable failure of ICT infrastructure. An average 69% of the firms reports rare failure, which happens very rarely. The number of firms reporting regularly or occasional failures is too insignificant.

ICT tools reliability: Frequency of failed attempts

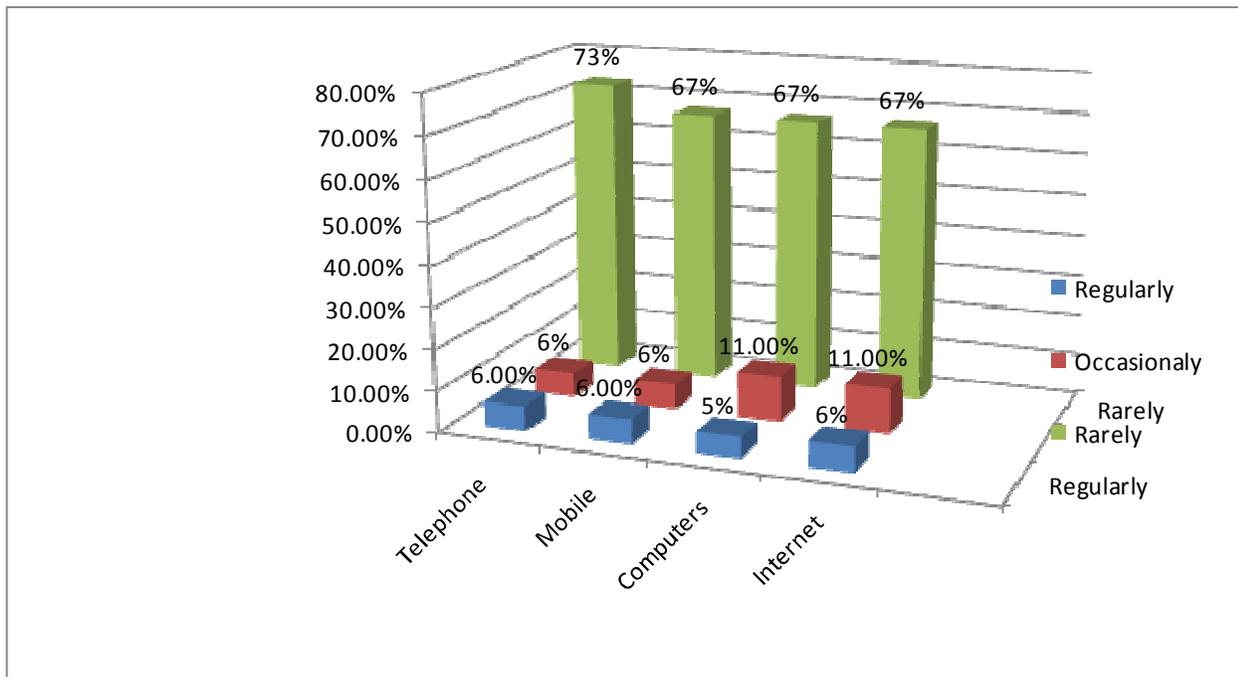


Chart 17

Though there is a strong ICT infrastructure, compared to international standards, MSEs are not taking advantage or using them for their advantage, is of course a matter of concern that require attention from the side of policy makers.

If you are not a user of ICT tools, why are you not using it?

6% of the firms, say ICT has no relevance for their business and another 6% do not know about its advantages or do not know how to use them.

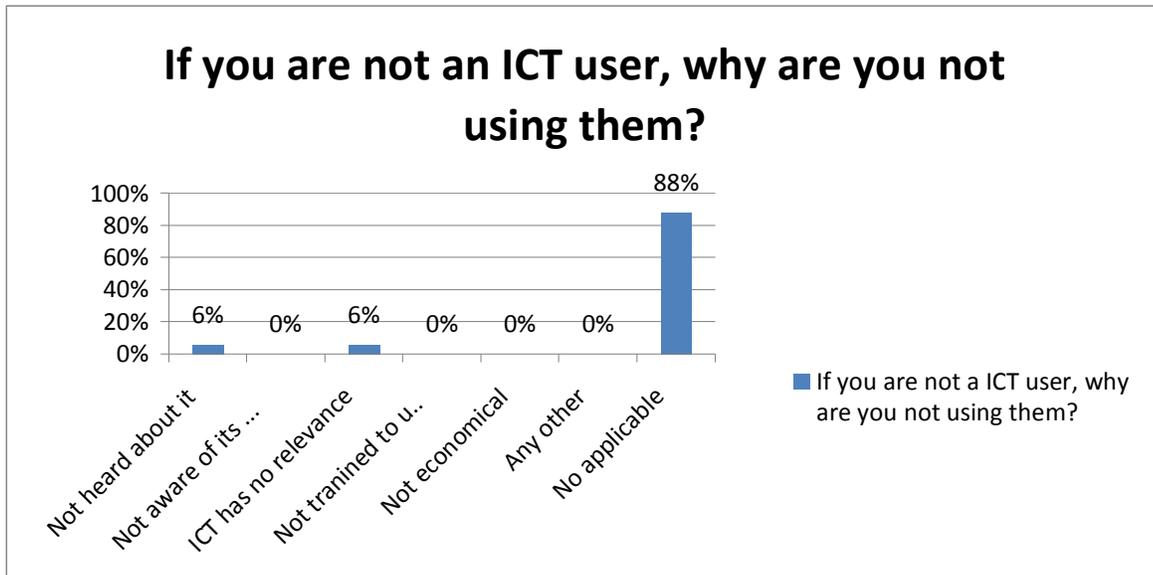


Chart 18

The study reveals the following:

Service Enterprises Dominates: Contributes immensely in terms of employment and income

89 percent of the enterprises participated in the study were service enterprises. It is to be noted that MSEs, which is dominated by service enterprise that provide various services are here to stay.

- 66 % of them are in the business above 8 years and have already been established
- 50% of the enterprises come under wholesale and retail
- Only 11% of the total enterprises surveyed are in the manufacturing sector
- Employment potential of MSEs sector is exceptional: 38 % of the companies employ between 13 to 21 people and 44 % of the firms employ 4-12 people each.
- The study comes across companies having annual turnover ranging up to 25 lakh & more

ICT tools: Considerable awareness among MSEs

MSEs have got a considerably high level of ICT awareness. 72 % of them answered positively to the question about awareness about ICT tools.

But awareness level is not reflective of the adoption level.

ICT not very important says 39% enterprises.

Awareness level among MSEs reported in the survey, do not match with their awareness about the importance of ICT for their enterprises. 39 % do not consider ICT as important at all. And only 22% consider it as very important. Awareness level and ICT adoption are very high but majority of them do not consider it as very important.

ICT adoption in MSEs: High entry level gadget users and less adoption of advanced level gadgets and tools like computers and internets

Adoption of ICT tools is very high. It is noted that there are people who do not know, what ICT tools are, but are active users of various ICT tools including computers and internet at their enterprise level. There is always a difference between an aware ICT user and an ICT user using them without knowing its applications. Using telephone, mobile, fax only and such entry level devices and using more advanced level such as computer and internet are two different aspects. Nearly 97% of the enterprise on an average use telephone, mobile and fax. Where as when it comes to computers it is 84% MSEs that use internet are less which stands at 72%.

- 67% of the enterprises only use computers for accounting and documentation and use accounting software's like tally etc.
- 88% of the customers use them so that customers can reach them
- 72% of the MSEs use internet for collecting information

Advanced ICT tools : less takers

Interestingly, though there are high levels of ICT gadgets including computers and internet access at enterprises, number of MSEs having real facility for e-commerce, cyber marketing etc are very less. It is only 22 % of the companies that have got a website of their own and only 44% have awareness about the term e-commerce. Only 11% of them are aware of Business to Business websites like Alibaba.com or such similar websites. There are only 6% of active users of B2B websites. 67% of them do not know

about telemarketing or cyber marketing. And only 11% of them know about both cyber marketing and telemarketing.

While, there is high level of actual adoption of ICT tools from telephone to computers, very small percentage of the users know about how to take advantage of these technologies for the benefit of their businesses.

Excellent quality ICT infrastructure and performance

Respondents do not have much complaint about the performance of ICT infrastructure. But this is not being reflected in adoption of ICT.

The present study done on the 36 MSEs, reflect the trend as far as ICT adoption in MSEs is concerned. The study reveals the importance of aspects such as training, awareness creation and the need for making ICT applications more common among enterprises. Though, most of the enterprises have computers and internet, apart from telephones, mobiles and faxes, they are not familiar and trained in making use of advanced ICT tools such as cyber marketing, advanced software within enterprise like tally and other enterprise solutions available. But it is interesting to note that, this is a vast area of business opportunity for IT service providers as they can tap the market of MSEs.

Following are some of the aspects that come out from the study:

- Awareness building: There is a need to create awareness about ICT tools, which should be not mere awareness but awareness about various applications, benefits, and potential from ICT for businesses
- E-literacy: E-literacy is another important aspect that comes up after awareness. It is not just awareness, but the ability to use computers and internet also matters.
- Incentives for MSEs to adopt ICT: The government and policy makers may consider special incentives to MSEs for promoting its use.
- Exposure visits and Best Practices to be adopted so that MSEs are not falling behind their larger counterparts in this global market economy
- Consider encouraging best ICT adopters among MSEs by giving awards and citations so that other enterprises may encouraged to adopt ICT

Recommendations

1. There must be an ICT development agenda at a national level. There is a need to raise the awareness level of MSE on ICT. MSE targeted awareness building regarding specific benefits from ICT could take the following route:
 - a. Training workshops may be carried out. It is to be noted that, while enterprises are aware of ICT tools, but a majority of them are not fully convinced about its positive impact in raising business prospect.
 - b. Awareness about specific ICT tools like e-commerce, cyber marketing, telemarketing and B2B business are to be created. Awareness through training programs: seminars and workshops etc may be carried out.
 - c. Both the Private and Public sector should work together to provide training. For instance the ICT service providers, software firms, the government and industry associations, promotional agencies and financial institutions all need to come forward to organize and support such programs.
 - d. IT courses for MSE manpower and owners: Courses and specific computer
2. E-literacy and e-skills in general: Customer Empowerment. Government should take initiative in human capacity building programs in ICT, without which affordable training programs cannot be organized.
3. An e-literate Customer base: Without an e-literate customer base, MSEs need not succeed in ICT adoption. So it is important to have an e-literate customer base, which is friendly to ICT use.
4. A pre-defined strategy to augment general ICT literacy of the public, like Internet use, e-mail and computer use.
5. Websites, Content development: There is a need to promote companies to have their own websites and content so that they could showcase their products to the global market. Unfortunately only 22 % of the enterprises have got their own websites now.
 - a. Incentives for opening company websites: MSEs should be given incentives and encouragement to open company websites.

that companies of similar type or their counterparts in other parts of the world follow. ICT adoption is no more having telephones, mobile phones, faxes, and owning computers and internet but the question is how efficiently MSE is using them for the business advantage.

The present study conducted among MSEs reveals that ICT adoption in small is still in a nascent stage. This calls for additional efforts to invest in human capacity building and awareness. It is important that MSEs should be convinced of the benefits that they can accrue from ICT adoption. While the whole world and the enterprise counterparts elsewhere make faster strides in technology adoption, it is not affordable for Indian Rural MSEs to ignore the advancements in ICT that are happening. Role of government in creating an enabling environment need to be highlighted. Rural MSEs have to come forward more actively and aggressively to promote ICT adoption..

While governmental level policy initiatives are crucial, MSEs themselves cannot get away from ICT adoption. Today the market is so vast. It is a global village. Delivering products and services to any part of the world and doing business is a matter on how well an enterprise is connected and can respond to the needs and offer need based solutions for which information is the core. To get information, respond to that and deliver the products is the process. ICT network is the facilitator of such businesses in the global market. With intelligent use of ICT, MSEs can be sure of better business opportunities, more profit, and more efficiency at enterprise level. ICT thus empowers Small Businesses to be part of a global supply chain.

References

1. Accenture, Markle Foundation and UNDP (July 2001). Creating a Development Dynamic, Final Report of the Digital Opportunity Initiative July 2001 accessed on May 10 2008 at <http://www.opt-init.org/framework/pages/2.2.3.html>
2. Adam Ruth, Z, (May 2003), "e-Commerce and e-Business", e-Asian task force, UNDP-APDIP. <http://www.apdip.net/publications/iespprimers/eprimer-ecom.pdf>
3. Bliss Florence S. Manlulo. "Doing Business Made Easy" , <http://www.ncc.gov.ph/files/6-5.pdf>
4. Carter, S. and Dylan J. Evans, (July 2006). Enterprise and Small Business, Principles, Practice and Policy, Second Edition.
5. Commission Of The European Communities, Communication From The Commission To The Council, The European parliament, The Economic And Social Committee And The Committee

Of The Regions Helping SMEs to "Go Digital" March 2001,

<http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2001:0136:FIN:EN:PDF>

6. Duncombe, R & Heeks R (2001), Information and Communications Technology: A handbook for entrepreneurs in developing countries, IDPM, University of Manchester, UK
7. Gani A, Clemes M, 2006, "Information and communications technology: a non-income influence on economic well being" International Journal of Social Economics Vol. 33 No. 9, 2006
8. Harindranath, G. Dyerson, R. and Barnes, D. "ICT Adoption and Use in UK SMEs: a Failure of Initiatives?" The Electronic Journal Information Systems Evaluation Volume 11 Issue 2, pp. 91 - 96, available online at www.ejise.com (2008).
9. Hasnu & Amjad, ICT, Small Enterprises Strategic Management and Performance: A Theoretical Model with Some UK Evidence, www.brad.ac.uk/acad/bcid/research/papers/ResearchPaper11Amjad.pdf
10. ITC (1999), Cyber Marketing, International Trade Centre, Geneva and Malta External Trade Corporation.
11. Karmel S & Bryon J (2002), A comparison of small and medium enterprises in Europe and in the USA, Rutledge-Taylor & Francis Group
12. Koshy, P (2007) Free Market, Reforms and SMEs, 9 Sept 2007, (accessed on 8 May 2008 at <http://www.boloji.com/business/017.htm>
13. Kotelinkov Vadim, (2007) UNDP- UN-APCICT, Small and Medium Enterprises and ICT, Thailand.
14. Kapurbandara, M. and Lawson R, 2006, Barriers to Adopting ICT and e-commerce with SMEs in Developing Countries: An Exploratory study in Sri Lanka.
15. Kapurubandara, M. (2004) "e-transform industries in developing countries towards e-business".
16. Maguire, S.C.L. Koh, A. Magrys, 2007, The adoption of e-business and knowledge management in SMEs... Benchmarking. Bradford: 2007. Vol. 14.
17. Lukács Edit (2005) The Economic role of SMEs in World Economy, especially in Europe, European integration studies, vol 4
18. Mahesha Kapurubandara, Shiromi Arunatileka, Athula Gnige, (2004) "Application of eBusiness Strategies for SMEs in Developing Countries," eee, pp. 49-59, 2004 IEEE International Conference on e-Technology, e-Commerce and e-Service (EEE'04),

19. NCTE, (June 2007), what is Computer, NCTE Advice Sheet, National Centre for Technology in Education, [http://www.ncte.ie/documents/adVICESHEETS/01Whatisacomputer\(June07\).pdf](http://www.ncte.ie/documents/adVICESHEETS/01Whatisacomputer(June07).pdf)>
20. Niño Alejandro Q. MANALO1 Jose DV. CAMACHO, JR. (2007) IT AND FIRM-LEVEL PERFORMANCE IN THE PHILIPPINES. 1999-2006, The International Journal of Economic Policy Studies 2007, Vol. 2, Article 9.
(<http://wwwsoc.nii.ac.jp/jepa/ijeps/contents/2007/articles/ManaloCamachoIJEPS07.pdf>).
21. OECD report (2004), Proceedings, the Second OECD Conference of SME Ministers, 3-5 June 2004. <http://www.oecd.org/dataoecd/32/28/34228733.pdf>).
22. Pascal Limy (2001), intervention made in a seminar titled, “e-Economy, Challenges for international trade, 2001” http://ec.europa.eu/enterprise/events/eeconomy/doc/speech_lamy.pdf
23. UNDP-APDIP- e note (2005) Why Should Countries Embed ICTs into SME Policy, < <http://www.apdip.net/apdipenote/4.pdf>>
24. Verma, H. *ICT adoption in Indian SMEs: Status and Scope*. Confederation of Indian Industry(CII)

Annexure 1

Samadhan Foundation	Adoption of Information and Communications Technology in Rural Micro and Small Enterprises (MSEs)
	This questionnaire is a tool to obtain data on level of ICT adaptation in Rural Micro and Small Enterprises (MSEs)

<ul style="list-style-type: none"> ○ Your Name: _____ ○ Name of your company: _____ ○ Contact details: _____ <p>Note: Personal details will be kept confidential</p>

1. Your enterprise is a

- Manufacturing company
 - Service provider
 - Any other
2. How old is your enterprise? Please mention the year in which you started?
3. Which sector best describes your activities (Please ✓ wherever applicable)
- Agro processing
 - Manufacturing
 - Wholesale and retail
 - Hotel, selling foods
 - Transportation business
 - Exporter
 - Rubber related business
 - Professional (Doctor/CA, any other)
 - Self Employed
 - Any other, (please specify,)
4. Number of employees in your company:_____
5. Company turnover/Income _____
6. Are you aware of Information and Communication Technology tools?
- Yes
 - No
7. Do you use any of the following in your business?
- Telephone
 - Mobile
 - Computers
 - Internet
 - Any other, please specify
8. Do you access them or access these services from a vendor who provides them like telephone booth/ internet café/Akshaya Centres?
- Yes
 - No
9. Do you have telephone connection at your enterprise premises?
- Yes

- No
10. Do you have a fax in your company?
- Yes
 - No
11. Do you use computer in your company?
- Yes
 - No
12. Do you have computers with internet connections at your company?
- Yes
 - No
13. If yes, what are the benefits you are getting from these?
- Customers can contact you
 - Marketing
 - To get information by using internet
 - Using computers for accounts and documentation
 - Any other
14. Since when are you using ICT in your enterprise? Please mention the year.
15. Do you use a dial up or a broad band for accessing internet?
- Dial up
 - Broadband
 - Any other
16. Are you aware of e-commerce?
- Y
 - N
17. Does your enterprise have a website?
- Y
 - N
18. How important are ICT tools for your business?
- Important

- Very Important
- Not important

19. Do you use internet and websites to promote your business by using Business to Business (B2B) websites like Alibaba.com, tradekey.com etc?

- Yes
- No

20. How active are you as an internet user and use B2B websites for posting your company details in such B2B websites or visit such websites?

- very active; (4 to 5 times a week visit such websites and try to get information)
- Active (2-3 times a week)
- Quite active (once a week)
- Not active but know about it (once or twice in a month or less)

21. Have you heard about 1) telemarketing 2) cyber marketing?

- Yes, both telemarketing and cyber marketing
- Only telemarketing
- Only cyber marketing
- Not heard or aware of both

22. Does your enterprise use any of these ICT tools such as telemarketing, cyber marketing for reaching out to large number of customers?

- Yes, both telemarketing and cyber marketing
- Only Telemarketing
- Only Cyber marketing
- No, don't use them at all

23. How reliable is access to ICT tools. Frequency of failed attempts

	Regularly	Occasionally	Rarely
Telephone			
Mobile			
Computers			
Internet			

24. If you are not a user of ICT tools, why are you not using?

- Not heard about it
- Not aware of its importance
- ICT has no relevance
- Not trained to use ICT such as computers and internet
- Not economical, cost is too high to afford
- Any other(please specify)

25. Please add any other aspects that you want to say on ICT in your company

Thank you for taking your valuable time and information!