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## Mobile Phone Penetration in Northern India

- The Effects On Small Scale Businesses

*“The main thing with the mobile phone is that business is smoother now.”*

Subrat Mishra living in Bolangir, Orissa, India.

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# 1 Introduction

During the last fifteen years the development and spreading of new types of communication technologies has been rapid.<sup>1</sup> Researchers claim that efficient means of communication plays an important part for the sustainable development for poorer areas. Mobile telephony is a good example of such a technology. According to recent studies, the spreading of information technology can be beneficial in many ways. It can, for example, prevent the depopulation of rural areas, as job opportunities come with the technology. The information that previously was accessible only for people living in urban areas is now also accessible for the ones living in rural areas.<sup>2</sup> Some of the more general benefits with mobile telephony, compared to other communication systems, derive from the fact that mobile networks need very little surrounding infrastructure to work. This makes mobile telephony a very good alternative where infrastructure is scarce. This is not something that has passed by without notice. The increase of coverage, growing diversity of services, and investments in mobile technology are high in many poor areas of the world.<sup>3</sup>

Mobile telephony, along with its services, has been the most expansive part of the telecom sector during the last twenty years. This can to a large extent be explained by the penetration of mobile phone telephony. In 1999, there were 490 million mobile subscribers in the world. By 2006, this number had increased to 2.6 billion subscribers. Areas such as Africa, India and other parts of Asia are expected to have the highest growth rates in coming years. India is a country particularly interesting considering mobile telephony.<sup>4</sup>

The Indian telecommunication sector is in many aspects having the most expansion in the world right now. The market is rapidly expanding in terms of both users and infrastructure, but also in terms of services offered.<sup>5</sup> The change in coverage is also impressive. In 2004 the coverage was negligible in India's rural areas. Three years later, in 2007, it is possible to use a mobile phone in more than half of the villages in India's rural areas. During 2007 India had the fastest increase of mobile subscribers in the world (15.31 million subscribers in four months), and a large number of heavy players on the world's telecom market has made, and

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<sup>1</sup> [http://www.itu.int/ITU-D/ict/statistics/at\\_glance/KeyTelecom99.html](http://www.itu.int/ITU-D/ict/statistics/at_glance/KeyTelecom99.html)

<sup>2</sup> EPROM, Why Africa? Massachusetts Institute of Technology, 2007. <http://web.mit.edu/eprom/whyafrika.html>

<sup>3</sup> <http://eprom.mit.edu/>

<sup>4</sup> [http://www.itu.int/ITU-D/ict/statistics/at\\_glance/KeyTelecom99.html](http://www.itu.int/ITU-D/ict/statistics/at_glance/KeyTelecom99.html)

<sup>5</sup> <http://www.ibef.org/industry/telecommunications.aspx>

will make major investments in India.<sup>6</sup> The British telecom giant Vodafone is placing one fifth of its total investments for the year 2007 in India, this investment totals two billion dollars. Cisco is building a factory for the making of mobile phones in Chennai, an investment worth around 1.1 billion dollars.<sup>7</sup>

India as a country has undergone large changes in recent years through this rapid expansion of mobile telephony. But how has this affected the people of India? A large part of India's working population is self employed or is working for small companies in the private sector. These people are usually poor, but can afford to buy mobile phones, and the mobile phone is in many cases the only high-tech equipment these people have access to. Getting access to a new resource such as the mobile phone could have substantial effect on their lives and business.

### **1.1 Purpose of the Study**

The effects of mobile phone penetration can be beneficial to individuals, groups and communities. Our purpose is to examine how the changes brought on by the mobile phone penetration have affected small scale businesses in northern India.

We will examine this by focusing on two things. We will look at changes in the businessmen's activities and we will identify in what ways the mobile phones have contributed to changes in resources, and the way of handling resources.

### **1.2 Delimitation**

This study will review the current development in two states in the northern parts of India, Rajasthan in the northwest and Orissa in the northeast. Our aim has been to cover both rural and urban regions with particular interest in small scale businesses, and this study is limited to surveying only business activities. We have limited our selection to range from one-man businesses to businesses with up to four employees. This is because we believe that the effects of the mobile penetration are visible in this segment of businessmen. Also we believed that getting in contact with these businessmen would be easy as this size of business is very common in India.

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<sup>6</sup> <http://www.ibef.org/industry/telecommunications.aspx>

<sup>7</sup> [http://www.ibef.org/artdispview.aspx?in=70&art\\_id=17513&cat\\_id=470&page=2](http://www.ibef.org/artdispview.aspx?in=70&art_id=17513&cat_id=470&page=2)

We have chosen not to confine this study to one particular occupational group. This is because we want to give a broader description of the use of mobile phones and how it has affected the general businessmen. The resource in focus, the mobile phone, can be used in many ways and be of different use in various business activities. The usage of the mobile phone as a resource may differ between professional categories.

For obvious reasons we can not give a complete picture of the development in India, our intention is to present empirical findings and conclusions from our limited research in the two chosen states, Rajasthan and Orissa.

### ***1.3 Disposition***

This paper is divided into five parts. The first part gives a short presentation of the topic, our purpose of the study and delimitations. The second part presents the theoretical framework and the model used. In the third part the method and operational analysis is described followed by the fourth part where the empirical findings are presented. The fifth part consists of an analysis and gives the conclusions of our work. Attached is also a list of references and the questionnaire used throughout the interviews.

## 2 Theory and Model

To help us structure and identify the changes in the business brought on by the mobile phone penetration we have chosen a theory that deals with business networks and its inner workings. The ARA model (Actors, Resources and Activities) looks at business networks through the relationships between the involved companies. It also identifies and categorises different types of relationships. It can be used to identify key operations within the network and key factors that contribute to the network. The models main area of application is industrial networks. This could seem like an odd choice of model, but in the end of this part we will introduce the necessary modifications to make it fit our purpose.

### 2.1.1 Business Relationships

The term relationship is used to capture the interaction between companies in a network. The business processes that surrounds the interaction between a customer and his supplier develops and changes as time passes, much like a relationship between two humans. Håkansson defines a business relationship as “*Mutually oriented interaction between two reciprocally committed parties*”. Having a business relationship implies having certain access to a network and its relationships. Relationships can be of different kinds and differ in strength. The business relationships are the entities that together with the involved companies form business networks.<sup>8</sup>

The network itself is the sum of all the companies who are related to each other via business relationships. The network itself is best described using the entities actors, activities and resources. Our theoretical network is made up of the actors linked together via relationships. The actors perform activities with the use of resources acquired through the links to other actors in the network. Resources, activities and actors are all dependent on one another. An activity cannot be performed without an actor and the necessary resources. An actor cannot perform activities without resources. A resource is not a resource until an actor finds it valuable.<sup>9</sup>

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<sup>8</sup> *Developing Relationships in Business Networks*, Håkansson, Snehota, 1995, page 25-26.

<sup>9</sup> *Corporate Technological Behaviour*, Håkan Håkansson, 1989, page 16.

## 2.1.2 Resources

Resources can be of different kinds and are necessary for the actors to be able to perform activities. Five types of resources can be identified. These are raw materials or goods, financial capital, human capital, technology and marketing. Acquiring resources can be done in two ways either directly by ownership of the resource or through a relationship with an actor who possesses control over it. The value or usefulness of a resource depends on the resources which it is combined with. For example a car is a good resource to use for transportation but without fuel it is useless. It is the combination of the car and the fuel that is useful. The resource heterogeneity is one factor which drives a company forward and helps it evolve. A company who gains a resource through a relationship with another company is said to have a resource tie to this company.<sup>10</sup>

## 2.1.3 Activities

Activities are what an actor does. It can be everything from welding to developing products.<sup>11</sup> Even though activities can be carried out by a single actor the event is not isolated. The activity is dependent on activities that have been performed before it and future activities depend on the ones being performed now. Since the actors in the network are tied to each other via relationships, changes in one actor's way of performing his activities can affect the actors he is involved with. This can lead to co-ordination issues. How these issues will be is determined by the nature of the activities. If the activity that a certain actor determines to change is closely linked to an activity that another actor in the network is performing the consequences can be severe. Two companies that have interconnected activities are said to have activity links to each other.<sup>12</sup>

## 2.1.4 Actors

Actors can have different shapes and sizes. They can be weak or powerful. The way they perform activities and control resources define them. Each actor is unique and so is its position in the network. Every actor strives to gain power in the network. They can do this by altering their activities or by using new combinations of resources. In this way every actor also has the power to change the network itself, even though how great this power is differs

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<sup>10</sup> *Corporate Technological Behaviour*, Håkan Håkansson, 1989, page 18

<sup>11</sup> *Developing Relationships in Business Networks*, Håkansson, Snehota, 1995, page 51.

<sup>12</sup> *Corporate Technological Behaviour*, Håkan Håkansson, 1989, page 20

between the actors. The actions a company takes in the network are closely linked to its position in the network, the company's knowledge of the network and its will to change the structure of the network. To make changes in the company's activities there is often a need to make changes in the use of resources either by combining existing resources or by acquiring new. Regardless if one or the other is chosen, a change in handling of resources is often related to costs. Actors therefore rarely make dramatic changes in their way of performing activities. A small change is cheaper than a large one. Two companies that are connected via actors within the companies are said to have actor bonds.<sup>13</sup> How a relationship and the identities within the relationship develop is linked to the degree of trust and commitment that the actors have towards each other. In a relationship neither of the involved actors have a complete understanding of the network. They both have a limited view of the network and its potential and cannot know everything about each other. Trust and commitment is therefore necessary for the relationship to work. The more risk involved, the more trust must there be for the relationship to work. Trust develops over time relationships start out with low risk for the involved. As trust develops between the actors they are willing to take more risks.<sup>14</sup>

## **2.2 Application of the Model**

Network theory and especially the ARA theory are intended to be analytical tools when studying industrial networks. Applying ARA on small businesses in India could be troublesome unless some precautions are taken. The main difference in our area of interest and the intended areas of use for the model comes in the structure of the relationships. One must be very clear that the industrial business relationships differ from the relationships between the actors in the networks we study.

An industrial relationship can be complex. The relationship between two companies can involve activity links, resource ties and actor bonds on many levels that connect the two companies. When forming activity links between two companies some of the companies technical or administrative activities can become interconnected. This means that the two companies are attached to each other on several levels. Different departments in the

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<sup>13</sup> *Corporate Technological Behaviour*, Håkan Håkansson, 1989, page 21.

<sup>14</sup> *Developing Relationships in Business Networks*, Håkansson, Snehota, 1995, page 198-199.

companies can be connected with departments in the other company. This makes the overall relationship between the companies consist of several resource ties and activity links.<sup>15</sup>

The business relationships in small businesses differ quite a lot from the larger more complex industrial relationships. Here, where the company consists of one to four people, contacts with other companies are mainly administrated by a single person within the company. It is therefore easier to see what kind of relationship two companies have with each other. The relationships are usually of a single dimension. A relationship usually consists of a single resource tie, actor bond or activity link. In a single industrial business relationship there can be numerous resources ties, actor bonds and activity links.

With this in mind we are ready to use the model.

### **3 Method**

Our aim is to describe how small scale business has changed in India since the mobile phone entered the market. Since our purpose is to understand this development we have used a qualitative method throughout our study and the empirical research has been taken in the form of personal interviews. The changes we have discovered will be illustrated using network models.

#### **3.1 The Study and Research Locations**

To get a more general understanding of the effects of the mobile penetration we divided our research into two completely different states. This is to outline if the effects of the mobile phones were affected by culture, religion and politics differences. We have chosen research locations that where different from each other with hopes of finding both similarities and disparities between them in order to get a better understanding and a wider perspective. This selection has been done with the help of a travel agency in Sweden, specialized in India. A short presentation of the two chosen areas will follow under *Presentation of empirical findings*.

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<sup>15</sup> *Developing Relationships in Business Networks*, Håkansson, Snehota, 1995, page 26.

The study was carried out from the 26 of October until the 22 of December 2007, and has been conducted in the chosen country, India. Time wise we divided the research time into two periods, the first part located in the north western state Rajasthan where we started and spent the first three weeks. We chose to stay in Jaisalmer, a desert city of about 80 000 inhabitants, during this time to collect the empirical data in the city and surrounding villages. The second part of the study was carried out in Orissa where we also spent about three weeks. In Orissa we made a one week tour around the state by car to make interviews and to collect material. The interviews in Orissa were also made in both urban and rural areas.

<b>Type of business/businessmen</b>	<b>Number of interviewees</b>
Metalwork shop/mechanic	5
Repair workshop	2
Bicycle workshop	2
Service shop	6
Water supply	6
Shopkeeper	8
Tailor	2
Laundry service	1
Textile business/weaver	3
Labour job	1
Camel driver	1
Teacher (school)	1
Farmer	1
Pharmacist	1
Photo studio	1
Politician	1
Truck owner	1
Rickshaw driver	1
<b>Total number of interviews</b>	<b>44</b>

### **3.2 Primary and Secondary Data**

The primary material has been collected during the time for our study in India and has been taken in form of personal interview with local businessmen in the two chosen areas. We have made 44 interviews in total, equally divided between the two states. We have used a prepared questionnaire as a guideline throughout the interviews, but most of the interviews have been carried out as conversations. The length of the interviews varied from twenty minutes up to one hour. The table below presents our respondent and their type of business.

The primary material is also based on our own observations and reflections from having been travelling and living in these areas. Through the answers given during the interviews we have also come to understand and indirectly gotten a picture of how people live and act. Information has also been taken from secondary sources, such as existing literature and information from the Internet.

The construction of the interview questions has been made beforehand and with the help of the chosen theory, focusing on relationships and activities around the business. The questions are formed as open questions concerning three areas; life situation, business and communication. The questionnaire can be found under appendix.

### ***3.3 Selection of Respondents and the Carrying out of Interviews***

To understand how the business has changed we have focused on finding out how the businesses worked before mobile phones were used, and how it is conducted now with mobiles in use. To accomplish this we have focused on businessmen who have had mobile phones for about two years. The reason behind this selection is that we believe that having had a mobile for two years the businessman should have come to a point of saturation where all benefits and drawbacks have been discovered. Also, after two years, the businessman should also accurately remember how things worked before mobiles were used.

Indian business differs quite a lot from Swedish or western business, and therefore we put a lot of time into understanding how different types of businesses were carried out. Before every interview with a person belonging to a trade unfamiliar to us we prepared ourselves by learning about the new trade, usually with help from the local interpreter.

The fact that English is one of many official languages in India seemed beneficial for us as we thought we didn't have to use an interpreter to make our interviews possible. Unfortunately we soon discovered that the language skills of our interviewees were limited and not good enough to understand more specific types of questions. Therefore we have used interpreters throughout the interviews, and most of the interviews have been made in the local language. This entails both negative and positive effects. As a positive effect we found that people seemed to be more willing to talk, since they have been able to talk in their native language. A

negative effect of using an interpreter is that we have to consider the additional step between ourselves and the interviewee when analyzing the answers given during the interviews. It is also very important that the interpreter understands our motive and purpose of the study, in order to translate the specific questions in the right way and retell the full answer to us. As we have discovered, the interpreter tend not to retell all that has been said during the interviews and because of this language confusion we may not have been able to apprehend all the nuances given in a answer.

Finding suitable businessmen to interview has been unproblematic as the size of business we have limited this research to is very common in India. The businessmen we have approached usually agreed to make an interview. Most of the time people were very happy to be interviewed and it was not uncommon that colleagues and competitors to an interviewee asked to be interviewed.

### ***3.4 Credibility of Answers Given During the Interviews***

There are several difficulties related to making interviews with people belonging to a foreign culture. The language is of course a great barrier. Of the 44 interviews we have made, only two have been made without an interpreter. The other interviews have been made in Hindi, Rajasthani (spoken language in Rajasthan), Oriya (spoken language in Orissa) or other unknown local languages in the villages. The majority of the people we have interviewed have been uneducated and unfamiliar with abstract concepts like difference and change. Because of this, we were not able to ask questions as openly as we had hoped to. When asked an open question to elaborate around most people had no answers at all. Either they have not thought about it or they were not used to reflect on it in that way. Therefore we were forced to ask more specific questions and then ask follow up questions to get more information and a deeper understanding. Managers and more educated people were more free-spoken and the interviews we have made with them have been more open and carried out more like conversations.

The reliability of answers given is an issue well worth bringing up. Questions regarding how business has changed since mobiles came in use seemed to be answered accurately and truthfully. We were also often shown exactly how certain things were managed by the use of mobile phones. We see no reason for people to lie about how business was carried out, as they

do not gain anything from it. Our interpreters confirmed these thoughts. When it comes to questions regarding money the story is quite different, however.

The answers we have gotten during interviews regarding money and how much more money people are earning since they got mobile phones can for many reasons be questioned. When getting answers that indicated a very high increase in personal income, up to 300 %, we became suspicious. After having discussed this with one of our interpreters we concluded that there are many reasons for the interviewees not to tell the truth regarding the personal financial benefits gained from having a mobile phone. We have come up with four main reasons for them not to tell the truth. The first reason is obvious. During most interviews people from the surrounding area got curious and they came to listen and watch what was going on. Usually a crowd of 5 to 30 people formed around us and the interviewee. It is understandable that the interviewee hesitated to tell how much he is earning when many of his friends and colleagues were listening. The second reason is that, according to our interpreters, many people fear that they will be taxed more if they tell the truth about how much they are really earning. The third reason is that some people might not know how much the change is but they still feel that they want to give an answer, so they estimate, exaggerate to make it sound good or just guess. The last reason is that some people might think that if they say that things have become too good, the operators will get to know about this and start charging more for making calls with mobile phones.

To establish if there actually was a difference in income after having made these conclusions we started asking some control questions. If a person told us his income had changed a lot we asked in what way that had affected his lifestyle or in what ways he spent the money. The answers we got indicated that there actually was a difference. People had bought TVs, refrigerators, different types of clothes and some had been able to start saving money for their children's education. The fact that there was a change in lifestyle indicates that there has to be a change in income, but we could not establish how big that change is.

### ***3.5 Differences in Orissa and Rajasthan***

There seemed to be a cultural difference in how willing people were to tell about their business. Since we are able to compare, we have noticed a difference in behaviour between

the two states Rajasthan and Orissa. In Rajasthan we found people more open minded and willing to talk. Everyone we asked if they were up for an interview consequently answered yes and they were all willing to explain all aspects of their business. When being asked questions about the financial impacts of the mobile phone use they never hesitated to tell how much they earned or if their income had changed in some way. Usually, they could even give a percent figure on how much their income had increased. When being asked questions that involved calculating, for example to sum up the transport costs for a month, most Rajasthan businessmen was quick to give accurate answers. The over all feeling was that they were very business minded and had a good insight and knowledge in their own business situation.

In Orissa the experience was different. There, around one third of the people we asked for an interview declined. Many were very suspicious and wondered why they were being asked these kinds of questions. Some of them could be convinced of the harmlessness of our questions and would then participate. The people we interviewed in Orissa could, like the ones in Rajasthan, give good answers regarding how their business had changed since they got mobile phones. However they could rarely tell how much it had changed in terms of in income and number of customers. It seemed also that they had given less thought about how much money they had been able to save in transport costs. They could only say that they did save money. When it came to personal benefits and changes in income they were very reluctant to answer. One reason for the more suspicious behaviour among the businessmen in Orissa could be that fact that the state is more violent than Rajasthan. During the time we were in the area 12 police officers were killed by Maoist rebels. It is understandable that these types of incidents breed a more suspicious and reluctant people.

We have chosen not to divide the presentation of the empirical findings from the two areas into different parts. This is because although there are both cultural, religious and geographically differences between the two states, we have found that the way of doing business or how businesses are run does not differ much between them. It was surprising to see that a shopkeeper living in the desert in north western part of Rajasthan, and a shopkeeper living in the jungle areas of Orissa, had been affected in almost identical ways since the mobile phones penetrated two areas.

## 4 Presentation of Empirical Findings

To let the reader get an idea of the situation for our interviewees we will start the empirical section with a summary of an interview made in Rajasthan. To really understand what everyday life is like in the poorer parts of India is difficult. With this summary we hope that the reader gets a little closer to the areas where we have made the interviews.

*Interview with Devilel Lohar in Devicot, a village 40 km south of Jaisalmer, 07-10-31, 13:00.*

*Devilel is a 30 year old welder/metalworker living in Devicot. He works eight hours per day seven days a week. Together with his relative he owns a small workshop where they do welding jobs and various metal works. Devilel has had a mobile phone for 2 years and it has made a big difference in his life. Apart from using it to call friends and relatives he also uses it a lot in his daily work.*

*Before he had a mobile phone customers needed to come to the workshop if they wanted to place orders. When a job was done Devilel needed to go to the customers and tell them that he was finished, or the customers came by and checked every now and then. This meant that most customers he had lived relatively close to the shop, as it would take up too much time to visit customers that lived far away. Usually his customers came from his village. To get supplies Devilel travelled to Jaisalmer by bus. He used to do these 15 times every month and every visit to Jaisalmer took half a day. He lost around 200 rupees every time he had to go in to Jaisalmer.*

*The mobile phone has changed his work situation a great deal. He no longer has to go and visit customers as he can call them and tell that the job is done. Customers can place their orders by phone. This saves time for both Devilel and his customers. Since he doesn't have to visit the customers anymore he can do business with people who lives further away, in other villages. When people in the villages got mobile phones the word spread quickly that Devilel was a good metal worker and he now has twice as many customers. He manages this increased workload by rearranging his supplies with the use of his mobile phone. Now he doesn't go in to Jaisalmer to buy supplies. He calls his supplier who places the goods on the bus. The bus driver then calls Devilel who picks up the goods. This new quicker access to supplies means that Devilel can take on urgent jobs in a new manner. If someone needs something repaired quickly Devilel can call a taxi to pick up supplies in Jaisalmer. This way he can have the goods needed in his shop within an hour. This makes his customers very happy and the word is spread. Sending the goods by bus costs him 100 rupees. Sending it by taxi is 400 rupees, a cost his urgent customers are willing to pay. A phone call costs him 1 rupee. Devilel only goes in to Jaisalmer now to pay his suppliers. He does this 4 times per month.*

*Devilel uses the same suppliers now as he did before he had a mobile phone. The difference now is that he uses it to call other welders to discuss and compare prices.*

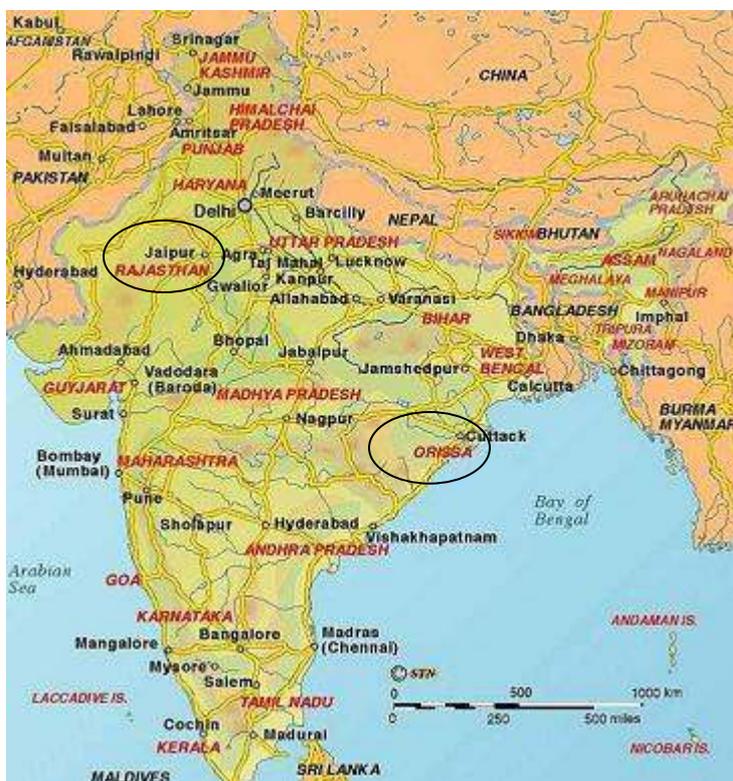
*Before Devilel had a mobile phone he earned between 2000 and 3000 rupees per month. Now his income is between 5000 and 6000 rupees per month. He spends around 350 rupees on mobile phone costs every month.*

*Devilel would like to be able to pay his suppliers over the phone. This would mean that he didn't have to go in to Jaisalmer at all and it would leave him with more time to work. He would be interested to pay with the phone if it was less expensive than going by bus.*

Mobile phones have quickly become affordable tools for a large part of the population. A mobile phone can now be acquired for around 1000 rupees, which are about 160 Swedish kronor. The average income of the businessmen we interviewed was around 12 000 rupees per month, but the spectrum was large.

## 4.1 Brief Presentation of India and Areas of Interest

India is located in south Asia and is the seventh largest country by geographical area. Bounded by three seas to the south, Pakistan to the west, China, Nepal and Bhutan to the north and Bangladesh and Burma to the northeast, it is the second most populated country in the world with its 1.12 billion people. India is a federal republic with 28 states, each with independently elected governments. The climate varies from tropical monsoon in the southern states to temperate in the northern parts.<sup>16</sup>



Orissa is located on the east coast of India, with a long coastline facing the Bay of Bengal. Orissa is a Hindu majority state with a population of 32 million people. The state capital is Bhubaneswar. The state of Orissa is rich on natural resources and contains large quantities of coal and iron ore, in spite of these resources the people of Orissa are among India's poorest. About 87 % of the population is living in villages. 25 % of the population in Orissa is tribal and are living in the rural areas.<sup>17</sup>

<sup>16</sup> <http://www.bizagra.com/rajasthan.htm>

<sup>17</sup> <http://orissa.gov.in/portal/default.asp>

Rajasthan is the largest state in India in terms of area. The state capital is Jaipur and the main geographical feature is the Thar Desert along the north-western border facing Pakistan. The climate is generally dry but Rajasthan is the biggest wool-producing state in India and agriculture is the primary force in the economy. The population is about 58 million people and the state is known for its cultural traditions and colourful art.<sup>18</sup>

## **4.2 Effects on Business**

This part is based on the answers given during the 44 interviews. The businessmen interviewed belonged to 23 different job types. The main focus has been on shopkeepers, repairmen and water suppliers. Apart from those categories we have also conducted interviews with various types of businessmen such as tailors, pharmacists and weavers. Obviously, everything that has been said during the interviews cannot be presented here. The findings presented in this part are the most reoccurring and the most emphasized by the interviewees.

### **4.2.1 Customers**

Almost all of our interviewees had gotten more customers since they got access to mobile phones. This has happened for many reasons and the reasons vary depending on what kind of business we are looking at.

### **4.2.2 Shopkeepers**

A shopkeeper is generally a man selling groceries from a small shed. The shops are usually very small, around six to twelve square metres. All groceries are sold over the counter and the shopkeeper works alone. Most of the groceries are of the kind that people buy on an everyday basis such as fruit, tobacco and sweets.

Shopkeepers increase their number of customers mainly because they don't have to leave their shop during work hours. Before the introduction of the mobile phone this was a frequent

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<sup>18</sup> <http://sv.wikipedia.org/wiki/Rajasthan>

problem as every shopkeeper had to go and buy supplies. They bought these supplies from people who also mainly operated during normal business hours. Therefore they had to choose: sit in their shop and sell or close the shop and go out and buy stock. Every time they went out they lost business opportunities as they had to close their shop. Now that they have mobile phones they rearrange their supplies. They call the suppliers, decide what they want, and at what price. The supplier then arranges the transportation, which usually means by local bus or auto rickshaw. Therefore, since they got access to a mobile phone, they can stay in the shop and sell the whole day.



**Picture 1:** Padma in his shop in Olasingh, a village 50 km south west of Bhubaneswar, Orissa.

This new way of handling the supplies also brings another advantage. Since the shopkeepers are always present in their shops, now they gain more trust from their customers. The customer knows that the shopkeeper will be there when the customer shows up. This makes the customers happy and the shopkeeper gets more regular customers. The word is then spread that the shop is always open during the day and more people will come there.

The third way shopkeepers increase their number of customers when having access to mobile phones is by being able to hold a wider selection. Now that they can manage their suppliers in an easier way, they can order special items more easily. This makes the customers happy and, once again, the word is spread that the shopkeeper can order items at request, and more people tend to come.

### 4.2.3 Water Suppliers

Water is a crucial resource in the desert and most of the water used in Jaisalmer is provided by the government. In many cases this water is not enough though. Many hotels, farmers and construction sites need more water than given by the government. Here private companies come in to the picture. People owning water tanks and some mean of transportation, as a tractor or a camel, can buy water from a well (water filling station) and find a customer to sell it to.

The water suppliers used to drive their water trucks to a designated place where customers came and told them how much water they wanted and where they wanted it. The water supplier then drove his truck to this location, unloaded and collected the money. Then he went back to the water filling station, filled up the tank and headed back to the designated water buying place. This was a time wasting process, but the only way to do it.



**Picture 2:** Laxmanram is supplying water by camel in Jaisalmer, Rajasthan.

Now most of the water suppliers own, or at least have access to mobile phones. This has changed the business a great deal. Most of the water suppliers have stopped going to the designated place to sell the water. They give all their customers their number and wait for them to call instead of waiting for them to come. They get a lot of calls and since the water suppliers do not have to wait for customers at the designated place they have time to go to more customers. This is possible because they can take on several orders at once and plan ahead in a way that was not possible before. Before the water suppliers were only able to take

on customers when they were standing at the designated place. Now they can talk to customers and take on orders at any time.

*“If I spend 1 rupee on a phone call I know I will get 50 rupees back in sales.”*

Navneet Yvas, when talking about his water well business.

To have time to handle the larger number of customers the water suppliers have taken two measures. Filling the water tank is time consuming; a 5 000 litre tank takes about 30 minutes to fill. The line at the water filling stations can be long, especially during the more busy hours in the morning and at lunch. To manage this problem the water suppliers now call each other, and to the people who manage the water filling stations, to check where the line is short. This means that the water suppliers are now more evenly distributed among the water filling stations and ultimately, they save a lot of time. The other way of handling the increased number of customers is based on team spirit and goodwill. If a water supplier gets many calls, so many that he can not serve them all in a reasonable time he calls his competitors, the other water suppliers, and gives the jobs he does not have time for to them. This behaviour was slightly unexpected since the competitive climate we have seen in India is quite fierce but in the end everyone benefits from it. The customers get water faster and the jobs are more evenly distributed among the water suppliers.

The last reason for the increased number of customers is the fact that almost all of the water suppliers have written their mobile phone numbers on the front, side and back of the water tank they drive around with.

The mobile phone has also had a decreasing effect on customers for the water suppliers. The customers can now call in and cancel orders if they for example find a water supplier who is closer or who will sell at a lower price. According to the water suppliers we interviewed, however, this effect is very small compared to the positive effects on customers.

#### **4.2.4 Metalworkers and Various Repairmen**

This group of businessmen spends most of their time in the shop doing repair jobs for different customers. However, it is common that they go out and do repair jobs where the vehicle broke down or the accident happened. This is something that has increased a lot since

mobile phones became popular. The reasons for the increased number of customers are yet again different for this group of workers compared to the water suppliers and shopkeepers.

One very important reason for the increase in customers for this group of workers is that they have much more time to actually work now that they have access to mobile phones. Before they had mobiles they did, just like the shopkeepers, spend a lot of time on getting supplies. Since every repair job is unique and stockholding is both expensive and space demanding the mechanics used to go and buy supplies almost every day. Now they make calls and order in supplies according to their needs. The transportation is usually arranged by the suppliers. This gives them much more time to perform the actual repair jobs.



**Picture 3:** Kalandi has a small bicycle repair shop on the main street of Salapada, western Orissa.

Since this group of workers bought mobile phones they are always reachable. Before having access to mobile phones they lost many customers when they took jobs that required them to leave the shop. They had to be in the workshop for the customers to be able to reach them. This is not needed now. The customers usually have the number to the mechanic or repair man and if he doesn't, he can always walk by the repair shop and read it off the wall. Almost all of the people we have talked to, that fall under this category of workers have their numbers written on the front of their shops.

The third reason for the increased number of customers that this group of workers is experiencing is based on new types of services they can offer only through the use of mobile phones. Before the mobile phones entered the market, customers had to come to the repair shop with their broken machine or vehicle. This is still the most common way the business is

done. But with the mobile phones the services that this group of workers can offer has broadened. If a customer really needs something fixed and for some reason can not bring it to the repair shop he can call the repair man from where the machine broke down and ask him to come out there and fix it. This is time consuming for the repair man and costs the customer extra, but in return the customers are very happy with this service, and the repair man gets more customers this way.

#### **4.2.5 Managers**

The shopkeepers and water suppliers usually work alone. The mechanics, repairmen etc can work alone but most of them have one to three employees. In this segment the concept of management comes in. As the manager makes all the decisions it is imperative that he can always be reached, otherwise if problems occur that the staff can't handle the work will stop. This was usually the case before the mobile made an entrance. The managers are often out of the shop during the day. They go for long trips to meet important customers and spend a lot of time marketing their company. Whenever the manager was out and the workers did not know how to handle a problem they simply waited for the return of the manager before the problem could be resolved. The managers used to try and solve this kind of problems by routinely calling the shop from a pay phone. This was troublesome as it took a lot of time and things got even worse when there were no pay phones to call from.

Now all managers we have talked to have mobile phones, and most of them have equipped their staff with mobile phones as well. As the manager is usually also the most skilled worker the workers call the manager for advice. With a mobile phone, the managers can always be reached and informed if something unexpected happens in the shop. According to most managers the mobile has become the most important tool for a manager to do his job and many of them admit that if they would loose their mobiles the negative impact on their business would be severe.

We have also gotten to understand that different businessmen who work with the same things and use the same suppliers have started contacting each other. The most common reason for the businessmen to contact each other is to check what price they get when buying supplies. They then use this information to get lower prices on the supplies they buy.

### **4.3 Supplies and Suppliers**

Another interesting area of business affected by the penetration of mobile phones is the supplier side of business.

#### **4.3.1 Supplier Networks**

Most of our interviewees use the same suppliers now as they did before they had access to mobile phones, but some has changed suppliers or added new suppliers into their networks. The ones who use new suppliers do this mainly for two reasons. They seek up new suppliers to get better prices and/or to gain access to other types of products. Before the businessmen had mobile phones they were relying on personal meetings with the suppliers to determine what products, what quantities and at what price they wanted to buy from the suppliers. Now this is often done over the phone. The need for personal meetings has therefore decreased. Now the businessmen mostly meet with their suppliers for payment and for social reasons. But according to many of our interviewees personal meetings are still useful when it comes to tough negotiations. That is something that can hardly be done over the phone.

#### **4.3.2 Transportation**

The way transportation of supplies is carried out has changed for almost all of the businessmen we have interviewed. Before they had mobile phones they used to go and visit the supplier and decide what they wanted to buy over the counter. This was done often, every day or every other day. The businessman looked over his stock, noted what he needed and then went to the supplier, bought it and returned. As stated above, this was a very time consuming way of managing the supplies and also, the shop needed to be closed while the businessman was away. Now supplies are managed over the phone and the transportation is taken care of by the supplier who usually sends it by local bus or by auto rickshaw. A great deal of time is saved because of this since the businessman never has to leave his shop or workshop to get supplies.

### **4.3.3 Stockholding**

Holding a stock comes with many issues. First of all it is expensive. Most of the people we have talked to are living on very low incomes and they can therefore not afford to invest their money in holding a large stock. Most of the mechanics, whose stock is quite expensive reported this to be a problem. Secondly, as expressed earlier, the workspace in which most of our interviewees operates in are very small. They do not have the space to hold a large stock. For the different categories of workers come additional problems.

The mechanics and repair men work on a wide range of machines and vehicles, and they rarely know what kind of stock they need to hold. If they invest in a stock they do not know if they actually will need it. Investing in the wrong product today might mean that you can not afford to invest in the product that you need tomorrow.

The shopkeepers also have problems knowing what to invest in. Most shopkeepers have some amount of products with a best before date, such as fruit. If the customers are not interested in buying the products the shopkeeper will eventually have to throw them away. Shopkeepers can also hold wider and more diverse stocks because now they can reach suppliers who operate further away, suppliers who were not reachable before the shopkeepers got access to mobile phones.

These problems have been greatly reduced since mobile phones were introduced. Since the ways of handling suppliers and the transportation of supplies were rearranged the view on stock keeping has also changed. Instead of buying a large quantity of products the businessmen now buy smaller quantities but more often. Mechanics and repair men tend to buy the supplies after they have gotten a clear view of what they need to do a certain job. In general the stocks that businessmen keep have become smaller but with an increased turnover.

### **4.4 Service**

The mobile phone has given many businessmen the possibility to provide better and more flexible service to the customers.

For example, before mobile phones were used in Jaisalmer the customer of a mechanic had to come to the workshop to see if his repair job was finished. This was time consuming and

costly for the customers in terms of transportation. Now, that both customers and mechanics have mobile phones, the mechanic can call the customer and give him an update on how work is going, and also tell him when the work is done. This is a service highly appreciated among the customers.

Another effect is that the shopkeeper can meet customer demands by ordering in products requested by the customers, products that were not accessible before the mobile phone. As we've argued in the section *Supplies and suppliers*, one effect of the mobile has been more efficient handling of suppliers and transportation of supplies which ultimately results in quicker access to these supplies. The "service effect" of this is that when the worker gets the supplies faster, whether it is groceries or spare parts, customers has to wait less for the job to be finished. Customers acknowledge this as faster service.

The last new service we have identified has already been described under *Effects on business*, for mechanics, electricians, welders and various repairmen in their ways of increasing the number of customers. They can now provide a more flexible and mobile service since they, and their customers have access to mobile phones. The semi stationeries can be called up by the customers and perform the job wherever the customer need it to be done, instead of the customer coming to the workshop. This kind of service provided gives the workers new competitive advantage that they did not have before.



## **5.1 Business – Supplier**

### **5.1.1 Activities**

Before the mobile phones were being used the relationships between suppliers and businessmen could be described as time consuming and costly, where the cost is directly linked to the time losses. The businessmen used to go and see the suppliers to make decisions about what to buy and at what price. With the use of mobile phones the contact between businessmen and suppliers has increased a lot. The mobile phone penetration has led to a decreased need for personal meetings as many things such as placing orders and making service inquiries can be done over the phone. Calling takes less time and is cheaper than travelling.

The fact that making an order is so easy now has had effects on the order frequency between the businessman and his supplier. Now businessmen make smaller orders more often instead of bigger ones more seldom. Instead of ordering things in advance, things they might need, the businessmen wait with ordering until they know precisely what their need is. This has effects on their stocks. The businessmen now hold smaller stocks that have a higher turnover. This is in turn saving money for the businessmen as they usually wait with ordering certain things until they know that there is a demand for it.

The fact that the majority of the businessmen still use the same suppliers is worth paying some attention to. Changing suppliers should be a tempting alternative considering the potential benefits. The businessmen that have changed suppliers do this to get better prices and a wider range of products to choose from. Now with the use of mobile phones physical distance is of less importance. If one doesn't have to go and see the business partner to make a deal, it is less important where this business partner is located. Before the mobiles were being used by the actors in the network the physical distance was in fact a heavy competitive advantage. Even if an actor could offer a superior product another actor with an inferior product could still be successful because of closeness to customers. The costs of transportation were too great and the knowledge of the network and what products could be procured in it was low. Now that placing an order is just as easy regardless if the supplier is

10 or 200 kilometres away distance as a competitive advantage has become of less value. There has been a shift in what is important when it comes to competition. Now the price and the quality of a product are more important than the distance to the provider. This applies to both physical products that are being sold and to services.

So why has not the majority engaged themselves in getting in touch with more beneficial suppliers? The answer might lie in the long relationships the businessman has with his suppliers. According to our theory beneficial relationships between different actors in the network are built on trust and commitment. Before the businessmen had access to mobile phones they visited their suppliers several days per week. This long history of personal meetings that the businessmen have with their suppliers has led to a substantial amount of trust. This trust could be more worth than cheaper supplies. Giving credit is an example of an activity that is highly related to the degree of trust that the actors have towards each other. It could be that these types of benefits that are only available in relationships where the degree of trust is high, is more valuable than the benefits that comes with changing to supplier who can offer lower prices.

### **5.1.2 Resources**

The changes in the businessman – supplier relationship regarding resources can be divided into two categories. First of all there are new resources that are accessible since mobiles came into use. These could be new products or services that are available now. The other category of resources are not new to the businessmen, they existed before the mobiles made an entry. But by combining these existing resources with the advantages that the mobiles bring the businessmen have found new and beneficial ways to make use of these existing resources. Let us start out with the new resources.

As we have argued above there has been a decrease in physical distance as a competitive advantage. Ordering from a supplier that is near is just as easy as ordering from one that is far away. This has led to a broader selection of products for the businessmen to choose from. Ordering special items that customers demand can now be done by using suppliers who operate farther away. The mobile has also contributed to an increased knowledge of the network, and what can be procured from it. Getting knowledge of more actors in the network and what they can offer is a lot easier now than this can be made over the phone. Before this

was almost impossible as it involved travelling great distances. This increased network knowledge has made it possible for the businessmen to cut out the middle men and go straight to the supplier who actually has the wanted product. Before the businessmen had to get these kind of products by the help of their ordinary suppliers who in turn talked to their suppliers. Now the businessmen can go straight to the source.

The other category of resource changes can be illustrated with an example. Buses, taxis and auto rickshaws have always been accessible for the businessmen to use. Now, however, these types of resources are more valuable to the businessmen than they were before they had mobile phones. They still needed to go and see the supplier to place orders and negotiate prices. Since they went to see the supplier in person there was no need to use external transport systems to bring the supplies home. The businessmen just put the supplies in whatever vehicle they used to go to the supplier. Now that there is no need to meet the supplier to place the orders or negotiate prices the external transport systems have suddenly become very important in daily business. The suppliers have now started using the local buses for transportation of goods. In this way a resource that has always existed has suddenly become very valuable because of the benefits it brings when it is combined with another resource: the mobile phone.

## **5.2 Business – Business**

New bonds have formed between rivaling businessmen. They have started contacting each other to get an increased knowledge of their suppliers and what prices they sell at. Different businesses can get different prices on the same products. This is something the businessmen try to avoid by contacting each other to check what prices the rivaling businessmen are getting. This behaviour is something that increases their knowledge of the network and its relationships. It is possible that this knowledge can be useful in other ways than for just checking prices. When relationships develop between businessmen they learn to know each other and in time they will know more and more about each other and their businesses. One could imagine that within these relationships new resource ties and activity links could form. Through the relationships between the businessmen they could learn from each other. The acquired knowledge could be everything from technical solutions of specific problems to knowledge of suppliers.

## **5.3 Business – Customer**

### **5.3.1 Activities**

There are many things that can affect the relationship between a businessmen and the customer. Providing good service is one activity that is vital when building a relationship to a customer. The better service provided by the businessmen the more reason for the customer to come back another time. A consequence of the changes in activities for the businessmen is the saved time and this time is often used to work more. One reason behind being able to provide better service to the customer may be that they use the saved time more efficient now. Time does not only affect the quality of service that is being offered to the customers. When it comes to improved service and quality, the customer also plays an important part. Since it has become easier for the customer to interact with the businessman it has also become easier for the customer to make demands. The increased interaction between he businessman and the customer has contributed towards better quality in the services and products that the businessmen offer. The businessmen can also provide a more flexible and mobile service since they, and their customers have access to mobile phones.

Since personal meetings have become less important, the actual physical location of the business and customers has also become less important. In the same way businessmen can meet the needs of customers living further away the customer can choose to use services from business located further away. The customers now have more control over the services that they acquire from the businessmen. Regardless if we consider a service job ordered or an incoming product ordered by a customer it is now easier for the customer to follow up the work. The customers can now be more active.

### **5.3.2 Resources**

The effect of providing better service to the customers has an effect on recourses of the businesses. Both the service factor and the time factor contribute towards more customers but in different ways. Providing better service attracts more customers. To be able to handle an increased amount of customers the businessman needs a vital resource, namely time. As there

is more time to perform work there is an increased capacity in the business. Since the businessmen are now able to take on more jobs and serve more customers he is consequently earning more money. This can be seen as a resource to the business.

The bonds between the businessmen and customers have become tighter and the interaction between them more intense. Because of the use of mobile phones the physical location of the business has become less important and the competitive advantage now lies in the provided service to the customers. A customer is more likely to use a service where the experience is good and it can be the determining factor for the relationship. Underlying factors like trust and commitment have an effect in this relationship. This interdependence has in many ways strengthened the relationship and contributed in what the businessmen sees as faithful customers.

## ***5.4 Relationships within the Business***

### **5.4.1 Activities**

The penetration of mobile phones has had a great impact on the way managers operate. The managers are often the owner of a store or workshop and are often the one who started the business. As the business has grown they have stopped performing labour work themselves and they have hired people to do the job they once started doing and are now fully concentrating on managing the business. That usually includes taking everyday work related decisions, ordering supplies, staying in contact with customers and marketing. If the manager is out of the shop he is usually frequently called when any problem occur in the shop. The workers rarely take any decisions or initiatives themselves. The hierarchy in the shops we have visited is usually strong. One conceivable reason could be insecurity of doing or acting wrong and also because of an obligation to always keep the manager informed of what is happening in the store. He is the one who will stand responsible if anything goes wrong.

Since managers and their staff started using mobile phones their business have become much more time efficient. The managers can now both engage in problems within their company and go out and meet customers and suppliers virtually at the same time. This has made the managers, and in turn, their business more efficient. By using the mobile phone the manager

can take all the difficult decisions that his staff is hesitant to take even when he is not in the workshop. The problems with work stopping because of lack of management are now gone because of this. The manager's behaviour and activities has changed in ways that make decision making in the shops faster.

#### **5.4.2 Resources**

Before the managers and staff members had mobiles it was difficult to get in contact with the manager. As we have stated above he has often out meeting customers or suppliers. This had negative effects on the efficiency of the workshop. Now that most employees have mobiles this problem has disappeared. The employees can use the manager to help them make decisions in their daily work. Since the manager is often the most skilled worker he is a valuable resource to the employees as his knowledge is superior not only in management issues but also in the more technical aspects of the business. When an employee is out of the shop working they can now use the manager as source of information and knowledge. This was not possible before the mobile phones were being used. The implication of this is that the workers are able to do a better job.

## 6 Results and Concluding Discussion

The entrance of the mobile phone as a resource in Indian small business networks has in a radical way changed them. The mobile phone has triggered a series of changes in activities and resources both within the companies and in the relationships between them.

One general effect of the mobile phone penetration is the increase in efficiency and time saving. These changes stem from the new way of handling supplies, changes in management and the decreased importance of physical distances.

Being able to provide good service have become important. Many things contribute to better service. It is now easier for the businessmen to please customer demands as ordering special items have become easier. The customers have gotten more control over the services they acquire. Providing good service have become a competitive advantage when the physical distance is less important.

Providing good service gives the businessman more regular customers. The customers can always reach their preferred businessman and acquire his services even from great distances.

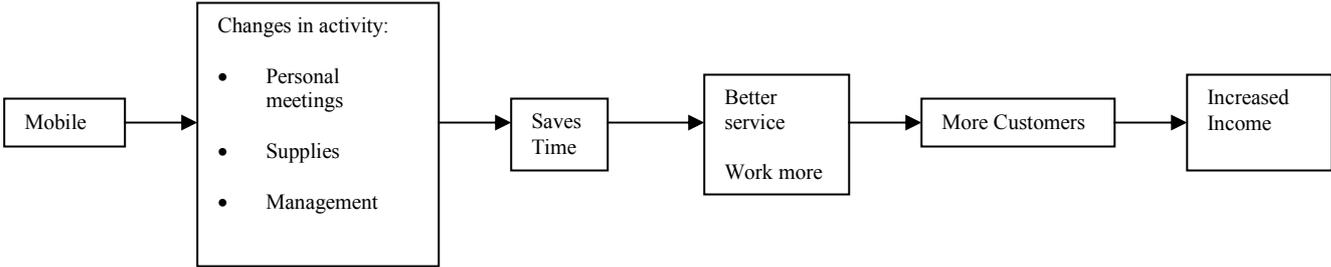
The network knowledge has increased as getting in touch with its actors is now easier and cheaper. This increased knowledge can be used in different ways that are beneficial to the businessman.

The relationships within the network are often long and well established. When the mobile phones came as an external resource one could imagine that there would be more changes in choice of suppliers. This has not happened and much is owed to the trust and commitment that has gradually built up in the relationships between actors in the network.

The overall increase in the intensity of contacts within the relationships in the network has increased their efficiency. As almost all aspects of running a business have become easier the production of services and products are going more towards Just-in-Time. The change in stockholding and service is a simple form of Supply Chain Management.

The ultimate consequence of the effects the mobile phones have had on the relationships in the business network is an increase in income for the businessman. The change in income brought on by mobile use can be seen as derived from all the other effects on business.

The chain of changes in the relationships, and its consequences, can be illustrated using the model below.



## 7 General Effects of Mobile Phone Use

We have now described the effects that the mobile phone penetration has had on the business. The effects on business are a very limited area of the overall impacts that mobile phones has had on the regions we have visited. The more general effects on people’s lives lays a bit outside our scope for this thesis, but we still feel that bringing some of them in to focus could help the reader to get a deeper understanding of the effects of the mobile phone penetration.

Almost all of the people we have talked to say that they use the mobile to call family and friends, to see how they are and how life is going. This is a great improvement because most people do not have time to go and visit friends and relatives that often. If you work over 12 hours per day seven days per week there isn’t much time for leisure activities. Many of the people working in Jaisalmer are not born in the city and their families are still living in the village. These people don’t have the money or time to go home to their families every night. They can spend several weeks or months in the city without going back to their village. These people are very happy to at least be able to call their families whenever they want, and to know that if something happens in their village they can always be reached and informed about it.

The mobile phone penetration has contributed to control in both positive and negative ways. The positive view of it is that the mobile often is seen as a security resource and it gives people a feeling of independence. If anything unexpected happens or of someone gets injured the mobile phone is used to inform relatives or send for help. They can also use the phone to get more information of what is going on in the surrounding world and in that way the mobile has given people more control. People also feel that they can have privacy in a way that was not possible before the mobile phones.

From another point of view people think of control in a negative way. Some of the people we have spoken to say that they can feel a bit supervised just because they always can be reached. For example, if they are out at night or not coming home as agreed, their wife, parents or friends can always call to see where they are and what has happened. A mechanic also told us that he sometimes buy supplies on credit and is promised a few days to refund the money. Now, if he doesn't show up, the supplier keeps on calling him to remind him of the payment. Many parents also state that they are losing control of what their children are doing because they have got access to a mobile phone. Family unity is very important in India and the father has the overall responsibility. Arranged marriages is still a norm and since the parents are playing a major roll in selecting candidates for the marriage, they want to have control over what their children are doing and who they meet. If the children have a mobile phone they can contact and arrange meetings with other girls and boys without the patents knowledge.

*“Before the most important thing in your life was your wife. Now it is your mobile.”*

-Unknown rickshaw driver in Jaisalmer

## **7.1 Recommendations for Further Research**

This study has aimed to outline the change in business, brought on by the use of mobile phones, and this has been done in a qualitative way, using information from personal interviews made with the local businessmen. Since we have used a qualitative method, no general conclusions about changes in larger areas can be drawn. This is something we think would be interesting to look into. By using a quantitative method to measure the types of changes we have found, one could generalize more and speak about statistical changes. As we have argued before, we think that the most difficult part has been to find a way of determining

the effects of mobile phone use on income. As we have pointed out in the method part of this paper asking questions about income can be sensitive, and establishing how much the businessmen are actually earning is difficult. The effects on income are however a very important part of the general effects on business and should be addressed.

Statistics we have gathered from our interviews in Rajasthan and Orissa tells us that the change in income brought on by the use of mobile phones is quite large. The average increase for the businessmen interviewed in Rajasthan was about 60 %, and for the businessmen of Orissa the number was 70 %. Apart from the reasons we have mentioned in the method part concerning the questionability of these numbers there are more variables to consider. Most of the businessmen we have interviewed have had mobile phones for at least two, sometimes up to four years. During this time a natural growth in the business can be expected. Therefore it is hard to say how much of the increase that can be explained by the mobile phone use.

## List of references

### The interviewees

Metalworker 1	Devilel Lohar (30) - Welder/metalworker living in Devicot. Rajasthan, rural, 07-10-31
Metalworker 2	Krishna Sahu (35) – Welder/metalworker running a workshop in Bolangir. Orissa, urban, 07-12-04 (10:30)
Mechanic 1	Prem Kumar ParjaPat (21) - Mechanic living in Devicot. Rajasthan, rural, 07-10-31
Mechanic 2	Jhumar Ram (40) - Mechanic workshop with 4 employees. Rajasthan, urban, 07-11-03
Mechanic 3	Nausad (29) - Mechanic and the owner of the workshop/garage in Bolangir. Orissa, urban, 07-12-04 (10:10)
Repair workshop 1	Subrat Mishra (40) - Owner of a motorcycle repair shop in Bolangir. Orissa, urban, 07-12-04 (09:00)
Repair workshop 2	Suresh Pillani (38) - Owner of a tire and rethreading shop in Baliguda. Orissa, urban, 07-12-02 (17:00)
Bicycle workshop 1	Suresh (28) - Cycle repairer in Jaisalmer. Rajasthan, urban, 07-11-03
Bicycle workshop 2	Kalandi Sahu (43) - Bicycle repair shop on the main street of Salapada. Orissa, rural, 07-12-06 (11:40)
Service shop 1	Sunic John (38) - Service Manager Tata Motors outside Jaisalmer. Rajasthan, rural, 07-10-31
Service shop 2	Amit Kumar Tilwani (26) - Running the family business “Ramchand & Company” together with his brother, oil business in Jaisalmer, Rajasthan, urban, 07-11-04
Service shop 3	Submash Choudhury - Owner and manager of a company in the electricity business, Beramphur. Orissa, urban, 07-12-01 (11:00)
Service shop 4	Srinivas Patnaik (37) - Shopkeeper and also performs some electrical repair work in Berhampur. Orissa, urban, 07-12-01 (12:00)

Service shop 5	S. Pandaba Kumar Reddy (25) - Owner of a shop in Turubudi, selling and repairing TV and radio. Orissa, rural, 07-12-01 (13.40)
Service shop 6	K. Ramesh (30) - Selling stabilizer and electronic equipment for power supply system in Berhampur. Orissa, urban, 07-12-01
Water supply 1	Chhagan lal Mali (50) - Water supplier business with tractor. Rajasthan, rural, 07-11-08 (13.00)
Water supply 2	Dhansingh Bathi (30) - Working as a water supplier in Jaisalmer, own tractor. Rajasthan, rural, 07-11-08
Water supply 3	Dhansingh Rathore (30) - Water supply business. Rajasthan, urban, 07-11-08
Water supply 4	Jograj Singh (22) - Working in Jaisalmer with water supply. Rajasthan, urban, 07-11-08
Water supply 5	Laxmanram (18) - Supplying water by camel, Jaisalmer. Rajasthan, urban, 07-11-08
Water supply 6	Navneet (50) - Running Mobile Water Supply, hotel, guide etc. Rajasthan, urban, 07-11-08
Shopkeeper 1	Ranaram (52) - Shopkeeper in Dabla. Rajasthan, rural, 07-10-31
Shopkeeper 2	Kishen Lal (40) - Shopkeeper who makes paan in Jaisalmer. Rajasthan, urban, 07-11-04
Shopkeeper 3	Dolamani Podh (25) - Owner of a small shop in Bolangir, selling paan. Orissa, urban, 07-12-04 (09:45)
Shopkeeper 4	Kishnaram Choudhary (35) - Shopkeeper near water well in Jaisalmer. Rajasthan, urban, 07-11-08
Shopkeeper 5	Padma Charan Nard (49) - Shopkeeper and owner of a grocery shop in Olasingh. Orissa, rural, 07-11-30
Shopkeeper 6	Ramarow Achary (33) - Shopkeeper in Adava. Orissa, rural, 07-12-02 (09:00)
Shopkeeper 7	Biswanath Behera (50) - Shopowner selling copper and aluminium pots and pans, Adava. Orissa, rural, 07-12-02 (09:45)
Shopkeeper 8	Raja Kishore Rout (63) - Selling glazed tile and toilet requisites in Salapada. Orissa, rural, 07-12-06 (11.00)

Tailor 1	Muhesh Diyiy (21) - Tailor and working in Jaisalmer. Rajasthan, urban, 07-11-03
Tailor 2	A. Narayana (56) - Tailor in High School Sahi Orissa, rural, 07-12-01 (14:00)
Laundry service	Santos Samria (35) - Family business doing laundry service in Jaisalmer. Rajasthan, urban, 07-11-04
Textile business	Manoj Kumar (28) - Textile business in Khuri. Rajasthan, rural, 07-10-30
Weaver	K. Chendreya (40) - Weaver in village Padmanabhapur. Orissa, rural, 07-12-01 (13:20)
Weaver business	Keshab Chandra Katul (30) - Collect and sell weaving products at local markets, Olasingh. Orissa, rural, 07-11-30 (10:30)
Labour job	Deva Ram - Different types of labour jobs in Khidrat. Rajasthan, rural, 07-10-29
Camel driver	Rajhm Pancha (22) - Working as a camel driver and safari guide. Rajasthan, rural, 07-11-10
Teacher	Shriram Bishnoi. Teaching English and Hindi at a village school Rajasthan, rural, 07-10-20
Farmer	Tan Singh (26) - Farmer living in Dheuwa south west of Jaisalmer. Rajasthan, rural, 07-11-04
Pharmacist	Rabindra Nath Mishra (48) - Pharmacist and owner of a medical store in Adava. Orissa, rural, 07-12-02 (08.40)
Photo studio	Ratnakar Dash (46) - Runs a photo studio in Salapada. Orissa, rural, 07-12-06 (11.25)
Politician	Sri. Ramesh Chandra Satapathy (58) - Politician and general secretary in Gajapati party, Adava. Orissa, urban, 07-12-02 (08:10)
Truck owner	Ashit Kumar Nayak (42) - Owner of two trucks running in mines, Sambalpur. Orissa, rural, 07-12-06 (12:00)
Rickshaw driver	Kamakhaprasad Singh (24) - Rickshaw driver in Olasingh. Orissa, rural, 07-11-30 (11:30)

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## 8 Appendix

# QUESTIONNAIRE – urban and rural areas

### *INTRODUCTION*

Short presentation about us  
Purpose of the study

### *LIFE SITUATION*

Please describe yourself;

- name
- age
- occupation
- family
- house
- normal day/everyday life
- activities
- holidays and weekends
- healthcare
- what kind of small business
- responsibilities within the household/outside
  
- *THE VILLAGE*

What services are available in your village?

Which services do you normal use in your everyday life?

What kinds of transportation are used in the village?

How often and when do you use them?

Why do you need to use them? Alternatives?

What source of information do you use (within the village/outside the village)?

How often do you contact others in the village/outside?

How is the mobile coverage in you village?

What would you have done if the village did not have mobile phone coverage?

### *"USE FOR YOU" – BUSINESS*

When did you buy your mobile phone?

What does a mobile phone mean to you?

In what way does it have a value?

What do you use it for? How often?

Who in your family/business use the mobile phone?

- *BEFORE*

How did your business work before you bought the mobile phone?  
How did you communicate before? Contact with supplier/customer?  
Did you wish that you had access to a mobile phone?  
If yes, in what way did you think it would make a difference?

- *AFTER*

In what way has it changed your business?  
What are the advantages?  
Are there any disadvantages?  
What is the biggest difference?  
Please give an example of how it has made things better/worse?  
In what way has the mobile phone affected your business?  
Change in income, how much? Increasing/decreasing?  
Money, spend more or save?  
Change in number of customers?  
Change in number of suppliers?  
Effect on time, more/less?  
Effect on travel, more/less?  
Which resources are important to you?  
Effect on access to resources?

## ***COMMUNICATION***

- *COST*

How much money do you spend on communication per day/month?  
How much of your income do you spend on communication (mobile phone)?  
How much does a (mobile) phone call cost?  
Cost of messages?  
Cost of travelling? (Taxi or bus)  
How did you communicate before you bought your mobile phone?  
Is it expensive/cheap compared to other ways of communication?

When did you buy your mobile phone? (For how long have you had it?)  
How did you get this? Where did you buy it?  
If you have saved money for being able to buy the mobile phone, for how long?  
Why did you buy it?  
What is it worth to you? Why?

- *PATTERN*

How often do you use your mobile phone?  
Where do you keep it when it's not used?  
How do you charge it?  
Who, how many in your family/business use the mobile phone?

In what way have your life changed since you got your mobile phone?  
Do any of your friends, relatives have a mobile phone? Ho many and why?

- *COVERAGE*

How is the coverage in you village?  
Is the coverage a problem in using the mobile phone?  
What would be/get better if you had a bigger/better range of mobile coverage?

- *OTHER APPLICATIONS*

Are you missing some kind of application in your mobile phone?  
What do you wish you could do with your mobile phone? Private and related to business?  
Can you give an example of an application that you miss in your phone?  
Can you give an example of an application that you would like to have in your mobile phone?

- *INTERNET*

Have you used a computer? When and why?  
What do you think of computers? Advantages/disadvantages?  
Would you like to have access to a computer? Why or why not?  
What would you use the computer for?  
Can you give an example of application that you would like to have in the mobile phones?

Have you heard about Internet?  
Are you interested in using Internet? Why? Why not?

- *MONEY TRANSACTION*

How do you send/transfer money (in family/in business)?  
Can you send or receive money to/from your village?  
Do you need to borrow money, why and how?  
How can a mobile phone help you with this?

## ***FUTURE***

- *POSSIBILITIES*

What do you wish for the future?  
What do you dream of?  
What would you like to be able to do, if possible?  
In what way would you like to develop your business?

Thoughts about your future...

- *INTERESTS*

What is important in your life?  
What do you find difficult?