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>

Introduction

Rural India is a difficult location for business. Transport, power and information infrastructure are inadequate. Business practices are underdeveloped. Lack of access to modern resources has resulted in an under-trained workforce. Rural society is structured around subsistence incomes. These and a litany of other constraints dissuade most companies from taking on the challenge of rural commerce. Yet, such an engagement can result in a “win-win” agenda. It can bridge rural isolation and the resulting disparity of incomes and opportunity for the poor while creating a new profit opportunity for firms willing to tackle the inefficiencies. The question is how modern resources and methods can be practically deployed commercially to overcome rural constraints. If done well, what are the social impacts of such an engagement?

THE INNOVATION. . .

The e-Choupals, information centers linked to the Internet, represent an approach to seamlessly connect subsistence farmers with large firms and global markets. The network of these, each operated by a local farmer in each community called the sanchalak, allow for a “virtual integration of the supply chain” and significant efficiencies in the traditional system. The farmers benefit by realizing better prices for their crops and a sense of dignity and confidence in being connected with the rest of the world.

ITC’s e-Choupal initiative began by deploying technology to reengineer procurement of soya from rural India. The effort holds valuable lessons in rural engagement and demonstrates the magnitude of the opportunity for private sector firms. It also illustrates the social impact of bringing global resources and farm and business practices to the Indian farmer.

This report was written by Kuttayan Annamalai and Sachin Rao under the supervision of Professor C.K. Prahalad. The report is intended to be a catalyst for discussion and is not intended to illustrate effective or ineffective strategies.

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THE PARADOX OF INDIAN AGRICULTURE

Agriculture is economically, nutritionally and socially vital to Indian society. It contributes 23% of the GDP, feeds a billion people and employs 66% of the workforce. A fuller understanding of the sector requires a review of the paradoxes that beset it.

Economically Vital Yet Archaically Regulated

Agriculture's share of GDP has shrunk steadily but at 23% it remains a critical component of the economy. The forecast for the upcoming monsoon is still considered a predictor of economic performance in India.

GDP by Sector¹

MACROECONOMIC INDICATORS	1993	1998	1999	2000	2001	2002	2007
Nominal GDP (US\$)	273.93	414.32	444.35	450.68	481.42	500.99	695.78
Agriculture (% of GDP)	28.16	25.42	23.85	22.74	22.76	23.15	19.60
Industry (% of GDP)	23.88	24.33	23.53	24.23	23.59	26.35	30.60
Services (% of GDP)	38.90	42.05	43.59	44.16	44.85	50.50	49.90

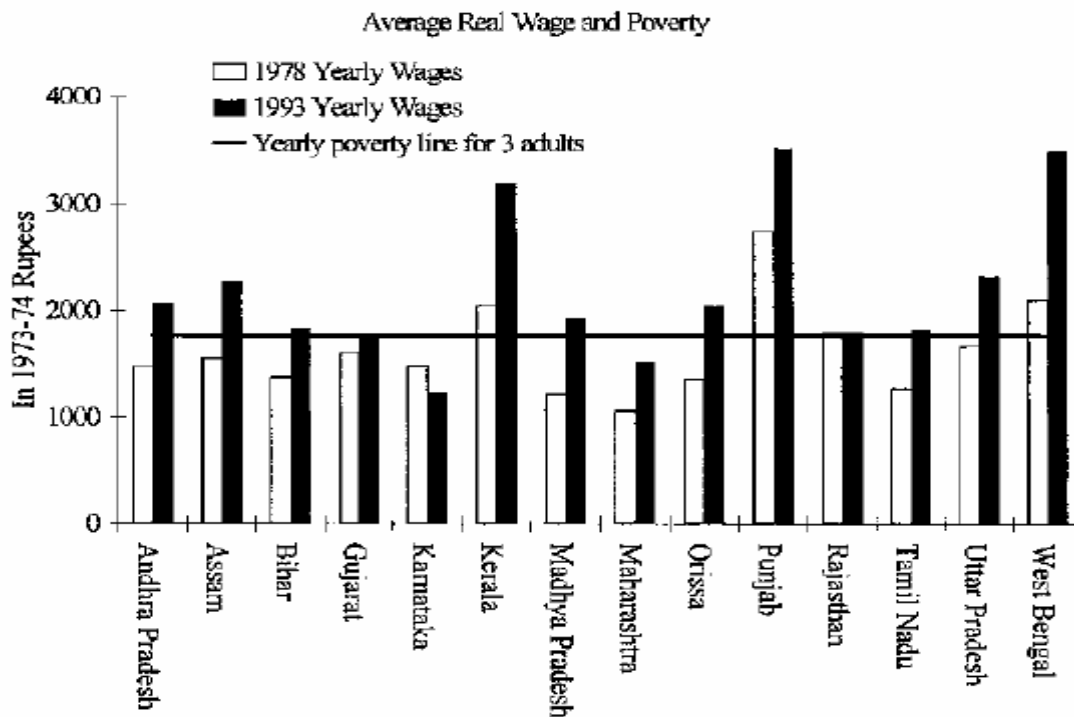
Until recently, agriculture was heavily regulated. Legislation, remnant of government intervention in days of production shortfalls, controlled land ownership, input pricing and all aspects of product marketing. Produce could only be sold in government-recognized locations to authorized agents. Processing capacities, private storage, forward trading and transport were restricted. The result is corrupt, ineffectual and archaic systems. At one end, routine starvation exists alongside granaries overflowing with food-stocks of over 60M metric tons. At the other end, the unprofessional business environment makes the sector uninviting to most modern companies.

High Production Yet Impoverished Producers

Non-optimal farming practices and vicarious weather patterns left post-Independence India with an under-performing agricultural sector and acute food shortages. The goal of self-sufficiency in food brought agriculture into the mainstream of political and social consciousness. The ensuing 'green revolution' has made great strides in agricultural productivity in India. Starting post-Independence (1947) as a food-importer, the 'Green Revolution' in the 1960s made India a net exporter of most food grains by the mid-1970s. The Indian farmer did not progress accordingly. After independence, the government parceled and redistributed larger land holdings to correct historical inequities and entrust ownership to end cultivators, thus encouraging productivity. In subsequent years, ownership ceilings were legislated and inherited land was partitioned into smaller lots. The combined result is that the Indian farm is a very

small-scale operation measured in fractions of acres. The obvious result is that the typical Indian farmer is very poor.

As can be seen from the below chart,² in 1993, agricultural laborers in most states make barely enough to keep a three-person family above the poverty line.



23% of GDP Yet 66% of the Employment

The economy is growing far more rapidly in non-agricultural areas. The recent spurt in growth in the Indian GDP has been led by the service sector. This is where the new and better jobs are. Most of the agrarian workforce is based in rural India. There is a vast disparity in access to education and opportunities between urban and rural India. This means the farmer rarely knows of non-agricultural opportunities. A subsistence existence means he does not have the resources to pursue opportunities even when he knows about them. Denying two-thirds of India a place in the emerging economy will result in inequitable and therefore unsustainable growth, even as agriculture runs out of viable employment for rural India.

Solution Essentials

Any remedy for the asymmetry of opportunity must provide rural India both the knowledge of opportunities and the ability to pursue them. Sustainable commercial engagement in rural India is a channel that can serve as a foundation for the greater social agenda. Such an interchange can bring global resources, practices and opportunities to the Indian villages while better compensating the farmer and helping alleviate him from his subsistent myopia. Pioneering engagements also can create the commercial environment where many more enterprises enter and operate.

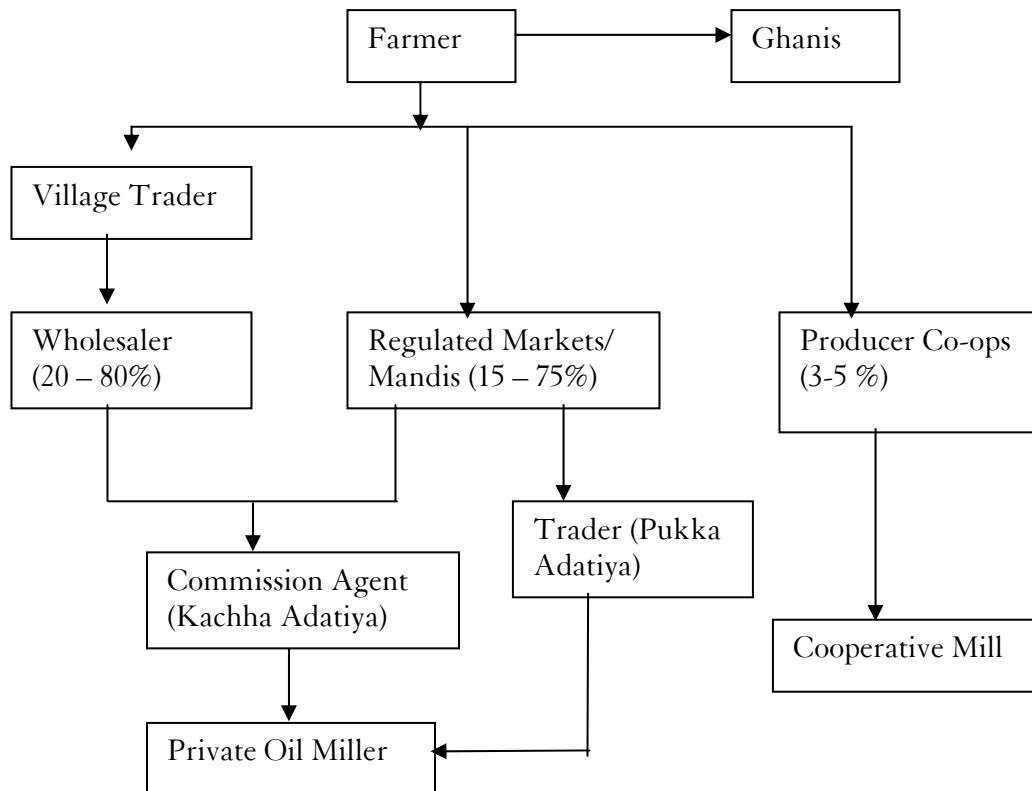
In this context, we study an experiment in change in rural areas of central India.

The Oilseed Complex³

Edible oil from vegetarian sources is a fundamental part of the Indian diet. 'Oilseed complex' is the term used to refer to the class of crops from which edible oils are extracted. The complex is further classified into traditional (groundnut, rapeseed-mustard seed, safflower) and non-traditional (e.g., sunflower, soya, cottonseed). The process of oil-extraction varies by oilseed. At a high level, the process consists of two stages. The crushing stage involves the mechanical pressing of seeds to extract oils leaving behind cakes with varying residual oil content depending upon the efficiency of extraction. The solvent extraction phase consists of the extraction of the remaining oil content using an organic solvent. The residue, called deoiled cake (DOC) is sold as animal feed. Because of its low oil content, soya-oil extraction is done almost exclusively by the solvent-extraction process. The extraction is carried out by the crushing industry. The oil is sold locally in India, and the deoiled-cake is exported.

Oilseed production was stagnating in the 1970s with demand outstripping supply so that by 1979-80, imports accounted for 32% of the domestic supply. Heavy reliance on imports was considered undesirable from a food security and price management perspective. Following the 'green revolution' in wheat and rice, the Indian government turned regulatory attention in the early 1980s to oilseeds. The protectionism brought substantial gains on the production side by doubling oilseed output to 21M metric tons in 1993-94. Equally vital from a food security perspective, variability in oilseed production had been reduced, thereby increasing reliability of supply. Forty percent of the increased output was attributable to the introduction of new crops (soya and sunflower). Soya therefore represents an important innovation in the Indian oilseed complex that is resulting in better utilization of scarce resources and greater cropping intensity. Soya was exempted from the Small Scale Industries Act in its crushing sector to allow for processing in large scale and modern facilities.

Marketing Prior to the e-Choupal



It is essential to note that the system described above varies in details between states, crops and even districts. Also, the percentage of produce going through the channel depends on the State and crop in question. The only norm is that 90% of the produce goes through traders and mandis (government mandated marketplaces).

There are three commercial channels for the products: mandis, traders for eventual resale to crushers and producer-run cooperative societies for crushing in cooperative mills. The farmers traditionally keep a small amount for their personal consumption and get the produce processed in a small-scale job-shop crushing-plant called a ‘Ghani’.

The Mandi

The mandi is central to the functioning of the marketing channel. *The Agricultural Products Marketing Act* legislated the creation of mandis to enable a more equitable distribution of the gains from agriculture among the producer, consumer and traders. The mandi acts as a delivery point where farmers bring produce for sale to traders. The area served by a mandi varies by state. In the soya growing areas of Madhya Pradesh, the average area served by a mandi is around 700 sq. km. A large portion of traditional

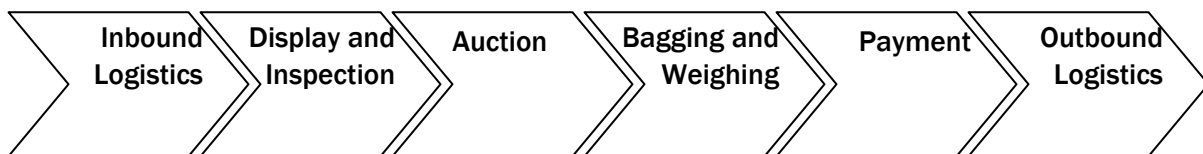
grains are used by the farmer or bartered for different crops. Soya, however, is not native to the Indian palate. Its major outlet is the crushing plant. Thus, nearly the entire crop must be marketed. This makes the mandi a vital part of the soya chain.

The Commission Agents

Mandi trading is conducted by commission agents called adatiyas (brokers who buy and sell produce). They are of two types: kachha adatiyas and pukka adatiyas. Kachha adatiyas are pure purchasing agents and buy only on behalf of others. Pukka adatiyas on the other hand finance the trade as representatives of distant buyers and sometimes even procure on their own account. All the adatiyas belong to the Agarwal and Jain community, which manages grain trade across the entire country, an amazing fact considering the vast cultural and social diversity across the nation. It challenges the assertion that rural India is culturally unfathomable.

An adatiya is as distinct from most rural farmer as any executive. The lack of professional competition combined with the communal stranglehold on rural trading has made commission agents extremely wealthy. The commission agent we spoke with belonged to a medium-size mandi. He talked casually of assets and incomes in crores of rupees (millions of dollars). This goes counter to the notion that there is no money in rural India. The adatiyas established the soya industry and grew it on the basis of familial and community trust, not professional norms. Buying and selling would be based upon oral agreements, mutual understanding and community norms. Their network within this industry and their financial might make them a formidable presence.

Mandi Operations



Inbound Logistics

Based upon local information within the village, the farmer will decide which of the nearby mandis to sell in. The crop is taken to mandis in trolleys drawn by animals or tractors. Very often, to avoid peak-season crowds, the farmer will go the previous night to the mandi. Peak-season mandi volume can be around 2000 – 5000 Mts/day.

Sources of Inefficiency

- The farmer does not have the resources to analyze or exploit price trends. The timing of the sale is therefore not optimal.
- The selling decision is not always geographically efficient. The actual price of his produce will only be determined at the auction. The selection of mandi is based upon often dated and unreliable information as opposed to a quoted price. By the time the farmer gets his price, it is too late to change his selection of mandis.
- The overnight stay costs to the farmer.

Display and Inspection

When the mandi opens in the morning, farmers bring their trolleys to display areas within the mandi. The inspection by buyers is by sight. There is no formal method of grading the produce, and the only instrument used is the moisture meter. Formal testing for oil content is not performed and global safety checks are not performed in the mandi.

Source of Inefficiency

- Most crops are displayed in the open. Very few covered areas are available for lease by the farmers. As a result, displayed crops may be subject to the elements.
- Sight inspection is unscientific and arbitrary to say the least. The evaluation tends to favor the informed and wealthy buyer, not the poor farmer. Crops are judged on moisture content and presence of foreign matter such as stones or husk.
- The lack of scientific grading does not reward the farmer for better produce generated by investment in better seeds or agricultural practices. Ground conversations indicate that wide differences in quality are rewarded; however, subtle and less detectable differences are not recognized. The farmer therefore does not have an incentive for improving quality. These differences in quality of inputs do make an impact to processors of soya.

Auction

Once potential buyers have inspected the produce, a mandi employee conducts the auction where commission agents place bids. The auctions we observed were open oral auctions with incremental bidding. The auction offers a stark contrast in perspectives. On one hand, the farmer sees the auction as the assessment of six months of investment and labor. The auction represents the payday for the farmer—may be one or two per year. His eyes reveal the emotion of the 30 seconds in which price for his lot is judged. On the other hand is the commission agent whose margin is ensured regardless of the price. He has many more lots (trolleys of produce) yet to buy and can casually mishandle a handful of grain and comment derogatorily about its quality and laugh while he does so.

Sources of Inefficiency

- By all accounts, the auction is efficient with no overt collusion between the buyers. Yet, the farmers we spoke to had a largely negative opinion of the auction for non-financial reasons. They felt a systematic loss of dignity in the auctioning process. The very fact that their lifework is auctioned off is seen as an insult. They also felt belittled by having to stand by and watch agents raise bids in increments of 25 or 50 paise per quintal (we saw 'chana' (chick peas) being auctioned in increments of Rs.1, but this can vary between crops). The final indignity is that the farmer cannot refuse the sale at the auctioned price.
- The agents clearly belonged to a close-knit community that is socially and economically distinct from the farmers'. Although they may not collude in pricing, they do collude in establishing the practices of the trade. These practices uniformly exploit the farmer's situation. Not surprisingly, the farmers we spoke to did not view the commission agents charitably and felt that all commission agents were the same.

Bagging and Weighing

Once the price per quintal has been established by the auction, the farmer moves the trolley to the weighing area run by the buying commission agent. In most cases, the weighing area is in the mandi complex. In some cases, especially if the mandi is small, the weighing area may be at the commission agent's home near the mandi. Here, the produce is transferred from the trolley into individual sacks. The sacks are then weighed, one at a time, on a manual scale.

Sources of Inefficiency

- The farmer bears the cost of bagging (Rs.3/ bag at Mandideep mandi).
- Mandi laborers do the bagging and weighing. A traditional compensation of these laborers is the sale of spilled produce. They will therefore ensure that some portion of the produce is spilled in the weighing area. They gather and sell this grain at the end of the day. Estimates of the amount vary, but farmers at Peepalrava suggested that it was 1-3 kgs/ quintal. The assessment at Khasrod was a minimum of 2 kgs/quintal.(...%)
- The weighing, managed by workers called tulavatis (weighers) is another source of discontent. Farmers feel tulavatis consistently under-weigh their produce by applying practiced and timely nudges to the scale. Historical intimidation and long queues waiting behind them dissuades the farmers from protesting (according to a farmer from Khasrod, any complaints were met by a retort that this was not gold being weighed on the scale). One commission agent we spoke to readily acknowledged the systematic under-weighing that every agent did. He however felt the agent community as a whole was being discredited by the excessive greed of a few. He himself would be content with a few hundred grams a quintal.

Payment

After weighing, the full value of grain is calculated. The farmer goes to the agent's office to collect a cash payment. The agent pays a mandi fee (1% of purchase value in Madhya Pradesh) to the mandi.

Sources of Inefficiencies

- The exploitative tone of interaction also runs through the payment process. The farmer is never paid in full at once. The payments are stretched over time. This must be understood in the context that the farmer often travels many hours to get to a mandi. Repeating the trip costs him time and money. By this time, the farmer is also at the agent's mercy since the grain has already been delivered.
- Apart from the multiple trips to the agent's office, the farmer gets no interest for the delayed payment and bears the cost of the time and travel. Crushers pay agents usurious rates for the privilege of delayed payment as well.

Outbound Logistics

The bagged produce is then loaded on to the end buyer's trucks and transported.

Source of Inefficiency

- Along with the legal loss of value to taxes, there is an unofficial trade estimate of 1.5% to 2% of the product value being lost in tax evasion. Not all the value lost to tax evasion is illegal. Some of it is incurred when processors move plants to poorly developed zones for government-sponsored tax incentives.
- Multiple points to handling in the supply chain require the seeds to be bagged, a source of inefficiency in the unloading operation at the processing plant. Bulk (unbagged) seeds can be unloaded four to five times faster than bagged seeds.

Other Sources of Market Inefficiency and their Impact;

- Limited storage levels mean traders do not have the luxury of storing and managing different qualities and grades of produce. Different grades are mixed.
- Unreliable or unavailable national pricing information – Prices are set dynamically in mandis. Publication and statistical analysis is only done for prices at a few major centers. For most part, there is no information available of local pricing levels and trends. This means pricing is localized and lack of information reduces arbitrage opportunity and leads to market inefficiency.
- Arbitrage restrictions arising from forward trading restrictions – The 11-day forward trading restriction implies that for an arbitrage opportunity to be consummated, the product must actually be sold, shipped and delivered within this window. Thus, arbitrage is limited to a small geographic proximity of the original mandi.

ITC – IBD AND THE SOYA BUSINESS

The ITC group is one of India's foremost private sector companies with a market capitalization of around \$4 billion and revenues of \$2 billion. ITC has a diversified presence in tobacco, hotels, paperboards, specialty papers, packaging, agri-business, branded apparel, packaged foods and other FMCG products. Spurred by India's need to generate foreign exchange, ITC's International Business Division (IBD) was created in 1990 as an agri-trading company aiming to "offer the world the best of India's produce." Today, IBD is a \$150M company that trades in commodities such as feed ingredients, food-grains, coffee, black pepper, edible nuts, marine products and processed fruits.

When ITC entered this industry, produce was bought and crushed by small crushers who were also traders. ITC began with buying and exporting DOC. In a year, it realized it needed greater presence in the chain to better understand product dynamics. ITC then began renting processing plant time and buying soya from mandis. ITC's procurement has grown rapidly since, and its initiative has seen the introduction of professional practices, transparency and formal contractual relationships between agents and buyers. ITC's reputation (as corroborated by an agent in Sonkach) is that of being trustworthy, true to its word, prompt with payments and interested only in high-quality produce.

A unique set of tactical, strategic and social imperatives drove ITC to conceive the e-Choupals and reengineer the entire value chain by deploying them.

The Tactical Imperative

The mandi was not an optimal procurement channel. Prima facie, agent commissions would seem to be a source of inefficiency, but this sum is comparable to the salary paid to an employee for rendering similar services. The real sources of inefficiency are the price and quality distortions due to the agents' stranglehold on the market and ITC's distance from the farmer. Some examples of this are:

- **Distance from Farmer** – ITC had no direct interaction with the farmer. This gap created a range of supply-chain issues. ITC's knowledge of its crops, supplier and therefore supply risks was limited. ITC's ability to improve the quality and quantity of its supply by bringing modern agricultural practices to the farmers was also limited.
- **Daily Price Inflation** – The agent purchased grain through the day on ITC's behalf. Some produce of good quality would command a premium. Some of poor quality would sell at a discount. The agent purchased a range of qualities through the day at a range of prices. He mixed them at the end of the day and charged ITC a single price near the higher end of the spectrum.

- **Seasonal Price Inflation** – A corollary effect was that high-quality produce was used to make an entire lot of lower-quality produce acceptable. Agents therefore paid an inflated premium for high-quality produce. This drove up the high mandi price for the day. Very few farmers actually got this price but this price acted as the benchmark for the next day's pricing, thereby inflating the mandi price over a length of time. This created a distortion that inflated the overall seasonal procurement prices for ITC.
- **Capture of Intra-day Price Shifts** – Mandi prices are fluid and vary within the day. ITC provided the agent a price range for the day to buy within. If the agent's average buy price within the day was lower than the ITC price, the agent sold the grain to ITC at the ITC price and pocketed the difference. If the average buy price was higher than the ITC price, the agent would still buy the produce, but tell ITC that since its price was not high enough, no grain could be bought. He will store the grain and sell it to ITC the next day when ITC raised its price to make up for the previous day's procurement shortfall. Commission agents therefore captured the entire benefit of intra-day price shifts.

The agent never lost. Officially the agent's commission was 1% of ITC's price. In reality, ITC estimated the agent's operating margin is around 2.5% to 3%. The other insight is that the auction process is transparent in name only. The market is created, manipulated and managed by the agents. The e-Choupal is an ideal vehicle to communicate directly with the farmer and thereby bypass the inefficiencies arising out of the agents' intermediation.

The Strategic Imperative

While the inefficiency in the supply channel was causing ITC to look inward, a changing landscape was forcing it to look outward. The agricultural commodity trading business was small compared to international players. By 1996 the opening up of the Indian market had brought in international competition. These established, large companies had better margin-to-risk ratios because of wider options for risk management and arbitrage. To replicate their operating model would require a massive expansion of horizontal and vertical presence. The investments for this would be better spent in other sectors of India's liberalizing economy. After exploring sale, merger and closure in 1998, ITC decided to retain the business. The chairman of ITC challenged IBD to use IT to change the game and create a competitive business that did not need a massive asset base. ITC needed to address the following advantages enjoyed its competitors;

- Horizontal spread – Presence in dozens of countries allows customer proximity and a diversified supply base.
- Vertical presence – Integration allows companies to extract value-chain efficiencies.

- Old and Family Owned – An intimately managed company has deep knowledge and trading methods developed over the years that enable profitability in commodity with otherwise thin margins.
- Risk management – Operating in countries where financial and logistical institutions to manage risk (to allow futures trading, etc.) lowers the cost of bearing risk.

ITC devised a strategy to systematically deploy IT to change the game in each area. The horizontal integration deficiency was addressed through CRM-based solutions that were used to identify and provide for the non-standard needs of customers in an industry where the basic services had been standardized. Customized IT application and realignment of business goals and processes were deployed to manage risk and build the organization's knowledge base.

The e-Choupal network was conceived to achieve 'virtual vertical integration' by extending ITC's engagement all the way to the farmer in the field.

The Social Imperative

The social agenda is an integral part of ITC's philosophy. ITC is widely recognized as dedicated to the cause of nation building. Chairman Y. C. Deveshwar noted, "ITC believes its aspiration to create enduring value for the nation provides the force to sustain growing shareholder value."

This vibrant view of social conscience allowed ITC to recognize the unique opportunity of blending shareholder value creation with social development. The social impact of the e-Choupals as envisioned by ITC ranges from the short-term provision of Internet access to the long-term development of rural India as a competitive supplier (and buyer) of a range of goods and services to the global economy. The sustainability of the engagement comes from the commitment that neither the corporate nor social agendas will be subordinated in favor of the other.

e-Choupal: Vision and Planning

Implementing and managing e-Choupals is a significant departure from commodities trading practices in India. Trading is not capital intensive since processing is outsourced and commodities are traded for margins that come through arbitrage of knowledge, time or location. On the other hand, the e-Choupal model required significant capital outlays. Getting concurrence from the ITC Board for such a venture as well as the diligent management of its progress required clarity of vision, understanding of revenue streams and operations. Through its tobacco business, ITC has dealt for decades with Indian agriculture, from research to distribution. ITC's translation of its strategic, tactical and social imperatives into a business model demonstrates a deep understanding of both agrarian systems and modern management methods. Some of the guiding management principles were:

Reengineer As Opposed to Reconstruct

The conventional view of transforming established business systems begins with the failure of the current system and means to change it. ITC looked at what was good with the current system and therefore what they could build on. ITC not only kept efficient providers from the existing system but also created roles for some inefficient providers from the previous system. This philosophy has two benefits. First, it avoids reinventing the wheel in areas where ITC would not be able to add value through its presence. Second, it co-opts members of the rural landscape thereby making their expertise available to ITC while foreclosing the same from ITC's competition. A good example of this in action is the role created for the commission agents discussed later.

Address the Whole Not Just a Part

The farmer's universe consists of many activities ranging from procuring inputs to selling produce. Today the village trader services the spectrum of the farmer's needs. He is a centralized provider of cash, seeds, fertilizers, pesticides and marketing. In doing so, the trader enjoys two competitive benefits. First, his intimate knowledge of the farmer and village dynamics allow him to accurately assess and manage risk. Second, he reduces overall transaction costs by aggregating services.

The linked transactions reduce the farmer's overall cost in the short term, but create a cycle of exploitive dependency in the long term. Rural development efforts thus far have focused only on individual pieces rather than entire needs. Cooperatives have tried to provide agricultural inputs, rural banks have tried to provide credit and mandis have tried to create a better marketing channel. These efforts cannot compete against the trader's bundled offer. Functioning as a viable procurement alternative therefore requires one to eventually address the gamut of needs, not just marketing.

An IT-Driven Solution

From the conception of the model, an IT centric solution was recognized as fundamental to optimizing effectiveness, scalability and cost. IT is 20% of all the effort of the business model, but it is deemed the most crucial 20%. The two goals envisioned for IT were:

- Delivery of real-time information independent of the transaction. In the mandi system, delivery, pricing and sale happen synchronously, thus binding the farmer to an agent. The PC was seen as a medium of delivering ITC and other rates prior to the trip to the mandi thus allowing the farmer an empowered choice.
- Facilitate collaboration between the many parties required to fulfill the spectrum of farmer needs. This goal follows from the need to address the whole, not just the part.

It is a tribute to ITC's understanding of rural value systems that it did not hesitate in installing expensive IT infrastructure in places where most people would hesitate to. It is a tribute to rural value systems that not a single case of theft, misappropriation or misuse has been reported among the almost 2000 e-Choupals.

Clarity of Payback Streams

Profitable reengineering requires the unambiguous understanding of value provided, the circumstances in which they are applicable and the revenues they are capable of generating. Three sources of payback were expected:

- **Crop Specific Intervention** – ITC recognized that agrarian systems vary by crop. This means the sources of inefficiency in the supply chain, the correction required from the e-Choupal and the magnitude and timing of the resulting efficiencies will differ by crop. For example, the systems and consequently the e-Choupal models and payback streams for coffee and shrimp are very different from that of soya. ITC's goals for the soya intervention reflected this nuanced analysis, and the project was targeted with recovering the entire cost of infrastructure from procurement savings. This is in contrast with the coffee and shrimp efforts where the source of e-Choupal value is such that the investment recovery horizon is much longer.
- **Low-Cost Last Mile** – The same system of physical and information exchange that brings produce from the village can be used to transfer goods to the villages. Since infrastructure has already been paid for by procurement, it is available at marginal cost for distribution. This tied in nicely with ITC's larger goal of transforming e-Choupal network into a distribution super-highway. ITC's current channels reach areas with populations of 5,000 and above. The e-Choupals allow penetration into areas with populations less than this. We saw products such as herbicides, seeds, fertilizers, insurance policies and soil testing services being sold through e-Choupal.
- **Intelligent First Mile** – Once the notion of consumerism and service has been established in the minds of the village farmer, their creativity and intimate knowledge of rural needs can be used to conceive the next product to be sold in villages. Thus the farmers are transformed from being consumers to participants in the process of product design. This helps broaden the ITC offering and further bolster payback.

Modularity of Investments in Size and Scope

ITC managed its investments modularly along the scope and scale axes in what it terms 'rollout-fixit-scale up' and 'pilot-critical mass-saturation'. This incremental control of investment levels along with the clarity of revenue streams and the social import were critical in getting board approval for the initiative.

Risk Assessment and Mitigation

ITC identified the following risks as it worked out the business model:

- Radical shifts in computing access will break community-based business models
- The sanchalaks are ITC's partners in the community. As their power and numbers increase, there is a threat of their unionizing and extracting rents.
- The scope of the operation, the diversity of activities required of every operative and the speed of expansion create real threats to the management of execution.

Managing Bureaucracy

When the e-Choupals were conceived, they faced a fundamental regulatory obstacle. The Agricultural Produce Marketing Act, under whose aegis mandis were established, prohibits procurements outside the mandi. ITC took the government through spirit of the Acts as opposed to the letter and convinced them that e-Choupal procurement was in line with the goals of the Act. Since ITC would not be using the mandi infrastructure for its procurement and they would have to incur their own costs on the e-Choupal infrastructure, the government offered to waive the mandi tax on the produce procured through the e-Choupal. ITC recognized the tax was a major source of revenue for the government and local mandis. Also, as ITC's competition was also subject to it, the tax itself was not making ITC uncompetitive. ITC, therefore, chose to continue paying the tax rather than risking relationships with the government and the mandi.

e-Choupal Operations: Participants and Processes

The model is centered on a network of 'e-Choupals', which are information centers armed with a computer connected to the Internet. The name is derived from the Hindi word 'choupal' meaning a traditional village gathering place. The e-Choupals were meant to act as an e-commerce hub as well as a social gathering place. A local farmer called the 'sanchalak' (coordinator) runs the village e-Choupal. The commission agent has been incorporated into this process as the provider of logistical support. He is known as the 'samyojak' (collaborator).

The e-Choupal

The e-Choupal, which physically consists only of a computer with an Internet connection, is established in a village. It resides in the local sanchalak's living room. In keeping with the philosophy of modular increments based upon proven results, ITC experimented with a variety of village conditions before developing a checklist for attributes it looks for in the selected village. The goal that ITC is working toward is to saturate its operating areas so that a farmer has to travel no more than 5kms to get to an e-

Choupal. ITC expects each e-Choupal to serve about five to seven villages in this 5km radius. Today e-Choupal services reach out to more than a million farmers in nearly 11,000 villages through 2,000 kiosks across four states (Madhya Pradesh, Karnataka, Andhra Pradesh and Uttar Pradesh). Of the e-Choupals we visited in Madhya Pradesh, the one in Khasrod services about 500-700 farmers in 10 villages and another one in Dahod services 5,000 farmers in 10 villages. The average seems to be around 1,000 farmers per e-Choupal.

e-Choupal's were initially rolled out as just gathering spots where agrarian information would be made available to farmers while a familiarity and trust was developed for the ITC brand. The fear at this time was that the village was not ready to accept IT.

Within three months, a farmer asked the question as to how long ITC expected to do this in person and said he had heard of something called the computer that could be used to achieve this purpose. This triggered the rollout of IT and the scale up of e-Choupals.

The Sanchalak

ITC manages the geographical and cultural breadth of its network by channeling communication through a local farmer called the sanchalak. Recruiting a farmer from the community served several purposes:

- For generations, the Indian farmer has been betrayed by institutions, individuals and often the weather. Trust is the most valuable commodity in rural India. No transaction will happen without trust, regardless of the strength of the contract. The sanchalak is selected to provide this vital ingredient to ITC's message.
- ITC did not have to invest in building and securing a physical infrastructure such as a kiosk for housing the computer.
- The sanchalak is trained in computer operation and can act as a familiar and therefore approachable human interface for the often illiterate farmer and other villagers.
- ITC expects to leverage the power of the small-scale entrepreneur.

The sanchalak receives a commission for every transaction processed through the e-Choupal. Working as a sanchalak also boosts his social status. This is a very important aspect of rural Indian life.

Maintaining Village Trust

ITC insists that at no time should the sanchalaks give up farming, for this would compromise the trust the sanchalak commands. The fact the sanchalak works on commission could undermine his credibility. ITC mitigates this by projecting the role as a public office as opposed to a profitable venture. This is one reason he holds a title (sanchalak). This image is reinforced by a public oath-taking ceremony where in the presence of a gathering of the local villagers the sanchalak takes an oath to serve the farming community through the e-Choupal.

Picking and Training Sanchalaks

Although ITC was an agricultural company, its reach ended at the mandi. It did not extend into the villages beyond. ITC used its relationships with the commission agents to help identify farmers. Villagers then were contacted to determine the ground reaction to the nominee. Care was taken to ensure the polled villagers were representative of the cross-section of the farmers. Like the identification of villages, initial decisions were a lot of trial and error. In the initial trial, six individuals with very different characteristics of age, wealth, status, education levels and village sizes were selected. Performance was measured; hypotheses regarding critical attributes were established and tested on the next wave of sanchalaks. ITC's field operatives readily acknowledged that successful sanchalaks demonstrate a wide variety of demographic attributes and a large part of the selection is subjective. A few attributes have emerged as widely prevalent among successful sanchalaks:

- Must make his living from farming.
- Progressive and willing to try something new.
- Ambitious and have aspirations of earning additional income through the e-Choupal.
- Of median wealth and status. If he is too poor, he will not command respect and therefore not be heeded; if he is too rich, he would not be approachable.
- Must be able to read and write.
- Must be part of an extended family big enough to find among them time enough to service the e-Choupal. (In Dahod, the e-Choupal is run by the son of the sanchalak.)

The sanchalak undergoes a training program at the nearest ITC plant. He is trained on basic computer usage and the functions within the e-Choupal Web site. He is trained on basic business skills needed to function as a sanchalak. He is also trained on quality inspection and pricing. For the sale of products through e-Choupal, the sanchalak receives product training directly from the manufacturer with ITC involving itself only in product design and facilitation. In reality, the sanchalak gets most of his training on the job. This makes selecting sanchalaks with a natural drive all the more important.

Performance and Motivation

The sanchalaks we spoke to indicated three equally weighted motivations:

- They saw it as a means to help society.
- They saw it as a profitable business.
- They saw it as a means of getting access to a functional computer (as opposed to just a computer, which they would have trouble in making functional as discussed later).

Selecting the sanchalak is not the end of the story. Most do not have retailing experience and some may be satisfied only with the prestige of association. One motivation technique is a ceremony where sanchalaks are given their annual commission checks with public announcements of earnings and stories of what sanchalaks have done with past commissions. This demonstrates the income potential and spurs non-performers to work. The zeal to perform sometimes leads to territorial disputes, but ITC does not interfere in their resolution because it encourages sanchalaks to better service their customer-base.

Sustaining Commercial Volume

'Virtual vertical integration' can only work if there is a continuous flow of information between the e-Choupals and ITC. Because of the numbers and spread of the e-Choupals, this communication must be initiated by the sanchalaks. If their motivation to communicate with ITC diminishes, the channel will still function for procurement, but lack the vitality to manage supply risk, distribution or product design. Maintaining continuous commercial flow keeps the sanchalak motivated to spend time and money in calling the ITC representative to ask about new products, convey village demand and provide local updates. An example of the power of local information was seen early in e-Choupal implementation. A competitor tried to divert produce coming to the ITC factories by stationing motor-cycle riding representatives on the roads leading up to the plant. This person would stop farmers, offer them a premium over the ITC rate to divert their trolleys to the competitor's plants. Information about this came to ITC from alert sanchalaks, and ITC was able to take necessary measures.

ITC maintains commercial volumes and therefore commission checks flowing through e-Choupals by intelligently sequencing procurement and sales year-round. Purchases and sales have been arranged so that kharif (cropping season coinciding with India's monsoon, July – October) procurement, rabi (winter cropping season in irrigated areas) inputs, rabi procurement and kharif inputs sequentially maintain a steady stream of revenue for sanchalaks.

The Samyojak

The commission agents earned profit from two sources. The first was through provision of value-added logistical services that substituted for the lack of rural infrastructure. The second was by blocking information flow and market signals on the trading transactions. Complete disintermediation would result in the loss of a legitimate and essential service in the rural context. The goal was selective disintermediation so that agents would participate, but only as providers of essential services, not as principals in a trading transaction. In this incarnation, the agent was christened 'samyojak'.

The samyojak's collaboration began right from the selection of the first sanchalaks. Because of their long association with the business, samyojaks knew village dynamics. They knew who grew soya, what kind of families they had, what their financial situation was and who was seen as 'acceptable' in the villages. There is no other source with such information on rural India. As part of the ongoing operations, ITC is strongly committed to involving samyojaks in every element of their operation and allowing them revenue streams through providing services such as management of cash, bagging and labor in remote ITC procurement hubs, handling of mandi paperwork for ITC procurement, as

licensed principals for retail transaction of the e-Choupal and as licensed suppliers of fertilizers sold through the e-Choupals.

Why Did the Samyojaks Help?

ITC hid nothing from the samyojaks. They were transparent about the goals and the future of the e-Choupals. The samyojaks realized that by introducing ITC to the sanchalaks, they were setting into motion an initiative that would reduce their commissions; yet they cooperated with ITC for the following reasons:

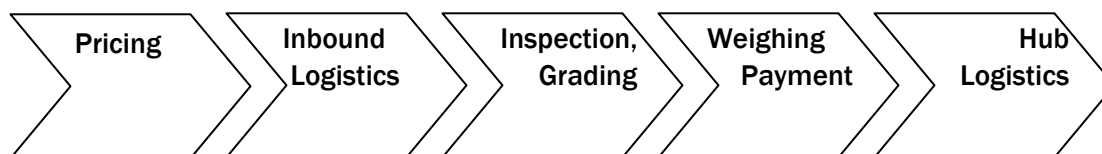
- ITC's communications with the samyojaks carried two clear messages. First, any e-Choupal procurement would happen over and above the volumes ITC would procure in the mandis, thereby protecting their commission earnings. Second, samyojaks would be involved with all new revenue streams arising from the e-Choupals. The trust ITC had built in the mandi made their statement believable.
- Conscious effort was and is made to divert revenue to samyojaks. As far as possible, mandi procurement is maintained.
- Every effort was made to maintain the level of samyojaks' trust. All communication with the sanchalaks happens in the presence of samyojaks. ITC never permitted any negative communication regarding the existing model, the mandi or the commission agents. Samyojaks were always acknowledged as the enablers of the entire concept.

Conversations with a samyojak in Sonkach indicated that despite the best of intentions, the agent's procurement revenue has fallen by 50%. Since the mandi is not near an ITC hub, he provides no other services and therefore has no other revenue streams. This man had more pragmatic reasons for cooperating:

- The samyojaks are fragmented. There is the fear that if one does not help, another commission agent would help ITC and walk away with the promised e-Choupal revenues and the mandi revenues. Interestingly, revenue streams were mightier than the sense of community in this case.
- They feel that if pushed to a corner, ITC could go it alone. The process would be slower, but it would eventually achieve the desired results.
- They see the opportunity to develop goodwill and networks in the villages.
- Finally, the samyojak said that he saw globalization as an irresistible trend. Although he saw loss of revenue in the short term, his long-term interest lay in cooperating with an international company.

THE TRANSFORMATION OF THE TRADITIONAL SYSTEM: e-CHOUPAL PROCESSES

The reengineered value chain looks very different from the existing system and has the following stages:



Price Setting and Dissemination

The previous day's mandi closing price is used to determine the benchmark Fair Average Quality (FAQ) price at the e-Choupal. The benchmark price is static for a given day. This information and the previous day mandi prices are communicated to the sanchalak through the e-Choupal portal. The commission agents at the mandi are responsible for feeding daily mandi prices to e-Choupal. The reality is that in the large majority of the e-Choupals where the VSAT has not been installed, the Internet connection cannot be relied upon. In this case, the sanchalak calls an ITC field representative. This situation is changing rapidly as VSAT penetration is increasing.

The farmer brings a sample of his produce to the e-Choupal. The sanchalak inspects the produce and based on his assessment of the quality makes appropriate deductions (if any) to the benchmark price and gives the farmer a conditional quote. The sanchalak performs the quality tests right in front of the farmer and has to rationalize any deductions to the farmer. The benchmark price represents the upper limit on the price a sanchalak can quote. These are simple checks and balances to ensure transparency in a process where quality testing and pricing happen at multiple levels.

If the farmer chooses to sell his beans to ITC, the sanchalak gives him a note capturing his name, the village, particulars about the quality tests (foreign matter and moisture content), approximate quantity and the conditional price.

Inbound Logistics

The farmer takes the note from the sanchalak and proceeds to the nearest ITC procurement hub, ITC's point for collection of produce and distribution of inputs sold into rural areas. Some procurement hubs are simply ITC factories that also act as collection points. Others are purely warehousing operations. ITC's goal is to have a processing center within a 30- to 40-km radius of its farmers. There are currently 16 buying locations; there will eventually be 35 in the state of Madhya Pradesh.

Inspection and Grading

The first point of inspection is the e-Choupal. When the farmer brings a sample in, the sanchalak visually inspects the produce for foreign matter and determines the moisture content in the soybean using his moisture meter. The initial, conditional pricing is based upon this inspection. At the ITC procurement hub, a sample of the farmer's produce is taken and set aside for laboratory tests. The chemist visually inspects the soybean and verifies the assessment of the sanchalak. It is important to note this test is the only assessment before the sale. Laboratory testing of the sample for oil content, etc. is performed after the sale and does not alter the price. The reasoning for this is that a farmer cannot comprehend the results of a laboratory test and will not trust its merits. Therefore pricing is based solely upon tests that can be understood by the farmer. The farmer accepts foreign matter deductions based upon the visual comparison of his produce with his neighbor's for the presence of stones or hay. He will accept moisture content deductions based upon the comparative softness of his produce when he bites it.

ITC is working toward changing farmer attitudes on this count. It is developing an appreciation of better quality by using the subsequent lab tests to reward farmers with bonus points if their quality exceeds expectation. At the end of the year, farmers can redeem their accumulated bonus points for e-Choupal purchases such as farm inputs (or in the future use it toward insurance premium).

Weighing and Payment

After the inspection, the farmer's trolley is weighed, in its entirety on an electronic weighbridge, first with the produce and then without. The difference is used to determine the weight of his produce. He then collects his payment in full at the cash counter and returns to his village. The farmer is also reimbursed for his freight expenses. Every stage of the process is accompanied by appropriate documentation. The farmer is given a copy of lab reports, agreed rates and receipts for his records. Samyojaks, who are adept at handling large amounts of cash, are entrusted with the responsibility of handling cash (this is not true at procurement centers near large ITC operations where ITC is capable of handling cash itself). Through their social network, they can also get cash at short notice.

Logistics and Storage

The farmer transports the produce in his trolley from the farm to the nearest processing center or storage hub. The farmer bears the risk of transportation until it is delivered and the sale completed. The transportation costs he incurs are reimbursed by ITC. This reimbursement was initially based upon the distance of the issuing e-Choupal from the processing center. This gave farmers the incentive to travel to a far away e-Choupal with their samples to get a higher transport reimbursement. ITC therefore did away with differential compensation and replaced it with a system of uniform compensation. Much of the procurement hub-related logistics are managed by the samyojak. Their responsibilities include:

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- Labor management at the hub
 - Bagging and baggage handling
 - Storage management
 - Transportation from the hub to processing factories
 - Payment processing and cash management
 - Handling mandi paperwork for the grain procured at the hub

For his services in the procurement process, the samyojak is paid a 0.5% commission.

Farmer Gains

- *Better Information Content* – Prior to the e-Choupal, the farmer's information was incomplete or inaccurate. The only sources of information were the village grapevine and the commission agent. The e-Choupal allows farmers access to prices at several nearby outlets. Some e-Choupal sanchalaks have taken this a level further. They have begun accessing external pricing indicators such as prices on the Chicago Board of Trade Web site to track global trends and determine the optimum timing of their sale.
- *Better Information Timing* – An indicative price was available only when the farmer traveled to the mandi, incurring costs that he could ill afford. The final price of the transaction was available to the farmer only upon the completion of the auction at which time there was no backing out of the transaction. At the e-Choupal, the farmer has access to price choice prior to his trip.

Both factors work together to provide the farmer a better price for his crop.

- *Transportation Cost* – The farmer bears the cost of transporting the crop to the mandi for a sale. ITC compensates its sellers for their transportation costs.
- *Transaction Duration* – The mandi process can stretch into several days from arrival to full payment. Most farmers have traveled long distances to come to the mandi and incur costs of overnight stays or multiple trips. The sale to ITC takes no more than a few hours. (ITC targets two hours, farmers spoke of two to three hours; our observation was that it probably takes two to three hours, possibly more in the peak season, but far less than a day.)

Both factors result in a lower logistic cost for the farmer.

- *Weighing Accuracy* – The mandis’ manual scales are inherently inaccurate, easily manipulated and subject to manual errors. ITC’s electronic weighing scales are accurate and impartial.
- *Granularity of Weighing* – The manual scales require that the produce be first transferred into bags. This intermediate bagging results in pilfering and loss of produce and the compounding of manual weighing errors over the entire load. The single weighing at ITC in which the entire trolley is weighed eliminates these losses.

Both factors contribute to lower transaction loss.

- *Professionalism and Dignity* – The ITC procurement center is a well-maintained, professionally run operation where the farmer is treated with respect and actually serviced as a customer. The farmers we spoke with evinced great emotion for the dignity accorded to them by a professional process. Farmers mentioned simple touches such as a shaded area with chairs to await their paperwork as indicators of ITC’s respect for them and their produce.

Even though intangible in the short term, the self-confidence created by the professional treatment is changing the way farmers conduct themselves. Sanchalaks and even a commission agent noted this change in farmer attitudes.

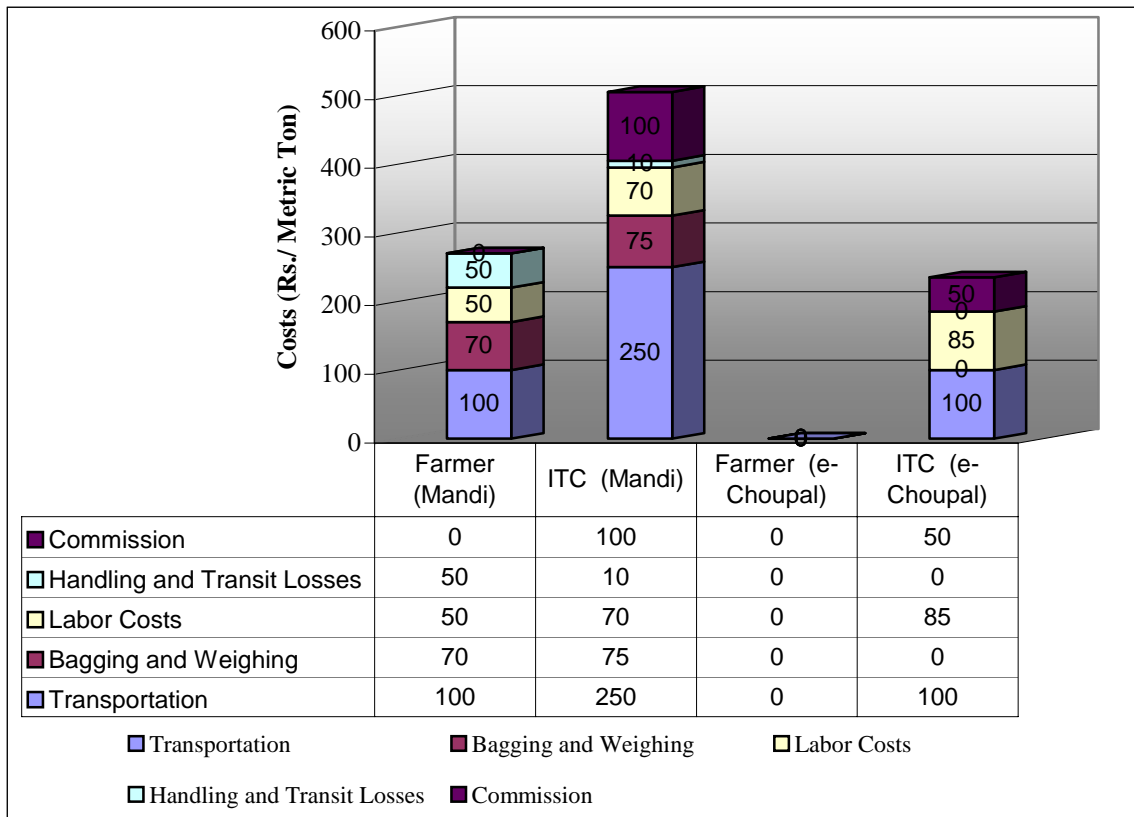
ITC Gains

- *Disintermediation Savings* – The commission paid to the agents were not excessive, but the true cost of intermediation, including the rent seeking was between 2.5% and 3% of procurement costs. A 0.5% commission to the sanchalak has replaced this.
- *Freight Costs* – Direct reimbursement of transport costs to the farmer is estimated to be half of what ITC used to pay the commission agents for transport to their factory.
- *Control on Quality* – Removal of intermediary manipulation of quality and the ability to directly educate and reward quality in the customer base results in higher levels of quality in e-Choupal procurement. This results in higher oil yields.
- *Risk Management* – The e-Choupal allows ITC to develop long-term supplier relationships with its farmers and attain some modicum of supply security over time. Risk is also managed in the e-Choupal world by far stronger information infrastructure. Sanchalaks and samyojaks working on behalf of ITC provide excellent ground information on pricing, product quality, soil conditions and expected yields. This allows ITC to better plan future operations.

e-Choupal Procurement Savings in Numerical Terms

In the mandi system, there was a markup of 7% to 8% on the price of soybeans from the farm gate to the factory gate. Of this markup, 2.5% was borne by the farmer while ITC had to swallow 5%. ITC’s costs are

now down to 2.5%. The following chart shows the breakdown of the transaction costs incurred by the farmer and ITC per metric ton of soyabeans procured in the mandi and e-Choupal.



Compared to the Mandi operation, the farmer gained Rs. 270/ metric ton. ITC gained also Rs. 270/metric ton. The total system efficiency is Rs. 540/ton. This is a “win-win” for both. There are additional sources of benefits that can accrue over time to both the farmers and ITC as they learn to leverage the e-Choupal network. .

THE SOCIAL IMPACT OF e-CHOUPALS

One of the most exciting aspects about the e-Choupal model is that it profitably provides an inaccessible village with a window to the world. The e-Choupal is the first and only PC in most of these villages. This coupled with the higher remuneration and appreciation of the professional transaction is causing several shifts in the social fabric. These changes can be categorized into the following broad areas:

- Improved Agriculture
- Better Lifestyles

- Brighter Futures

Better Agriculture

The impact of the e-Choupal on agriculture extends through the lifecycle of the crop. The improvements are attributable to three areas:

- Bridging the Information Gap
- Cheaper and Smarter Agricultural Inputs
- Farmer As a Source of Innovation

Their collective impact can be gauged by the fact that prior to the e-Choupal, soya cultivation was on the decline. Productivity was stagnant and farmers saw no future in it. In Khasrod, we were told that from a high of 100% of the farmers planting soya, it had come down to 50% and was expected to decline further. Since ITC's involvement, soya is seen as profitable again, and nearly 90% of the farmers are planting soya.

Bridging the Information Gap

Agricultural research centers (such as Indian Council for Agricultural Research), universities and other agencies in India have developed several practices and technologies to improve productivity and quality. The impediment has been access to an system for large-scale dissemination of knowledge at low cost. E-Choupals leverage technology to reach out to a wide base literally at the click of a mouse. The constant presence of the sanchalak who is himself a farmer and applies these techniques ensures the practices actually make their way from the Web site to the field. Some areas about which information is provided by the e-Choupal Web site are:

Weather – This is a very popular section on the Web site because it provides localized weather information at the district level. Other public sources generally provide only aggregated statewide weather information. The weather information is intelligently coupled with advice on the activities in the agricultural lifecycle. One farmer observed that prior to the e-Choupal, unreliable weather information would result in prematurely planted seeds that would be washed out by early rains. The recent access of accurate rain information has stemmed over half this loss.

Agricultural Best Practices – Scientific practices organized by the crop in question are available on the Web site. Additional questions are answered through FAQs and access to experts who respond to e-mails from the villages. An example we encountered in the villages was soil testing that never happened prior to e-Choupal operation.

Customized Quality Solutions – After the sale is completed, ITC performs laboratory testing of the sample collected. Based on these results, the farmer is given customized feedback on how he can improve the quality and yield of his crop.

GETTING THE BENEFITS OF THE NETWORK: CHEAPER AND SMARTER AGRICULTURAL INPUTS

The market for agri-inputs is estimated to be Rs.175,000 crore. However, the rural market is serviced by an unorganized and inefficient informal sector. The lack of physical infrastructure makes the cost of establishing and managing a distribution channel extremely expensive. Many companies could not market their products/services to rural areas in a cost-effective manner. ITC is able to use information to drive demand of inputs and fulfill them through the e-Choupal.

Low-Cost Last Mile – With the infrastructure cost recovered through procurement, the channel is available to distribution at only the incremental marginal cost. The fixed cost overhead applied to distributed commodities is therefore very low. Hubs, transportation, organization and communication infrastructure are all shared. One sanchalak spoke of a herbicide, Pursuit, that ITC made available at 20% below market price.

Demand Aggregation – The informational atmosphere of the e-Choupal drives demand for inputs. The sanchalak is in an ideal position to aggregate village demand, place a single order and optimize logistics costs for ITC.

Intelligent Product Deployment – Inputs such as fertilizers and pesticides are not generic in their application. The optimal deployment is subject to the soil and crop. Determining these parameters themselves require services such as soil testing to be performed. Past providers brought inputs but not the information and services required to make them effective. ITC's full-service approach corrects for this by coupling the input sale to the information on the Web site and services such as soil testing.

Farmer As a Source of Innovation

The global resources, practices and remunerations the e-Choupal brings to the farmer has unshackled their innovation and given them an avenue to see their ideas realized. This fits in perfectly with the ITC vision of using the e-Choupal as the 'intelligent first mile'. Farmers are now coming up with products and services that ITC could provide to further improve their operation. We heard farmers demand that ITC certify and make available the 'Samrat' variety of seeds that is preferred to the currently certified JS300 variety. Some farmers wanted ITC to bring its resources to bear on the onion and potato crops. They had information to the effect that the Indian onion crop was regarded as inferior to the Chinese crop in the world market. This is caused by the lack of availability of seeds and information. They have approached ITC with this suggestion saying it would be mutually profitable to make these resources available.

Better Lifestyles

The realization of e-Choupal as a distribution channel begins in agriculture but extends well into consumer goods and services. In the traditional channel, the farmer lacks the resources to make informed purchasing decisions. This channel is comprised of mobile traders and cycle-based distributors. More often than not they did not understand the farmers' issues and ended up selling them products/services that did not satisfy their needs. With companies hesitating to serve the rural market, a farmer often didn't have many choices. He had to buy what was available. This lack of choice also meant he had to pay a premium for the products that were available.

Orchestrating the Network

ITC's objective is not to be a platform provider for sale of third-party products and services but a network choreographer who orchestrates bi-directional demand and supply of goods through a collaborative business model. ITC intends to differentiate itself by serving only those products and services to which they can add value.

Knowledge of Customer – ITC's core asset is its knowledge of the customer. By transforming the value chain and setting up a platform for procuring commodities from them directly, they now have a foundation for forging a close relationship with the farmers. This relationship leads to a better understanding of the issues plaguing farmers. This is critical to serving their needs.

Physical assets (deployed infrastructure) - In its e-Choupals, hubs and processing centers ITC has a ready infrastructure needed to implement an alternative channel for distribution of goods and services into rural India. Its e-Choupals can double as storefronts and the hubs as centers for stocking inventory.

Information and Communication Infrastructure – The information infrastructure implemented by ITC can be used to enhance its business decision-making, better manage risk and identify opportunities for cross-selling and up-selling. It can leverage detailed transactional data and transform them into actionable knowledge. Data mining and data warehousing will help them better understand the behavior of their customers, identify unfulfilled needs and ways to serve them efficiently. The communication infrastructure compensates for the lack of physical infrastructure needed for marketing products and services in rural India. Some of the functions it can enable are:

- Rapid, low-cost information dissemination, thus allowing the farmer an informed choice while minimizing the need for a traveling salesforce
- Online ordering and order management, thus cutting the need for physical storefronts
- Customer intelligence, thus maximizing customer satisfaction and profitability

Process Benefits – Having set up a streamlined process for bringing products out of rural India, ITC can now leverage that to take products into rural India. For instance, the samyojak network can be employed to efficiently distribute the products to the e-Choupals. The sanchalaks, through their community presence, can pick up market signals and consumer information first and transmit them back to the distribution channel.

Reputation of ITC – Another factor that enhances this channel is ITC's reputation for transparency. Products sold through this channel will have instant credibility by virtue of their association with ITC. Also, by establishing its primary objective as procurement from this channel, ITC has demonstrated it has no vested interests in promoting this channel for distribution of products.

SOURCES OF EFFICIENCY

There are several differences between this channel and existing channels. These differences also represent sources of efficiency for ITC, farmers and intermediaries.

Access to market intelligence leading to a better fulfillment channel – Sanchalaks, through their close relationships with farmers, have the potential to pick up market signals and consumer information and transmit them back to the distribution channel. They can gain specific information about the community's needs and preferences thus giving ITC the unique ability to customize products and provide superior fulfillment. Such information is not otherwise available. Market information was previously gathered from agents located at the mandis. Although the agents interacted with the farmers, they were not one of them and did not understand the needs of the community. ITC can now aggregate reliable pieces of information logged from a large number of villages, lending a competitive edge to its trading decisions. Access to information also lets ITC keep a finger on the pulse of the demand and thus helps manage inventories and create an efficient supply chain for the rural market.

Pull-based marketing – This channel is also different from the traditional channel where inputs were sold mainly by pushing it to the end customers through dealers. The fundamental premise of this strategy is that farmers educated in best practices understand exactly what inputs they need and why they need it. This eliminates the need to spend time and advertising dollars to convince the farmer.

Demand aggregation leading to scale economies – Sanchalaks aggregate demands from individual farmers. In an environment where physical infrastructure is inadequate, the scale economies allowed by aggregation is crucial for keeping down logistics costs.

Supply aggregation leading to customization – At the other end of the network ITC aggregates products and services from several sources to provide the total solutions.

Status of Operation

Product distribution has been operating in two ways. The first is by using e-Choupal as the storefront where products are delivered directly by ITC or through a samyojak. The second is by using the hub as the storefront, where ITC sells goods at the produce receiving point. In this case, the samyojak handles the logistics. After completing the sale of his produce, the farmer can conveniently buy products right there and take them on his empty trolley back to the village. The way in which a particular product is delivered depends on the nature of the product. For instance, a fertilizer with a pungent odor cannot be sold from the e-Choupal (which is actually part of the sanchalak's residence).

e-Choupals ensure quality in delivering products and services through several product/service specific partnerships with the leaders in the respective fields. ITC gives the participating company direct access to the customer through e-Choupal in return for a commission. Participating companies often place samples with the sanchalaks. The sanchalaks aggregate demands from farmers and place the order with the supplier. The sanchalak earns a commission of 2% to 3% for every sale he makes. The samyojak serves as a distribution point for the sanchalaks in his region. For his services he gets a 1% to 3% commission. Also the e-Choupals and ITC storage hubs double as retail outlets for agricultural inputs and other fast-moving consumer goods from ITC and ITC partners.

Brighter Futures

The e-Choupal also impact the future of the villages in which they operate. They do through three channels:

- Knowledge of the World
- Access to Credit
- Insurance and Risk Management

Knowledge of the World

Computers are bringing the same resources to villages as they brought to urban India. Their impact is no less dramatic. Some of stories we gathered from the villages are:

- Children use computers for schoolwork and games. A particularly poignant story is that of Khasrod, where 2,000 local students printed their mark-sheets from the local e-Choupal, saving them days of waiting and a long trip.
- Sanchalaks chat extensively among themselves about the status of operations and agriculture in their villages.

- Villagers access global resources to learn about agriculture in other parts of the world and taking action to compete in the world outside, not merely at the local mandi.
- Youngsters in the village use computers to investigate the latest movies, cell-phone models and cricket news. One young sanchalak said that some of his friends had aspirations for their future and used the e-Choupal to learn about the computer.

Access to Credit

The farmer's low income and difficulty in accessing credit severely limits his capacity to pursue opportunities within and outside agriculture. Access to credit has long been considered a major poverty alleviation strategy in India. Demand for rural credit is estimated at Rs.143,000 crore. A variety of credit-linked programs supplemented by subsidies have been implemented by the government. Among them, the Integrated Rural Development Program (IRDP) started in 1978-79 was a major national rural poverty alleviation program with a large credit component. Under this program, nearly 53 million families were assisted with bank credit of Rs.31 billion and subsidy of Rs.10.5 billion. But its impact had not matched the resources spent. The loans were not tailored to meet individual needs and lacked the support systems necessary to help farmers.

Many financial institutions stay away from rural India due to the following reasons:

- Accessibility to credit history
- High delivery, transaction and administration costs
- Poor financial disclosure on account of tax issues
- Informal sector that lacks access to capital markets
- A perception of high-risk perception leading to high borrowing costs

ITC proposes to address these problems through e-Choupals and partnerships with financial institutions:

Accessibility to Credit History – Farmers in rural India borrow money from local moneylenders, through government incentive schemes, friends, relatives or traders. Local moneylenders and intermediates are aware of the creditworthiness of the farmers and are therefore willing to loan money albeit at a higher rate. With the e-Choupal, ITC now has the capability to manage credit risk through its sanchalak network. The sanchalak network can be used not only to verify credit worthiness of an individual farmer but also to continuously monitor credit risk. In the future, ITC can create a consolidated farmers database with all information pertaining to their holdings and transactions. This database can be used as a source of credit worthiness profiles of the farmers.

Transaction and Administration Costs – For major financial institutions, transaction costs in servicing the rural market have been high because of the difficulty in reaching the market. By leveraging the IT infrastructure and the sanchalak network, the administrative costs can also be reduced.

Status of Operation – ITC is set to tie up with banks such as ICICI and design products tailored to rural India. Some of the products being designed include

- Non-cash loans for farm inputs: Instead of giving cash to the farmer directly, the financial institutions will purchase farm inputs on behalf of the farmer. The farmer is expected to pay back the loan to the financial institution.
- Loans to sanchalaks: Instead of giving loans directly to the farmer, loans will be given to the sanchalak who in turn loans it to the farmer. With better access to the farmer, the sanchalak can manage the credit risk better than the financial institution.
- Direct loans to farmers based on sanchalak recommendation: In this case, the sanchalak's commission is based on the loan recovery and therefore he has the incentive to monitor the risk on a continuous basis.

Insurance and Risk Management Services

Insurance is an excellent example of how ITC brings its knowledge of rural dynamics to bear upon product design. Insurance in rural India suffered from several problems. Some characteristics of this effort are:

- Products have been designed to deal with rural cash-cycles. There is recognition that in bad years farmers may not be able to pay premium. Rather than penalize the farmer with a lapsed policy as current products do, ITC's offerings allow for correction in later years or only diminish the final payout.
- ITC uses the e-Choupal Web infrastructure to set up and issue electronic reminders for premium payment. This addresses a big limitation of the current products. The agents currently selling insurance have little incentive to encourage renewals and the policy lapse rates are high.
- A system of interlocking instruments has been set up so that insurance premiums can be credited with quality bonus points from the farmer's soya sale.
- The sanchalak is assisted in make the sales pitch by informational Web-casts and video presentations.

Detractors, Risks and Limitations

In the net sum, the change brought about by the e-Choupal is overwhelmingly positive. It is, however, important to note the parties who are adversely affected in the short term.

Detractors

Diversion of produce to e-Choupals has caused soya volumes to shrink by 50% at mandis we visited. Most people who have lost are closely connected to the mandi. They include:

- *Commission Agents* – Despite ITC’s best efforts to maintain the mandi volumes and compensate the commission agents for lost income, there is little doubt that on the whole they have lower incomes after the e-Choupal than before.
- *Mandi Laborers* – The workers in the mandi who weighed and bagged the produce have been severely impacted by the drop in volume. ITC’s long-term vision is to employ many of these people in the hubs in much the same functions as they perform in the mandi. The Sonkach mandi has 28 tulavatis and 300 laborers.
- *Bazaars near the Mandi* – When farmers sold produce in the mandi, they would also make purchases of a variety of commodities at the local bazaars. This revenue has now been diverted to shops near the ITC hubs. This in itself is more a diversion of revenue than its elimination.
- *Some Mandi Operations* – ITC still pays mandi tax for all the grain procured through e-Choupals but it now pays the tax to the mandi nearest to the procurement center. As a result, tax is being diverted from several mandis to the few mandis near procurement hubs. The result of this is that regional mandis have lost taxes that contribute to maintaining their infrastructure.
- *Competing Processors* – Even before the advent of the e-Choupal, the soya crushing industry suffered from severe overcapacity (half of all capacity was excess). The efficiency pressures imposed by the e-Choupal have spurred industry consolidation.

Risks and Limitations

Apart from the risks identified by ITC, there are some additional areas that bear watching and could use active intervention.

Subversion of Samyojaks Toward Competitive Entry

ITC’s relationship with samyojaks seems to be uneasy. It look like ITC could easily manage internally most of the services provide by the samyojaks. The one samyojak we spoke with indicated that past relationships and the promise of future business keeps him loyal to ITC despite deep reduction in

procurement business. The primary barriers to competitive entry are scale of operations and rural know-how. Multinationals with the financial muscle to invest for the scale can use discontent samyojaks as collaborators.

Farmers and Customer Service

ITC has awakened farmers to aspirations. If they do not keep up with these aspirations, the farmers will look elsewhere to satisfy them. As an example, in the conversation where the sanchalak asked us about Indian onions in the global market, he also knew what the solution was. He half-complained that he had told ITC several times to begin sales of better onion seeds, but he had not heard back from them.

Social Impact Limited by Stratification

The computer in the village is no doubt revolutionary, but there is also no doubt the villages we saw were stratified to the point where not everybody can walk up to the sanchalak and ask to be shown the computer. There are clearly income levels and the entire adult female population that do not have access to the computer (we have only used masculine pronouns in this paper because that is the reality of the society we visited). The innate power of the computer to drive social change will not be able to transcend this barrier unaided. This is by no means a reflection upon ITC; it is a reflection upon the nature of the underlying society in rural Madhya Pradesh.

The solution might lie in observing where the system has driven social change. Village farmers belong to many social and economic strata. Yet, the sanchalaks are servicing all of them equally. In this case, the potential for commerce has broken a barrier that society has built. Similarly, engagement with the isolated demographics, especially women, may be possible through the active distribution through the e-Choupal of products tailored specifically to them.

Endnotes

¹ Copyright© 2003, The Economic Intelligence Unit.

² "Poverty Dynamics in Rural India" – IMF Working Paper, Revised November 6, 2002.

³ A major source for this section is World Bank Report #15677-IN: India The Oilseed Complex: Capturing Market Opportunities, July 1997.