Making ICT work for Bangladesh's farmers

Case Study Number 6

The Katalyst Cases

Implemented by

Funded by

Making ICT work for Bangladesh's farmers

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November 2012

Foreword

The context

Agriculture is one of the major driving forces of the Bangladesh economy, providing employment to just under half the workforce and contributing around 20% towards national GDP; however, a significant proportion of those involved in agriculture, both as producers and labourers, live close to the poverty line. A major factor inhibiting their economic growth is their lack of access to relevant and timely information. The public sector has an impressive extension workforce which is delivering information to farmers. However, owing to resource limitations a vast number of farmers remain uncovered and fall out of this information loop.

The project

Katalyst is a market development project which works to reduce poverty. In its first phase (2003-2008), Katalyst helped to create more than 180,000 jobs and assisted 700,000 farmers and enterprises to secure higher incomes. The target for the second phase (2008-2013) is to stimulate an additional net income of USD280m for 2.3 million farmers and enterprises. As of June 2012, Katalyst has reached more than 1.33 million people, helping them to generate an additional income of USD170m.

The project is implemented by Swisscontact (the lead manager) and GIZ International Services under the Ministry of Commerce of the Government of Bangladesh. Katalyst is jointly funded by the Swiss Agency for Development and Cooperation (SDC), the UK Department for International Development (UKaid), the Canadian International Development Agency (CIDA) and the Embassy of the Kingdom of the Netherlands (EKN).

The case studies

Katalyst has prepared a series of case studies to share with the wider development community about what we do, why we do it, how we do it and the impact we have achieved. These case studies illustrate the potential of the market development approach and the challenges faced in its implementation. As for any area in which Katalyst works, the primary reason for choosing to work in the ICT sector was its relevance to the poor and the interest among the telecom sector which sees rural Bangladesh as its major growth segment. This case study shares our experience from 2005 to 2011 in working with relevant public and private sector players to make ICT work for farmers in Bangladesh. It demonstrates how innovative service offers can be delivered to farmers and what actions were taken to instill a greater degree of systemic change in this sector.

I greatly appreciate the hard work of our ICT team in designing the strategy, implementing interventions and achieving such encouraging results. I would like to thank Dan Nippard of the Springfield Centre who is the main author of this case study and Rob Hitchins, Markus Kupper, Shahroz Jalil and Hasan Shahriar for their supporting role in its preparation. Special thanks also go to Arafat Hossain, Asad ur Rahman, Nafia Hussain and Nurul Azam of Katalyst who have made valuable contributions to its preparation.

Goetz Ebbecke
General Manager,Katalyst

List of Abbreviations

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AIS	Agriculture Information Service
BIID	Bangladesh Institute of ICT in Development
BL	Banglalink
CAI	Committee on Assessment of Information
CIC	Community Information Centre
CNA	Content Needs Assessment
DAE	Department of Agricultural Extension
DEN	Digital Equality Network
GP	Grameenphone
GSMA	GSM Association (GSMA)
ICT	Information and Communication Technology
ICT4D	Information and Communication Technologies for Development
ITES	IT-Enabled Service
RIC	Rural ICT Centre
SRDI	Soil Research Development Institute

Glossary of Terms:

Agriculture Seasons	Three agricultural seasons exist in Bangladesh : Rabi, Kharif 1, Kharif 2
e-krishok	Krishok refers to farmer. e-Krishok is the brand name of a service of BIID
Extension Worker	Any technical employee involved in agriculture and fisheries advising, teaching and supervising, and organizing producers and other stakeholders along the supply chain
Fixed Lines	A fixed-line telephone refers to a phone which uses a solid medium telephone line such as a metal wire or fibre optic cable for transmission.
Haat	Local market in a village
Jigyasha	Jigyasha refers to query. It is the brand name of the agro based helpline of Banglalink
Upazila	Sub district

CONTENTS

Abstract

Smallholder farmers in rural Bangladesh are often both experienced and knowledgeable, having inherited both land and traditional cultivation skills from generations of family members. Whilst such experience and 'historic' knowledge provide these farmers with a firm foundation, many of them operate outside of any meaningful information society, resulting in knowledge stagnation. As a consequence, prospects of earning additional income and of tempering oft-encountered vulnerabilities are missed.

In agriculture, an information-poor environment is one where improved farm performance or particular opportunities – to respond to market demand or safeguard against shocks – are foregone as a result of a lack of relevant, timely information. Inadequate public service coverage, geographic remoteness and widespread illiteracy contribute to the pervasiveness of 'information poverty' across rural areas. It is true to say that many have coping mechanisms which enable them to partially overcome some of these impediments, but in general smallholders are vastly underserved with relevant and timely information.

The means by which a poor smallholder in Bangladesh may receive the information she/he needs to improve the performance of their farm varies; some means are long-established, some nascent and emerging. In taking a systemic approach to working in the ICT sector, Katalyst has better enabled the country's leading telecoms operators to develop service offers appropriate to the rural poor. This working paper focuses on selected developments in the ICT sector since 2005, in particular, the role that Katalyst has played in promoting changes in access to agricultural information for smallholder farmers through partnering with national telecommunications companies. To close, it shares lessons applicable to the wider international development community and those more explicitly involved in the ICT4D field.

The context: smallholders, information access, and ICTs

1. The context: Smallholders, information access, and ICTs

Agriculture is one of the major driving forces of the Bangladesh economy, providing employment to almost half the workforce and contributing around 20% towards national GDP. Despite a proportional decline since the 1980s, the agricultural sector maintains its relevance to programmes such as Katalyst due to the significant number of producers and farm labourers that live under or close to the poverty line. From season to season, there is a high demand – both real and latent – for up-to-the-minute information, as new cultivation and farm-level processing techniques are pioneered, new pests and diseases are encountered, and as market prices and consumer demand respond to a multiplicity of stimuli. As the knowledge intensity of the profession swells and farm competitiveness becomes increasingly important, farming communities grow ever more reliant on the different systems that exist for getting agricultural information from source to farm. Timely and accurate information assists farmers in protecting themselves from potential losses, in making the best commercial decisions possible, and in applying new inputs and production practices to make optimum use of limited resources.

1.1 Understanding demand for information among poor farmers

Throughout the agricultural seasons, 83% of Bangladeshi farmers typically seek information on disease prevention, 57% on market price information, and 29% will try to get advice on how to make their farms more productive.[1] In the most part, farmers, and smallholders, in hard-to-reach areas in particular, encounter difficulties in obtaining the information they require from conventional sources like extension workersor fellow farmers. Generational knowledge aside, farming in an information-poor environment can be costly. Whilst the search costs of reliable information are often high, the opportunity costs of decisions made in the absence of good quality information, or of being unable to access information altogether, are often higher. The need at farm-level for immediate access to agricultural information cannot be over-stated, particularly as some issues (such as pest and disease) have a very short time horizon within which a response is required.

Whilst the act of information seeking is common, even among the poorest groups, the barriers farmers face in accessing their preferred sources of information as and when required are broad and deep-seated. A variety of modalities exist through which agricultural information can be accessed in Bangladesh, though each of these modalities (see table 1), be they public, private, face-to-face or broadcast from a distance, have their shortcomings. These include concerns over timeliness, and issues of relevance, quality, and value.

- In the eyes of the farmer, the country's estimated 13,000 ***public agricultural extension*** officers remain one of the most trustworthy sources of information. However, without a wholesale change in how public agencies understand their role, assess needs, and deliver agricultural information, their ability to cater to a large farming population – 14.5 million households – with diverse needs will remain

Box 1: Information is as important as any other farm input

Widespread information asymmetries contribute significantly towards rural poverty in Bangladesh. Improved access to agricultural information can break the low risk-investment-productivity cycle characteristic of smallholder farming, helping to improve farmer risk management capacities and heighten their propensity to invest, step up production, or step out into new revenue-generating activities. **Katalyst's** own research into growers of bitter gourd who receive advice from trained input retailers finds that acting on good advice alone can be responsible for a 30% increase in farm productivity. With sizeable changes potentially resulting from an improved information environment, development programmes like **Katalyst** need to give information systems and information flows the appropriate attention.

1. Orgquest study 2011 (commissioned by Katalyst).

marginal. Katalyst's research (2005) found 84% of farmers to be of the opinion that the appropriate extension officer was unavailable when information was required.

- The ***private sector*** is becoming an increasingly trusted source of agricultural information, though as vendors of agricultural inputs and traders in farm produce, they are mostly sought out for advice on the usage of the inputs in which they deal, or on market access issues concerning the particular goods they commercially trade in. Information given is largely product-specific and may still be somewhat 'product-push' in the case of some input dealers.
- ***Peer groups and lead farmers*** will always be a valuable information source to the smallholder. Farmers in Bangladesh typically share any new, relevant pieces of information with upwards of five others, be they neighbours, peers, or family members. A study (n=700) undertaken by Katalyst found that close to 70% of farmers always share information with their neighbours and/or peers. However, peer groups as an information source will only improve the quality of the agricultural information being circulated if they themselves are connected to wider sources of relevant and updated information.
- ***Print and broadcast media*** also carry stories and programmes of relevance to farmers, with 66% of farmers (n=700) believing such media plays an important role in informing their farm practices. Television is by far the most recognised and accessed media format among Katalyst's target group (89%, n=700); far more significant than print media (only 33% read a newspaper at least once a month, and this most likely local) and radio (<10%). Three-quarters of farmer-viewers believe the four most popular television programmes that carry agricultural messages have helped them in some way, whilst 95% of viewers find them of relevance. As encouraging as these figures are, television remains a supply-push medium, able to communicate agricultural news and raise awareness of common concerns, but unable to overcome a natural lack of interactivity, or cater to more specific individual needs.

1.2 Are ICTs and ITES relevant to the rural poor?

Recognising the absence of conducive information ecosystem as an oft-encountered concern which cuts across all rural commodity sectors, Katalyst has committed itself to improving the information environment surrounding agriculture and to increasing the information service offers available to the rural poor. Programme-wide, Katalyst intervenes in a range of information systems, from collaborating with print media houses to working to improve the outreach and demand responsiveness of public extension authorities. Given the diversity of channels through which the poor can access agricultural information, Katalyst sought, in 2005, to explore what role Bangladesh's expanding ICT sector – that is, internet and mobile telephony – could play in improving information access.

Table 1: Principal sources of agricultural information among farming population, by information type

Type of information sought	Principal information source					
	Extension Officer	Private Sector	Peer Group	Lead Farmer	Television	Other
High-yielding crop/species	**34.8**	22.4	12.6	6.6	19.4	4.2
Cultivation techniques	20.6	10.6	18.8	10.6	**24.6**	14.8
Soil condition	**35.4**	3.8	9.6	7.0	13.8	30.4
Seed usage	20.0	**39.0**	20.8	8.2	4.4	7.6
Pesticide usage	14.2	**65.2**	5.4	6.6	2.8	5.8
Fertiliser usage	15.6	**55.6**	8.8	7.8	2.4	9.8
Irrigation methods	12.4	12.4	23.6	13.6	5.2	**32.8**
Market access	6.6	20.0	**41.0**	15.2	5.2	12.0
Weather forecast	2.6	1.4	4.2	1.4	**62.2**	28.2

Note: All figures presented are percentages; sample population of 500 cereal, staple, and vegetable farmers. Source: Orgquest study 2011, commissioned by Katalyst.

1.2.1 Telecommunications sector performance

Mobile telephony has been particularly rapid in its ascension in Bangladesh, fuelled by an increasingly competitive marketplace, and regulations conducive for expansion. Pre-paid calls, falling handset prices (and the availability of second-hand handsets), and improved network coverage and quality (up to 98% of the country) have also been significant. This had resulted in an exponential growth in the number of mobile subscribers, rising from approximately 5m in 2004/05 to approximately 70m by 2010/11.[2]

Internet usage was far more pedestrian in its growth, held back by a very low level of awareness (in 2007, only a quarter of rural inhabitants had even heard of the internet), pervasive illiteracy, and low levels of computer access. Indeed, first-person computer usage (not through an intermediary) remains the preserve of the urban demographic, particularly higher income and service sector professional groups. In 2009, the ITU estimated around 620,000 internet users and approximately 50,000 fixed broadband internet subscriptions, with no more than 2% of households having internet access.

1.2.2 Demand for and use of ITES in rural areas

IT-enabled services (ITES) have become an increasingly prominent feature of urban and rural life in Bangladesh. This has in part been kickstarted by the government's vision of 'Digital Bangladesh 2021', which aims to utilise ICTs to effect a greater pace of change in poverty reduction and improve governance. From a very low base, awareness and usage of ITES expanded as a growing number of processes, including citizen and public services – applications for land tenure, microcredit, visas and passports, enrolment forms for higher education, the delivery of examination results, and so on – became digitised or required varying degrees of computer access. From simple services (word processing, printing, scanning, email) to more specific business information requirements (licensing, applications, exemptions, business development, market intelligence), ITES were increasingly demanded and increasingly supplied. Small businesses, both urban and rural, were beginning to recognise the importance of ITES in support of their day-to-day functioning, though, Katalyst's target group, the farming population, were not interacting with such technologies and had little comprehension of how they might be of relevance to their livelihoods.

2. Bangladesh Telecoms Sector: Challenges and Opportunities, 2010.

Why was it necessary for Katalyst to intervene?

2. Why was it necessary for Katalyst to intervene?

By 2005, the urban market segment was becoming increasingly saturated with ICT service offers. However, despite high levels of network coverage and growing mobile phone ownership, the rural market segment remained relatively under-served. Katalyst understood that the sustainable and scalable development of such services would require a considerable level of effort and investment by commercial market players who, as they have for the urban market, would take the rural market seriously. Moving beyond charitable experiments, technology give-aways, and corporate social responsibility, towards well-researched, well-gauged, commercial service offers for the rural segment was essential.

2.1 Supply- and demand-side weaknesses inhibited service development

As providers of connectivity and channels of service delivery, telecom operators are the major players in this sector. However, whilst in-house research functions existed, they were in 2005 less familiar about the demand of the rural population, particularly with respect to information needs, household and enterprise preferences, and willingness-to-pay considerations. By 2005, none of the operators had embarked upon a substantial initiative to engage with the rural market. Given that over 80% of urban dwellers owned a mobile phone, the time was ripe for operators to adapt their strategies.

On the demand side, information-seeking norms pertaining to agricultural issues, combined with low levels of awareness among farmers of how ITES may be relevant to their work, presented two large obstacles for any ICT-based proposition to overcome. With no real demand existing among the farming population to receive agricultural information via voice- or data-based telecommunications media, the rural expansion of telecoms operators would require heavy investment in awareness-raising, marketing, and consumer education

Box 2: Learning lessons – Towards sustainability and scalability in ICT4D programmes

Whilst generating significant interest, few ICT4D programmes have achieved the size and longevity of impact that merits genuine excitement. Where ICT-based solutions for the poor have successfully emerged and endured, they serve as a reminder that they are indeed in the minority, but also that it is possible to make a sizeable and lasting impact if the design and implementation of solutions are relevant and right-sized. Prominent practitioners have arrived at the following guiding principles:

1. Pay close attention to the local context and the involvement of the local communities you want to take up the technology-based solution. Invest time in understanding the users, their information needs, and their capacities as users. Be interactive in design of content, and take into consideration formatting requirements and level of detail necessary.
2. Technology should not be the 'tail that wags the dog'. Deploying a technological solution as an end in itself is a limited, often expensive and unscalable strategy. The most inclusive (simplest to use, least costly) technologies, appropriate to the poor's information requirements, with a good level of local acceptance, are more likely to be successful.
3. Multi-stakeholder partnerships must be built around a clear business model with value propositions to all participating commercial entities. In the design, roll out, and upkeep of the service, roles and responsibilities must be clearly allocated between parties from the outset, as well as clear guidelines regarding who will pay for what (and for how long).
4. The wider ICT business environment – policy, regulations, and infrastructure – must support competition and expansion.
5. Development funding is only relevant in buying down risk to make a venture happen where it otherwise would not. Pilots are worth funding if there is an intent and ability among partners to scale-up, if successful.

"[There has been an] emphasis on well-funded pilot projects delivered through multi-stakeholder partnerships. [These] lead to schemes that are neither scalable nor sustainable. All too often, substantial sums of money are pumped in to show that a particular piece of technology can indeed be effective in remote areas, with little thought being paid to the eventual costs of nationwide roll out, that are way beyond the limited budgets of the governments of poor countries, or indeed those of international donors." (Grimshaw et al, 2011)[3]

3. Grimshaw et al (2011) "What are the key lessons of ICT4D partnerships for poverty reduction: Systematic Review Report".

in order to surmount deep-seated information-seeking norms. Behavioural shifts are by no means clear cut. Poor farmers are often very precise and discerning consumers, whose risk aversion to new sources of information often only reduces in the event of an emergency. Experimenting with new information sources would not occur through the sudden appearance of a service alone. Given that information is usually publicly-delivered, embedded within a commercial transaction or freely exchanged among peers, any firm that delivers agricultural information through an ICT-based modality must, on the demand side, work to breakdown social inhibitions to ICT, and on the supply side, ensure their modality offers additionality – either in terms of quality of information (both type and comprehensiveness) or in terms of response time – over conventional information sources.

2.2 Action research to understand the constraints to service development

Despite its urban take-off in 2005/06, mobile phone subscriptions remained proportionately low in rural areas. With this in mind, Katalyst opted to centre their initial interventions around internet-based rather than voice-based technologies, opting for a telecentre model.

With no existing commercial model for ICT information services targeting the rural population functioning in Bangladesh, Katalyst decided to examine other countries facing similar challenges, to determine what the key determinants of model success might be. With only limited knowledge of how such rural ICT offerings might work in practice, Katalyst thus conducted a brief action research phase comprising a study tour and a small but significant trial with two local organisations.

2.2.1 India study tour

First, Katalyst examined a number of approaches from Africa, Latin America, and neighbouring India, and then conducted a study tour to the latter. Katalyst visited a number of ICT initiatives experiencing varying degrees of success and with different types of backer (NGOs, public, commercial), scope, and target groups, so as to get a well-rounded appreciation of what is possible and to witness first-hand how ICT can be leveraged to improve access to information. Projects such as N-Logue and *Drishtee* (and its *Gyandoot* intiative) and models like *e-Choupal* provided valuable insights into the design considerations and organisational capacity requirements necessary for scalable, commercially-driven models. It was this initial research that educated Katalyst in the importance of service bundling, rather than leading with a stand-alone agricultural information service offer. Any income from information services would be low in comparison to potential revenue streams from other (non-information) services. This created an imperative to identify which services should comprise such a bundle in rural areas, and which of the ITES demanded had the most scope to be integrated. The key lesson was in how Katalyst understood the bundle itself to be foremost in ensuring the sustainability of the telecentres. The bundle represented a viable commercial means to the social end – an agricultural information service – they wished to promote.

The tour also helped Katalyst both to understand the types of service that can be provided given the existing infrastructure and socio-economic circumstances, and to establish connections with the small pool of human resources involved in these initiatives.

2.2.2 Trials with Broadlink and the Digital Equality Network (DEN)

Shortly after the study tour, Katalyst embarked on a six-month action research exercise in collaboration with two local private organisations, *Broadlink* and the *Digital Equality Network* (DEN), competitively chosen through an expression of interest and tender selection process to road-test a commercial telecentre (rural ICT centre, or RIC) concept in December 2005. RIC was a composite model of bundled ITES 'under-one-roof' – a physical infrastructure, within an existing shop or kiosk – where the rural population could go to access a number of different services, from simple word processing and printing, to internet and email, to sector-specific business and citizen information services.

Broadlink and DEN would establish the centre, investing around BDT 100,000 (US$1,450) into each RIC to furnish them with computers, printers, web-cams, digital cameras, and internet connectivity. For its part, *Katalyst* agreed with *Broadlink* and DEN that it would assume responsibility for all non-infrastructure-related developmental activities, including advertising for and sourcing the entrepreneurs who would house and run the centres; building the capacities of these entrepreneurs to provide services; assessing rural service needs;

developing content for the agriculture and business information services databases; and promoting the RICs to the rural customer base. Three trial locations in northern Bangladesh were selected. The *Broadlink* RIC was branded *Alokitogram* and the 2 DEN RICs were branded, GHAT.

Outcome of the pilot

Results were promising. Katalyst and its partners had managed to pioneer and bring to life a model whereby the entrepreneurs selected committed to investing their own capital into the establishment and operation of the RIC, demonstrating that a licensed model was viable for commercial service provision. The three RICs broke even within twelve months of opening – in half of the time Katalyst had anticipated – hosting a combined footfall of between 3,500-4,000 visitors within their first three months, 1,100 of whom (mostly from the small business sector) purchased services from the bundle (an estimated 5% of which were information services).

After testing the concept, Katalyst were encouraged to continue with the licensed telecentre model, contemplating both how the trial might be reproduced on a larger scale and also how information services might be better promoted, specifically to the target group. In terms of programme partnerships, Katalyst had learned another valuable lesson from the *Broadlink-DEN* pilots: that as a high volume but low margin business, a nationwide telecentre model would require increased backing and larger market players as partners, able to dedicate more resources to service design and innovation, technical support, entrepreneur relations, and the customers themselves.

2.3 Constraints facing telecoms operators in service development

Difficulties were encountered throughout the action research process, some of which were solved, others which lay beyond the scope of Katalyst intervention (e.g. connectivity problems and unreliable power supplies). Aside from proof of concept, what emerged from Katalyst's trials with *Broadlink and DEN* was an improved understanding of many of the market conditions that were impeding the emergence of commercially viable, ICT-based information services for rural communities. These conditions were in fact the systemic constraints that ultimately made the price of risk too high for even large telecoms operators (Katalyst's target partners) to develop offers for the rural segment. If left unaddressed, it would remain highly improbable that ICT-based service offers would materialise, certainly not at scale.

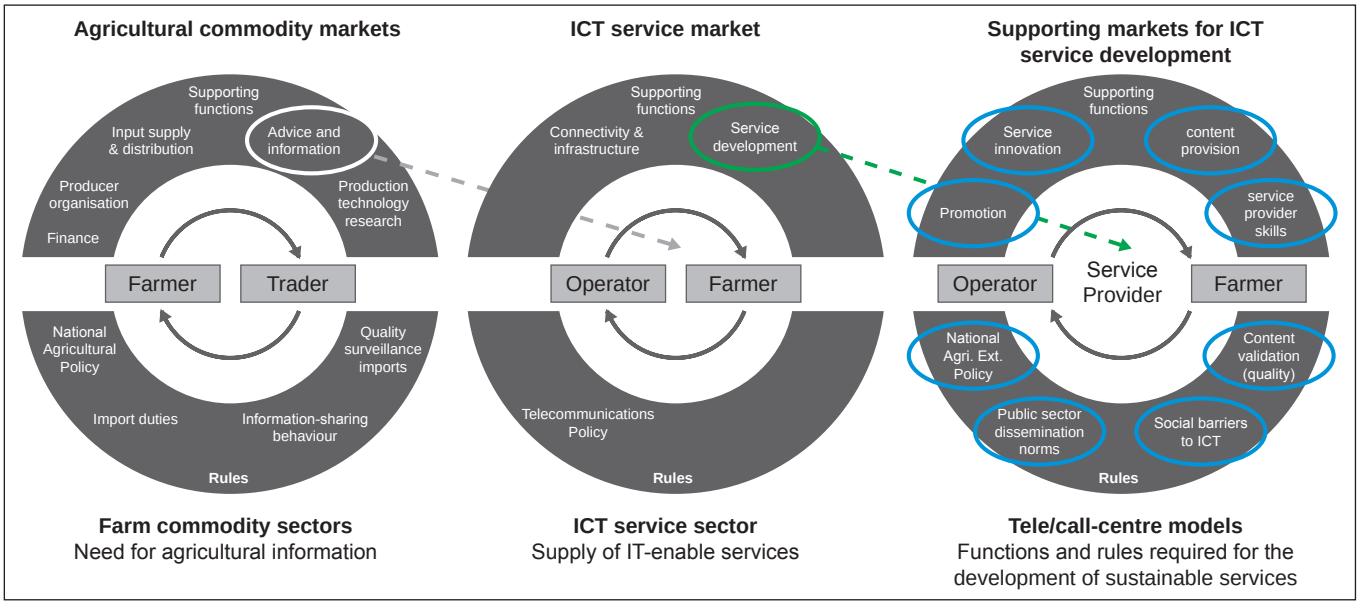
For a nationwide multi-purpose telecentre model to be successful, such systemic constraints (see far right of Figure 1), from service innovation and content provision to extension policy and social norms, would need to be resolved. Needless to say, the services themselves could only flow when the pre-requisite physical infrastructure and connectivity requirements were met. Katalyst's focus solely on service development was therefore premised on partner telecoms operators and their prospective licensed telecentre entrepreneurs investing in the required physical 'access to technology' preconditions themselves.

2.3.1 Absent supporting functions

Content development

For the information available at the telecentres to be relevant to farmers' needs, the content carried would have to be appropriately researched and updated. As a permanent function, content development would also need to be supplied to the telecentres as it would be

Figure 1: Depicting Katalyst's analytical processes: from agricultual commodity markets to ICT service development conditions



beyond the capabilities of the entrepreneurs themselves. Information systems would therefore require the attention of a specialist content developer with the skill-set able to respond to and account for the diverse information needs of rural farmers and small businesses. Getting the entrepreneurs to pay for such content development services, when the demand for agriculture-, small business, and e-governance information services from telecentres is low, would also present a challenge.

With no commercial content providers in existence, and given the nature of the *Alokitogram* and *GHAT* experiments, *Katalyst* had temporarily elected to fill this gap with contracted specialist consultants tasked to handle content research, development, aggregation, and presentation. However, in the longer term, paying for and providing such services would be outside of Katalyst's remit and would be unsustainable. This was a function that needed to be absorbed by appropriate market players with the capacities and incentives to ensure a permanent supply of quality content to populate the telecentre platforms. *Katalyst* would need to understand the limitations of content service provider business models and work towards solving them; avoiding the conventional donor-subsidised approach to content development, which inhibits the emergence of commercially-oriented providers.

Product development and innovating around the service bundle

With the understanding that a bundle of services is the only way of making rural ICT services sustainable, the question arose as to how the bundle should be composed and added to over time. For the telecentres to remain in demand and offer additionality, the service bundle has to be relevant to the rural population generally, and customised to local communities more specifically. Depending on telecentre location and the diversity of its constituency, service needs would differ from telecentre to telecentre, despite having core commonalities ('universal services'). Innovation, in particular in the composition and development of telecentre service bundles, is therefore a cornerstone supporting function that would ensure the continued commercial viability of any licensed telecentre model. For this, telecoms operators would have to better understand the rural

market and better advance in-house research functions linked to service development. They would also need to develop an understanding of which may be chargeable services, and which services may be offered as free or embedded within or alongside other transactions.

Capacities of service providers

It is important that any licensed service provider is well-equipped with the infrastructure, hardware, and operator skillsets to deliver services to the customers. Weak technical and managerial capacities, combined with poor commercial orientation – how to target customers, what resources to invest, what quality of customer service to offer – is likely to result in failure. The telecentres would only be as good as the entrepreneurs (that is, the service providers) that run them, hence the development of entrepreneur capacities would be crucial in ensuring that first-time users turn into repeat users. Significantly, building capacities of service providers would also be a permanent function, not merely a one-off investment in training prior to telecentre opening. Capacity-building functions need to take account of new centres opening, centres expanding and employing new staff, and the growth of the service bundle offered (i.e. the need to familiarise oneself with more and more services).

Marketing to promote service channels

The pilot telecentres all started slowly due to an insufficient attention to the value of promotional activities. Farmers and small business owners were not familiar with, or used to, the presence of telecentres and were often sceptical of their relevance to agricultural livelihoods. The newness of the service and the understandable reservation of the rural population in trusting such an information source – especially one seemingly unrelated to their line of work – calls for significant investments in awareness-raising to induce behavioural changes among the target group. Again, promotion is not a one-off tool to elicit short-term custom, but a repeated requirement that should sit within a wider campaigns and communication strategy.

2.3.2 A need to address supporting rules

Extension policy and information-sharing

As significant and trusted players, securing the approval of extension officials in the promotion of any new ICT-based information service is essential in the drive to raise demand for telecentre services. However, as of 2007, ICT was not recognised as an extension instrument in any government policy (notably the National Agricultural Extension Policy); officers neither used telecentre services, nor directed farmers through telecentre doors. Related to this, no guideline existed for the public and private sectors to collaborate in disseminating agriculture information, discouraging many potential areas for cooperation, and inhibiting any complementarity or division of responsibilities from emerging.

The underlying requirement for content to be scrutinised and validated

Another factor constraining the government's promotion of private sector agricultural information services was the absence of a guideline for public officials to scrutinise and regulate content disseminated by non-government sources. A policy instrument that recognises various ICT-based agriculture information services as authentic and reliable sources of information would not only ensure the highest quality standards for information delivered through telecentres and other means, but would also contribute significantly to re-shaping farmer behaviour. Public agency approval would increase farmer confidence in the new services, though approval first required the installation of a content validation and quality control authority.

Social and cultural norms that keep farmers away

As discussed above, obtaining agricultural information through the media of ICT represents a substantial shift in mindset for the rural population. Sizeable investments by telecoms operators, the service providers (entrepreneurs) themselves, and the resolution of the aforementioned constraints would change this over time, however, any change would also be gradual and in-keeping with popular opinion. As for any technological advancement, there are early adopters and there are followers. Whilst marketing activities and value-for-money would be necessary to attract the early adopters, public agency endorsement and peer recommendation would be required to convince the followers.

3. How Katalyst facilitated change

Following the piloting of the telecentre model with Broadlink and DEN, activities with the two organisations were discontinued. Whilst both organisations were keen to take the multi-purpose telecentre model to new locations, neither had the aspiration nor the capacity to roll-out the model at a scale that would benefit the mass market.[4] This led Katalyst to look for other 'open doors' in the telecommunications sector: players with the most fitting combination of operational capacity, presence, and the commercial motivation to take a licensed telecentre model nationwide. The search led them to Grameenphone[5] (GP), who at the time were experimenting with their own rural telecentre model across sixteen different locations, and importantly, were a corporation with the branding, scale, and systems in place able to meet Katalyst's ambition for a mass market telecentre model.

Innovate & pilot ▶ Learn & improve ▶ Scale-up ▶ Building resilience

3.1 From RICs to CICs[6]: A nationwide, commercial telecentre model

With its experience of how to establish a viable telecentre business, Katalyst had something to offer Grameenphone, who at the time were looking into options by which their own community information centres (CICs) – originally conceived of as subsidised entities – could become similarly profitable concerns.

3.1.1 Establishing a partnership with Grameenphone

In early 2006, Katalyst and Grameenphone joined forces to focus on the commercial viability of the CIC business model, with Katalyst assisting GP to study the usefulness of the information services then provided by GP's sixteen CICs. In January 2007, with the aim of substantially adding to the capacity of these CICs (which had been established with GSMA support[7]), Katalyst signed an MoU to jointly establish a further 184 new CICs, aiming to bring the total to 200 across Bangladesh.

When incentives align

Grameenphone wanted to increase its presence in rural areas. Given prevailing levels of poverty, demand, and connectivity, its only realistic option to increase service penetration was to concentrate on creating shared access points, rather than targeting individual households. Whilst the connectivity revenue resulting from a few hundred shared access points would be very low and, from a short-term perspective, lacking in commercial sense, the long-term aim was to familiarise rural customers with the GP brand and the range of services it offers. Predicting future mobile phone saturation in rural areas, Grameenphone wanted to be best placed to capture the data-based services market, and primed to capitalise on advances in technology and improvements to connectivity (e.g. with the arrival of third generation data transfer and 3G wireless). As well as providing internet services, forms of various public and private organizations, CIC shops would also be a local vendor of GP products, mobile SIM cards, and top-up credit, thus becoming an outlet through which rural population would come in proximity of GP

4. Having expressed interest in replicating the RIC initiative in new rural and peri-urban locations, Broadlink and DEN, with decreasing levels of support from Katalyst, went on to establish a further 30 RICs between them in the three years that followed.
5. Grameenphone is the largest mobile operator in Bangladesh and is a joint venture enterprise between Telenor (55.8%), the largest telecommunications service provider in Norway, Grameen Telecom Corporation (34.2%), and shareholder institutional investors (10%).
6. CIC/RIC is a shared premise/shop in a rural area; where the rural people can have access to wide range of ICT services such as Internet, voice communications, video conferencing and all other information services. Typically a CIC is run by a small entrepreneur with 1/2 staffs.
7. GSMA is an association that represents the interests of approximately 800 mobile operators worldwide (see GSMA website for details: *www.gsma.com*).

products. CIC entrepreneurs also stood to gain from such sales, along with other computer-based services (with top-up constituting a high-revenue, low-margin offer, and services a higher-margin offer, though in far less demand).

Finally, Katalyst would find a sustainable solution to the lack of timely, high quality agricultural advice for farmers in the more remote parts of Bangladesh. With an improved information environment resulting from a number of well-located shared access points, CICs would provide much needed demand-responsive information services to small farming communities - communities who would otherwise struggle to identify and access reliable and timely advice.

3.1.2 Defining roles and responsibilities: Good for the sector, good for enterprise

Grameenphone led activities that sought to develop the physical infrastructure and service quality of the CICs: providing internet connectivity, linking the CIC entrepreneurs to sources of credit, CIC branding, granting CICs distribution rights to all GP products and services, funding local CIC promotion, and, together with Katalyst, supported the upskilling of the entrepreneurs through the development and delivery of several in-house training modules. In addition, Grameenphone staff would be available at GP headquarters to provide technical support to the new CIC entrepreneurs. Contributions from GP were thus focused more narrowly on enterprise-relevant concerns.

Conversely, with the learning from the pilot under its belt, Katalyst had been able to diagnose and identify a handful of systemic constraints that, if unaddressed, would hinder the emergence of rural ICT services. For Katalyst, the next step was to take the lead on providing technical expertise to carry out the relevant 'developmental' activities – from research which informed service bundle composition, to content development, to rural promotion of ICT-based services. Two of the most pressing were seen to be (i) the absence of commercial content providers (outside of those individuals contracted by development agencies) and (ii) the pervasive lack of awareness among the target population of how ICTs could be of more relevance to their livelihoods. Addressing these would be good for GP, but more importantly, they would be good for the telecoms industry as a whole, improving the market conditions to support future service development in rural areas, and paving the way for second-movers.

The selected CIC entrepreneurs, once shortlisted and selected, were expected to invest in equipping their CICs with the hardware necessary to bring the CIC to life – a minimum of one computer, a printer, a scanner, a web-cam, and an EDGE-enabled modem. The nature of the model means that the CIC brand takes over an existing enterprise already being run by the entrepreneur, meaning that office/shop space is largely already taken care of.

3.1.3 Facilitation effort

Katalyst's support – in providing both strategic advice and technical assistance – attempted to balance the imperative to get things going with the need to not get too deeply embroiled in activities that would have to be undertaken by private or public actors in the future. This entailed the buying-down of risk and the installing of new (or improving of existing) market functions and rules that would be critical to enabling telecoms operators to create commercial telecentre propositions. This approach to facilitating change permitted the programme to do and pay for activities that developed the market, and on the way, support its first-mover partner Grameenphone to expand into riskier, lesser-known rural segments. Whilst the aims of each organisation – private sector partner and development programme – were different, the actions of each would further the endeavours of the other.

Innovating service lines to strengthen the service bundle

Katalyst had a role to play in expanding the bundle of services that CICs offered, building upon the service lines originally available at the RICs and GPs sixteen CICs. Whilst building agricultural information services into the bundle remained Katalyst's primary focus, the programme was also instrumental in adding job-related and small enterprise-related information services to the telecentre offer. The notion behind Katalyst's support in this area was that GP would go on to recognise the importance of continually analysing the relevance of their service bundle, researching customer demand for different ICT services, and updating their bundle accordingly.

Working towards a sustainable market for agricultural content service providers

When Katalyst partnered with Broadlink and DEN to establish the first three RICs in North Bengal, it had contracted an independent local agriculture specialist to work for one year (2005-06) to develop a customised local language database concerning the production of agricultural crops relevant to the region, as well as fisheries and poultry, thus covering three sub-sectors in total. Upon completion of the database, and seeing the potential to take the idea further, the consultant sought support from Katalyst to create a spinoff company in the field of agricultural information service provision, WIN Inc.

In 2006, WIN and Katalyst funded the further population of the existing database, allowing WIN to add information on more agricultural sub-sectors, new business ideas relevant to rural areas, and a number of citizen service briefs. Its conversion into a free, open-access web-based platform (www.ruralinfobd.com) was also funded. The information generated belonged to WIN and was theirs to sell or give away as it chose. As part of the spinoff arrangement, WIN also formalised a rigorous content development process. This involved collecting information from various government and non-government sources, screening it, undertaking a field visit to gauge farmer information requirements, drafting content, and ensuring expert panel validation, field testing, and finally, content upload. A content update matrix was also pioneered: a computerised system that flagged content on the database that required a quarterly or bi-annual review to verify whether or not any new products, technologies, or best practices had been developed and approved for dissemination. Entrepreneurs were trained in how to use *www.ruralinfobd.com* and were encouraged to contact WIN should solutions to information requests not be available on the web platform.

Raising awareness through marketplace promotions

Awareness-raising events initially concentrated on promoting the CICs, their services, and ICT in general, not agricultural information services per se. The focus

Grameenphone Information Centre: Changing Lives with Information. Farmers now have easy access to agricultural related information.

was simple: to get people through the doors of the CICs. To begin with, promotional efforts covered 115 different CIC locations and largely took the form of billboard installations and haat festival events (market place gatherings) where online demonstrations of CIC services were projected onto large screens, farmers were introduced to their local CIC entrepreneur, and discount coupons distributed to encourage audience members to visit the local CIC.

Identifying, recruiting, and training CIC entrepreneurs

Following the placement of advertisements in local newspapers, Katalyst and Grameenphone evaluated respondents, searching for entrepreneurial candidates with appropriate qualifications, knowledge, and work experience, as well as the softer skills of commitment, commercial orientation, and dynamism. Candidates had to have the capacity to invest in the CIC as a business, understand the nature of the licensee model, and be able to represent the GP brand. Thousands responded and a short-list was quickly drawn up. A site visit was conducted for each short-listed candidate, serving the dual purpose of interviewing the prospective entrepreneur and inspecting their existing or proposed business premises (size, location, degree of formality), and to ensure that they understood the investment required. Two hundred-and-fifty entrepreneurs were selected.

The next step was to build the capacities of the selected entrepreneurs so that they were able to promote and perform the services that their centres were to offer. Katalyst funded the development of the initial entrepreneur training modules and also developed a module for Grameenphone's trainers so as to embed the capacity to train new entrepreneurs within the organisation itself. GP's own 'master trainers' – from the New Business Initiatives and Fibre Optics Network departments that oversaw and supported the CIC network – would then be able to replicate the modules as and when new entrepreneurs were selected and new CICs licensed. GP then funded a series of capacity-building workshops for the new CIC entrepreneurs, delivering material covering the managerial aspects of running a CIC (the business model, centre management, accounting, and reporting) and the service delivery aspects of CIC-related services (information and non-information services). This constituted the one-off introductory training compulsory for all new CIC entrepreneurs. Follow-up, refresher training sessions (in person or from a distance) were to be provided when new service lines were added to the service bundle, with materials provided by the body responsible for innovating the new service line. In this regard, capacity-building (of both the trainers and the entrepreneurs), be it remotely online or in person, is intrinsically linked to service innovation and was seen as an ongoing internal function for GP to own and undertake.

3.1.4 Grameenphone roll-out the model

Two years after the first CICs were trialled, GP made the decision to roll out the CIC model nationwide, expanding to some 450 sub-districts and 500 CICs by October 2008. In the months that followed, GP weighed up the potential for expanding CIC presence yet further, considering whether the market could accommodate an additional 500 telecentres. However, the intent to grow further was re-shaped significantly by the plans of a number of public (and some private) new entrants, fuelled by Digital Bangladesh and a UNDP-supported government initiative at union-level.[8] Rather than expand, GP opted to consolidate, concentrating on providing their CICs with improved support so a high benchmark of service quality could be standardised across the existing network. Throughout this period, Katalyst continued to support GP, with very few qualitative or quantitative changes to the partnership.

3.1.5 Outcome of the initial Katalyst-Grameenphone partnership

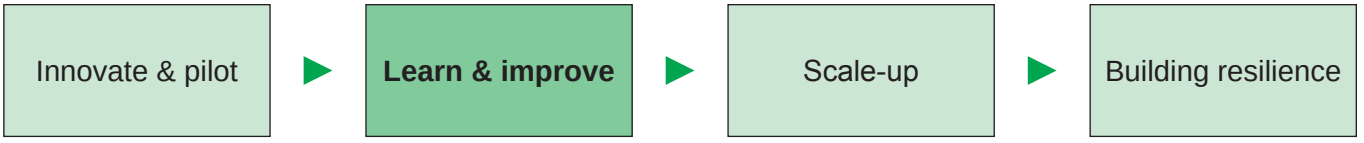
Run independently as small businesses, entrepreneurs sourced from local communities were beginning to make viable enterprises out of the CIC, with 85-90% recouping their investments after 12-15 months, and a similar proportion profitable thereafter. Whilst viable, unsubsidised telecentres had emerged from the partnership, thus meeting GP's corporate objectives, Katalyst needed to revisit its mandate to ensure that its own objectives were being satisfied.

Significant learning points leading to changes in strategy

In late 2008, Katalyst commissioned an interim impact assessment to better understand service awareness and usage dynamics in and around the new CICs. Ten CICs were selected for the study and over 2,200 users profiled (579 of which were selected for in-depth interviews). The assessment brought to light several concerns that prompted Katalyst to re-visit its implementation approach, in particular the low awareness and usage of the centres among the farming population and the extremely low usage of information services, particularly agricultural information services.

- **Service difficulties remained:** Problems with internet connection (speed), infrastructure/facilities (no. of computers), and service quality (opening hours, skill set of entrepreneurs) persist. Whilst 85% of customers were somewhat satisfied, the remaining 15% of service users have had some level of dissatisfaction with the aforementioned connectivity, access, and/or quality of service issues.
- **Few farmers:** Only 4.7% of service users were farmers (n=579); the majority were students or large and small business owners. Farmers, as a segment, were seemingly far less aware of the centre's existence, what kind of services were on offer, and how they might possibly benefit from paying for services.[9] Marketing efforts had not hit the farming demographic and had not addressed the underlying causes behind why demand remained latent.
- **Information services were less popular:** Customers would generally purchase non-internet/non-information services such as flexi-load (mobile top-up), digital photography services, photocopying, and basic computer composition (word processing). Information-related services, be they business-, job-, education-, or agriculture-related were far less in demand. Only three of the ten CICs sampled had supplied agricultural information services and only 1% of all service usage was to avail agricultural information.
- **Sustainable content provision still not secured:** Whilst WIN is a sustainable, profitable enterprise in its own right, the web-based platform that feeds into the CIC service offer is not itself profitable, and to some degree is cross-subsidised by WIN's other revenue streams. With the market for content provision (paid-for information services) in Bangladesh only recently emerging, and with no alternative market player able to put forward a competing offer, Katalyst's model for reaching the poor would thus be at risk if WIN stopped investing in *www.ruralinfobd.com.*[10]

8. The government of Bangladesh, with support from UNDP, made substantial investments in rolling-out a telecentre model that has seen 4,000 union information and service centres (UISC) established nationwide. Akin to the CIC model, UISCs are both entrepreneur-run and intended to be revenue-generating. Significantly though, all upfront investment costs are being borne by UNDP and the government, from the equipment used to the UISCs being housed in local government offices.
9. It was the case, however, that over half of survey respondents had an additional occupation besides their main occupation. Of these, many secondary occupations stated were farming or agri-business related.
10. In mid-2011, WIN began to charge CIC entrepreneurs a subscription charge, segregating its content into basic and premium categories, though up until that point, all information had been available on the web-based platform without charge.



Whilst the CICs were growing in popularity and were fast becoming sustainable, profit-making entities, their customer base was narrow, mostly peri-urban, and not representative of the target population Katalyst was aiming to hit. It was clear that improvements were required.

3.2 Improving the CIC model

With little detectable effect on the information-seeking behaviour of the farming population by the end of 2008, the widespread lack of awareness and interest in ICT-enabled information services among Katalyst's target group was concerning. Farmers were neither drawn to the centres by demonstration effect, nor responsive to short-term promotional efforts aimed at stimulating behavioural change. They thus remained beyond GP's reach.

3.2.1 *E-krishok* for sustained demand creation

It was evident that a significant shift in Katalyst's focus from addressing supply-side weaknesses to concentrating on demand-side weaknesses would be required. Katalyst needed to work with Grameenphone's communication team to improve the targeting of farmers so as to create a demand for the agricultural information services that the centres provided. In response, the concept of *e-krishok* (meaning 'e-farmer') was devised and trialled in ten CIC locations[11], expanding to 100 locations nationwide in November 2009.

E-krishok signified a departure from the ad hoc market place events that constituted the first wave of Katalyst's awareness-raising activities. The intention was to add a further physical 'extension' component to service delivery. If the difficulty was getting farmers through the doors of the CICs, then *e-krishok* would witness a change in modus operandi: the CIC would go to them. In order to overcome the cultural and social sensitivities of farmers still unwilling to experiment with a new, unaccredited information source, an additional human dimension – a brand promoter (BP) – would be added to interface between the farmer and the centre entrepreneurs. The BP would function as a private extension agent, organising farmers through 'courtyard meetings,' collating their assorted information needs, and availing the information directly from the CICs on their behalf. One hundred BPs were recruited, trained and were handed seasonal contracts with a performance-related pay component.

Outcome and learning from the initial *e-krishok* campaign

Following evaluation, it was clear that *e-krishok* had created an exponential rise in the number of CIC customers seeking agricultural information and had helped to overcome some of the hurdles that had previously dissuaded farmers from service usage. It was hoped that this burst of exposure would be sufficient enough to swell CIC footfall in the long-term. However, evaluators witnessed a dramatic fall in requests for agricultural information once campaign activities had drawn to a close. Furthermore, whilst thousands of farmers were reached and requests for advice placed, there was a surprisingly low service access-to-farmer benefit ratio.[12] A more in-depth understanding of the *e-krishok* model suggested BP motivation was at the root of design weaknesses.

Once BPs had 'recruited' farmers to participate in *e-krishok*, they had little incentive to concentrate on the quality of information delivery and the follow-up services required of them – in large part due to the short, fixed-term nature of their contracts. Advice was poorly communicated and recommendations were

11. 10 CICs were trialled to gauge the potential effectiveness of a larger *e-krishok* campaign. The trial took place between October 2008 and April 2009. The trial reached 756 farmers directly (2,500 including indirect outreach), with 550 of them utilising services, and 150 (27% of all service users) deemed to have benefitted as a result of applying the advice.

12 The 'access-to-benefit' ratio is a calculation Katalyst uses to determine the proportion of customers that end up becoming beneficiaries (farmers who have benefited financially). This pointed to several problems with the BP model. It was possible that a significant proportion of the requests for information were retrieved from the CICs by the BPs but that solutions could not be delivered back to the original farmers who had requested the service. It was also possible that a number of farmers did not trust the information that was being delivered by the BPs and therefore did not utilise the advice given. Finally, it may well be that a sizeable percentage of farmers were only partially applying the advice given (e.g. purchasing inferior quantities/qualities of inputs recommended) resulting in little to no effect at the farm level.

e-Krishok demonstration plot

given for products that were not available in local shops. There was also no mechanism to ensure that they had applied the solution appropriately. As such, even when good information was given, advice was often diluted or misapplied by the farmers, resulting in little or no gain. In spite of the challenges faced, both Grameenphone and Katalyst were keen to persevere with the BP model if appropriate modifications in design and execution could be made. It was clear that the human interface had generated interest, and that demand stimulation was a permanent function required for successful service provision.

Modifications to the original e-krishok: *Launching* e-krishok II

E-krishok required tailoring. It was certain that the promotion function needed to be continuous, and that a stable human interface between farmer and CIC was necessary. However, the incentives underpinning the first *e-krishok* campaign were not well-aligned to those of the individual BPs upon whom the success of the model depended. In mid-2011, Katalyst conceived an improved *e-krishok* strategy, unveiling *e-krishok* as a new fully-formed private extension function operating out of CICs in the local community. In early 2012, the modified *e-krishok* was launched and rolled out at 350 of the 500 CIC locations nationwide, with the following changes:

- **A service, not a campaign:** *E-krishok* is now an independent entity that acts as an 'add-on' to the CIC model. It is fully owned on a commercial basis by private company, Bangladesh Institute of ICT in development (BIID), whose aim it is to roll out *e-krishok* as a two-pronged, private agricultural extension service that makes good use of technology to source, locate, and deliver information. As before, one element involves BPs sourcing requests from farmers and delivering personalised solutions with follow-up services via the CICs. This is offered as a free-of-charge service that farmers register for. The significant change from the initial *e-krishok* is that BPs would use the newly-created *e-krishok* web-platform to source solutions. The second element will see the inauguration of an SMS service, routed through GP (shortcode 16250). This involves farmers subscribing to one of two service packages

whose costs depend on the intensity of text/voice interactivity farmers wish to have.

- **Linkages with distribution channels for inputs:** BIID has also negotiated private sector sponsorship to cover some of the costs associated with service launch and maintenance. In return, companies will be given the opportunity to use the BPs to 'promote' their products if they are relevant to the advice that the farmer has requested. BPs will therefore have an additional role in helping farmers to source good quality agricultural inputs, as a result of having a relationship with the distribution networks of sponsoring input supply companies. This helps to ensure that any products recommended by the BP (pesticide, insecticide, fertiliser, seed), will be available for purchase from input dealers close to the CICs. ACI is one such company that sponsors *e-krishok*. Importantly, BPs promote a range of high quality products available locally, not just those of their sponsor.
- **Nuanced performance-related pay for BPs:** The BP pay structure has been re-designed to have a three-fold element, whereby small bonuses would be administered at various junctures in the private extension-farmer interaction: firstly for achieving a targeted number of subscribers, secondly for follow-up and quality assurance, and thirdly for advice resulting in positive farm outcomes. Throughout the first *e-krishok* campaign, both Katalyst and Grameenphone funded BP positions in the short-term. The modified *e-krishok* will also see BIID employ BPs on part-time contracts with targets attached.
- **Infrastructural backing:** A database of subscribers has been created by BIID, whereby farmer queries are being tracked and additional services being proposed, each tailored to the subscribing member. Each farmer has their own individual profile, made possible by the development of the aforementioned *e-krishok* web-based portal. BIID also manages a small team of headquarters staff who ensure that the portal is updated and that BPs are supported when needed.

The *e-krishok* service was re-launched on a commercial basis, and in keeping with that philosophy, 80% of the investment has been footed by BIID itself, with support from GP and ACI, and the remaining 20% by Katalyst, covering financial support for developing the SMS service and the shortfall in the initial up-front investment in a greater number of human resources. In addition to revenue from the SMS service, *e-krishok* aims to make a significant proportion of its revenue through contractual sponsorship agreements with large private input companies who view *e-krishok's* offer as one that essentially expands their distribution channels, allowing them to have more direct 'marketing' contact with an increasing number of farmers.

Box 3: What will the SMS service offer?

At the time of writing (May 2012), **BIID** were looking at a two-tiered model for its SMS services. The basic subscription package is a simple "question and answer" package, allowing farmers to text their problems (using a coded system to overcome literacy issues) direct to **BIID**, who will then duly respond with a solution. The comprehensive subscription package entails a free introductory phone conversation with a **BIID** advisor and five automatic text messages at key points throughout the agricultural season advising farmers on 'best practice' methods and timings as per their crop and geographic location. With both diagnostic advice available upon subscription and a series of tailored pre-emptive texts to guide farmers, such a model is already known in the region, with the **Reuters Market Light** service active in thirteen states across India. It remains to be seen whether Bangladeshi farmers are ready for such a service on a broad scale, but with mobile phone adoption being far more rapid than that of the internet in Bangladesh, the time may be right for exploring such avenues.

3.2.2 New additions to the service bundle: Fertiliser Recommendation Service

For some time Katalyst had been working together with the Soil Resource Development Institute (SRDI), a agency under Ministry of Agriculture, to arrive at a new mechanism for communicating the findings of the institute's extensive soil sampling, testing, and mapping work. Making the connection between SRDI's work and Grameenphone's commitment to service bundle innovation, Katalyst alerted GP to the potential of launching a new online service through their CICs.

Having completed the analysis of soil samples for unions across over 450 *upazilas* or sub-districts (90% of total *upazilas* nationwide), SRDI had collated the results into a voluminous book, largely unusable by anyone aside from a soil scientist, and with little interpretation of what the science means to the typical smallholder farmer. Together with specialist software developers, Katalyst and SRDI partnered to convert – both clarifying and digitising – the source text for online use, creating the Fertiliser Recommendation Service (FRS). Funded wholesale by Katalyst, the platform was designed to be routinely updated by SRDI staff as more *upazilas* are mapped (or re-mapped), without Katalyst support in the future.

To avail a solution, centre entrepreneurs are required to input a few basic details (*upazila*/union name, size of small-holding, type of crop grown, and observable soil quality descriptors as given by the farmer). This provides an automatic macro- , micro- , and organic-nutrient recommendation, specifying the types of fertiliser required, the exact quantities, and advice on when and how to apply the inputs.[13] Currently available in under half of all CIC locations (400 CICs, estimated by the end of 2013), entrepreneurs will be trained by GP's own in-house cadre of trainers as and when the FRS becomes available.

information for a total of 68 agricultural sub-sectors (up from 50 in 2007). Katalyst then supported WIN to put the necessary internal functions in place – content management system (CMS) software – to enable WIN to offer new, tailored services to other players within the telecoms industry, and to develop a more diverse client base and secure new revenue streams. As part of this push, Katalyst were looking to support the emergence of other content providers as and when market demand made it viable to do so.

A screenshot of Fertilizer Recommendation Software

Innovate & pilot ▶ Learn & improve ▶ **Scale-up** ▶ Building resilience

3.2.3 Stimulating a more competitive content service provider market

In 2008, there were concerns in Katalyst that the content service provider market was too immature to withstand even a small shock. Whilst the exit of WIN from the market was not something that was judged likely, Katalyst were eager to assist WIN to develop further as a business to ensure the flow of content services did not dry up. In early 2009, WIN began to re-invest in its www.ruralinfobd.com web portal to add

3.3 Increasing competition: More pro-poor, rural service offers

Since entering the ICT sector in 2005, Katalyst had worked through partners to steadily establish the supply-side of the market for ICT-enabled rural information services. The manner with which service development for rural audiences has been adopted and embedded within Bangladesh's largest telecoms operator, Grameenphone, assured Katalyst that this has been a true development in the information environment for the

13. As of March 2012, the FRS had provided recommendations to approximately 2,700 users, the vast majority of whom availed recommendations in 2009-10 following the service's initial launch, suggesting that the FRS requires targeted and continuous promotion until the availability of the service becomes far better known and accepted locally.

rural population. GP's successful segmentation of the market – developing products and services specifically targeting the needs of the rural customer – had also created an imperative among other leading players in the telecommunications market, not least Banglalink. From mid-2008 onwards, Katalyst began to wind down the direct technical support it was offering to GP and to search for new firms to be part of the programme's scale-up plans.

agricultural advice. In contrast, in the decade 1999-2009, Bangladesh had witnessed an explosive growth in the level of mobile phone penetration. By the end of the decade, over 30% of all Bangladeshis had a mobile phone subscription, over 99% of which were pre-paid accounts.

Katalyst, together with Banglalink, had a real opportunity to capitalise on the growth in mobile telephony as

Table 2: Active subscriber base of major telecoms operators

Telecom operator (network)	2009	2010	2012
Grameenphone Ltd (GP)	21.98	31.14	39.29
Orascom Telecom Bangladesh Ltd (Banglalink)	12.13	20.18	25.49
Robi Axiata Limited (Robi)	10.56	12.81	19.21
Airtel Bangladesh Limited	2.69	4.37	6.73
Pacific Bangladesh Telecom Ltd (Citycell)	1.97	1.79	1.70
Teletalk Bangladesh Ltd (Teletalk)	1.07	1.22	1.36
Total	**50.4 mn**	**71.5 mn**	**93.8mn**

Source: BTRC website, Sept 2009, May 2010, Jun 2012

3.3.1 Establishing a partnership with Banglalink

Once the CIC model was operating effectively, Katalyst began to look into new ICT-based platforms for information service delivery, revisiting the findings of their Indian study tour and undertaking more desk-based research into different service modalities. The expiration of the fifteen-month exclusivity agreement[14] with GP allowed Katalyst the opportunity to establish new partnerships in the sector, and in early 2008 Katalyst contacted Banglalink to explore the possibility of a fresh collaboration and a new ICT-based service offer targeting rural areas. After initial discussions with Banglalink's senior management, Katalyst proposed two service model ideas. The first was a Banglalink-branded telecentre, similar in concept to GP's CICs. The second was premised on a call centre model, whereby rural customers could dial a short-code number and receive agricultural information support from a call centre at a per-minute rate.

When incentives align

In early 2008, near three-quarters of all rural Bangladeshi citizens were unaware of the internet,[15] let alone had an understanding of how it may be used to access

a means of overcoming the many of the physical, cultural, and social hurdles to delivering computer-based services to the rural population. Voice-based service delivery would both help sidestep illiteracy among the farming population, allow farmers to access information instantaneously from their fields, and avoid the connectivity speed difficulties and service down-time problems faced by telecentres. Although yet to be a day-to-day commodity, mobile phone ownership had also grown to be increasingly commonplace, even in rural areas, boosted by the falling cost of handsets (between USD10-15).

Banglalink were keen to hang their rural expansion strategy for mobile phone penetration on a unique selling point; value-added services (VAS). The call centre model fitted the context and resonated well with Banglalink's focus on voice-based channels, over-and-above data/internet services.

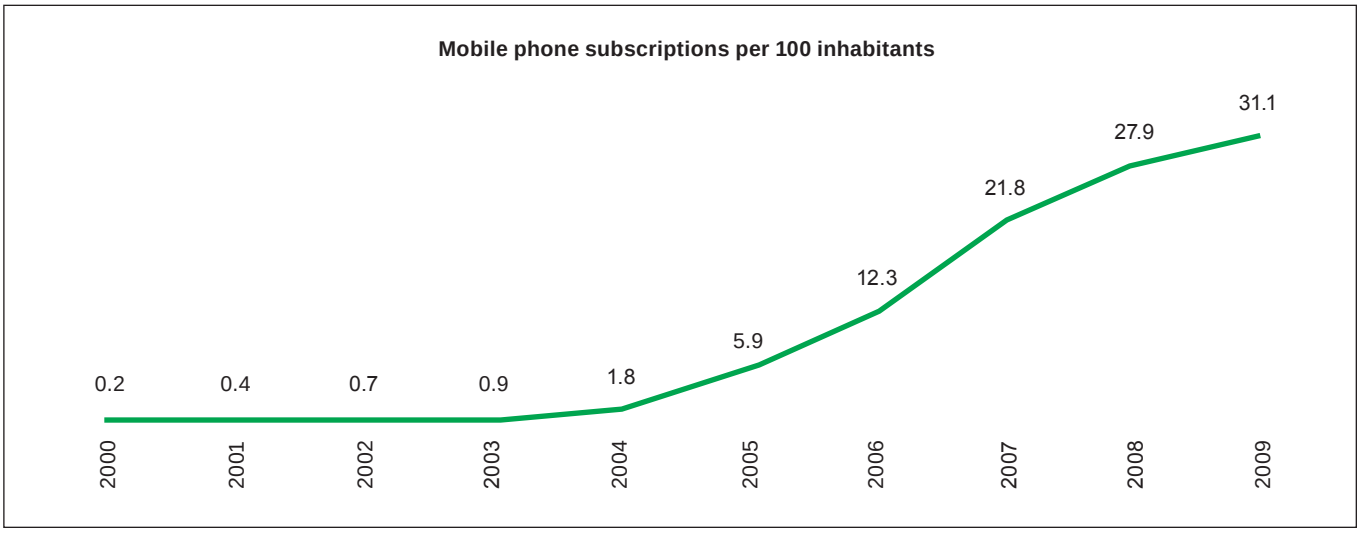
3.3.2 Defining roles and responsibilities: Good for the sector, good for the enterprise

Not coincidentally, the systemic constraints that had once restricted the emergence of the telecentre model two years previously were relevant to the newly proposed

14. Katalyst and GP also have a non-disclosure agreement, where Katalyst has committed to treat sensitive information pertaining to GP's strategy, business direction, and technological innovations with confidentiality. The exclusivity agreement mentioned was purely confined to working with GP on developing the CIC model.

15. Bangladesh Telecoms Sector: Challenges and Opportunities, AT Capital Research, 2010

Figure 2: Growth in mobile phone subscriptions, Bangladesh (2000-2009)



Source: Bangladesh Telecoms Sector: Challenges and Opportunities, AT Capital Research, 2010 (Original Source, ITU)

call centre model too. Just as Grameenphone required entrepreneurs to run the telecentres, so Banglalink would require call centre agents able to field helpline calls. Just as Grameenphone had required support in developing a service bundle that matched the needs of the rural poor, so Banglalink would need to identify the types of information service most demanded by the poor, and those most applicable to voice-based delivery. The same applied to the requirement to buy-in content. Akin to the telecentre campaigns, the helpline would also require extensive marketing and awareness-raising activities. Whilst less problematic than encouraging the utilisation of internet services in computer shops, the helpline, as a completely new service, still required significant investments on the demand side to build the brand and service awareness needed to encourage the rural poor to experiment.

3.3.3 Facilitation effort

With experience gained from partnering with GP, Katalyst was in a strong position to advise Banglalink on how it may most expediently develop its own helpline model. In maximising its support to alleviate market constraints, and minimising support that solely tackled firm-level constraints, Katalyst was in a position to leverage the groundwork accomplished through the GP partnership in its new partnership with Banglalink. Facilitating the development of call-centre services would require less intensive and less costly support.

Establishing and staffing the call-centre

Decisions needed to be made as to what form the call-centre would take; whether it was to be in-house or outsourced, whether it was necessary to staff the call-centres with agricultural experts or use a non-expert FAQ database model. By mid-late 2008, Banglalink had selected Workstation Information Technology (WIT), licensed by the Bangladesh Telecommunication Regulatory Commission (BTRC), to operate the helpline, which would staff its centre with between eight and thirty-two graduates from agricultural universities in correspondence with peak call times and promotional pushes. Banglalink drafted a three-year contract with WIT, detailing the nature of a revenue-sharing agreement and the key performance indicators[16] that Banglalink would assess WIT against. On its side, WIT invested

16. Banglalink and Katalyst set the following indicators: hold queue waiting time, call drop rate, percentage of agents with an agricultural background, and various other technical quality parameters, against which WIT reported back to Banglalink's call centre team on a daily basis.

in its call centre software to ensure that the necessary records could be kept and customer satisfaction monitored. A customer relationship management (CRM) system to gather caller information was developed, as was a training module for call centre supervisors teaching basic customer service techniques and means of questioning callers so as to cross-reference farm-level symptoms.

Linking Banglalink with WIN

Despite being the agricultural content provider for the Grameenphone CICs, WIN remain free to enter into partnership with, and sell their product to, whomever they chose. Whilst the core content is identical, WIN customise the packaging of their product upon client request to suit the needs of different information service modalities. With Banglalink requiring the services of a content provider, Katalyst introduced the two parties, allowing the two sides to settle a revenue-sharing agreement for the services that WIN would supply. Under this agreement, WIN transposed all content from their *www.ruralinfobd.com* web-based platform into a tailored content management system (CMS) and trained WIT's call-centre agents on how to use it. The cost of designing and building the CMS software was split between Katalyst and WIN, with the former believing that the Banglalink contract would be sufficient enough for WIN to become financially sustainable content providers. The CMS contains information on seventy-five agricultural commodities, poultry, livestock, and fish production.

Promotional efforts

Banglalink uses a mostly below-the-line promotional strategy, alerting existing customers of the helpline through SMS notifications and pre-recorded calls to customer handsets. Whilst low literacy levels may impede the success of the SMS notifications, the pre-recorded call tactic regularly yields a high number of calls to the helpline. Banglalink use this direct call strategy between one to three days each month for each of the services they are trying to promote, often resulting in over three times the amount of calls they get on non-promotional days. The short-code number assigned (7676) and the branding (Jigyasha) has also featured in above-the-line promotional efforts, including television commercials and a press campaign.

3.3.4 Outcome of the Katalyst-Banglalink partnership

Banglalink's *Jigyasha 7676* service was launched in mid-December 2008, just seven months after Katalyst and Banglalink first discussed the concept. As one of the first commercial helplines of its type in the world, it is unusually free of subsidy. The model relies on somewhere in the region of 60,000 calls per month to cover costs, though this number depends greatly on average call duration and therefore call relevance. Following steady month-by-month growth, between August and December 2010 the *Jigyasha 7676* call-centre received a total of 138,459 calls, though with only 13,673 of these being relevant enquiries (i.e. only 10% of all calls were requests for agricultural information)[17], it was clear that, as with the CICs, targeting was an issue. As a value-added service, the helpline's revenue-generating potential is only one aspect of Banglalink's strategic decision to maintain the service. In reality, it is part of their wider strategy to expand into rural areas and gain brand recognition among first-time mobile phone subscribers.

Improvements to the model: Building on success

- **Targeting input retailers:** In November 2010, Banglalink began a three-month campaign to target input retailers with a new *Jigyasha 7676* offer. The notion was to encourage the retailers of agricultural inputs to offer farmers advice either at point-of-sale, or as a free service, as a means of inducing greater customer loyalty and retention. Despite an intensive marketing drive, the input retailer SIM cards (charging only BDT2/min+VAT for calls, a 60% discount on the standard charge) did not prove popular, and efforts to push the offer further were discontinued.
- **Developing a helpline service bundle:** The encouraging take-up of *Jigyasha 7676* led Banglalink to add a number of other helpline services to their value-added services portfolio, and in August 2009 Banglalink launched *Jigyasha 7677* for small business owners. Three further services, two health lines and a tourist information line, followed in later

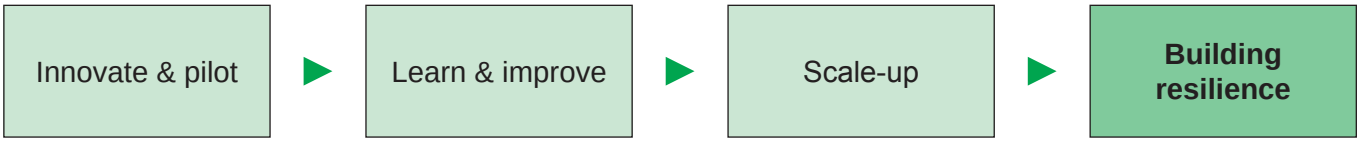
17 Whilst the helpline received hundreds of thousands of calls over the course of the year, it was important to distinguish between those which are relevant, genuine requests for agricultural advice and those which are not (callers who misdialled, callers asking for non-agricultural advice, callers simply finding out about what the service is/non-user, and so on).

years. Whilst the small business service and tourist information line received minor Katalyst support, the health lines emerged without assistance.

- **Greater corporate prominence:** Whilst the Value Added Services department is ultimately responsible for service execution, support, and maintenance, they also oversee and coordinate the involvement of two other teams internally with respect to the suite of helplines. The SME team are responsible for concept and product development, and the customer care team are responsible for dealing with complaints and informing customers about service improvements. The separation of roles to three specialist teams suggests the helplines have institutional gravitas and form a core offer to their existing customers.[18]

providers and dissemination channels. Secondly, due to the farmer mindset, private extension will only be accepted on a wide scale once endorsed by government. Consequently, there has been a concerted effort by Katalyst to effect a policy guideline change that reformulates how public extension agencies interact with non-public agencies, as well as how they coordinate with and utilise one another.

In working towards a set of parameters for information collation, quality control, and communication between public and private agencies, Katalyst required an agreement to be reached whereby agricultural research and information generated in the public domain could be shared with those private players involved in agricultural information dissemination. It also required an agreement that governs the validation of privately-generated agricultural information by those public authorities with the greatest purview of the sector – notably the government's Agricultural Information Service (AIS). As a by-product of this engagement with the Ministry of Agriculture, Katalyst also aimed to dramatically shorten research-into-use (RIU) time, stripping out the bureaucratic blockages that prevent faster knowledge accumulation and technology transfer.



3.4 Supporting service quality through public policy advocacy

Since the beginning of 2011, Katalyst has been looking to crown its work in the field of private agricultural extension with an increased focus on the interplay between public research and extension bodies and private delivery channels. There are two reasons for this. Firstly, privately-delivered agricultural information necessitates a certain degree of quality control, given the relatively uneducated status of farmer users and the relative lack of competition among content service

18. In late 2010, Banglalink formed a rural market team within its marketing department, the four members of which will concentrate on researching products and services targeting the rural customer segment.

3.4.1 Approach to facilitating policy change

To engage with government effectively, it was vital for Katalyst to understand exactly how the Ministry of Agriculture and its related seventeen agencies organised themselves and operated with respect to agricultural information, as well as to locate the most receptive parties within each. To do so, Katalyst hired a former senior Ministry of Agriculture official, knowledgeable about public systems, to advise where the more pronounced delays in the research-knowledge-extension process occurred, and as a barometer for understanding the willingness among public agencies to share information and play the content validation role for information sources outside of government.

Aiming for little wins through growing bilateral relationships

In June 2008, WIN and the AIS signed a memorandum of understanding in which AIS agreed to distribute to WIN any new information and research deemed ready for public consumption. The MoU was a logical division of labour. Whilst AIS generates content and has some means of disseminating it, WIN is better set up to perform the function of dissemination. Agreements such as these allow agencies like AIS to focus on information generation, permitting private sector companies (such as telecoms operators) to concentrate on communicating agricultural information as per their specialism.[19]

Proposing a new policy guideline for agricultural information

Building on the momentum of AIS's agreement with WIN, Katalyst proposed a guideline to govern the flow and communication of agricultural research, information, and technology transfer. Focusing less on the specifics of information-sharing practices, this guideline provides a framework for the quality of interactions between public and private agencies for the assessment of agricultural information, an interpretation of how it can be translated into digestible advice, its conversion into usable formats, and its dissemination through relevant channels. The guideline would see the inauguration of a new Committee on Assessment of Information (CAI) housed within the AIS, whose remit it would be to gather, assess, approve, and, if necessary, re-formulate knowledge and technologies originating in both government sister agencies and outside of government. The AIS, through the CAI, will also develop and maintain an information repository for agricultural knowledge which is ready to disseminate. Under this, different sector- and subject-specific inventories will be prepared and 'packaged,' content routinely verified, and farmer-friendly materials crafted from scientific findings, all ready to be forwarded

19. AIS routinely shares a variety of research and feeds WIN updated information on agricultural inputs on a quarterly basis.

to the various public (i.e. Department of Agricultural Extension, or DAE) and private dissemination channels.

Progress in policy change

Following stakeholder consultation, the guideline was submitted to the Ministry in February 2012 and is pending approval. Authorisation aside, operationalising the policy guideline will be a complex process. Without investment in the right infrastructure and an increased human resource budget, AIS will not be able to perform the content validation role outlined in the guideline. Given that implementing this reform will essentially rely upon government processes for procuring equipment and allocating central funds, the performance by AIS of the validation role is not anticipated to emerge in the short-term. With this in mind, it is important that Katalyst continues to push for improved engagement between the private and public sectors around simple information sharing and collaboration in dissemination activities, given the lesser cost and reduced institutional change implications.

Table 2: A summary of the facilitation chapter – where Katalyst and partners worked

STAGE	Innovate & pilot	Learn & improve	Scale-up	Building resilience
	3.1	3.2	3.3	3.4
SECTION	**Working with GP to introduce rural telecentres**	**Focusing on demand-side stimulation and better targeting**	**Adding competition and diversity with Banglalink's helpline**	**Encouraging information sharing and integrating government roles for quality control**
Content development	Supported WIN's spin-off, database population, and creation of web-based platform	N/A	WIN linked with Banglalink's call centre, WIT. BIID add web-platform and SMS subscription to *e-krishok*	Encouraged knowledge generated in public bodies to be shared with private sector
Service bundle innovation	Studied demand for ITES-enabled services	FRS added to bundle to increase relevance of CICs to agricultural audience	Banglalink developed their own suite/bundle of helpline services	N/A
Service provider capacity-building	Candidates short-listed. Entrepreneurs selected for CIC licenses received training from GP	N/A	Banglalink trained WIT's call centre agents in caller handling and WIT & WIN upgrade software	N/A
Marketing	Marketplace promotions of CICs with festivals and demonstrations	*E-krishok* trialled and added to CIC offer in an attempt to reach more farmers	BL: SMS, pre-recorded calls, and input retailer SIM package trialled. GP: Continued investments in branding licensed CICs	N/A
Extension policy and information-sharing	N/A	N/A	N/A	Policy guideline on information-sharing and public 'approval' of ICT/ private-led dissemination
Content validation and quality control	WIN's own 'expert panel' verify accuracy of content	N/A	N/A	Recommendations for the government's AIS to take-on a 'validation' authority role
Social norms	CIC entrepreneurs introduced to farmers at marketplaces and discount coupons dispersed	BP's (private extension agents) under *e-krishok* held courtyard meetings to encourage farmer registration.	N/A	Social norms toward privately-provided information channels predicted to improve

4. Impact

In the last five years, Katalyst has worked with Bangladesh's two largest telecoms operators to widen the number and variety of information sources and services available to the rural poor, particularly with respect to agricultural information. In intensive collaborations with Grameenphone and Banglalink, as well as through relationships with market players in supporting systems – BIID, WIN, WIT and AIS – Katalyst has been successful in overseeing the emergence of two new ICT-based service offers aimed at its target group. Importantly, these two service offers are part of a wider change in how the market system – involving the poor as consumers of information services and the telecoms operators as providers of information services – fundamentally operates. This wider change is both scalable and sustainable, allowing other telecoms operators to leverage the outcomes in the supporting systems facilitated by Katalyst, ultimately making service development possible.

This impact chapter will make the connection between Katalyst's facilitation efforts and outcomes in the market system, highlighting where one is the direct consequence of the other. It will also provide information on outreach and impact at the household level, based upon impact assessments.

4.1 Market system change

Making market systems work better for the poor is the central tenet of the Katalyst approach, reducing poverty in Bangladesh through facilitating improved market conditions at the systems level rather than solely the firm level. At the systems level, Katalyst has instigated significant improvements in the market for content services, in public-private information partnerships, in the marketing of ICT-based initiatives, and in service innovation. This has enabled telecoms operators to take advantage of new opportunities to serve the rural customer base, through reducing the risks they face in innovation and pushing out the service access frontier to rural segments. Meanwhile, Katalyst has used strategic partnerships at the firm level as a means to an end, providing 'proof of concept' that rural consumers can be served, allowing third parties (that is, non-partners) to learn from the new, commercially sustainable business models and respond competitively.

4.1.1 A change is adopted

Whilst sustainability and scale are commonly-used terms in development discourse, what sets the market systems approach apart is that sustainability and scale explicitly derive from how the programme sets about intervention: in part, the focus on alleviating the constraints found deep within supporting systems in order to enact an overall systemic change, and in part the facilitative manner in which programmes work indirectly through market partners from the outset of intervention. In the case of Katalyst, systemic change has equated to telecoms operators pioneering viable ICT-based information services for the rural poor. Sustainability and scale are products of adhering to facilitation principles, both working at a systems level and using strategic partnerships at the firm level, in a calculated and deliberate manner to see the systemic change desired adopted.

By early 2008, interventions to support content provision, service conceptualisation and design, the development of training modules to up-skill CIC entrepreneurs, and marketing had enabled GP to establish a network of 200 licensed CICs across the country, each providing GP with a physical entity through which it could offer a diverse range of ICT-services to the rural consumer. What is of most interest from a development programme perspective is what happened after this systemic change had been adopted. The change continued and took on a momentum of its own, becoming more embedded within partners, spreading without programme support, and prompting a response from players within the wider market system.

4.1.2 Signs of model adaptation

Grameenphone has invested heavily in the CIC model, recognising CICs to be important launchpads into the rural market. Considerable GP investments signifying the extent of the model's corporate value have been witnessed, the most noteworthy of which are highlighted below:

- **Increased corporate importance:** GP decided to mainstream CICs within their corporate plans, re-housing them in the Fixed Broadband and Channels Team, out of 'special projects'. It also allocated more resources to support the CIC network, dedicating fifteen full-time staff (five on product, ten on channel) to the network's expansion, evolution, and consolidation. GP have also made CICs into official sales channels for GP products, further acknowledging their centrality to GP's overall rural business model. CIC entrepreneurs have been given the opportunity to purchase GP products to sell on to the rural consumer. Some CICs (around 20%) have also had staffed customer service centres added, converting CICs into one-stop shops for both products and services in an upgrading initiative that has been ongoing since mid-2011.
- **Investment in processes:** Evidence of increased ownership over processes emerged with GP having established a content needs assessment (CNA) process to ensure that it was providing the services demanded by the communities living around CICs. Given the centrality of service bundle research and innovation to the relevance and additionality of the CIC service offer, this represented a landmark investment in seeking to better understand and respond to the needs of the rural consumer.
- **New services added:** The number of services available across most CICs also rose from approximately 11 to 27 (as of the end of 2011), with an average of five new services coming online each year. Few of these added services entailed Katalyst's involvement, and to all intents and purposes, Katalyst's final engagement on this strand of intervention was in the development and promotion around the Fertiliser Recommendation Service. Running parallel to the investments in the service bundle, Grameenphone also internalised important training and re-training functions, routinely creating, revising, and delivering 'modules' that ensure CIC entrepreneurs remain up-to-speed with the bundle as it changes and expands further. For Katalyst, each step was crucial, seeing GP press forward with activities necessary to make certain CIC survival.
- **Addressing cultural barriers to technology:** Increased funding has been ear-marked for marketing and promotions, from standardising a brand identity for the CIC network to investing in a nationwide programme of over 1,000 different rural events, constituting GP's biggest push yet to influence attitudes towards consuming internet-based services. That the majority of afore-mentioned developments occurred without Katalyst's direct involvement – both technical support or co-funding – is testament to the successful adaptation of the systemic change at the firm level. However, equally important to Katalyst was that the change spread to other telecoms operators, beyond firm-level change, to be a deeper systems-level change.

Table 3: Products and services available at CIC, then and now

Product/service type	2007	2011
General computer and internet services	8	12
GP-specific products and services	2	5
Agricultural information services	1	3
Health-related information services	0	2
Educational information services	0	3
Employment-related information services	0	2
Total	**11**	**27**[20]

20. Of the 16 new services now available through CICs, nine are information services, including *e-krishok's* website and BP service, the Fertiliser Recommendation Service (under agricultural information services), e-health and health-line 789 (under health information services), online examination results, admission, and study line (under education information services), and Bangla Job portal and Gonojobs services (under employment-related information services).

4.1.3 Adopted change sparks an expansion in the market for rural ICT services

Banglalink's helpline service

With Katalyst's support, Banglalink entered the market for rural ICT-based information services in late 2008 with their *Jigyasha 7676* agricultural helpline. Linked with WIN, who were themselves enabled to take on more content service provision contracts as a result of Katalyst co-financing the development of necessary software, Banglalink launched Bangladesh's first national helpline targeting the rural population. Building on the foundation of 7676, a diverse array of similar helplines followed, each offering a different service, from small business counsel to advice on health. Since then, Banglalink has increased its investment in helpline models as a value-added service important to both customer growth and retention in rural (and urban) areas.

In January 2012 alone, 16,028 relevant calls were received, representing a significant shift in the relevant to non-relevant call ratio. The higher caller relevance ratio will also result in a downwards movement in the helpline breakeven point (down from 60,000 callers/month in 2009/10) as relevant calls are longer in duration, generate more revenue per caller, and therefore offset the drop in the volume of total callers. At present, revenue from the helpline remains relatively stable, and with Banglalink's suite of helplines being part of both their wider value-added services and rural market strategies, the general assessment of service sustainability is positive.[21] It is likely that innovations in both service delivery and marketing will become increasingly important in achieving helpline sustainability. For the former, Banglalink has already experimented with a 7676 SIM package for input retailers, though this model itself was not pursued further as monitoring efforts concluded a very low take-up among retailers.

Grameenphone launch their own helpline

In June 2012, Grameenphone launched its own agricultural information helpline under the short-code 27676, as part of continued efforts to improve the diversity of the services it offers to its own consumers. Again, WIN was well-positioned to work with GP to provide content services as a result of its re-investment in software and additional firewall protection. Given GP's national network coverage and sizeable market share in mobile subscribers (around 40%), the availability of its helpline will give a sizeable boost to the overall accessibility of ICT-enabled information services country-wide. This helpline is anticipated to complement GP's CIC network as a rural information source, though as GP's services and *e-krishok* matures, it may well

21. Banglalink continues to search for ways of furthering the model, either improving the quality and diversity of services, or reducing operational expenditure and driving for efficiency. One of the principal challenges for Banglalink will be in negotiating the high costs associated with running a live call centre.

be the case that certain service lines become more associated with one delivery modality than another. The 'competition' is not deemed harmful by Banglalink, who believe that an increased awareness of the concept of a helpline will result from the launch of GP's helpline, and will encourage Banglalink's own customers to investigate whether or not such services are also available to them (resulting in increased calls to Banglalink's own 7676).

Signs of increased innovation among non-partners

Airtel, as the country's fourth most popular telecoms operator, has also made moves to introduce services of their own, which could in part be a competitive response to the actions of both Banglalink and GP. Airtel and Clickbd initiated Airtel's mBazaar, and Banglalink have also launched the KrishiBazaar service to target players in agricultural value chains (including farmers) with commodity marketing solutions.

4.1.4 Signs of the market responding to change

Notably, the appearance of multiple ICT-based information services has instigated a reaction from market players in the various systems that support such information services to be delivered, from content services to new extension functions.

The content services market is one that has grown from a base of zero since Katalyst first assisted WIN to develop www.ruralinfobd.com. Competitors have now emerged, and buoyed by the demand for more varied types of content (agriculture, health, tourist information), there is a vibrancy to this market that did not exist before, with *e-krishok* (BIID), Krishibangla, and Tripbd among others following in the wake of WIN. The arrival of competition is particularly timely now that WIN has begun to charge for accessing 'premium content' on their web-based portals. Through BIID's investment, *e-krishok* has also been transformed into a two-pronged ICT-enabled private extension function, using both human and mobile interfaces, and reducing the onus on the rural consumer to physically visit a CIC in order to benefit from its services. Around this development, other players have been catalysed into assuming new roles. Input supply companies are now, sponsoring private extension events in exchange for BPs recommending their distribution outlets, where relevant, as part of the solution provision process. The BTRC has been engaged to regulate in both the assignment of helpline short codes and to approve the use of, and oversee, subscriber-based mobile phone extension services

Finally, the issue surrounding information origin and quality control has begun to be addressed, looking to safeguard consumers of paid-for information services. The new policy guideline aims to place AIS as the interface between publicly- and privately-generated information, to ensure that content flowing through these new channels has been well-researched and verified as accurate before being disseminated. This will expedite the flow of information from generation through to rural dissemination, and support new information partnerships premised on market player specialisms.

4.2 Pro-poor outreach by service modality

With two new services now available and growing in their maturity, impacts are beginning to be realised at farm level. Measuring the numbers of those directly accessing the services, using the services, and benefiting from the services now on offer, Katalyst has been able to estimate the proportion of total customers that have recorded a benefit. The programme has also ascertained customer loyalty – a proxy for customer satisfaction – as measured through repeat user rates. Finally, Katalyst has studied the incidence of peer-to-peer information-sharing behaviour among farmers to estimate the number of indirect beneficiaries that might reasonably be judged to have benefited as a result of receiving second-hand recommendations from their neighbours and peers.

4.2.1 *Grameenphone's* CICs

In the 2008/09 season, promoted (*e-krishok*) CICs were receiving 0.42 customers each day in search of agricultural information, as compared to the 0.27 customers daily at non-promoted CICs. Assuming all of these customers to be first-time customers – given the newness of the service – a total of 41,000 farmers were estimated to have accessed agricultural information through CICs in this period. With a calculated service access-to-farmer benefit ratio of 68%, approximately 28,000 direct beneficiaries derived from the first full year of service availability. Assuming a modest copy ratio of 0.25 – that for every four farmers who benefit from a recommendation received from the CIC, there is one farmer who copies the recommendation availed by peers – and discounting a proportion of copiers who

misapply these second-hand recommendations (25%), somewhere in the region of 5,000 additional indirect beneficiaries can be added over that year. Together, Katalyst estimates approximately 33,000 beneficiaries in the 2008/09 season. Two years later, in the 2010/11 season, the number of customers seeking agricultural information services daily, either at the CIC or through the BPs, had risen to 1.50 and 0.36 for promoted and non-promoted CICs respectively. This represented a marked increase – over three times higher in promoted CICs – from two years earlier. Katalyst's assessments also indicate that around 30-40% of these were first-time customers, depending on whether the CIC in question was one of the 100 promoted under the *e-krishok* scheme or not. This suggests that only two to three years into the service being available, the bulk of customers (60-70%) were repeat service users. When coupled with the high and improving, 'access-to-benefit' ratio of 85% (up from 68%), such findings point to an increased acceptance and satisfaction with the service and the solutions offered.[22]

Table 4: Key outreach measurement indicators, Grameenphone CICs

Measurement indicator	08/09 (EK)	08/09 (non EK)	10/11 (EK)	10/11 (non EK)
No. of CICs	10	490	100	400
No. of customers per day availing agricultural information	0.42	0.27	1.50	0.36
Unique (first time) customers as % of total customers	100%	100%	39.5%	27.3%
No. of unique customers per year	1,272	39,984	22,734	11,788
Access-to-benefit ratio	68%	68.5%	85%	84.8%
No. of unique direct beneficiaries	**865**	**27,379**	**15,097**	**9,996**
Copy ratio	0.26	0.26	4.5	2.02
Proportion of copiers who misapply solutions	25%	25%	10%	10%
No. of indirect beneficiaries	**153**	**4,874**	**51,971**	**15,411**
Total unique beneficiaries	**33,272**		**92,475**	

The most notable finding is that the number of indirect beneficiaries in 2010/11 was found to be between two to three times higher than the number of direct beneficiaries. Reflecting Katalyst's increased understanding of the information-sharing and copying behaviour among farming communities, far higher copy ratios of 4.5 and

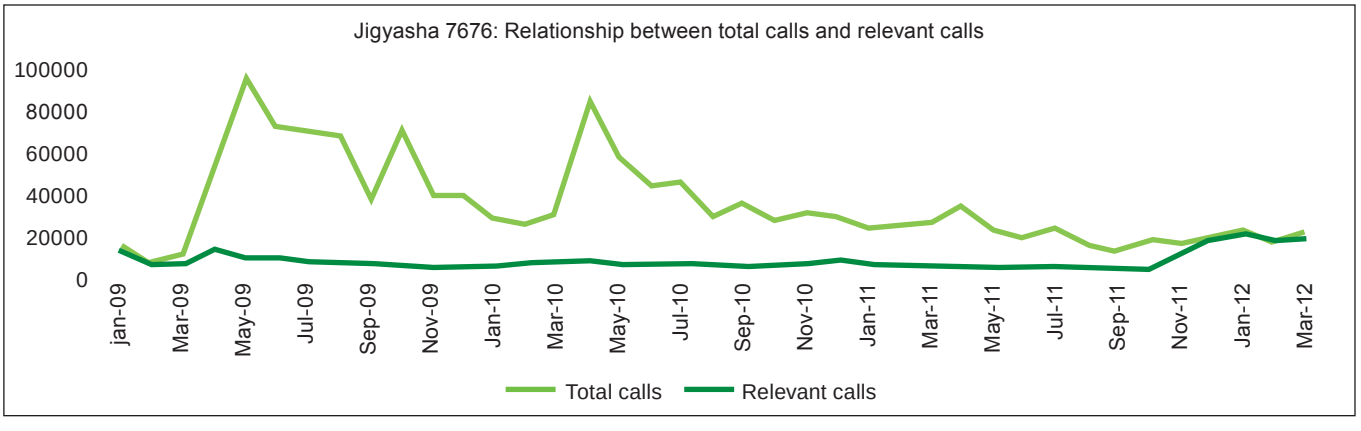
22. Significantly, farming households could not be randomly selected for Katalyst impact studies with the resources available and due to the CIC entrepreneurs themselves not keeping records of information service users. Katalyst therefore identified farmers using a simple 'snowballing' method where CIC entrepreneurs were asked to select the farmer sample to be used in assessment. This of course brings an inherent element of selection bias, as entrepreneurs are more likely to give the names of farmers that they know well, as they are repeat customers and customers that have enjoyed benefits from availing information at the CIC previously. This skews both results for the 'proportion of unique customers' (figure thought lower than reported) and the 'access-to-benefit ratio' (figure thought higher than reported). The reader should take this into account in interpreting the figures presented.

two were applied, resulting in an estimated 82,000 indirect beneficiaries for the 2010/11 season alone.[23] Accounting for this finding, Katalyst estimates an approximate figure of ***92,500 unique beneficiaries*** for the 2010/11 year.[24] As can be seen, the outreach of the CICs where *e-krishok* has been rolled-out (promoted CICs) is significantly higher than where the service has not been made available. As *e-krishok* is re-launched in 350 CIC locations, with the aim of registering 175,000 farmer members in total, service outreach is anticipated to expand once again.

4.2.2 Banglalink's *Jigyasha 7676* helpline

In mid-2011, Katalyst commissioned a study to determine the access-to-benefit ratio and repeat caller rates for the *Jigyasha 7676* helpline by randomly selecting 350 callers from WIT's customer relationship management database. Telephone interviews were carried out, and found that 82% of callers received a solution from call centre staff, that over 90% of these applied the recommendations provided to them, and that approximately three-quarters of those who applied the recommendations believed they had benefited financially from the information service provided. This gave an overall service access-to-user benefit rate of 57% (i.e. 201 callers out of 350) that could be generalised to all relevant calls logged in the caller database.[25] Caller volume and relevance rates have fluctuated considerably over the three-and-a-half years since the helpline's introduction. Analysis of the caller database shows peaks and dips largely correlated to the investments Banglalink has made in monthly SMS and automated voice call promotions. Only since the turn of 2012 have Banglalink's promotional efforts led to a dramatic improvement in the proportion of relevant calls to total calls – from a three-year average of 13% caller relevance to a 2012 first-quarter average of 90% caller relevance. The sizeable swing was due to both an improved 'rural customer only' targeting of Banglalink's text- and voice-based promotions direct to customer handsets and a growing acceptance of the service.

The number of repeat callers (measured as the number of relevant callers who have called more than once within the calendar year) has fallen steadily over the three years for which Katalyst possesses caller data – from 20.2% in 2010, to 18% in 2011, to 14.5% in 2012.[26] The proportional decline in repeat relevant callers relative to total relevant callers can be ascribed to a swell in the number of first-time relevant callers and



23. Katalyst is confident that beneficiary farmers are sharing their knowledge with their farmer peers and that they too are benefiting. Previous estimations of copy ratio had been conservative, but with evidence from farmer impact assessments and a study by Orgquest (Media habits of the poor, 2011), suggesting that information-sharing behaviour was far more pronounced, Katalyst decided it was valid to adjust the copy ratio upwards. Katalyst chose not to apply the same ratios in retrospect to the beneficiary calculations of previous years, despite an assumption that previous copy ratios were extremely conservative.

24. Indirect beneficiaries are estimated through first understanding the number of neighbours/peers that a sample of beneficiaries shared their solution with and then through applying the access-to-benefit and user misapplication ratios. Katalyst is able to apply a copy ratio due to the nature of the majority of solutions being related to pest, disease, and animal health. As communicable concerns, it was deemed intuitive that other farmers in the vicinity of the direct user (of the CIC) are also suffering from similar or identical problems and hence would also be in search of a solution.

25. This implies 149 of 350 did not ultimately benefit as a result of calling the helpline. Investigations found this to be a combination of callers who did not avail a helpful solution (n=64), callers who availed a recommendation but did not, for whatever reason, apply it (n=24), and a further number of callers who applied a recommendation provided to them that did not achieve the desired result (n=61).

26. Even with a database of caller numbers, repeat caller rates can be difficult to isolate. For example, in telephone interviews with 350 helpline customers in mid-2011, more than 60% of them stated that they had called more than once, representing a sizeable departure from an overall analysis of the caller database. The decision was made to use caller database data as customers interviewed were deemed likely to be counting the times that their calls to the helpline didn't connect and the times that they didn't understand the advice given and subsequently called back, as repeat calls. Repeat caller rates estimated through analyzing the caller database alone may be lower than reality as farmers who do not own a mobile phone handset or a Banglalink SIM may call more than once using the phone or SIM of different neighbours or peers.

Table 5: Analysis of the *Jigyasha 7676* caller database				
Product/service type	**2010**	**2011**	**2012 (to Apr)**	**Total**
Total relevant calls	9,454	31,202	44,004	**84,660**
Relevant calls from unique numbers (first-time callers)	7,546	25,594	37,569	**69,915**
Unique caller to total caller ratio	79.8%	82.0%	85.4%	**Av. 82.6%**

improved call-centre performance, resulting in fewer calls being dropped or unsatisfactorily answered initially, thus negating the need for callers to call back.[27] The fact that the repeat user rate for the helpline is lower than that for the CICs is to be expected, for several reasons: (i) rural users are sensitive to mobile tariffs and may switch networks from year-to-year; (ii) the helpline is more impersonal than the CICs, with no face-to-face interaction; and, (iii) Katalyst has not promoted the helplines as intensively as it has the CICs. In the first quarter of 2012, *Jigyasha 7676* received 44,004 relevant calls. Extrapolated for the full year, the helpline might anticipate to benefit somewhere in the region of ***85,000 unique callers*** throughout 2012, not taking into account farmer copying behaviour and indirect beneficiaries.

4.3 Farm-level impact and household income improvements

In the years since the introduction of both Grameenphone CICs and the Banglalink helpline, thousands of farmers have accessed timely, accurate information that would otherwise have been beyond their grasp, leaving them better-equipped to respond when crises hit, and more knowledgeable about opportunities to improve practices, production, and farm investment decisions. Indeed, it is in the response to crises where the ICT-based information modalities have demonstrated their additional value. The vast majority (+90%) of beneficiaries have benefitted from preventing near-certain losses by using the new information service platforms – both CICs and the helpline – to access information that aids them in countering and remedying identified pest, disease, and animal health concerns.

As can be seen in more detail in the annex, farmers benefiting from both CIC and helpline services revealed benefits ranging in size from BDT1,000 (approximately USD12) to upwards of BDT20,000 (USD240). This significant range is due to the sample covering farmers of differing crops, numerous pests and diseases, land-holdings, and response times. Benefits were ultimately realised by farmers avoiding a further loss in earnings following the outbreak for which they sought help at the CICs[28] and can be applied to the outreach figures given above.

For these beneficiaries, the additionality of timely and accurate information has proven to hold a relative value over-and-above alternatives with respect to pest, disease, and animal health concerns. Indeed, over 90% of beneficiaries profiting from the use of either *e-krishok* and non-promoted CIC services sought information categorised as 'loss prevention', be it for crops (the vast majority of cases), for poultry, or for livestock.[29] A similar

27. Figures for repeat callers are based upon cleaned data, where only callers who called less than five times were counted as potentially genuine repeat callers on the caller database. This was because a proportion of mobile numbers were logged on the database as having called more than five times and logically these are likely to have been calls made in error or because of calls being dropped and service users calling back. It was deemed unlikely that these callers could be calling for more than five separate information enquiries within any given year.
28. Beneficiaries were asked how long had passed between first noticing symptoms/signs of loss on the farm and them availing a solution; how much loss they had experienced before availing the solution, and their estimates of revenue that would have been lost had they not availed a solution (kilos and market price attained upon harvest). Farmers were also cross-checked on whether they had taken advice from other sources so any benefit could be correctly attributed.
29. The remaining tenth of enquiries mostly consisted of customers seeking advice on reducing production costs or requests on how to improve farm productivity.

pattern is evident when grouping the nature of calls made to *Jigyasha 7676.* This sense of urgency and the availability of the new service have pushed customers towards experimenting with these new information sources. Having benefitted the first time around, repeat customers are more likely to trust the CICs and the helpline to provide solutions to agricultural information requests of a non-urgent nature in the future. The *e-krishok* private extension arm has also allowed this to happen, with the human component making the service easier to use and more familiar to and compatible with the rural poor.

4.3.1 Poverty profiling of beneficiaries

Katalyst closely monitors the pro-poorness of its interventions through the application of the Progress out of Poverty Index (PPI),[30] a transparent methodology deployed by various donors and NGOs globally. This allows Katalyst to estimate with a reasonable level of confidence the proportion of their beneficiary outreach that is likely to fall beneath both the upper (USD2.50/day; PPP 2005) and lower (USD1.25/day; PPP 2005) poverty lines. By August 2011, 220 CIC beneficiaries had been sampled for the PPI assessment, allowing Katalyst to better understand their ability to reach the poor through ICT-enabled services.

From that survey, 8% of CIC beneficiaries were estimated to earn less than USD1.25/day, giving only a small proportion of beneficiaries deemed to be living in extreme poverty. Taking the upper poverty line of USD2.50/day, the PPI results suggest that 60% of beneficiaries are poor. Results point to approximately two-fifths of beneficiaries being non-poor by Katalyst's own definition, representing a sizeable portion of beneficiary outreach. This resonates well with the percentage of the helpline caller sample who stated 'farmer' as their occupation (51%), suggesting that a good proportion of callers are not full-time farmers, but those who may own land and farm as a side-line or employ others on it, and are therefore not the poorest. Though not sampled during the PPI assessment, it is believed likely that the poverty status of 7676 callers is similar poverty. Finally, both CICs and helplines were found to have a low proportion of female customers (less than 3%), reflecting women's restricted mobility and access to mobile phones and the location of CICs, as well as the fact that Katalyst does not have a specific focus on reaching poor women farmers.

These results point to the need for specific targeting of both the poor and of rural women customers, which might lead to the modification of existing services and promotional strategies to better meet their needs. That said, Katalyst's experience in the ICT sector appears to be consistent with the diffusion rates of technological advancements in general, where marginalised communities tend not to be early adopters of a new technology, product or practice. In the eyes of the poor, the awkwardness of taking a risk with 'untested' technologies availed through a 'computer shop owner', or from a helpline via a mobile phone, is very real. Such technologies (or advancements) have to demonstrate a real value over and above previous information sources and a minimum ease of use before individuals decide to pursue a new course of action.

30. The PPI uses ten verifiable indicators to get a score that is deemed to be highly correlated to the poverty status of households (as measured by the exhaustive surveying of over 10,000 Bangladeshi households from the 2005 Household Income and Expenditure Survey (HIES, 2005). The ten indicators have been selected based on their strong correlation to poverty, the ease by which the questions can be asked, answered, and verified, and because surveying is expected to be low-cost. Scoring ranges from 0 (most likely below a poverty line) to 100 (least likely below a poverty line). Katalyst uses the PPI scores of 30-34 and 55-59 as the cut-off points for the upper and lower poverty lines respectively.

5. Lessons learned

Katalyst's experience of intervening in the ICT sector provides lessons that can be applied to not only other development initiatives in the ICT4D field, but to development initiatives across the board.

5.1 Wider development lessons

5.1.1 Best process approach, not a best practice approach

The market systems approach begins with an in-depth understanding of how the poor currently behave and perform and how they are foreseen to behave and perform under future scenarios. The system around the poor, encompassed by a variety of market players, is analysed with the same scrutiny and attention to detail – in essence, viewing both capacities to change and incentives to change. Grimshaw & Talyarkhan (2005) posit a best process approach for ICT-enabled services that sits well with market system understanding and action,[31] beginning with the development need (the 'why'), moving to the information need (the 'what'), and finally to the most appropriate technological solution (the 'how'). Back in 2006/07, Katalyst's approach was rather more technology-led than process-led. Having decided upon a telecentre model (the 'how') first, Katalyst faced an uphill struggle in making it fit the context (the 'why') and only latterly came to understand the need for 'emergency' pest/animal health information (the 'what') midway through intervention. If instead function had been placed over form, a decision to delay intervening in the ICT sector until (i) the rural population was more accepting of computer technology, or (ii) mobile telephony had taken off may have resulted.

5.1.2 Responsive interveners

Development programme strategies often fail where there is no in-built scope for the programme to change what it is doing. Where Katalyst has tried and not succeeded, it has adjusted its tactics until progress was made. Indeed, Katalyst's approach to increasing custom through demand stimulation underwent many an evolution and provides a good illustration of responsive tactics. From simple CIC promotions, to rural activation campaigns promoting specific services, to the launch of *e-krishok's* BP intermediary, to full-on private extension under *e-krishok's* re-launch, Katalyst has demonstrated the value of short feedback loops and the ability to quickly change footing.

5.1.3 How matters: Broadening outreach through supporting systems

The launch of the Banglalink helpline exemplifies a smart scale-up. Leveraging the work it had done in other supporting markets – content provision, in particular – learning from its experiences with Grameenphone, and responding to both the explosion in mobile telephony and the will of its private partner, Katalyst exerted minimal effort in facilitating the expansion of agricultural information service offers to Bangladesh's rural population. Indeed, with Banglalink offering a different service delivery channel to GP, the flow of agricultural information through ICT-enabled channels is made more diverse and with that, more sustainable. In concentrating on easing the constraints that prevented service offers from emerging, rather than seeking to install a new service modality, Katalyst not only freed itself from becoming an architect and promoter of any one soon-to-be outdated modality or service, but also created a business environment where operators are enabled to continue to innovate information services for the rural poor.

5.1.4 Held together by commercial incentives

All market players that contributed towards the

31. Grimshaw and Talyarkhan (2005), A Best Process Approach for Using ICTs in Development, IRFD World Forum on Information Society – Tunis 2005. Walton and Heeks (2011) have more recently written on the process approach. Many of their points are consistent with this lesson and other lessons covered in this chapter: see "Can A Process Approach Improve ICT4D Project Success?" Working Paper 47, Development Informatics Group, IDPM.

emergence and continuation of the two agricultural information services explored in this case – CICs and *Jigyasha 7676* – are commercial. From Grameenphone and Banglalink to BIID's *e-krishok* service, to WIN, to the CIC entrepreneurs and WIT's call centre agents, all are aiming to profit. Services which are comparable to those offered by GP and Banglalink in other countries are often composites of commercial and non-commercial elements. Given the prominent contributions from non-commercial elements in other telecentre or helpline models, it is important that those non-commercial entities performing recurrent functions necessary to service success have the incentives and budget to continue to do so. Both commercial and composite models can work in the long-term, though recognising who is performing 'recurrent' – as opposed to 'one-off' – functions is vital when thinking about service sustainability.

5.2 ICT4D lessons

5.2.1 Importance of a human interface

Both the CICs and the helpline model rely on a human interface to break down the social barrier between the poor and technology. Whilst technology-readiness depends upon the quality of the infrastructure and level of connectivity in place, it equally depends upon harder-to-change factors, such as population density, literacy rates, and individual (and community) mindsets. In developing technology-based solutions to knowledge dissemination, models have succeeded to a greater degree where the poor have not necessarily been direct users of the technology itself. *E-krishok* BPs and the helpline call centre agents have been important intermediaries that have assisted in breaking down both cultural and human capital barriers to entry with simple voice-based instruction, written directions, and follow-up, overcoming situational literacy and user capacity limitations.

5.2.2 A commercial model need not be financially sustainable

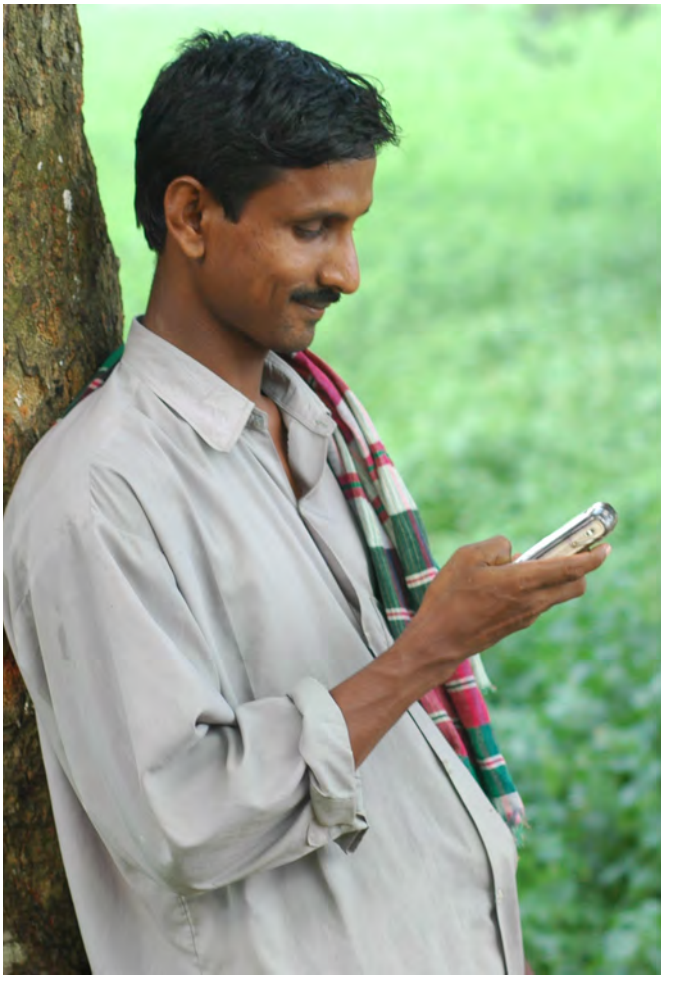
Where a service fits into a solid corporate strategy, the financial sustainability of the service as a stand-alone revenue generator may not be critical. Both CICs and the helplines assist GP and BL to create a rural footprint, adding value to the companies in the long-run, and signalling investments in a 'new' market. When companies take a portfolio approach and apply longer-term thinking, some services will generate a lot of profit, others cover costs, and some run at a loss. Significantly, the CICs and helplines are not independent, but 'incorporated' as (smaller) revenue branches of companies that can account for and justify their costs within a strategy. In the same way, the agricultural information service is not a stand-alone service, but one that sits in a bundle of services, or a portfolio of value-adding helplines. Importantly for affordability concerns, in the vast majority of cases (over 90%) agricultural information service users do not pay for the information they avail at the CICs.

5.2.3 Different types of agricultural information may be better suited to particular modalities

When it comes to breaking down deep-seated attitudes towards ICTs, particularly among the less 'tech-savvy' farming population, it has not been surprising that the most sought-after information demanded of both the CICs and the helpline has been advice on preventing or responding to pest and disease. Farmers have been driven to experiment with these new information sources at times of crisis, and when alternative sources have not been available or responsive enough. Other development programmes working with ICTs might learn from this, both from a service content and a demand stimulation perspective, suggesting a scope for more targeted marketing around loss avoidance in the first instance. Telecentres and helplines leading with effective pest/disease solutions will expedite trust-building and service acceptance, and may allow other categories of information to flow in a 'second-wave' (e.g. input advice, FRS, new business ideas and cultivation methods).

5.2.4 Refined understanding of information-sharing behaviour

A closer inspection of how messages are relayed within communities and the extent to which this transmission effect, or information-sharing behaviour, extends service outreach is essential. All farmers surveyed stated that they had discussed their use of the CIC service and the solution that had been recommended to them with at least one peer, though the majority would tell multiple people, in some cases more than ten. Given that pest, disease, and animal health problems are often communicable, Katalyst assumes that the information availed is equally relevant to the calculated average of seven peers with whom direct beneficiaries are sharing their new knowledge. This has important implications for other development initiatives that deal with ICTs in terms of who they target as their direct service users and how interventions might be designed in such a way so as to capitalise on the information-sharing networks of farming communities. That is, natural information flows should be leveraged so long as the poorer farmers are party to such flows.



Katalyst and the market development (M4P) approach

Annex 1[32] : Katalyst and the market development (M4P) approach[33]

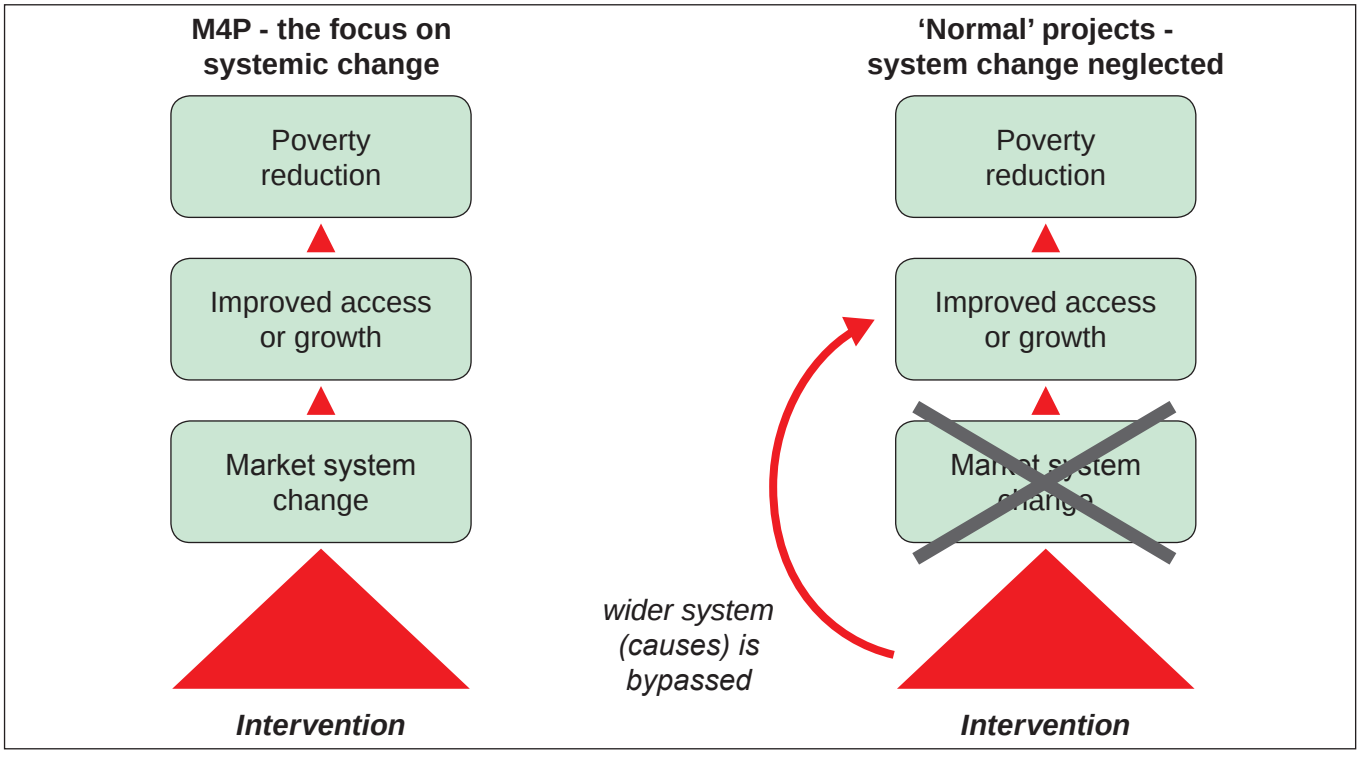
The project

Katalyst aims to contribute to increased income for men and women in rural and urban areas by increasing the competitiveness of farmers and small businesses in key rural and urban sectors, reaching 2.3 million farmers and small businesses, providing employment for 450,000 poor people by the end of the phase in 2013.

Katalyst follows a pro-poor market development approach also known as 'making markets work for the poor' *(M4P).* It focuses on market systems that are conducive to the participation of the poor, those which provide the basis for increased enterprise competitiveness, and those which allow the poor to access either growth opportunities or basic services as a means to reduce their poverty.

Katalyst is a jointly-funded programme of the Swiss Agency for Development and Cooperation (SDC), the UK Department for International Development (UKaid), the Canadian International Development Agency (CIDA) and the Embassy of the Kingdom of the Netherlands (EKN). Phase one (2002-2007), during which interventions in the healthcare sector were mainly carried out, was also sponsored by the Swedish International Development Cooperation Agency (SIDA). Katalyst is implemented under the Ministry of Commerce (MoC) of the Government of Bangladesh by Swisscontact and GIZ International Services. Katalyst began its second phase in March 2008 with a budget of CHF50.67million.

Figure 6: Strategic rationale



32. This is a synthesis of Katalyst's own strategy brief, available at *www.katalyst.com.bd.* Please refer to this document for more details

33. See the three key M4P documents: *A Synthesis of the Making Markets Work for the Poor (M4P) Approach; Perspectives on the Making Markets Work for the Poor (M4P) Approach; An Operational Guide to the Making Markets Work for the Poor (M4P) Approach.* Published by DFID and SDC and available at *www.M4Phub.org*

Katalyst's approach: Making Markets Work for the Poor (M4P)

Katalyst's approach is distinctive not simply because of its objectives for pro-poor market development but also for how it goes about achieving them. More conventional development initiatives support the poor by providing them directly with knowledge, goods, and services. While such a direct approach can achieve quick results, its sustainability is frequently limited, is often unable to achieve scale, and may also have a distortionary effect on markets.

Katalyst therefore avoids providing support to its target group directly. Instead it works ***indirectly***, focusing on achieving ***systemic change*** (see Figure 6), and partnering with a wide range of domestic and international private and public sector intermediaries who have long-term business interests or a mandate in a sector. Katalyst actively seeks to '***crowd-in***' domestic public and private market actors. By harnessing the incentives and resources of these actors, Katalyst's interventions can leverage its own resources, resulting in a larger-scale and more sustainable impact.

Strategic rationale

Katalyst's overarching rationale is to reduce poverty through pro-poor market development. This means that it needs to work in sectors that are both important for the poor and where there is potential for positive change, i.e. inclusive growth and poverty reduction through increased enterprise competitiveness and/or access to services. Katalyst's selection of sectors is determined by applying the three-part market development 'lens.' This lens helps Katalyst choose the sectors with the highest potential for achieving its poverty reduction objective. The key elements are:

- ***Poverty reduction potential:*** a sector's relevance to Katalyst's target group; the number of poor in the sector; the poor's specific role (as producers, entrepreneurs, employees or consumers); and gender, environmental, and social considerations.
- ***Pro-poor growth and access potential:*** a sector's overall trends and potential for growth and/or increased access and, more particularly, relative to the poor's level of 'performance' (in terms of productivity, market position, or terms of access).
- ***Systemic intervention potential:*** the feasibility of stimulating change in a sector which is systemic (i.e. addresses the underlying causes of sector underperformance) and can achieve scale. This includes a consideration of Katalyst's own capability and the existence of key domestic actors who might support or oppose change ('drivers of change').

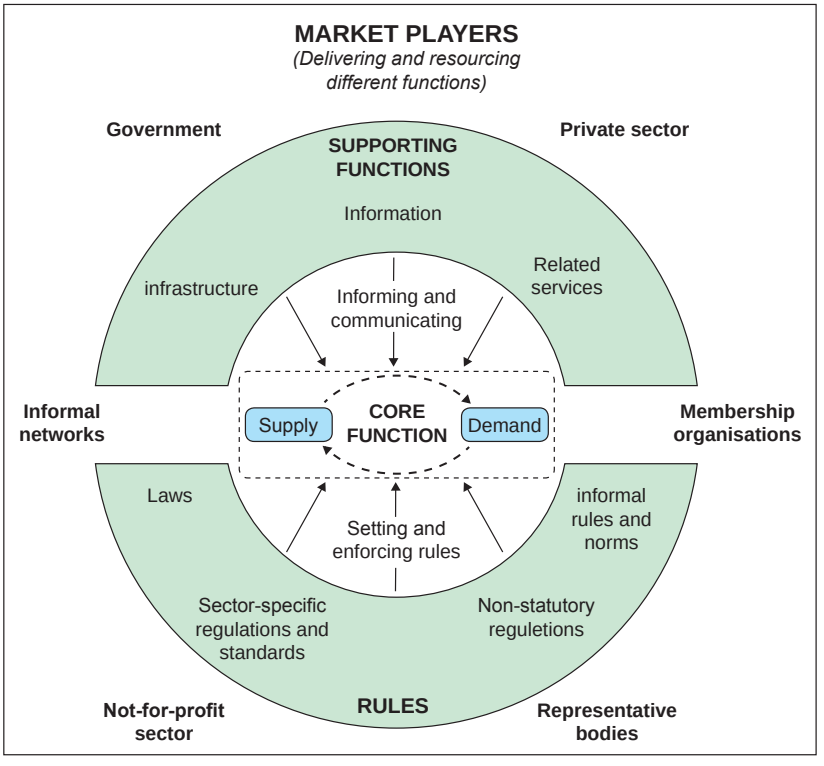
Based on these criteria, Katalyst works in a range of sectors, from simple rural commodity sectors to service sectors. Prior to entering the healthcare sector in phase one, Katalyst applied the same lens and found that (a) the sector was important to a large number of poor people (as workers and consumers), (b) had good growth potential with increasing private sector investment coming in, and (c) provided a feasible basis for Katalyst intervention (partners, leverage points, resources etc.)

Understanding the root causes of market performance

Katalyst focuses on stimulating systemic change within selected pro-poor sectors. During the process of sector selection, some constraints to sector underperformance – the reasons why the poor cannot 'get a better deal' – are likely to become apparent. But to achieve systemic change, Katalyst searches, analyses and addresses the root causes of these constraints rather than their more obvious symptoms. This requires a good understanding of the dynamics of a sector, acquired through research and pilot interventions. In order to do this, it uses a simple model that reflects the multi-function and multi-player nature of market systems (see Figure 7).

Katalyst has learnt that the root causes of any one sector's underperformance often lie in a related or supporting sector. For instance, low productivity in the vegetable sector – particularly for poor farmers – is caused by the farmers' limited access to quality inputs (seeds and fertiliser), and that this has its roots in the various dysfunctions in the seed and fertiliser sectors. To thus sustainably improve the poor's performance in the vegetable sector Katalyst needs to stimulate performance in the seed and fertiliser sectors. Similarly, in the healthcare sector, poor quality of and access to health services is related to an under-supply of skilled health workers in the labour market; this has its origins in the under-performance of the training system, which is where intervention was required to bring about systemic change.

Figure 7: Model for market systems



Facilitative interventions

Katalyst's emphasis on sustainability informs both its intervention design and its modus operandi. The project promotes innovation within sectors so as to overcome established, often deep-seated, constraints, in order to stimulate wider, systemic change. It cannot, however, deliver these changes directly. Instead of implementing new methods, tools, and roles, Katalyst works with market partners, in line with their incentives, to change their approach to the sector. If changes are to be sustainable, they must be owned and driven by market players with long-term interests – commercial and other incentives – in a specific sector, beyond the period of Katalyst intervention. The project's interventions are thus based on partnership and aim to crowd-in: to identify and work with appropriate market players to stimulate them to innovate – in terms of altering their behaviour, practices, position in a market, or relations with other players – in order to bring about a change in market performance. Understanding the incentives, capacities, and limitations of a partner is therefore crucial, as they are only likely to continue a venture without Katalyst support if their interests are met.

If Katalyst is to crowd-in market actors successfully, the nature of its support is critical. Support needs to add sufficient value to attract and influence partners but should not be excessively intensive in terms of resources provided or its duration, as this would distort the behaviour of partners or other market actors, or displace initiative. Katalyst has thus to ensure that its support is light touch, facilitative and matched by contributions from partners to ensure their commitment.

Explicit commitment to sustainability and scale

The exit strategy from interventions is informed by Katalyst's explicit focus on crowding-in and from its determination to avoid becoming part of the market system. Initial interventions introduce and test an innovation with a partner, encouraging and monitoring its adoption until the point where the partner is able to maintain and/or expand the innovation itself.

To verify an innovation's potential and durability, Katalyst sometimes replicates an intervention with several partners in a variety of contexts. Where these innovations successfully address an identified constraint and are adopted sustainably, Katalyst considers how that innovation might be scaled up. This might be achieved in a number of different ways, depending on circumstances. In Phase 2, Katalyst's ambition to scale-up has led to several changes in the way the programme works:

- Analysis focused on understanding entire sectors, not just specific markets or segments, which are important for the poor;
- Identifying and collaborating with scale agents who have resources and incentives, to achieve significant crowding-in across a sector;
- Greater integration of sectors and supporting sectors, to implement multi-faceted interventions which can achieve large-scale systemic change;
- More active management of its portfolio of sectors, cross sectors and interventions to ensure that the balance of short-term results and long-term sustainability is maintained.

Annex 2: Impact Stories

Name, age	Nazrul Islam, 20, male	Moharaj Hossain, 32, male
District Village	Donia, Joshai Haat, Mominpur, Parbatipur District	Sharsha, Jessore District
Dependents	Family of 6 members	Family of 5 members
Land-holding	Owns 10 decimals (c. 400m^2) of land but cultivates an additional 3 acres (c. 12,140m^2) of leased land.	Owns 198 decimals (c. 8000m^2)
Crops cultivated	Mostly fruit and vegetables: banana, potato, aubergine and chilli	Moharaj cultivates paddy, cucumber, okra, and bitter gourd. 49.5 decimals (c. 2000m2) is set aside for bitter gourd; an important revenue-generating crop for him.
Problem encountered	Cultivated banana on 25 decimals (c. 1,010m^2). Early in the winter season, he encountered a problem in his plantain garden, whereby immature leaves and the stem were dying.	Reoccurrence of a disease from previous seasons where the leaves of the bitter gourd plant wither and curl up, ultimately damaging the produce. In this season an estimated 160kg of produce had been lost, and around 2 weeks after noticing the symptoms of the disease, he went in search of a solution.
Level of access to information	Local agriculture extension worker (SAAO) was seldom available and the nearby pesticide retailers suggestions were rarely effective.	Moharaj would seek advice from input dealers when faced with farm problems, however for this dilemma, each dealer he asked offered different recommendations, leaving Moharaj confused as to the best course of action to take.
Seeking a solution through the CIC	Thinking he was about to lose his entire investment, Nazrul heard from nearby farmer, Asaduzzaman, that the CIC in Joshai Haat was assisting farmers with their agricultural problems. The CIC entrepreneur was shown an example of the diseased plant and searched for a remedy there and then, suggesting the medicine required for the disease.	Moharaj came across an *e-krishok* BP and joined the next courtyard meeting to learn more about the information services on offer through the local CIC. Convinced, Moharaj registered for *e-krishok* and left his problem for the BP to research. The following day, the BP issued Moharaj with a print-out prescription for Tilt and Bumper Sulfur complete with instructions on use.
Impact	After application, the diseased crop slowly returned to health. Nazrul earned between 8,000-10,000 BDT for his banana crop, which he feels would have been lost completely had it not been for the CIC recommendation. This contributed towards money used in leasing more land for cultivation the following season.	At the cost of just 270 BDT for the two inputs, Moharaj successfully applied the solution and managed to save the remaining 600kg of his bitter gourd produce from the spread of the disease. Selling the bitter gourd for 30 BDT/kg, Moharaj earned 18,000 BDT (£140), the profits of which will be put towards additional investments in paddy. Moharaj continues to attend courtyard meetings and inform peers of the *e-krishok* service.

Name, age	Mohammad Nazrul Islam, 32, male	Mohammad Abu Zafar, 20, male
District Village	Pateldange, Khoksha, Kushtia District	Debtola, Sholokupa, Jhinaidaha District
Dependents	Family of 5 members	Family of 5 members
Land-holding	Owns no land, all land is leased.	Own 7 bighas (9,400m^2) of agricultural land.
Crops cultivated	Mainly rice, tomatoes, cauliflower, spinach, and pointed gourd	Farmed jute, rice, lentils and onions in the season of interview
Problem encountered	Cultivated tomatoes. Some time into the season, the plants were attacked by a disease which caused the leaves to crumble and fall off, with the plant eventually dying.	Cultivated onions on 1.5 bighas (2,000m^2) of land. Early in cultivation, the onion plants were struck with a disease that caused them to rot and die. Zafar had no idea what to do now, and his father had never seen this disease before.
Level of access to information	Rarely able to get timely advice on agricultural activities, as the SAAO (local extension officer) is not always available, nor are his suggested solutions always curative. He has little faith in the input retailers to provide accurate solutions and has no further options available when experienced neighbouring farmers cannot help. On this occasion, it was the SAAO that directed him to the CIC.	Last year, there was a high incidence of disease and pests on the farm and he was unable to find the local SAAO to assist. Has found local input dealers of little help in the past, suspecting that they prescribe 'medicine' even when they know it isn't the right one.

Seeking a solution through the CIC	At the CIC, Nazrul learned of the *e-krishok* service, and described the disease that was affecting his tomato plants. The BP promised a next-day solution and researched the disease on www.rurualinfobd.com before recommending an appropriate medicine.	Zafar had gone to the local CIC to top-up the balance on his mobile phone, and accidentally came to know of e-krishok whilst there. He described how a disease was destroying his onions and the BP asked him to return the next day. Upon return, Zafar was recommended to use the medicine, Flulicor on his onion plants.
Impact	Whilst earning 100,000 BDT a year from his farming, it is only enough to cover all his outgoings, rarely able to save money, and therefore unable to buy land of his own. The tomato crop earned Nazrul 35,000 BDT – a marked 100% increase over the previous year. Without the timely advice of the CIC, Nazrul believes he would have lost nearly half of his crop. The additional income was put towards building a new home and the following season's farm investments.	The medicine quickly resolved the problems Zafar was encountering, and though 20% of his crop had been lost already, the remaining 80% had been saved. From a situation where he thought he might lose his 15,000 BDT investment, Zafar managed to make a small profit of 5,000 BDT, with which he will buy a pair of baby goats.

Name, age	**Hamida Khatun, 42, female**	**Mohasin Ali, 25, male**
District Village	Fulbaria, Mirpur, Kustia District	Sharsha, Jessore District
Dependents	Family of 4 members	Family of 6 members
Land-holding	Owns no agricultural land, but leases (marginal) lands from others locally.	Mohasin and his father own 231 decimals (c. 9,330m^2)
Crops cultivated	Hamida cultivates rice and tobacco on her leased land and also owns two goats.	Cultivate paddy, mustard, and jute. Major crop is paddy, which Mohasin farms on seven-tenths of their land-holding.
Problem encountered	One of Hamida's goats was struck with an illness that caused her to fear for the goat's survival.	With symptoms of discoloration, Mohasin witnessed the reoccurrence of a problem from previous seasons, impacting upon the quality of his paddy produce.
Level of access to information	Hamida, unhappy with veterinarian charges and the veterinarians relationship with local animal medicine suppliers (commission relationship was leading to veterinarians selling only expensive, high margin medicines), previously had few options locally available.	Mohasin's only option was to discuss his problems with local fertiliser dealers, however, in the past, recommendations provided had not resolved the outbreaks and substantial losses were still incurred.
Seeking a solution through the CIC	Coming across *e-krishok* at a courtyard meeting, Hamida requested the BP to seek a solution for her through the CIC. The BP, having contacted a specialist (employed by BIID), returned to meet with Hamida the next day with a recommendation to try a specific medicine thought to be available locally.	Mohasin sought a solution through an *e-krishok* BP that was operating out of the CIC in Sharsha Bazaar. A few days later, Mohasin was in possession of a solution – a prescription of Bumper Sulfur – to take to the input retailers. Distrusting of the BP's advice, Mohasin bought only a third of the input quantity recommended for his land, given the bad experiences he has had availing advice from other sources in the past.
Impact	The goat recovered to full health, and having made an initial investment of 3,000 BDT in the goat, Hamida was able to sell it on for 7,000 BDT. With this revenue representing nearly 10% of her annual revenue (she earns around Tk. 80,000/year for her household), Hamida was very satisfied with the service she received.	Mohasin recalls that in seasons where the disease did not strike, his two-thirds hectare of land would yield 4MT of produce. In previous seasons where the disease had struck, yield halved to approx. 2MT. Despite misapplying the solution presented to him, Mohasin lost less than usual, 800kg. Mohasin believes the BP's advice helped him save around 1.2MT of produce, with an estimated value of 18,000 BDT (£140).

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