

# SPOTLIGHT

## on Inclusive Business

### Designing products and services for illiterate users

Designing services and communications for illiterate people is a common challenge for many businesses operating in rural areas in emerging countries. This Spotlight highlights four organisations which have developed their own practices to ensure that services are understood and can be used by anybody.

In Ethiopia, **M-Birr** is currently in the final phase of piloting the country's first mobile money service, in collaboration with several micro-finance institutions. The service enables people to conduct basic financial transactions from their mobile phone, including sending and receiving money, paying bills, receiving salaries and repaying loans.

A majority of M-Birr's customers are illiterate and use simple handsets. Four languages are widely spoken – Amharic, Oromiffa, Tigrinya and English – of which two do not use Latin characters. M-Birr provides its service in all of these languages, but had to adapt its user interface to languages with characters that do not exist on most mobile phones and to users who cannot read. Amharic for example is written in a script known as Fidel, **ፊደል**.

**“Reading is still a challenge for many, no matter which language.”**

**“We cannot use Fidel characters on the handset, so instead we are writing the phonetic equivalent with Latin letters. People here are quite used to that, so it works,”** explains Thierry Artaud, Managing Director at M-Birr.

Reading is still a challenge for many, no matter which language. M-Birr has chosen to design their service using USSD, which is similar to SMS, with the difference that the user will only need to enter numbers in response to a menu, where each number corresponds to a given list of choices or replies. It is only the agent who uses letters when they enter the name and details of customers into their system.



*The menu for the mobile transfer always stays the same: Send Money -> How much -> To whom? (Mobile number) -> PIN -> Confirmation*

**Inclusive Business Spotlights** shed light on specific topics concerned with the development of inclusive business. They are generated from the project and advisory work of the Business Innovation Facility and Innovations Against Poverty.

**“Our staff here were the first to test and review the service, since they speak all the languages and we have done pilots in all regions. There was a bit of confusion about what we meant by “PIN” – whether we meant the PIN for the phone or for the service. When customers register for the service they are sent a first-time PIN. They enter this and then they are asked to change it. Later on, a customer can change the PIN and language whenever they want,”** says Thierry Artaud.

But surely this process would still be challenging to understand if you are illiterate?

M-Birr’s approach is to provide user support through sales agents:

“Usually when they register they are with an agent who will help them with the registration process. The agent asks them what language they want and then trains them to use the service. When money is involved people learn faster, I think! There is money to be collected and to be received. Sometimes people do transfer to the wrong people, because they have entered the wrong number, but it is never lost since we have everything on record. People tend to send money to the same people, so the number is usually saved as a name and then the user chooses this name for the next transfer, rather than entering the number again.”

Thierry Artaud refers to the mechanisms that work for many of us when we deal with the same automated customer service regularly. If, for example, you call into an automated call centre, you will quickly learn what choice 1, 2, 3 etc stand for and do not need to listen to the full message.

“Anyone who designs these types of services just has to ensure consistency and that the menu structure stays the same.”

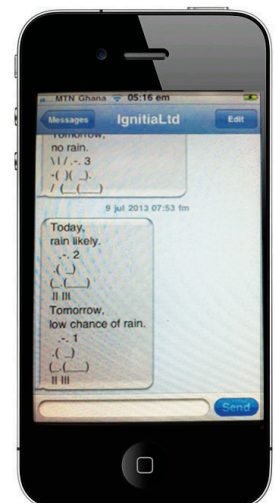
## Simplifying advanced services

A greater challenge is presented to those delivering information services to illiterate users. Weather forecasting is one example. In Ghana, Ignitia is providing two-day forecasts to farmers five days a week by SMS. In some areas, 90% of the farmers cannot read.

Ignitia aims to inform farmers about what weather to expect as well as the likelihood of this forecast (rated from low to high chance). Ignitia sends an SMS message to the farmer, with a simple symbol for no rain, rain or heavy rain (using ASCII code to design the messages). A lot more information of value to farmers could be delivered, such as evaporation from leaves and soil, humidity and so forth, but Ignitia currently focuses on forecasting precipitation conditions only. Rain has the greatest impact for farmers and is relevant to all of them.

In the very first pilot, 48 farmers participated and gave their views on how the symbols could be interpreted and how they could be drawn. Interestingly, Ignitia noticed that better educated people started associating the weather symbols with many other things, whereas children and illiterate people understood and interpreted the messages correctly most of the time. The messages also included a number from 0-3, where 0 indicates no rain, 1 indicates “low chance”, 2 “likely” and 3 “high chance” of rain. Adding this measure of how likely the forecast is has proven a bit difficult for users to understand.

*Ignitia’s forecasts for Tamale, northern Ghana, in July. Users have suggested replacing the numbers 0-3 with a combination of symbols for sun and rain instead to show if there is low or high chance of rain.*



“The meteorologists we work with had a problem summarising the weather information and wanted to follow Scandinavian forecasting standards (as they are trained in Sweden), which would include more parameters. But we have to simplify and then test over and over again. First we delivered forecasts three times a week, but since the accuracy goes down after 24 hours we increased to five times a week”, explains Liisa Petrykowska, founder of Ignitia. She is constantly in touch with farmer organisations and gets feedback on a daily basis. Over the past month, the accuracy of the forecasts has improved and Ignitia is thinking next about specifying forecasts for morning, afternoon and night.

Seeing what people do in their daily lives and how they interact with services is often the most important aspect of designing user-friendly services. Some organisations get stuck in ambitious research projects, interviewing people and examining needs in communities, but there is often a problem with this approach: what people say they want often differs quite a lot from what they will actually do. This is particularly true when there are cultural differences between the business and the customer, such that the entrepreneur may ask a question in a way that is not understood the same way by the respondent.

Giving simple design choices can be a more productive way to establish what people need and how they will use a product. ‘Do you prefer X or Y?’ is a better question than an open ‘what do you prefer?’ However, more open questions are still very useful in order to ensure other potential solutions or designs that the company has not thought of are also captured.

**“I notice that I have to be very clear when I ask questions. I try to phrase them so that they can be answered simply by ‘yes’ or ‘no’”, Liisa Petrykowska comments.**

Designing services in close collaboration with users can also help to establish a small group of initial ‘friendly’ users that can educate other customers and promote the service, since illiterate users will need support and guidance to discover new services. A start-up that feels the constraints of not being able to interact with many users can also consider self-documentation by users. Users can be asked to write diaries, log certain types of activities, take pictures and so on, to help collect consumer insights. This is a common method in, for example, research of media consumption habits. Young people are often especially interested to express themselves and can help document communities and lives.

Sometimes empathy for the user can be the key aspect of great service design. What is it really like for an illiterate person to use a mobile phone? Change the language settings on your own phone to one with characters you do not recognise for a day and see how you manage. ‘Empathic design’ means doing everything to understand how a user feels and what they are experiencing. iDE Cambodia has set-up a Human Centred Design Innovation Lab, which has published a design toolkit (available for download at <http://bit.ly/ideohcdt>) that includes a number of examples and practical advice for entrepreneurs and developers. One of their recommendations is to ensure a balance of perspectives by including men, women and children in the design process. A case study of VisionSpring’s venture to bring eye care to children in India highlights that the service itself – eye examination – was much the same in this context as for adults, but the interaction between the doctor and the child failed at first. The team had to better understand how it could create an environment and a situation where the children felt comfortable and secure.

## Service discovery and education

Many companies first design a service and then think of how to educate users. It is a good idea to have education in mind during the entire design phase. Brochures may not be the most pedagogic medium to use when targeting people who cannot read. It seems obvious, but many start-ups still seem to think brochures are the universal solution to promotion. Several studies conducted in Asia and Africa suggest that radio is often a leading source of information for poor people, followed by word of mouth and television. Ideally, radio and community outreach should overlap to create awareness whilst printed materials should be used as a supporting tool by agents, sales representatives and so forth. It is important to think about where and in what situation a potential customer may be receptive to promotion and education. To scale a company’s offering one needs to think about different ways that a user can learn about a service, not just through an official representative. M-Birr as well as Ignitia have produced leaflets, containing more pictures than text.

**Understanding**  
the weather forecast SMS

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- ( ) ( )  
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0 No rain - The weather man is very sure it will be dry  
1 Low chance - The weather man thinks it wont rain  
2 Likely - The weather man thinks it will rain  
3 High chance - The weather man is very sure it will rain

0 1 2 3

Confused? Ask your representative

Microsoft Research India designed a prototype for a multimodal video search system for farmers with low literacy rates, in collaboration with digitalGreen. The purpose was to educate for better farming practices and the service was designed so that the user could discover and learn what the service offers, while starting to use it. A video demo is available at <http://bit.ly/videokheti>. The service requires a smart phone, and the use of graphics still has limitations.

**”Our usability studies show that speech works best where there is a long list of choices and selections comprise of short familiar words and expressions”,** explains Indrani Medhi, researcher at Microsoft.

Therefore a speech-recognition system has become an essential part of building the user interface. In other studies of user interfaces for illiterate people, Microsoft found that hierarchical structures in menus (on phones or PCs) need to be minimized. Menu choices need to be as ‘flat’ as possible since it is not only the inability to read that poses a challenge, but also in many cases lack of abstract reasoning abilities.

Automated voice systems (IVR) can be an alternative way to provide short descriptions about a service and how to sign up (as well as unsubscribing), since dialling a local phone number is the first thing any mobile phone user learns. It can help avoid many errors in the sign-up process and works with any phone.

**“We sell through farmers’ organisations and we have a big issue with incorrect phone numbers since the people signing up farmers make lots of mistakes in writing down phone numbers, as well as providing lists including invalid phone numbers”,** says Liisa Petrykowska.

If a farmer would instead dial a service number from the same mobile that they wish the service to be delivered to, then an IVR-system can save this information (the Caller ID) once the user confirms his or her choice. A manual version of this is of course also possible with a live operator registering the caller ID and signing up the user.

## Conclusions

- Involving end-users as early as possible in the development of a service or product increases the chances of user acceptance.
- Consider how the product will fit into a customer’s life. Most often, there needs to be several reasons to use a product, or the customer will be reluctant to pay.
- Allow your innovation and development process to be very interactive and flexible. Do not settle too early for what you think is the product that you will bring to market.
- Investigate voice services and speech-assisted tools that may help illiterate users to understand and manage a service.
- Do customers need to rely on other people to use the service (after first time education)? In that case – re-design!

## Resources

Online Human-Centred Design community, where the HCD toolkit can be downloaded <http://www.hcdconnect.org/>

Microsoft paper on Impact of Limited Education on Hierarchical User Interface Navigation

<http://research.microsoft.com/pubs/183490/Medhi-CHI2013-Hierarchy.pdf>

User Centred Design Processes – an overview:

[http://www.usabilitynet.org/management/b\\_overview.htm](http://www.usabilitynet.org/management/b_overview.htm)

ACM Interactions magazine – topics cover design for interactive services with a focus on ICT, including approaches to design in developing countries <http://interactions.acm.org/>

By Ruth Brannvall, Senior Advisor, Innovations Against Poverty



**For further information and to view other Spotlights, go to:**

Practitioner Hub on Inclusive Business: [www.inclusivebusinesshub.org](http://www.inclusivebusinesshub.org)

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