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International Labour Organization

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TECHNOLOGY FOR MICROINSURANCE *SCOPING STUDY*

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PREFACE

The primary goal of the International Labour Organization (ILO) is to contribute with member States to achieve full and productive employment and decent work for all. The Decent Work Agenda comprises four interrelated areas: respect for fundamental worker's rights and international labour standards, employment promotion, social protection and social dialogue. Broadening the employment and social protection opportunities of poor people through financial markets is an urgent undertaking.

Housed at the ILO's Social Finance Programme, the Microinsurance Innovation Facility seeks to increase the availability of quality insurance for the developing world's low-income families to help them guard against risk and overcome poverty. The Facility, launched in 2008 with the support of a grant from the Bill & Melinda Gates Foundation, supports the Global Employment Agenda implemented by the ILO's Employment Sector.

Research on microinsurance is still at an embryonic stage, with many questions to be asked and options to be tried before solutions on how to protect significant numbers of the world's poor against risk begin to emerge. The Microinsurance Innovation Facility's research programme provides an opportunity to explore the potential and challenges of microinsurance.

The Facility's *Microinsurance Papers* series aims to document and disseminate key leanings from our partner's research activities. More knowledge is definitely needed to tackle key challenges and foster innovation in microinsurance. The *Microinsurance Papers* cover wide range of topics on demand, supply and impact of microinsurance that are relevant for both practitioners and policymakers. The views expressed are the responsibility of the author(s) and do not necessarily represent those of the ILO.

José Manuel Salazar-Xirinachs
Executive Director
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Oxfam Novib
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SUN Microsystems
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Uplift India Association
USAID India
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SUMMARY

This study was part of the effort by the CGAP Working Group on Microinsurance (WGMI) and the Microinsurance Innovation Facility to compile an inventory of information technologies that are or could be applicable in the extension of insurance services to low-income households. The objective of this study was to catalogue and illustrate existing technologies applicable to microinsurance.

The study attempts to answer the following questions:

- Who are the users of technology for microinsurance?
- What technologies are available to support microinsurance business processes?
- How does the cost of technology translate into overall benefits?

To answer these questions, the following activities were conducted:

- A market survey on technology for microinsurance to capture user profiles, requirements & systems and views from the field about current technologies;
- An information processing model and a taxonomy of technology for microinsurance
- A technology catalogue with examples & case studies, relevant literature and references organized according to the taxonomy;
- An assessment framework based on a model of technology cost and sustainability allowing benchmarking, scalability and productivity comparisons of various solutions;
- A website to report on the project results.

The report identifies a number of representative technologies and positions them relative to each other, according to the information-processing model. The model compares the possible solutions with respect to the different levels of the microinsurance business process. It classifies technologies according to their applicability to either front office functions, such as client identification, or back office functions such as risk analysis and product design. Case studies illustrate how specific technologies have been applied at the different levels of the business.

The report provides an assessment framework for a system's cost based on the number of clients it can support. The framework classifies microinsurance platforms into low-end, mid-range and high-end systems that support different volumes of microinsurance business.

The report makes ten recommendations for the microinsurance community as a whole and especially to organizations planning to introduce technology. In particular, it proposes an innovative approach to convert the information technology infrastructure from a cost centre to a profit centre, i.e., to use technology to generate income.

1 > INTRODUCTION

Microinsurance organizations confront a common challenge summarized by the question: "How does one integrate technology into the business operation to both maximize service delivery and minimize cost to clients?"

Today, microinsurance providers strive to increase efficiency and meet client needs against a backdrop of mounting pressures from the growing demand for insurance products in the developing world, increasing competition from local and international insurance providers and regulatory reporting requirements that are challenging smaller operations historically focused on developing effective insurance products for the poor.

Technology provides a major part of the response to these combined pressures of growth, competition and regulation. The selection of an information system to support client, policy and claims administration is among the most strategic decisions that a microinsurance organization will make. The choice of technology will be a major determinant of future success and equal in importance to having appropriate reinsurance mechanisms to prevent exposure to outlier risk.

Even though technology for microinsurance is in its infancy, business managers choosing technologies face a bewildering selection. No simple questionnaire or checklist will yield the unique and right solution. As with all modern technologies, the selection process must to be informed by a careful analysis of business needs and a specification of system requirements.

This report is an attempt to address these challenges and provide a methodology for selecting technology to support microinsurance. (See Terms of Reference in Appendix A1)

2 > STUDY METHODOLOGY

2.1 MARKET SURVEY

While the terms of reference for this study were identified as part of the brief by the Microinsurance Innovation Facility, the methodology for achieving them was left open. Before determining a methodology for technology selection, the authors decided that it would be helpful to include inputs from experts, technology suppliers and users in the field. To facilitate the process, the authors conducted a market survey and contacted a range of people with varying interests in the subject. This allowed many people to share their experience and make recommendations. Their inputs have been included in the report.

SURVEY QUESTIONNAIRES

Three online questionnaires were created using a survey tool (www.questionbuilder.com) that provided a means of tracking inputs from technology suppliers and sufficient analytical functionality to analyse the results. The names of the respondents and other identifying information were confidential while the survey responses and data have been reported in the aggregate only. The three questionnaires in the survey covered the following information:

User Profile: A simple questionnaire on the background of the respondent included a number of questions on personal usage of technology. This questionnaire helped position the profile of each respondent.

Systems & Requirements: A more detailed questionnaire on existing systems and requirements for future systems helped validate the terms used in the taxonomy and identified possible areas for its expansion. Data for case studies and technology assessment were also collected.

Field Assessment: This questionnaire was aimed at gauging field experience with technology and plans for future implementation. Although the sample was insufficient to generate statistically significant evaluations of particular products and services, it was possible to build a general assessment model for technology as a whole.

The questionnaires are available on the site www.ibex.ch/TM/index.html

SURVEY DISTRIBUTION

In mid-May the project assessors and a selected number of microinsurance practitioners, experts and technology suppliers were invited to answer the questionnaires and provide feedback on their content and ease of use. Valuable suggestions were collected and incorporated in a final version of the questionnaire. Initially, invitations were sent to 28 people, yielding 15 distinct respondents a response rate of 54% from this group. At the end of May the revised survey was distributed to 288 new individuals from a cross section of geographies and organizations. From this group, an additional 50 distinct respondents answered the questionnaire by the end of June, yielding an overall response rate of 25%. Invitations to participate in the survey were sent via email. Links to the questionnaires were provided on the website where respondents could view the real-time survey results.

SUMMARY OF SURVEY RESULTS

Respondents for the user profile questionnaire represented a broad range of types of organization and activities. The majority were directly involved in microinsurance and a significant minority was also involved in microcredit activities. The following list gives the general profile of the respondents who answered the questionnaires.

Respondent's Organization Type (only single answer possible)

Nongovernmental organization	25%
International organization	25%
Technology or service supplier	33%
Other types of organization	17%

Application area of the Respondent's Organization (multiple answers possible)

Microinsurance	89%
Microcredit	41%

Activities of the Respondent within the Organization (multiple answers possible)

Research	25%
Project Funding	10%
Technical Support	48%
Operations	48%
Other responsibility	22%

The large majority of field organizations were microinsurers offering health or life insurance. Their Information systems were developed predominantly in-house or provided by a software supplier. The survey included a number of suppliers offering Software as a Service, the new trend within microinsurance and, clearly, an opportunity to be explored.

The survey included questions regarding technology characteristics such as reliability, support, training, and ease of use were included in the survey. In general, respondents' evaluation of these characteristics was pretty constant at 4, on scale from 0 to 5. While an excellent result, it may mean that the expectations from IT systems are high rather than that the services provided are necessarily good. Further investigation will be required to gain a better handle on this question.

A summary of the survey results, analysed by type of insurance and technology applications, is found below:

Insurance focus of field organizations (multiple answers possible)

Health	78%
Life insurance	63%
Property	52%
Disability	37%
Casualty	19%

Technology experience of field organizations (multiple answers possible)

Spreadsheet	70%
Database	70%
MIS	67%
Local Area Network	59%
Presentation tools	52%
Mobile phone	41%
Statistical analysis tools	30%
Smartcards	26%
Biometrics	19%
Online payments	15%

Technology provider (multiple answers possible)

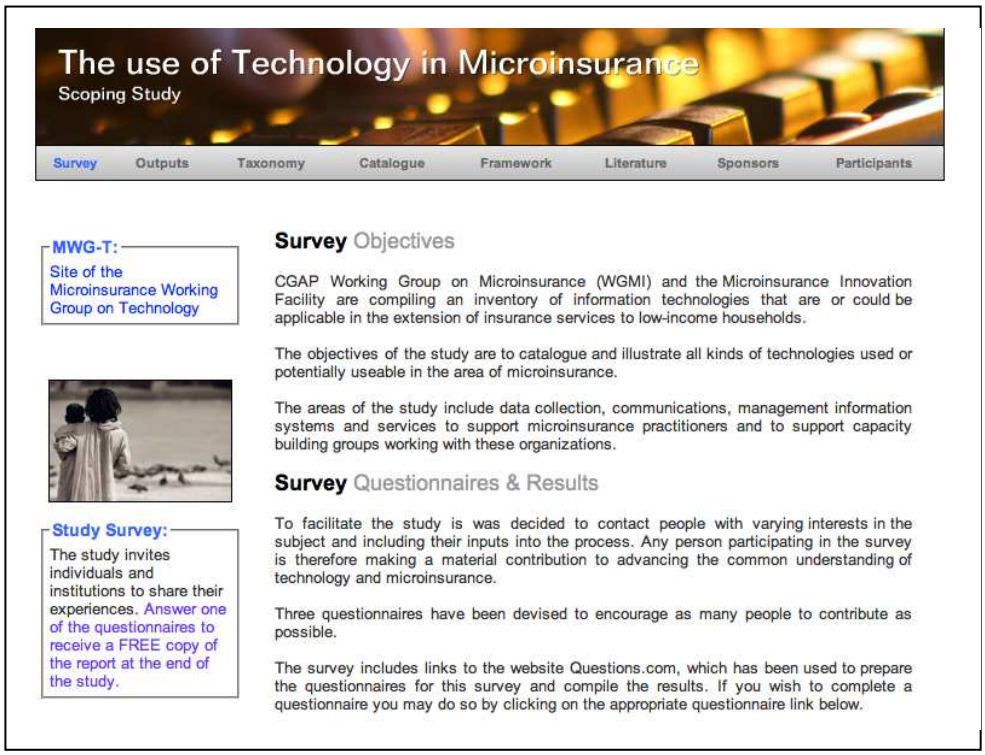
100% in-house resources	44%
With a software partner	37%
Other resources	22%
From insurance organization	11%

More detailed survey statistics on specific technologies are included in Chapter 3.

2.2 PROJECT WEBSITE

Rather than simply producing a final project report, the authors decided to document their activities throughout the study on a website. The project website was a convenient way to provide complete visibility on the study's results; it also contains links to information resources that can only be mentioned in passing in this report. This website is still available for consultation and is being updated with information from additional suppliers and users.

The home page of the project website is below:



2.3 ASSESSMENT FRAMEWORK

Once some qualitative data was collected, the next step was to develop a model or framework for evaluating technologies and their selection criteria. The assessment framework evaluates the technologies on their suitability for implementation against specific criteria such as cost, reliability, acceptance by clients, ease of use and control mechanisms. Few patterns emerged from the survey data with the exception of the cost dimension. A very clear trend here was exploited to build the assessment framework.

The survey was followed up with telephone interviews with a number of suppliers and users who gave specific responses to the questions on technology costs. From these, it was possible to create a model linking:

- the overall cost of a technology project

- the period of its full deployment
- the number of insurance clients supported by the system
- the expected increase in productivity of the microinsurance operation

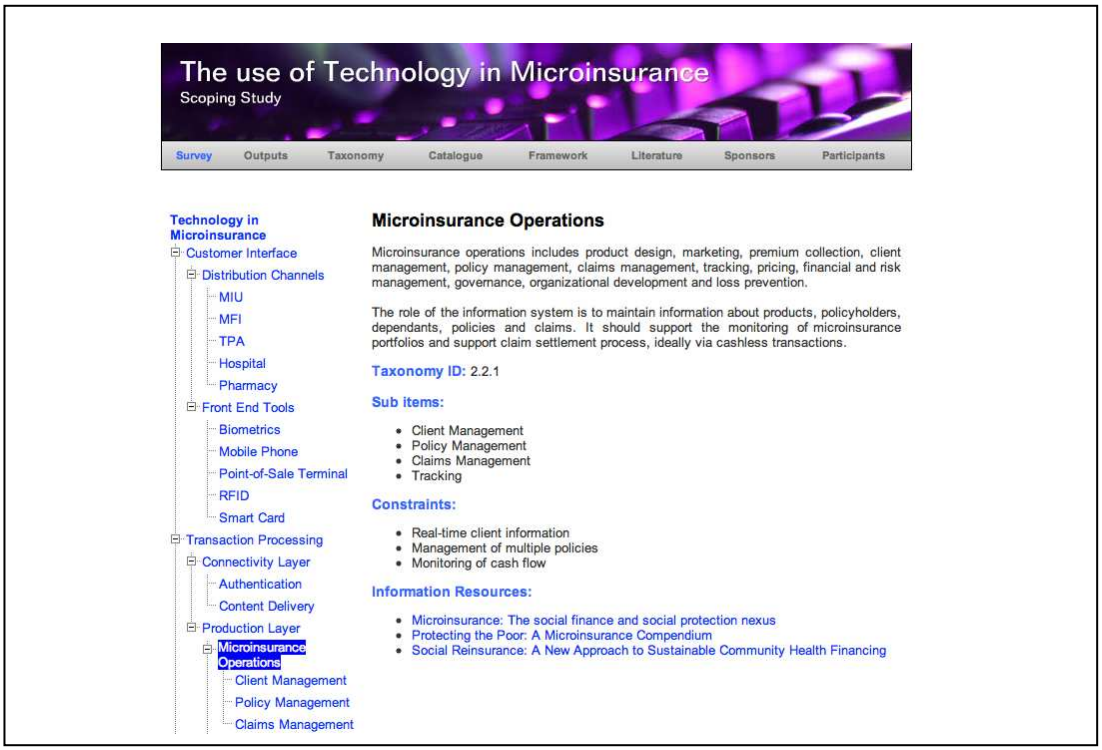
The proposed assessment framework is just a beginning. It is possible to include parameters such as user satisfaction and reliability. It is also possible to model various control mechanisms, the productivity gains of specific technologies (and relate productivity gain to business growth), and the global evolution of the microinsurance industry. A mathematical development of the assessment framework can be found in Appendix A2.

2.4 TAXONOMY

Taxonomy is the practice and science of classification. The word comes from the Greek taxis, 'order' + nomos, 'law' or 'science'. Taxonomies, or taxonomic schemes, are composed of taxonomic units known as taxa (singular taxon), or kinds of things that are arranged frequently in a hierarchical structure, typically related by subtype-supertype relationships, also called parent-child relationships[1].

The taxonomy for the study was inspired by the Taxonomy Browser of National Center for Biotechnology Information[2] that was developed by the US National Institutes of Health. It provided a hierarchical classification mechanism for the technologies used in microinsurance.

The taxonomy structure has been implemented on the project website in an interactive form using javascript. This program allows the user to click on any part of the taxonomy and have the appropriate definition appear on the screen, whilst preserving the hierarchical structure. The entry starts with a brief definition, followed by the taxonomy ID and a list of sub items in the hierarchy. A set of constraints identifies specific characteristics of the entry.



[1] http://en.wikipedia.org/wiki/Taxonomy
[2] http://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi/

Since the objective of the taxonomy is to act as a self-defining index, the amount of information that can be included is rather limited. At the end of each entry there is a list of hyperlinks to relevant external sources and references.

Several assessors suggested that the taxonomy become the basis of an ongoing industry discussion. This suggestion has been followed up with a note to the Google Working Group on Microinsurance Technology. Members of the Working Group have been invited to submit definitions and to suggest areas that need to be included in the taxonomy.

The following list is the taxonomy established so far on the project website:

1 Customer Interface
- 1.1 Distribution Channels
  - 1.1.1 Microinsurance Unit
  - 1.1.2 Microfinance Institution
  - 1.1.3 Hospital
  - 1.1.4 Pharmacy
- 1.1.2 Front End Tools
  - 1.1.2.1 Biometrics
  - 1.1.2.2 Mobile Phone
  - 1.1.2.3 Point-of-Sale Terminal
  - 1.1.2.4 RFID
  - 1.1.2.5 Smart Card

2 Transaction Processing
- 2.1 Connectivity Layer
  - 2.1.1 Authentication
  - 2.1.2 Content Delivery
- 2.2 Production Layer
  - 2.2.1 Microinsurance Operations
    - 2.2.1.1 Client Management
    - 2.2.1.2 Policy Management
    - 2.2.1.3 Claims Management
  - 2.2.2 Microcredit Operations
    - 2.2.2.1 Loan Management
    - 2.2.2.2 Portfolio Management
    - 2.2.2.3 Credit Reports

3 Data Analysis & Processing
- 3.1 Enterprise Layer
  - 3.1.1 Financial Reports
  - 3.1.2 Analytical Reports
  - 3.1.3 Performance Indicators
- 3.2 Support Layer
  - 3.2.1 Knowledge Capture & Transfer
  - 3.2.2 Information Services

3 > TECHNOLOGY FOR MICROINSURANCE

The main application of the taxonomy in the study was to position technologies and classify products and services. The taxonomy can be interpreted as layers of an information-processing model linking the customer view at the bottom to the enterprise at the top. This ordering corresponds to levels of increasing data processing. At the bottom, the data is represented as simple records; at the top, it is aggregated in the form of performance indicators. Since most products and services cover multiple layers of the taxonomy, the catalogue index is based on the lowest layer represented by the solution.

- Customer Interface
  - Distribution Channels
  - Front-end Tools
- Transaction Processing
  - Connectivity Layer
  - Production Layer
- Data Analysis & Processing
  - Enterprise Layer
  - Support Layer

The taxonomy can also be represented graphically[3] as follows

Information Processing Layers					
Customer Interface		Transaction Processing		Data Analysis & Processing	
1: Distribution Layer		2: Connectivity Layer	3: Production Layer	4: Enterprise Layer	5: Support Layer
Distribution Channels	Front-end tools				
• MIU • MFI • TPA • Partners including • Cooperatives • Banks • Hospitals • Pharmacies	• Paper • Computers • PoS Terminals • Cell Phones • Biometric Devices • RFIDs	• Data entry & transfer • Shipping of data • Internet • Wireless networks • Proprietary Networks • Security • Authentication	• Regional PCs or midrange computers • Hosted IT Services • Client Management • Portfolio Management • Client Identification	• National Data Centers • Enterprise Integration • Statutory Reporting • Management Reporting	• Knowledge Capture • Knowledge Transfer • Human Resources • Purchasing • Other Applications • Consulting • Training • Development • Integration • Other Service

The customer interface layers are of direct concern to customers and the staff that interact with them on a daily basis. For microinsurance this includes enrolling clients, collecting premiums and servicing insurance claims.

The middle transaction processing layers are concerned with the operational management of microinsurance entities, including databases of clients, policies and claims.

The data analysis and processing layers deal with strategic issues such as insurance product design, economic sustainability and compliance. This level is driven by actuarial considerations to ensure that the overall business is being conducted correctly from a legal perspective and that the insurance products being offered meet the market demand.

The taxonomy is also useful for isolating the specific issues and gaps appearing in the range of technologies available. For the customer interface, the main issues relate to the integration of technology into daily

[3] Graphical representation inspired by CGAP

business processes in the field. While reliability, ease of use, local language and support are significant concerns, the dominant issue seems to be the cost.

Key Issues & Gaps					
• Supporting capacity • Labor intensive business processes • Mass communications	• Access to technology • Inconsistent data handling • Access to information services	• Errors in manual data entry • Data transfer delays due to poor connectivity • Data security • Authentication of clients & transactions	• Data mining capabilities • Data for claims processing and decision support • Client Management • Portfolio Management	• Integration Enterprise level • Sharing risk information for reinsurance • Shared MIIS platforms	• Effort for Common Standards • Project Management skills

Distribution of Administrative Costs		
70%	15%	15%

In general, the overall administrative costs rise with proximity to the customer interface. This tendency is reflected by the overall cost of technology, since the number of data input systems is larger than the number of data processing systems. One of the main constraints in deploying technology will be the unit cost of the devices used in dealing directly with customers.

Some user interface technologies have a constant cost per client, contributing to the variable costs of the microinsurance unit (MIU) and impacting directly on the administrative contribution to premiums. In contrast, the costs of data analysis processing are amortized over all clients. Fixed contributions to administrative costs diminish per client as the scale of the operation increases.

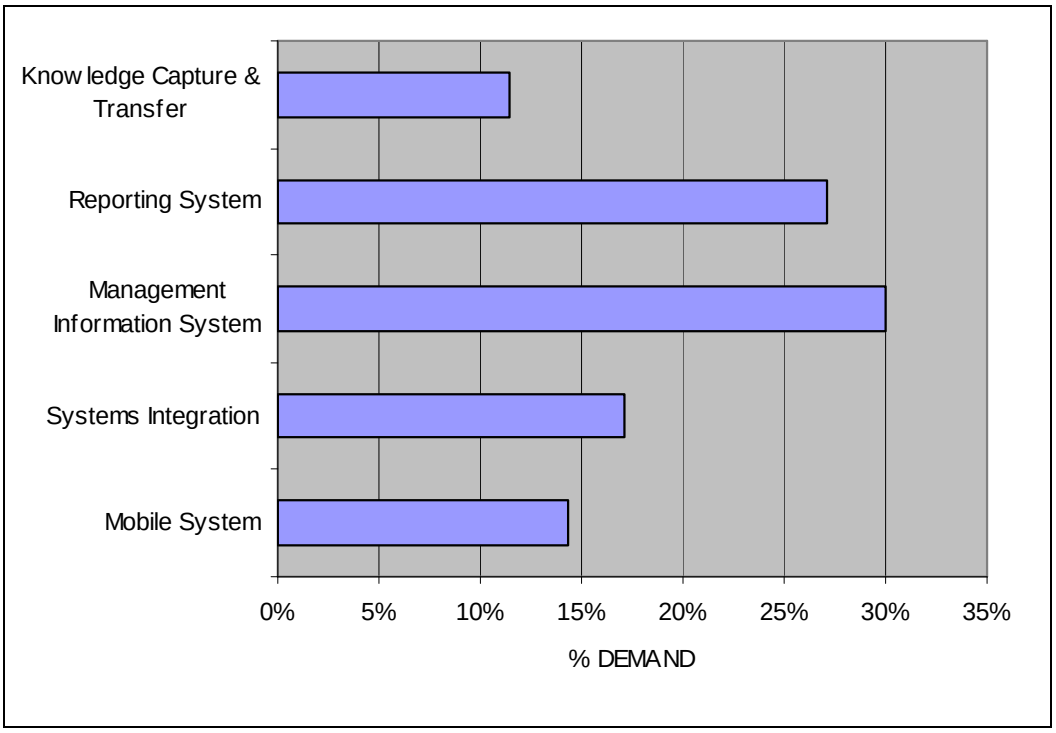
The key issues for the data analysis and processing layers are quite different, since information sharing between different organizations is required. Consequently, a challenge is posed by the differing data formats used by insurance companies, banks, hospitals, pharmacies and the problems associated with exchanging data between them. The more integration required, the larger the fixed cost investment.

The middle layers reflect both the challenges of variable costs at the customer end and the fixed costs associated with information sharing. In addition to these issues, the internal workflows and business processes of the microinsurance operation drive the middle layers of the model. The various departments within an organization have different requirements and often present competing priorities.

One of the purposes of the market survey was to identify the areas of supply and demand for technology. Respondents in the user profile survey were asked to identify what level of importance they attached to sample technologies that were representative of the layers of the taxonomy.

The following graph shows the importance of various technologies measured in terms of percentage of respondents. There is a clear emphasis on the middle layers of the model, perhaps reflecting the balance between variable and fixed costs. This conclusion was also borne out in one-on-one interviews with microinsurance units (MIUs), where the need for management and reporting systems to support administration was the need cited most often. .

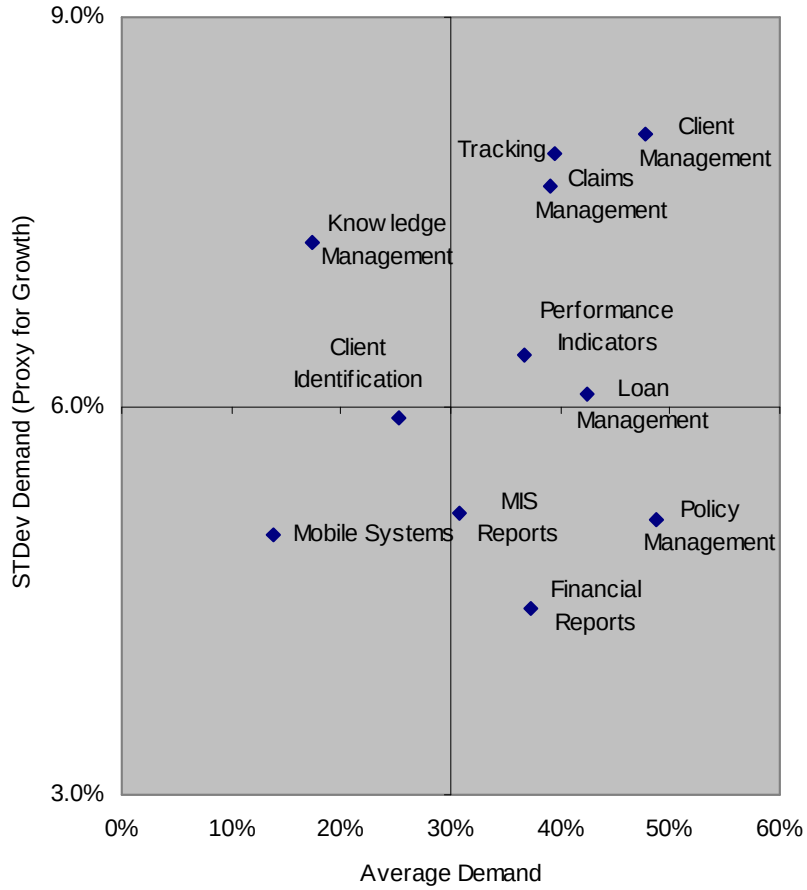
Technological Priorities (User Profile)



Survey results further confirmed this initial conclusion with statistics pertaining to the component features of the more detailed system requirements. Each microinsurance function identified in the taxonomy was broken down into features and the respondents were asked to select whether this feature was required. The result of the analysis was a distribution for each function. The average and standard deviation of the distribution for the component features for each function were calculated.

The average response for the different features can be seen as indicative of the overall demand for the particular function. The higher the average response for the features, the higher is the demand for that function. The greater the standard deviation, the greater is the variety in the demand for the features identified for each function.

The standard deviation of the response might also be interpreted as an indication of the dynamics of demand. The greater the standard deviation, the greater is the rate of growth for the demand. This last conclusion is speculative and needs further testing to be validated; however it does help position the different technologies in an interesting and challenging way. The following graph plots the average level of demand for the features of each function against the standard deviation of the demand (which can be interpreted as a proxy for demand growth).



The sample is insufficient to extract a clear trend, but when divided into quadrants the graph can be interpreted as follows:

- **High Demand - High Growth:** Client Management, Claims Management, Tracking, Performance Indicators, Analytical Reports
- **High Demand - Low Growth:** Knowledge Management
- **Low Demand - Low Growth:** Client Identification, Mobile Systems
- **High Demand - Low Growth:** Policy Management, Financial Reports, MIS Reports

The High Demand sectors are technologies which are well established in the market.
The Low Demand sectors are technologies which are not well established in the market.
The High Growth sectors are technologies where we can expect new solutions to be developed.
The Low Growth sectors include aging technologies or new technologies for which applications are yet to be realized.

3.1 CUSTOMER INTERFACE

The customer interface represents both opportunities and challenges for technological applications. Because the administrative load is the highest here, the customer end offers the greatest potential for productivity improvements. Yet, wide range of distribution channels makes technological solutions difficult to apply.

In addition to the microinsurance unit (MIU), there are many distribution channels where the customer interacts with microinsurance business processes. These include government institutions that provide official documents and microcredit institutions, many of which require some form of credit life insurance to secure their loans. Other groups that need to be considered are hospitals, clinics and pharmacies, which deliver health services to clients, as well as banks and post offices where financial transactions are conducted. Each of these external institutions has its own information processing methods and procedures. Consequently, quite a variety of technologies are available to service this level. A number of these have been singled out and will be presented generically rather than describing a particular product available on the market.

The most common technology used at this level is of course paper. This is unlikely to change, especially in the resource-constrained operations of microinsurance. Documents include national ID cards, photographs, birth certificates, proofs of ownership, expense claims, death certificates -- the list is endless. Furthermore, maintaining an original paper record is very often a legal requirement. In addition to these legally required paper documents, microinsurance institutions use computers to generate paper forms to collect data in the field where it cannot be entered directly into computers. The fact that paper will always be part of the microinsurance business process means that provisions must be made for generating, transporting and storing paper within the overall technology for microinsurance.

Smart Card

A smart card, chip card, or integrated circuit card (ICC), is defined as any pocket-sized card with embedded integrated circuits, which can process information. This implies that it can receive input, which is processed - by way of the ICC applications - and delivered as an output. There are two broad categories of ICCs. Memory cards contain only non-volatile memory storage components, and perhaps some specific security logic. Microprocessor cards contain volatile memory and microprocessor components. The card is made of plastic, generally PVC, but sometimes ABS. The card may embed a hologram to avoid counterfeiting.

The ability to have a record resident on the card has obvious advantages in the event of poor connectivity to host computers. Smartcards are often the first technology to be considered as a partial replacement for paper. However they can contribute significantly to the variable cost of an insurance operation. Consequently it is important to use such cards for multiple purposes which is possible since they are able to store information about the client. For health insurance, a card is a useful storage device for the patient record and other personal information. Cards are also a natural technology for electronic payment, cash transfer and other customer information. Because a physical card is also valuable to the individual client as proof of group membership and resulting access to other services, it serves to cultivate customer loyalty.

Biometrics

Biometrics (ancient Greek: bios ="life", metron ="measure") refers to two very different fields of study and application. The first, which is the older and is used in biological studies, is the collection, synthesis, analysis and management of quantitative data on biological communities. More recently the term's meaning has been broadened to include the study of methods for uniquely recognizing humans based upon one or more intrinsic physical or behavioural traits. Biometric systems identify an individual by comparing input characteristics with a template. There are two types of input: possession-based: using one specific "token" such as a security tag or a card and knowledge-based: using a code or password.

A biometric device is used to recognize a client automatically. The most common biometric technology is fingerprint recognition, but other technologies include iris and facial recognition. Over the last few years, fingerprint recognition has become less expensive and more reliable. . When a biometric system is networked together with telecommunications technology, it becomes a tele-biometric system. As long as the telecommunications is reliable, tele-biometric systems can be useful in microinsurance.

Point-of-Sale (POS) Terminal

Computer terminals used in shops to input and output data at the point where a sale is transacted (e.g. a supermarket checkout) are known as point of sale or POS terminals; A POS terminal inputs information about the identity of each item sold, retrieves the price and other details from a central computer, and prints out a fully itemized receipt for the customer. It may also input sales data for the shop's computerized stock-control system. A POS terminal typically has all the facilities of a normal till, including a cash drawer and a sales register, plus facilities for the direct capture of sales information – commonly, a laser scanner for reading bar codes. The POS terminal may also be equipped with a device to read the customer's bankcard, so that payment can be transferred electronically from his bank account to the shop's process, ideally via a cashless transaction. The vast majority of transactions made at Automated Teller Machines use ISO 8583 at some point in the communication chain, as do transactions made when a customer uses a card to make a payment in a store. Both the MasterCard and Visa networks base their transactions on the ISO 8583 standard, as do many other institutions and networks.

The Point of Sale Terminal is used in conjunction with a Smart Card. Because POS terminals are now fairly common, they can be exploited for many types of micropayment including microcredit, remittances and microinsurance. Several microfinance institutions have piloted the use of point of sale terminals to distribute loans and accept borrowers' repayments. Given that many microfinance institutions also offer microinsurance, it is only a question of time before this technology will have to be considered as a means of making cashless payments for microinsurance.

Mobile Devices

These are portable electronic devices (mobile phones, PDAs, some laptops) using mobile voice or data communication over a network of specialized base stations known as cell sites. The most ubiquitous of these technologies is the mobile phone. In November 2007, the total number of mobile phone subscriptions in the world reached 3.3 billion, or half of the human population, making the mobile phone the most widespread technology and the most common gadget in the world. In addition to the standard voice function of a telephone, current mobile phones may support many additional services, and accessories, such as SMS for text messaging, email, packet switching for access to the Internet, java gaming, Bluetooth, infrared, camera with video recorder and MMS for sending and receiving photos and video. Most current mobile devices connect to a cellular network of base stations (cell sites), which is in turn interconnected to the public switched telephone network (PSTN). Satellite phones are the exception. The last five years have witnessed the emergence of cell phones with internet connectivity.

The mobile device presents a major step forward in remote connectivity and has a great potential for many areas involving microinsurance. Most mobile phones being produced today are capable of running programs that communicate securely with remote computers. Even when out of signal range, these programs allow cell phones to collect data, especially for short transactions such as those involving micropayments. Thus, over time, the mobile device will become a replacement for the combination of smartcards and Point of Sale terminals.

The applications of mobile devices to microinsurance include remote access to client information for MIU staff, cashless transactions such as the collection and payment of premiums, and in the case of health insurance, client access to coverage information and the claims process. Microinsurance schemes vary in their coverage, premiums, required co-payments and reimbursement processes, but a mobile phone micropayment platform can be adapted to these different methodologies and operational conditions.

COMPARATIVE ANALYSIS

The four examples above are illustrative of the technologies currently applied to a wide variety of client-related transactions. These include identification, records and payments. There are various advantages and disadvantages of each type and the applicability, reliability, and sustainability will be highly context dependent. In all cases these factors need to be analysed.. Currently there are many examples of tests on smartcards, biometrics, Point of Sale terminals and mobile devices. Most of these tests involve using the technology to support small financial transactions such as loan dispersal, micropayments and remittances.

Whenever a microinsurance application can be linked to small financial transactions, there is a good chance that the application will be successful[4]. However, there are a number of caveats in using such technologies. The major one is deployment cost. The costs of a smart card include photography, programming, printing and delivery – adding up to approximately USD 2.00 per unit. The time and resources (human and computer) required to complete these steps cannot be underestimated.

The use of biometrics such as fingerprint technology is a possible alternative to smartcards. Yet, biometrics is dependent on centralized fingerprint databases and thus requires good connectivity to work. Assuming connectivity, it can provide a mechanism for client identification at a significant reduction in unit costs, although the field experience to date is very limited.

The mobile phone has several technological advantages over the point of sale terminal; in particular, its lower cost and portability. Even if all members of a microinsurance scheme do not own a cell phone, it is conceivable that most microinsurance units would have access to such technology. It is possible to find innovative applications that provide information to, and facilitate cashless transactions for clients.

Mobile devices and ad-hoc mobile networks will be a major area of application development in the future. Such highly distributed systems will enable field support personnel working for microinsurance units to provide advice to their clients, even when they are out of the office. They will be able to use mobile devices to receive alarms, query databases and provide referral information.

Although these forms of user interface technology are a fertile area of experimentation, more feedback based on practical field experience is needed in order to assess their long-term benefits to microinsurance. On the market survey, microinsurance groups indicated that, based on their field experience, automating the user interface is important but not their highest priority. This is primarily because automating the front-end technology naturally follows the introduction of back office transaction processing applications, and not the other way round.

3.2 TRANSACTION PROCESSING

The next two layers of the taxonomy concern connectivity and production systems. Together they form the heart of the information processing hierarchy. As was noted in the introduction to this chapter, the transaction processing layers are a high priority for microinsurance operators. There are several application components at this level including policy, client and claims management. The ability to follow paperwork, including tracking claims, as it traverses the process is an essential feature of the transaction-processing layers. Other components included here are financial management, logistics and customer relationship management with the various partners.

Five examples of transaction processing technology will now be presented.

[4] Ferlo in Senegal and Dataplus in Kenya

Syslift (UIA)

UpLift India Association (UIA) is a non-profit company formed in December 2003.. It is an association of organizations working in the areas of microfinance, microinsurance and family development in urban and rural areas of India. UpLift members share health chapter microinsurance services, such as product development, actuarial studies, statistics, health care provider network, health guidance and claims processing as well as call centre and data processing. Syslift is a microinsurance production system co-developed by UpLift and Tieto Enator. Syslift is offered to MIUs managing microinsurance in a mutual or partner agent model. The data processed provides statistical and actuarial reports to each branch unit including claim reports, frequencies, and reserves. These outputs enable local units to take risk management decisions. The software has multiple levels of results consolidation, and reports may be designed for each of these levels thanks to the statistical warehouse table. MIUs may use Syslift for free if they are willing to share their database with other MIUs. The incentive to offer Syslift for free is the need for data, especially among microinsurance practitioners, to inform the development of proper insurance products. Sharing Syslift among practitioners and pooling data among all MIUs, builds a large centralized database that will improve product development. . At this moment data of approximately 50.000 members is stored in the Syslift database.

Syslift is developed using Visual Basic as a front end (user interface) and Microsoft SQL Server as back end (data storage) tools. The core functionality of Syslift is comparable to other production systems. On the one hand, there are possibilities for member, policy, and claims administration. On the other hand, Syslift has MIS functionality, which enables MIUs to analyse portfolios, improve claim settlements and generate custom-made reports. Syslift was built to administer community based health insurance products, but it also has the capacity to handle life and property insurance under the mutual or partner agent model.

Syslift can be used perfectly within Uplift and has all requirements to fulfil the daily needs of its member MIUs. Because the software was developed in-house, it offers the significant advantage of independence from external parties to make changes and updates. The main concern is that Syslift does not have the right architecture to scale to larger deployments. The systems implementation will make it difficult to integrate other information-processing layers of the overall model. This could become a problem when the use of other techniques as smart cards and mobile phones will be required.

Social Security Software (DHAN Foundation)

DHAN Foundation is an NGO based in India. DHAN Foundation addresses various development issues through thematic institutions. One of the development tools being used is microinsurance. Federations that are formed by DHAN Foundation offer microfinance and microinsurance services to the members and their families. This insurance service has been in operation for the past eight years and, during that period, has served more than 400.000 members. Initially DHAN Foundation's insurance programme offered insurance to its members via the partner-agent model. In 2004 DHAN Foundation formed People Mutuals. With the technical support of Micro Insurance Association Netherlands (MIAN), People Mutuals started to pilot insurance products via the community-based model. Instead of sending client details to the external or mainstream insurers, the People Mutuals and Federations now need to manage member information, administrate policy and claims details, and generate proper management data, in order to design its their own insurance products. DHAN Foundation was forced to find a software solution that simplified the process from member administration to analytical reporting.

Initially the idea was to use insurance software developed by a Dutch software provider. It soon became apparent that this software was far too expensive. Given the relatively low premium income per federation, the high licence and maintenance fees dictated that another solution be found. For its microfinance programme, DHAN Foundation had already developed a microfinance software system called DHANAM. It decided to use parts of this software (e.g. member administration) in developing a system specifically for microinsurance called Social Security Software. This software is being used by 15 federations with approximately 45.000 members. In the coming years, it can be expected that all microinsurance federations of DHAN Foundation will use the Social Security Software.

Social Security Software is a multi-user software product developed using open source tools. It supports both partner-agent and community-based products. By using open source tools the costs of the software is

reduced considerably. No licence fees need to be paid and only development and maintenance costs need to be compensated. It uses JSP (Java Server Pages) as a front end (user interface) and MySQL as the back-end (data storage) tools.

The main objective of Social Security Software is to keep track of policy handling, claim settlement, accounting and MIS information of life insurance products. It is used to update all the insurance policy, claims and financial transactions of the institutions. SSS also has MIS functionality, which provides the relevant information for DHAN Managers/Facilitators to run the Microinsurance programme successfully and efficiently. It supports the institution's longer-term strategic goals and objectives. It provides everyday financial accounting functions that are used to ensure basic control over financial record keeping activities.

Insurance Management System (MicroCare)

MicroCare Insurance Ltd started out in 2000 as a not-for-profit action research organisation developing the systems necessary to run community health-financing schemes for MFI clients and rural community groups in Uganda. Although it started as a donor dependent organization, MicroCare soon adopted a commercial approach to become self-sustainable. MicroCare provides health insurance to both the formal and informal sectors and has become Uganda's largest health insurer as well as its fastest growing insurance company.

One of the key success factors for replicating the Insurance Management System (IMS) in other places is the supporting role of MicroCare or another dedicated organisation/department. Introducing and implementing such a system requires a sophisticated knowledge ofsmart cards, biometrics, mobile phones, databases and other technologies within the organisation.. Continuous monitoring by a specialized department within the organisation would be very helpful.

IMS uses an Oracle RDBMS database platform with dot net and ASP front end. Claims can be entered and processed from the point of treatment, thus reducing labour intensive paper-based claims form processing (computer or PoS). MicroCare's IMS integrates on-site client identity verification and real-time claims processing with a centralized insurance management system. This is achieved by networking a central database with computerised clinic check-in terminals and clients who are provided with smart cards.

MicroCare has incorporated biometric (fingerprint) identity verification and GSM phone (GPRS) data transfer into its system. IMS prevents fraud, contains treatment costs and treatment history, expedites payments to service providers and enables monitoring of health care quality. Through a photo ID biometric smart card and point of sale claims entry, most membership impersonation fraud can be controlled. The check-in desk is equipped with a proper biometric login system that enables controls for internal staff to prevent system abuse.

IMS has the potential to handle hundreds of thousands of client profiles and thousands of health service providers. Other organisations throughout Africa and Asia have shown their interest in this system.

Automated Insurance Management Software - AIMS (MicroEnsure)

MicroEnsure has its roots within Opportunity International, a large microfinance network. In partnership with Opportunity's microfinance institutions, MicroEnsure began working in 2002 on the development of a range of life, property, livestock, crop derivative, disability, unemployment and health insurance products to cover the risks faced by Opportunity's loan clients. The data is used by MicroEnsure to develop and offer more sustainable insurance products. AIMS is designed in such a way that it is only useable for organisations working via the partner-agent model in co-operation with MicroEnsure.

Automated Insurance Management Software (AIMS) can be seen as a tool to perform the business model of MicroEnsure. AIMS takes over the whole back office administration from local MIUs which minimizes the costs per transaction for the MIU. The collected data of all connected MIUs is stored in a centralized database.

AIMS is a hosted Software as a Service (SaaS), which means that the main requirement for users is a proper Internet connection with a standard desktop or laptop. The MIU facilitates the capture and uploading of data to a central server at times that have been agreed between the MIU and MicroEnsure. In all cases, the MIUs act as the intermediary.

AIMS covers all information processing layers. The authors believe that this is one of the reasons why AIMS is already being used on such a large scale. AIMS is a step ahead of most other available technologies in the production layer.

Business Process Utility - BPU (Gradatim)

Gradatim is a young, privately held IT company with offices in India, Australia and Singapore. Right from the beginning, Gradatim decided to focus on various branches in the financial development sector, including microinsurance. On the one hand, Gradatim defined its objectives as reducing the cost of computing and increasing its reliability; on the other hand, it is trying to reduce the costs associated with the production layer such as client and portfolio management.

Gradatim's Business Process Utility (BPU) is a multi-channel, multi device and on-demand technology platform. Gradatim delivers services to insurance providers and its various stakeholders by connecting the available technologies as mobile phones, PDAs, and smartcards with each other to improve microinsurance processes. The technology platform also enables product intelligence for actuarial support, MIS and reporting, substantially improving management and governance.

BPU is able to handle products from all lines of the insurance business – life, health, non-life and pensions, but needs to be employed on a large scale to reach the earlier mentioned objectives.

Like AIMS, BPU from Gradatim is a hosted model, with its main requirements a proper Internet connection and a standard desktop or laptop. For a single user, a broadband connection of 512 Kbps is recommended, but a telephone line will also do. In an office scenario where multiple people access multiple sites, a minimum of 1 Mbps bandwidth is recommended. The other hardware requirements (such as PDAs, laptops, Point of Sale terminals, smart card readers, bio-metric readers etc.) will vary based on their needs.

COMPARATIVE ANALYSIS

SSS and Syslift are similar stand alone systems that can be compared on several aspects. The pros and cons of SSS are the same as those for Syslift. Both were developed by MIUs for their own needs and fulfil the operational requirements for running the local business. Their scaling capabilities are limited since they were not designed to include the other information processing layers. This could become a problem when other techniques are required as the organisation grows and needs needs more sophisticated use of data.

Microcare, has a modular web-enabled system that has greater scalability and is installed at different client sites. It is commercially supported by a professional software development group. Microcare integrates a variety of user interface technologies, enabling its use both in different client situations and at a larger scale than SSS and Syslift.

Software as a Service (SaaS)

Saas (typically pronounced 'Sass') is a model of software deployment where an application is hosted as a service and provided to customers across the Internet. By eliminating the need to install and run the application on the customer's own computer, SaaS alleviates the customer's burden of software maintenance, ongoing operation, and support[5].

[5] http://en.wikipedia.org/wiki/Software_as_a_Service

AIMS and Gradatim are examples of Software as a Service (SaaS). These systems are web enabled and connect all information processing layers with each other. AIMS, BPU and other SaaS technologies all require high number of clients before they can become cost effective to the provider. Given the premium rates of microinsurance products currently available, the percentage of administrative costs of the technology offered by SaaS providers will be very attractive if they can offer services at a low cost per client.

3.3 DATA ANALYSIS & PROCESSING

The Enterprise and Support layers of the information-processing model sit above the transaction processing layers. Their function is to link microinsurance with mainstream insurance and other financial networks. The main challenge for these products is to ensure that they meet customer needs and can support sustainable businesses in the long run.

Two different examples are presented. One is of a set of simulation tools used to evaluate financing alternatives and the other is a business process and data standardization technology used by the microfinance industry through the MIX Market to link into banking networks.

Capacity Development Tools (GTZ)

Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) is an international co-operation enterprise for sustainable development with worldwide operations. GTZ promotes complex reforms and change processes, often working under difficult conditions. Its corporate objective is to improve people's living conditions on a sustainable basis. GTZ has developed several (software supported) tools and approaches that aim to improve the managerial and financial performance and capacities of providers and delivery channels of micro-insurance, especially on a small-scale decentralised basis. InfoSure and SimIns are tools that GTZ has developed in order to improve the efficiency and effectiveness of health insurance, including community based health insurance schemes. The tools are geared towards policy-makers to aid in policy formulation, evaluation and planning.

SimIns is a health insurance simulation software that analyses the basic financial mechanisms of health insurance. Its principal use is to conduct financial forecasting for social health insurance, although it can also be applied to community-based health insurance schemes. Additionally, SimIns can be used to evaluate the feasibility of alternative mixes of financing including different government budget lines (Ministry of Health and other). SimIns works by varying key variables in health insurance according to six population groups and up to fifteen health service categories. The output of the software consists of data tables and graphs that project the development of incomes and expenditures of a health insurance scheme over a 10 year period. The InfoSure component is an offline data entry tool that provides health insurance evaluations through the use of extensive "questionnaires". InfoSure is mainly used to provide a semi-standardized guideline for the evaluation of and (accompanying) advice to health insurance schemes.

Enterprise Application Suite - EAS (UBmatrix)

UBmatrix is a privately-held corporation headquartered in California, USA. Since its inception in 1998, its business has been focused on developing and implementing XBRL (eXtensible Business Reporting Language) products and services. UBmatrix provides an XBRL-based platform called Enterprise Application Suite (EAS) which has products for the full lifecycle of design, development, and deployment of applications that collect, validate, aggregate, report or exchange information. EAS can help organizations move information among applications. This could be within an enterprise, between business partners, and to regulators.

In the development field, the Microfinance Information Exchange or MIX offers an example of an application of EAS. The MIX and UBmatrix launched a XBRL-based solution designed to streamline and standardize financial information reporting in the microfinance industry. Currently, approximately 1200 MFIs located all over the world share their information through the MIX Market. This structure could be useful in the field of microinsurance; numerous possibilities arise for sharing and combining data captured by many MIUs throughout the world. In addition, UBmatrix currently is working on the development and implementation of an XBRL solution for the electronic exchange of credit risk information. Credit Risk Assessment Services (CRAS), an industry working group is collaborating with UBmatrix on a program that enables CRAS constituents to optimise their workflow and communications among and between credit insurers, business information providers and others.

XBRL (eXtensible Business Reporting Language) is a standards-based way to communicate business and financial information. These communications are defined by metadata set out in taxonomies. It is an XML-based open standard that supports information modelling and the expression of semantic meaning commonly required in business reporting[6].

UBmatrix has a set of Java-based technologies that are used to deploy XBRL solutions for reporting and data collection. This includes UBmatrix Enterprise Application Suite (EAS), web-based application platform including taxonomy management, reporting management, XBRL document processing, and collaboration tools. APIs and other components can be used in combination with custom created solutions that integrate with third-party applications, like Microsoft Excel.

EAS is a system that offers many possibilities, solutions and improvements to the various microinsurance processes. Given the success of MIX Market, the authors believe that the potential of EAS is huge. Before the advantages of EAS can be produced, systems and processes in use at MIUs need to be reviewed and changed to make internal and external communication through XBRL possible on a global scale. Doing this in a structured way requires a centralized and articulated set of definitions that reflects consensus among all participating MIUs. Clearly, a well-organized MIU community is necessary for EAS to be a success.

Strategic tools like InfoSure and SimIns need to be integrated into an XBRL data and workflow platform to enable any microinsurance operation to make reinsurance and financing calculations. Such an integration would provide insurance partners from the mainstream insurance industry to compare all microinsurance units using the a common set of performance metrics.

COMPARATIVE ANALYSIS

The two tools presented here are complementary; CDT is a simulation and analytic tool that can be used to support microinsurance product design. ESE provides a platform for connecting Transaction Processing systems and aggregating information. Thus if they were linked together, it would be possible to apply the CDT tools automatically to support all the transaction processing systems connected to ESE. Many available business intelligence and reporting toolssuch as management accounting, could be introduced to support microinsurance if a common data and workflow mechanism were brought to bear in the industry. The applications for this include common data repositories and benchmarking as well as workflow management, statutory reporting for compliance and reinsurance.

3.4 SYSTEMS VIEW

Up to this point the report has focused on technology components presented as layers in the taxonomy. This approach is of interest to groups testing new technologies, seeing how they may impact certain aspects of the operations of an MIU in the future. A systems view is obtained by considering all layers of the taxonomy together. The different systems all include some technology from each processing layer, but the type and sophistication of the systems vary considerably. This is reflected most clearly in the global cost of development. Three distinct technology groups have been identified based on their global cost. These are:

- Low-end stand alone systems
- Mid-range integrated systems
- High-end global distributed systems

Low-end systems are stand-alone platforms typically developed in-house by microinsurance units. These systems are functionally complete in the area of transaction processing but lack functionality at the user

[6] http://en.wikipedia.org/wiki/XBRL

interface, data analysis and processing layers. In general they lack the software support infrastructure needed for deployment beyond a limited geographic area.

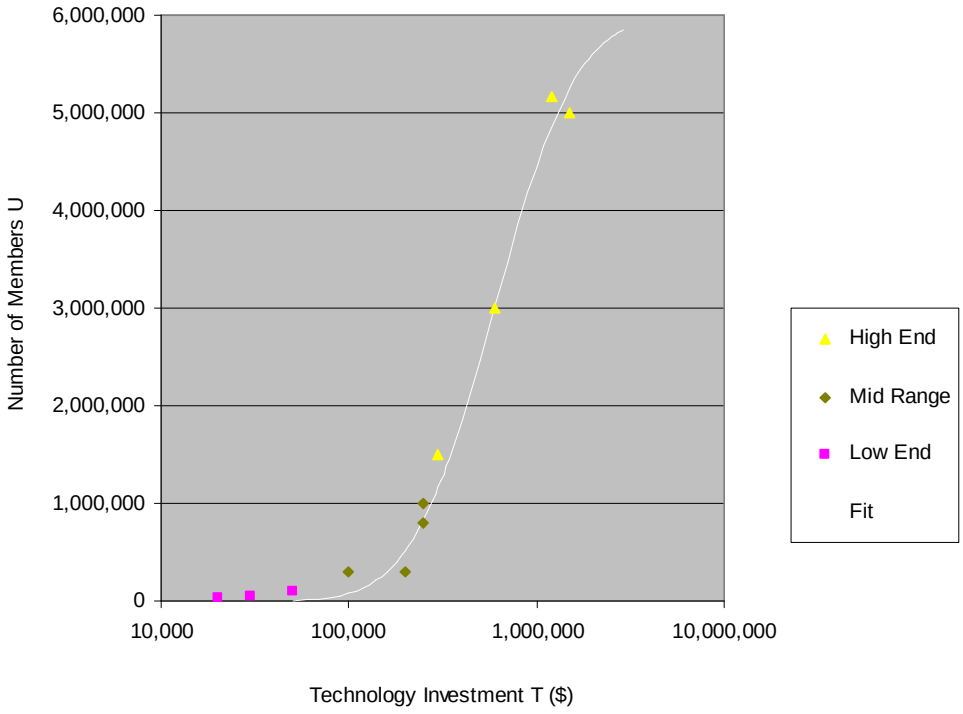
Mid-range systems have been designed with systems integration in mind. They are constructed in a modular architecture around a relational database. They cover the user interface and transaction processing layers, but lack tools for data analysis and processing. They include support for mobile devices, smart cards, biometrics and other end-user tools.

High-end production systems are SaaS platforms based on a shared distributed hardware and software, offering an outsourced service either directly to MIUs or to insurance companies that work with them. They include all layers of the processing model, are modular, tailored and secure communications within and among systems.

An MIU can benefit from any of these platforms depending on the choice it makes between using its own private infrastructure and sharing the infrastructure and its cost with others.

To give a rough idea of costs: The low-end systems have investment costs of up to USD 50'000, the mid-range systems require investments up to about USD 500'000 and the high end include systems requiring in excess of USD 500'000 to develop.

Interestingly, there is a clear relationship between the overall technology cost and the number of clients being serviced. While the investment is greater for high-end technology solutions, the graph shows that the number of users dramatically increases for such solutions. In addition, the cost benefit is higher for these systems since the price per user decreases, as shown in the following graph.

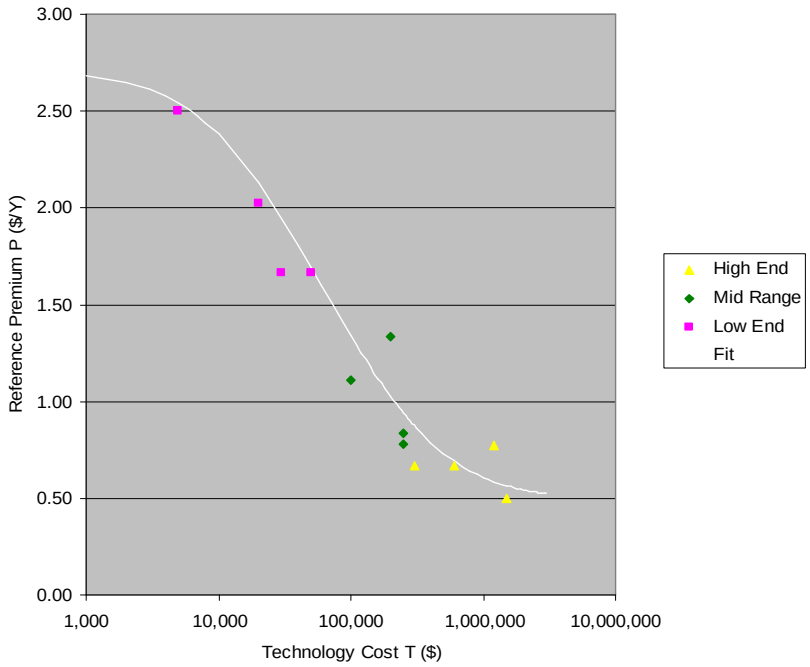


User - Technology Model

The three types of solutions are represented by the different coloured points on the graph, which shows a marked s-shape (using a lognormal fit). The shape represents an overall law of diminishing returns for the information technology. The saturation may have less to do with the technology itself than the need to provide support to the organizations that use it.

How does this model translate into concerns that are relevant to the clients? In other words, how does the investment in technology relate to the premium? The response to these questions is found in the assessment model (developed in Appendix A2) which includes the amortization period for the technology, productivity increase, and the annual premium per client. From the survey and interviews, the expected productivity improvement averaged at around 10% of total premium income. In the simple model, this can be considered to be a constant for the industry.

Since the amortization period corresponds to the time required for the enrolment to rise to the level at which the investment is balanced by the productivity improvement, it is possible to use this constant to calculate a Reference Premium for the investment. This number can be used as the benchmark for comparing technologies. The Reference Premium is the lowest premium for which the investment can break even. The following graph shows the Reference Premium obtained by applying the assessment model to the data obtained through the survey and the subsequent interviews. The technology amortization model indicates that even though a technology may have a very large development and deployment cost (for example with the SaaS approach), its cost per member will be low if many MIUs and clients can share the same infrastructure.



Technology - Amortization Model

4 > CONCLUSION & RECOMMENDATIONS

Covering many aspects of technology for microinsurance, this study has:

- Conducted a market survey to identify the areas of interest among microinsurance practitioners and technology providers from around the world.
- Developed a taxonomy for classifying technological components which was used to position technologies and index them in a catalogue.
- Conducted one-on-one telephone interviews to understand technologies in greater depth and presented a number of illustrative case studies.
- Developed an assessment framework to compare complete systems based on investment cost, amortization, productivity improvement and administrative cost per client.

The component technologies for microinsurance divide naturally into three groups: User Interface, Transaction Processing and Data Analysis & Processing.

The market survey indicated that the greatest demand in the field was for Transaction Processing Systems; the interviews confirmed that User Interface and Data Processing & Analysis were in fact supporting functions to the core business management function. The general recommendation is that Transaction Processing Systems be installed and properly integrated with paper processes before attempting to automate the supporting functions.

The market survey also indicated a stronger demand for more integration between systems than for a disaggregated approach to technology. This does not mean that projects to investigate technology components (especially front-end technologies) should not be encouraged, but that much more emphasis be placed on reengineering internal business processes, systems integration and other approaches to reducing the administrative load in the back offices of both mutualities and agencies. The risk of not doing so is that investments of MIUs will be prioritised incorrectly, resulting in increased overhead costs.

The market survey indicated a strong demand for a common data repository, but the authors sensed that this was only part of the story. Having good data using a common format can only improve the quality and penetration of microinsurance products. One of the main challenges to cost effective use of information technology in microinsurance is managing the flow of data between organizations. The use of common data is just the first step. Any organization wishing to provide added value to its clients needs to be able to handle the flow of data between members, health service suppliers, microinsurance units, insurers of record and reinsurers. The problem is particularly acute for international microinsurance networks that manage multiple workflows.

Based on the survey, a number of areas for technological R&D would be worth investigating more deeply than could be accomplished in this study. These include technologies to support the following:

- Integrated user interface functions (authentication, data, micropayments) in smartcards and mobile devices;
- Training, knowledge capture and dissemination;
- Management accounting and business intelligence applications to microinsurance.

There is plenty of scope to increase the depth of the analysis started in this report and to address this question in more detail. In particular, it is necessary to detail the opportunities for technology at each level of the information-processing model.

The assessment framework was used to analyse different systems to be compared at the level of cost per client. The conclusion from the analysis was clear. A low total development cost does not imply a low cost per client; in fact just the reverse seems to be the case.

The main conclusion to be drawn from the analysis is that reducing transaction costs is one of the major challenges facing microinsurance. Making progress on this front will reduce administrative overheads, with direct impact on customers' premiums.

Microinsurers need to streamline the routine production processes such as customer registration, claims management and implementing systems that support the efficient flow of information within and between organizations. If they don't, the automation of user interfaces, the addition of knowledge management, product design and business intelligence will simply add costs without improving services to customers.

The reason for this recommendation is not just efficiency for its own sake, but to encourage microinsurance organizations to focus their energies on developing business processes that really add value to the customer. Using technology to release resources from administrative activities and redirect them into product innovation and marketing will have a direct impact the growth of the industry.

It should be underlined that the assessment framework has so far only been used to analyse transaction costs. The selection of a type of system will depend on other criteria as well, including accessibility, ease of use and support. Further work will be required to incorporate these parameters with the specific requirements for different types of insurance products, regional differences, political conditions and regulatory requirements. Nevertheless, the authors are confident that costing analysis will continue to be the main component of the evaluation framework.

There are several technical and non-technical challenges in bringing together innovation and local knowledge of grass roots microinsurance organizations with the demonstrated scalability and efficiency of global solutions providers. In particular, it will be necessary to achieve long-term sustainability of the cooperation and harmonization of the social and economic goals of these very different types of organizations.

The authors think that bottom-up innovation and experimentation should be encouraged, but at the same time, they see potential problems in the area of support. Although there is a willingness to share experiences and applications, it is difficult for MIUs that have developed solutions to provide support to others. These organizations are not properly structured to provide this kind of technical assistance; they are MIUs and not technology experts..

The recommendation is that local solutions be developed in a managed way to stimulate local ownership and innovation but at the same time encourage coordination between developers to avoid repeatedly reinventing the wheel.

4.1 SPECIFIC PROPOSALS

In addition to the above general recommendations, the authors wish to make ten specific proposals

CAPACITY BUILDING

Effective use of technology for microinsurance calls for capacity building and knowledge dissemination. The importance of adapting global solutions to meeting local needs was brought out in the survey and in telephone interviews. To this end, the authors recommend the following:

- Create the means (e.g. a vehicle, a forum) for MIUs to share experience and keep abreast of solutions developed by groups in different regions.
- Encourage technology suppliers to enter the details on their product and service offerings into a technology catalogue, continuing the effort started during this study. A product database can support this task. Incentives for providers to participate might include an opportunity to participate in a data standardization effort that will encourage inter-operability, reduce development effort and bring down the costs of technology.
- Create opportunities for users to give their points of view on technologies and systems with which they have had experience.
- Continue the field survey on requirements and assessment that was started for the study (and probably make it easier and more accessible for wide outreach). Incentives to participate might include some further services like data/risk analysis through an indicator database.

INTEGRATED SOLUTIONS

A number of suppliers have developed global platforms with high scalability, reliability and performance. These application platforms are commercially efficient and very attractive because they operate at the high-end of the scale (i.e. millions of clients vs. thousands). This conclusion is borne out in the analysis of the Technology Model developed using the Assessment Framework. However, the challenges to apply such platforms include the need for localization, reliability of access to remote servers, and ownership of data. The problem is especially complex for multinational microinsurance programmes, which can ill afford to maintain a plethora of local solutions, but at the same time may be resistant to the idea of outsourcing their entire operations to a commercial supplier. The authors recommend that MIUs look at ways of exploiting commercial platforms by outsourcing some applications such as workflow or specialised actuarial calculations and reinsurance modelling tasks. They recommend that commercial suppliers look at ways to integrate their solutions with those of software developers, taking advantage of their proximity to customers and ability to provide local timely support, especially in remote regions.

TECHNICAL SUPPORT

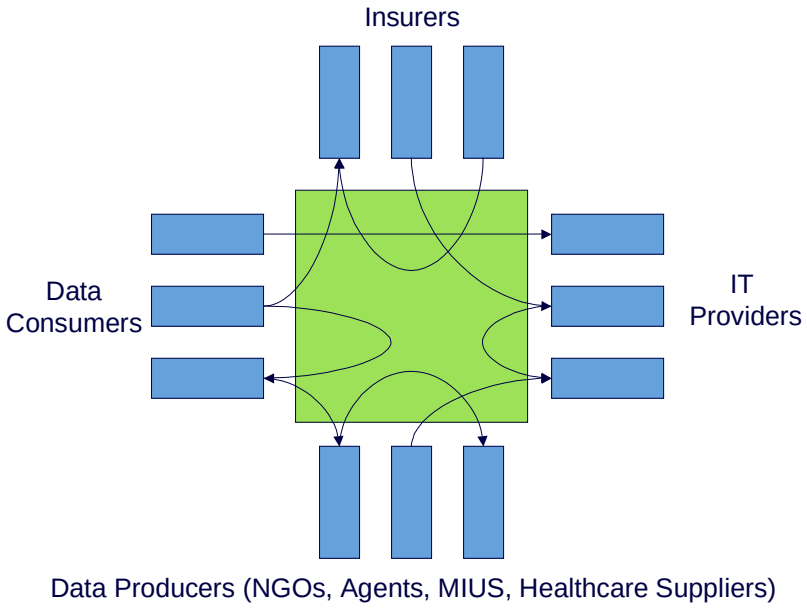
The authors recommend providing technical support to MIUs to help them implement systems that combine local requirements with commercial platforms. This organization would create, promote and apply standards for data collection, workflows and reporting in microinsurance. Through communication and sharing of data among the various MIUs, development will become easier and could benefit the entire microinsurance community. A technical support group would refurbish applications developed by MIUs into open source software solutions so that requesting MIUs would be supported in the technology transfer process. Standard modules such as client, policy and claims administration that have been refurbished by the supporting organization should be fine-tuned to local needs by local software developers. These open source components would also be integrated with commercial software solutions through common data exchange standards. This prevents reinventing the wheel and will speed up the collaboration between MIUs and the commercial suppliers of technology.

DATA STANDARDIZATION

The authors recommend that a standardization effort be initiated involving commercial suppliers and MIUs active in application development. That would encourage providers of local solutions to build standard interfaces to the common data repository. Workflow components for data validation and communication could be located in a shared platform. Since workflow in insurance may involve multiple organizations, logically it could be handled in a common way.

INFORMATION MARKETPLACE

Naturally the above recommendations bring their own set of challenges, notably those concerning "data ownership". Nevertheless, this problem could also become part of the solution. After all, whose data is it and what is its value? Given that we are dealing with people at the "bottom of the pyramid", the primary ownership should be with the people themselves. If data is primarily owned by the insured client but held in common, it should be feasible to tag the data source so that ownership can be traced. If data from a household is aggregated using the information-processing model, its value increases with every step it takes as it passes through each layer. The added value can be tagged so that this can be attributed to any intermediary involved in the workflow. The following diagram illustrates the Microinsurance Information Marketplace being proposed.



Microinsurance Information Marketplace

The proposal is that these data flows generated be used both to empower people at the bottom of the pyramid and to finance the technology infrastructure. There is sufficient potential from this data flow to bring a new source of income to the bottom of the pyramid that is intimately tied to the delivery of insurance. Data flows can be between all parties and income can stream all directions as well. The basic idea is to make the cost of the information service financially neutral in the vertical direction so that the cost of the infrastructure should be borne by the horizontal direction. Ideally income will flow to the bottom of the pyramid so that the insured person does not have to carry the cost of information services.

But the information marketplace concept is potentially even more powerful: by using technology to transform information processing from a cost center to a profit center. Individual data are of little value, but data validated, aggregated and processed can be an enormously powerful tool for development. Because of their closeness to the communities of which they are part, MIUs are uniquely positioned to collect many types of data relevant to the community as a whole, not just insurance data. This represents a unique opportunity to integrate microinsurance with income generation and sustainable development, completely changing the way insurance is financed and marketed to the poor.

4.2 METHODOLOGY RECOMMENDATIONS

PROJECT WEBSITE

The use of the website helped enormously in the communications and project management aspects of the study. Rather than communicating bilaterally with assessors, suppliers, and survey respondents, the website provides a perfect vehicle for parallel communications between actors as well as for the mechanics of developing and delivering the study. All the information needed to prepare the final report was readily at hand. It is recommended that a project website on future short-term technology studies be used.

MARKET SURVEY

The market survey was surprisingly successful, since the overall response rate of 25% was much higher than expected. Numerous helpful comments, proposals and additional terms for the taxonomy were received, but there was insufficient time to analyse and include all of these suggestions in the report. The online survey tool was excellent, making it easy to generate statistical reports . It is recommended that future surveys take advantage of the technology.

TAXONOMY

The survey tool and the online discussion were both helpful in defining the taxonomy. The information-processing model used in the study to structure the taxonomy was also of great benefit. Again due to lack of time it was not possible to go into sufficient depth in defining the taxonomy. A natural next step would be to expand the taxonomy to a full project to define microinsurance terms and business rules using the XBRL standard. This would require going well beyond the superficial set of definitions included in this report. The practical benefit of such a project is that the common data repository and the data exchange standards would fall out naturally from such an exercise. The power of XBRL is its ability to express workflow and data standards, pulling together both standard accounting information and other performance metrics. The Microfinance Information Exchange (MIX) is an example of how XBRL can collect both financial and non-financial data to track and assess organizational performance.

CATALOGUE

The technology catalogue contains eighteen entries, reflecting the limited offer of solutions available today. Furthermore, about 30% of the technologies included were not specific to microinsurance. They were added to present a more complete picture of the types of technology used in related industries such as micro-payments and microfinance. The available technologies are improving in quality and choice, especially with the introduction of mobile technologies that are driving a broader access to the Internet.

It will be necessary to continue the stocktaking and keep track of new technologies, products and services as they become available. The case studies presented in the report were selected because they were representative of the catalogue of available technologies. Writing the case studies offered an opportunity to paint a more human picture of the origins and applications of information technology to microinsurance. Although not numerous, there are quite different technological approaches, the sources of which are quite broad. The authors recommend that the cataloguing of technologies continue and that expert organizations and microinsurance organizations in the field continue to propose catalogue entries for inclusion. The authors do not recommend including published assessments of products in the catalogue, as there are insufficient implementation sites with the existing platforms. This could be considered later once more applications of the various technologies are available.

ASSESSMENT FRAMEWORK

The Assessment Framework, developed by the authors, is a formal method for quantifying the work on the taxonomy, technology and case studies. The assessment framework provides a global model of sustainability and scalability. The framework allows very different technologies to be compared with each other in terms of a reference premium. It is the authors' opinion that a positioning of technologies according to quantifiable metrics is more useful than subjective evaluations of individual products. The theoretical work on individual products was completed with data obtained from the online survey and validated through telephone interviews. The authors were able to use the framework to model relationships between the cost of technology, number of clients, amortization period and the reference premium. From the preliminary analysis, it became clear that three classes of solution are available, essentially determined by the scale of the system: local production systems, mid range and high-end solutions.

The choice between these three is critical as each class offers different scale, cost and reference premium characteristics. It is proposed that a more in depth study be conducted in order to further develop the assessment framework and to test a number of hypotheses proposed in this report. In addition, the framework also points to the need for modelling the business benefits of various technologies in a more precise way. More detailed evaluation frameworks will have to be developed for each level of the information-processing model to explore how technology can improve them as illustrated by the following examples: 1) the use benefit of supporting technologies such as knowledge management to increase market penetration, 2) the use of a common data repository to improve insurance product design and gain access to reinsurance services, 3) the use of mobile payment platforms to reduce claims management costs, and 4) the impact of biometrics to reduce fraud and error.

APPENDICES

A1 PROJECT TERMS OF REFERENCE

- Define a taxonomy to catalogue technologies:
  - In the microinsurance business processes, for example how technology might contribute to efficiencies, or control costs and risks, or improve management in enrolment, underwriting, premium payments, renewals, claims applications, verification and payments, considering both front and back office requirements
  - In the microinsurance value chain, such as how data is captured, what processing is required, and what information is needed at different levels, including delivery channels, risk carriers, health care providers, third-party administrators, insurance supervisors and industry associations
  - For a variety of different insurance products and institutional structures, for example the needs of community-based scheme are likely to be quite different than those of an insurance company; the requirements for health insurance will be quite different from livestock insurance.
  - Type of technology: software (stand-alone, web-based, proprietary, open-source, user-friendliness etc.), hardware (e.g. computers, handheld devices, mobile phones, bar code, smart cards etc.)
  - Phase of development: e.g. Implemented, Could be implemented in the short and medium term, requires substantial development etc. This section should include consideration of whether any prerequisites for implementation are required.
- Use the taxonomy to catalogue technologies (ideally in a soft table to be proposed online) and highlight the chain of technologies used in the microinsurance processes from the software back end to the front-end devices via the network/channel used.
- Illustrate these kinds of technologies with examples & case studies, highlighting why organizations made their technology choices, and (where possible) if those choices have been cost effective.
- Propose and test a framework for assessing the technologies (with reference and feedbacks as much as possible), as to their suitability for implementation against specific criteria (such as the taxonomy and other factors such as cost, reliability, acceptance by clients, ease of use and control mechanisms)
- Collect background literature and references on IT systems applicable to microinsurance, and provide contacts to technology providers as well as actual users of the technologies.

A2 ASSESSMENT FRAMEWORK

A four-dimensional model of the sustainability and scalability of a technology project is proposed. The model's variables are T (**Term**), E (**Event**), A (**Activity**) and U (**User**), representing cost, time, productivity and scale respectively. These variables are chosen to express the financial sustainability and scalability of a particular technology. The product **TE** represents the rate of investment and the product **AU** represents the rate of return.

Even though cost is not the only consideration in selecting a technology microinsurance, it will be shown to have major impact on both sustainability and scalability. When these two products are equal, a technology project can be considered sustainable since the cost of a technology is balanced by an increase in productivity.

Alternatively the relationship between **TE** and **AU** can be seen to convert the financial variable T into the human scale of the project represented by the number of members **U** being supported by the technology.

TERM T: TECHNOLOGY COST

The model is based on a representation the total project cost **T**, including the base technology, application development, acquisition and maintenance costs. This term applies equally well to the cost of an acquired product, an in-house developed system and to SaaS (Software as a Service). In the last case T represents the cost is that of the entire platform SaaS.

EVENT E: RATE OF AMORTIZATION

The temporal dimension of a project is represented by the event variable **E**. If the amortization period until cost benefit equals the investment is **D** years then **E = 1/D is the rate of amortization**. Multiplying the technology cost **T** by **E** converts the total cost into an average annual rate of investment. The larger the value of **E**, the smaller the value of **D**, the higher the rate of amortization.

ACTIVITY A: PRODUCTIVITY

The activity variable **A** measures the productivity increase generated by the technology project in terms of reducing the proportion of the insurance premium devoted to administration. The logic behind this is that the less administrative burden, the greater relative effort can be devoted to growing the business. Some may say that productivity is not important in a microinsurance context, but this not the case. Technology drives productivity and productivity drives growth. Microinsurance is now entering a high growth phase so that the choice of technology will be one of the most important ones that a microinsurance organization will make.

USER U: NUMBER OF MEMBERS

The user dimension **U** of the model is represented by the total number of members. With this definition it is possible to bring the productivity down to a human level. A way of representing productivity increase is by estimating reduction in routine administration costs. The purely financial measure **A** can be converted into a more meaningful term is vital by dividing it by the percentage reduction of the administrative costs **k**.

EQUILIBRIUM CONDITION, BALANCING RATES OF RETURN AND INVESTMENT

Assuming that TE and AU are balanced, then the ratio **A/k = P** is reference premium per person insured per year, which represents the smallest premium that will allow the microinsurance to break-even over time.

The smaller the value of the reference premium **P**, the higher the productivity of the organization. If we assume that **k** is a constant across technologies (about 10%), then either **A** or **P** can be used as a benchmark for assessing the effect of technologies of very different scale. From the above definitions we obtain a representation of the sustainability of the project with the following equation:

$$TE = AU \quad \text{or} \quad TE = kPU$$

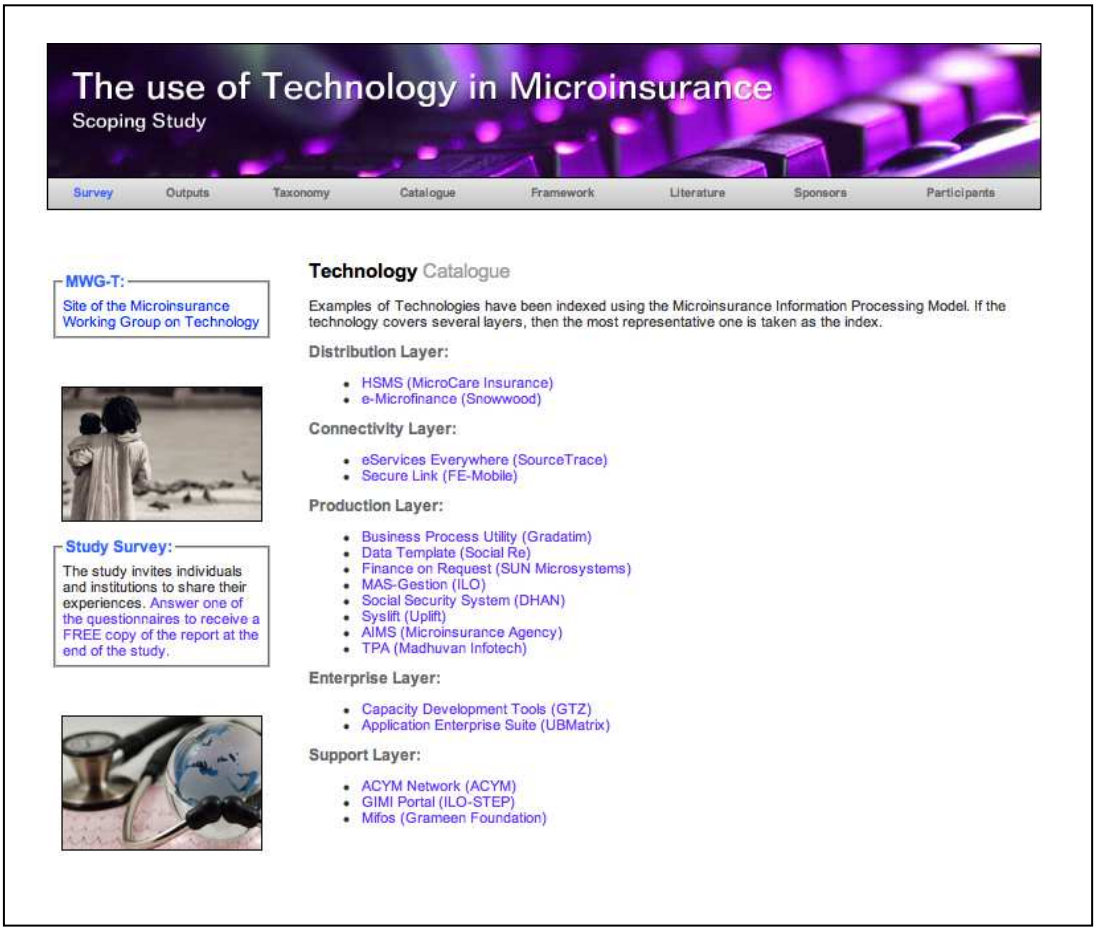
Thus the analytical model of sustainability links the cost of the technology **T** and the rate **E**, to the productivity increase **A**, the reference premium **P** and the number **U** of members. The purpose of such a model is to provide a framework to assess and place into context examples of technology implementations.

The values for the variables **T,E,A,U** were collected in the online survey and verified through telephone interviews with the technology suppliers and users.

Deeper analytical models can be developed to represent the value of **A** in terms of the processing model and the types of technology.

A3 TECHNOLOGY CATALOGUE

The role of the taxonomy in the study was to provide an index for the technologies and highlight how they could be used in the microinsurance processes from the customer interface, via transaction processing through to data analysis and processing. The online survey identified providers and users of technologies included in the catalogue. The catalogue index was based on the information-processing model. If a technology covered several layers of the model, then the lowest level was used as the index. The study chose to take a broad view to the selecting technologies and includes applications from microfinance and mobile banking, which could find equivalent uses in microinsurance.



Catalogue Index

The catalogue included production systems for handling insurance affiliation and claims processing, smart card applications for client identification to improve the communications efficiency between client, health care provider and the insurer.

Since the area of statutory reporting will become important as the microinsurance industry grows, the catalogue included XBRL tools to create standard reports. These standard reporting tools are a natural step towards creating common data repositories.

MICROCARE INSURANCE MANAGEMENT SYSTEM

Microcare Insurance Ltd is a licensed insurance company in Uganda under the Uganda Insurance commission and specializing in health insurance. Microcare started as a not for profit organization providing medical insurance to low-income earners in Uganda in 2,000 covering both formal and informal sectors in both rural and urban areas. Microcare concentrated on providing medical insurance cover with premiums designed according to the affordability of low-income groups. Microcare developed IMS a unique networked check in desk health insurance control system to prevent the common abuses and enable fast accurate settlement of claims. IMS has contributed greatly towards the success of this company, enabling it to become the country's leading health insurance company, now covering about 80,000 members, and growing rapidly in both the formal and informal sectors.

Key features:

- RDBMS database platform with a "dotnet" and ASP front end
- Can handle millions of client profiles and thousands of health service providers
- Claims can be entered and processed from the point of treatment
- Reduces labor intensive paper based claims form processing (computer or PoS)
- Includes biometrics and smart card for security and client record access
- System guarantees "the right person gets the right treatment at the right place for the right cost"

SNOWWOOD E-MICROFINANCE SOFTWARE

Snowwood e-MicroFinance Software has modules to take care of a broad range of financial services such as deposits, loans, payment services, money transfers, business opportunity creation, early warning systems and insurance Snowwood microfinance software ERP suit is a "vertical" e/MicroFinance suit (VMS) with data mining and warehousing capability. VMS takes care of funding and understands, the business field where the fund is lent / invested and provides business specific workflow process for effective execution and monitoring. VMS has modules to take care of microfinance for Agriculture, fisheries, small-scale retailers, distributors, common labourers, small-scale employment, education, construction and production etc. Snowwood microfinance has integrated modules such as savings management, insurance management, emergency management, small enterprise networking, B2B and B2C networking.
This suite has an elaborate data mining and econometrics tool which can effectively increase the member's status and success rate.

Key Features:

- Member planning
- Center planning
- Loan product creation
- Funder management and report
- Branch and division planning
- Fund planning and financial planning
- Lending and collection
- Creation of collection demands every week or month or fortnight,
- Savings and Insurance packages for members
- Accounting, Trial balance, Balance sheet etc
- Rating members Branches
- Member administration
- Volunteer and staff administration
- Easy transaction operations
- User-friendly screens

- MIS reports (various reports user definable)
- MoU with external organization to promote business for borrowers
- E Governance of the Microfinance institution
- Field development officers management
- Internal expenses and purchases
- Instance document creation

SOURCETRACE ENTERPRISE SERVICES EVERYWHERE

Enterprise Services Eveywhere (ESE) from SourceTrace is an integration platform deployed on a cluster of servers that allows an organization to immediately integrate mobile devices with their production systems. The ESE is adaptable, and can easily be deployed on any commercially available handheld device: point-of-sale devices, personal digital assistants, or cell phones. SourceTrace Systems (STS) offers complete solutions for a wide variety of business settings and technical needs, including MicroFinance Institutions, Banks and Other Financial Institutions, Agricultural Cooperatives, Agricultural Commodity Companies and Potable Water Providers. Different geographies, cultures, and service providers have different processes. Different partners and customers have different needs. The ESE mobile designer allows the entire ESE to be customized to meet the needs of a particular business or organization to meet regional, cultural, and/or service provider requirements.

Key Features:

- Bi-directional: communications not only from service providers to end-users but also from end-users to service providers
- Security, economic, and educational issues usually require that a physical person facilitate the communications of the end-user with the service provider
- The transactional nature of the communications ensures reaching their desired end-point (a) once and only once and (b) only the selected recipients receive the communications
- All communications facilitated by the ESE technologies are entirely secure
- STS uses the most up-to-date encryption technologies available to ensure that only those parties who ought to have access to information transmitted using the ESE actually do have access to that information

FE-MOBILE SECURELINK

SecureLink™ platform is a secure communications product for mobile devices provided by FE-Mobile. The software provides full end-to end security over the widest range of handsets regardless of mobile operator and network technology. SecureLink was developed to enable secure transactions from mobile handsets. Mobile commerce has been slow to take off because of poor user experiences. SecureLink makes things easy, providing you with essential mobile and server applications to secure the user device and all data communications from end-to-end. SecureLink provides a compelling experience and has major benefits over alternative approaches. It is quick and convenient to deploy, cheap to use, very secure. It can be embedded into third party applications and can be customised and branded.

Key Features:

- Licensed software technology enables secure communications via mobile - ideal for organisations wanting to exploit a secure mobile channel
- Enables banks to offer a mobile channel with, for example, the ability to view balances and account histories, move money and make payments
- Allows a payment service provider to offer their merchants and customers a secure way of trading, even when parties are remote and/or no POS device is available
- Enables two-factor authentication via mobile, avoiding the need for more costly hardware tokens

- Provisioning toolkit ensures all users have a positive brand experience

GRADATIM BUSINESS PROCESS UTILITY

Gradatim's Business Process Utility (BPU) is a multi-channel, multi device and on-demand technology platform that delivers services to insurance providers and its various stakeholders – agents, intermediaries such as microfinance institutions (MFIs), Banks, employees, managers and regulators. The technology platform enables product intelligence for actuarial support, MIS and reporting improving management and governance substantially. BPU is able to handle products from all lines of insurance business – Life, Health, Non-life and Pensions. The PBU technology framework combines a technology platform with external services and robust infrastructure to help MFIs operationalize their business goals while retaining control over processes and business as a whole.

Key Features:

- Point of sale solution for data capture through mobile, PDA, tablet PC devices etc.
- Straight through processing capability (underwriting & decision engine)
- Online - Offline integration with Insurers' back end systems
- Billing & collection including automatic generation of billing invoices and follow-up notices
- Invoice dispatching to help capture payments (flexibility in collection frequency)
- Payment adjustment, generating reports on defaults, lapses and dispatching receipts
- Policy servicing for users (Insured, Agents, NGOs, SHG) to capture change requests, making changes (based on access privileges) and generating reports
- Claims handling to capture claim requests, validate and process claims

SOCIAL RE DATA TEMPLATE

The Data Template from Social Re is a microinsurance research and training tool. It contains all the cumulative data on members, the contributions they pay, and the benefits they can receive. The confidentiality of such a database must be protected and secured so that only authorized (and trained) staff can access the information. Upon entry into the application, authorized users access a menu with five button-activated options. Each button calls up a corresponding screen that allows tracking of information about members, contributions paid, claim transactions, and details of the qualifying conditions applicable to benefits.

Key Features:

- Member Details: displays a detailed form for adding/updating/deleting details about individual members
- Member Transactions Details: displays a form for processing individual transactions
- Actual Contribution Paid: displays a form to add/update contribution payments, and follow up the compliance rate for each paying member
- Import Data: displays a form for importing tables from other databases (notably the referential database of this application, kept separately for ease of operation)
- Reports: displays a menu page that allows the user to view several standard reports

SUN MICROSYSTEMS FOR (FINANCE ON REQUEST)

Finance on Request is a set of hosted financial service from Sun Microsystems. The hosting solution can be taken in house as a lease or outsourced to Sun and partners based on the same lease calculation generated from a bill of materials of number of users, transaction, storage. FOR is based on a utility computing model partnering with the industry as opposed to an ASP (Application Service Provider) model accessed through a telecommunications company or other third party environment. The main value is in reducing the bottom line cost and expense ratios of traditional distribution channels while increasing the top line growth by providing more coverage for distribution. Business users can rapidly create, launch, cross sell, white label, and manage insurance products via any distribution channel in any currency and any language.

Key Features:

- No software change downtime and the time to deployment is a two week training course to educate the users on how to enter products, connect to channels and handle the risk configuration for the insurance life cycle
- 24X7 access via the Internet and access offline when necessary
- All of the processing can occur in real time with MIS report showing the exposure & loss ratios
- Triangulation reporting can be extended to data warehousing program and cell phone dashboards real time
- Ability to create as much of the policy and claim administration cycle at the point of sale or first notice of loss
- Payment or claims settlement by devices such as cell phones

MAS-GESTION

MAS Gestion is a management package to support the main technical activities of a Healthcare Micro-Insurance Scheme (MAS) including membership management, contributions and sickness benefits. A tool for management, follow-up and control the software is intended for MAS managers. It facilitates simple and fast registration, follow-up and control of membership, contributions and benefits. MAS Gestion provides a common database for analysis by responsible officers, members, registered beneficiaries and other MAS associates. It is not accounting software package but includes a management accounting module. The software was developed using recent experience in healthcare micro-insurance in West Africa and is available in both English and French versions..

Key Features:

- Allows information exchange with other support structures that use MAS Pilote software (mutual organizations unions, NGOs, etc.)
- Is compatible with and gathers the same indicators as the MAS Pilote instrument panel
- Provides monitoring and follow-up of insurance schemes and allows simultaneous tracking of many schemes
- Generates and provides follow-up information for thirteen indicators calculated from the data in the MAS system

DHAN FOUNDATION SOCIAL SECURITY SOFTWARE

Social Security Software (SSS) was developed in-house by DHAN Foundation and follows thoroughly the basics of insurance; underwriting, claims handling and financial administration practices. The Social Security Software is able to retrieve management information and statistical information on the various data that was entered. (e.g. age, cause of death, cause of hospitalization, rural-, urban-, coastal- or tribal-member). Based on this information analyses can be made to calculate the proper risk premium, reserves, interests and costs. As DHAN Foundation has various running programs e.g. in the field of agriculture and micro finance the microinsurance members' administration is linked into the DHAN members' administration. There are no other linkages with the DHAN administration.

Key Features:

- The software is organized in modules so that different microinsurance projects can use the system independently
- The modularity allows the user to choose whatever is functional according to their needs
- A proper segregation of functions has been build into the system
- Different persons will have different levels of access

SYSLIFT

Syslift Software is developed by Tieto Enator and Uplift and is a freeware offered to micro insurance units who are willing to share their database with all other user-MIUs. The software is meant for community based organizations/branches gathered together under a Federation but also can be used by any other microinsurance model (mutual, partner agent etc.). The reporting module can be customized to enlarge the use for various levels of decision makers and has a strong capacity for Health Insurance but is also capable to handle products under two other categories; Accident and property insurance. Syslift has a comprehensive database for statistical research. It is easy to track and understand contributions and members' data. Risk management indicators for managing insurance are incorporated.

Key Features:

- Provides MIU's with data from a centralized database for easing their activities management
- Helps clients/members to have a better behavior related to the concerned risk
- Maintains information about products, policyholders, dependants, policies and claims
- Monitors Micro-Insurance portfolios
- Monitors quality data encoding
- Speeds up the claim settlement process – cashless systems

AIMS MICRO INSURANCE AGENCY

The Micro Insurance Agency provides a comprehensive service package to design and administer insurance products for the poor. They offer free market analysis and product development and receive a small commission only after the successful deployment of the product. If the product is not successful or is not launched, we do not receive payment. This motivates us to design products that meet client needs and remain competitive; our interests are aligned with those of our partners. The Micro Insurance Agency's standard approach is to carry out market research with our target clients and work with the existing organizations that serve them to find out what their needs are. They then seek to address these needs, taking into account the availability of insurance supply and local regulatory requirements. Once the product is launched, it is monitored and altered based on customer feedback in a continual cycle of product improvement. Working through the Micro Insurance Agency as an intermediary enables insurance providers to reach the scale necessary to provide low cost products to what are considered traditionally risky populations, without restriction to the size of the institution distributing the product. The Micro Insurance Agency's role as third-party intermediary enables all organizations to gain access to the insurance products demanded by their client base.

MADHUVAN INFOTECH TPA

TPA is a Management Information System for TPA - Third Party Assurance for India from Madhuvan Infotech. It implements ICD10 Coding (ICD Standard maintained by WHO and provides Statistical Reporting capabilities according to the standards of IRDA, the Government of India & New India Assurance Co.

Key Features:

- Insurance: manage insurance company and branch details
- Hospital: manage hospital details
- Policy: manage policy details, search policy using policy number, policy holder, policy ID, policy development office agent, insurance office, receipt no etc. and manage insured person details
- Claims: details of provider billing form, patient claim form etc. User can add modify, search, view, delete the provider billing form and so is true with patient claim form. Claim type can be pre-authorized claims or reimbursement claims
- Reporting: MIS Reports for Insurance Companies and IRDA

INSFOCUS BUSINESS INTELLIGENCE

InsFocus BI is an end-to-end business intelligence solution designed specifically for insurance companies. Combining dozens of years of insurance know-how with BI expertise, InsFocus BI enables insurers to gain insight into their business performance and profitability. InsFocus BI is an intuitive system that allows non-technical insurance professionals to focus on what they know best – insurance. Based on state-of-the-art technologies, InsFocus BI is an open, modular solution that is easily customized to address the specific requirements of any insurance company. Spanning the full spectrum of the data warehousing process – from raw data transformation to clear and accurate reporting – InsFocus BI helps insurance professionals at all levels make better business decisions and increase profitability. InsFocus BI is quickly implemented in just months, thereby delivering an extremely rapid ROI.

Key Features:

- End-to-End Solution – InsFocus BI is a comprehensive solution comprised of modules that address all BI processes –from extract, transform and load (ETL), through system management, to reporting and analysis.

- Insurance Specific – InsFocus BI is designed for insurance analysis. The system encompasses pre-built insurance data structures, transformation processes, calculation methods, metrics, dimensions, and reporting templates.
- Customization – Utilizing built-in insurance content, InsFocus BI is customized to meet an insurer's data structures, business logic, terminology, and language.
- Intuitive Interface – InsFocus BI's user-friendly interface is built with standard insurance terminology, enabling non-technical business users to independently generate reports and analyses.
- Broad Interoperability – InsFocus BI is comprised of separate components based on standardized Web services, thereby enabling communication with external services and other applications.

GTZ SIMINS & INFOSURE

Lack of managerial, administrative and financial capacities in micro-insurance is a major problem for the sustainability of schemes and products, and thus social protection. Over the years, GTZ has developed several (software supported) tools and approaches that aim at improving the managerial and financial performance and capacities of providers and delivery channels of micro-insurance, especially on a small-scale decentralised basis. SimIns & InfoSure have been developed in the context of community based health insurance schemes. However, the flexible and participatory character of these tools and technologies also allows for their use in regard to other risks and contexts.

Key Features:

- Simple technologies are important in improving managerial and financial capacities in Microinsurance
- They allow for a better monitoring and evaluation of Microinsurance institutions and products (between and within different schemes)
- This enhances the sustainability of schemes and products and thus, social protection
- Their flexible character allows for a participatory development, taking into account the local context
- They allow for a better link between private and public actor

UBMATRIX ENTERPRISE APPLICATION SUITE

Enterprise Application Suite (EAS) from UBMatrix is an XBRL-based information exchange solutions for global organizations and enterprises allowing them to more efficiently and effectively address the challenges of business and financial information management, exchange and reporting. EAS is the leading platform for enabling XBRL-based data exchange. It supports the design and deployment of the metadata model that defines the business information your agency needs to collect, the processing of XBRL submissions by regulated organizations, and the workflow of submissions into your organizations. For Microinsurance a notable reference installation of Enterprise Application Suite is the MIXMarket platform for common reporting of microfinance institutions.

Key Features:

- Taxonomy authoring & extension creation
- Instance document creation
- Instance document validation including
- XBRL 2.1 conformance, XBRL calculations, FRIS conformance
- UBmatrix business rules
- XBRL dimensions allow users to validate ALL numeric relationships within a taxonomy
- Import and export of taxonomy and instance document data to a variety of formats including Excel, CSV, XML, ODBE database

- Business rules creation, validation and management
- Mapping to automate conversion of data

ACYM NETWORK

The América Cooperativa y Mutual (ACYM) is developing a communication and information strategy to support mutual and cooperative insurance mechanisms. The ACYM network has been set up based on the founding document "A global strategy for common action". The ACYM network will encourage interaction between mutualist and cooperative organizations. It will bring together people that are interested to learn more about the role played by these organizations within the region. The network is looking for organizations willing to provide additional support or to enter into new partnership agreements. Finally the aim is to create a comprehensive and permanent database facilitating the development of methodological tools and training materials contributing to the further development of mutual and cooperative models.

Key Features:

- Sharing information and experience
- Disseminating knowledge and achievements
- Strengthening capacities and synergies
- Providing visibility to the organizations

ILO GIMI PLATFORM

GIMI provides access to knowledge on how to design, implement, manage and monitor a microinsurance scheme. Through its resource center GIMI collects and disseminates practical tools such as technical guides, training material, communication tools, software, etc. It is an observatory of the development of microinsurance in the world: observe the development of microinsurance through online inventories, store and disseminate the information through statistical databases, identify and document good practices through case studies and the development of workspaces where people can provide information on their own projects, etc. GIMI facilitate the connexion and exchange between practitioners: through a data base of experts people may find the consultant needed for their project, regular news from projects are also posted on the platform and shared with other practitioners, people can interact in discussion lists and working groups that also have their own spaces on the platform. It is useful for microinsurance practitioners: it gathers and disseminates information from around the world on microinsurance, provides practical tools to practitioners and helps also connecting people. GIMI is not merely an ILO product but a collaborative platform where the users are also the contributors: any one can put documents on line, describe their scheme in the inventories and/or in a specific space on the platform, post news, facilitate a discussion, post their CVs. Through its observatory of existing experiences / schemes, GIMI facilitates also the identification of knowledge gaps and helps to set priorities for researchers and projects.

Key Features:

- Sharing information and knowledge on microinsurance experiences is key to develop microinsurance for the poor
- All practitioners have something to share (an idea, a document, the description of their experience)
- Organizing on a platform the collection and the dissemination of information as well as the transfer of knowledge is a great added value
- Identifying knowledge gaps and organizing the production of knowledge through workspaces and debates is also an added value

GRAMEEN FOUNDATION MIFOS

Mifos is an industry-wide initiative to address the microfinance industry's information management challenge. Using the open source paradigm, Mifos is a new service model that will increase access to technology for all microfinance institutions, ultimately enabling them to extend their reach to the world's poor. At the center of the initiative is the Mifos product, a freely available world-class management information system (MIS) that provides the core functionality required by microfinance institutions. The flexibility and scalability of the product means that we'll be able to simultaneously standardize common processes, accommodate regional variations, and scale for new innovations in the future. Mifos is open-source technology, which allows everyone free access to the product source code. Developers can add to and modify the product at will and MFIs worldwide can freely install the product without paying any licensing fees. Using Mifos does not imply a zero-cost software solution. Mifos deployment is not a trivial task, and will require expertise to install, train users, and maintain the software. Mifos Specialists need to be engaged to help with the installation and ongoing maintenance and there will be hardware and connectivity costs to run the software.

Key Features:

- Openness: An open source software project provides a forum, typically through a website, in which people can critique, report bugs, and contribute to the design of the software.
- Transparency: The development of open source software is transparent, allowing the community to see what's going on. This includes a published road map and design documentation, a public bug (defect) tracking system, and communication about schedules and hurdles.
- Early and Often: Open source code is available in its earliest drafts to anyone who wants to review it or use it, and is updated often. Zipped archives of the source code are also publicly available.
- Community: The elements of an open source project, including a Web site, source code, roadmap, defect tracking system, and forums, constitute the project. Those participating in the project constitute the community. An open source project depends on the community, or public collaboration, for its success.

OTHER REFERENCES

In addition to these technology examples, the authors included a number of relevant papers on the website from organizations addressing technologies of interest to microinsurance.

RFID: OPPORTUNITIES FOR MOBILE TELECOMMUNICATION SERVICES

This paper was prepared by Christoph Seidler, an intern at the International Telecommunication Union. The paper focuses on the application of RFID technology in mobile telecommunication services. Several ideas for applications as well as possible areas for standardization efforts are presented.
At this point in the study a small number of references has been collated. The collection of literature and references is ongoing and will be continued until the end of the project.

MOBILE PHONE BANKING AND LOW-INCOME CUSTOMERS

This CGAP report describes the case study of WIZZIT, a South African start-up mobile banking provider that offers a transaction banking account accessible via mobile phone and debit card.

SMART CARDS AND THE NEED FOR SECURE, PROTECTED HEALTH CARE INFORMATION

This is a report produced by the SmartCard Alliance. It discusses the impact of the US Health Insurance Portability Act of 1996. This act affects healthcare organizations by encouraging conversion from paper based to electronic information systems and by mandating privacy and security of patient data.

PERFORMANCE INDICATORS FOR MICROINSURANCE

Performance Indicators for Microinsurance, edited by John Wipf and Denis Garand, is published by ADA asbl, and has been produced with the support of the Luxembourg Development Cooperation and BRS.

GLOBAL DEVELOPMENT OBSERVATORY

The Global Development Observatory is proposal developed by Eric Gerelle on generating income at the Bottom of the Pyramid from data collected using mobile phones. Case study prepared for the 2006 Chennai Conference on Sustainable Micro-finance for Women's Empowerment.

MARKET SURVEY RESULTS

USER PROFILE

What type of organization do you represent?

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	International Organization	12	25.00%	
2.	Non-Government Organization	12	25.00%	
3.	Insurer	2	4.17%	
4.	Technology Provider	5	10.42%	
5.	IT Services	4	8.33%	
6.	Consulting Services	7	14.58%	
7.	Health Services	1	2.08%	
8.	Other Organization (specify)	5	10.42%	
	Total	48	100%	

Key Analytics

Mean	4.146
Confidence Interval @ 95%	[3.274 - 5.017] n = 48
Standard Deviation	3.080
Standard Error	0.445

Key Facts
50% chose the following options :
International Organization
Non-Government Organization

What are your responsibilities?

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Research	15	25.00%	
2.	Project Funding	6	10.00%	
3.	Technical Support	29	48.33%	
4.	Operations	28	46.67%	
5.	Other Responsibility	13	21.67%	
	Total	91	n = 60	

Client Identification (Biometrics)

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Unimportant	5	12.20%	
2.	Not very Important	3	7.32%	
3.	Neutral	6	14.63%	
4.	Somewhat Important	12	29.27%	
5.	Very Important	15	36.59%	
	Total	41	100%	

Key Analytics

Mean	3.707	Key Facts

Standard Deviation	1.365	Somewhat Important Least chosen option 7.32% : Not very Important
Standard Error	0.213	

Microcredit Management

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Unimportant	11	25.00%	
2.	Not very Important	5	11.36%	
3.	Neutral	3	6.82%	
4.	Somewhat Important	11	25.00%	
5.	Very Important	14	31.82%	
	Total	44	100%	

Key Analytics

Mean	3.273	Key Facts 56.82% chose the following options : Very Important Unimportant Least chosen option 6.82% : Neutral
Confidence Interval @ 95%	[2.794 - 3.751] n = 44	
Standard Deviation	1.619	
Standard Error	0.244	

Statutory Reporting

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Unimportant	4	9.09%	
2.	Not very Important	5	11.36%	
3.	Neutral	8	18.18%	
4.	Somewhat Important	10	22.73%	
5.	Very Important	17	38.64%	
	Total	44	100%	

Key Analytics

Mean	3.705	Key Facts 61.36% chose the following options : Very Important Somewhat Important Least chosen option 9.09% : Unimportant
Confidence Interval @ 95%	[3.309 - 4.100] n = 44	
Standard Deviation	1.340	
Standard Error	0.202	

Performance Indicators

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Unimportant	1	2.27%	
2.	Not very Important	1	2.27%	
3.	Neutral	0	0.00%	
4.	Somewhat Important	9	20.45%	
5.	Very Important	33	75.00%	
	Total	44	100%	

Key Analytics

Mean	4.636	Key Facts

Confidence Interval @ 95%	[4.397 - 4.876] n = 44	95.45% chose the following options : Very Important Somewhat Important
Standard Deviation	0.810	
Standard Error	0.122	

Portfolio Management

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Unimportant	2	4.55%	
2.	Not very Important	2	4.55%	
3.	Neutral	9	20.45%	
4.	Somewhat Important	6	13.64%	
5.	Very Important	25	56.82%	
	Total	44	100%	

Key Analytics

Mean	4.136	Key Facts 77.27% chose the following options : Very Important Neutral Least chosen option 4.55% : Unimportant
Confidence Interval @ 95%	[3.790 - 4.483] n = 44	
Standard Deviation	1.173	
Standard Error	0.177	

Management Reporting

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Unimportant	1	2.27%	
2.	Not very Important	2	4.55%	
3.	Neutral	3	6.82%	
4.	Somewhat Important	12	27.27%	
5.	Very Important	26	59.09%	
	Total	44	100%	

Key Analytics

Mean	4.364	Key Facts 86.36% chose the following options : Very Important Somewhat Important Least chosen option 2.27% : Unimportant
Confidence Interval @ 95%	[4.078 - 4.649] n = 44	
Standard Deviation	0.967	
Standard Error	0.146	

Client Management

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Unimportant	1	2.27%	
2.	Not very Important	3	6.82%	
3.	Neutral	4	9.09%	
4.	Somewhat Important	9	20.45%	
5.	Very Important	27	61.36%	
	Total	44	100%	

Key Analytics

Mean	4.318	Key Facts 81.82% chose the following options : Very Important Somewhat Important Least chosen option 2.27% : Unimportant
Confidence Interval @ 95%	[4.007 - 4.629] n = 44	
Standard Deviation	1.052	
Standard Error	0.159	

Internet Access

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Unimportant	2	4.76%	
2.	Not very Important	1	2.38%	
3.	Neutral	3	7.14%	
4.	Somewhat Important	8	19.05%	
5.	Very Important	28	66.67%	
	Total	42	100%	

Key Analytics

Mean	4.405	Key Facts 85.71% chose the following options : Very Important Somewhat Important Least chosen option 2.38% : Not very Important
Confidence Interval @ 95%	[4.084 - 4.726] n = 42	
Standard Deviation	1.061	
Standard Error	0.164	

Technical Training & Support

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Unimportant	2	4.76%	
2.	Not very Important	1	2.38%	
3.	Neutral	3	7.14%	
4.	Somewhat Important	8	19.05%	
5.	Very Important	28	66.67%	
	Total	42	100%	

Key Analytics

Mean	4.405	Key Facts 85.71% chose the following options : Very Important Somewhat Important Least chosen option 2.38% : Not very Important
Confidence Interval @ 95%	[4.084 - 4.726] n = 42	
Standard Deviation	1.061	
Standard Error	0.164	

Local Language User Interface

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Unimportant	2	4.76%	
2.	Not very Important	5	11.90%	
3.	Neutral	9	21.43%	
4.	Somewhat Important	13	30.95%	
5.	Very Important	13	30.95%	
	Total	42	100%	

Key Analytics

Mean	3.714	Key Facts 61.9% chose the following options : Somewhat Important Very Important Least chosen option 4.76% : Unimportant
Confidence Interval @ 95%	[3.359 - 4.070] n = 42	
Standard Deviation	1.175	
Standard Error	0.181	

Common Data Repository

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Unimportant	1	2.38%	
2.	Not very Important	2	4.76%	
3.	Neutral	5	11.90%	
4.	Somewhat Important	12	28.57%	
5.	Very Important	22	52.38%	
	Total	42	100%	

Key Analytics

Mean	4.238	Key Facts 80.95% chose the following options : Very Important Somewhat Important Least chosen option 2.38% : Unimportant
Confidence Interval @ 95%	[3.933 - 4.543] n = 42	
Standard Deviation	1.008	
Standard Error	0.155	

Data Exchange Standards

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Unimportant	1	2.38%	
2.	Not very Important	3	7.14%	
3.	Neutral	9	21.43%	
4.	Somewhat Important	16	38.10%	
5.	Very Important	13	30.95%	
	Total	42	100%	

Key Analytics

Mean	3.881	Key Facts 69.05% chose the following options : Somewhat Important Very Important Least chosen option 2.38% : Unimportant
Confidence Interval @ 95%	[3.573 - 4.189] n = 42	
Standard Deviation	1.017	
Standard Error	0.157	

Systems Integration

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Unimportant	2	4.76%	
2.	Not very Important	3	7.14%	
3.	Neutral	5	11.90%	
4.	Somewhat Important	12	28.57%	
5.	Very Important	20	47.62%	
	Total	42	100%	

Key Analytics

Mean	4.071	Key Facts 76.19% chose the following options : Very Important Somewhat Important Least chosen option 4.76% : Unimportant
Confidence Interval @ 95%	[3.722 - 4.421] n = 42	
Standard Deviation	1.156	
Standard Error	0.178	

Mobile Systems

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Unimportant	3	7.14%	
2.	Not very Important	4	9.52%	
3.	Neutral	9	21.43%	
4.	Somewhat Important	11	26.19%	
5.	Very Important	15	35.71%	
	Total	42	100%	

Key Analytics

Mean	3.738	Key Facts 61.9% chose the following options : Very Important Somewhat Important Least chosen option 7.14% : Unimportant
Confidence Interval @ 95%	[3.360 - 4.116] n = 42	
Standard Deviation	1.251	
Standard Error	0.193	

Knowledge Capture & Transfer

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Unimportant	1	2.38%	
2.	Not very Important	1	2.38%	
3.	Neutral	6	14.29%	
4.	Somewhat Important	10	23.81%	
5.	Very Important	24	57.14%	
	Total	42	100%	

Key Analytics

Mean	4.310	Key Facts 80.95% chose the following options : Very Important Somewhat Important Least chosen option 2.38% : Unimportant
Confidence Interval @ 95%	[4.015 - 4.604] n = 42	
Standard Deviation	0.975	
Standard Error	0.150	

SYSTEMS & REQUIREMENTS

EXISTING SYSTEM OR SYSTEM REQUIREMENT

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Existing system	21	60.00%	
2.	System requirement	14	40.00%	
	Total	35	100%	

APPLICATION TYPE

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Microinsurance Operations	21	61.76%	
2.	Microinsurance Reporting	19	55.88%	
3.	Microcredit	7	20.59%	
4.	Client Identification	13	38.24%	
5.	Other Applications	5	14.71%	
	Total	65	n = 34	

TECHNOLOGY TYPE

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Management Information System	21	61.76%	
2.	Mobile System	10	29.41%	
3.	Systems Integration	12	35.29%	
4.	Reporting System	19	55.88%	
5.	Knowledge Capture & Transfer	8	23.53%	
6.	Other Technology	2	5.88%	

	Total	72	n = 34	

CLIENT MANAGEMENT

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Member/client data (age, occupation, marital status)	19	55.88%	
2.	Group data (code, name, date of formation, type, location)	18	52.94%	
3.	Cluster data (code, name, date of formation)	13	38.24%	
4.	Geographic data (region, state, country)	15	44.12%	
5.	Other Client Management Features	6	17.65%	
	Total	71	n = 34	

POLICY MANAGEMENT

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Policy data (number, starting data, renewal date, scheme name, conditions)	18	52.94%	
2.	Client name	19	55.88%	
3.	Policy holder	19	55.88%	
4.	Nominee(s)	15	44.12%	
5.	Premium amount	17	50.00%	
6.	Tracking of (pending premium)	15	44.12%	
7.	Premium payment per year/quarter/month/week	16	47.06%	
8.	Policy issued	15	44.12%	
9.	Possibility of more policies/schemes per member	15	44.12%	
10.	Other Policy Management Features	6	17.65%	
	Total	155	n = 34	

CLAIMS MANAGEMENT

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Claim no.	16	47.06%	
2.	Date of claim	15	44.12%	
3.	Policy no.	16	47.06%	
4.	Ability of entering various type(s) of claim(s)	14	41.18%	
5.	Standardised cause(s) of claim(s)	13	38.24%	
6.	Date of incident	18	52.94%	
7.	Cluster name	10	29.41%	

8.	Group name	13	38.24%	
9.	Client name	17	50.00%	
10.	Policy scheme name	11	32.35%	
11.	Place of event	15	44.12%	
12.	Name doctor	11	32.35%	
13.	Name witness	9	26.47%	
14.	Availability of (standardised) required documents	11	32.35%	
15.	Tracking of (pending) claims application	14	41.18%	
16.	Sanctioned and rejected claims	12	35.29%	
17.	Sanctioned amounts	11	32.35%	
18.	Other Claims Management Features	6	17.65%	
	Total	232	n = 34	

TRACKING

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Tracking of member payments	16	47.06%	
2.	Tracking of group/SHG payments	15	44.12%	
3.	Tracking of cluster payments	11	32.35%	
4.	Tracking of claim payments	15	44.12%	
5.	Tracking of other payments	10	29.41%	
6.	Other Tracking Features	2	5.88%	
	Total	69	n = 34	

FINANCIAL REPORTS

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Cash book	13	38.24%	
2.	Bank book	12	35.29%	
3.	Receipts & payments	14	41.18%	
4.	Income & expenditure	14	41.18%	
5.	Balance sheet	13	38.24%	
6.	Trial balance	10	29.41%	
7.	Other Financial Reporting Features	4	11.76%	
	Total	80	n = 34	

MIS REPORTS

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Policy holders, institution & scheme-wise	12	35.29%	
2.	Policy holders, cluster & group-wise	13	38.24%	
3.	Cluster wise covered members list	9	26.47%	
4.	Cluster wise uncovered members	9	26.47%	
5.	Covered members ineligible for insurance for the next year	9	26.47%	
6.	Consolidation list of benefit sanction, institution-wise	11	32.35%	
7.	Other MIS Features	4	11.76%	
	Total	67	n = 34	

ANALYTICAL REPORTS

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Consolidation list of cause-wise death	12	35.29%	
2.	Consolidation of premium collection	17	50.00%	
3.	Consolidation list of claim payments	16	47.06%	
4.	Age-wise analysis of claim payment	14	41.18%	
5.	Age-wise analysis of policy holders	13	38.24%	
6.	Other Analytical Reporting Features	7	20.59%	
	Total	79	n = 34	

PERFORMANCE INDICATORS

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Net Income	13	38.24%	
2.	Incurred Expense	13	38.24%	
3.	Incurred Claims	14	41.18%	
4.	Renewal Rate	16	47.06%	
5.	Promptness of Claims Settlements	15	44.12%	
6.	Claims Rejection	12	35.29%	
7.	Growth	11	32.35%	
8.	Coverage	12	35.29%	
9.	Solvency	10	29.41%	
10.	Liquidity	9	26.47%	
11.	Other Performance Indicators	3	8.82%	
	Total	128	n = 34	

LOAN MANAGEMENT

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Sub-Groups	4	11.76%	
2.	Duplicate group name	5	14.71%	
3.	Accessing Group and Members information	8	23.53%	
4.	Group-loan data	7	20.59%	
5.	Tracking about each group member	8	23.53%	
6.	Historical Group-loan data	8	23.53%	
7.	Active members for each group loan cycle	6	17.65%	
8.	Reviewing information after the members have left the group	5	14.71%	

9.	Detailed information about the clients business/loans from cycle to cycle	6	17.65%	
10.	Tracking social or economic impact data	5	14.71%	
11.	Other Loan Management Features	3	8.82%	
	Total	65	n = 34	

LOAN PORTFOLIO MANAGEMENT

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Number Fields	5	14.71%	
2.	Tracking of loan information	9	26.47%	
3.	No difference between an individual client and a group member	4	11.76%	
4.	Tracking collateral and guarantors	6	17.65%	
5.	Ability to move from an individual loan to a group loan and vice versa	6	17.65%	
6.	Entering loan-specific and business-specific information each time a new loan is approved	6	17.65%	
7.	Tracking different loans	7	20.59%	
8.	Taking a group loan and an individual loan at the same time	6	17.65%	
9.	Moving a member from one group to another	5	14.71%	
10.	Moving a member from one branch database to another	3	8.82%	
11.	Line of credit or overdraft facility	2	5.88%	
12.	Other Loan Portfolio Management Features	3	8.82%	
	Total	62	n = 34	

CREDIT REPORTS

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Tracking payments for group loans	6	17.65%	
2.	Filtering and grouping on groups, members, and individuals	6	17.65%	
3.	Tracking group members by sub groups	6	17.65%	
4.	Tracking group loans	6	17.65%	
5.	Detailed information about the clients business/loans from cycle to cycle	8	23.53%	

6.	Tracking group drop-out rates	4	11.76%	
7.	Tracking clients across different levels for groups	3	8.82%	
8.	Tracking entered transactions grouped by group loans	4	11.76%	
9.	Other Credit Reporting Features	2	5.88%	
	Total	45	n = 34	

CLIENT IDENTIFICATION

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Biometrics	8	23.53%	
2.	Photographic image	8	23.53%	
3.	Smart card	10	29.41%	
4.	Membership details	12	35.29%	
5.	Dependents details	9	26.47%	
6.	Insurance policy limits	11	32.35%	
7.	Utilization	7	20.59%	
8.	Recent transaction storage	6	17.65%	
9.	Access control	9	26.47%	
10.	Duplication prevention	6	17.65%	
11.	Other Client Identification Features	4	11.76%	
	Total	90	n = 34	

MOBILE SYSTEM

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Mobile banking	5	14.71%	
2.	Content delivery	3	8.82%	
3.	Mobile payments	8	23.53%	
4.	Order fulfilment	5	14.71%	
5.	Mobile learning	4	11.76%	
6.	Mobile phone top-up	3	8.82%	
7.	End-to-end security	5	14.71%	
8.	User authentication	6	17.65%	
9.	Cell Phone - SMS	7	20.59%	
10.	Cell Phone - SIM Card Program	2	5.88%	
11.	Cell Phone - Java Program	3	8.82%	
12.	Point-of-Sale Terminal	5	14.71%	
13.	Village Phone	5	14.71%	
14.	Other Mobile Applications	2	5.88%	
	Total	63	n = 34	

KNOWLEDGE CAPTURE & TRANSFER SYSTEM

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Authoring tools	4	11.76%	
2.	CD distribution	7	20.59%	
3.	Internet access	11	32.35%	
4.	Multimedia	5	14.71%	
5.	Hyperlinked material	6	17.65%	
6.	Glossary of terms	8	23.53%	
7.	Controlled access	6	17.65%	
8.	Mentoring support	7	20.59%	
9.	Multiple training courses	6	17.65%	
10.	Teleconferencing	3	8.82%	
11.	TV education channels	2	5.88%	
12.	Other Knowledge Capture & Transfer Features	2	5.88%	
	Total	67	n = 34	

OPERATING SYSTEM

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Linux	9	26.47%	
2.	Microsoft	17	50.00%	
3.	Other Operating Systems	2	5.88%	
	Total	28	n = 34	

DATABASE

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Access	5	14.71%	
2.	MySQL	7	20.59%	
3.	Oracle	7	20.59%	
4.	Other Databases	6	17.65%	
	Total	25	n = 34	

ARCHITECTURE

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Centralized system	7	20.59%	
2.	Distributed system	6	17.65%	
3.	Multi-tier	8	23.53%	
4.	Mobile data entry	5	14.71%	
5.	Bidirectional transaction processing	4	11.76%	
6.	Secure communications	4	11.76%	
7.	Other System Architectures	1	2.94%	
	Total	35	n = 34	

INTERFACES & STANDARDS

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Client profile in a single window	9	26.47%	
2.	Bulk data entry	8	23.53%	
3.	Spreadsheet input & output	11	32.35%	
4.	Batch processing of entries	10	29.41%	
5.	Business rule for data validation	8	23.53%	
6.	Exception posting	4	11.76%	
7.	Web user interface	9	26.47%	
8.	Common data repository	6	17.65%	
9.	Standard data exchange protocols	4	11.76%	
10.	Extensible Business Reporting Language (XBRL)	2	5.88%	
11.	Other Interfaces & Standards	2	5.88%	
	Total	73	n = 34	

SUPPORT

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Systems training	10	29.41%	
2.	Technical field support	9	26.47%	
3.	Open-source software	5	14.71%	
4.	Software maintenance	12	35.29%	
5.	Other Support Features	1	2.94%	
	Total	37	n = 34	

FIELD ASSESSMENT

What are the focus areas of your organization?

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Microinsurance	24	88.89%	
2.	Microcredit	11	40.74%	
3.	Agriculture	1	3.70%	
4.	Water	1	3.70%	
5.	Family Development	3	11.11%	
6.	Livelihood Development	4	14.81%	
7.	Other areas of expertise	6	22.22%	
	Total	50	n = 27	

What is the area of expertise of your organization in the field of insurance?

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Health	21	77.78%	
2.	Disability	10	37.04%	
3.	Casualty	5	18.52%	
4.	Life insurance	17	62.96%	
5.	Property	14	51.85%	
6.	Liability	2	7.41%	
7.	Credit	11	40.74%	
8.	Other ares of insurance	7	25.93%	
	Total	87	n = 27	

For which microinsurance and microfinance business processes is information technology being used?

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Enrolment	22	81.48%	
2.	Underwriting	19	70.37%	
3.	Premium Payments	20	74.07%	
4.	Renewals	20	74.07%	
5.	Claims Applications	19	70.37%	
6.	Verification	14	51.85%	
7.	Loan Disbursement	12	44.44%	
8.	Loan Repayment	12	44.44%	
9.	Project Planning	10	37.04%	
10.	Management Reporting	19	70.37%	
11.	Impact Analysis	12	44.44%	
12.	Actuarial Applications	11	40.74%	
13.	Product Development	14	51.85%	
14.	Insurance Product Comparisons	5	18.52%	
15.	Other Business Processes	7	25.93%	
	Total	216	n = 27	

How were your information systems developed?

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Entirely with in-house resources	12	44.44%	
2.	In cooperation with a software partner	10	37.04%	
3.	Based on software from another organization	3	11.11%	
4.	Open source solution	3	11.11%	
5.	Proprietary solution	4	14.81%	

6.	Other Resources	6	22.22%	
	Total	38	n = 27	

Where do you collect information regarding technology?

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Dedicated department within organization	10	37.04%	
2.	Internet	13	48.15%	
3.	Partner/supporting organization	16	59.26%	
4.	Consultant	13	48.15%	
5.	Other information gathering	4	14.81%	

What types of technology are being used in your organization?

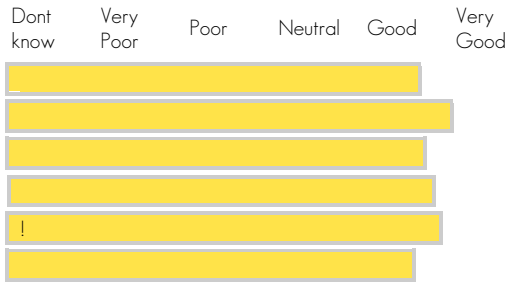
Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Spreadsheet (e.g. Excel)	19	70.37%	
2.	Database	19	70.37%	
3.	Management Information System	18	66.67%	
4.	Local Area Network	16	59.26%	
5.	Statistical tools for research	8	29.63%	
6.	Presentation tools to support training	14	51.85%	
7.	Online Payment	4	14.81%	
8.	Smartcard	7	25.93%	
9.	Biometrics	5	18.52%	
10.	Mobile Phone	11	40.74%	
11.	Other types of technology	6	22.22%	
	Total	127	n = 27	

USAGE ASSESSMENT

Overall Matrix Scorecard

	Question	Count	Score
1.	Cost of support	26	4.654
2.	Ease of use	26	5.000
3.	Training	26	4.692
4.	Acceptance by users	26	4.846
5.	Reliability	26	4.885
6.	Cost of deployment	26	4.577
Average			>4.776



COST OF DEPLOYMENT

Frequency Analysis

	Answer	Count	Percent
1.	Don't know	0	0.00%
2.	Very Poor	1	3.70%
3.	Poor	1	3.70%
4.	Neutral	8	29.63%
5.	Good	12	44.44%
6.	Very Good	4	14.81%
	Total	26	n = 27

EASE OF USE

Frequency Analysis

	Answer	Count	Percent
1.	Dont know	0	0.00%
2.	Very Poor	1	3.85%
3.	Poor	1	3.85%
4.	Neutral	4	15.38%
5.	Good	11	42.31%
6.	Very Good	9	34.62%
	Total	26	100%

TRAINING

Frequency Analysis

	Answer	Count	Percent
1.	Don't know	0	0.00%
2.	Very Poor	1	3.85%
3.	Poor	1	3.85%

4.	Neutral	7	26.92%	
5.	Good	13	50.00%	
6.	Very Good	4	15.38%	
	Total	26	100%	

ACCEPTANCE BY USERS

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Don't know	0	0.00%	
2.	Very Poor	1	3.85%	
3.	Poor	1	3.85%	
4.	Neutral	4	15.38%	
5.	Good	15	57.69%	
6.	Very Good	5	19.23%	
	Total	26	100%	

RELIABILITY

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Don't know	0	0.00%	
2.	Very Poor	1	3.85%	
3.	Poor	3	11.54%	
4.	Neutral	3	11.54%	
5.	Good	10	38.46%	
6.	Very Good	9	34.62%	
	Total	26	100%	

COST OF DEPLOYMENT

Frequency Analysis

	Answer	Count	Percent	20% 40% 60% 80% 100%
1.	Don't know	0	0.00%	
2.	Very Poor	1	3.85%	
3.	Poor	2	7.69%	
4.	Neutral	9	34.62%	
5.	Good	9	34.62%	
6.	Very Good	5	19.23%	
	Total	26	100%	

MICROINSURANCE INNOVATION FACILITY

Backed by a grant from the Bill & Melinda Gates Foundation, the ILO's Microinsurance Innovation Facility was established in 2008 to support the extension of insurance to millions of low-income people in the developing world, with the overall aim of reducing their vulnerability to risk.

The ultimate objective of the Facility is to encourage the development of microinsurance so that – by the end of 2012 –150 million low-income people will be able to make informed choices on how to manage risk and will have access to a wider range of insurance products that provide better value for money.

To achieve its goals, the Facility engages in four sets of activities:

- giving **grants** to institutions to devise and test innovative approaches to providing better insurance products to low-income women and men in developing countries
- supporting the development of **technical assistance** providers and encouraging the demand for such services
- supporting **research** on core issues related to insurance cover for low-income households
- **disseminating** information and lessons learned to key stakeholders

For more information, check the Facility's website (www.ilo.org/microinsurance) or contact us at microinsuranceresearch@ilo.org .

International Labour Office

microinsurance innovation facility

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