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What Works Case Study

WHAT WORKS: PRODEM FFP'S MULTILINGUAL SMART ATMS FOR MICROFINANCE

Innovative solutions for delivering
financial services to rural Bolivia



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EXECUTIVE SUMMARY

PRODEM Private Financial Fund (PRODEM FFP) is a regulated, privately held financial fund constituted in Bolivia in 1999, with more than a decade of prior experience as one of the first and most successful non-profit microfinance organizations in Bolivia. PRODEM FFP has a history of continuous innovation, and has gained the trust of the communities in which it operates by providing high-quality customer service. However, many of its target customers are illiterate, speak only the native languages of Quechua or Aymara, and have no familiarity with Personal Identification Numbers (PINs) or other aspects of modern financial services. Moreover, the rural communities in which they predominantly live often lack reliable telecommunications infrastructure. Nonetheless, PRODEM FFP has developed a strong competitive advantage in serving these bottom-of-the-pyramid customers by developing solutions based on proprietary technology that lowers costs, better meets existing customers' needs, and makes its services accessible to new customers.

BUSINESS MODEL

PRODEM FFP targets low-income communities and the entrepreneurs and micro- to medium-size enterprises that constitute Bolivia's informal economy, offering a wide range of savings, credit, and money transfer services. Its 65-branch network is the largest in the country and spans both urban and, especially, rural areas.

To expand its market and improve its services, PRODEM FFP has sought to deploy new technology-based products and systems. Finding that existing solutions were either costly or unworkable in its market, PRODEM FFP decided to build its own—focusing on molding a product to fit its customers' needs and lifestyles, rather than attempting to mold its customers to fit existing products and technology. The resulting solution employs smart cards and digital fingerprint recognition technology, now implemented in all PRODEM FFP branch offices and Smart ATMs, as well as stand-alone, voice-driven Smart ATMs in local languages with color-coded touch screens.

Combining smart cards with digital fingerprint recognition allows PRODEM FFP to offer secure access to Smart ATMs even in the most remote areas of Bolivia. The smart card stores the customer's relevant information including name, account number, account balance, five most recent transactions, and digital fingerprint. When customers approach a PRODEM FFP Smart ATM, they receive audio instructions in Spanish, Quechua, and Aymara and then are given the option to select a language in which to proceed. Customers are instructed to insert their smart card and place their finger on the fingerprint recognition device installed in all PRODEM FFP Smart ATMs. The system reads the smart card and matches each customer's fingerprint with the image stored on the card to authorize transactions. The touch screen display is color-coded to ensure that the customer can follow the verbal instructions (blue button for withdrawals, yellow for account inquiries). The customer can input the amount of the desired withdrawal and the Smart ATM will disburse the cash and debit the amount stored on the smart card.

PRODEM FFP's Smart ATM design not only takes the customer's ethnicity into account and is easy for virtually all Bolivians to use, but it also broadens the company's market. Pilot tests showed that the Smart ATMs attracted both rural customers, who cannot normally come to a branch during business hours, as well as more affluent urban customers. In addition, since the customer's account balance is stored in the smart card, it is not necessary for the Smart ATM to connect to the Internet in order to complete a transaction, a feature of the system that is essential for ATMs to be useful in the many parts of rural Bolivia that lack the technical infrastructure for a wide-reaching, online network. The Smart ATMs are also cost-effective; they are assembled in Bolivia with both proprietary technology and commercially-

available components and cost PRODEM FFP about US\$18,000 (139,140 *bolivianos* [BOB])¹ each—less than half the price of a traditional ATM with more limited functionality. In addition to initial savings, PRODEM FFP’s Smart ATMs also offer lower transaction costs than its branch office operations, which have higher staff and overhead costs.

The cost of the Smart ATM machines is kept low is by keeping the system relatively simple, while still meeting the customers’ most important need of having 24-hour access to their money. The ability to deposit money is less urgent for customers so this was not designed into the current system. Depositing funds is a more complex process than disbursing withdrawals, since the system would need to accept bills in all denominations. By only providing withdrawal and account inquiry services, the system only needs to manage US\$20 and BOB100 bills. Notwithstanding, PRODEM FFP and its technology partners have already started planning the next version of the Smart ATM that may include the ability to accept deposits.

The smart cards can be used at any PRODEM FFP branch to withdraw or deposit funds, without filling out a deposit slip or withdrawal form—a significant advantage for customers who cannot read or write. Since digital images of customers’ fingerprints are stored in PRODEM FFP’s customer service system, customers can also “sign their name” by making ink impressions with their fingers. This system has the added advantage of enhancing security for both PRODEM FFP and the customer by ensuring that only the account holder can complete a transaction. In effect, fingerprint recognition replaces a 4-digit PIN with the equivalent of a 300-digit PIN, creating a biometric identity.

A PRODEM FFP smart card savings account has a US\$7² (BOB 54) annual fee and no transaction fees. While the account can be denominated in US dollars, *bolivianos*, or both, the annual fee is paid in dollars. Customers seem to like the perceived security, ease of access to their money, and status of having a smart card. As of July 2003, more than 40,000 PRODEM FFP smart card accounts had been opened. In fact, PRODEM FFP’s smart card customer accounts have exceeded expectations since 2001, with total smart card accounts expected to reach 50,000 by the end of 2003. Table 1 below shows the projected and actual smart card accounts for the past three years.

Table 1. Number of PRODEM FFP Smart Card Savings Accounts

2001		2002		2003	
Projected	Actual	Projected	Actual	Projected	Actual (as of August 2003)
10,000	15,000	30,000	37,000	50,000	48,000

Source: E-mail from Eduardo Bazoberry

DEVELOPMENT BENEFIT

Access to credit and other financial services is critical to micro-enterprise formation, job creation, and increased incomes in the informal economy. The PRODEM FFP solution breaks a number of paradigms often associated with microfinance, demonstrating how these services can be provided efficiently even in poor, rural communities with inadequate telecommunications infrastructure. Moreover, the PRODEM FFP solution respects and empowers indigenous communities, overcoming the problem of illiteracy and serving customers in multiple languages. Finally, because the PRODEM FFP solution is low-cost and profitable, it is also potentially scalable and replicable in other developing regions. Indeed, PRODEM

¹ Based exchange rate of 1USD:7.73BOB, September 3, 2003. Source: Yahoo Finance, <http://finance.yahoo.com/m3?u>

² Bolivia uses a dual-currency system. As such, it requires payment of certain fees in USD.

FFP itself is exploring expansion to other Latin American markets, and its technology partner has been approached about licensing its technology in Africa and Asia.

KEY LESSONS

By looking at the low-income market objectively and logically, PRODEM FFP has demonstrated the vast opportunity that this market represents. Key lessons include:

- Business principles can be applied to bottom-of-the-pyramid markets. PRODEM FFP's business strategy, for example, followed conventional models—first understanding customers' needs and what they can pay, and then designing a product that meets those needs at that price.
- Neither quality nor profit needs to be sacrificed to serve low-income communities. With modern technology, PRODEM FFP was able to deploy a system that provides its customers with superior service at a lower cost than conventional solutions.
- Rural, low-income communities are both willing and capable of using high-tech services as long as they serve their needs, as the rapid acceptance of PRODEM FFP's smart cards and Smart ATMs show.

WHAT WORKS: PRODEM FFP'S MULTILINGUAL SMART ATMS FOR MICROFINANCE

PRODEM FFP is a regulated, privately-held financial fund constituted in Bolivia in 1999. Its 65-branch network is the largest in the country and its coverage extends from urban centers to the Amazon jungle and the Andean mountain valleys. It provides a multitude of financial services—including credit, savings, and money transfers—to those sectors of the population that do not have access to the traditional banking system.

According to CEO Eduardo Bazoberry, PRODEM FFP provides products and services to economic segments B through D of the Bolivian population (annual household income between US\$2,000 and US\$25,000).³ While PRODEM FFP does serve the majority of Bolivia's low-income market, household with annual incomes of less than US\$2,000 are largely served by nonprofit microfinance organizations. PRODEM FFP's primary customers are those that require credits larger than US\$50 (BOB 387) to start or expand a business, buy merchandise or machinery, or fill similar micro-enterprise needs. The majority of loans are above US\$500, but a small number of loans are granted as low as US\$50.

PRODEM FFP breaks the established paradigms of microfinance. As a private corporation, the company is demonstrating that it is possible to provide financial services to the masses—which in Bolivia is the low-income sector—profitably. PRODEM FFP provides service and competes effectively in both rural and urban areas, and develops and implements technology in innovative ways. PRODEM FFP believes that an additional differentiating factor is the company's institutional culture, which it describes as “participative capitalism,” a system whereby mid- to upper-level employees are incentivized through stock options.

Many microfinance institutions are concentrated in Bolivia's urban areas. By providing national coverage, PRODEM FFP's goal is to catalyze economic integration between the rural and urban areas of the country. In many rural towns, PRODEM FFP is the only regulated financial institution available. The company's presence has allowed these communities to connect more efficiently to the economic activity of Bolivia's major cities. Many locals see the opening of a PRODEM FFP branch office as a sign of progress.

Shortly after its incorporation, the company created a strategic alliance with Innova Empresarial (Innova), a local company that specializes in technology and consulting services for microfinance institutions (MFIs).⁴ PRODEM FFP uses Innova's state-of-the-art technology to overcome many of the infrastructural and demographic challenges that Bolivia presents. Its biometric and smart card technologies have seen rapid acceptance among PRODEM FFP's customers, even though many do not know how to read or write. Such positive customer response has meant that what started as a solution for the lack of telecommunication infrastructure and security problems has become an effective promotional tool to attract new customers. Innova's latest product, the Smart ATM, is attracting both young, well-educated customers in the cities and illiterate customers in the rural parts of the country—allowing PRODEM FFP to lower costs and serve two different markets with the same financial and technical solution and creating a competitive advantage over other MFIs.

According to Dulfredo Rojas, one of Innova's managers, these developments are only the beginning of a series of financial technologies that will be available to PRODEM FFP's customers in the near future. Innova is currently working on a prototype to allow cashless financial transactions between producers and

³ In Bolivia, economic segment A is defined as households that earn more than US\$25,000 per year. Economic Segment E includes those households whose income is less than US\$2,000 a year. Source: E-mail from Eduardo Bazoberry, September 3, 2003.

⁴ PRODEM FFP played an integral role in the creation of Innova and it holds a significant ownership stake in Innova.

consumers as well as retailers and intermediaries. They are also developing Pocket PC technology that would allow PRODEM FFP to process loan applications remotely at customers' home or business locations.

MARKET OVERVIEW

Bolivia has a population of 8.3 million. With a per capita income of US\$950 (BOB 7,343), a life expectancy of 61, and an under-five mortality rate of 77 per 1000 births⁵ it is the poorest country in South America. Approximately 70% of the general population and 94% of the rural population are classified as poor.

Bolivia is the size of California and Texas combined, making it the fifth-largest country in Latin America. In the first half of the 19th century, the country was twice the size it is now. However, between 1879 and 1883, it lost its entire maritime province to Chile and during the 1930's it lost a big part of its southern territory in a war against Paraguay. Today Bolivia is landlocked, bordering Brazil to the east, Peru and Chile to the west, and Argentina and Paraguay to the south. The western part of the country, enclosed by two chains of the Andes, is a great plateau called the Altiplano. Almost half the Bolivian population lives on the plateau, which contains the cities of Oruro, Potosí, and La Paz. In the east, there are semi-tropical valleys and agricultural areas with petroleum and natural gas reserves.

Seventy percent of Bolivia's population is indigenous. There is a great overlap between being poor and being indigenous. In rural areas, 90% of the population is indigenous, primarily Aymara and Quechua living in the Altiplano and the valleys of the high Andes. Poverty and extreme poverty are more prevalent in Aymara-speaking households. In addition to Aymara and Quechua, another 30 to 40 ethnic and language groups are spread across the Altiplano and lowlands of eastern and northern Bolivia.⁶

Bolivia's distinctive topography and ecology have had an enduring impact on settlement patterns. They have also figured in relations among the country's diverse groups, since the isolation most communities and regions faced until at least the 1950's has contributed to cultural diversity.

From the 1950's to the 1980's, a succession of governments attempted to wrench Bolivia out of poverty through "structuralist" policy measures, including a thorough land reform in 1952, nationalization of mines in the same year and of natural gas reserves in 1965, and various controls on the exchange rate and other key prices.⁷ Unfortunately, these measures did not improve the Bolivian economy.

Radical structural adjustments took place in the late 1980's. These included liberalization of most prices, privatization, encouragement of foreign trade, reform of public enterprises, and closing of unprofitable mines. This restored stability to the economy, but did not generate the rate of growth required to diminish poverty levels or bring recovery to the agricultural sector. Instead, the restructuring led to increased migration into the cities as rural people sought more opportunity. One of the most obvious examples is the growth of El Alto, a city just a few miles from La Paz, Bolivia's capital. In the last 15 years, its population has grown from less than 100,000 to over 1,000,000 inhabitants.

⁵ United Nations Development Program, *Human Development Report*, 2002. <http://hdr.undp.org>

⁶ Grootaert, Christian, and Deepa Narayan, "Local Institutions, Poverty, and Household Welfare in Bolivia." World Bank, Local Level Institutions: Working Paper No.9, April 2000. http://poverty.worldbank.org/files/10209_11i9.pdf

⁷ Ibid.

The Informal Economy

The still-precarious economic situation and rising unemployment have forced many people to engage in informal economic activities. Today, more than 61% of the Bolivian population is informally employed and the informal economy contributes more than 20% of the country's GDP. There are approximately 800,000 micro-enterprises, largely urban, that make up this informal economy and generate 1.7 million jobs.⁸ In cities like La Paz, most of the sidewalks have been invaded by informal businesses where one can buy anything from fruits and vegetables to TVs and refrigerators. Table 2 presents additional information about the informal economy in Bolivia.

Table 2. Bolivia's Employment Statistics

Description	Formal	Informal	Total
Men			
% of population	42.54%	57.46%	1,162,875
Average monthly income	US\$226 (BOB 1747)	US\$104 (BOB 804)	US\$156 (BOB 1206)
Hours worked per week	49.41	42.48	45.43
Women			
% of population	34.17%	65.83%	993,375
Average monthly income	US\$147 (BOB 1136)	US\$56 (BOB 433)	US\$87 (BOB 673)
Hours worked per week	43.09	37.35	39.31
Total			
% of population	38.68%	61.32%	2,156,250
Average monthly income	US\$194 (BOB 1500)	US\$80 (BOB 618)	US\$124 (BOB 959)
Hours worked per week	46.83	39.94	42.61

Source: Bolivia's National Statistics Institute

The increase in informal economic activity from the mid-1980's to 1990's created a new generation of micro-entrepreneurs. Although still within the informal economy, many of these entrepreneurs increased the scale of their activities and even started importing goods directly from places as far away as Southeast Asia. As these businesses grew, so did their need for financial services. Because of their informal status, however, they did not meet the lending requirements of traditional banks. Even those micro-entrepreneurs who paid taxes regularly and were therefore part of the formal economy were reluctant to use traditional banking services because of rampant discrimination (and resultantly poor service) against micro-entrepreneurs, especially indigenous women. Instead, these businesspeople would turn to *usureros*, informal moneylenders, who charged extremely high interest rates and had very aggressive collection methods, to meet their financing needs. Any savings that the micro-entrepreneurs generated was stored as cash, usually in their homes.

According to the Superintendent of Banks and Financial Institutions, there are five reasons why the traditional banking system was not interested in serving this new generation of micro-entrepreneurs or informal businesspeople:

- 1) Lack of knowledge of how to manage a market segment with different risk-return characteristics
- 2) High administrative costs
- 3) Lack of financial information and financial statements from prospective clients
- 4) Information asymmetries
- 5) Absence of physical assets to guarantee any potential credits⁹

⁸ BancoSol Web site, <http://www.bancosol.com.bo>

⁹ Presentation by the Superintendent of Banks and Financial Entities in Bolivia, May 21, 2003.

ORIGINS OF THE ENTERPRISE

The unsolved financing needs of the low-income segment of the population attracted the attention of many non-governmental organizations (NGOs) interested in providing credit at the bottom of the economic pyramid (BOP). The mission of these organizations was primarily social. They were conceived more as philanthropic entities than as financial institutions. Still, their incursion into the market was extremely important, because they made financial services available to many people who otherwise lacked access to them.

To address the unmet need for microfinance, ACCION International, a US-based NGO operating in Latin America, established a micro-enterprise development program. In 1986, Fundación PRODEM was created as a joint venture between ACCION and prominent members of the Bolivian business community, offering access to credit and training using the solidarity group lending system whereby a group of individuals provide collateral or loan guarantee through a group repayment pledge. In this model, if one member of the group defaults on the loan, the other group members make up the payment amount. This “moral collateral” replaces the traditional requirement for physical collateral. Most of the executives that started the organization had no previous banking experience; instead they tended to be activists from the community. PRODEM’s first product was a solidarity group loan that would not exceed US\$50 at an annual interest rate of about 54%.

Fundación PRODEM grew rapidly. By the end of 1991 it had four main offices, seven branch offices, and 116 employees, and was providing US\$28 million in loans to more than 45,000 micro-businesses with a default rate close to zero. PRODEM’s early success made it the largest and best-known microfinance organization in Bolivia, but it was by no means alone. At least seven other microfinance NGOs were launched between 1985 and 1992.¹⁰

Although Fundación PRODEM was covering its costs by 1991, its status as an NGO—and consequent reliance on grant funding—limited its capacity to expand. It was also legally restricted from various functions standard in commercial banks, including financing its loans from client savings or loans from other financial institutions. To address this, PRODEM’s directors decided to establish a commercial bank in order to help Fundación PRODEM grow. They set up a transition committee to develop local and international support, coordinate the transfer of assets and other details from Fundación PRODEM to the bank and obtain the necessary operating licenses. The transition committee envisioned the creation of a commercial bank that would operate the primarily urban profitable branches on a commercial basis while allowing Fundación PRODEM to focus on its social mission of providing microfinance to the primarily rural communities that were otherwise underserved. This conversion took two years. In February 1992, BancoSolidario S.A. (BancoSol) started operations as the world’s first private commercial bank catering specifically to micro-entrepreneurs.

The success of BancoSol in achieving bank status prompted a rush of emulation, but rather than allow all NGOs with commercial ambitions to become banks, the Bolivian regulatory authorities created an intermediate category of institutions called *Fondos Financieros Privados* (FFPs), or private financial funds, authorized to take savings deposits but not to offer current accounts or engage in foreign currency operations.¹¹

¹⁰ Kennedy, Robert E. “BancoSolidario: The Business of Microfinance.” *Harvard Business Review*, 9-702-019, January, 2002.

¹¹ Mosley, Paul. “Microfinance and Poverty: Bolivia Case Study.” *Discussion paper*. University of Reading, May 1999. http://www.mip.org/pdfs/aims/microfinance_and_poverty.pdf

From its inception, BancoSol concentrated its efforts in urban areas while Fundación PRODEM continued providing credit in rural areas. BancoSol's success was immediate. By the end of 1995, Bolivia's urban and rural microfinance institutions had about 200,000 active loan clients with an outstanding balance of about US\$77 million (BOB 595 million). The two largest urban institutions, BancoSol and Caja Los Andes, accounted for more than a third of these clients and more than half this outstanding portfolio. However, by the late 1990's, the urban microfinance market started to show some signs of saturation. Microfinance institutions in large urban areas like La Paz-El Alto and Santa Cruz were increasingly competing with each other. New branches' growth began to slow, and most of the growth came from expansion into smaller urban centers.

But while urban opportunities decreased, there were still unexplored possibilities in the rural landscape. Competition was almost absent in niche markets spawned by sparse populations in varied, distant, and isolated places. In an effort to take advantage of these opportunities, Fundación PRODEM invested in the creation of PRODEM FFP. The newborn company was started with almost 50 rural offices, 50,000 customers, and credit assets of more than US\$20 million (BOB 155 million). It has since added offices in urban areas as well.

PRODUCTS AND SERVICES

As a private financial fund, PRODEM FFP provides a wide range of products and services to meet its customers' needs. PRODEM FFP's product mix includes savings accounts, loans, national and international money transfers¹² and other related services. PRODEM FFP's major product offerings are listed in the tables below.

Table 3. PRODEM FFP Savings Products

Product	Description
<i>Libreta</i> (savings pass book)	Annual fee: \$3 Transaction fee: \$0 Security feature: fingerprint recognition at teller Customer can deposit and withdraw money only from the branch where the account was opened. Account earns interest monthly. Account may be in dollars, <i>bolivianos</i> , or both.
Smart Card	Annual fee: \$7 Transaction fees: \$0 Security feature: fingerprint recognition at teller and Smart ATMs Customer can withdraw funds from any PRODEM FFP branch or Smart ATM. Customer can deposit funds at any PRODEM FFP branch. Account earns interest monthly. Account may be in dollars, <i>bolivianos</i> , or both.
<i>Deposito a Plazo Fijo</i> (Fixed-Term Certificate of Deposit)	Customer can select from a number of savings timelines similar to those of certificates of deposit (CDs) offered by banks in the US. Initial deposit starts at \$100.

¹² Note: Since PRODEM FFP is not a bank, it is not allowed to engage in foreign currency transactions. International money transfers do not fall into the category of foreign currency transaction and are therefore allowable for FFPs.

Table 4. PRODEM FFP Credit Products [listed in order of highest to lowest risk]

Product	Target Market	Description
<i>Credito Solidario</i> (Group Loan)	Low-income Individuals and micro-entrepreneurs	<ul style="list-style-type: none"> • Group is made up of between three and six people • Credit amounts from \$300 to \$1,000 • 2.95% monthly interest rate; 35.4% APR • Minimum payment period three months • Maximum payment period 12 months
<i>Rapidazo</i> Individual Loan	Micro, small, and medium enterprises	<ul style="list-style-type: none"> • Credit amounts from \$50 to \$500 • Maximum processing time is five days • Up to 12-month repayment period
<i>Regalazo</i> Individual Loan	Micro, small, and medium enterprises	<ul style="list-style-type: none"> • Credit amounts from \$100 to \$3,000 • Payments can be monthly or bi-monthly depending on the type of business • Up to 36-month repayment period • Customers receive token gifts (from pens to small appliances, depending on the size of the loan) upon complete payment of their loans • Requires either title to real estate property or other form of collateral, such as an automobile, retail inventory, furniture, etc.
<i>Prehipotecazo</i> (Pre-mortgage)	Small and medium enterprises	<ul style="list-style-type: none"> • Credit amounts from \$100 to \$3,000 • Monthly payment terms • Up to 36-month repayment period • Requires a title to real estate property (home or business) • Customers receive token gifts (from pens to small appliances, depending on the size of the loan) upon complete payment of their loans
<i>Hipotecazo</i> (Mortgage)	Small and medium enterprises	Loan amount depends on repayment capacity and value of the mortgage. Ratio must be at least 2:1.
Consumer Lending	Middle income to high income	PRODEM FFP provides financing through a retail store called Ketal Hipermercados for items such as televisions and computers. This product is offered to individuals employed through formal and informal means.

In addition to these banking products, PRODEM FFP also provides national and international money transfers. National money transfers are administered through its extensive network of 65 branch offices across the country; international money transfers are handled through a partnership with Western Union, allowing PRODEM FFP customers access to Western Union's extensive international network.

In addition to providing traditional banking services to its low-income target market, PRODEM FFP provides non-banking services that are profitable for the company and help the communities in which it operates. Two such services are Bonosol and PLANE. Bonosol is a weekly payment that the government makes to elderly Bolivians. Through an agreement with the government, PRODEM FFP disburses Bonosol payments. PLANE is a government program to provide temporary low-skilled work for the unemployed. PLANE workers are given a document verifying the hours that they work and PRODEM FFP disburses their wages. For both of these services, PRODEM FFP has negotiated a contract with the government that covers its costs and provides an additional profit margin.

While all of these products and services allow PRODEM FFP to meet important customer needs, this case study will focus on the smart card savings products and the Smart ATM that allows customers access to their savings 24 hours a day, seven days a week.

THE BUSINESS CHALLENGE

PRODEM FFP's target market posed a unique set of challenges for the company. Many of its intended customers are rural, low-income individuals who are illiterate or speak no Spanish or both. To carry out its mission of providing top-quality services to these customers, PRODEM FFP faced three fundamental challenges:

- **Lack of infrastructure.** Many of the rural areas where PRODEM FFP's branch offices are located lack communications infrastructure. As a result, developing an ATM network with a real-time, always-on connection was economically unfeasible, at least until economies of scales were reached.
- **High levels of illiteracy.** About 27% of PRODEM FFP's customers cannot read or write,¹³ and many do not know how to sign their names. In addition, a significant number of rural villagers speak only the indigenous languages of Quechua and Aymara. A traditional ATM that uses on-screen text as its primary communication mechanism was not a realistic approach.
- **Lack of familiarity with PINs.** Many people in rural Bolivia are unfamiliar not only with the concept of an ATM but also with the concept of a PIN or other type of identification code. In many cases they have never had to memorize an identification number. A system that required a PIN seemed unlikely to succeed, and likely to require significant customer support to explain the approach and deal with forgotten PINs.

Traditional ATM systems did not address these challenges. Therefore, instead of purchasing existing ATM systems, PRODEM FFP decided to design its own. This allowed the company to focus its efforts on day-to-day operations while working with an external contractor to design a product to fit its customers' needs and lifestyles. The resulting solution employs smart cards and digital fingerprint recognition technology, now implemented in all PRODEM FFP branch offices as well as in PRODEM FFP Smart ATMs, as well as stand-alone voice-activated ATMs in local languages with color-coded touch screens. PRODEM FFP smart cards store all relevant customer and account information, including an encoded fingerprint.

TECHNOLOGY

The Smart ATM system is made up of three functional areas: the user (customer) interface, the administration interface, and a reporting system.

The User Interface

Combining smart cards with digital fingerprint recognition allows PRODEM FFP to offer secure access to ATMs even in the most remote areas of Bolivia. The smart card stores the customer's relevant information including name, account number, account balance, five most recent transactions, and digital fingerprint. When customers approach a PRODEM FFP Smart ATM, they receive audio instructions in Spanish, Quechua, and Aymara and then are given the option to select a language in which to proceed.

¹³ Bazoberry, Eduardo. "The Bolivian Experience of the PRODEM Private Financial Fund S.A." Presented at *Paving the Way Forward for Rural Finance, An International Conference on Best Practices in Rural Financial Institutions*, June 3-5, 2003, Washington, D.C. <http://www.basis.wisc.edu/rfc/lit/cases.html>

Customers are instructed to insert their smart card and place their finger on the fingerprint recognition device installed in all PRODEM FFP Smart ATMs. The system reads the smart card and matches each customer's fingerprint with the image stored on the card. If the fingerprint does not match, the customer is not allowed to proceed with the transaction. If the fingerprints match, the customer is asked to select the desired transaction (withdrawal or account inquiry). The screen display is color-coded to ensure that the customer can follow the instructions: for example, the machine instructs the user to select blue for withdrawal or yellow for account inquiry. If the customer elects to withdraw money from the account, the system simply reads the data stored in the smart card to determine whether the customer has sufficient balance to cover the withdrawal amount. Withdrawals can be made in denominations of US\$20 or BOB 100. Once a withdrawal is made, the system debits the amount on the smart card.

This system ensures that only the account holder can complete a transaction, making it more secure than a traditional ATM card, which can be used by anyone who knows the PIN. In effect, fingerprint recognition replaces a 4-digit PIN with the equivalent of a 300-digit PIN, creating a biometric identity. In addition, since the customer's account balance is stored in the smart card, it is not necessary for the Smart ATM system to be online in order to complete a transaction.

The smart card solution allows customers to withdraw funds from any PRODEM FFP Smart ATM and to withdraw or deposit funds at any PRODEM FFP branch without filling out a deposit slip or withdrawal form—an obvious advantage for customers who cannot read or write. Further, since digital images of customers' fingerprints are stored in PRODEM FFP's customer service system, customers can "sign their name" by making an ink impression with their finger. Moreover, a voice-driven ATM that uses indigenous languages and color-coded symbols is obviously much easier for many of PRODEM FFP's customers, as well as more respectful of their ethnicities. The result is a system that is more secure, provides superior customer service, and broadens PRODEM FFP's appeal and reach to new customers.

The Administration Interface

Like the user interface, the administration interface is simple and easy to use, allowing a bank employee to quickly and simply refill the Smart ATM. When the machine has been refilled, the employee enters in the number of bills that were placed into the machine. Since the system only accepts one denomination of dollars (US\$20) and one of *bolivianos* (BOB 100), keying in the number of bills is sufficient—it is not necessary to enter the total amount of money added. The system then keeps track of how many dollar and *boliviano* bills it dispenses and alerts PRODEM FFP employees when there are fewer than 20 of either type of bill by displaying a message on the tellers' and managers' computer monitors that are linked to the Smart ATM.

The Reporting System

The Smart ATM is also equipped with a number of reporting options, including daily, weekly, and monthly reports. A log of transactions is transferred to both PRODEM FFP's headquarters and local branch office once a day in accordance with bank regulations. When a report is requested by the national corporate office, the system dials in to the branch network and transmits the report. In the event that the phone system is not available due to an outage, daily transactions can be saved onto a standard 3.5-inch floppy disk and transported to headquarters.

Sourcing

PRODEM FFP's Smart ATMs were developed by a software and consulting firm called Innova Empresarial. Innova Empresarial was originally created by a group of PRODEM FFP private investors to leverage the technical experience that PRODEM FFP had developed over the years. It now operates in a strategic alliance with PRODEM FFP, providing product development, installation, training, maintenance, and support for the ATMs.

While Innova does source some of its modules externally—the fingerprint recognition technology, for example, is from Digital Persona—it integrates these systems and develops the proprietary software in-house. Thus PRODEM FFP’s technology is primarily sourced from within Bolivia. The machines’ hardware components, however, are manufactured in and imported from England and the US.

The result is a system that fits PRODEM FFP’s market, yet costs less than a comparable conventional ATM system. Each Smart ATM costs PRODEM FFP US\$18,000¹⁴ compared to US\$30,000-40,000 for a comparable ATM system with the same features as the Smart ATM.

BUSINESS MODEL

PRODEM FFP is registered as a private financial fund (FFP). In Bolivia, FFPs are defined as “non-banking financial entities, whose principal objective is channeling resources to micro- and small-scale borrowers whose activities are located in urban as well as rural areas.”¹⁵ PRODEM FFP and all other FFPs in Bolivia are regulated by the Superintendent of Banks and Financial Institutions (SBEF). As an FFP, PRODEM FFP can perform most of the same activities as banks with the exception of engaging in foreign currency operations. In addition, as an FFP, PRODEM FFP is governed by a different set of rules than banks are. For example, FFPs’ legal lending limit per client is 3% of the total equity in mortgages, while banks can hold up to 20%.¹⁶

Organizational Decision-Making Structure

PRODEM FFP’s decision-making structure is highly centralized. This centralized strategy is evident in PRODEM FFP’s procedure for installing new Smart ATMs. PRODEM FFP determines which branches will receive Smart ATMs based on a set of criteria, including number of savings customers and average volume of transactions. These decisions are handled by PRODEM FFP’s corporate office.

Virtually all major decisions about the goals and direction of the corporation are made by senior executives at the national headquarters. This includes the percentage of loans that must be micro-loans versus small and medium enterprise loans. In addition, while PRODEM FFP currently allows its analysts at the branch level to make loans of up to US\$5,000 (BOB 38,650), PRODEM FFP is planning to change this structure so that all loans are approved by the regional offices, thus taking more control and decision-making ability away from branch managers and transferring it to the regional offices.

At the same time, PRODEM FFP is implementing a program intended to provide greater support for its branch employees, recognizing that customers are the most important element of its business and that the branch employees are closest to, and therefore most knowledgeable about, how best to serve those customers’ needs.

¹⁴ E-mail from Eduardo Bazoberry, May 5, 2003.

¹⁵ Gomez, Arelis, Germán Tabares and Robert Vogel. “Regulation and Supervision of Microfinance Activities: The Bolivian Case Study.” International Management and Communications Corporation (IMCC), November 2000. http://www.mip.org/pdfs/mbp/regulation_and_supervision-bolivian-case-study.pdf

¹⁶ Presentation by the Superintendent of Banks and Financial Entities in Bolivia, May 21, 2003.

HUMAN RESOURCES MANAGEMENT

PRODEM FFP is a Bolivian company staffed by Bolivians at all levels of the organization. In May 2003, PRODEM FFP had approximately 447 employees. Of these, approximately 68% were based in rural areas. As much as possible, PRODEM FFP hires local residents for its branch offices, especially in rural areas. This is important in gaining the trust and acceptance of the local community: in Bolivia, small rural communities are less likely to trust non-locals, even if the non-locals are fellow Bolivians.

Incentives

PRODEM FFP describes its corporate culture as “participative capitalism.” This refers to the fact that PRODEM FFP has designed a fund that allows employees to receive a certain number of shares of the company as part of their annual benefits packages. Employees gain access to this fund after three years of employment with PRODEM FFP.¹⁷

Training and education programs

PRODEM FFP is currently going through a transition phase with its training and education programs. The human resources department has taken an inventory of the skill sets that employees need based on their positions within the company. With this data, they have developed an extensive database and matrix of training needs. However, the scope of the demand exceeds that which can be administered in a traditional classroom environment. Additionally, it is not feasible to hold centralized classroom training for those working in rural branches because of the long distances required to travel between branches.

Therefore, while all employees receive an orientation and training session when they begin, ongoing training varies widely. Branch employees participate in at least one off-site training each year.

To help PRODEM FFP to meet its training needs, it has developed an alternative solution called the “Trainers’ Club” in which employees that have achieved mastery of a wide range of areas within PRODEM FFP—including accounting, customer service, etc.—are selected to be part of the club. These Trainers’ Club members are then responsible for helping their peers and subordinates learn the skills they need to advance within the organization and eventually become members themselves. While being selected as a Trainers’ Club member does not entail an immediate increase in salary, it does provide employees with an opportunity to continue to grow with the firm which can eventually lead to a higher salary in the long run.

MARKETING

As of August 2003, PRODEM FFP had 48,000 smart card account holders. PRODEM FFP’s target market is demographically diverse, consisting of women and men between 20 and 50 years of age,¹⁸ from both rural and urban areas, economic segments B, C, and D (households with annual income between US\$2,000 and US\$25,000), and several ethnic minorities. Typical customer profiles vary by region and type of economic activity. For example, street vendors tend to be women, while farmers tend to be men. PRODEM FFP’s target market is all of Bolivia and it is considering expansion into other national markets in the future.

Before PRODEM FFP launched its fingerprint recognition smart card savings accounts on a national scale, it conducted a pilot project in the rural community of Caranavi. The overall response was very

¹⁷ Bazoberry, Eduardo. “We Aren’t Selling Vacuum Cleaners: PRODEM’s Experiences with Staff Incentives.” *The Microbanking Bulletin*, Issue 6, April 2001. http://www.mixmbb.org/en/mbb_issues/06/mbb6.pdf

¹⁸ E-mail from Eduardo Bazoberry, September 3, 2003.

positive, with lines of customers forming outside the branch office waiting to sign up for their smart card accounts. During the pilot, PRODEM FFP held a series of focus groups to gather customer feedback. These groups confirmed that the US\$10 (BOB 77) minimum required to open an account (US\$7 [BOB 54] annual fee and US\$3 [BOB 23] remains in the account) was feasible. Their research showed that the main reason customers opened accounts was the security of the fingerprint recognition. They also learned that customers liked the ease with which they could withdraw their money and viewed the smart card as a status symbol.

Additionally, data from the focus groups revealed that the target market did not understand the radio jingle PRODEM FFP was using to advertise. PRODEM FFP modified its advertising campaign in response, running ads focused on basic features of the smart card savings account, namely security, status, coverage, access, and simplicity.¹⁹

Pricing

Smart card savings accounts are priced at US\$7 annually with no transaction fees. The US\$7 fee is paid when the account is opened and then annually thereafter. While the annual fee is higher than competitor Caja Los Andes' fee of US\$5 (BOB 39), Caja Los Andes charges a US\$0.25 (BOB 2) fee for each ATM transaction, making PRODEM FFP more economical in the long run for the average user. However, PRODEM FFP does not offer the highest interest rate either. As a result, PRODEM FFP does not attempt to compete purely on price, but also focuses on superior customer service.

Product

PRODEM FFP's strategy has been to develop and provide products that meet the needs of its target market. PRODEM FFP offers a wide range of products and services aimed at the BOP market in addition to its savings accounts. Two such products include micro-credit and money transfers. PRODEM FFP has also contracted with the government to disburse payments for Bonosol, a government payment for the elderly, and PLANE, an employment program for low-skilled workers.

Promotion

PRODEM FFP uses a variety of advertising media including television, print, and radio. One of its television ads shows an indigenous woman in traditional dress whizzing by two young urban men to the PRODEM FFP Smart ATM. She speedily completes her transaction as the young men look on in astonishment. This ad is clearly targeted to PRODEM FFP's primary rural market.

To date, PRODEM FFP ads have been produced in Spanish. However, PRODEM FFP is currently planning to launch radio ads in both Quechua and Aymara.

In addition, point-of-sale "up-selling" and "cross-selling" by PRODEM FFP staff is encouraged. PRODEM FFP employees are trained to offer their customers additional services. For example, when an individual comes in to receive a Bonosol payment, the customer service agent may offer to open a savings account for that person. PRODEM FFP does in-community direct promotion as well. For example, when a new branch is opened, the branch manager and other key PRODEM FFP employees go door-to-door to micro-entrepreneurs distributing pamphlets and talking with each potential customer about their banking needs.

¹⁹ Bazoberry, Eduardo. "The Bolivian Experience of the PRODEM Private Financial Fund S.A." *Presented at Paving the Way Forward for Rural Finance, An International Conference on Best Practices in Rural Financial Institutions*, June 3-5, 2003, Washington, D.C. <http://www.basis.wisc.edu/rfc/lit/cases.html>

Placement

A key factor to PRODEM FFP's success is its placement strategy. One of PRODEM FFP's key differentiators is its focus on the rural market. As such, PRODEM FFP has branch offices in 42 rural and semi-rural communities and plans to install Smart ATMs at all of its 65 branch locations.

Brand Management

PRODEM FFP's wide range of products is one of its competitive advantages. Customers know they can go to PRODEM FFP not only for micro-credit but also to send a money transfer or open a savings account. This convenience makes PRODEM FFP more attractive to its customers. Perhaps even more importantly, PRODEM FFP has developed a strong level of trust within the community. To leverage this positive brand recognition, the company uses the "PRODEM FFP" brand on all its products.

Consumer Education

Although the Smart ATM and fingerprint recognition technologies are designed to be easy to use, PRODEM FFP also educates its customers about how to use the system when they open their smart card savings accounts. In addition, each new Smart ATM is staffed for its first 30 days of operation to ensure that all its customers' questions and concerns are answered.

COMPETITION

The Bolivian microfinance market has been very competitive in the last few years. The major players have been trying to increase their credit offerings in a market deeply affected by persistent economic and political crisis. Micro-credit in Bolivia's three major cities, La Paz, Cochabamba, and Santa Cruz, has reached a saturation point. A few members of the industry have realized this and are now looking for opportunities in rural areas, PRODEM FFP's traditional target market.

According to the Superintendent of Banks and Financial Institutions, there are three types of entities that provide microfinance services in Bolivia: savings and loan cooperatives, mutual institutions, and FFPs. Their market shares (based on credit volume) are 23.98%, 37.97%, and 38.05%, respectively. Although these non-banking institutions represent only 18% of the assets of the Bolivian financial system, they serve 50% of the system's customers.

What makes these three institutions similar is that they:

- target low- and medium-income customers
- interact with the informal sector of the economy
- offer small loans
- carry higher credit, financial, and operating risks than do traditional banking institutions

Table 5a. Bolivia's Non-Banking System Statistics

	S&L Cooperatives	Mutual Institutions	FFPs
Market share	23.98%	37.97%	38.05%
Assets	US\$231,040	US\$460,120	US\$221,290
Credit volume	US\$157,170	US\$255,990	US\$174,030
Credits overdue	US\$20,930	US\$40,420	US\$13,000
Delinquency credits	US\$4,140	US\$6,330	US\$6,440
Annual net income	US\$510	US\$1,740	US\$500

Data presented in thousands of US dollars to the end of 2002

Table 5b. Deposits and Credits

	Deposits % change 2002	Credits % change 2002
Mutual Institutions	-15.42%	-6.67%
S&L Cooperatives	-18.77%	-15.19%
FFPs	+45.19%	+26.83%

Table 5c. Number of Accounts

	2002	2001	Difference
Mutual Institutions	288,293	284,246	+4,047
S&L Cooperatives	358,042	423,149	-65,107
FFPs	89,389	50,201	+39,188

Source: Nueva Economía

Mutual institutions have been in existence since 1966. They raise deposits from customers and use these deposits to give credits related to home building and acquisition. According to Bolivian regulations, at least 94% of the credits they issue must be related to the homebuilding and commercialization industries.

S&L Cooperatives are non-banking institutions formed usually by a group of people from the same community. They start saving money on a periodic basis and once a significant amount of money has been accumulated; the same shareholders are eligible to receive soft interest-rate (i.e., below-market interest rate) credits. Shareholders are motivated to keep depositing money, as the interest rates offered by the cooperative are higher than the ones offered by banks.

As mentioned previously, private financial funds (FFP's) were created in 1995 with the main objective of providing financial products and services to the micro-entrepreneurial sector of both the formal and informal economies. Currently, there are seven FFP's operating in Bolivia, Caja Los Andes, FIE, Eco Futuro, PRODEM FFP, Fassil, Acceso, and Comunidad.

In terms of size, coverage, and organization, PRODEM FFP has three close competitors: BancoSol, Caja Los Andes, and FIE. BancoSol is a registered bank and not a private financial fund. However, given its structure and target segment it is often considered part of the FFP segment. Although both Mutual Institutions and S&L Cooperatives also target micro-entrepreneurs, they are not considered PRODEM FFP's direct competitors. Mutual institutions concentrate exclusively in homebuilding credit and credit unions do not have regional or national presence and are constrained by its limited amount of resources.

The basis of competition for the private financial funds is technology and coverage. BancoSol and FIE have concentrated their efforts in the urban areas while PRODEM FFP has focused on rural areas, while still maintaining a strong presence in urban areas.

Regarding technology, PRODEM FFP is the definitive leader. Not only has the institution developed state-of-the-art technology in customer solutions (the Smart ATM, biometrics, etc.) but it has also developed modern technology and processes that put are comparable with financial institutions in developed countries.

Table 6 presents selected first quarter 2003 information about PRODEM FFP and its three main competitors:

Table 6. Comparison of PRODEM FFP and Main Competitors

	BancoSol	Los Andes	FIE	PRODEM FFP
Revenues	US\$6,113,465	US\$5,226,119	US\$2,639,750	US\$3,656,495
Net Profit	US\$491,622	US\$761,475	US\$213,874	US\$136,573
Assets	US\$102,558,414	US\$79,158,132	US\$38,595,017	US\$60,111,440
Invested Capital	US\$11,435,310	US\$4,867,404	US\$3,282,648	US\$5,350,817
Number of Savings Accounts	53,915	29,709	10,526	40,450
Urban Offices	30	26	16	24
Rural Offices	4	3	0	38
Employees	508	520	225	455

Source: PRODEM FFP Internal Analysis

BancoSol²⁰

BancoSol has focused on the informal sector in urban areas. The bank inherited six branches from PRODEM FFP in La Paz and El Alto and has since opened two additional branches in Santa Cruz. The bank first started with solidarity credits primarily for retail vendors in densely-populated urban markets. Retail and distribution enterprises account for about 60% of the bank's portfolio, manufacturing for about 20%, and services and other categories for the rest. Traditional Bolivian commercial banks, by contrast, hold more than 70% of their loans in manufacturing and mining enterprises.

The main objective in separating BancoSol from Fundación PRODEM FFP was to create a for-profit organization that would make profitability and return on investment important elements of its structure, leaving the foundation to focus on the non-profit and educational portions of the microfinance industry. However, according to comments of other players in the industry, this has been difficult for BancoSol. Despite its initial success, the bank has been losing market share and has even closed branch offices in the recent months.

BancoSol has been trying to react with strategies that are difficult to sustain in the microfinance sector. For example, the bank recently released a debit card in order to compete with PRODEM FFP's smart card. Instead of developing a proprietary network, they are using the Plus ATM network used by Visa and others. The transaction cost is between US\$1 (BOB 7.7) and US\$2 (BOB 15) per transaction. Since BancoSol knows that its customer base cannot afford to pay such high ATM fees, it is absorbing the cost. This means that BancoSol pays US\$1-2 (BOB 8-15) every time a customer with an average balance of US\$500 (BOB 3,865) uses an ATM. Though the ATMs are attractive to its customers, the financial sustainability of the model is questionable.

In addition, BancoSol is in currently piloting a smart credit card. While full details have not been released, it is anticipated that the company's focus will be on using the smart card for electronic loan payments, not for savings account transactions, like PRODEM FFP's.²¹

²⁰ Portions of this section were taken from: Mosley, Paul. "Microfinance and Poverty: Bolivia Case Study."

²¹ BancoSol 2002 Annual Report

FIE

In 1985, the FIE Foundation was established as an NGO to provide credit and training for micro-entrepreneurs. In March 1998, it established a private financial fund to offer financial services to its clients. From its inception, it has provided microfinance products and services to low-income clients, typically those that had no previous access to formal sources of credit. At present, FIE offers services mainly to urban clients in major cities through a fully-integrated operation. FIE's outstanding loan portfolio as of December 2001 was US\$27,482,928 (BOB 212,443,033) with 23,173 active clients.

Caja Los Andes

The NGO Pro-Credito established Caja Los Andes as Bolivia's first private financial fund in July 1995, with the aim of offering financial services to its clients. It currently has over 43,500 clients and 24 branches in the departments of La Paz, Cochabamba, Santa Cruz, Chiquisaca, Tarija, and Beni. Caja Los Andes is currently PRODEM FFP's most important competitor in rural areas. In important rural communities such as Punata, near Cochabamba, PRODEM FFP and Los Andes branch offices are located next door to each other in the main plaza.

PARTNERS AND ALLIANCES

While PRODEM began as a joint partnership with ACCION International, since converting into a private financial fund PRODEM FFP has operated independently. It has focused on running its operation as a business and has not developed many partnerships or alliances with NGOs or other organizations.

PRODEM FFP has, however, developed a strong strategic alliance with Innova Empresarial, the technology firm that developed its smart savings account system and Smart ATM as well as many of its proprietary front- and back-office systems. Innova has an exclusive agreement with PRODEM FFP, such that Innova can sell the Smart ATM to banks in other countries but not in Bolivia. These terms have created a source of competitive advantage for PRODEM FFP.

PRODEM FFP is regulated by the Superintendent of Banks and Financial Institutions (SBEF), which sets guidelines for and oversees both banks and financial funds. Because it is so influential, it is in PRODEM FFP's best interest to maintain a positive relationship with the SBEF and ensure that it meets all regulations.

This relationship paid off when PRODEM FFP was able to persuade the SBEF to allow it to accept alternative forms of identification, such as birth certificates, to open savings accounts. This was critical since many of PRODEM FFP's rural customers do not have identification cards and the process of acquiring one is time-consuming and costly.²²

Finally, in order to maintain its image as the bank for the masses, PRODEM FFP partners with the government to provide services to low income Bolivians, serving as a conduit for payments under the PLANE and Bonosol programs discussed earlier.

²² Eduardo Bazoberry, *The Bolivian Experience of the PRODEM Private Financial Fund S.A.*

PAST CHALLENGES

PRODEM has faced a number of significant challenges over the years. First, in creating BancoSol, then in deciding to split from BancoSol and investing in a private financial fund, PRODEM had to start over in many ways. Although BancoSol was focused on urban areas and PRODEM FFP on rural, PRODEM knew that even though they had invested in both, they would eventually become competitors. The organization overcame this challenge with the help of a strong executive team and a solid board of trustees that had a commitment to technological innovation. PRODEM FFP continued to innovate and offer clients new products to meet their needs while BancoSol remained stagnant by comparison.

Policy and Regulatory Environment

FFPs must abide by a different and, in some cases, stricter set of rules than banks do. PRODEM FFP has met this challenge with quality systems and processes. In addition, all FFPs (and banks) must report bank transactions daily, and since its Smart ATMs are not online (they use dial-up) this was a challenge for PRODEM FFP. However, the company overcame this challenge with technical savvy (the smart card) and creativity (sending information on disk if the telephone system was down).

Infrastructure

Lack of telecommunications and road infrastructure has been problematic for PRODEM FFP as it has for other institutions that aim to serve the rural population. However, PRODEM FFP has managed to turn these challenges into a competitive advantage by developing solutions that meet rural customers' needs despite the lack of infrastructure.

Financing

Banks receive more favorable interest rates than FFPs do. As a result, PRODEM FFP has been at a disadvantage when competing with banks that target the bottom of the pyramid. The company overcomes this challenge by competing not on price but on service. It treats all its customers with respect and provides excellent customer service. In contrast, traditional banks tend not to treat low-income customers very well.

Managing Change

The biggest challenge for PRODEM was the transition from NGO to FFP. Becoming a for-profit entity forced PRODEM FFP to focus on the financial bottom line—which led it to invest in technologies that not only improved its efficiency and competitive advantage, but also served its social mission by allowing it to serve a greater number of poor borrowers. PRODEM FFP met this challenge by embracing the financial measures and goals of a traditional for-profit business. Both managers and employees understood that achieving financial targets would allow them to serve more customers and therefore help improve the quality of life of a greater number of low-income Bolivians. By implementing policies and incentive systems that were focused on long-term profitability, PRODEM FFP was able to successfully transition from an NGO to an FFP. This transition also involved rethinking the minimum loan amounts as well as the type of customers that PRODEM FFP would target. As a for-profit business, the company focused on generating profit from all of its activities, and as such, it moved away from competing with NGOs that lend very small amounts of money (US\$50 – US\$500) to customers, and focused on a slightly higher low-income customer base.

CURRENT CHALLENGES

While PRODEM FFP has already overcome a number of significant challenges in providing banking services to the masses, growth and success have brought additional challenges.

Remaining Focused

While PRODEM FFP continues to expand its range of products and services aimed at bottom-of-the-pyramid customers, it has also begun offering products and services to larger businesses and individuals at higher income levels. While diversifying its market base may have some positive effects, it also has the potential to divide the company's focus. This can already be seen at some urban branch offices, where managers struggle to meet both volume quotas and dollar amount quotas. It is easier to meet financial quotas with a smaller number of larger loans. However, that makes it difficult to bring in the number of new credit customers they need to meet their volume quotas at the same time. Often a branch will meet one goal but not the other. In some urban areas, loans to small and medium enterprises have reached PRODEM FFP's designated limit of 50% of total loans and now those branches must focus on increasing their micro-lending operations.

PRODEM FFP made the strategic decision to allocate more loans to small- and medium-sized enterprises since the micro-enterprises were over leveraged and their sales had dropped substantially. The company decided that the way to best serve low-income customers was through offering a package of savings products that would allow PRODEM FFP to lend to micro-customers at better rates than the competition. On credits below US\$7,000, PRODEM FFP's competitors charge an average 35% interest rate while PRODEM FFP lends the same amount at 19%. This difference in interest rates has a significant impact on consumers of small and micro loans. Another factor in PRODEM FFP's decision was the ability to better meet the needs of the full range of potential customers in rural areas. Offering diversified products to a broader economic spectrum allow PRODEM FFP to better serve customers at all income levels.

Resisting Moving to Higher Economic Markets

A related issue is the potential to move up market. Having transformed from an NGO into a private financial fund, PRODEM FFP could find it difficult to maintain its original mission of providing credit to the low-income population instead of functioning more like a traditional bank. While the company has not altered its mission, some branch offices have increasingly moved toward serving more medium-sized enterprise clients. Guarding against such a shift will require continued management vigilance, especially as PRODEM FFP has shifted its policy of promoting employees from within and has started hiring experienced bank personnel and has announced plans to transition from a private financial fund to a full-fledged bank.

Communication, Training, and Motivation

PRODEM FFP's extensive network of branch offices reaching even the most rural areas of Bolivia is one of the company's key strengths. However, this expansive coverage also makes it a challenge for PRODEM FFP to maintain effective communication among corporate, regional, and branch employees. Some branch-level employees express concern over a lack of adequate communication, training, and motivation from the corporate office as a result of increasing centralization of decision-making. Although corporate managers have many ideas and initiatives for training and motivation, branch managers and other employees seem mostly unaware of these initiatives. If PRODEM FFP is to continue to grow as planned, it will need to create effective two-way channels of communication among its employees at all levels.

Sales Effort

In view of the competitive market in Bolivia, PRODEM FFP needs to continue an aggressive sales effort. Some branch-level employees observe that their competitors generally have more employees per branch

and that competitor Banco de Los Andes, in particular, always has people out on the street promoting and selling the bank's products. Although this issue affects the loan side of PRODEM FFP much more than the savings side, it is important that PRODEM FFP remain strong in both areas in order to maintain its market position and profitability.

Expiration of Exclusive Technology Agreement

As previously mentioned, one of PRODEM FFP's key strengths is its use of innovative, appropriate technology, especially its Smart ATM and smart card technologies. PRODEM FFP has an exclusive agreement with Innova, whereby Innova cannot sell its Smart ATM technology to anyone else in Bolivia for two years. When this exclusive agreement expires, competitors may be able to implement the same technology as PRODEM FFP, possibly compromising its competitive advantage.

COMPETITIVE ADVANTAGE IN BOTTOM-OF-THE-PYRAMID MARKETS

PRODEM FFP has been very successful in providing top-quality service to its low-income customers at a profit. Its competitive advantage stems from three qualities:

- Continuous innovation
- Trust in the community
- Effective use of proprietary technology

Continuous Innovation

In its 16-year history, PRODEM has faced many challenges and transitioned into several different organizational forms. From the creation of a for-profit bank, to investing in a private financial fund, PRODEM has repeatedly demonstrated its agility and readiness to change to meet market demands. This same process of continuous innovation is evident in the company's product and service development. PRODEM is continually looking for innovative and profitable ways to meet its customers' needs. This led to the development of the smart card savings account and continues to inspire new innovations within the company, keeping it one step ahead of the competition.

Trust in the Community

PRODEM FFP's strong commitment to customer service has allowed the company to develop a strong reputation in its target market. This is especially important in the rural areas where PRODEM FFP predominantly operates, where the trust of the community is critical to an organization's success. PRODEM FFP employees from both the executive and branch levels consistently mention their commitment to top-quality customer service for all of their customers. In a country where traditional banks do not always treat low-income indigenous people with the same respect as their wealthier counterparts, this is a strong source of advantage for PRODEM FFP. One extreme example of PRODEM FFP's standing in the community comes from a recent period of social protest in the Altiplano, during which there was extensive looting in the community. Unlike many other businesses in the area, PRODEM FFP's branch offices were not damaged. Instead, the people of the community protected it against looting, recognizing that PRODEM FFP is an important part of the community.

Effective Use of Proprietary Technology

PRODEM FFP's use of technology is aimed at meeting its customers' needs and keeping costs low. PRODEM FFP has effectively harnessed the power of technology to overcome the challenges posed by the market, such as illiteracy and lack of infrastructure. By developing solutions to meet these social and business problems, the company has gained a competitive advantage. In addition, through its deployment of the smart card, fingerprint recognition, and Smart ATM solution, PRODEM FFP has developed a

structure that will allow it to continue to grow and expand its already broad network of branches. This is critical because the urban microfinance market in Bolivia is mature and saturated, so effectively capturing the rural market is increasingly important to success.

KEY LESSONS AND OPPORTUNITIES

PRODEM FFP has successfully broken a number of paradigms and assumptions about the market at the bottom of the economic pyramid. Looking at the low-income market objectively and logically, the company saw a vast opportunity that it has been able to tap. The PRODEM FFP case demonstrates a number of key lessons including:

- The same basic business principles that apply at the top of the economic pyramid apply at lower income levels as well;
- Neither quality nor profit needs to be sacrificed to serve low-income communities;
- Rural, low-income communities are both willing and capable of using high-tech services as long as they serve their needs.

PRODEM FFP has demonstrated that the same sound business approaches applied by firms targeting the top of the economic pyramid can be applied just as effectively at the bottom of the pyramid. For example, PRODEM FFP's marketing strategy follows conventional models: first, understand what customers need and what they can pay, then design a product that meets those needs at that price. By performing thorough market analysis before launching its new products and services, PRODEM FFP ensured that it was pursuing the right strategy.

By carefully considering its customer's needs, and with the help of modern technologies, PRODEM FFP was able to develop a custom solution that provides its customers with superior service at a lower cost than would have been possible using the standard solution. In this example, neither quality nor profit needed to be sacrificed in order to provide economic solutions to the low-income market.

The success of the Smart ATMs in combination with the fingerprint recognition also proves that the often-made assumption that rural low-income communities cannot or will not adopt new technologies is incorrect. Rural customers, like any other customers, want solutions to their problems. If a company is able to provide those customers with solutions that are easy to use, convenient, and secure, they will respond positively.

Enterprise Scalability

As with traditional banking, there is an economy of scale in micro-banking. Adding Smart ATMs means that PRODEM FFP can continue to grow its savings client base, increasing its access to low-cost capital that it can then lend out in the form of micro-loans. PRODEM FFP has also demonstrated that it can continue to grow by innovating and offering new services that meet the needs of its target market. The company is already working on a third-generation Smart ATM and other products to provide value for the micro-entrepreneur.

In addition, PRODEM FFP has begun to "follow" its customers as they move up the economic ladder, offering higher loan amounts and new products like leases and international money transfers. The features and benefits of the smart card savings account could also appeal to higher income customers, if PRODEM FFP offered a higher interest rate for a higher minimum deposit, for example.

Extension into New Geographic Markets

A key factor in PRODEM FFP's success in Bolivia has been its intimate understanding of the country's people, culture, politics, and policies. Its ability to staff its branches with local employees has been

integral in gaining the trust and acceptance of the community. That said, PRODEM FFP's model could be applied in other countries—but the same extensive participation and staffing of local people at all levels would almost certainly be required. PRODEM FFP is now considering expanding to other regions, potentially including Brazil or Mexico. Such a move would provide PRODEM FFP with the opportunity to test the replicability of its business model.

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APPENDIX 1: Photos



Interior of PRODEM FFP Branch Office



Exterior of PRODEM FFP Branch Office



PRODEM FFP's Smart ATM