Implications of telecommunications liberalisation for small and medium enterprises in Vanuatu

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This article examines implications of telecommunications liberalisation for the value chain of four archetypical small and medium enterprises in Vanuatu. Drawing on detailed interviews and household-level surveys, it demonstrates that the advent of competition is increasing access to telecommunications throughout Vanuatu, reducing the costs of doing business and expanding business opportunities. Furthering the benefits of telecommunications liberalisation, however, requires addressing issues of affordability, encouraging more elaborate uses of telephony and investing in complementary infrastructure.

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In response to global moves towards liberalisation and the rapid developments in telecommunications technology, the Government of Vanuatu ended its exclusive agreement with Telecom Vanuatu Limited (TVL), opened up the market for competition and, in December 2007, granted a second licence to the Caribbean-based company Digicel to provide mobile telecommunications. The argument for breaking the monopoly centred on promoting competition and separating out the regulatory powers from service provision. The anticipated end result was better network coverage and lower prices, together with other social and economic benefits for the population. Before the reforms to the telecommunications sector in 2007, mobile telephony was restricted largely to the urban centres of Port Vila and Luganville.

This article examines the implications of opening up the mobile telephony market for small and medium enterprises in Vanuatu.[1] In particular, we analyse the value chains of four enterprises in rural and urban Vanuatu and the role of telecommunications in addressing the bottlenecks faced by each enterprise.

The study demonstrates that product origin and the size and location of the business are the major factors that distinguish the information needs and constraints

faced by each enterprise. At the same time, businesses rely on efficient information and communication channels to assess the demand for, and secure the supply of, their products. Moreover, the advent of competition in Vanuatu in the telecommunications sector is affecting the value chains of small and medium enterprises by reducing the costs of doing business (incremental benefits) and expanding business opportunities (transformational benefits).

Future policies aimed at exploiting the benefits of telecommunications liberalisation for small and medium enterprises must be cognisant of issues of affordability, the role of telecommunications in patterns of information and communication and must promote more elaborate uses of telephony.

We first discuss the importance of focusing on telecommunications for small–medium enterprises in Vanuatu and outline the theoretical framework employed. Next, we analyse the differences in the value chains of the four enterprises selected for this study, the differences between and similarities in information and communication needs, patterns of access and use of telecommunications, and the implications of increased access for each enterprise. The conclusion discusses the major findings and makes recommendations based on successful lessons from exploiting the benefits of telecommunications for small and medium enterprises in other developing countries.

Context of the study

The Government of Vanuatu has prioritised the promotion of the private sector, including small agricultural and non-agricultural enterprises, as part of its national development strategy to enable sustainable growth and increase rural incomes (Government of Vanuatu 2006). The Prioritised Action Agenda outlines the need to create an environment in which economic opportunities can be generated as the core part of the national development strategy. Access to the necessary infrastructure and support services, including telecommunications, is a key part of this objective.

Grindle, Mann and Shipton (1989) and Mead (1999) provide useful definitions of small and medium enterprises in a developing country context such as Vanuatu. According to these authors, such enterprises can be categorised as 'survivalists', 'trundlers' or 'flyers'. Survivalists are enterprises run by those who have no choice but to take up an income-generating activity because they have no other source of livelihood. Trundlers are those for whom enterprise turnover is roughly static, the income provided is sufficient to meet basic needs and whose entrepreneurs show no great desire or capacity to expand. Flyers are enterprises run by true entrepreneurs who have taken up enterprise because they see opportunities for growth.

Small and medium enterprises have a critical social and developmental role to play in developing countries—they are crucial for the livelihood of many men and women. They might have limited macroeconomic benefits in terms of wealth creation, growth, innovation and exports. Nevertheless, small and medium enterprises provide economic flexibility by turning household income into local investment that might otherwise be lost in consumption; they also help individuals gain experience and confidence to enhance business development skills (Duncombe and Heeks 2002).

Lessons from other developing countries suggest information and communication asymmetries are among the prime causes of market failure and the resulting underdevelopment of small agricultural and non-agricultural enterprises. Improved access to telecommunications can reduce business and transaction costs, open new

market and distributional channels and overcome obstacles to accessing information about markets, prices and consumers (World Bank 2008).

The case studies reported here examine the value chains of four archetypical enterprises in Vanuatu (agricultural markets, kava bars, retail stores and handicrafts), map the information and communication channels used and assess the extent, role and importance of telecommunications (mobile and fixed line) for these enterprises.

Theoretical framework: value chain analysis and telecommunications

Value chain analysis explores the relationship between buyer and seller throughout the life cycle of products. Value chain analysis has been used as a development tool to promote growth for the poor, given that it can identify ways in which rural communities can be incorporated into the supply chains of goods sold for profit in the formal economy (Dolan, Humphrey and Harris-Pascal 1999).

The methodology for this case study builds on Kaplinsky's (2000) 'stages' of value chains and Schmitz's (2005) emphasis on understanding the context of value chains. Kaplinsky (2000) uses the value chain to map the sequence of activities required to make various products, including canned fruit and footwear. He argues that understanding the value chain, highlighting the key areas of weakness and strength, can assist businesses in improving their efficiency. He defines design, production and marketing as the major stages of the value chain. Kaplinsky's general analysis can be adapted to this research on the impact of telecommunications on business activities in Vanuatu. Understanding the role of telecommunications in each of Kaplinsky's stages and the importance of telephony in the production phase can provide an indication of the overall value of telecommunications in a product value chain.

Recognising the dynamic nature of value chains and the broader socio-political context in which any business activity is conducted in developing country contexts, Schmitz (2005) argues that value chain analysis should include three main features

- the impact of geography and distance
- the value-added aspect of each activity in the value chain
- the actors in the chain who have power over others and the basis of that power.

This framework necessitates a focus on the stages of the value chain outlined by Kaplinsky's model, the constraints faced in communicating and acquiring supplies from rural and urban areas in each of the stages and the identification of major actors and an assessment of their influence in the supply process.

This case study aims to

- understand the value chain and the processes by which goods are ordered, produced, transported and sold to the customer
- document channels of information and communication used by small enterprises in the value chain
- explore the socio-cultural context in which businesses function and the flows of information and communication in the value chain
- identify the extent, role and importance of telecommunications in each step of the value chain
- identify bottlenecks and other limiting factors to efficient communication and information flow
- understand business expectations of change in their use of telephony, particularly in the context of telecommunications liberalisation.

The case study draws on 13 in-depth interviews with those involved in the following small and medium enterprises in rural and urban Vanuatu—kava bars, handicrafts, retail stores and agricultural products in markets. Enterprises interviewed included three retail stores of varying sizes (Tanna); two handicraft sellers (Luganville and Port Vila); two kava bars (Luganville and Port Vila); and six '*mamas*' in the market (Luganville, Port Vila and Lenakel). *Mamas* are women selling fruits and vegetables in the markets. Luganville and Lenakel are the political and economic centres of the northern and southern provinces of Vanuatu, respectively.

The interviews were complemented by a household-level survey and surveys conducted in the agricultural markets of Tanna, Port Vila and Santo. The household survey covered 185 respondents, randomly selected from six locations and representing a cross-section of rural and urban Vanuatu. The focus of the survey was on how households exploited access to telephony and the impact of telephony use on livelihoods in rural and urban Vanuatu. It also included questions about the implications of access to telephony for small businesses, farmers and fishermen who together constituted the majority of enterprises participating in the survey. The surveys conducted of sellers in the agricultural markets of Port Vila, Lenakel and Luganville were undertaken to elicit information about the type of products sold and the patterns of use of telephony.

Differences in value chains across enterprises

Apart from the obvious differences in the nature of the goods sold, the value chains of the studied products differed considerably across the enterprises. These differences, in turn, have implications for the information needs, asymmetries and transaction costs faced by each enterprise in doing business. Three major sources of difference in the value chain relate to product origin, location and size.

There are considerable *product origin*-related differences across the enterprises—differences between the *mamas* and the small enterprises serve as examples. Most of the *mamas* interviewed in Port Vila, Luganville and Lenakel said they grew their own vegetables for sale in the markets. By comparison, the retail stores in Tanna sold consumer goods originating elsewhere.

The *location* of businesses has varying impacts on the supply chain of each enterprise. For instance, the kava bar owner interviewed in Santo said she received regular supplies of kava from farmers in Santo, whereas the bar owner in Port Vila had to depend on supplies from outer islands such as Tanna. Similarly, the handicraft retailer in Luganville said that the majority of her products were produced in Santo, whereas VKS Production, a handicraft shop in Port Vila, could depend little on artists living in Port Vila.

The *size* of the business also influenced the value chain such as through the number of suppliers, payments for goods and logistics. For instance, the owner of a small, rural retail store in Tanna depended on supplies sold at a wholesale price in bigger stores in Tanna. Transportation was organised from Lenakel to the store; the nature of goods sold depended on what was available in Lenakel; the sales price included a small mark-up over the wholesale price; and customers were often from the same village as the store. According to the owner of the shop, prices had to be kept low due to fierce competition from neighbouring retail stores.

In comparison, JK Naulaus, the biggest retail and wholesale store in Tanna, received supplies from a variety of stores in Port Vila at a discounted rate and arranged for the

goods to be delivered by ship and airfreight. As the largest and one of the few wholesale shops in Tanna, the store functioned as a 'price giver' and supplied to a diverse range of customers living in Lenakel and to small retail stores in other parts of Tanna.

Differences between and similarities in information and communication requirements

Differences in product origin, size and location mean that information needs for, and bottlenecks to, the efficient functioning of business vary considerably across enterprises.

Product origin

The information required for setting prices among the *mamas* selling in all three markets was significantly lower than for the retail stores in Tanna. The *mamas* mostly produced their own products for sale whereas retail stores were dependent on products from Port Vila. Differences in the origin of products between these two enterprises had an important role to play.

The interviews with women selling at the market revealed that their businesses functioned with little information required to determine what to sell, how much to sell and what prices to charge in comparison with retail stores in Tanna. Mapping the value chain of *mamas* revealed the following information was required for setting prices and determining the quantity of each of the agricultural products they sold at the market

Costs of production + costs of logistics + customer preferences + cost of selling at the market + number of other women selling the produce in the market + prices charged by other women selling the produce in the market.

(1)

There is little variation in any of the factors outlined above, meaning that the information required for doing business is low. The *mamas* produce the same products each year as long as the cost of production is manageable and there is demand for their produce in the market. Of all costs incurred, the highest are for logistics—mainly transportation to and from the market. The interviewees were, however, well versed with the cost per trip and sharing with other *mamas* versus coming alone. The cost of selling is a standard fee charged by the municipality or the committee of landowners in the case of the market in Lenakel, Tanna. Variations in prices occur primarily for seasonal products. Even then, many women sell these products during the season. Interviewees were charging for their product the 'going rate' which was the same as what every other *mama* was charging. *Mamas* react to changes to the 'going rate' by making adjustments to their prices once they arrive at the market and assess what prices other *mamas* are charging.

In comparison, the information needs and constraints that the retail stores in Tanna faced were considerable. The two retail shops ordering goods from Port Vila, for instance, required access to the following information to determine the unit cost of their product and ensure profitability of the enterprise

Customer preferences for products within Tanna + stocks in the shop + availability of stocks from suppliers in Port Vila + price of each product + transportation (to Tanna and from the shop to other parts of Tanna) + the price of each product sold by competitors in Tanna.

(2)

Furthermore, obtaining the required information was complicated by the number of products sold, the large number of sup-

pliers used, variations in prices and the number of shops selling similar products in Tanna. With regards to suppliers, for instance, JK Naulaus depends on two sets of suppliers— those who supply specialised products (for example, Port Vila Hardware supplies hardware) and those who supply general products (for example, both supermarkets in Port Vila supply eggs, among other goods). In particular, deciding what to order from the general suppliers depended on keeping track of prices of products on a regular basis.

In addition, prices of products changed regularly, largely due to external factors that were beyond the control of retailers in Tanna. For instance, even the owner of the small retail store in rural Tanna was affected by changes in world prices for rice and gasoline. The shop owner stated in the interview that gas and rice had been the major and most profitable products she sold for many years. She was, however, forced to stop selling them because prices for both had increased substantially and it was no longer profitable to continue selling them. Many of her customers were substituting rice with other food items.

The differences in product origin between *mamas* and retail stores in Tanna therefore played a considerable role in determining the information needs and constraints each enterprise faced. Most of the *mamas* interviewed (five of the six) were selling a small number of products they produced at prices and quantities that were fairly steady. Therefore, they did not face as many constraints as the retail stores in managing suppliers and coping with changes in supply costs.

Location

The location of suppliers also influenced the information needs and asymmetries faced. For instance, the Luganville kava bar owner interviewed said that she received a steady supply of good-quality and well-priced kava from farmers living in rural Santo. Every two weeks, two farmers would deliver the kava at an agreed price of 300 vatu a kilogram. The large volume of kava production in Santo had reduced the cost of kava. Furthermore, she had many kava supply options. The kava suppliers were reliable, but should she have any problems, other suppliers were readily accessible. Other kava farmers approached her on a regular basis.

In comparison, the kava bar owner interviewed in Port Vila said that securing steady supplies of kava was a constant problem. Because there were few suppliers in Efate, kava had to be ordered from the outer island of Tanna. The supply of kava therefore depended on unpredictable and inefficient inter-island shipping. The kava bar owners had to capitalise on factors other than kava (such as food, the location of the *nakamal* or kava bar and the reputation of 'Tanna' kava as distinct from kava from other islands) to attract customers on a regular basis.

Size

The information constraints faced by small enterprises were distinct from those faced by medium-sized ones. To illustrate, the handicraft business interviewed in Santo was supplied by a number of artists who approached the shop to sell their products. This meant that while costs of transportation and finding information about suppliers were minimal, the diversity of the products available for sale was low.

In comparison, VKS Production, the handicraft business interviewed in Port Vila, operated out of the Cultural Centre. The idea behind the business was to sell a wide selection of locally made handicrafts, including replicas of those on display in the Cultural Centre. This, however, required depending on many field workers who acted as part-time intermediaries, negotiating the quantity

and quality of products at a distance, and unpredictable shipping times.

Notwithstanding these differences in size, location and product origin, the functioning and efficiency of each of these enterprises relied on a steady flow of information and communication channels in various stages of the value chain. Kava bar owners, women selling at the market and handicraft businesses need to communicate with suppliers, clients, transport agencies and others on a regular basis.

Patterns of access to and use of information and telecommunications

Patterns of use of telephony included questions relating to the use of various types of telephony, use of telephony versus other means of accessing information, the purpose of telephony use, perceptions of service provision, expectations and reasons for non-use.

The findings from the Pacific Institute of Public Policy (PiPP) research project established that since the advent of competition in the telecommunications sector, there had been increasing access to, and use of, mobile telephony throughout the areas covered by the survey (PiPP forthcoming). Mobile telephony is becoming the preferred mode of gaining information and communicating. Respondents are substituting mobile telephony for public and private fixed-line telephony. Patronage of TVL, the public provider, is concentrated in urban areas, whereas rural mobile phone users tend to use Digicel. Individuals were most likely to use mobile telephony for communicating with friends and family, for emergencies and for business purposes. Lack of affordability is the major reason for non-use.

The majority of the entrepreneurs interviewed for the case study were using mobile telephony. To illustrate, a survey of 88 individuals selling at the agricultural market in Port Vila was conducted to find out the following information

- the major product sold by each respondent
- whether or not he/she was using a phone
- if using a phone, which type of phone
- if using a mobile phone, which service provider
- if using a mobile phone, when did he/she first acquire a mobile phone.

The survey revealed that 75 per cent of women and men selling at the market were using telephony, of which 13 per cent were using public telephony and 62 per cent were using mobile telephony. This suggests a substantial number of those selling at the market in Port Vila are using mobile telephony. Furthermore, of those using mobile telephony, 90 per cent were using Digicel and 10 per cent were using TVL. The TVL mobile phones were acquired between 2006 and 2008, whereas all the Digicel phones were bought within weeks of Digicel's launch in the Port Vila market (July 2008). A similar survey conducted in the market in Luganville yielded comparable results. These findings indicate the positive impact of the second service provider on access to and use of mobile telephony (PiPP forthcoming).

Eleven of the 13 entrepreneurs who participated in the semi-structured interviews were using telephony for business purposes. Nine were using mobile telephony while two were using a combination of mobile and fixed-line telephony. All of these interviewees said they preferred mobile telephony to private and public fixed lines—mobile telephony was more accessible, portable and reliable and had wider network coverage.

The interviewees used telephony for various purposes, depending on the nature of their business and perceptions of their information and communication requirements. For example, the women selling at the agricultural markets of Luganville and Port Vila were using mobile telephony mostly for arranging transportation to and from the market. In comparison, the kava bar owner in Port Vila used mobile telephony for wider purposes, including arranging transportation, contacting middlemen to liaise with kava farmers and replenishing kava stocks. Notwithstanding these differences, all of these interviewees were using mobile telephony to increase the efficiency of their businesses.

Interviewees who participated in the semi-structured interviews were also asked to evaluate how their use of telephony had impacted on the information and communication channels used before their access to mobile telephony. The major information and communication channels they used before mobile telephony were face-to-face, passing oral messages through others, written instructions/letters and public and private fixed phones. Use of most of these communication channels had decreased significantly since the liberalisation of the telecommunications sector and increased access to telephony in Port Vila and the outer islands. This is also consistent with the research findings from the household survey.

Nevertheless, all of the interviewees agreed that telephony was a complement to but not a substitute for face-to-face communication. The informal nature of business activity in Vanuatu means that much depends on existing relationships and established patterns of behaviour that cannot be supplanted by new forms of technology and communication. For example, the manager of JK Naulaus emphasised that the business thrived because of the strong networks secured over the years with the major Port Vila-based suppliers. Much of everyday business transactions rely on telephone (from ordering stocks and arranging transportation from Port Vila to supplying retail stores around Tanna). The manager, however, had to make regular, personal visits to Port Vila to maintain good business relationships with his suppliers.

On a much smaller scale, the kava bar owner interviewed in Port Vila importing kava from the island of Tanna and one of the women importing peanuts from the island of Epi to sell at the Port Vila vegetable market depended on family networks to liaise with farmers and ensure regular supplies.

Only two of 13 who participated in the semi-structured interviews were not using telephony for business purposes. Furthermore, a survey of women selling at the market revealed that only a few women had access to mobile telephony. Most were using public telephones for communicating with friends and family members living on other islands and not for business purposes.

The women interviewees in Tanna cited the lack of affordability as the primary reason for non-use of mobile telephony. The two women reported that, on average, they earned vt3–4,500 for each trip to the market. Much of this income was spent on transportation costs to and from the market and school fees for their children. Although they expected mobile telephony would be beneficial for their businesses, expenditure on mobile telephony would presently be an unbearable financial burden on them and their families (Box 1).

The women interviewees selling at the market in Luganville and Port Vila were earning significantly more than those in Tanna. They suggested that their expenditure on telephony reduced other costs (for example, travelling costs) and increased total revenue. The women in Luganville reported average earnings of vt10–15,000 a trip to the market while those in Port Vila

earned vt18–20,000. The transportation costs (the highest overall cost for all six women interviewees) were comparable with those paid by women in Tanna.

The comparison between women selling at the market in Tanna and those in Luganville and Port Vila suggests that the greater the purchasing power, the more likely will be the possibility of entering the mobile telecommunications market as consumers.

Impact of telephony on small and medium enterprises

The interviewees who participated in the semi-structured interviews were asked to evaluate the impact (or the expected impact) of mobile telephony on their businesses.

The responses suggest that telecommunications liberalisation and the increased access to telecommunications are having 'incremental' and 'transformational' benefits on small and medium enterprises. Incremental benefits refer to reductions in the costs of doing business and transformational benefits refer to expanding business opportunities.

All of the interviewees agreed mobile telephony was reducing and/or was expected to reduce the transactions costs of doing business. For instance, the six women selling agricultural products said that arranging transportation was their highest overall cost. Access to mobile telephony allows them to contact drivers more easily and reduce both the direct (travelling costs) and indirect (savings of time) costs of doing business. Similarly, the kava bar owners depending on supplies of kava roots from outer islands stated that access to telephony had improved communications with kava suppliers, intermediaries and shipping agents. The impact of mobile telephony on two different businesses was measured (Box 2).

Box 1 **Lack of affordability as a deterrent to mobile use**

Rosina has been coming to the market in Lenakel once a month to sell taro, kava, island cabbage and other seasonal vegetables for the past 10 years. She earns approximately vt3–4,000 a trip. Her net income is spent on school fees for her three children.

She would come to the market more often if she were able to increase the quantity of products she sold and could reduce transportation costs. She pays vt1–2,000 for a return trip to the market, depending on the number of other passengers in the taxi. There are no taxi drivers in her village and she cannot pre-arrange transport. She and her husband have to wait by the road for a taxi. The amount she brings to sell at the market depends on how much she and her husband can carry. Sometimes she cannot find a taxi and has to return home with all her products unsold.

She expects mobile telephony to reduce the direct and indirect costs of doing business. She can use a mobile phone to arrange a taxi pick-up at her house. In this way, she will be able to come to the market more often and bring more products to sell.

With such a low budget, however, she feels that she cannot afford the cost of using a mobile phone. Acquiring a mobile phone is not a constraint for her. She can request relatives living in Port Vila to send her an old mobile phone. She finds the high cost per call and the extra burden of having to pay for charging her mobile phone the major deterrents to mobile phone use. There is no electricity in her village and she would have to pay a vt200 fee per charge.

Box 2 **Incremental benefits of telecommunications**

Valma owns one of the more successful kava bars in Luganville. Her business depends critically on the kava not running out. On average, she sells 30–50kg of kava every day. She finds, however, that her customers can drink more than expected during holidays and on paydays.

Two kava farmers from the neighbouring village of Fanafoa supply her with Kava at an agreed price of vt300/kg. When she started the business, she had to rely on pre-agreed quantity and delivery times with kava suppliers. With the farmers having access to telephony, however, she can order more kava any time she suspects it will run out. She finds having access to suppliers through mobile phone has helped build the reputation of her business and maintain a strong customer base.

Leah sells island cabbage and peanuts in the Port Vila market every Saturday. She specialises in peanuts because it is one of the more profitable products; there is a limited supply of peanuts on Efate, peanut sellers are few and she has been able to secure a steady supply from peanut farmers on the island of Epi.

She is originally from Epi and pays vt500 a month to a family member on the island to facilitate business between her and the peanut farmers. She has been using a TVL mobile phone for the past two years, mainly to call her relative/manger in Epi and to check shipment arrival times at the wharf in Port Vila. She has, however, been experiencing more business-enhancing changes with Digicel and the widespread network coverage it has introduced in outer islands such as Epi.

She no longer has to call a public phone in Epi and hope that the message passes to her relative/manager in time. She can even call a ship crew and check on the location of the ship carrying her supplies and make sure her journey to the wharf is not wasted.

Box 3 **Transformational benefits**

VKS Production is a business housed in and owned by the Vanuatu Cultural Centre. It sells locally made handicrafts and other souvenirs in Port Vila. It tries to provide a variety of products from different parts of the country, but it has to depend on the benevolence of field workers and volunteers who help liaise with local artists on its behalf in many different islands.

Its access to remote areas (such as the Banks and Torres groups of islands) has been restricted. Since telecommunications market liberalisation and the advent of a second mobile service provider, VKS Production has been receiving direct calls from local artists in places as remote as Gaua (in the Banks Group) to sell handicrafts—products that have rarely been sold in Port Vila before now.

Along with incremental benefits, interviewees also pointed to the transformational benefits of telecommunications. The example from VKS Production is illustrative (Box 3).

As part of the household survey, respondents who reported they had their own businesses and had access to telephony (approximately 37 per cent of the 185 respondents) were asked to evaluate the impact of telephony use (mobile and fixed line) on business-related indicators (Table 1).

As Table 1 illustrates, responses were mostly between 'no influence' and 'little influence' (0–1.4). Respondents reported use of telephony had little influence on 'help with transport', but had no influence on 'new clients', 'better market prices', 'costs' and 'sales'.

There were, however, significant differences in responses between rural and urban respondents. Rural respondents thought telephony had helped with transport but had no influence on the other indicators. In

Table 1 **Implications of telecommunications use for small and medium enterprises**

	New clients	Better prices at market	Lower costs	More sales	Help with transport
Isini	0.8	0.8	0.8	0.8	1.5
Middle Bush	0.5	0.5	0.4	0.5	1.5
Port Olry	2.0	2.1	1.7	1.7	1.4
Rural	0.8	0.8	0.6	0.7	1.5
Blaksans	2.5	1.8	1.8	1.8	1.4
Freswota 1	1.9	1.4	1.4	1.5	1.4
Chapuis	2.2	1.8	2.0	2.0	1.5
Urban	2.1	1.6	1.7	1.7	1.4
Female	1.1	1.1	0.9	1.1	1.5
Male	1.2	0.9	0.9	0.9	1.4
Total	1.1	1.0	0.9	1.0	1.4

Note: Responses were recorded between ranges of zero and three (0 = no influence, 1 = not applicable, 2 = influence and 3 = large influence).
Source: Authors' calculations

comparison, urban interviewees thought that telephony had helped with finding new clients, lowering costs, increasing sales, getting better prices and organising transport. Urban respondents ranked 'help with transport' the lowest of influences (1.4). This suggests urban respondents were more likely to point to the 'transformational' benefits of telephony use while rural respondents emphasised the 'incremental' benefits.

Such differences in responses between rural and urban respondents can be explained, to a large extent, by differences in experiences with telephony use. In comparison with rural respondents, urban users are more likely to employ telephony for business purposes and are more able to evaluate the impact of telephony on business indicators.

In addition to experiences with telephony use and their impact thus far, those who participated in the semi-structured interviews were asked if and how they expected mobile telephony to impact on their businesses in the future. The women selling at the market in Luganville and Port Vila, for example, said they expected customers to order vegetables directly from them. In this way, they would be able to establish business niches and increase the profitability of their enterprises.

A comparison between rural and urban respondents therefore suggests that, with experience, users will generate wider uses for telephony for business purposes. Nevertheless, lessons from other developing countries suggest the government, civil society organisations and development agencies can integrate telecommunications into existing rural and urban development programs (Boxes 4 and 5). In particular, in many African and South Asian contexts, telecommunications has been employed as a medium for disseminating information and knowledge to small and medium business enterprises. In Vanuatu, this remains an underdeveloped area of development assistance.

To give an illustration, as part of the household survey, respondents who reported

Table 2 **Implications of telecommunications for farmers and fishermen**

	Garden information	Tide information	Livestock information	New product information	Contacting extension workers	Legal rights information
Isini	0.0	0.0	0.0	0.0	0.0	0.0
Middle Bush	0.1	0.1	0.1	0.2	0.0	0.1
Port Olry	1.6	1.6	1.9	1.8	2.0	1.6
Rural	0.7	0.7	0.8	0.8	0.8	0.7
Chapuis	0.0	0.0	0.0	0.0	0.0	0.0
Urban	0.0	0.0	0.0	0.0	0.0	0.0
Female	1.0	1.0	0.9	1.0	0.8	0.7
Male	0.3	0.3	0.5	0.5	0.6	0.5
Total	0.6	0.6	0.7	0.7	0.7	0.6

Note: Responses were recorded on a scale of zero to three (0 = no influence, 1 = not applicable, 2 = influence and 3 = large influence).
Source: Authors' calculations

that they were farmers or fishermen and had access to telephony (approximately 26 per cent of the 185 respondents) were asked a set of questions to find out if they were using telephony to increase their knowledge of crop and livestock management, gain information about tides and new products, contact extension workers or increase awareness of their legal rights (Table 2). The objective of these questions was not only to evaluate the impact of telephony on 'human capital' but to find out if telephony was being used as a medium to promote agriculture and fishery.

Respondents in Port Olry reported that the impacts of telephony were positive, with responses ranging between 'little influence' and 'influence'. The significance of these responses requires further research. Otherwise, the responses ranged between 'no influence' and 'not applicable' (0.6–0.7). There was little difference in response between urban and rural respondents. In fact, most of the respondents perceived these questions as not even applicable to them.

Conclusions and recommendations

The case study has demonstrated that the advent of competition in the telecommunications market and the subsequent increase in access to mobile telecommunications are inducing incremental and transformational changes on small and medium enterprises. Nevertheless, the lack of affordability, the limited productive uses of telecommunications and the lack of complementary infrastructure remain key concerns for the further exploitation of the benefits of a liberalised telecommunications sector.

Affordability

Many might perceive that the phenomenal spread of mobile phone use since the liberalisation of the sector means affordability is no longer an issue. In a recent and influential report, however, Milne (2006) has argued that affordability remains a key concern in developing countries where the direct and indirect costs of accessing telecommunications prevent people from

Box 4 Examples of partnerships to address affordability

The Government of South Africa recognises affordability as a core of its Universal Service Policy. In partnership with telecommunications service providers, it has categorised users into five generic categories and identified those who require a subsidy and those who do not. It has committed the use of 0.16 per cent of its contribution to the Universal Service Fund to provide the subsidy (Milne 2006).

South Africa has also experimented with a wide range of 'access points' to make mobile telephony more accessible and affordable to a wide range of income groups. Department for International Development (DFID)-commissioned studies in rural and urban South Africa find low-income groups combine cheap container phone outlets in urban areas or commercial phones in rural areas with more expensive mobile phones. Individuals often make calls from commercial phone points and receive calls from mobile phones. In rural areas, individuals are willing to walk a distance of between 30 minutes and one hour to the nearest public access point to make small but significant savings on their phone calls (Skuse and Cousins 2007, 2008).

In Gambia, one service provider, Africell, is working in collaboration with a local non-governmental organisation to roll out more than 1,000 telecentres throughout the country. The telecentres will be operated by unemployed youth, who will receive 10 per cent of the income earned (Milne 2006).

Two telecommunication companies in Egypt, Mobikom-Kavkaz and Mobinil, are pioneering the concept of 'variable call tariffs' by area. Many rural and low-income areas are charged 'local call rates' that are substantially lower than those charged in urban areas and to higher-income groups (Milne 2006).

The Grameen Bank, a village-based microfinance organisation in Bangladesh, has been leasing cellular phones to successful female members to operate as village pay phones. Women supplying the phones have gained a source of steady income, while villagers buying these services have profited from more effective communication in their everyday lives and during times of emergency and natural disasters (Bayes 2001).

Box 5 Exploiting the potential of telecommunications

According to research conducted by the Centre for Knowledge and Society and Nokia, small business owners in rural areas in developing countries often have to travel significant distances to markets or other places to distribute their goods and cannot make arrangements in advance with other buyers. Access to mobile phones can significantly change the logistical constraints faced by rural traders and home entrepreneurs by allowing for telephone-based ordering systems, delivery requests and the ability to make more reliable and advance arrangements with business partners or clients.

The Morarka Foundation Project in Rajasthan, India, is using mobile telephone services to advise farmers participating in the project about crop and livestock management, provide instant help at unexpected times and send alerts about public health issues.

Source: Adapted from Sinha, N. and Sinha, R.K., 2007. *Mobile Telecommunications and Development: the role of public–private partnership*, University School of Management Studies and GGSIP University of Delhi, Delhi.

owning a mobile or allow them to use it only in emergencies; and discourages people from making as many calls as they need to, even if they own or have access to a mobile phone. The findings of this research project suggest that both of these factors inhibit access to and use of mobile telephony in Vanuatu.

Milne (2006) suggests that lack of affordability in telecommunications can be addressed through private sector initiatives and public–private partnerships. The telecommunications companies in Vanuatu have introduced commendable marketing strategies to increase the affordability of mobile telecommunications while maintaining profitability. Low-priced handsets, reductions in the cost of SIM cards, lower tariff rates, per-second billing and over-the-air recharge services are some of the strategies that are being promoted. For example, per-second billing reduces the risk of being charged a full minute's charge for speaking a little too long. Over-the-air recharges enable people with low cash balances to fit their spending more precisely to their income and allow individuals to add credit to a prepaid account remotely.

Notwithstanding the importance of such initiatives by the private sector provider, lessons from other developing countries suggest governments, civil society organisations and development agencies can play a collective role in mitigating the issue of affordability. There are some examples of successful partnerships taking place in other developing countries (Box 4).

Elaborate uses of telephony for enterprise development

This case study has demonstrated that greater access to telecommunications is reducing business transaction costs and expanding opportunities. Nevertheless, entrepreneurs are rarely experimenting with more elaborate uses of telephony to exploit the potential of telephony for enterprise promotion. There are ways in which governments and their partners in development can employ mobile telecommunications as an innovative platform to target enterprises (Boxes 4 and 5).

The examples in Boxes 4 and 5 could serve as important lessons for targeting enterprises in Vanuatu and exploiting the benefits of telecommunications. For instance, one or a combination of the differential pricing mechanisms outlined in Box 4 could be adopted in Vanuatu to target entrepreneurs who are currently unable to afford the costs of telecommunications services. As highlighted in Box 5, government departments, development agencies and other service providers could use telecommunications to either disseminate up-to-date information to existing entrepreneurs and/or help create new business opportunities for others. The extent to which these options are viable for Vanuatu, however, requires careful deliberation by governments, development agencies, civil society and service providers.

Complementary infrastructure

This research project on the social and economic impact of telecommunications liberalisation in Vanuatu has demonstrated that telecommunications can contribute significantly to promoting small and medium enterprises. Achieving this objective, however, necessitates complementary infrastructure such as efficient inter-island shipping networks and roads for transporting goods to the market, as well as regular access to electricity for charging and maintaining access to mobile telephony.

While Vanuatu has made significant improvements in access to telecommunications through the liberalisation of the sector, the availability and performance of complementary infrastructure are often

dismal (AusAID 2008). Lack of access to electricity and inefficient inter-island shipping increase the cost of doing business and reduce the profitability of small and medium enterprises. Exploitation of the positive impacts of telecommunications liberalisation will require investments in such complementary infrastructure.

Note

[1] PiPP has recently undertaken a comprehensive study of the social and economic impacts of introducing telecommunications throughout Vanuatu. The research project focused on the impact of telecommunications on: household livelihoods, gender dynamics, small and medium enterprises, and rural and urban linkages (PiPP forthcoming). AusAID funded the study through its Governance for Growth Program, at the request of the Vanuatu Ministry of Infrastructure and Public Works. This article summarises the research design and findings of one of the case studies from the PiPP research project and focuses on the implications of telecommunication liberalisation for small and medium enterprises.

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