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Final Report

TELECOMMUNICATIONS IN VIETNAM: An Opportunities Assessment

A Multiclient Study

Prepared by:
Intercedent Asia (Pte) Ltd
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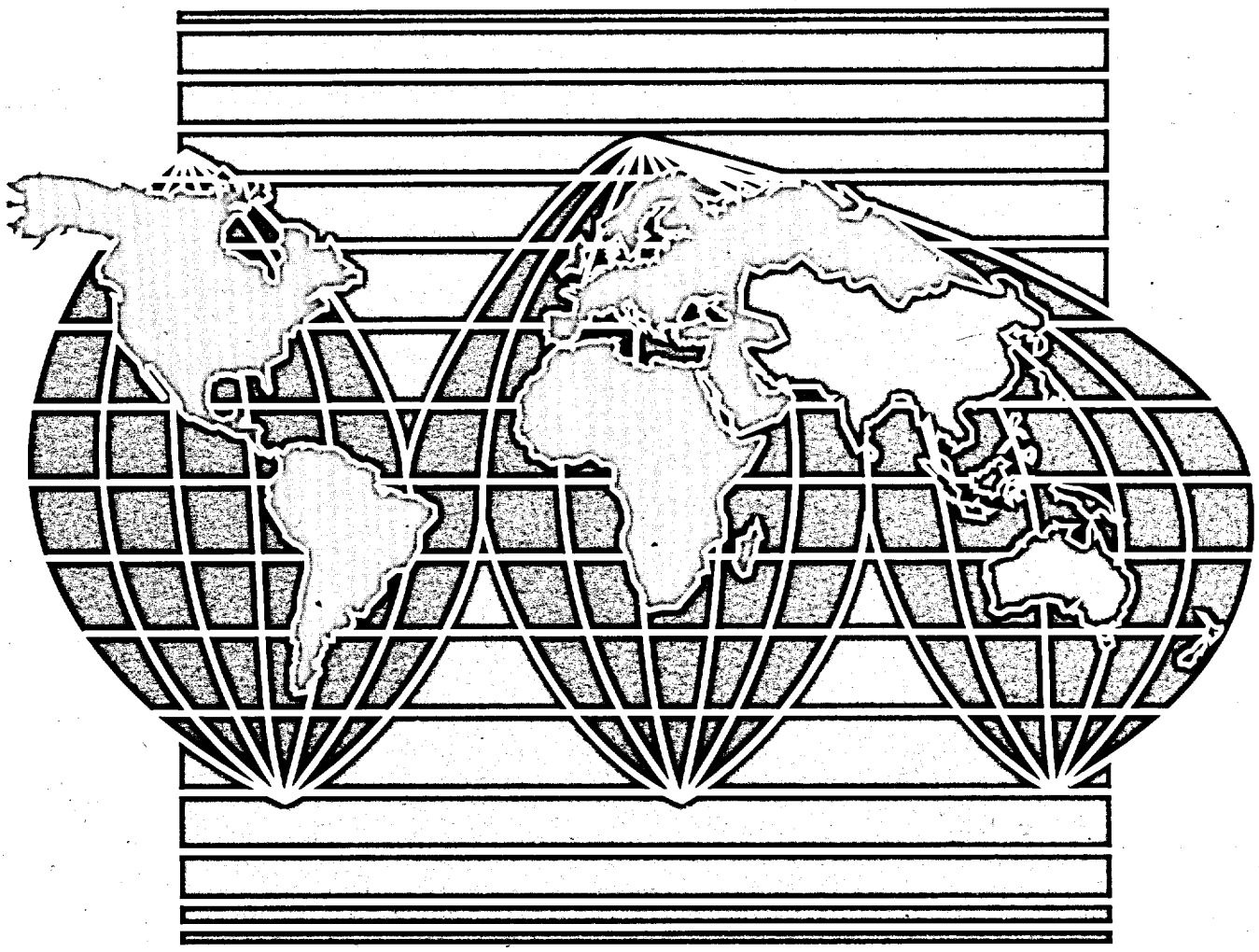

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1.1 Telecommunications in Vietnam: Banking, Oil and Mining Perpectives

Vertical Market Growth as Commitment to the Market Increases

Telecommunications is the backbone of the *banking industry* in Vietnam; without connections to domestic clients and overseas branches, the banks are simply unable to function. That being said, banks in Vietnam have been able to conduct their business without much of the sophisticated services and equipment available elswhere in Asia. A frontier mentality is in place in Vietnam, and the current volume of business is low, so banking institutions do without leased lines or database services.

The basic infrastructure is in place, and a number of stop-gap measures are undertaken to overcome deficiencies in service or cut down on costs - faxes arrive from bank headquarters in Singapore daily with foreign exchange rates in lieu of subscriptions to electronic financial information, companies will compile correspondences and send them via courier to save on IDD faxes.

Despite the high operating costs and the level of business, most banks in Vietnam are bullish, and expect to increase expenditures on office space, personnell - and communications equipment and services. Most of the banks with only representive offices interviewed also plan to start full branches, involving a significant upscaling of premises and facilities over the next two years.

The *oil companies*, by contrast, have more immediate communications needs, particularly for secure dedicated links and mobile systems. The acqusition of such systems has been hampered by lengthy licensing proceedures and the time-consuming process of system selection and acquisition overseas.

Petroleum exploration and service companies enjoy favored status as they work under the auspices of the state oil company, PetroVietnam, which does give them an easier time applying for lines and dedicated network systems than the average company. Data communications are more vital: here the low quality of public lines and the high cost of leased circuits and packetswitched services is a major obstacle.

Reliable ship - to - shore transmission infrastructure is a key demand. Currently, much offshore traffic is routed through INMARSAT circuits or dedicated satellite dishes, but the service is extremely expensive and increasingly hard to get approval from the government.

Vietnam's *coal and heavy and precious minerals sector*, with vast untapped potential and a significantly lower level of foreign participation than the oil community, is even further out of the loop. While banks have the luxury of operating out of Vietnam's nominal communications hubs, and foreign oil companies have the budgets, knowledge and the influence to acquire and ultilize dedicated equipment, mining organizations are remotely located, and have precious little capital or expertise.

Manually-serviced phone lines and outmoded military-issue radio sets form the meager heart of mining communications. While operations are in general not sophisticated enough to utilize data communications, they are in desperate need of failsafe phone lines and mobile facilities.

The hard currency to acquire network infrastructure is also a crucial issue. Exports of coal are rising, and the state coal industry's four producing companies all employ a single corporation which is responsible not only for handling the export of Vietnam's high quality anthracite coal, but also for acquiring foreign materials and equipment with the profits. This provides potential communications equipment manufacturers with a one-stop introduction point to Vietnam's coal industry.

Foreign mining interests, initially put off by the low level of development and the lack of comprehensive mining regulatory legislation, are beginning to enter Vietnam. The first entrants are primarily Australian, and their nationality has been reflected in their radio and other wireless equipment selections. In a few cases, foriegn joint venture mines are beginning to work with provincial P&Ts to sponsor the installation of enhanced facilities, such as PBXs for central exchanges and mobile systems. The P&Ts are welcoming the chance to exploit these relationships, to gain desperatedly sought after capital to expand services, and are smoothing the regulatory path for mining companies.

What is Needed

Office Equipment

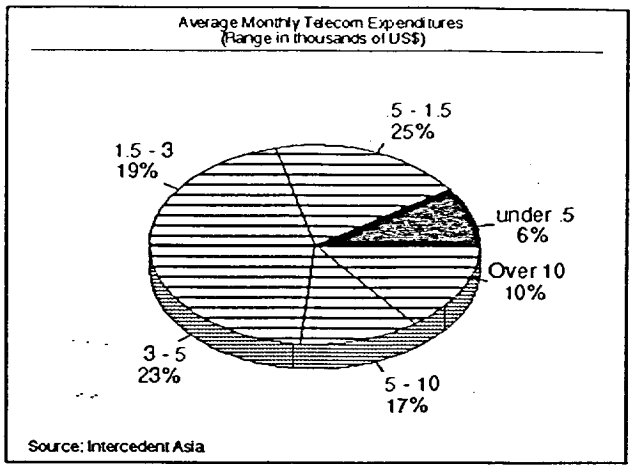
Most respondents in Hanoi and Ho Chi Minh City were by and large satisfied with the PBX, KTS and other business communications systems they had on their premises. The Vung Tau respondents were on average dissatisfied with the equipment they had, complaining that systems were old and faulty. However, the limited selection imposed upon them was a major sticking point with respondents in all cities and market segments - 20% felt that the P&T provided little or no model or brand options when they sold a system, and in many cases provided the end user with "mix-and-match" systems, using one PBX CPU with another supplier's handsets. Aftersales support and the level of technical familiarity, even with the models distributed, is felt to be very inadequate.

Over the past four years, the Vietnamese government has established fairly liberal concessions for new foreign investors, particularly those setting up representative offices. Among those was the duty-free import of basic office automation equipment, including phone systems and faxes. Now, these concessions seem to be evaporating and import duties loom overhead, leaving the foreign rep office or branch fewer brand selection options.

In Vietnam, regulations on equipment distribution and installation are fuzzy. What it clear is that the only fully developed distribution channels are through subsidiaries of the provincial P&Ts. As a result, end users are steered toward the P&T if they wish to purchase locally, and are often told which system they will purchase - no substitutions allowed. Another compelling reason to stick to purchasing systems through the "post office" is often the refusal of the P&T to repair and maintain PBX and KTS systems sourced elsewhere (many stories abound of the P&T even refusing to connect CO lines to non-P&T-supplied systems). The P&Ts have yet to sign exclusive distribution agreements with business systems manufacturers; the product variety is only resticted by the number of models that foreign suppliers have shipped to them.

Panasonic, Goldstar, Alcatel and Siemens all enjoy prominent places in the small but burgeoning BCS market thanks to their early cultivation of relationships with the P&T. There is certainly room for additional suppliers, and, judging by the poor level of satisfaction with the P&T systems distributors, room to introduce technical training in the areas of installation, system integration, after sales support and marketing to the carrier.

Cost Effective Services



Less than 5% of respondents interviewed spend less than US$1,000 per month on monthly phone bills. The average monthly phone bill for respondents in the banking community (both representative offices and full branches) was over US$3,100 per month, and over 36% of companies in oil and gas-related industries had monthly telecom service charges in excess of US$10,000 per month, with one respondent averaging US$75,000 per month.

While monthly domestic service charges are nominal, and local calls are free, international calls average US$ 2-4 per minute, and Vietnam has no off-peak or discount rates. With the information-intensive nature of these vertical markets, international connectivity is of premier importance, but the prohibitive costs of service are causing companies to adjust budgets and restrict access to IDD lines. Their fate is accepted, reluctantly, because there are no reliable and cost effective alternatives.

The oil industry relies on INMARSAT for ship to shore communications and the occasional international phone call, but the service is no cheaper than DGPT rates. The average is US$4 per minute for a single satellite-hop call, and, as is often the case with calls originating from Ho Chi Minh, up to US$10 per minute if it is a double-hop call. Most respondents with INMARSAT service estimated that monthly charges made up 10% to 15% of their total telecoms services fees when not in operation, and significantly higher when drilling.

Only two respondents in the oil community and one in the banking community had access to or were about to access an international leased circuit. While most respondents had a single primary regional headquarters in Asia (usually in Singapore; 60% of respondents in the banking and oil communities pointed to Singapore as the top destination for IDD calls), the volume of dedicated traffic was usually insufficient to warrant a dedicated trunk at the tarrifs charged by Vietnam Telecom International (VTI).

The cost of services does not appear to inhibit companies' operations -- only 11% of banking community respondents refered to it as a restriction to their business (Q6a), and less than 10% of all respondents mentioned cheaper service as critical but unattainable (Q4f) -- primarily because the respondents saw no alternatives.

It is taken for granted that having a presence in Vietnam requires heavy expenditure on such overheads as office space and communications. It is also accepted that the DGPT and Telstra have to recoup their investments from building up the international platform and plow revenue back into the insufficient domestic network. However, telecommunications costs still concern end users: "Telecommunications is my second largest operating cost - me being the largest," comments one of the banking representatives interviewed.

Q6a. Restrictions to Telecommunications operations

Restrictions Encountered	Percentage of Total Respondents
None	12%
Difficulties in Getting Licenses, Approval	26%
Selection/Variety of Equipment	22%
Poor Maintenance and Aftersales Service	20%
Poor Line Transmission Quality	18%
Service Costs	16%
Communications Not Secure/Equipment Bugged	14%
Importing Equipment is too Restrictive	12%
Equipment Costs	10%
Hard to Get Approval for INMARSAT	6%
Inter-P&T Competition for Service Customers	6%
Restrictions on Int'l VAS too Prohibitive	6%
Long Waiting List	2%
Corruption	2%

Source: Interecedent Asia

Data Communications

Simply put, if data services were reliable and affordable, more companies would seek them out. Packet switched services offered by Vietnam Data Corporation (VDC) and VTI are regarded as suspect. They are relatively new offerings, largely untested and not aggressively marketed. Moreover, given respondents' experiences with using public lines for data transfer, the quality of the service is not believed to be sufficient. Granted, the banking community gets by without data facilities, and most banks that do rely on data transfer find basic modems sufficient. However, increased reliance on data is planned in the short term as all vertical segments ramp up their activities.

Number of data channels in use: Total Respondents

		1.2Kb/s	2.4 Kb/s	9.6Kb/s	X.25
Dial-Up Circuits	Domestic	2	3	1	1
	International	1	4	2	1
Dedicated Circuits	Domestic	-	1	-	-
	International	-	2	2	-

Source: Intercedent Asia

Mobile Services

Various Ministerial level sources have indicated that a new era of service rationalization is dawning in Vietnam. The healthy take-up of cellular, trunked radio and paging services in Ho Chi Minh City - largely from members of the oil community and other foreign businesspeople - has sent clear signals to the top, and the DGPT does not want to continue to provide such a valued service through a patchwork array of Business Cooperation Contracts.

The DGPT and its national service operator, Vietnam Posts and Telecommunications (VNPT), have created a subsidiary to develop national cellular mobile service, attempting to supplant the operations that have developed on a provincial level in Ho Chi Minh. However, not much has taken place since this new, centralized thinking has come in place: the digital cellular networks of Ho Chi Minh and Hanoi are not up yet, and complete coverage of the vital commuting corridor from Vung Tau to Ho Chi Minh still does not exist.

More comprehensive mobile services in Vietnam's business growth poles is needed, as well as pockets of industry in remote communities, such as Ha Tinh and Quang Ninh, were mining and resource development requires flexible communications solutions.

Anticipated Short-Term Network Expansion Targets: Total Respondents (Q6f)

Voice and Fax CO Lines	55%
Business Communications Systems (PBX/KTS)	57%
Data Communications Equipment & Services	68%
Dedicated Transmission Services	51%
Dedicated Network Equipment	28%

Source: Intercedent Asia

1.2 Public Network Growth

The Struggle to Meet Demand

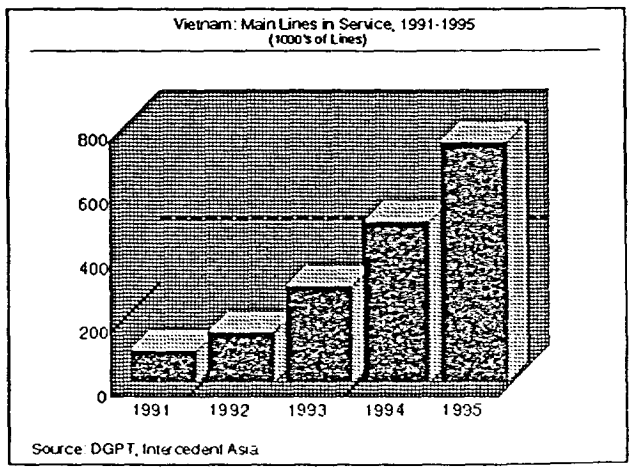
VNPT wants to increase service availability in less developed areas, and rural radio is seen as a primary vehicle. Trunk capacity is reaching a temporarily satisfactory level between the main communications hubs of Hanoi, Danang and Ho Chi Minh. More emphasis is being placed on developing spur routes off the existing microwave and fiber backbones.

In favor of rural-oriented equipment suppliers, the central authorities are taking a "universal service" view of network development. Rural technologies, TDMA radio systems and PBX systems to serve as small rural public switches, are given a high priority as the DGPT attempts to boost teledensity in the villages as well as the city.

Trunk transmission routes are also being overhauled. The 34Mb/s optical fibre route from Hanoi to HMC City is complete. The parallel 140Mb/s route is complete to Nha Trang, and will have reached HCM City by the end of 1993, with continuing routes into the Mekong Delta provinces in 1994.

Optical Fibre links are planned from HCM City to Vung Tau, as well as from Hanoi to Quang Ninh. In the northern provinces surrounding Hanoi, 2, 4, and 8 Mb/s DMW spur routes are planned in a star arrangement from the capital. PBXs over rural exchanges will be deployed in the short term to provide switching service in the townships and villages.

By the end of 1995, VNPT has one clearly stated goal: to increase teledensity to 1%, from its current 0.4%. End 1993 will see approximately 300,000 lines in service, the vast majority of those lines serviced by digital exchanges. HMC City has 60,000 lines, Hanoi 50,000, Danang 10,000. Nationwide development calls for around 450,000 additional lines in the next 2 years.



Financing and Expertise Win Friends and Influence Procurement Patterns

Until the present, equipment procurement for the public network infrastructure has been done on an ad hoc basis. The Vietnamese regulator and operator have been known to be influenced by supplier's efforts to introduce equipment quickly and with attractive financing arrangements. Without the guiding hand of a development program, the VNPT has often taken cues for its procurement plans from visiting suppliers.

To date, the VNPT has not tendered for a development project in the traditional sense. Its primary concern is to get up to speed in switching and transmission capacity and impliment the latest technology available to them, at the best prices. The result has been an enthuastic reception for any supplier offering attractive financing to gain entry, which has in turn led to a network compiled from several seperate systems.

The sense of urgency the DGPT feels in developing its network has been fueled by the enthusiasm foreign manufacturers have for the Vietnamese market. It has also allowed several niche players to compete more evenly with the big boys: Goldstar and India's C-DOT, for instance, have been able to provide their small digital exchanges alongside the larger players.

Now, however, Vietnam seems prepared to launch into an era of equipment and technology standardization, and will start to rationalize its procurement pattern on a select number of suppliers in easch equipment catagory. It appears to be a crucial time to reveal long-term commitment intent to the Vietnamese market.

1.3 Regulatory Outlook

"Recentralization" and Self-Sufficiency

The DGPT and the VNPT, as the central telecom policy and operational authorities, are becoming concerned that the provincial administrations may be taking too much liberty in establishing their own development goals. The national operator, VNPT, is asserting itself as the primary interface between equipment suppliers and the provincial carriers. It is seeking also to curb the amount of influence that private operators are beginning to exert through Business Cooperation Contracts (BCCs).

Build Transfer and Operate (BTO) revenue sharing agreements, while becoming popular in other areas of Vietnamese infrastructure development such as transportation, are likely to be eschewed by the DGPT. While the distinction between the BCC and the BTO may be slight, the primary concern of the regulator/operator is that it remain in ultimate control of the operation and ownership of the facilities in question. As the state agency entrusted with the security as well as the provision of communications services, direct private and/or foreign control over national communications infrastructure does not sit well with the DGPT.

Although not officially acknowledged, a primary potential conflict area lies with the relationship between the VNPT and the Ho Chi Minh City P&T (HCMC P&T). With its growing number of BCCs in the mobile services arena, the HCMC P&T and its partners - among them Singapore Telecom International, ABC Paging, Shinawatra, and Sapura - have been plotting a course of market-driven service development. It has been a bit too hasty in the DGPT's eyes.

The central authorities ideally want to limit the scope and authority of the BCC operations, while the HCMC P&T, enjoying rapid subscriber growth, would naturally like to see an expansion. On the mobile front, the DGPT and the VNPT have both stated that further development in cellular and paging will only be looked at from a national standpoint, with the newly-created service operator Vietnam Mobile Service having responsibility over cellular development.

The Hanoi P&T does not seem to be as autonomous as its counterpart to the south, as it operates in the seat of the central communications authority. Ho Chi Minh City aside, privatization and service liberalization initiatives are being curtailed nationwide by the central

authorities, while the VNPT and the DGPT fortify their power base.

The vehicle for foreign equipment suppliers to discuss supply contracts or joint manufacturing projects with the Vietnam authorities lies in the Science Technology and International Cooperations Departments, in both the VNPT and the DGPT. The International Cooperation Department of the DGPT makes the final decisions from a policy and regulatory view, but it is the VNPT's Department which reviews newly-introduced technologies and their specifications, and makes recommendations to the DGPT.

The larger provincial P&Ts also have Technology and International Cooperation divisions with similar responsibilities, but the understanding is that final decisions are pushed upstairs to the VNPT. The most significant of these provincial divisions is of course the HCM City P&T, strengthened by its mandate given to them by the central authority, to be responsible for development not only in HCM City but also the five Mekong Delta provincial administrations.

A cornerstone to this plan is the forthcoming "Master Plan," the ITU and UNDP-sponsored development schedule developed by the Deutsche Bundespost consulting unit Detecon, now in final ratification and supposedly to be implimented by the end of 1993. Hopefully this will give this centralization program the impetus it needs to carry out a nation-wide development program.

Despite largely retreating from the path of service liberalization wit hregards to its own provincial P&Ts, the DGPT is still open to discussing manufacturing and service provision BCCs with foreign parties. In order to establish a relationship with the Vietnam telecom authorities, it is best to start at the top. Furthermore, while there are bodies in both the national operator and the regulator set up to receive foreign suppliers and service providers, the VNPT and DGPT officials clearly appreciate efforts by suppliers to establish parallel dialogues with both of them.

Policy and the Bottom Line Converge

Vietnamese regulation regarding the ownership and operation of terminal equipment, dedicated facilities and value-added services is often contingent on the perceived impact on VNPT profits. INMARSAT tranceivers were until a few months ago relatively easy to get approval for, and many of the petroleum exploration and service companies interviewed have INMARSAT dishes installed on their Ho Chi Minh and/or Vung Tau premises. However, respondents have uniformly stated the DGPT and provincial P&T's are becoming more strict, as they are reviewing the neccessity of such dedicated terminals. New entrants to Vietnam have felt pressure to access their systems through VTI IDD lines.

At the same time, the DGPT struggles with the task of developing a national infrastructure plan, the bubble economies across the country are creating pockets of accelerated demand for telecoms procurement to keep pace with their economic booms. Despite its commitment to provide service, the DGPT seems prepared to grant priority to growth provinces: the central province of Quang Tri, which has attracted foreign investment projects totalling US$130 million in 1993, is installing an 18,000 line EWSD exchange, which has already doubled the available main lines in the province to 6,000.

1.4 Survey Results Summary

Frustrating, But Not Incapacitating

While it is difficult to get services, they do exist, and are continuosly getting better. Most respondents did not feel that infrastructure improvements would have a huge impact on the way they did business. The primary reasons for this are twofold: most foreign ventures in both the banking and mineral extraction sectors are in the early stages of business development (although many are on the cusp of massive upscaling) and simply do not require sophisticated connections, and the dramatic improvements in infrastructure over the last year.

While most respondents had complaints on service quality - from waiting lists to service installation and maintenance delays, to rampant speculation that fax terminals are bugged and the exorbanent costs of IDD service - the majority of respondants regarded these issues as nuisances, surmountable by cash and patience.

Q6b: If there were better alternatives to the current telecommunicaitons environment, what effect would it have on your business?

	Percentage of Total Respondents
Great Impact	29%
Slight Impact	60%
None	11%

Source: Intercedent Asia

Easier to Call Singapore than Hanoi....

Line quality, was another primary concern of respondents. While waiting lists have been slashed over the last year, and over 90% of Vietnam's provinces are serviced by digital exchanges currently and 100% digitalization will be reached by the end of the year, best estimates for main line connections by the end of 1993 are approximately 300,000 lines. This places main line density per 100 population at 0.42 per 100.

Call traffic volumes are high, particularly at the international level: Teltra, the Australian carrier which broke into the Vietnam service market in 1987 with a far-rangeing BCC agreement to develop international services, estimates 80 million minutes of IDD traffic in 1993, bringing IDD traffic to 266 minutes per subscriber per year.

Telstra's efforts to improve international connectivity have left the nation almost spoiled for international connectivity - the number of direct international circuits is estimated by the DGPT to be close to 1,000, and estimates of the total number of direct and indirect circuits to be twice this figure. Other national carriers, most notably Singapore Telecom, Hong Kong Telecom and France Telecom, have embarked upon programs to help boost the level of international circuits. 42% of all respondents indicated that they were "very satisfied" with international connectivity and services, and only 5% indicated that they were unsatisfied.

Trunk capacity has been greatly increased since the inaugeration of the optic fiber trunk between Hanoi and Ho Chi Minh in May this year, and the steadily developing microwave trunk. Prior to this, most respondents indicated that getting a trunk line to another major city usually took several tries and often 15 to 20 minutes to successfully make each call. Improvements have been marked, but have not won over the majority of respondents; only 24% remarked that they very satisfied with the level of domestic telecom connectivity and service, while nearly as many - 22% - were completely unsatisfied.

Q6c. Satisfaction Levels: Total Responses

How Satisfied Are You With:	VERY SATISFIED	SOMEWHAT SATISFIED	UNSATISFIED
Local Equipment Distribution	25%	49%	26%
Foreign Equipment Distribution	46%	40%	14%
Local Voice/Fax Line Connectivity	24%	54%	22%
International Voice/Fax ConX	42%	53%	6%
Domestic Data Services	14%	29%	57%
International Data Services	23%	41%	36%

Source: Intercedent Asia

IDD Charges Major Contention Point

Average phone bills of respondents were in the US$3,000 range - far too much, say the concerned foreign business community. The domestic banks and organizations interviewed have much lower international bills, a result of more strict personell access to IDD lines, tighter call policies and less need to call international destinations. Moreover, Vietnamese banks in particular adhere to alternative comminication methods to contact correspondent banks overseas, namely telex, post and to a lesser extent fax. Very few respondents have dedicated links internationally; only two interviewed had international leased circuits (ILCs) and another one has plans in works. At the same time, however, the destinational pattern of traffic generated by foreign companies is still too scattered to warrent an international circuit.

Foreign Banks Increasing Commitment to the Market

Half of the Bank Reprentative Offices interviewed claim that they have either obtained or plan to obtain full branch licenses in the next one to two years. Two of the three joint venture banks plan to expand their presence through additional branches (top choice - Danang) and upgrade their existing rep offices to branches soon.

The State Bank of Vietnam earlier this year eased up restrictions limiting the cap on loans; previously foreign banks were restricted to extending loans up to 10% of their paid-up reserves, the minimum of which is US$15 million, making the effective loan cap US$1.5 million. With these restrictions removed, the foreign financial community is increasingly bullish on Vietnam, and intent upon upgrading office facilities. Nearly 50% of all banks interviewed estimated that their expenditures on equipment and services would fall between US$20,000 and US$100,000 next year. Estimated expenditures are of course dependent of the exact timing of office upgrade and licensing awards, but the mood amongst the banking community is definiately upbeat.

Oil Exploration Companies Moving to Vung Tau

Following the lead of Shell and soon BHP, Oil exploration contractors are beginning to shift their Vietnam logistics HQs from Ho Chi Minh to Vung Tau. Increased facilities are doubtless to be needed, in basic services and particularly mobile services. Currently only one paging company provides service to Vung Tau, and neither mobile telephony services has yet to establish base stations in the province. (The public trunked radio service Mobile Net plans service within the next month and Call Link personell estimate that they would follow suit with cellular service to Vung Tau in the next quarter). With the ramping up of the petroleum communities in Vung Tau, increased demand for transmission capacity, switching and mobile services is forseen.

Petroleum exploration companies also have a much easier time in getting licenses approved for dedicated, primarily radio-based, networks, making Ho Chi Minh and Vung Tau the centers of the small but robust market for private networking equipment. Most exploration outfits interviewed operate some sort of simple radio network: HF or VHF transmission networks for ship to shore links from Vung Tau, or from Vung Tau to the surrounding environs and to Ho Chi Minh. These dedicated links are often supplimented by very expensive, and increasingly hard to obtain, backup service through INMARSAT.

Public loop trunk expansion to Vung Tau and other pockets of oil activity is on the drawing board: Telstra has funded a 34Mb/s microwave trunk from Vung Tau to Ho Chi Minh, and the DGPT forsees a fiber trunk connecting the two in the near future. Telstra has also helped support an 18Mb/s microwave link from An Phu in Thu Duc into Ho Chi Minh city to service the oil community there.

Mining Communications Still Primitive

The mining community is perhaps the least developed of the market segments; due to the mining communities smaller response base (only five organizations responded), the analysis in the mineral extraction section of the report skews heavily in favor of the more dynamic and accessible oil community. Mining has not had the same fever pitch level of foreign investment and government support, and due to its remote nature, suffers the greatest when it comes to telecoms infrastructure in exploration and extraction sites. Manual exchanges and single phone lines for companies with hundreds of employees are not uncommon, and except for some older armed forces cast-off radio terminals, mobile communications is similarly poor. A lack of formal mining laws and an increase in private mining are also inhibitants to add definition to this potentially lucrative verticle market. There are positive signs, particularly when the capital and influence of foreign particpiants are involved, but the sector has a longer, more convoluted path to development than its petroluem counterpart.

1.5 Project Methodology

This research project has been carried out by Singapore-based Intercedent Asia (Pte) Ltd. (IAL), over a period of three months. Background research, involving in-house and external database scans, took place over the first month of preparation. A number of preliminary interviews were conducted with telecommunications industry executives and industry analysts. A survey to solicit data and observations from end-user respondents in Vietnam was generated and refined. Discussions with participating clients were also made at this time, to identify specific areas of information required, as well as suggestions for the structure and direction of the report.

In the second phase, in-country interviews were conducted with both end users and executives within Vietnam's telecommunications service and equipment industries, over a period of one month. Interviews and research were arranged and conducted by Intercedent Asia consultants and Intercedent's affiliate consulants in Hanoi and Ho Chi Minh City. End user interviees were selected on the basis of their seniority, experience in communications, administrative and logistics management, and experience in the Vietnam market.

Those end user respondent companies included: State Commerical Banks with Foreign Trade Licenses; Joint Stock Banks; Foreign Bank Branches and Representative Offices; Foreign Joint Venture Basnks; Petroleum Exploration Companies; Petroleum Distribution Companies; Petroleum Exploration Service Companies (Drilling, Fluids, and Platform Provision); Mining Operations Companies; Mining Distribution Companies; Mining Service Companies (Explosives, Construction). Total respondants across all vertical market sectors numbered 58.

IAL specializes in market entry consulting services in the Asia-Pacific region. IAL offers its clients high value-added recommendations on cross-border strategy and implimentation, based on an integration of geographic, functional and industry expertise. IAL offers tailored, research-based consulting services based on client's individual needs, as well as a range of multi-client market reports. The company's consultant team embodies years of industry experience in such areas as telecommunications, broadcasting, computers, tourism and enviromental technologies. The Intercedent group of companies has offices in Singapore, Beijing and Harbin PRC, Toronto and Vancouver Canada, and associate firms across Asia.

Chapter 2: TELECOMMUNICATIONS IN THE BANKING COMMUNITY

2.1 Strategic Recommendations

• As banks representative offices expand into full branches, they are likely to seek to trade up their phone systems. Import duty concessions for foreign offices are fading away, confining equipment selection to those models the P&T distribution subsidiaries stock. Without a coherent CPE sales and service policy, and a reputed unfamiliarity with Business Communications Systems, their intallation and maintenance, office premise equipment will continue to be an area of discontentment. While Alcatel and Siemens have sewn up a large portion of the BCS market, there is plenty of room to manoveur, and the P&Ts have no real exclusive sales and distribution commitments, and seem quite impartial. On the other hand, the P&T distributors seem able to distinguish between different brands or models, or assist customers in their purchase selections for PBX or KTS - except by giving them no choice in the manner.

• Comprehensive technical training for P&T staff, in system installation and maintenance, is strongly advised for any supplier attempting to sell BCS equipment through the carrier. A long term commitment on the part of the supplier in getting the technical staff up to speed is needed to maintain any sort of sales and service quality.

• One point that was made by several banking executives interviewed when discussing the provision of value added services to the sector was the importance of bringing the main potential clients from the state sector on line during market development. As was observed with Reuters' path into Vietnam, much hassle could have been avoided if the State Bank, or even the largest commercial banks such as IBCV or EXIM, could have been "sold" on the concept prior to acquiring the license; having heavy hitters asist in making the pitch to the authorities seems to be an advantageous tactic.

• Introducing computer systems and data services to the State Bank of Vietnam (SBV) would allow them to build databases and create an electronic funds clearance network. It would also go a long way towards stimulating the development of value-added services in the banking community.

A new regulation passed by the State Bank of Vietnam requires all foreign banks to submit monthly statements of credit lines, current accounts, cash transfers and foreign exchange transactions to SBV. While the banks want these transactions to take place electonically, the

valid copies of these documents will have to be hard copies - further adding to the paper chase that exists in the SBV accounting and clearance practices.

Any overtures made towards the SBV would be enthusiastically received - although consessionary financing, as well as a good deal of technical support, would certainly sweeten the pot.

- The marketing efforts of the international, national and provincial operators in selling dedicated and value-added services is unremarkable and inconsistant. Competition between various carriers for customer base creates inefficient service provision and confusion among end users. There is a market for VAS and certainly need for LCs and ILCs, and attempts to circumvent the DGPT infrastructure and provide service simply anger the carrier. A concerted effort to offer services in conjunction with the national carrier, with particularly emphasis on the customer service which is severely lacking, would be the most effective entry route.

2.2 Enduser Market Assessment

Service Restrictions/Demand

Respondents were asked to examine their current equipment and sevice needs, and describe any areas that were lacking because infrastructure was unavailable, or regulations and/or market conditions prohibited their acqusition. On the service end, banking officers interviewed complained tremendously, but it was quality of service, rather than availability, that irriated them.

- Nearly a full third of the banking community, felt that there were no services that they absolutely had to have that were unavailable. Less, 18%, felt that there were absolutely no restrictions placed upon them, either market or regulatory.

- Banking officials were more inclined to see the restrictions on their telecommunications as a function solely of market conditions - or the attitude of the operators towards customer service. 43% of the 23 respondents that felt there were market restrictions, as opposed to 34% who felt that the restrictions were regulatory in nature, and 21% who felt that it was a combination of those factors.

- VAS was the primary service complaint: 37% needed access to international on-line financial services, and were unsure when they would be available. 15% would like to see the development of similar financial database or retreival services for the domestic financial markets. Access to other VAN services were needed by 25%. (Financial information and VAN services demand registered slightly higher among respondents in Hanoi).

- Quality and cost were brought up by several respondents, although not in proportion to their grumbling: 12% said that they could not get access to better quality lines, and roughly 10% needed cheaper services. Similarly, only 15% felt that service costs were a real restriction on their operations, and 25% felt the same about the quality of line transmission.

- None of the respondents in the banking community felt they were being denied access to CO lines, a commentary on the steps taken to remove subscriber backlog in the urban areas.

Enduser Market Assessment

Equipment Restrictions:

- An overwhlemingly large percentage, 72% of banks, felt that there was no equipment that they could not obtain in Vietnam. Choice and selection of equipment, however, was another issue, and was seen as the primary restriction: 25% of respondents responded that there needed to be more variety. Only 12% responded that they could not obtain any equipment of the quality that they needed.

- Cost of equipment was almost a non-issue among banks, as opposed to the cost of services. Less than five percent felt that locally-acquired equipment was too expensive.

Q6a. Restrictions to Telecommunications operations

Restrictions Encountered	Percentage of Total Respondents
None	18%
Selection/Variety of Equipment	25%
Poor Maintenance and Aftersales Service	25%
Poor Line Transmission Quality	25%
Difficulties in Getting Licenses, Approval	21%
Service Costs	14%
Communications Not Secure/Equipment Bugged	14%
Importing Equipment is too Restrictive	7%
Equipment Costs	4%
Hard to Get Approval for INMARSAT	4%
Inter-P&T Competition for Service Customers	3%
Restrictions on Int'l VAS too Prohibitive	7%

Source: Interecedent Asia

- Another predominant restriction to business activity was the quality of installation and aftersales service; 25% of all respondents felt that the P&T did an insufficient

job in supporting their equipment, or that the post office staff was poorly equipped and trained. 10% mentioned maintenance as a service that they could not obtain.

- As mentioned earlier, banking officers were particularly sensitive to the security of their equipment, and 14% of respondants referred to the bugging of their fax machines and phone lines as a restriction.

Enduser Market Assessment

Satisfaction levels:

Most feel they can put up with the way things are, and although banks expressed more dissatisfaction with the level of equipment and service provision than did the oil community, a higher percentage among banks were also very satisfied (the mineral extraction community tended to tow the middle, "somewhat satisfied", line).

- Significantly better service would only have somewhat of an impact on their business activities overall, felt 61% of the banking executives. 6 respondents, 23%, felt that it would have a tremendous impact, and 15% said that improved service would not affect them at all.

Reasoning behind these responses sees that rep office activity is not as real time, as a full-fledged bank office. The information gathering activities conducted in Vietnam are not as urgent as in the more developed financial markets, and financial deals take more time to structure in this nascent economy.

Q6c. Satisfaction Levels: Banking Responses (as a percentage of sector respondents).

How Satisfied Are You With:	VERY SATISFIED	SOMEWHAT SATISFIED	UNSATISFIED
Local Equipment Distribution	17.6%	31.4%	7.8%
Foreign Equipment Distribution	27%	24.4%	5.4%
Local Voice/Fax Line Connectivity	20.8%	24.3%	14.8%
International Voice/Fax ConX	26.9%	30.8%	3.8%
Domestic Data Services	14.3%	14.3%	42.9%
International Data Services	22.7%	22.7%	22.7%

Source: Intercedent Asia

- Banks were chiefly dissatisfied with data services: 43% were completely unsatisfied with the level of domestic data communications services, and 23% with international services (although just as many banks, those using low-speed modems or ILCs, were very satisfied with international data).

- 15% were unsatisfied with local voice service, yet 21% were very satisfied. Predictably, less respondents were unsatisfied with international services (4%) and more were very satisfied (27%).

- In general, satisfaction levels were average: 31% felt that local equipment channels were somewhat satisfactory, and 24% were reasonably satisfied with foreign equipment channels.

Many respondents from Asian-based foreign companies voiced a higher level of dissatisfaction than those from Europe and elsewhere. European companies have accepted the frontier-like conditions of Vietnam, and appear to have set expectations of service quality lower. They also import equipment more often and invest more in their telecoms network. Asian respondents by and large have come from countries with more developed infrastructure - Japan, Malayasia and Thailand - and are accustomed to plentiful equipment selection and innovative aftersales support. They perhaps have not the budgets in Vietnam to be flexible and overcome inadequacies.

2.3 Expansion Plans and Budgets

International Traffic Expenditures

The local offices of banks retain the authority to make equipment and service purchasing decisions, although budgets are usually OKed by the regional headquarters. 93% of the respondents designated their office (or the "chief" office in Vietnam for those with offices in both Hanoi and Ho Chi Minh) as being responsible for acquisition.

- Banks, much moreso than the mineral extraction community, are more inclined to make equipment purchases in Vietnam: 87% indicated that the would buy in Vietnam first, subject to pricing considerations.

While stabilizing phone bills is the mandate amongst banks, officers to not forsee spending any less on their phone bills.

- The predominance of rep offices in the foreign banking community skewed the responses on expenditures towards the lower end. 42% of foreign banks interviewed estimate that they would spend less than US$20,000 annually to acquire equipment and services; most of this budget would be taken up by IDD bills. Another 42% of foreign banks have allocated between $20,000 and $100,000 next year, and 15% will spend between $100,000 and $500,000.

- Similarly, joint venture banks are not spending fantastic sums, and most of their budget will go towards staying on top of IDD bills. Indovina estimates that it will spend less than $20,000 next year, while Firstvina and VID Public will spend bewteen $20,000 and $100,000.

- Although their IDD bills are significantly less, the larger dedicated network needs of the domestic banks will keep their expenditures high: two of the three banks will spend between $20 and $100,000 and the third, Maritime Commercial, estimated a budget of $200,000 in 1994.

Expenditures for the entire response community are larger in Ho Chi Minh City; while nearly half of respondents in Hanoi are spending less than $20,000 next year and and another 42% are in the $20,000 to $100,000 catagory, only a quarter of the Ho Chi Minh end users budgeted less than $20,000. 38% in HCM City will spend $20-100,000, and another 25% +

will spend between $100,00 and $500,000.

Many rep office respondents placed a caveat on their equipment and services spending: their estimates were heavily dependent on the success in obtaining branch licenses.

Q6g: Estimated Telecommunications Expenditures by Segment (as a percentage of the segment)

Expenditures for Equipment and Services, 1993 (US$)	Foreign Banks	Domestic Banks	Joint-Venture Banks
Under $20,000	42%	0%	33%
$20,000 - $100,000	42%	66%	66%
$100,000 - $500,000	16%	33%	0%
$500,000 - $1,000,000	0%	0%	0%
Over $1,000,000	0%	0%	0%

Source: Intercedent Asia

Anticipated Short-Term Network Expansion Targets: Banking Respondents (Q6f)

Voice and Fax CO Lines	50%
Business Communications Systems (PBX/KTS)	53%
Data Communications Equipment & Services	76%
Dedicated Transmission Services	53%
Dedicated Network Equipment	30%

Source: Intercedent Asia

In question 6F, respondents were asked to identify specific areas that they would anticipate expansion in the next two years. Data equipment and services was overwhlmingly the top choice: 76% of respondents said they will be buying, on hopes for improvements in service and equipment in the future, as well as the promise of expanded business operations.

More spending on dedicated transmission services is also in the cards in the near term, when Leased Circuit infrastructure improves and business picks up. 53% of banks said that they would be seeking leased circuits domestically and internationally. The positive response was split fairly evenly between respondents in Hanoi and Ho Chi Minh. Land line domestic circuits were mentioned most frequently, emphasizing the need for banks to establish continual links between the two business hubs.

Voice and fax lines will be acquired; although few respondents were unable to get the lines they needed now, as operations expand gradually more CO lines will be sought. Exactly half of all banks will be installing additional lines in the next two years.

PBX/KTS system expansion was another top choice: 16 respondents, over half, said they will be expanding or upgrading their BCS infrastructure.

Dedicated systems received a poor response, given the small size of the banks and the cost of such systems; only 30% of banks saw the need to invest in the short term. Land-based distribution for the local banks, microwave primarily (ICBV, for example, seeks to get its microwave system back in operation, and will pay for it). Satellite dishes are being considered by the foreign banks.

2.4 State and foreign banking industry overview

The development of Vietnam's doi moi economic restructuring program brought about a marked change in the structure of the country's banking infrastructure. Foreign banks were encouraged to set up shop under new provisions, and the state bank decentralized the commercial banking system, in a bid to infuse foreign capital and expetise into the economy, and perhaps entice foreign investors to Vietnam with a sense of financial familiarity. Although liberalization begun as early as 1988, the majority of foreign banks did not arrive on the scene until after 1990. Most institutions have spent the past three years learning the lay of the financial land, and have developed offices under an extruciatingly strained telecommunications network. Now that banks have the backgroung knowedge behind them, and the public loop as undergone a relatively dramatic overhaul, the financial community is entering a phase were greater investment in communications services and equipment, particularly data communications, can be considered.

Towards the end of 1993, there were approximately 26 foreign banks with representative office status in Vietnam. Six of those banks have two representative offices incountry. Eight banks have been granted full branch licenses; six of the branch licensees also have a representative office active in Vietnam (included in the 26 above). As a result of the respondent interviews, it has been learned that roughly half of the banks with only representative office status are in various stages of applying for branch status, or have obtained full branch licenses and will develop their offices in the near future.

New banking regulations passed in late 1990 gave the state banking sector more flexibility and independence: the Decree/Law of the State Bank, and the Decree/Law on Commercial Banks, Financial Companies and Credit Cooperatives.

Prior to 1988, the State Bank of Vietnam (SBV) was the monetary authority as well as one of the primary commercial banks. It was restructured at the beginning of the banking deregulation drive, and now serves as the central banking authority and regulator, and issues banking licenses to local and foreign banks. It maintains Vietnam's foreign exchange reserves, interest rates, and reserve requirements. SBV also collects and tabulates the reports of all the commercial banks in Vietnam, and performs regular clearance of funds and deposits. None of this information is currently processed electronically, and no electronic database exists, making clearance time consuming, and a point of contention with the commercial banking community, particularly the domestic banks, which are particularly keen to upgrade their data communications infrastructure to cope with the rising level of business.

Commercial banking in Vietnam is undertaken by four types of institutions: state banks, domestic joint-stock banks, foreign bank branches and joint-venture banks. Commercial bank activities center of the issuance of certificates of deposit, maintaining savings and accounts, opening and confirming letters of credit (generally done via telex). A handful of foreign banks - Banque Francaise du Commerce Exterieur chief among them - provide international credit card services. Another important service, particularly among the state banks and joint stock banks, is providing correspondent banking services. All foreign bank branches and several of the major commercial banks are given the right to conduct foreign trade and engage in foreign exchange trading, a crucial component of the banking industry in Vietnam. In the absense of financial imnformation services, this latter function is carried out in a fairly unsophisticated manner; all foreign and local bank branches interviewed receive foreign exchange information once a day via fax or telex from an overseas headquarters or correspondent.

While representative offices of foreign banks cannot assume any of these tasks, it is widely observed that many rep offices engage clients in such consulting services as to facilitate these functions, particularly the facilitation of lines of credit with clients and bank headquarters overseas, and the maintenance of correspondence relationships with local banks. While not technically permissible, some foreign banks are indirectly providing their domestic commercial bank correspondents with access to thier electonic banking network platforms overseas.

Major joint stock banks include the Vietnam Export-Import Bank (EXIM Bank) and the Vietnam Maritime Commercial Stock Bank (both of which were respondents in this project); Saigon Bank for Industry and Trade; Dainam Commercial Bank; and the Ho Chi Minh Bank for Industry and Trade.

There are three joint venture banks in Vietnam:

JV Bank *(Startup Date)*	Local Partner	Foreign Partner	Offices *(Planned Offices)*
Indovina *(Nov 1990)*	ICBV	Bank Dagang Negara Indonesia	Hanoi, HCM City
VID Bank *(May 1992)*	Bank of Investment and Development	Malaysian Public Bank Bhd	Hanoi, HCM City *(Danang)*
Firstvina *(Feb 1993)*	Bank for Foreign Trade	Korea First Bank	Ho Chi Minh *(Danang, Hanoi)*

Foreign Banks

Decree No.189/HDBT was created to facilitate the development of foreign banks branches and joint-venture banks. The regulations and scope of activities are reviewed below:

- Foreign bank branches and joint-venture banks are allowed to operate for a period of 20 years following the award of a license. To receive an extension on this license, banks are required to show a profit and submit to a SBV review.

- The minimum amount of capital to be remitted to Vietnam is US$15 million for branches of foreign banks and US$10 million for joint-venture banks.

- Net profit can be remitted out of the country (although there have been indications that this will be a laborious process), after 15% of the annual net profit is retained in reserves.

- Total loans extended by both foreign bank branches and joint-venture banks cannot exceed 20 times the deposited capital and reserves at any time.

- Until the middle of 1993, foreign banks had a ceiling placed on indivual loans: they were not allowed to loan more than 10% of their reserve funds (US$1.5 million or US1 million assuming the minimum deposit for foreign branches and JVs) per client . This cap was lifted to permit larger loans if underwritten by the bank's parent.

- There is no discernable cap on the number of foreign banks or JVs than can be awarded licenses; each will be reviewed by SBV individually. There is some speculation that there may be a slowdown ahead in approvals, to allow the existing crop to prove themselves, although this is naturally influenced the development of the economy: the predominancce of Taiwanese investment in Vietnam may pave a smoother path for the four to six Taiwanese banks in various stages of entry.

- Technically, within three months of the receipt of application documents, the SBV will either grant or reject the application for approval in principle, which in turn is valid for one year. Within this period, documents outlining the exact nature of the bank's development, including personell and location, is required for the final approved license. Operations are to start within six months of recieving the licence, and the full cappital reserves must be in place by that time.

A point of concern which is emerging as the foreign banking community becomes more developed is the future of the status of representative offices in Vietnam, particularly as more foreign institutions begin to operate branches and ROs simutaneously in Vietnam. While most foreign banks have not reaches a level of business activity which warrants more than one full branch (particularly when each branch is required to put up the US$15 million in operational capital), the relationship between branch and RO with regards to the nature of activities the RO can engage in on the behalf of the branch is unclear.

Bank Profiles

Company Size

As the vast majority of the banks interviewed were representative offices of foreign banks, the average staff size of the 28 offices interviewed was less than eight personnel.

- Representative offices typically maintain a core expatratriate staff of one per office, plus another one to two local professional staff. The twenty representative offices interviewed each had total personnell totals of 6 or less.

- Throughout all banking segments, the ratio of professional staff to other staff (encompassing technical support staff and administrative) is 0.6:1, due to the predominance of small, officer-and-secretary representative offices.

- 4 major local banks with foreign exchange trading licenses and significant international activities were interviewed. In addition, at least one office of each of the three active joint venture banks were interviewed. These banks had the larger staffs: local domestic banks had 100's of staff, and the joint venture banks had between 20 and 35 personnel.

- Foreign banks with full branch licenses naturally had greater professional (expatriate) and administrative staffing requirements, the average total staff being 30, with 5 professionals.

As examined below, while the size of the office has significant impact on equipment expenditures, the correlation between office size and monthly phone service charges is not significant: small rep offices of banks are actively invoved in the business of relaying information to foreign affiliates which generates disporportionately large service bills. Local banks have easier access to the domestic market and more frugal with international telecom usage.

Bank Profiles

Banking Organizations

Representative offices of foreign banks formed the largest respondent segment: 20 were interviewed for the project in Hanoi and Ho Chi Minh, half of the total response base for the banking sector. Rep offices are poised to expand; over half of those interviewed claimed that they have either obtained or are applying for full branch licenses. There was little indication of pull out; commitment to the market remains high, with the perspective that the development curve will be long.

- Several RO's appear to be doing more than the simple consulting and advisory work that is in their charters. While they are not actually lending money, they facilitate the provision of services to customers and the domestic banks, and essentially serve as the primary advisor and approval point for loans to Vietnam being carried out by an outside branch of the bank. In ne instance, a representative office has distributed low-speed modems to major domestic banks to facilitate communications with the bank's worldwide electronic banking service. Three other banks representative offices have either indicated or it is speculated that they will attempt to engage domestic banks in their VAS service platforms.

Full banking branches accounted for six respondents, out of the seven organizations with licenses in Vietnam. While the volume of busines is still low, they have been stradily laying the groundwork for future expansion. Instances of data communications usage is heavier, and the single banking client with a dedicated international leased circuit, Bank Indosuez in Ho Chi Minh, is a branch office. PBX systems are deployed over KTS systems. Phone bills can be higher (most average 1,500 to 5,000 per month).

The joint venture banks enjoy the support and influence of the local banking infrastructure, and may also prove to have a faster track into the domestic lending market than the foreign branches. With the exception of the Thais, joint ventures have become the primary entry point into the Vietnam market for Asian banks. Their telecommunications service and equipment infrastructure in general reflects both their foreign and Vietnamese parentage: office premise equipment is more sophisticated and phone bills are higher, but value-added services are generally eschewed and they are not well plugged into international services.

While the domestic banks have much more diffuse communications needs, and more branches

requiring interconnection (two of the domestic banks interviewed have dedicated communications infrastrucuture linking offices and are looking to develop), but their office premise equipment systems are gernaerally deficient to their foreign counterparts and their data capabilities are low. They are also, by contrast to the foreign banks, much more eager to quickly develop access to international financial information services.

- The logistic centers of the foreign banks are diffuse. With companies with either both branches or both representative officces in Ho Chi Minh and Hanoi, there is no discernable trend as to which serves as the "head" office. Some banks headquarter their logistics center in Hanoi, to establish a presence in the political heart, while others prefer to keep the management center where the commercial activity is currently greater, in Ho Chi Minh. While it is usually the case that a full branch assumes corporate control of the banks operations in Vietnam, a handful respondents speculated that they would keep the top personnel in the rep offices and contoll the adminstrative activities of the branch from the RO.

Bank Profiles

Location of Bank

While Hanoi is often the first location foreign banks choose to get on the ground in Vietnam, the decison is often based on establishing a presence in the political heart of the country. However, many large transactions, particularly with organizations linked to government ministries, are actually finalized in Hanoi, and commericial and foreign investment activity in Hanoi is picking up in its own right, as the growth poles in Vietnam level out. While the general impression gathered from respondents was that it is easier to get telecom services installed in Hanoi than in Ho Chi Minh, due to the better phone line density in the capital and the somewhat lower amount of foreign investment, this does not seem to be a determinant in office placement.

- 46% of the foreign banks interviewed had offices in Hanoi. Half of the domestic banks interviewed had offices in Hanoi, and 2 of the three joint venture banks were interviewed in Hanoi. Of the foreign banks interviewed 11 of them (or 85% of the total) were operating out of representative offices.

HCM City sees the majority of branch activity now, banks being attuned the nation's most active financial hub. Occasionally, the HCM City offices direct the management of the Hanoi office, even though Hanoi is assumed to be the nominal head.

- 53% of the total foreign bank respondents were established in HCM City; four of those respondents were operating branches in the city. Two domestic commercial banks were interviewed in Ho Chi Minh, and one of the joint venture banks.

- As foreign banks begin to set up presences in both cities, increased demand for dedicated circuits - or at very least better public trunk access - is forseen between Hanoi and HCM City. 47% of bank respondents forsaw the need to invest in dedicated network facilities of some type in the next two years, and 9% of the banks said that domestic leased circuits were needed now.

- Local banks have more locations; multiple branches within a city and offices nationwide, which precludes a demand for networking facilities on a junction and trunk level. EXIM bank has only offices in Hanoi and HCM, but the other joint stock bank (Maritime) has offices in six cities. One of the state commercial banks,

ICBV, has 87 branches nationwide.

- As mentioned above, the JV banks are keen on tapping the potential in Danang; two of the three JVs will be setting up shop in the secondary commercial hub in the coming year. The coastal cities of Danang, Hai Phong, and Vung Tau are also extremely important secondary hubs for domestic commercial banks. Very few of the fully foreign institutions interviewed indicated any medium-term interest in setting up offices in anywhere but the two primary cities.

Bank Profiles

Phone Bills

Nearly every respondent in the foreign banking sector indicated that at least 80% (and in most cases over 90%) of their monthly phone bills went to international service charges. While nearly 27% of banks interviewed had phone bills which averaged US$500 and US$1,000, 23% of them had monthly bills of $1,500 to $3,000, and another 20% averaged phone bills of between $5,000 and $10,000. One respondent indicated that the bank spent over $10,000 per month.

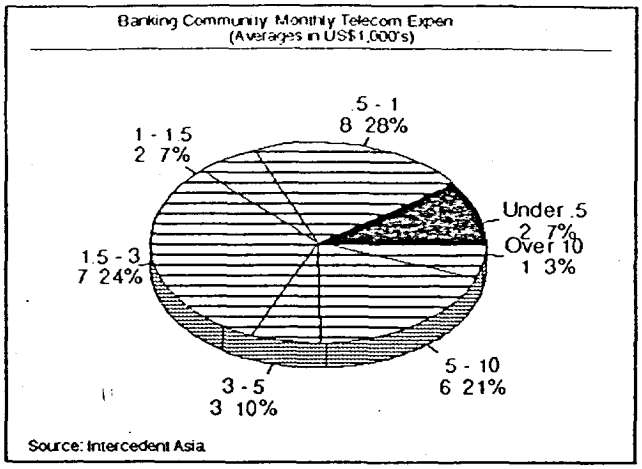
- Foreign banks followed the breakdown of the total bank monthly telecom service fairly closely: 27% were in the $500-1,000 catagory; 8% in the $1,000 to $1,500 range; 24% in the range of $1,500 to $3,000, and 20% in the $5,000 to $10,000. The Joint venture banks all fell in the range of $3,000 to $5,000 per month. The domestic banks interviewed varied widely in their telecom charges.

Office size is broadly an indicator of monthly service volume; however, many small representative bank offices racked up phone bills that dwarf the expenditures of domestic commerical banks. While monthly service bills companies with staff sizes over ten but under 100 employees were bunched between $3,000 and $10,000, offices which had less than ten employees had a more even curve from $500 to $10,000, resulting from the usage of one or two key (often expatriate) officers inhouse.

- 32% of offices that had less than ten employees (which includes all the bank representative offices) had monthly phone bills that averaged between $500 and $1,000 per month, 20% averaged $1,500 to $3,000, and 24% averaged monthly bills between $3,000 and $5,000.

- 27% of all offices with 11-50 employees (which encompasses the branches, the JVs, and some of the domestic banks) had bills which averaged $3,000 to $5,000 per month, and an additional 27% spent between $5,000 and $10,000 per month.

Organizational types reveal the same expenditure pattern as office size: none of the branch offices of foreign banks recorded bills of less than $1,500 per month, and the majority was clustered around $3,000-$5,000, while rep office respondents peaked at over thirty percent in the $500-1,000, and 20% in $1,500- 3,000.



Bank offices claim that they are heavily fax dependant (despite persistent indications that fax terminals are monitored) to combat high IDD rates, but that their bills are still exceeding original budget estimates. The fact that international calls are charged from the moment the call makes it through the international gateway - rather than a successful attempt to the party - has much to do with this. The representative from one bank in HCM City estimates that charges for uncompleted faxes adds 10% to 20% to his monthly bills.

Bank Profiles

Phone, fax and telex lines

- Nearly 53% of respondents in all sectors maintained offices with three or less phone lines. In the banking sector alone, 60% of respondents in the foreign bank community had three lines or less. 12% of foreign bank respondents each had 4 and 5 CO lines, and the foreign bank interviewed with the largest number of CO lines had 15. The domestic bank with the largest CO infrastructure, 40 outgoing lines.

- 100% of all banking respondents had access to fax lines, and 85% of them had only one fax line. 12% of the banking sector had two fax machines.

- Only 70% of the banking sector had access to a telex machine, and the majority had access to one machine. Two domestic banks and two foreign banks had either two or three machines.

As would be expected, outgoing phone lines increase proportionally with the level of business activity (size of company, branches/companies with trading licenses higher).

- IDD Access: not surprisingly, the majority of respondents placed IDD access on each of their outgoing CO lines. Only 20% of those that responded to the query on IDD access (11 out of 55 respondents) opted to install some phone lines without international access. In the banking community, joint venture banks and one of the domestic banks had significantly less IDD lines than domestic access lines (typically a 1 to 4 ratio), but with foreign banks, the ratio was in nearly every case one to one.

Bank Profiles

Shared vs. Direct Access to Telecom Infrastructure

As infrastructure improves and waiting lists decrease, the Business Center is becoming a thing of the past. Once moving into an furnished office facility in a hotel or business center was a near necessity if one wanted to hit the ground running with a phone line. Now, with waiting lines reduced and infrastructure greatly improved, not to mention the prohibitive service fees office centers tack on (usually an additional 10% to telecom bills) it is not as attractive an option. Very few banks interviewed used phone service through an office facility.

Acquiring a telecom line often involved an expenditure on the subscriber's part for the replacement or provision of the last mile copper cabling. Most estimates hover around US$1,000 per line, but depending on the distance from the riser and the age of the premises, it can be much lower or higher.

However, as is often the case in Hanoi, banks that sought out dedicated offices were given detached bungalow facilities which had to be renovated at their own expense. Such initial outlays for renovation (one respondent in Hanoi paid more than US$50,000, not counting monthly rental) make the cost of purchasing the cabling for a dedicated line pale by comparison.

As reported, many banks are anticipating expansion of facilities, and ROs are anticipating opening branches. Office upscaling is likely to cause the migration of those remaining in business centers to dedicated facilities.

Telex usage, following international trends, are falling off, prompting at least one respondent (Hongkong Bank in Hanoi) to share telex facilities with the office center on premises.

2.5 Telecommunications Services

Constant voice contact between Hanoi and Ho Chi Minh City is required for foreign and Joint Venture banks; local banks seem to be more phone shy, relying on telex for long distance communications. While non-existent now, three banking respondents had plans to develop dedicated links between Hanoi and Ho Chi Minh.

Similar constant voice contact is necessary with overseas headquarters and affiliate organizations. 38% of the 26 respondents in all sectors that estimated call volumes said they made more that 100 international calls per month, an average of 4 IDD calls per working day. The high costs associated with usage cause respondents to seek alternatives:

- Banque National de Paris restricts access to international phone calls, and officers try respond to overseas calls they do not take with faxes;

- Berliner Bank, among others, encourages overseas offices to call the office in Vietnam rather than initiate regular calls;

- Representative Offices in Hanoi with head offices in Ho Chi Minh (Hongkong Bank, Indosuez, BFCE) generally have informal policies that international communication should generate from the head office first, to avoid duplication;

- One respondent commented that non-urgent correspondence was collected and sent via courier rather than faxes.

Fax, and to a lesser extent telex, are the predominant "data" transport mediums in the banking community. All the banks have faxes, 70% have telex service of some type, while only 38% interviewed had access to any sort of data communications equipment that could access data services.

Electronic data transmission is regarded as slow and suspect (of the 15 banking community respondents that chose to comment on their level of satisfaction for local data connectivity, 42% were "unsatisfied"). Without proper facilities to engage in the types of data-oriented VAN services banks are used to (financial information/currency exchange rates, EFT, L/C and fund transfer confirmation), alternatives are used: telex confirmation of letters of credit and fund transfers, still the norm nationwide, and regularly scheduled faxes packed with exchange rate info from regional HQs with access to online services. Moreover, with the

total absence of a domestic data network for the banking community, there is little impetus to exploit data transmission services.

Dedicated leased circuit services are available both domestically and internationally according to the DGPT, VNPT, and Telstra, but end user knowledge of their ability is limited. The marketing of these services is poor, and bank respondents have felt that they are too expensive to even consider. Moreover, there is not a clear picture of which operator provides the service: there have been reports of provisional P&Ts blocking customer attempts to access leased circuits from the long distance carrier VNPT or the international operator VTI directly - the feeling from endusers is that local P&Ts do not like to be cut out of any potential revenue stream, even from fellow Vietnamese operators. The only bank that uses domestic LCs - the local joint stock bank Maritime Commercial - owes its service to fact that the DGPT is the major shareholder in the bank.

- One bank in HCM City has organized a dedicated ILC (a 9.6Kb/s stream) to Singapore from the Singapore Telecom end, to cut down on cost - slightly - and the administrative hassle. The bank uses its Vietnam branch office to program and process its in-house accounting software for the region.

While Vietnam is a far ways away from developing data processing zones, Indosuez's application for its ILC - using the HCMC bank to process its regional accounting programs - is an interesting indicator; more regional banks may get more profitability out of their operations in Vietnam by tapping into the increasingly computer literate and educated workforce to do economical data entry.

Data Communications/Value Added Services

Simply: there is not much available in Vietnam, so not there is not much subscribed to. Quality links to international electronic banking networks are sought: attempts have been made to access Deutsche Bank's on-line service and Hongkong Bank's Hexagon by those respective banks, with not much success.

• Credit Lyonnais, is looking to link into their wants to hook into their own international managed network LIDE. CL will install X.25 cards on its Boule GPX2000 PC network in its overseas office, and will receive access to an ILC that will patch them into a LIDE service node in the region. One of the primary reasons for orchestrating it through the overseas HQ is that the costs will be absorbed by the CL corporate parent - costs which ideally will not be at Vietnamese rates.

Some electronic banking networks are being accessed on an informal, dial-up basis. Two of the domestic banks interviewed, ICBV and EXIM Bank, admitted that they were dialing into Standard & Chartered service internationally. Sources in the local banking community have also indicated that similar services from Deutsche Bank and ING would also be available shortly. While technically all information services and other VAS require licenses to provide service into Vietnam (and no one, including the DGPT, has a clear idea of the policy behind provision of such services), there is nothing to prevent banks from accessing the service over public IDD lines.

Simple low speed data transfer is used; most transmit on speeds of 1.2 and 2.4Kb/s, and only two banks indicated that they had access to X.25 services - both overseas. Of the 35% of respondents in the banking sector that accessed data service:

Service Accessed	Percentage of Data Users
Electronic Mail	58%
Data Retrieval Services*	58%
Financial Information/Online Service	25%
EFT/POS	16%
EDI	16%

Source: Intercedent Asia

* Largely in-house, global banking networks

Many bank executives indicated that SWIFT, or any other EFT/POS networks, would be valuable services, but they were in the dark as to when the service would be available.

Confirmation of funds transfers and L/Cs are not so voluminous that they cannot be processed via text transfer and/or manually. Banking executives, such as the administration director for BFCE in Ho Chi Minh, have indicated that SWIFT has made several marketing overtures to banks over the past two years, with inconclusive results.

Similarly, some respondents are looking forward to having access to online financial information services. Paradoxically, though, none of the respondents interviewed had access to Reuters - the only such service which has a formal license to operate. A large percentage of the bank officers interviewed were either unaware that Reuters was available in Vietnam, or they were unsure of its status.

2.6 Telecommunications Equipment

Office Premise Equipment

PBX Equipment:

PBX penetration is predictably low among representative offices; however, a potential market window is opening as many are looking to expand into branches. Moreover, existing branches also looking to expand, but this will probably result in an aftersale, add-on market for extensions rather than new systems.

System feature requirements stress connectivity, not functionality. No ISDN requirements exist (although many banks have Siemens or Alcatel systems that can support these add-ons), and there is nothing fancy in the call management features used. Most offices need the basics: hold, on-hold music, call transfer. Larger banks are looking at call lock or call authorization facilities (to restrict access to IDD lines), and a few interviewed utilize or require hunting functions, for the CO lines they have been assigned are not contiguous.

A significant majority of respondents purchased their PBX systems in Vietnam, given the logistical hassles of carrying a large system into the country, and the resistance many faced from the P&T when attempting to get their phone lines installed into a self-imported system. 62% of foreign banks with PBXs bought their systems in Vietnam.

Alcatel has a commanding market share: nine of the 13 banks interviewed with PBX systems had Alcatel systems (in most cases with Alcatel handsets). The Alcatel Opus was the most commonly deployed system. Siemens, Panasonic and Goldstar each had one system installed, with another respondent claiming "other". In terms of extensions installed, Alcatel held fully 75% of the 178 line PBX installed base, while Siemens and Goldstar accounted for around 4% each.

PBX system size in the banking market is relatively small: the largest system observed was an Alcatel system with 32 extensions and 15 CO lines (Banque Indosuez). 46% of the systems fell between 20 and 32 extensions, while the remainder of systems had less than 10 extensions apiece.

System pricing is relatively inexpensive, and comparable to prices in the rest of the region. However, as mentioned above, selection is severely limited, heavily dependent on whatever

systems the P&T has in stock. This is a major complaint (see below). The P&T engages in practically no marketing whatsoever, and simply supplies requests as they come in with the closest system at hand. A handful of banking respondents indicated that they were forced to accept systems that were a mix of brands, usually an Alcatel CPU with either Japanese or Taiwanese handsets.

Office Premise Equipment

KTS Systems

Keyphone systems are the staple of the representative office in Vietnam. 13 Banking respondents have KTS systems installed, the majority of them ROs.

72 % of foreign banks installed systems which were purchased from the local P&T. Both of the domestic banks with KTS naturally purchased systems locally.

KTS systems are cheap (one respondent recalled paying roughly $140 per line for a Goldstar KTS system), but the price gulf between PBX and KTS systems is not as marked in Vietnam.

Panasonic's Easaphone and KXT models were the most common systems installed in both Ho Chi Minh and Hanoi. The P&T in Ho Chin Minh also seems to have a plentiful stock of Easaphone and KXT handsets, as they are used for expansions on non-Panasonic systems, and retail establishments run on HCM City premises sell the handsets off the shelf.

- 40% of respondents had Panasonic systems installed.
- one respondent each had Alcatel and Goldstar systems.
- another 40% had other systems, mostly "no-name" brands from Taiwan (2 EasyKey 48s were observed) and one Iwatsu.

83 % of KTS systems had 10 or less stations. One Panasonic system with 25 stations was installed, and one Taiwanese EasyKey 48 with 40 stations was supplied to domestic bank ICBV, although it has fallen into disrepair, and has yet to be serviced by the Hanoi P&T (the delay in servicing has prompted the bank to acquire 40 separate single line telsets and install them into their premises).

- Panasonic enjoyed a 37% market share of the installed base of 111 stations. Alcatel and Goldstar had 9% and 7% respectively. Taiwan's EasyKey technically has the single largest share, with over 40%, although its largest system is inoperational.

Office Premise Equipment

Single Line Equipment

Single line phones are still deployed in banks; however, it is in nearly all cases observed a supplementary, rather than the primary, phone system for the office. Often such lines are remnants of the initial office infrastructure, kept on after a keyphone or PBX is installed. Occasionally, failure on the part of the BCS technicians to properly install or repair systems forces the end user to use a single line to plug the gap. Dedicated, "Hot Line" phones for chief executives are still used in some instances.

The greatest instances of significant single line system installed base occurs in the local banks, where end user education of sophisticated phone systems is lower, or such as the case with ICBV, which uses 40 separate single lines in one office, it is a stop gap measure.

66% of respondents had single lines of some sort, with a total of approximately 144 lines for the banking segment.

- 22% of the respondents used Alcatel single line equipment, while another 33% had Panasonic systems.

- 27% had other systems installed, often antiquated telsets imported from Taiwan and Czechoslovakia. These instances were frequently phones provided by the business center or office block and came with the office.

- 91% of all banks with single lines acquired their systems from the local P&T.

Office Premise Equipment

Fax and Telex

- Fax and telex machines were overwhelmingly purchased locally: only one respondent imported its telex machine, and 85% of banks purchased their fax machines from the P&T or its affiliated distributors.

- Regardless of where the system is purchased, all fax terminals must submit to an on-site inspection in which a DGPT or P&T technician places an inspection sticker on the machine (and, most assume, to attach a listening device). This usually adds US$50 to the cost of the machine, plus labor expenses.

- Three Japanese suppliers have sewn up the fax market; the P&Ts seem to only stock systems by Panasonic, Canon and Ricoh. Of the fax terminals installed on 20 banking respondents premises, Ricoh supplied 36% of terminals, Panasonic 28% and Canon 25%.

- Even less selection exists in the telex market. French supplier Sagem supplied over 75% of the 17 machines installed in the segment.

- The majority of banks keep one fax machine on premise; only three respondents had two; and one, four.

- Domestic banks, which indicated a preference for telex in international and long distance communications, all kept more than one telex on premises; two of the three had three installed. No foreign bank kept more than one telex.

- Distribution of fax and telex terminals appears to be more diffuse than other telecom CPE, although ultimately the distributors appear to work through an affiliate subsidiary of the local P&T. Two companies were contacted in Hanoi that sold fax machines, although they worked through officials connected with the Hanoi P&T. These semi-private distributors have not done much to widen the selection on the market; Panasonic, Ricoh and Canon are still the only brands available.

Modems and Data Network Equipment

A fair amount of data modems are in place among banks: 12 respondents indicated that they are using modems, however most indicated that they are not used on a frequent basis and used simply over existing voice line. As mentioned in 2.5 above, only one bank interviewed employs a dedicated facility for data communications.

Seven of the banking organizations had their computer facilities linked over local area networks, but wide area network systems were non-existent, as few banks engage in any multiple site network management.

While increasing amounts of international quality computer equipment are becoming available in Vietnam (and the market is particularly fruitful for non-US suppliers such as Olivetti while the embargo holds), data communications equipment is largely still purchased overseas by the banks: nearly 60% of all the banks using datacoms brought their equipment in from overseas.

Lack of datacommunications services is also an inhibitant to data modems acquisition.

Dedicated Network Equipment

Dedicated systems or equipment are still very uncommon in the banking community: there are not high levels of point to point dedicated international traffic necessitating, and while there may be more need for domestic infrastructure, cost and quality are further inhibitants.

- 9% of the banking respondents, three banks, had private network infrastructure.

- Two of the three - and the two of any significance - use the local P&T as the operator of the network.

Maritime Commercial uses five public leased lines reserved for them by the DGPT (the major shareholder in the bank) for voice and data transmission; ICBV from May of 1991 until January of this year had 13 low-capacity microwave links installed and maintained by the HCMC P&T, to transmit data to its branches in Ho Chi Minh and the surrounding provinces. Using the P&T appears to be the easiest way to get dedicated facilities online for banks, in terms of matters of administration and approval. It does not however guarantee quality of service: ICBV no longer has access to its microwave network, for, as the P&T has explained to them, "it has broken", and repeated attempts to obtain the parts to repair and reengage the network have failed throughout this year. The system was supplied to the DGPT through "a Canadian manufacturer", and spare parts are apparently in short supply.

Banks have several distinct disadvantages when applying for licenses for private facilities, which makes this vertical market harder to exploit than the mineral market. The level of business undertaken now, apart from the domestic banks, is not sufficient to warrant them. Moreover, they do not have the clout nor the patronage that oil companies have. The emergence of on-line banking, or Automatic Teller Networks, two services which some foreign banks are looking to introduce in conjunction with the domestic commercial banks in the next few years, will certainly fuel demand.

Local banks want to increase private transmission facilities between banks. A private network involving the SBV could also be a future development, but the State Bank has to get further out on the learning curve. "We would have more need to invest in data communications equipment (and services) if we could perform our clearances electronically with the State Bank," comments the administrations manager at the IBCV.

Rumors abound; there is speculation that one foreign bank has installed a VSAT terminal - although most are unclear as to who this is. Two bank representative offices said in confidence that they would be working towards getting VSAT dishes installed, but admitted that it would be a long and costly battle.

Mobile Systems and Terminals

There is no usage of mobile among banks in Hanoi, understandable as there is no commercially available cellular service in the capital, despite the claims of the DGPT and Alcatel. With the current pace of business in Hanoi, the service is not overly missed.

In HCM City, usage of mobile among banks is limited. Unlike the oil companies, banking executives are not in transit between logistical centers much nor have emergency communications requirements, and as such do not value mobile service as much. As land line infrastructure improves, there is less need to get a mobile to circumvent the waiting list for CO lines.

23% of the banking respondents in Ho Chi Minh City have mobile phones. Only two respondents identified their brand, one each with Ericsson and Motorola. All were foreign banks, and three of the banks were headquartered elsewhere in Asia, demonstrating the significance that Asian businessmen place on mobile communications throughout the region.

Chapter 3: TELECOMMUNICATIONS IN THE MINERAL EXTRACTION COMMUNITY

3.1 Strategic Recommendations

- Any future supply of equipment for dedicated usage should be accompanied by considerable technical training and support - it is a great source of frustration with respondents that the DGPT subsidiaries and their staff are not taught to install and maintain the equipment that they are provided with for distribution. As with the financial community, the DGPT and provincial level distributor's technical knowledge of equipment is felt to be lacking, and system support and aftersales service is poor. While bank's experiences are confined to PBX/KTS system distributors, the significantly more diffuse nature of the mineral extraction community networks requires them to interface with the DGPT on a greater variety of equipment needs: radio systems, satellite antennae installation, and packet-switched services.

- Vung Tau is a major development area; the oil community is beginning to lay down much deeper roots. Trunk capacity is strained, business communications equipment selection is paltry, and only one wireless service - alpha-numeric paging - reaches all the way out to the coastal city. There is demand for dedicated leased circuits (made infeasible because of public loop constraints), data communications services, and more sophisticated PBX systems.

- Several in the mineral extraction vertical market feel that the internal competition between the provincial and national level operators is a major problem for them. In addition to inhibits service growth, this infighting creates a muddled picture of service availability - customers are not sure which carrier is the legitimate provider of such services as packetswitching and leased circuits. Forays into international VAS service provision will have to be made cautiously, as the DGPT is in theory open to service provision - provided they have are included in the implementation and revenue. A top-down approach is recommended; concurrent overtures made to the DGPT and the VNPT are the best way to insure that the authority of each is observed. A clear line of authority should be sought out by remaining in communications with the relevant P&Ts, whose often feifdom-like mentality often creates a wall between service provider and client. The potential service provider will have to work hard to keep those lines of communication open between the provincial and national/international level, as it has yet to be done.

• Managed international network services - provided an interconnection and service provision agreement could be reached with VTI - could be a potential solution for the oil communities which suffer from excessive international service expenditures. Most operations have under 100 staff, yet are spending over US$120,000 annually on international phone bills. Some spend as much as $600,000 per year. Opportunities exist to work with oil companies and the DGPT to help manage call traffic.

• Any cooperative effort to provide service with the Vietnamese carriers must take with it an element of customer service development and training. In all enhanced service areas, marketing is nearly completely absent - every respondent had a different idea of what services were available to them. Without inter-operator cooperation, many respondents have decided not to waste time and effort in convincing the carrier to let them lease service from them.

• The mining community, shut out to a larger degree from the development plans in the urban junctions, has often had to resort to sponsoring the development of the neglected provincial P&T network. This has turned out to be a win-win scenario - the P&T is more than accommodating when they are obtaining equipment gratis, and the mining outfit, often the heart of economic activity for the central and northern provinces, gets preferential treatment in service provision. This avenue for network equipment provision could be exploited to a much greater degree, through simultaneous consultations with the mineral extraction corporations and the provincial P&Ts. The nation's coal industry, almost completely devoid of foreign investment but steadily growing its pool of hard currency reserves through exports, is a vastly untapped sector. Wireless, mobile systems are likely entry points in the mining industry.

• Although swiftly losing favor in the Vietnamese eyes, VietSovPetro is the largest exploration operation in Vietnam, and the only producing concessionaire. It is served by the least sophisticated dedicated network, but is at least aware of their options for system expansion. As explained below, the company has real and urgent system needs, and is open to suggestions.

3.2 Enduser Market Assessment

Service Restrictions:

Overall, the mineral extraction communities in Vietnam do not feel that they are outright denied much in the way of services; fully half of the respondents in the oil and gas community and 40% of those in mining felt that there were no services that they absolutely needed that they could not get access to. On the other hand the respondents in this sector were more inclined than the banks to regard the Vietnamese market as restrictive: while 17% of banking respondents felt that there were no restrictions to obtaining equipment and services, all mineral community interviewees felt that the market offered hindrances. Overwhelmingly, those stumbling blocks were felt to be regulatory in nature, or having to do in part at least with the DGPT's regulatory stand; 46% of oil and gas respondents felt that regulations were the primary inhibitant, and another 46% felt that it was a combination of regulatory and commercial factors.

Q6a. Restrictions to Telecommunications Operations: Oil & Gas Respondents

Restrictions Encountered	Percentage of Total Respondents
None	0%
Difficulties in Getting Licenses, Approval	43%
Selection/Variety of Equipment	21%
Poor Maintenance and Aftersales Service	14%
Communications Not Secure/Equipment Bugged	14%
Importing Equipment is too Restrictive	14%
Equipment Costs	14%
Hard to Get Approval for INMARSAT	14%
Inter-P&T Competition for Service Customers	14%
Poor Line Transmission Quality	7%
Restrictions on Int'l VAS too Prohibitive	7%
Service Costs	0%

Source: Intercedent Asia

The long time period in getting approval for equipment and services was a major contention point. As the oil and gas companies have had more experience in attempting to get licenses, they are much more jaded; 43% saw the struggle to get approval as a major stumbling block.

Data communications services were the primary area that the mineral extraction companies felt was denied them; 40% of mines and 25% of petroleum industry respondents mentioned data. An incoherent marketing and service provision, coupled with the high cost and limited availability continue to make data communications/VAN services virtually non-existent in the country.

- The lack of understanding of market dynamics and continued lack of capacity were cited as reasons dedicated services were unavailable; 12% of respondents said that they required leased circuits and international leased circuit service.

While basic service infrastructure is on the rise, getting access to the enhanced services required is perceived to be increasingly difficult: 15% cited the lack of cooperation between the local carriers as an obstacle, while another 15% felt that INMARSAT and other international services were becoming harder to obtain as regulations on non-DGPT provided service stiffened. Ironically, the abysmal state of the public network was an unintentional boon for petroleum companies; approval for services that circumvented the poor local loop were approved upon insistence that back-up services were required. Now that Vietnam is plugging its telecom network gaps, the regulator is less inclined to give companies reasons to go around the local network.

Enduser Market Assessment

Equipment Restrictions:

Few respondents felt that there were equipment needs that could not be met in Vietnam. As influential oil companies, they know they can import it if they have to. 75% of respondents felt that there was no desperately required equipment; it was simply a hassle, in most instances

More mobile equipment is needed, in Vung Tau and in the mining community: 12% of oil companies and 20% of the mining outfits felt that mobile equipment was insufficient. One respondent in the oil services industry said that the company urgently required mobile fax capabilities on cellular phones.

- Data systems were the only other major perceived deficiency: 12% of respondents said they could not acquire equipment or could not get approval for licenses. Many of the remainder indicated that they had not tried, as they were unconvinced of the quality or availability of service.

Enduser Market Assessment

Satisfaction levels:

As could be assumed, there is much dissatisfaction with equipment distribution channels - again, selection and quality of service and installation were the major sticking points. 41% of respondents in the oil and gas community were unsatisfied with local distributors, and 11% were unsatisfied with the level of support from foreign equipment manufacturers.

Q6c. Satisfaction Levels: Mining and Petroleum Industry Responses (as a percentage of total respondents in the sector).

How Satisfied Are You With:	VERY SATISFIED		SOMEWHAT SATISFIED		UNSATISFIED	
	Mining	Oil	Mining	Oil	Mining	Oil
Local Equipment Distribution	40%	0%	20%	47%	40%	41%
Foreign Equipment Distribution	60%	23%	20%	29%	20%	11%
Local Voice/Fax Line Connectivity	0%	11%	80%	70%	20%	5%
International Voice/Fax ConX	16%	29%	66%	53%	16%	0%
Domestic Data Services	NA	0%	NA	18%	NA	18%
International Data Services	NA	0%	NA	24%	NA	18%

Source: Intercedent Asia

- Respondents as a whole said that international service is much better than domestic, but the survey satisfaction responses does not bear this out -- more respondents were very

satisfied with the level of international services than local service (30% as opposed to 11%) but the somewhat satisfied category were about the same. A sense of relativity perhaps influences their answers; local services have improved dramatically in the past year.

- Data services, both international and domestic, are met with the same level of dissatisfaction: 17% were unsatisfied, 23% were somewhat satisfied, and no respondent was completely happy with the level of service.

3.3 Expansion Plans and Budgets

As with the financial community, the mineral extraction community is largely autonomous in selecting and acquisition of telecommunications services and equipment - 93% claimed their office as having that responsibility. On the other ha, as mineral extraction companies have more dedicated network needs, less companies end up souring their equipment locally - only 66% said that their purchases were made primarily in Vietnam. Selection of systems abroad involves additional logistical hassles, and adds more time to an already laborious licensing approval process.

As mentioned above, service expenditures - and to a lesser extent, equipment expenditures as well, can go up by a significant multiple when the companies are in exploration mode, roughly 3-4 months out of the year.

- Dedicated transmission facilities are a high priority for the mining community: 80% plan to invest in the next two years. 50% of oil gas respondents have similar plans, as they are a bit more satisfied with the improvements in infrastructure. Still, leased circuits are a priority option, and will come on line faster if less expensive options surface.

Anticipated Short-Term Network Expansion Targets: Mineral Extraction Respondents (Q6f)

Voice and Fax CO Lines	71%
Business Communications Systems (PBX/KTS)	60%
Data Communications Equipment & Services	56%
Dedicated Transmission Services	48%
Dedicated Network Equipment	35%

Source: Intercedent Asia

- Voice lines are crucial to the sector: 71% of respondents see a need to get more phone lines installed. Many oil companies feel they are on the cusp of huge operational ramp-ups with production at Dai Hung and Rong close at hand.

- PBX/KTS systems are another top choice: around 60% felt that expansions or additions to business comms systems are in order in the short term.

• Surprisingly, most mineral extraction respondents feel that they have reached a critical mass of dedicated network equipment: only 35% of the oil companies anticipate further development in the short term, having made their commitment right from the start. Safety and security issues are crucial, and the disparate nature of activities will create a steady dedicated infrastructure market, particularly in mobile and remote applications. Many resent the hassles involved in getting the infrastructure, but the feeling is that they are fortunate that they are in the oil industry, for at least they get it.

• Many mining companies, still in early stages of development, have only minimal equipment and service budgets; all respondents in the mining category that responded to the question estimated their budgets at under $20,000 next year.

• Downstream oil distribution companies also estimated low: all respondents in that category placed budgets at under $100,000 next year.

• By contrast, naturally, the upstream segment is budgeting high: 60% of respondents in the exploration, extraction and services sector place their expenditures next year in the $100,000 to $500,000 category. 20% will be spending more than one million dollars next year.

Q6g: Estimated Telecommunications Expenditures by Sector (as a percentage of the sector)

Expenditures for Equipment and Services, 1993 (US$)	Mining	Oil & Gas	Others
Under $20,000	60%	8%	100%
$20,000 - $100,000	40%	23%	0%
$100,000 - $500,000	0%	44%	0%
$500,000 - $1,000,000	0%	10%	0%
Over $1,000,000	0%	14%	0%

Source: Intercedent Asia

3.4 Mineral Extraction Industry Overview

Petroleum Industry Overview

Vietnam has some land petroleum reserves, first discovered in 1977 in Thai Binh province south of Hanoi. However, it is the five offshore basins that have generated the most interest and the ensuing monsoon of foreign development. After reunification, exploration in the offshore waters of South Vietnam picked up until the early 1980's with West German, Italian and Canadian teams. The first major find was Bach Ho (originally discovered by Mobil) in the Mekong Delta (Vung Tau) Basin. In 1986 production began at Bach Ho, undertaken by the Vietnamese-Soviet joint venture, Vietsovpetro. In 1992 output from Vietnam's offshore fields reached 790,000 b/d from the single field.

A second field, Dai Hung, was discovered with Soviet assistance in early 1991, and Vietsovpetro is exploring a third, Rong, which expected to come on stream in 1993. Recoverable reserves of the three fields are estimated at 500 mn barrels. Since late 1988 over a dozen production sharing contracts have been signed with European, Indian, Canadian, Australian and Japanese oil companies. Once Dai Hung and Rong come into full production output is expected to double to around 5.5 mn t/y and the target for 2000 has been pushed towards 20 million t/year of crude, given the level of activity in the shared concessions awarded to the consortia since 1988. PetroVietnam predicts that offshore concessions will yield more than 3 million b/day by the turn of the century.

Another major potential money spinner in the industry is the natural gas reclamation industry. An estimated US$350,000 in LNG is flared off daily in the Bach Ho fields; Canadian and British firms have been given a license to attempt to recover this.

Further foreign interest is expected in January, as the overworked and technologically outpaced VietSovPetro relinquished two fields bordering on the active Bach Ho bloc., when its license on them expires. Vietnam continues to broaden its circle of international friends at the expense of the collapsed Soviet Union and VietSovPetro, and its continued pressure on the joint venture is likely to gradually diminish its influence. Dai Hung was originally part of VietSovPetro's concession, but the firm conceded it to BHP when faced with the increased pressure. It still holds the rights to Rong in its precious bloc nine, for the time being.

Foreign oil companies which have been awarded exploration rights do so under the auspices of PetroVietnam, and are required to partner into exploration consortium with other foreign companies.

Mining Industry Overview

Active mining in Vietnam is concentrated in the north and is officially classified as part of the industrial sector. Development of mining of metals, non-precious minerals, and precious minerals and earths is carried out by the Ministry of Heavy Industry, which coordinates budgetary and technical issues. Two divisions of the Ministry are responsible for the development and exploitation of mineral resources: the Vietnam Precious and Rare Mineral Corporation (VMC), which handles gemstones and other precious minerals, and the Mineral Development Co. (MIDECO), which is responsible for much of the rest. The Ministry has an in-house consultant, Foreign Industrial Investment Consultants (FORINCONS) which bears the task of coordinating activity between foreign suppliers and investors, and the Ministry divisions.

The most developed non-liquid mineral extraction industry is coal, which is coordinated under the Ministry of Energy. There are currently four active coal mining corporations in Vietnam with 15 active mines tapping into Vietnam's extensive anthracite coal deposits, believed to be some of the finest quality in the world. Total deposits are estimated at 3.6 bn tons, primarily located in the Northern provinces of Quang Ninh (3.2 bn tons) and Bac Thai (400 mn tons). Total reserves of anthracite, bituminous coal and lignite are put at about 20 bn tons. Coal production reached a peak in 1988, before falling off to 3.8 mn tons in 1989. Although the USSR has initially assumed as important a role in the Vietnamese coal mining as it did in oil production by raising production capacity significantly, the collapse of the Soviet Union and the continuing lack of modern extraction and management techniques over the years have caught up with them.

Exports of coal are estimated to be at around 1 million tonnes per year, and the coal industry is looking towards increased exports to generate hard currency for technical upgrading. Coalimex, the Vietnam National Coal Export-Import and Material Supply Corporation, is charged with all foreign trading of coal produced from the four companies, including logistical support and arranging of transportation. It also collects the revenue; conveniently, Coalimex is also responsible for the selection and acquisition of all equipment requiring foreign currency on behalf of all four mining companies, including telecommunications

equipment.

Despite world tin prices plummeting, Vietnam's tin industry is rapidly increasing production, averaging 3,300 tonnes annually since 1991. However, a great deal of this growth has been due to low-tech, "informal" - and often illegal - small mining operations, which account for 80% of the total. Major tin production takes place in the northern provinces surrounding Hanoi, particularly Tin Tuc, Quy Hop and Tam Dao/Nui Phao.

A conference on mining law convened in Ho Chi Minh in October this year, which began to shed light on the primary inhibitant towards foreign investment in the sector. Investment licenses for mining projects are awarded only after exploration licenses are granted, and are not guaranteed to the exploration organization, leading many potential foreign investors nervous at the prospect of launching into costly and speculative exploration projects without a commitment on financial returns. Until mining regulation is clarified to the extent that exists in oil regulation, mining in Vietnam is likely to continue to flounder.

Mineral Extraction Profiles

Organization Size:

The exploration and production concerns in the mineral extraction companies have significantly larger staffing requirements, both expatriate and local. The other sectors followed trends predominant in the Vietnamese marketplace - small, strategic numbers of employees.

- Companies involved in full production - Westralia Sands, Coalimex, VietSovPetro - had staffs ranging from 1,500 to 6,000.

- Mining service and administration companies claimed rotating staff that came in on a project basis, but maintained core staff between 5 and 15 employees;

- "Downstream" organizations - petroleum distribution companies - keep staff tight, at five or less employees, with one expatriate executive;

- "Upstream" E&P companies in Vietnam maintained staff between 10 and 150, with an average staff of 50. Staffing fluctuates with drilling schedules;

- Petroleum service companies maintained staff between 5 and 15 (excluding rig personnel), the majority of the staff split between professionals and engineering/technical personnel.

Mineral Extraction Profiles

Categories:

Oil in particular enjoys the benefit of governmental patronage: in a way that the financial community has been unable to exploit, having PetroVietnam in the background has allowed petroleum companies to acquire dedicated network facilities and get system requests processed. It is not a picnic, and the struggle to get licensed approval for services is still a major drawback, but it is often the deciding factor between getting a VHF network approved after half a year of negotiations and not getting it at all.

Oil Exploration: oil E&Ps have had explosively rapid office set ups, and the multi-site nature of their activities - information resource personnel have to coordinate links between Ho Chi Minh, Vung Tau and offshore facilities. Constant communications needs - coupled with the foreign cash to satisfy them - have created the largest market for dedicated equipment and mobile communications. However, these links - expensive INMARSAT service, unsecured HF broadcasting - are usable but often insufficient. Telecoms usage in the oil exploration sector is cyclical: the three to four months when the companies drill, their service and equipment demand goes up by a factor of three of four. Most E&P outfits interviewed for the report were in their downtime, yet their expenditures were still astronomical.

- 10 companies interviewed were involved in exploration, and another two involved in exploration and production, together accounting for 21% of all respondents.

- Another 5% of the total interviews were conducted with peripheral service companies to the oil industry.

Downstream/distribution: much like the banks, petroleum product distribution activity are currently handles by small liaison offices, lying in wait for business to grow. They function fairly autonomously from the exploration companies, having separate business activities, and communications between up- and down-stream organizations does not appear to be that rigorous. While they have to be in fairly regular contact with corporate offices overseas, real time and emergency communication links are not nearly as imperative as in exploration. 4% of the interviews were conducted with downstream organizations.

Mining: Remotely located, and unable to tap into the infrastructure development of the cities, mining corporations are the lowest on the mineral extraction food chain. While administrative headquarters are established within the urban loop (usually Hanoi), links to the sites are minimal and are as crucial as they are in the oil exploration industry. The mining companies and the service companies are largely dependent upon smaller neglected provincial P&Ts, but the foreign companies interviewed are not content with this: they are looking to jumpstart development by buying infrastructure for the P&T, or getting their own networks.

- Two Australian-based mining companies engaged in exploration joint ventures in and around Ha Tinh province were interviewed;
- Two service companies catering to the mining industry were contacted;
- A senior exectutive from Coalimex, the export and materials sourcing agent for Vietnam's state coal mining industry, was interviewed.

Others: an other category was generated in the process of tabulating the results of the project. Two companies were interviewed whose business activities centered respectively around the trading of mineral and chemical products, and the financing of mineral extraction and other resource intensive projects. Interestingly, these companies shared common demands on telecoms services: the scope of businesses required high, continuous call volumes and significant IDD and trunk phone usage. Not surprisingly, these two "others" were among the most dissatisfied with the level of service and infrastructure. While the trading community is immature in Vietnam (owing much to the slow progress on establishing a stock market), these pioneers may serve as harbingers for an increased driving in mineral and commodities trading as extraction and production steps up.

Mineral Extraction Profiles

Location

Hanoi: The capital of Vietnam serves as the nerve center for downstream petroleum companies; small liaison offices established by the distribution companies maintain contacts with government ministries and military, the primary domestic customers for fuels and oils. Around 10% of the oil community respondents interviewed were bases in Hanoi. As mineral resources are concentrated in the north, so Hanoi is used as a logistics hub; 66% of companies interviewed has their headquarters in Hanoi. The mining sector respondents had activities in Quang Ninh and Ha Tinh province. Vietnam's coal industry is similarly managed from Hanoi, but its commercial and export activities are coordinated from HCM City.

HCM City: Petroleum exploration offices have set up large (relative to Vietnam) offices in the financial heart of Vietnam. PetroVietnam, while its administrative offices are in the capital, has its primary operations centre in Ho Chi Minh City, and its building (located in the former US Embassy compound) has offices for foreign service companies. Over half of the petroleum industry respondents, and 70% of those in the oil exploration segment, were located in HCM City.

Vung Tau: Shell is among the largest of the concessionaires exploring in Vietnam, and the first to establish its logistical heart in Vung Tau as opposed to HCM City. BHP is also supposed to ramp up their existing small administrative office in Vung Tau. While once an outpost that served as a relay point between the offices in Ho Chi Minh and the exploration fields, now companies are beginning to see VT as a full logistics center. Service companies, such as drilling and chemicals companies, have offices there as opposed to HCM (Rig provisioners, however, have offices in both towns). Lack of telecoms service infrastructure has been a primary inhibitant to setting up shop in Vung Tau, yet gradual improvements are being made and as a result, a migration to the coast is underway. The oil community needs more service links, fixed and mobile, between offices in HCM City and Vung Tau, and along the heavily commuted route linking the two.

- 30% of the mineral extraction community interviews were conducted in Vung Tau.

Mineral Extraction Profiles

Phone Bills:

Telecommunications service costs for the mineral extraction industry are staggeringly high, and as they are a primary indicator of operational activity, are also a very sensitive issue. Over 25% of respondents in the petroleum industry refused to give details on their monthly service expenditures.

Office size generally not an indicator of monthly service volume: Downstream and service companies with small staff are on the phone overseas just as much as upstream companies. Of two distribution companies interviewed, one racked up monthly bills of between $1,500 and $3,000, and the other between $3,000 and $5,000.

- INMARSAT service often counts for 10% to 15% of monthly phone bill - if they have a dedicated satellite dish. Because of the costs, INMARSAT is not used as the primary link-up to offshore rigs, it is primarily a back-up, emergency or a secure communications option. This is an important source of IDD revenue that the PTT is not getting access to.

Oil E&P companies budget significant amounts for telecom services in any country, but officers are still irked at the particularly high amounts spent in Vietnam.

- 21% of all respondents indicated that they spent over $10,000 per month on telecoms charges - all of them E&P companies. Another 26% in the oil community placed their expenditures between $3,000 and $5,000 per month.

Mineral Extraction Profiles

Number of phone lines:

Average CO line take up amongst the oil companies is larger than in the banks; on the whole ratio, the exploration community has a higher level of business activity. Safety and system maintenance are major concerns. The mining community, constrained by local line availability, has CO line penetration in great disproportion to their staff and operations size.

- 24% of oil and gas industry respondents has 5 CO lines installed;
- Another 30% operated offices with more than 6 CO lines, the largest with 15.

- The number of installed phone lines recorded often do not reflect the number of outgoing lines available to oil companies. As explained below, many companies rely upon cellular or trunked radio service, not only for personnel in transit, but to provide additional lines in the office.

- There is nothing remarkable in the fact that nearly all oil companies maintained IDD access on all their incoming lines. Only one oil exploration company in Vung Tau maintains CO lines with only local access. The mining companies are less plugged into the international loop -- one mining company in Ha Tinh responded that the company's site office was serviced until recently by extensions off a manual PBX installed in the provincial P&T office. While they now have direct local calls, trunk and IDD calls on all 10 lines must be P&T operator-assisted.

Mineral Extraction Profiles

Shared vs. Direct Access to Phone Lines:

While the downstrean offices interviewed are still in shared facilities, they have supplanted the phone lines originally provided with the office with their own CO lines; clearly the move into a managed facility was a stopgap measure designed to get the operation up and running quickly (one respondent had indicated that the company was seeking its own office space). Exploration companies have much larger set-ups and need their own systems; again telephone conversation security is a high priority, and as a result they are more inclined to acquire their own phone lines.

- A major exception to this trend are the Japanese E&P companies. Of the three Japanese firms interviewed, two had office facilities set up in HCM City hotels and one had only recently moved from a hotel into a bungalow. One of them also operates its Vung Tau office out of a hotel facility as well). These are also seen as stop-gap measures; moves to dedicated facilities are in the works.

- In the services community, the major oil platform provision companies all have offices allocated for them in PetroVietnam's office in HCM City, however there are no telecoms facilities provided for them by PetroVietnam.

3.5 Telecommunications Services

There is an expressed concern amongst the mineral extraction community that there was no clear picture of exactly what services are available in Vietnam In many respondents eyes the availability of value added services is non-existent, and many respondents indicated in interviews that they thought data transmission was outright illegal; one oil executive intimated that his data transmissions are regularly cut. His assumption is that he's not supposed to use data modems over phone lines, but he does not think there is any "legal" data services - both wrong assumptions, but his ignorance is most likely due to a lack of marketing and a clear service policy.

Constant voice contact with overseas HQ is a major component of the oil community's communications needs. Several augment their IDD service with INMARSAT, which also functions as the back-up link to offshore sites. 35% of the oil and gas exploration respondents have INMARSAT service to their offices, and nearly 25% of the total petroleum industry respondents had INMARSAT satellite dishes installed.

Local connectivity is also important, and executives who have been in Vietnam for several years feel that there have been tremendous improvements over the last three years. In specific, the installation of the digital exchange in Vung Tau and the AWA-supplied digital microwave link from HCM City to VT have made life a lot easier for the oil community.

- The mineral extraction community has been a strong impetus to improving domestic connectivity in Vietnam. Telstra has been particularly active in this front: its policy is to assist the DGPT develop the local loop, particularly outside the urban hubs, to grow international traffic. The Bong Mieu Gold Mine outside of Danang has been a major catalyst for development in the central region. Telstra also facilitated the installation of an 18Gb/s NEC Australia supplied digital microwave link from Ho Chi Minh City to the suburb of Tu Dhuc, to cater to the increased traffic coming from the oil community stationed there.

Data Communications/Value Added Services

There are significant pockets of data transfer, between logistic headquarters in Ho Chi Minh and the outside world, and between HCMC/Vung Tau and the offshore rigs. Some

international E-Mail services are tapped into.

Seismic data is transmitted to shore in a few of the more sophisticated exploration sites, but verbal or textual communications and confirmation from ship to shore are the major media.

Packet-switched services are slowly beginning to take root in the petroleum industry: these are the biggest companies in Vietnam, and they have the biggest logistical needs. Again, confusion reigns in the acquisition of such services: technically, the DGPT's Vietnam Data Corporation (VDC) is supposed to provide PSDN service for local links, while VTI in conjunction with Telstra is supposed to provide the international X.25 connectivity. However, many respondents indicated that each operator, as well as the provincial P&T, approaches potential endusers separately, marketing the same packet-switched service. The one oil company with a dedicated X.25 international link was apparently faced resistance from the HCMC P&T as they attempted to negotiate the last mile link from VTI's node and the company's headquarters. For a long period, HCMC P&T refused to install the link for its sister company's service. The respondent is receiving service through its X.25 link now, primarily for the transfer and processing of commercial data and inventory maintenance with its Australian-based headquarters.

Data transfer (apart from fax) is completely absent in the mining community; a "first things first" mentality is in place; aiming to secure voice links to the sites.

As in the banking community, low bit transfer speeds, 1.2baud or 2.4 primarily are deployed, given the reliability of land lines and radio links.

- 47% of the petroleum industry respondents used data service of some sort. The majority of the traffic in the respondent community was ship-to-shore, through VHF-linked modems and maintained by the companies themselves.

- Nearly one quarter of the respondents used dial-up data links to tap into electronic mail services internationally.

- 11% had access to packet switched service, either dedicated or dial-up;

- Nearly 25% employed their ship-to-shore links for seismic and geological data transfer.

3.6 Telecommunications Equipment

Office Premise Equipment

PBX Equipment:

Given the larger operations of the oil community, the PBX was the preferred business communications solution PBX System Size amongst E&P companies are among the largest encountered in Vietnam, but on the whole were small for the region; 50% of respondents' PBX systems were above 30 extensions, but only three respondents had systems over 100 extensions (VietSovPetro's patchwork system has 1,000 extensions).

BCS system expansion is in the plans of most of the respondents; 57% plan purchases of business systems or expansions in the next 2 years.

In Vung Tau, companies were extremely discontent with system quality: half of the respondents had systems that were old and faulty, with systems that had handsets and CPUs dating before the end of the US-Vietnam conflict.

System availability, service and aftersales support decrease exponentially with increase in size:

Australian petroleum exploration concern Broken Hill Proprietary (BHP), chief operational partner for the Dai Hung exploration project, has expressed considerable dissatisfaction with the HCM City P&T BCS distribution network. As in most of the larger exploration concerns, the company has dedicated information resource management officers, which have been frustrated by the lack of technical training given to the P&T by the system manufacturer. BHP's sizable PBX system (by Vietnam's market standards - 120 extensions) took literally months to get running properly. "When they (the P&T distributor) came to deliver the system, they did only that - they brought the PBX up in boxes and dumped them in the lobby," observes a BHP executive. The company had to finally call the system supplier and have them fly in a technician from the Singapore office to install the system. Also initially troubling, but not debilitating, was the P&Ts pre-empting any choice of model; BHP was given an Alcatel CPU with Panasonic handsets, and told that this was the only system available.

As with banks, the functionality requirements are low: there is no need for ISDN, nor elaborate in-house call management; given the "real-time" nature of communications in the oil E&P industry, there is a higher likelihood of it arriving in the extraction community before it before it the banks. Data is not integrated with BCS systems at all; modems are always added on to phone lines for dial-up service.

Alcatel heads up the market in terms of systems sold: 56% of PBX respondents in the oil community had Alcatel Opus systems installed (although 25% had Alcatel systems with Panasonic Easaphone handsets hanging off them). Siemens had 14% of the system market, but over 70% in terms of extensions installed in the petroleum vertical market.

- One respondent had a Mitel SX200 system installed; Mitel accounts for 14% of total extensions installed.

Systems are relatively cheap: the few respondents who gave price estimations on their system were paying around $100-200 per line installed (such that installation service is). The lack of system selection is lamented, but only 11% of respondents actually imported their systems themselves, the remainder going through the P&T distributor.

Office Premise Equipment

KTS Systems:

Systems are similarly inexpensive in Vietnam, but the price gulf with PBX systems is minimal; the only determinant for acquiring a KTS system seems to be the office size requirements. Systems in the petroleum community averaged between 6 and 10 extensions.

- 35% of the petroleum industry respondents had KTS systems installed.

- While Panasonic had a clearly dominant presence in the banking community, amongst petroleum companies the KTS systems market was shared fairly evenly by Alcatel, Panasonic, Goldstar and Taiwanese brands. In terms of extension installed base, Alcatel had 8%, Panasonic had 28%, while Goldstar commanded over 44% of the stations installed.

- The bulk of the market was in HCM City.

- Over 80% of respondents purchased their systems through their provincial P&T.

As shown in the chart below, handsets are relatively inexpensive. As Panasonic and one or two other models are available over the counter at many post offices, end users to expanding systems or replacing stations often purchase and install these "after market" sets themselves.

Prices for Panasonic KTS handsets listed at the HCMC P&T Sales Office

Panasonic Handset Model	Price per Station (US$)
KXT 2335	40
KXT 2310	35
KXT 2365	64
KXT 2315	49
EASAPHONE 4301	183
EASAPHONE	153

Source: HCMC P&T Data, Intercedent Asia

Office Premise Equipment

Single Line Equipment

Single line equipment is relied upon much less in the mineral extraction market than in the banks; most of the offices use some form of internal switching system.

- only 5% of the respondents had de facto single line systems; some respondents incorrectly identified their KTS systems as single line phone systems.

Generally, executives that have need for a dedicated line in this vertical market often satisfy those needs with a cellular mobile phones.

Office Premise Equipment

Fax and Telex Equipment

- Nearly 100% of respondents in the mineral extraction community had fax machines. 62% of respondents had a single fax line on premises; and another 19% had two fax lines. One respondent used 5 dedicated fax lines.

- Over 90% of petroleum companies and 80% of the mining companies interviewed purchased their systems through Vietnamese distributors. Ricoh terminals accounted for 59% of all terminals sold in these vertical markets, with Panasonic taking a 29% market share, and Canon another 6%.

- Telex usage is fairly low amongst the oil community; 35% of the petroleum community use telexes. All of the trading/downstream oil companies interviewed had a dedicated telex on site. Although most oil platforms are outfitted with telexes, only 20% of the E&P companies onshore had their own telex machines.
- As in the banking community, Sagem is the predominant brand.

- Telex is still a staple of the mining community, and it heavily used as an international messaging medium. Over 50% of the mining respondents use telex machines.

Modems and Data Network Equipment

As in the banking community, modems are widely installed, but usage is infrequent and over voice lines or radio links from HCMC, Vung Tau and offshore facilities.

- 41% of respondents in the oil and gas industry interviewed have modems in their premises.

- While most of the exploration community have radio networks to facilitate ship to shore communications, less than 20% of respondents use these links for data communications.

- Not satisfied with local sourcing channels for datacomm equipment, over 80% purchased their equipment overseas. By contrast, most respondents were generally satisfied by the quality and choice in computer terminal equipment in Vietnam, variety which may be accounted for by the relatively deregulated service environment that exists for PC sales.

Local area networks are not used widely (only 28% of the respondents have networked computer terminals) and wide area, multiple site networking is completely non-existent. Many officers in the oil community use laptop computers as their central workstation, further fragmenting PC networks.

With larger players, data usage getting more sophisticated - X.25 usage is on the upswing - but much of the preferred network equipment is US-supplied, and most large firms have strict policies requiring adherence to the US embargo.

None of the oil companies have service nodes in place for their international data networking; as mentioned previously, two respondents are engaged in various stages of using the packetswitched services of the local carriers, but none of the multiplexing equipment is located on premise.

Dedicated Network Equipment

Licenses to maintain and operate private network equipment must be received from the DGPT, along with licenses for frequencies allocated. When oil companies put in their requisitions, they apply in conjunction with PetroVietnam, although the state oil company does will not use the facilities, nor does it appear to have any sophisticated dedicated network of its own. The patronage of PetroVietnam helps, but it is not a failsafe method of obtaining licenses. The less dedicated the broadcast media is the easier the process is - the regulators usually approve high frequency and walkie-talkie equipment fairly immediately, but more complex systems can take up to a year to get approval. Most of the oil companies are running their own systems, as they are relatively small and the companies attempt to distance the DGPT as much as possible in the system operation - 66% of oil and gas respondents with dedicated facilities operate it themselves. DGPT-affiliated contractors, primarily COKYVINA, are usually engaged in the system installation, and the respondent community expressed the same dissatisfaction with their ability to integrate radio systems as they did with the installation of PBX systems.

The mining community is faced with tremendous communications constraints, and is seeking options to alleviate the bottleneck. Westralian Sands, which is involved in a joint venture mining exploration project in Ha Tinh province, is commissioning a dedicated mobile system with approximately 10 terminals, to be maintained and operated by the Ha Tinh P&T. While this project is going smoothly - partially because of the cooperation with the P&T - an earlier project planned to deploy a company-operated TDMA system ran into some snags with the authorities over security system. Some strange security measures were included in the license - the DGPT insisted that the only language used in communicating over the system be English, not Vietnamese - and the project was eventually dropped when the more mutually acceptable P&T operated cellular radio option was presented.

Ship to shore links are in nearly every respondents' case provided by a combination of HF and VHF radio terminals.

- 40% of mining respondents and over 73% of petroleum companies interviewed have some form of dedicated network equipment installed. 33% has exclusively HF networks (disdained for secure communications) and 25% had VHF transmission

equipment; another 25% had a combination of the above, or combined with UHF.

- Voice and Fax transmission were the primary media used in dedicated network equipment - 50% of respondents confined their usage to the two. 16% pulled data transmission onto the same streams, and another 8% indicated that they used dedicated channels for each voice and data.

- There is an emergence of microwave in the oil community, both dedicated and public loop. As mentioned, at the petroleum community's insistence, a microwave trunk was extended to the oil community in Tu Dhuc, and one respondent is engaged in installing a microwave repeated in Vung Tau.

- The number of sites needed to be networked is fairly small - usually the station in Vung Tau with one or two rigs, a few land mobile stations, and occasionally a relay back to HCMC. 50% of the respondents said that their network only extended to three or less sites, and nearly 70% had 5 or less. approximately 25% had networks with 12 to 20 sites hooked up.

None of the satellite dishes used in Vietnam are dedicated to the end user; INMARSAT terminals are used only for INMARSAT communications, and even those are becoming increasingly hard to get approval for. A handful of respondents commented anonymously that they had imported INMARSAT dishes without registering them. Private VSAT ownership is also prohibited - the Reuters dishes in use are technically owned by the service company. TVRO dishes are very hard to come by, with months of paperwork to justify the need. Here, though, the tight-fisted policy clashes with a increasingly profitable business: the DGPT also controls the only TV satellite dish supply and installation company. When approval is granted, the license is used for all its worth - British Petroleum's compound is understood to have a DGPT -supplied cable distribution network off a TVRO for all its residences.

- Off-shore rigs provide their own network infrastructure; platforms are fully outfitted with INMARSAT dishes, and usually HF and VHF transmitters, before they sale to Vietnam's waters. The task of acquiring terminal and transmission equipment falls upon the platform service provider, not the exploration company. Equipment

installed on platforms and services subscribed to by offshore rigs are not subject to any regulation or tariffing by the DGPT.

Many respondents would like to see an improvement in the trunk capacity between HCMC and VT, and eventually will seek to lease circuits if they become more available (and affordable).

VietSovPetro, Vietnam's only petroleum E&P operation currently in production, is a joint venture between the former Soviet Union and PetroVietnam. The company is based in Vung Tau, with a staff of 1,500 Russian expatriates and 4,500 Vietnamese. The company currently operates HF and VHF systems to link them to 20 sites, both offshore platforms and ships as well as land mobile and fixed stations around Vung Tau. VietSovPetro operates a transmitting station in the hills surrounding the tow, and the 2 VHF channels in operation are also received in VietSovPetro's offices and can be patched into the 1,000 extension PBX (a system apparently spliced together of various models, Siemens and Goldstar among them). VietSovPetro's telecommunications division has indicated that they are in tremendous need of a wireless communications system to replace their existing system; the VHF system is faulty and unreliable, and the HF system cannot support data transmission (currently broadcast ship to shore over the VHF channels at 1.2Kb/s) and is not linked to the switchboard. VietSovPetro's requirements are for a system that can broadcast in a 140 km radius around Vung Tau and out to shore, with power requirements of 100 watts. The central broadcast station is to be at VietSovPetro offices, with a repeater station at the existing hilltop site - which must be operated remotely from company offices. Point to Point and Point to Multipoint broadcast are required, as land mobile terminals must be able to communicate with offshore stations. Data, fax and telex must be supported, and all terminals must be able to interconnect to the internal PBX, although patch-troughs to outside CO lines or IDD from the mobile stations are not required. As the company's data terminals in Vung Tau are not networked through the PBX, dedicated data channels are sought.

Mobile Systems and Terminals

As examined previously, cellular service in Hanoi has yet to materialize, although its absence is not felt significantly in the mineral community there. The mining organizations have no need for mobile links outside of their provincial exploration activities, and the oil companies located in Hanoi are the distribution offices, which do not handle any logistical support of exploration activity.

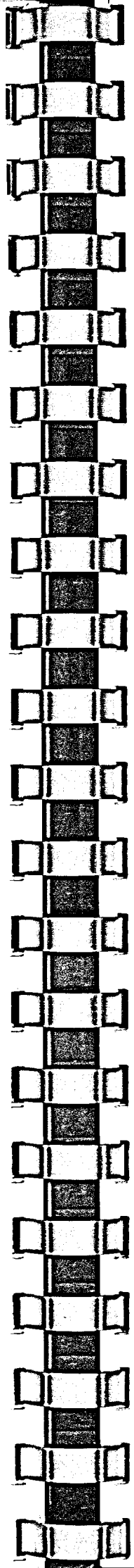
By contrast, the oil community is heavily dependent on mobile services (both public and private) in HCM City. 70% of respondents in the petroleum community had mobile service, cellular and/or trunked radio subscriptions. All the mining respondents located in Ho Chi Minh City had access to at least one cellular phone, and the respondents based in Hanoi were all in the process of sourcing dedicated mobile equipment.

- Multiple handsets are in use for most of the respondents: 46% of respondents had between 3 and 5 mobile lines in service, and 15% had between 10 and 20 lines.

- Ericsson Hotline and Nokia were the most predominant brands used.

Paging in Vung Tau: Epro's paging operations in the coastal city is heavily used by oil respondents, as the only paging operator that extends service to the coast and in the absence of cellular service. Alphanumeric service is the top choice.

Oil company professionals use Call Link Cellular and Mobile Net trunked radio as a real logistical support tool, only half a year ago, it was used primarily as a stop gap service for getting basic phone access.



Chapter 4. TELECOMMUNICATIONS ADMINISTRATION AND REGULATION

4.1 DGPT Organizational Overview

As the central authority for posts and telecommunications in Vietnam, the DGPT is entrusted with the provision and regulation of telecommunications services. It is charged with maintaining security of all telecommunications in the country - public network and private infrastructure - and thus has overriding authority on the media and content of any facility installed.

Beginning in 1990, an overhaul of the DGPT's organizational structure took place, with an eye towards streamlining the centers of network development, and separate the actions of telecommunications operation and regulation (please refer to the organization chart below). The result has been a corporatization of sorts, with various service operators providing local, trunk, international and enhanced services on behalf of the carrier.

These operator organizations do exist now and have their own spheres of authority - although some divisions, such as mobile services, do not yet have network infrastructure to operate. While each operators jurisdiction is defined, there are areas of overlap, and there is no clear component of policy to define the areas of cooperation and interconnection.

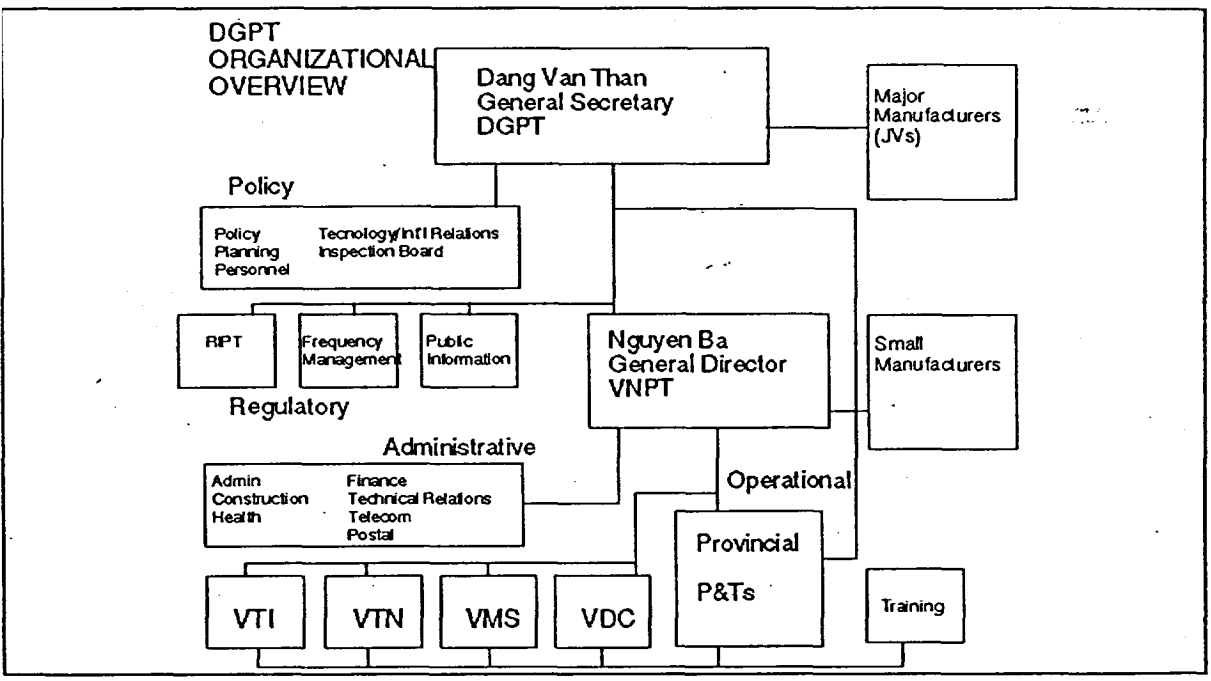
- The hub of Vietnam's policy and direction still rests within the General Secretary. Financial and personnel administration, issuance of standards and regulatory policy, frequency allocation, and R&D.

- The GenSec also maintains chief authority over the roughly ten joint venture telecom manufacturing ventures in Vietnam. Although its also claims to maintain foreign relations with carriers and suppliers, foreign cooperations units are duplicated in the Vietnam Posts & Telecommunications Corp. (VNPT) and the major national and provincial carriers.

- VNPT is the national operations corporation, responsible for the interconnection of provincial networks with national networks and the overseeing of the operational and development process.

• Vietnam Telecom National (VTN) is the national long distance carrier.

• Vietnam Telecom International (VTI) is responsible for provision and maintenance of international links, in conjunction with Telstra. It also retains responsibility for provision of international value added services.



• Vietnam Data Corp. (VDC) operates domestic data transmission services - at present, a single, three node packet switched network with only a handful of subscribers.

• Vietnam Mobile Services (VMS) is tasked with developing and maintaining control over all mobile communications services in the country - despite the fact that the HCM City operator and Singapore Telecom International have beaten them to the punch.

The DGPT has provincial telecommunications authorities - Post and Telecommunications organizations, or P&Ts - in 33 of the major provinces and in the major urban areas such as Hanoi, Danang, Ho Chi Minh and Vung Tau. Each provincial administration is nominally responsible for maintaining its own budget and allocating its revenue towards its network development, although these are all subject to review by the DGPT. The fact that Vietnam

is attempting to develop its provinces as profit centers partially explains the territorial nature of the P&Ts when dealing with interconnecting carriers VTN or the VDC.

While this quasi-corporatization of the DGPT has resulted in a slightly more focused and market-driven path towards network development, it has also sparked a trend towards sub-division of service responsibilities. The HCM City Provincial P&T, for instance, has hived off various strategic business units to handle value added services, telex services, etc. In turn, many of these SBUs have each taken the liberty to issue BCC contracts and develop overlapping services - four paging companies operate within HCM City, each with their license awarded by a separate sub-organization within the P&T. On the macro level, various policy and research organizations within the DGPT's regulatory wing have begun to sprout manufacturing and equipment distribution wings (see below). The DGPT is conscious of this homegrown entrepreneurial activity within its organization, and its clear "top down" command chain has been strengthened in the past year to counter further divisionalism.

4.2 Service Operation, Ownership and Maintenance of Infrastructure

The DGPT's authority is ultimate, and unlike other national carriers that have evolved into separate and autonomous centers of policy and network operations, the General Secretary of the DGPT is still very much in charge of both activities. However, it does relegate a large portion of the day to day maintenance and operation of national infrastructure to the VNPT, which acts as a super-operator in Vietnam.

The DGPT over the last two to three years also extended a fair amount of autonomy to the provincial P&Ts, although as discussed later, this may be retracted somewhat to head off a perceived fragmentation of the chain of command. As a regulator, it naturally sets policy on frequency regulation and standards, but it also retains ultimate authority over all operator budgets and development programs.

The VNPT serves as a practical interface between the DGPT and foreign suppliers, advises the regulator on technical and network development matters, and implements policy in its operation. Its central advisory role to the DGPT and its position as one of the central interface point with the influential foreign manufacturer community gives it much broader authority.

While not specifically prohibited, the operation of dedicated communications facilities is tightly controlled in Vietnam. The low level of technical skill and capital has until the present been a major depressant to the building of private networks, and has not created much opportunity to formulate a clear policy. The ultimate right of operations, as mentioned, remains with the DGPT, but interviews will officials there have revealed that the authority considers each request on such criteria as necessity and the economic viability of the organization making the request.

- The "economic viability" question is perhaps the most important criteria; the organization in question stands the best chance of getting approved if it is involved in a high profile growth industry, and typically this means recourse development. An influential ministerial organization can also greatly influence the outcome of the organization's request.

Licenses are approved in slow order, as a very methodical review of the purpose of the facility is conducted. Licenses are not granted on a blanket basis; each radio channel and terminal station carry their own license, as does the enduser carry a permit which specifies

what information and media exactly the party is allowed to transmit. If there is a public network alternative (such as calling INMARSAT stations through the IDD network) dedicated equipment is severely discouraged.

Third party traffic is strictly prohibited; any operation of network infrastructure on behalf of another party must be carried out by a DGPT operator, or through a BCC venture with a foreign party and the DGPT or its carriers.

Also prohibited, in practice if not policy, is the ownership of terminal and transmission equipment more sophisticated than radio transmitters, etc. Specifically this applies to VSATs - the DGPT has not allowed any end user to own and maintain its own satellite receiving station for data. Reuters clients in Vietnam do not own their terminals - Reuters does. Even TVROs are hard to acquire - and the DGPT has a monopoly on the sale and installation of the terminals. INMARSAT dishes were an exception to this practice in the early stages of the oil exploration industry, for reasons of safety and logistical support.

Private cable-based networks do not seem to be deployed, except as reserved or leased facilities off the VTN or P&T network.

There is, however, seemingly no restriction on the "sponsoring" of public network equipment to gain access to it, and in fact the operators - particularly more remote P&Ts - are bullish on using this method to expand their infrastructure.

4.3 Equipment Distribution

The respondents interviewed do not perceive any distributor options for acquiring their CPE other than importing it or going directly to the DGPT's provincial or national operators - still commonly and collectively referred to as the Post Office. Indeed, the DGPT has created this situation, by retaining a tight grasp on the distribution of telecoms equipment in the country, a lucrative and growing industry. CPE sales, service and installation are carried out by materials supply organizations attached to the respective provincial administration. Some smaller, private distributors of office automation equipment - faxes and telecopiers - exist, but tend to have close ties to these provincial distributors. Imported equipment is subject to inspection before interconnection, with fees averaging $50 per terminal connected.

COKYVINA is the VNPT authorized subsidiary responsible for importing, distributing and installing CPE in the Northern provinces, and their outlets seem co-located with Post Offices, so any distinction is not very apparent to the enduser. There is also the Hanoi Company for Development and Supplying Postal Materials, not sure how they are related, and the Telecom Manufacturing and Research Enterprise. Contact details for distributors in Hanoi are provided in Appendix A.

The Posts and Telecommunications Materials Supply Corporation (POSTMASCO) is the systems distributor for Ho Chi Minh City and coordinates sales for the Southern Provinces; again, the distinction of POSTMASCO as a separate sales agent is not one which endusers easily make.

The DGPT has also a battalion of organizations, often possessing shared authority, to handle technically specific areas of equipment installation - most notably for the installation of radio transmission equipment and television receive only (TVRO) dishes. The licenses to gain access to the equipment and operate it must be organized by the enduser themselves, which is usually a long, paper-intensive process. Having the distributors and installation organization as a discreet entity within the DGPT does not appear to streamline the process.

To further complicate matters, the various divisions of the newly restructured DGPT also have their own sales and materials supply organizations: one respondent from Hanoi stated that they engaged the Research Institute of Post & Telecoms (RIPT) to source their business communications system. While this does not appear to be an activity which the technical standards regulator should be involved in, the RIPT fronts a subsidiary known as Minh

Phuong Co., or MICO. However, MICO's offices are in the same premises as COKYVINA, and the two organizations are believed to be quite transparent.

1.4 Joint-Cooperation Ventures and Foreign Carrier Participation

The door is open for foreign carriers in Vietnam - but its hard to find a place to sit once inside. The enthusiasm generated by Vietnam has filled the DGPT's appointment books for a long time to come. Vietnam is still pushing hard to overcome overwhelmingly poor service coverage and facilities, and fully welcomes new participants to engage in Business Cooperation Contracts (BCC) - not BOTs, not equity stakes. However, the DGPT is spoiled for choice, and with heavy hitters like Telstra spending millions out of their own pockets on the Vietnamese network, simply promising expertise and capital is not enough to gain a competitive stance. In working niche areas, such as value added services, the potential to stand out exists. However, as Telstra's example shows, it is a constant battle for visibility and influence.

Telstra: Australian Operator Continues to Play Pivotal Role, But Pays for the Privilege

Telstra's Business Cooperation Contract is officially with the Vietnam Telecom International (VTI) to develop international gateways and services, although it is authorized and maintained by the DGPT. The Australian carrier is well-entrenched in the future of Vietnam's telecom development, thanks to foresight and market expansion goals dating back to 1986. The carrier holds significant influence over the pace of network development, not only for international services - by which it single-handedly brought the DPGT a windfall in foreign exchange earnings - but also for basic network development. Telstra has also seen a wave of Australian suppliers ride in on its success and pick up prized ground floor contracts. However, the carrier is not omnipotent; it still is battered around by the inter-operator fighting that goes on for Telstra's expertise and resources, and it finds itself funding a large share of Vietnam's national network development to stay on top.

Telstra's commitment was further underlined in the last month, when it signed over $122 million in funds to pay for Vietnam's share in the forthcoming Hong Kong-Vietnam-Thailand submarine optical cable system. However, the international network is not the only area getting a Telstra facelift; the Australian carrier is also funding the installation of switching exchanges and junction transmission links. Telstra maintains a core staff in Hanoi and a business liaison center in HCM, but has literally dozens of staff rotating through its offices project by project.

The Australian carriers initial maneuvers, to install earth stations and fund international

gateway switches in Hanoi and Ho Chi Minh city and financed the construction of four major trunk exchanges, were met with swift returns on investment. Now, however, the trick is to stay in the game without paying for all of Vietnam's expansion plans.

Major Telstra projects include microwave links to high international traffic volume destinations - Thu Duc and Vung Tau - as well as construction of major trunk exchanges in Hanoi, Ho Chi Minh City, Haiphong and Quang Ninh. Telstra is also funding the expansion of urban junction networks using TDMA technology, and has been involved in the building of Vietnam's third international gateway in Danang. Telstra currently maintains 900 international circuits for Vietnam over Intelsat.

Despite having drafted a master plan of their own to provide the DGPT with some overall guidance, Telstra executives have indicated that they are pulled into the mercurial spending patterns of the Vietnamese carrier, being requested to purchase lower order digital exchanges simply because the price was right. Telstra is also considering building a 12-storey office block in Hanoi for the local and foreign telecom community, to upgrade the DGPT's logistical capabilities.

Telstra is currently in its third year of its ten year BCC with VTI. Its cooperation has opened up Vietnam to the international telecom community, and caused international traffic to increase from under 3 million minutes in 1988 to over 80 million minutes in 1993. Telstra's position is bolstered by the warming relationship between the two governments: Telstra is also believed to be looking to expand its BCC, through negotiations with the DGPT. The Australian government has been heavily courting the Vietnamese telecom authorities to this end.

International sensibilities and desires to establish themselves in Vietnam's telecom markets in spite of the U.S. embargo has generated blatant disregard on the part of some equipment distributors, and one instance of elaborate corporate sidestepping.
Telenz International, a group headed up by former Telecom New Zealand employees, picked up a contract $NZ45 million ($US25m) contract to install telephone lines in Ho Chi Minh City. Telecom New Zealand, which since its privatization in 1990 has had U.S. corporate parentage, originally won the installation and engineering contract, but was forced out after the prospects for the US embargo lifting worsened. It is assumed that the creation of Telenz International is a stopgap measure to move ahead on the project while waiting out the embargo.

East and Southeast Asian carriers are actively courting the Vietnamese, bringing their hard-won experience and prosperity to what many consider to be the region's hottest telecom market after China. Most are going for fast return ventures in areas they know well - Thai telecom giant Shinawatra and Hong Kong company ABC are among those providing paging services in HCM City.

- Singapore Telecom is hoping to tap some of the lucrative IDD traffic in Vietnam. It is currently engaged in funding and engineering a capacity expansion of Hanoi's Intelsat dish. STI's Infamous Call Link venture, while providing important visibility for the carrier, may be in jeopardy if the DGPT sticks to its guns on the national cellular issue.

- Malaysian manufacturer and payphone operator Sapura was one of the first BCC entrants into Ho Chi Minh City. The company is providing OEM GPT prepaid cardphones to the HCMC P&T and cooperating in the operation of a payphone network, which recently completed its 1.5 year trial phase. Sapura is looking at investing US$4 million in installing 2,000 cardphones over the next three years.

4.5 Liberalization and Privatization Outlook

In recent meetings with the DGPT, officials indicated that while BCC-type ventures were welcome additions to the development program, full-scale BTOs and BOTs were not to be considered in the near future. Full or even partial privatization of services was similarly discounted. Here the DGPT is firm: as regulator, it needs to control the flow of communications traffic and monitor it for security purposes, and as operator, it wants to ensure that all possible streams of service revenue are channelled through its own operating companies.

There has been speculation raised that the groundwork laid in restructuring the DGPT and its operators will pave the path towards a privatization of services. This outlook is expressed notably from officials in the Australian law firm Middletons Moore & Bevins, which has reaped the benefits of Australia's pivotal role in developing Vietnam's telecommunications network, and is advising the DGPT on telecoms legislation.

This is not, however, a view shared by the DGPT itself. It does not consider privatization of public network services a necessary, or even feasible, prospect in the years to come. DGPT officials have indicated in interviews that structured development of telecoms can only be achieved through nationalized initiatives. The splitting of the DGPT into operations and regulator is simply a move to better manage the process.

There are indications from the central authorities interviewed, as well as industry observers in Hanoi, that the service and development scope of the BCCs signed with the HCMC P&T will be contained. The feeling in Ho Chi Minh, on the other hand, is hardly as pessimistic.

There is a distinct clamping down on the autonomy that the provincial P&T (and most importantly the HCM City P&T) enjoy from the national level, as they are seeking to reign in the proliferation of unchecked business cooperation agreements with foreign carriers, to maintain control of the development of services and their revenue. Cellular has come under particular attack - the DGPT has gone on record as stating that no more provincial P&T cellular ventures will be considered, that all development of service must come from the national cellular carrier, recently formed in the restructuring of Vietnam's telecom operating scheme, Vietnam Mobile Services(VMS). Much of the development of national services in all respects is on hold until the UNDP and ITU sponsored master development plan carried out by DETICON is ratified and approved in Geneva - which the DGPT says will happen

by the end of the year - but these points are clear:

- only digital strategies (and for now, read GSM) standards will be allowed
- BOT/BTO strategies will not be considered, only the strategic Business Cooperation Contract ventures between foreign carriers and VMS.

Industry officials have stated that the DGPT has effectively limited the growth of the HCMC P&T - Singapore Telecom International Call Link venture by prohibiting future cellular development to be carried out on analog standards or in cooperation with non-VMS provincial operators, Call Link has been officially capped, and relegated in the eyes of the DGPT to a trial network. Industry observers doubt that Call Link will get an extension to its license, and that Call Link may eventually be dismantled.

The ultimate test of this new mandate will come when the DGPT decides what to do with the GSM networks coming onstream soon. Ericsson's GSM network in HCM City should be operational by first quarter next year, but there is no word on which company will assume operational control over it. The future of the GSM trials to begin in Hanoi are in doubt; the new 2,000 subscriber network has been delayed indefinitely as interconnection and technology glitches have prevented Alcatel from launching the network at the end of September as planned.

While the outlook for future foreign participation in cellular services is still unclear, an RIPT official at a recent conference gave an overview of available spectrum in the Vietnam network. The inferred message was that these bands may be exploited by future BCC participants:

Frequency Band	Service Utilization
174Mhz	Paging Services
470Mhz	Public Access Mobile Radio
890-900Mhz; 935-945Mhz	Cellular - Hanoi
905-915Mhz; 950-960Mhz	Cellular - Ho Chi Minh City

Source: RIPT

Chapter 5: PUBLIC TELECOMMUNICATIONS INFRASTRUCTURE AND OUTLOOK

5.1 Vietnam public network, 1993

Switching installed base

In 1993, Vietnam enjoys almost 100% digitalization in the exchange level; 49 out of the nation's 53 exchanges were digital in October 1993, with estimations of 100% digitalization by mid-1994. Vietnam will have 300,000 lines of local switching installed by Year End 1993, a marked increase over 1992's 185,000, and 155,000 lines in 1991.

- Switching equipment in Hanoi and Ho Chi Minh City was fully digitalized in 1991. Switches in those cities are primarily supplied by Alcatel, Siemens, and NEC, with some input from Goldstar in Ho Chi Minh. Hanoi has roughly 50,000 main stations, while Ho Chi Minh has approximately 55,000 in service now, with another 65,000 digital lines going in service by the first quarter of 1994. The delivery commitments from suppliers should satisfy the carrier's demand into the end of the year.

- International gateways are being supplied by Ericsson. There are currently two (Hanoi, Ho Chi Minh) and one being installed in Danang. There is some speculation on whether the Danang gateway will have public loop traffic routed through it; Alcatel in conjunction with France Telecom developed ILC service for the foreign business community stationed there, and the gateway may simply serve these dedicated applications.

- Firmly entrenched Alcatel was awarded a contract in April 1992 to supply 60,000 System 1000 E10 digital lines to be installed in Ho Chi Minh City and the Mekong Delta town of Can Tho. This brought its total deliveries and orders to over 130,000, of which close to 90,000 are committed to Ho Chi Minh. Alcatel supplied Vietnam's first digital exchange, in Hanoi in 1989.

- Siemens has installed one EWSD exchange in Ho Chi Minh City from a 1989 contract, adding 45,000 lines. 16,500 lines of EWSD went into Cholon in 1992. Additional EWSD orders to the Mekong Delta were signed last year: Siemens enjoys a

strong relationshp with the Ho Chi Minh P&T, and the HCMC P&T is the governing P&T over the five Mekong Delta provinces.

• Italtel delivered 31,000 lines of its Linea UT digital exchange last year. The exchanges were installed in the central and seacoast provinces in and surrounding Hue.

• Goldstar has built up an impressive base of systems sales for its STAREX IMS PBX system to the DGPT. The Korean supplier has installed over 50,000 lines through 24 P&T administrations in the southern, central and northern regions - including 5,000 lines to Ho Chi Minh City. Goldstar has reaped the benefits of the VNPT's policy towards deploying PBXs in rural areas.

Vietnam: Digital Exchange Orders by Supplier

	Lines Installed and
Alcatel E10	135,000
Siemens EMS	200,000*
NEC NEAX	70,000
Goldstar Starex IMS	52,000
Italtel Linea UT	30,000
C-DOT RAX	5,000
Ericsson AXE	8,000**
Fujitsu FETEX	10,000
TOTAL	510,000

Source: Company Reports, Intercedent Asia Estimates

* Ports (includes trunk lines as well as local exchange lines)
**International Gateway switches only

• Vietnam's rush to expand has created opportunities for smaller, inexpensive product: India's C-Dot has installed several thousand lines of its RAX switch, and is looking to form a technology transfer agreement with the DGPT.

- NEC has installed 17,000 lines of NEAX in Hanoi and another 35,000 in the central provinces. The Japanese supplier has also substantial orders with the Ho Chi Minh P&T.

Vietnam has sought diversity in its equipment procurement; too much diversity, some would argue. There has been no formalized tendering process to orchestrate the various suppliers and structure their installation patterns; Ho Chi Minh City, for instance, has equipment installed by at least five different suppliers. A time of rationalization, particularly in switching, may be on the horizon.

Transmission Network

In March 1992, construction began on a 1,861 route-km optical fiber trunk from Hanoi to Ho Chi Minh City. The 34Mb/s system forms the primary long haul trunk connecting Vietnam's political and economic poles, and was supplied by Italy's Marconi-Pirelli Company. The contract was originally commissioned for US$20 million, to compliment and run parallel to the Siemens-supplied 140Mb/s digital microwave system. Marconi has indicated that it will also manufacture some of the operating equipment including the terminal interface and multiplexers. Despite blips in the project when the Italian government rescinded on its soft loan, and sporadic international protests that continued even after Telstra picked up the bill for the route (reportedly for US$15 million), the fiber trunk was implemented ahead of schedule, in May 1993.

The planned microwave route between Hanoi and Ho Chi Minh was in place as far as Nha Trang at the end of October 1993, and will be complete to Ho Chi Minh by end 1993. At the end of 1992, over 200 systems were installed by Siemens for the route. Siemens has also been awarded the extension of the project into the Mekong Delta provinces; construction will begin next year on spur expansions to Tong Be, Can Tho, Rach Gia and Ca Mau.

In late October, Siemens Australia won a contract to supply 150,000 terminal units of digital loop carrier equipment to 50 district-level CO exchanges. The main distribution frame and intermediate distribution frame equipment will be supplied to the VNPT over two years. Siemens will source the equipment from its Australian subsidiary for local assembly through a cooperative effort with the POSTEF division of the DGPT.

Through Telstra's plan to develop domestic trunk and junction capacity in a bid to increase international platform access, the carrier has been sponsporing a number of local transmission projects, and has been dabbling in projects for dedicated facilities. The initial entry point for dedicated transmission is the increased usage of satellite transmission, particularly for remote industrial concerns. In the second phase, Telstra plans to introduce links off TDMA systems, charging end users an access fee of US$600/month for a channel to connect them to public loop.

Telstra has allowed a number of Australian transmission suppliers ride on its coattails into Vietnam:

• An early entrant into the transmission game was Australian supplier AWA. AWA has installed a 4Mbps route from Nha Trang to Quang Tri, with an 8 Mbps link from Quang Tri through Nam Dinh to Hanoi. AWA has also provided the 2, 4 and 8 Mbps hops connecting Hanoi and Ho Chi Minh to their neighboring provinces. The routes and transmission speeds are as follows:

	2 Mbps	4Mbps	8 Mbps
From Hanoi to	Cao Bang Luan Chao Lao Cai	Hoa Binh Hai Phong Mong Cai	Nam Dinh
From Ho Chi Minh to	Sa Dec Rach Gia Ca Mau (all via Can Tho)		Can Tho

• NEC Australia has installed 34Mbps microwave links, notably from Ho Chi Minh to Vung Tau.

Australian JNA telecommunications has been awarded a contract to supply Telstra with its AS2000 digital loop carrier system for Ho Chi Minh City , to be installed by year end.

International Network

The bulk of international circuits in Vietnam are provided through satellite: the DGPT's two Intersputnik ground stations have been supplemented by the two Telstra-provided Intelsat A stations installed in 1988 and 1990. The DGPT plans to put in an additional two Intelsat stations, bringing the total to 6.

Telstra itself maintains 900 telecom circuits on Intelsat for the Vietnam network.

VTI's network is supported by two Ericsson AXE103 international gateway switches in Ho Chi Minh and Hanoi.

The DGPT continues to give a priority to international services, given the importance of IDD traffic revenue and the continuing support from the BCC with Telstra, which plugs the DGPT into Telstra's technical expertise, equipment sourcing capabilities and of course financing. Telstra's cooperation in building Vietnam's international facilities is also providing additional funds and capabilities for domestic loop expansion, as Telstra seeks to grow the base of potential IDD users by developing national trunk routes and switching services.

- VTI and DGPT are looking forward to the Hong Kong-Vietnam-Thailand optical fiber cable, going online in 1995. The consortium of VTI/Telstra, Communications Authority of Thailand and Hon Kong Telecom International, have extended invitations to bid for the cable network supply to five companies: AT%T, NEC, Fujitsu, Alcatel Cable and STC.

Telstra estimates that there are less than 10 subscribers to international leased circuits (ILCs) in Vietnam. There is a similarly small base of ILCs in service into Vietnam from outside carriers. The main deterrents to subscription growth are the high costs and end user speculation over the quality of the connection. A full 64Kb/s channel leased to Australia over satellite commands a monthly tariff of US$9,500; tariffs for full ILCs to the respondents' top international destination, Singapore, are in the order of US$8,000 per month. An international packet-switched network is maintained by VTI and Telstra, which engages satellite circuits from HCM City to Sydney, where the hub international node is located.

Data and Value-added Networks

The development of data services in Vietnam has been stifled for a number of reasons. Many of the foreign companies are small operations without large datacomm transport needs. As often cited, the quality of the public switched circuits is not good enough to handle transmission at very high speeds, and even modem users attempting to transmit at 1.2 or 2.4 baud experience interference and drop-outs. Leased circuits, domestically and internationally, are hard to come by, and expensive. Marketing of Value-Added Service offerings has been poorly done by the DGPT's operators, which often compete with one another for the limited VAS subscribers in Vietnam.

There are currently two packet-switched services in Vietnam, one operated by the DGPT's domestic data communications operator Vietnam Data Corporation (VDC) and the other by the BCC partners Telstra and VTI.

- VDC's X.25 service consists of three nodes in Hanoi, Danang and HCM City. All nodes have 32 ports, and provide leased circuit accessibility. Alcatel CIT supplied the network infrastructure.

- VTI's international packetswitched service is routed via satellite through Telstra's service hub in Sydney. Telstra has sourced network equipment from CASE Communications, and installed service nodes in Hanoi and Ho Chi Minh City (each with a 32 port capacity). Dial-up service from Danang can also be supported.

The Reuters Experience

In June 1993, Reuters received a license to transmit its financial information services to Vietnamese and foreign organizations via VSAT. This was the culmination of nearly four years of effort by the service provider. Reuters' license fell close on the heels of the passing of a Prime Ministerial decree, 118/TG, which authorizes both local and foreign entities to subscribe to information services. The international wire service's hard lobbying was largely responsible for the issuance of 118/TG, and Reuters was the first and remains the only information service provider licensed in Vietnam.

Reuters supplies its financial text services through dedicated VSAT terminals, licensed to

Reuters and imported solely for the purpose of service distribution. Reuters estimates that it has approximately 12 dishes in service throughout Vietnam. Company executives have indicated that Vietnamese authorities had a difficult time accepting that the dishes were only peripheral to the service. Subscribers must apply for a license from the Ministry of Information to receive information services, and that license specifies the service, vendor, and medium, as well as the specific programs or applications received. It is not a blanket license; any alterations, additions or changes in subscribed services require additional licenses.

Reuters apparently spent a long time sifting through the various government ministries in an attempt to secure a "sponsorship" in the form of a government entity that would guide and support them through the licensing process. The DGPT was one of seven or so ministries consulted in its four year quest to develop the appropriate channels. Ultimately, it was decided that the Ministry of Information was the appropriate interface point, to marshall the various concerns of the government from service provision and security standpoints.

Some industry observers feel that Reuters did not exploit the power of cultivating relationships with influential state organizations. The observation is that had Reuters developed a relationship with the State Bank of Vietnam and/or several of the larger local banks - those state bodies which have the greatest need of the services Reuters provides - it would have had additional lobbying power on its side.

A similar charge has been levelled against SWIFT, another of the banking network services that end users crave in Vietnam. Although SWIFT has recently begun a spate of marketing missions into Vietnam, this in the eyes of local financial executives is a backpedaling move. SWIFT is felt to have made the initial mistake of waiting for Vietnam to come to them to sign on as a member, and has only begun to actively market when it realized that a more pro-active stance had to be taken towards the market.

Another important financial information service, Dow Jone's Telerate, is naturally barred from providing service into Vietnam because of the US embargo.

Mobile Networks

Singapore Telecom International entered into a BCC with the Ho Chi Minh City P&T to provide AMPS analog cellular service in the greater HCM City area. The service began operations in May 1992, and subscribers at the end of October 1993 were estimated at 3,000. The service, dubbed Call Link, operates on an Ericsson supplied system with three base stations. Call Link sources have estimated the system capacity at 4,000 subscribers.

There is speculation that the DGPT has limited the growth of the HCMC P&T/Singapore Telecom International Call Link venture by prohibiting future cellular development to be carried out on analog standards or in cooperation with non-VMS provincial operators. Call Link's network capacity has been officially capped, and relegated in the eyes of the DGPT to a trial network. Industry observers doubt that Call Link will get an extension to its license, and that Call Link may eventually be dismantled.

The future of the GSM trials to begin in Hanoi are in doubt; the new 2,000 subscriber network has been delayed indefinitely as interconnection and technology glitches have prevented Alcatel from launching the network at the end of September as planned.

Call Link sales executives claim that a 4th base station will be placed in Vung Tau by the end of this year, to exploit this most lucrative mobile corridor.

Cellular has been relied upon by the business community of Ho Chi Minh City to jump the months' long waiting list and get instant connectivity. CallLink, the BCC between HCMCP&T and Singapore Telecom International, is bursting at the seams with 3,000 subscribers on its Ericsson supplied AMPS network. Future expansion of CallLink, however, is hazy, given an edict from the DGPT's stating all further cellular development in the country be digital. Alcatel supplied a 2,000 subscriber trial network for Hanoi, but local industry watchers claim there are technical problems in getting the system up and running. No clear picture of a national network has emerged.

Call Link's three base stations, in HCM City proper and the suburbs of Cho Lon and Thu Duc, each have a radius of 15 km. Call Link estimates that 3,000 subscribers are on line with a network capacity of 4,000. Call Link has been claiming that a 4th base station will be placed in the oil town of Vung Tau by the end of this year.

When contacted in October, Call Link offered only one handset model: NOKIA 101. Earlier models issued, including the Nokia P4000, NEC P3, Motorola Micro TAC, and Ericsson Hotline are all "sold out" (Ericsson's handset was supposedly the only one that could interface with a fax, and its unavailability irritated one respondent in the oil community). Call Link claims that in November they will receive shipments of Nokia PT612 and Motorola MicroTAC (despite the embargo) for distribution. Call Link does not permit the connection of handsets purchased from other distributors overseas, and it holds exclusive distribution rights in Vietnam.

Call Link's primary competition, particularly for service along the Ho Chi Minh- Vung Tau route, lies with the trunked radio service Mobile Net. Mobile Net has service coverage up to the Vung Tau town limits now, and will cut over a Vung Tau base station next month. Mobile Net, using Kyodo handheld and Nokia portable radio units, offers interconnection to the local and international phone network, and estimates it has 400 subscribers units installed.

The fixed-line deficiencies are also creating opportunities for other niche mobile equipment suppliers and service operators. Steamers Telecommunications, a subsidiary of the Singapore government-linked company Keppel Group and its Steamers Maritine unit, established Mobile Net with a Nokia-supplied trunked radio network system for Ho Chi Minh City with a service radius of 40 km outside the city, and service soon promised in the oil boom town of Vung Tau. Mobile Net has its 400 subscribers on mobile and carmounted sets, and it set to take off: one drawing card it the service's interconnection to the international gateway. Steamers is also holding onto the license for Vietnam's first CT2 license, with an eye towards breaking the high-end market segmentation for mobile products and move wireless into Vietnam's growing middle class. Mobile Net claims that 28 base stations are now in place.

Mobile Net is beginning low-key marketing of CT2 in HCM city. Mobile Net claims it has 28 base stations in District 1 and District 5, from a system supplied by GPT. Mobile Net supplies Motorola handsets, the sale of which, like Motorola's cellular sets, are not authorized by the U.S. company. The handset is available for $472, and the call charge is $0.08 per minute.

Paging

Hong Kong paging company ABC Communications began its Ho Chi Minh City operations in September 1993, and reportly has plans to introduce paging services nationwide in Vietnam within the next six months. It has also stated that it plans to seek mobile phone services as well.

The purported network, supposedly the only one authorized for national service, will be operated jointly by ABC, the Vietnam Posts and Telecommunications (VNPT), and also with some form of cooperation with provincial P&Ts. ABC is so far the only company authorized to provide national paging services in Vietnam.

ABC has estimated that its Ho Chi Minh City investment has totalled $US1.3 million in Vietnam; it is shooting for 5000 subscribers in HCM City by the end of the first year of operation.

ABC has stiff competition: three other paging companies have been licensed by various divisions of the Ho Chi Minh P&T, and one, Epro, has service to Vung Tau. Monthly subscription fees are reasonably low - $8 per month, with all for operators offering roughly the same prices for terminals: $130 for tone pager, $200 for numeric and $280 for an alphanumeric terminal. HCM City P&T estimates that their are 10,000 subscribers on the three networks in total.

5.2 Development Plans

The DGPT and VNPT are planning a capacity expansion of the Hanoi-Ho Chi Minh optical fiber trunk, from the current 34 Mb/s to either 140Mb/s or 155Mb/s. The DGPT is optimistic that it will be able to get the higher order FOTS equipment from foreign manufacturers. It will certainly have an easier time with authorization now that COCOM restrictions are fading away as the organization slowly disbands in the wake of the new world order.

Switching development is of primary concern as the DGPT plans its route to 1 per 100 telephone density in 1995. The projected goal is 750,000, 2.5 or an 80% annual increase over the current installed base of 300,000. Local assembly will not be sufficiently onstream by that point to make a large impact on this market. It is in these crucial years that the DGPT may reach decisions on which suppliers to rationalize their network.

- The HCM City P&T itself plans to install 65,000 lines in 1994 and 60,000 in 1995, and has already secured agreements with Siemens, Alcatel and NEC to do so. HCM City P&T officials have also indicated that they are also planning to engage Northern Telecom for digital switching equipment in the near future; an order for roughly 100,000 lines of DMS100 equipment is reportedly waiting DGPT approval.

- The pace of switching development only quickens after 1995: DGPT officials estimate that 300,000 lines annually are needed to meet demand until the year 2000, when the national network is to have 2.4 million lines in service, and reach a teledensity of 3%.

Rural development is also high on the DGPT's list: despite the siren call of foreign businesses and their telecoms demands in the cities of Ho Chi Minh, Hanoi, and even Danang, the DGPT staunchly stands behind its commitment to provide nationwide communications access. Vietnam has 500 rural districts and 9256 villages, and estimates in 1992 placed telecommunications service penetration at the village level at 15%. By 1995, the stated goal of the VNPT is to see every village with at least one phone.

Wireless trunk and junction transmission will be increasingly relied upon in the provincial

networks. Expansion of the star configuration low capacity microwave systems around Hanoi and Ho Chi Minh City are planned, as is a greater push into the central provinces with TDMA distribution technology.

Sensing demand for point to point and point to multipoint data transfer, and seeking to head off unwanted private development, the VNPT is looking toward establishing a VSAT network. However, this is still in the early planning stages and it unclear how "customer service" oriented it will be, if at all - it may be used for the VNPT's own internal use.

VNPT's steadfast commitment to using PBXs to establish and develop telephone service in remote areas is a policy that in some ways flies in the face of its recent splurge on digital equipment. The DGPT has acquired a number of inexpensive switching systems suited for small scale applications - CDOT's RAX and Italtel's Linea are among them - and plans to assemble an OEM version of Goldstar's TDX locally are also underway. Manufacturers of these small exchanges are expressing real commitment to the market, and the DGPT claims to seek the latest and most applicable technologies for public network development.

In light of this policy statement, the carrier's adherence to PBXs, an inexpensive and reliable small switching station solution but ultimately a stopgap one, may seem incongruous. However, Goldstar's profound success has undeniably left an impact on the carrier, which sees fast and low-cost and the ultimate criteria in choosing technology for remote locations. While this may bode poorly to manufacturers of rural public switch solutions, it will spell a boom market for PBX suppliers keen on exploiting cross over opportunities. It would certainly spice up the market for BCS in Vietnam, as the private systems sales market is still tiny and system sizes are small, and largely occupied by Alcatel and Panasonic.

Major foreign suppliers are stepping up their marketing presence in Vietnam, as a tightening of the loose procurement policies that have allowed many players to achieve toeholds becomes apparent. Italtel held a two-day seminar in Hanoi with the General Department of the DGPT in late October, to increase awareness of telecoms and defense network applications of its Linea Ut digital exchange. The Italians were an early entry into Vietnam with the installation of a Linea switch in Dong Nai and subsequent winning of the Hanoi-Ho Chi Minh optical trunk with compatriot Pirelli, but were tripped up by the rescinding of financial aid commitments from the Italian government.

5.3 Telecommunications Manufacturing Industry Overview

Vietnam is taking a strong stand on developing a local production base in the telecommunications industry, mirroring trends well underway throughout Asia. Its stated goal, through the help of international supplier partnerships, is self-sufficiency in telecommunications equipment manufacturing and consumption. The DGPT may be over-optimistic in its hope to realize full local production, but realistic short-term aims of local assembly will most likely prevail and thrive as Vietnam endeavors to overcome its infrastructure deficiencies. This blueprint for self-sufficiency also hinges on the centralized model of national telecoms development; it appears the DGPT and VNPT are concerned about the domestic market splintering into regionally-oriented centers.

Switching equipment is the primary thrust of the local manufacturing drive, as it has been in most of Southeast Asia. Switching manufacturers have been increasingly compliant in responding to increasing local content requirements, with Malaysia, Thailand, Indonesia and now Vietnam are each setting up their own import barriers but at the same time opening the market to more competitors.

The continuing US embargo on trade with Vietnam, although somewhat softened, has made it difficult for some end users and service providers that rely upon US-made equipment to do business. The trouble on imports is solely a problem on the U.S. side; once American equipment gets into Vietnam, there are no problems from the Vietnamese side. (For instance, Motorola cellular handsets are imported in batches to Call Link for distribution; the only reason they are not currently available is because they are sold out.)

All manufacturing of telecommunications equipment must be arranged in conjunction with the DGPT; one of the enduring realities of centrally-planned economy is that the DGPT still controls all areas of telecoms, be it equipment or service. The DGPT has put forward " mutually beneficial agreements regarding technology, price, deployment, financing conditions and technology transfer" as the credo by which to make decisions on local production arrangements. However, technology transfer seems to be a fluid issue for the present, the Vietnamese side being chiefly concerned with getting economy-boosting manufacturing of any nature up and running.

Local production may also be the harbinger of the end of Vietnam's pick-and-choose equipment supply era, and so those suppliers that have made a dent in the market are now

scrambling to take up lots in this new rationalized, self sufficient, procurement-plan-in-development. Most of the spots have been filled for the larger technologies, if one reads the "two to three" suppliers per technology maxim literally. The DGPT has entered into roughly ten large scale production ventures. The DGPT has high hopes for its local production: it is shooting for between 150,000 and 200,000 lines of digital switching to be put together incountry from each supplier.

Technology	Factories Planned	Foreign Partners
Switching	3	Alcatel, Ericsson, Goldstar
DMW/Radio	2	Philips, Siemens
Copper Cable	2	Daesung
Optical Fiber	1	Goldstar
TelSets	2	Sapura

- Goldstar has installed STAREX IMS digital exchanges in 24 provinces nationwide, primarily as small remote area exchanges. Lucky Goldstar's successes in installing Korean-made digital PBXs as rural (and in some preliminary cases, urban) switches is developing into an agreement to begin manufacture of small digital switches in Vietnam. An OEM version of the TDX, dubbed VKX (Vietnam-Korea Exchange) will begin production in 1994. RIPT officials have speculated that the deal to manufacture TDX may be confined to an assembly agreement. Herein lies a conflict: with the era of equipment rationalization upon them, many Vietnamese officials think it wise to concentrate on two or three "big names" and abandon the niche players. On the other hand, the push for development *now* makes many others hard-nosed realists, and attracted to an inexpensive, functional technology such as the TDX.

- Goldstar will remain firmly entrenched in the local market for some time to come: the Korean supplier will also soon bring online a manufacturing facility to produce single mode optical fiber in Hanoi.

- Korean supplier Daesung Electric has entered into a 55%/45% joint venture with the DGPT to produce CCP copper cabling for the subscriber loop. The joint

venture, dubbed VINA Daesung, is capitalized at US$3.6 million and has built a 12,000 sqm production facility in Hanoi, with initial production capacity of 70 tons of cabling and estimates of 210 tons by the end of 1993. Between the two Korean manufacturers, the DGPT hopes to produce 300,000 cable km of copper and fiber combined.

- With local production concerns at a fever pitch, most of the suppliers that have gained a toehold in the market have jumped into manufacturing agreements: Italtel is supposedly talking to the DGPT about manufacturing of larger exchanges.

- Philips has begun discussions on local assembly on its IRT rural transmission system. VNPT officials have indicated tremendous importance in the development of local production for rural technology.

- Alcatel is planning to have its 10-year licensed facility for System 1000 E10 up and running in 1994 in Hanoi, as is Ericsson planning to cut over assembly production of AXE in Ho Chi Minh City.

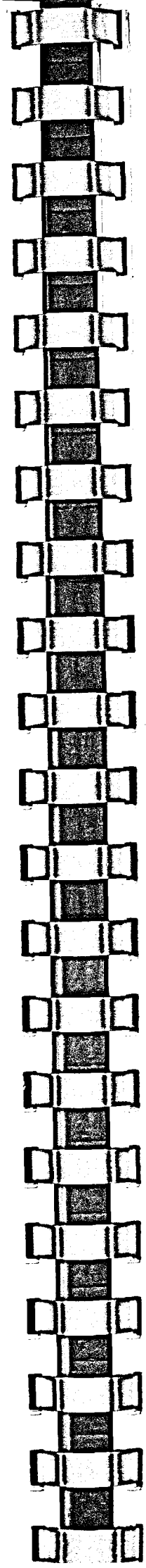
- Malaysian manufacturing giant Sapura set up a production arrangement with the Ho Chi Minh City P&T for the manufacturer of subscriber telsets to supply the southern provinces in 1991.

Growth Poles Levelling Out

While once manufacturing concerns were confined to the more business minded Ho Chi Minh City, now there is a considerable expansion in the north, as developers are drawn to its cheaper start up costs and the proximity to the seat of power in this still centrally-planned economy. Alcatel, Daesung and Goldstar are among those taking the plunge in the telecoms field.

Appendix A: Contact Directory

NOTE: The following is a listing of executives and company contact details from the vertical market segments of this study, as well as contacts from the local telecommunications industry and officers from the DGPT and its operators. It is not intended to be a comprehensive listing of companies in the banking and mineral extraction industry, nor is it solely a representation of those companies interviewed: although most of the contacts provided herein were respondents to Intercedent's survey, a few respondents requested anonymity and are not listed, and a few contacts listed below were not interviewed. As mentioned in section 1.6 above, none of the survey respondents were informed of the identity of any of the respondents.



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Appendix B: Enduser Survey and Results

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Intercedent

Telecommunications Survey Questionnaire

Company Name: _____ Confidential? _____
Address: _____
Telephone number: _____
Fax number: _____
Contact Person: _____
Date Of Incorporation In Vietnam: _____

Section 1: Demographics

Q1a. Industry sector and segment (check 1 sector and any number of appropriate segments):

SECTOR _____ SEGMENTS _____

___ Banking -> ___ Foreign bank ___ Domestic bank
___ Mining -> ___ Coal mining ___ other mining
___ Oil & Gas -> ___ Exploration ___ Extraction ___ Refining
___ Other -> Describe: _____

Q1b. If you are a foreign company, where is your home country located?

___ Asia ___ Europe ___ North America ___ Other

Q1c. Organization type in Vietnam: ___ JV ___ 100% ___ Rep Office ___ Other

Q1d. Company locations: ___ Hanoi ___ Ho Chi Minh ___ Vung Tau ___ Other

Other Locations: _____

Q1e. Number of and type of employees: Total Number ___

___ Prof/Mang ___ Technical ___ Admin

Section 2: Voice and Fax Services and Equipment

Q2a. For each office, how many lines do you have?

	# of lines	# lines with IDD	Direct/Shared	Service Provider
Voice				
Fax				
Telex				

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Q2b. **For your voice and text service what equipment do you use:**

VOICE/TEXT SYSTEMS	# of extensions/ terminals	brand or modle	Where Purchased? (VN or elsewhere)
Single lines			
Key phone system			
PBX system			
Mobile			
Fax			
Telex			

Section 3. Private Networks

Q3a. **Do you have any private network telecommunications facilities for either voice or data services?**
____ yes ____ no *(If no, please skip the rest of this section.)*

Q3b. **For the PNs, what is the transmission media?**

____ Radio ____ Microwave ____ Cable ____ Satellite
____ Other (specify) _____

Q3c. **Do you share the PN facilities with other private companies?**

Who do you share it with? _____ Who maintains the PN?_____

Q3d. **What types of communications do you transmit over those private systems?**

____ Voice ____ Fax ____ Data ____ Telex
____ Other (specify) _____

Q3e. **How many sites are connected through the PN?** _____

Section 4: Data Services

Q4a. **What data services do you have?** *(if none, skip this section)*

DATA SERVICES	# Channels	Speed	Service Provider
Dedicated domestic leased circuit			
Dedicated int'l leased circuit			
Dial-up domestic circuit			
Dial-up international circuit			

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Intercedent

Q4b. What types of data services do you have access to?

____ EFT/POS ____ SCADA ____ X.25 ____ Protocol Conversion
____ X.400 ____ EDI ____ EMail ____ Information Retrieval/Data Base service
____ Financial network service (specify)
____ Other (specify) _____

Q4c. What equipment do you have that facilitates the use of these data services?

____ Modems ____ Data over voice multiplexers
____ LANs ____ Other multiplexers
____ WANs ____ Service node
____ Other (specify) _____

Q4d. Where did you purchase this equipment?

____ Vietnam ____ Overseas

Q4e. What are the services used for?

____ ATN ____ Seismic
____ SWIFT/ other EFT/POS ____ Data file transfer
____ Funds Clearance ____ Site to shore
____ Other (specify) _____

Q4f. Are there any services that you are unable to obtain that you would consider to be critical to your business?

Q4g. Is there any telecommunications equipment that you are unable to obtain that you would consider to be critical to your business?

Section 5. Traffic figures

Q5. Please estimate your monthly domestic and international calling volume (the individual results of this question will be kept entirely confidential):

Volume: _____ Number of international calls per month

% Volume by destination: _____ Domestic _____ International
_____ Hong Kong _____ Singapore _____ Bangkok
_____ Tokyo _____ Europe _____ North America
_____ Other

Value: _____ Average monthly telephone bill

% Value by destination: _____ Domestic _____ International

Intercedent

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Section 6: Future Plans

Q6a. **Are the primary restrictions on services or equipment acquisition market/commercial or regulatory in nature:**

____ Market/Commercial _____ Regulatory ____ A Combination

Please explain: _____

_____

Q6b. **If there were better alternatives to your current environment what effect would have on your business:** ___ a lot ___ a little ___ none

Q6c. **In light of your current business activities, how satisfied are you with the following:**

SATISFACTION	Very Satisfied	Somewhat Satisfied	Unsatisfied
Local Equipment Distribution Channels			
Foreign Equipment Distribution Channels			
Local Voice/Fax Connectivity Services			
International Voice/Fax Connectivity Services			
Local Data Connectivity Services			
International Data Connectivity Services			

Q6d. **Who is responsible for determining equipment and service need for local office:**

____ Local Office (in Vietnam) ____ Regional HQ (outside Vietnam)

Q6e. **Typically, where do equipment and service purchases take place?:** ____ VN ____ Elsewhere

Q6f. **Please identify specific areas where you foresee your own network expanding in the next 1-2 years:**

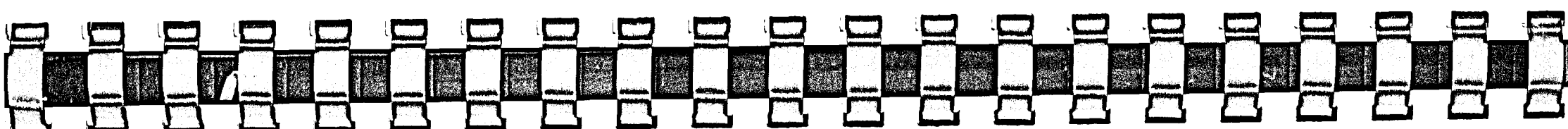
____ Voice/Fax CO Access Lines
____ Business Communications Systems (PBX/KTS)
____ Data Communication Equipment and Services
____ Dedicated Transmission Services (LCs, ILCs, Satellite link-ups)
____ Dedicated Network Equipment

Q6g. **Can you estimate your company's expenditure for telecom equipment and services in next year:**

___ Under US$20,000
___ US$20,000 to US$100,000
___ US$100,000 to US$500,000
___ US$500,000 to US$1,000,000
___ Over US$1,000,000

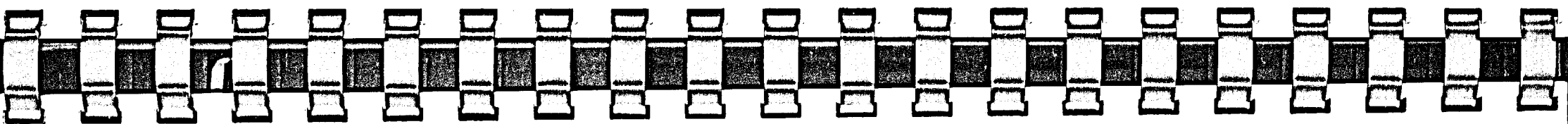
Q1C	INDUSTRY SECTOR														TOTAL
	BANKING			MINING					OIL AND GAS					OTHERS	
	SEGMENTS			SEGMENTS					SEGMENTS					SEGMENTS	
	FOREIGN BANK	DOMESTIC BANK	FOREIGN AND DOMESTIC BANK	COAL MINING	OTHER MINING	EXPLORATION	SERVICES	COAL MINING AND OTHER MINING	EXPLORATION	DISTRIBUTIONS	OTHERS	EXPLORATION AND EXTRACTION	SERVICES	OTHERS	
ORGANIZATION TYPE IN VIETNAM															
JOINT VENTURE															
Count	0	1	3	0	0	0	0	0	5	0	1	1	0	0	11
	.0%	33.3%	100.0%	.0%	.0%	.0%	.0%	.0%	50.0%	.0%	50.0%	50.0%	.0%	.0%	19.3%
100%															
Count	7	1	0	1	0	1	0	0	4	0	1	0	0	0	15
	25.9%	33.3%	.0%	100.0%	.0%	100.0%	.0%	.0%	40.0%	.0%	50.0%	.0%	.0%	.0%	26.3%
REP OFFICE															
Count	20	0	0	0	1	0	1	1	1	2	0	0	1	2	29
	74.1%	.0%	.0%	.0%	100.0%	.0%	100.0%	100.0%	10.0%	100.0%	.0%	.0%	100.0%	100.0%	50.9%
OTHERS															
Count	0	1	0	0	0	0	0	0	0	0	0	1	0	0	2
	.0%	33.3%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	50.0%	.0%	.0%	3.5%
TOTAL															
Count	27	3	3	1	1	1	1	1	10	2	2	2	1	2	57
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Q1C	HOME COUNTRY LOCATED ?				TOTAL	ORGANIZATION TYPE IN VIETNAM				TOTAL
	ASIA	EUROPE	NORTH AMERICA	OTHER		JOINT VENTURE	100%	REP OFFICE	OTHERS	
ORGANIZATION TYPE IN VIETNAM										
JOINT VENTURE	4 100.0%	4 100.0%	1 100.0%	1 100.0%	10 100.0%	11 100.0%	0 .0%	0 .0%	0 .0%	11 100.0%
100%	4 100.0%	7 100.0%	0 .0%	1 100.0%	12 100.0%	0 .0%	15 100.0%	0 .0%	0 .0%	15 100.0%
REP OFFICE	11 100.0%	15 100.0%	0 .0%	3 100.0%	29 100.0%	0 .0%	0 .0%	29 100.0%	0 .0%	29 100.0%
OTHERS	0 .0%	1 100.0%	0 .0%	1 100.0%	2 100.0%	0 .0%	0 .0%	0 .0%	2 100.0%	2 100.0%
TOTAL	19 100.0%	27 100.0%	1 100.0%	6 100.0%	53 100.0%	11 100.0%	15 100.0%	29 100.0%	2 100.0%	57 100.0%



Q1C	LOCATION OF COMPANY			TOTAL	EMPSIZE					TOTAL
	HANOI	HO CHI MINH CITY	VUNG TAU		<= 10	11 - 50	51 - 100	101 - 500	> 500	
ORGANIZATION TYPE IN VIETNAM										
JOINT VENTURE	2 9.1%	7 24.1%	2 33.3%	11 19.3%	0 .0%	7 35.0%	0 .0%	3 75.0%	1 50.0%	11 19.6%
100%	5 22.7%	7 24.1%	3 50.0%	15 26.3%	3 10.3%	9 45.0%	0 .0%	1 25.0%	1 50.0%	14 25.0%
REP OFFICE	14 63.6%	14 48.3%	1 16.7%	29 50.9%	26 89.7%	2 10.0%	1 100.0%	0 .0%	0 .0%	29 51.8%
OTHERS	1 4.5%	1 3.4%	0 .0%	2 3.5%	0 .0%	2 10.0%	0 .0%	0 .0%	0 .0%	2 3.6%
TOTAL	22 100.0%	29 100.0%	6 100.0%	57 100.0%	29 100.0%	20 100.0%	1 100.0%	4 100.0%	2 100.0%	56 100.0%

Q1D	INDUSTRY SECTOR														TOTAL
	BANKING			MINING					OIL AND GAS					OTHERS	
	SEGMENTS			SEGMENTS					SEGMENTS					SEGMENTS	
	FOREIGN BANK	DOMESTIC BANK	FOREIGN AND DOMESTIC BANK	COAL MINING	OTHER MINING	EXPLORATION	SERVICES	COAL MINING AND OTHER MINING	EXPLORATION	DISTRIBUTIONS	OTHERS	EXPLORATION AND EXTRACTION	SERVICES	OTHERS	
LOCATION OF COMPANY															
HANOI															
Count	12	2	2	0	1	1	1	1	0	1	0	0	0	2	23
	44.4%	66.7%	66.7%	.0%	50.0%	100.0%	100.0%	100.0%	.0%	50.0%	.0%	.0%	.0%	100.0%	39.7%
HO CHI MINH CITY															
Count	15	1	1	1	1	0	0	0	7	1	0	1	1	0	29
	55.6%	33.3%	33.3%	100.0%	50.0%	.0%	.0%	.0%	70.0%	50.0%	.0%	50.0%	100.0%	.0%	50.0%
VUNG TAU															
Count	0	0	0	0	0	0	0	0	3	0	2	1	0	0	6
	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	30.0%	.0%	100.0%	50.0%	.0%	.0%	10.3%
TOTAL															
Count	27	3	3	1	2	1	1	1	10	2	2	2	1	2	58
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%



Q1D	HOME COUNTRY LOCATED ?				TOTAL	ORGANIZATION TYPE IN VIETNAM				TOTAL
	ASIA	EUROPE	NORTH AMERICA	OTHER		JOINT VENTURE	100%	REP OFFICE	OTHERS	
LOCATION OF COMPANY										
HANOI	6 31.6%	12 44.4%	0 .0%	3 50.0%	21 39.6%	2 18.2%	5 33.3%	14 48.3%	1 50.0%	22 38.6%
HO CHI MINH CITY	11 57.9%	12 44.4%	1 100.0%	3 50.0%	27 50.9%	7 63.6%	7 46.7%	14 48.3%	1 50.0%	29 50.9%
VUNG TAU	2 10.5%	3 11.1%	0 .0%	0 .0%	5 9.4%	2 18.2%	3 20.0%	1 3.4%	0 .0%	6 10.5%
TOTAL	19 100.0%	27 100.0%	1 100.0%	6 100.0%	53 100.0%	11 100.0%	15 100.0%	29 100.0%	2 100.0%	57 100.0%

Q1D	LOCATION OF COMPANY			TOTAL	EMPSIZE					TOTAL
	HANOI	HO CHI MINH CITY	VUNG TAU		<= 10	11 - 50	51 - 100	101 - 500	> 500	
LOCATION OF COMPANY										
HANOI	23 100.0%	0 .0%	0 .0%	23 100.0%	15 100.0%	4 100.0%	1 100.0%	1 100.0%	1 100.0%	22 100.0%
HO CHI MINH CITY	0 .0%	29 100.0%	0 .0%	29 100.0%	13 100.0%	12 100.0%	0 .0%	3 100.0%	1 100.0%	29 100.0%
VUNG TAU	0 .0%	0 .0%	6 100.0%	6 100.0%	1 100.0%	4 100.0%	0 .0%	0 .0%	1 100.0%	6 100.0%
TOTAL	23 100.0%	29 100.0%	6 100.0%	58 100.0%	29 100.0%	20 100.0%	1 100.0%	4 100.0%	3 100.0%	57 100.0%

Q1E	NUMBER OF EMPLOYEES - PROFESSIONAL / MANAGER		NUMBER OF EMPLOYEES - TECHNICAL		NUMBER OF EMPLOYEES - ADMIN		TOTAL	
	Sum	Sum Percent	Sum	Sum Percent	Sum	Sum Percent	Sum	Sum Percent
INDUSTRY SECTOR								
BANKING	77	4.5%	18	.9%	114	4.1%	114	4.1%
MINING	9	.5%	1	.0%	10	.4%	10	.4%
OIL AND GAS	1601	94.6%	2066	98.0%	2618	94.2%	2618	94.2%
OTHERS	6	.4%	23	1.1%	36	1.3%	36	1.3%

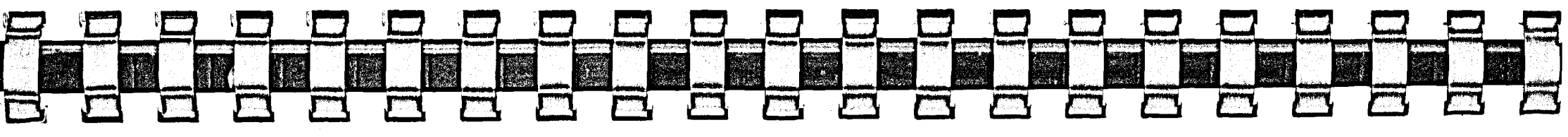
Q1E	INDUSTRY SECTOR																	
	BANKING				MINING						OIL AND GAS						OTHERS	
	SEGMENTS			TOTAL	SEGMENTS					TOTAL	SEGMENTS					TOTAL	SEGMENTS	TOTAL
	FOREIGN BANK	DOMESTIC BANK	FOREIGN AND DOMESTIC BANK		COAL MINING	OTHER MINING	EXPLORATION	SERVICES	COAL MINING AND OTHER MINING		EXPLORATION	DISTRIBUTIONS	OTHERS	EXPLORATION AND EXTRACTION	SERVICES		OTHERS	
2000																		
Count	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
	.0%	.0%	.0%	.0%	.0%	50.0%	.0%	.0%	.0%	16.7%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%
6000																		
Count	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0
	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	50.0%	.0%	5.9%	.0%	.0%
TOTAL																		
Count	26	3	3	32	1	2	1	1	1	6	10	2	2	2	1	17	2	2
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Q1E	INDUSTRY SECTOR														TOTAL
	BANKING			MINING					OIL AND GAS					OTHERS	
	SEGMENTS			SEGMENTS					SEGMENTS					SEGMENTS	
	FOREIGN BANK	DOMESTIC BANK	FOREIGN AND DOMESTIC BANK	COAL MINING	OTHER MINING	EXPLORATION	SERVICES	COAL MINING AND OTHER MINING	EXPLORATION	DISTRIBUTIONS	OTHERS	EXPLORATION AND EXTRACTION	SERVICES	OTHERS	
TOTAL NUMBER OF EMPLOYEES															
1															
Count	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	50.0%	.0%	.0%	.0%	.0%	1.8%
2															
Count	6	0	0	0	0	0	0	0	0	0	0	0	0	0	6
	23.1%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	10.5%
3															
Count	6	0	0	0	0	0	0	0	0	0	0	0	0	0	6
	23.1%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	10.5%
4															
Count	5	0	0	0	0	1	0	0	0	0	0	0	1	0	7
	19.2%	.0%	.0%	.0%	.0%	100.0%	.0%	.0%	.0%	.0%	.0%	.0%	100.0%	.0%	12.3%
5															
Count	1	0	0	0	0	0	1	0	0	1	0	0	0	1	4
	3.8%	.0%	.0%	.0%	.0%	.0%	100.0%	.0%	.0%	50.0%	.0%	.0%	.0%	50.0%	7.0%
6															
Count	2	0	0	0	0	0	0	0	1	0	0	0	0	0	3
	7.7%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	10.0%	.0%	.0%	.0%	.0%	.0%	5.3%
7															
Count	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1

Q1E	INDUSTRY SECTOR																	
	BANKING				MINING						OIL AND GAS						OTHERS	
	SEGMENTS			TOTAL	SEGMENTS					TOTAL	SEGMENTS					TOTAL	SEGMENTS	TOTAL
	FOREIGN BANK	DOMESTIC BANK	FOREIGN AND DOMESTIC BANK		COAL MINING	OTHER MINING	EXPLORATION	SERVICES	COAL MINING AND OTHER MINING		EXPLORATION	DISTRIBUTIONS	OTHERS	EXPLORATION AND EXTRACTION	SERVICES		OTHERS	
	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	100.0%	16.7%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%
10																		
Count	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0
	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	10.0%	.0%	.0%	.0%	.0%	5.9%	.0%	.0%
12																		
Count	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0	1	0	0
	.0%	.0%	.0%	.0%	.0%	50.0%	.0%	.0%	.0%	16.7%	.0%	.0%	50.0%	.0%	.0%	5.9%	.0%	.0%
13																		
Count	1	0	0	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0
	3.8%	.0%	.0%	3.1%	.0%	.0%	.0%	.0%	.0%	.0%	10.0%	.0%	.0%	.0%	.0%	5.9%	.0%	.0%
16																		
Count	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0
	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	50.0%	.0%	.0%	5.9%	.0%	.0%
18																		
Count	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3.8%	.0%	.0%	3.1%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%
20																		
Count	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	.0%	.0%	33.3%	3.1%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%
24																		
Count	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	.0%	33.3%	.0%	3.1%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%

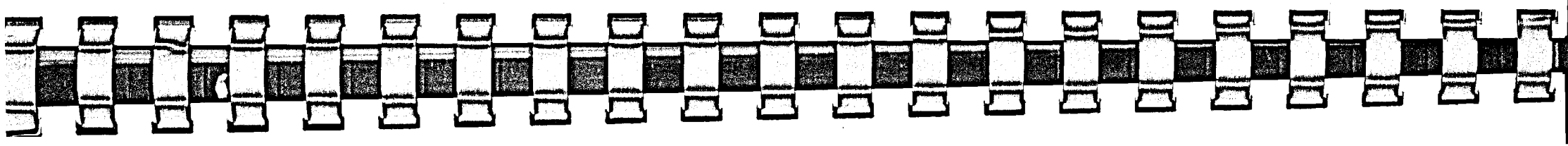
Q1E		INDUSTRY SECTOR																
		BANKING				MINING						OIL AND GAS						OTHERS	
		SEGMENTS			TOTAL	SEGMENTS					TOTAL	SEGMENTS					TOTAL	SEGMENTS	TOTAL
		FOREIGN BANK	DOMESTIC BANK	FOREIGN AND DOMESTIC BANK		COAL MINING	OTHER MINING	EXPLORATION	SERVICES	COAL MINING AND OTHER MINING		EXPLORATION	DISTRIBUTIONS	OTHERS	EXPLORATION AND EXTRACTION	SERVICES		OTHERS	
25																			
	Count	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		.0%	.0%	33.3%	3.1%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%
27																			
	Count	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		3.8%	.0%	.0%	3.1%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%
30																			
	Count	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	2	0	0
		3.8%	.0%	.0%	3.1%	.0%	.0%	.0%	.0%	.0%	.0%	10.0%	.0%	.0%	50.0%	.0%	11.8%	.0%	.0%
32																			
	Count	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		3.8%	.0%	.0%	3.1%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%
33																			
	Count	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		3.8%	.0%	.0%	3.1%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%
35																			
	Count	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		.0%	.0%	33.3%	3.1%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%
40																			
	Count	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0
		.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	20.0%	.0%	.0%	.0%	.0%	11.8%	.0%	.0%

Q1E	INDUSTRY SECTOR																	
	BANKING				MINING						OIL AND GAS						OTHERS	
	SEGMENTS			TOTAL	SEGMENTS					TOTAL	SEGMENTS					TOTAL	SEGMENTS	TOTAL
	FOREIGN BANK	DOMESTIC BANK	FOREIGN AND DOMESTIC BANK		COAL MINING	OTHER MINING	EXPLORATION	SERVICES	COAL MINING AND OTHER MINING		EXPLORATION	DISTRIBUTIONS	OTHERS	EXPLORATION AND EXTRACTION	SERVICES		OTHERS	
>0																		
Count	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0
	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	20.0%	.0%	.0%	.0%	.0%	11.8%	.0%	.0%
60																		
Count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	50.0%	50.0%
110																		
Count	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0
	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	10.0%	.0%	.0%	.0%	.0%	5.9%	.0%	.0%
120																		
Count	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	.0%	33.3%	.0%	3.1%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%
150																		
Count	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0
	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	10.0%	.0%	.0%	.0%	.0%	5.9%	.0%	.0%
400																		
Count	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	.0%	33.3%	.0%	3.1%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%
1500																		
Count	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0
	.0%	.0%	.0%	.0%	100.0%	.0%	.0%	.0%	.0%	16.7%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%



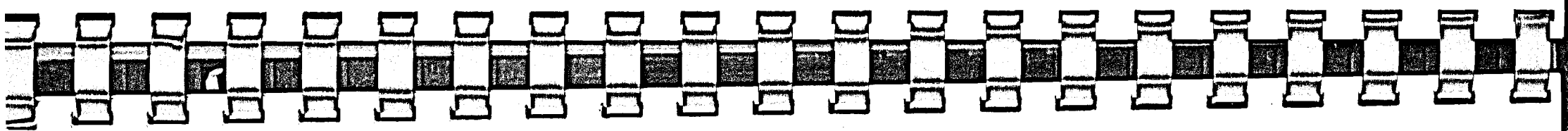
Q1E	INDUSTRY SECTOR														TOTAL
	BANKING			MINING					OIL AND GAS					OTHERS	
	SEGMENTS			SEGMENTS					SEGMENTS					SEGMENTS	
	FOREIGN BANK	DOMESTIC BANK	FOREIGN AND DOMESTIC BANK	COAL MINING	OTHER MINING	EXPLORATION	SERVICES	COAL MINING AND OTHER MINING	EXPLORATION	DISTRIBUTIONS	OTHERS	EXPLORATION AND EXTRACTION	SERVICES	OTHERS	
	.0%	.0%	.0%	.0%	.0%	.0%	.0%	100.0%	.0%	.0%	.0%	.0%	.0%	.0%	1.8%
10															
Count	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	10.0%	.0%	.0%	.0%	.0%	.0%	1.8%
12															
Count	0	0	0	0	1	0	0	0	0	0	1	0	0	0	2
	.0%	.0%	.0%	.0%	50.0%	.0%	.0%	.0%	.0%	.0%	50.0%	.0%	.0%	.0%	3.5%
13															
Count	1	0	0	0	0	0	0	0	1	0	0	0	0	0	2
	3.8%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	10.0%	.0%	.0%	.0%	.0%	.0%	3.5%
16															
Count	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	50.0%	.0%	.0%	.0%	1.8%
18															
Count	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	3.8%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	1.8%
20															
Count	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
	.0%	.0%	33.3%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	1.8%
24															
Count	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	.0%	33.3%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	1.8%

Q1E	INDUSTRY SECTOR																	
	BANKING				MINING						OIL AND GAS						OTHERS	
	SEGMENTS			TOTAL	SEGMENTS					TOTAL	SEGMENTS					TOTAL	SEGMENTS	TOTAL
	FOREIGN BANK	DOMESTIC BANK	FOREIGN AND DOMESTIC BANK		COAL MINING	OTHER MINING	EXPLORATION	SERVICES	COAL MINING AND OTHER MINING		EXPLORATION	DISTRIBUTIONS	OTHERS	EXPLORATION AND EXTRACTION	SERVICES		OTHERS	
TOTAL NUMBER OF EMPLOYEES																		
1																		
Count	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0
	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	50.0%	.0%	.0%	.0%	5.9%	.0%	.0%
2																		
Count	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	23.1%	.0%	.0%	18.8%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%
3																		
Count	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	23.1%	.0%	.0%	18.8%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%
4																		
Count	5	0	0	5	0	0	1	0	0	1	0	0	0	0	1	1	0	0
	19.2%	.0%	.0%	15.6%	.0%	.0%	100.0%	.0%	.0%	16.7%	.0%	.0%	.0%	.0%	100.0%	5.9%	.0%	.0%
5																		
Count	1	0	0	1	0	0	0	1	0	1	0	1	0	0	0	1	1	1
	3.8%	.0%	.0%	3.1%	.0%	.0%	.0%	100.0%	.0%	16.7%	.0%	50.0%	.0%	.0%	.0%	5.9%	50.0%	50.0%
6																		
Count	2	0	0	2	0	0	0	0	0	0	1	0	0	0	0	1	0	0
	7.7%	.0%	.0%	6.3%	.0%	.0%	.0%	.0%	.0%	.0%	10.0%	.0%	.0%	.0%	.0%	5.9%	.0%	.0%
7																		
Count	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0



Q1E	INDUSTRY SECTOR														TOTAL
	BANKING			MINING					OIL AND GAS					OTHERS	
	SEGMENTS			SEGMENTS					SEGMENTS					SEGMENTS	
	FOREIGN BANK	DOMESTIC BANK	FOREIGN AND DOMESTIC BANK	COAL MINING	OTHER MINING	EXPLORATION	SERVICES	COAL MINING AND OTHER MINING	EXPLORATION	DISTRIBUTIONS	OTHERS	EXPLORATION AND EXTRACTION	SERVICES	OTHERS	
2000															
Count	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	.0%	.0%	.0%	.0%	50.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	1.8%
6000															
Count	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	50.0%	.0%	.0%	1.8%
TOTAL															
Count	26	3	3	1	2	1	1	1	10	2	2	2	1	2	57
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Q1E	INDUSTRY SECTOR														TOTAL
	BANKING			MINING					OIL AND GAS					OTHERS	
	SEGMENTS			SEGMENTS					SEGMENTS					SEGMENTS	
	FOREIGN BANK	DOMESTIC BANK	FOREIGN AND DOMESTIC BANK	COAL MINING	OTHER MINING	EXPLORATION	SERVICES	COAL MINING AND OTHER MINING	EXPLORATION	DISTRIBUTIONS	OTHERS	EXPLORATION AND EXTRACTION	SERVICES	OTHERS	
50															
Count	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2
	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	20.0%	.0%	.0%	.0%	.0%	.0%	3.5%
60															
Count	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	50.0%	1.8%
110															
Count	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	10.0%	.0%	.0%	.0%	.0%	.0%	1.8%
120															
Count	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	.0%	33.3%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	1.8%
150															
Count	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	10.0%	.0%	.0%	.0%	.0%	.0%	1.8%
400															
Count	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	.0%	33.3%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	1.8%
1500															
Count	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
	.0%	.0%	.0%	100.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	1.8%



Q1E	INDUSTRY SECTOR														TOTAL
	BANKING			MINING					OIL AND GAS					OTHERS	
	SEGMENTS			SEGMENTS					SEGMENTS					SEGMENTS	
	FOREIGN BANK	DOMESTIC BANK	FOREIGN AND DOMESTIC BANK	COAL MINING	OTHER MINING	EXPLORATION	SERVICES	COAL MINING AND OTHER MINING	EXPLORATION	DISTRIBUTIONS	OTHERS	EXPLORATION AND EXTRACTION	SERVICES	OTHERS	
25															
Count	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
	.0%	.0%	33.3%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	1.8%
27															
Count	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	3.8%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	1.8%
30															
Count	1	0	0	0	0	0	0	0	1	0	0	1	0	0	3
	3.8%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	10.0%	.0%	.0%	50.0%	.0%	.0%	5.3%
32															
Count	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	3.8%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	1.8%
33															
Count	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	3.8%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	1.8%
35															
Count	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
	.0%	.0%	33.3%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	1.8%
40															
Count	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2
	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	20.0%	.0%	.0%	.0%	.0%	.0%	3.5%

	INDUSTRY SECTOR									
	BANKING				MINING		OIL AND GAS			
	SEGMENTS			TOTAL	SEGMENTS	TOTAL	SEGMENTS			TOTAL
	FOREIGN BANK	DOMESTIC BANK	FOREIGN AND DOMESTIC BANK		EXPLORATION		EXPLORATION	DISTRIBUTIONS	OTHERS	
BRAND OF KEY PHONE SYSTEM										
ALCATEL										
NUMBER OF EXTENSION FOR KEY PHONE SYSTEM										
6									1 50.0%	1 20.0%
10	1 11.1%			1 9.1%						
PANASONIC										
NUMBER OF EXTENSION FOR KEY PHONE SYSTEM										
2	1 11.1%			1 9.1%						
4	1 11.1%			1 9.1%						
5	2 22.2%			2 18.2%						
10							1 50.0%			1 20.0%
25			1 100.0%	1 9.1%						
GOLOSTAR										
NUMBER OF EXTENSION FOR KEY PHONE SYSTEM										
4					1 100.0%	1 100.0%				
6								1 100.0%		1 20.0%
8	1 11.1%			1 9.1%						
OTHERS										
NUMBER OF EXTENSION FOR KEY PHONE SYSTEM										
2	1 11.1%			1 9.1%						
4	2 22.2%			2 18.2%						
6									1 50.0%	1 20.0%

	INDUSTRY SECTOR								
	BANKING			MINING		OIL AND GAS		OTHERS	
	SEGMENTS		TOTAL	SEGMENTS	TOTAL	SEGMENTS	TOTAL	SEGMENTS	TOTAL
	FOREIGN BANK	FOREIGN AND DOMESTIC BANK		OTHER MINING		EXPLORATION		OTHERS	
						33.3%	33.3%		
8	1		1						
	6.7%		5.6%						
32						1	1		
						33.3%	33.3%		
OTHERS									
NUMBER OF EXTENSION FOR SINGLE LINE SYSTEM									
1	1		1						
	6.7%		5.6%						
2	1		1						
	6.7%		5.6%						
4	1		1						
	6.7%		5.6%						
5		1	1						
		33.3%	5.6%						
9		1	1						
		33.3%	5.6%						
TOTAL	15	3	18	1	1	3	3	1	1
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

	INDUSTRY SECTOR								
	BANKING			MINING		OIL AND GAS		OTHERS	
	SEGMENTS		TOTAL	SEGMENTS	TOTAL	SEGMENTS	TOTAL	SEGMENTS	TOTAL
	FOREIGN BANK	FOREIGN AND DOMESTIC BANK		OTHER MINING		EXPLORATION		OTHERS	
BRAND OF SINGLE LINE SYSTEM									
ALCATEL									
NUMBER OF EXTENSION FOR SINGLE LINE SYSTEM									
1	1 6.7%		1 5.6%						
2								1 100.0%	1 100.0%
3	1 6.7%		1 5.6%						
4	1 6.7%		1 5.6%						
5		1 33.3%	1 5.6%						
20	1 6.7%		1 5.6%						
SIEMENS									
NUMBER OF EXTENSION FOR SINGLE LINE SYSTEM									
2	1 6.7%		1 5.6%						
PANASONIC									
NUMBER OF EXTENSION FOR SINGLE LINE SYSTEM									
1	2 13.3%		2 11.1%						
2	1 6.7%		1 5.6%						
3	2 13.3%		2 11.1%						
4				1 100.0%	1 100.0%				
14						1 33.3%	1 33.3%		
30	1 6.7%		1 5.6%						
GOLDSTAR									
NUMBER OF EXTENSION FOR SINGLE LINE SYSTEM									
4						1	1		

Q2A - 1	NUMBER OF LINES WITH IDD												TOTAL
	0	1	2	3	4	5	6	8	9	10	15	40	
NUMBER OF VOICE LINES													
1		5 83.3%											5 8.9%
2			15 83.3%										15 26.8%
3		1 16.7%	1 5.6%	8 61.5%									10 17.9%
4					5 83.3%								5 8.9%
5			2 11.1%	2 15.4%		4 100.0%							8 14.3%
6							1 50.0%						1 1.8%
7				1 7.7%			1 50.0%						2 3.6%
8					1 16.7%			1 100.0%					2 3.6%
9									1 100.0%				1 1.8%
10	1 100.0%									1 100.0%			2 3.6%
12				1 7.7%									1 1.8%
13				1 7.7%									1 1.8%
15											2 100.0%		2 3.6%
40												1 100.0%	1 1.8%
TOTAL	1 100.0%	6 100.0%	18 100.0%	13 100.0%	6 100.0%	4 100.0%	2 100.0%	1 100.0%	1 100.0%	1 100.0%	2 100.0%	1 100.0%	56 100.0%

	INDUSTRY SECTOR									
	BANKING				MINING		OIL AND GAS			
	SEGMENTS			TOTAL	SEGMENTS	TOTAL	SEGMENTS			TOTAL
	FOREIGN BANK	DOMESTIC BANK	FOREIGN AND DOMESTIC BANK		EXPLORATION		EXPLORATION	DISTRIBUTIONS	OTHERS	
12							1 50.0%			1 20.0%
40		1 100.0%		1 9.1%						
TOTAL	9 100.0%	1 100.0%	1 100.0%	11 100.0%	1 100.0%	1 100.0%	2 100.0%	1 100.0%	2 100.0%	5 100.0%

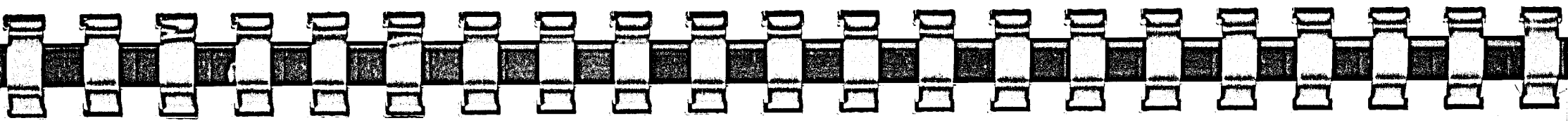
	INDUSTRY SECTOR								
	BANKING				OIL AND GAS			OTHERS	
	SEGMENTS			TOTAL	SEGMENTS		TOTAL	SEGMENTS	TOTAL
	FOREIGN BANK	DOMESTIC BANK	FOREIGN AND DOMESTIC BANK		EXPLORATION	EXPLORATION AND EXTRACTION		OTHERS	
BRAND OF PBX SYSTEM									
ALCATEL									
NUMBER OF EXTENSION FOR PBX SYSTEM									
1	2			2					
	20.0%			15.4%					
4	1			1					
	10.0%			7.7%					
7	1			1					
	10.0%			7.7%					
20	1	1		2					
	10.0%	50.0%		15.4%					
25	1		1	2	1		1		
	10.0%		100.0%	15.4%	20.0%		14.3%		
30					1		1		
					20.0%		14.3%		
32	1			1		1	1		
	10.0%			7.7%		50.0%	14.3%		
SIEMENS									
NUMBER OF EXTENSION FOR PBX SYSTEM									
7	1			1					
	10.0%			7.7%					
PANASONIC									
NUMBER OF EXTENSION FOR PBX SYSTEM									
1					2		2		
					40.0%		28.6%		
2	1			1					
	10.0%			7.7%					
10								1	1
								100.0%	100.0%
GOLDSTAR									
NUMBER OF EXTENSION FOR PBX SYSTEM									
8	1			1					
	10.0%			7.7%					
OTHERS									
NUMBER OF EXTENSION FOR PBX SYSTEM									
26		1		1					

	INDUSTRY SECTOR								
	BANKING				OIL AND GAS			OTHERS	
	SEGMENTS			TOTAL	SEGMENTS		TOTAL	SEGMENTS	TOTAL
	FOREIGN BANK	DOMESTIC BANK	FOREIGN AND DOMESTIC BANK		EXPLORATION	EXPLORATION AND EXTRACTION		OTHERS	
200		50.0%		7.7%	1 20.0%		1 14.3%		
SIMENS AND GOLDSTAR NUMBER OF EXTENSION FOR PBX SYSTEM 1000						1 50.0%	1 14.3%		
TOTAL	10 100.0%	2 100.0%	1 100.0%	13 100.0%	5 100.0%	2 100.0%	7 100.0%	1 100.0%	1 100.0%

Q2A BY INDUSTRY & ORG_TYPE - 1	INDUSTRY SECTOR											ORGANIZATION TYPE IN VIETNAM				TOTAL
	BANKING		MINING			OIL AND GAS						JOINT VENTURE	100%	REP OFFICE	OTHERS	
	SEGMENTS	TOTAL	SEGMENTS		TOTAL	SEGMENTS					TOTAL					
	FOREIGN BANK		COAL MINING	OTHER MINING		EXPLORATION	DISTRIBUTIONS	OTHERS	EXPLORATION AND EXTRACTION	SERVICES						
PLACE OF PURCHASE FOR MOBILE VIETNAM	3 100.0%	3 100.0%	1 100.0%	2 100.0%	3 100.0%	7 100.0%	1 100.0%	1 50.0%	1 100.0%	1 100.0%	11 91.7%	3 17.6%	6 35.3%	6 35.3%	1 5.9%	16 94.1%
BOTH VIETNAM AND ELSEWHERE								1 50.0%			1 8.3%	1 5.9%				1 5.9%
TOTAL	3 100.0%	3 100.0%	1 100.0%	2 100.0%	3 100.0%	7 100.0%	1 100.0%	2 100.0%	1 100.0%	1 100.0%	12 100.0%	4 23.5%	6 35.3%	6 35.3%	1 5.9%	17 100.0%

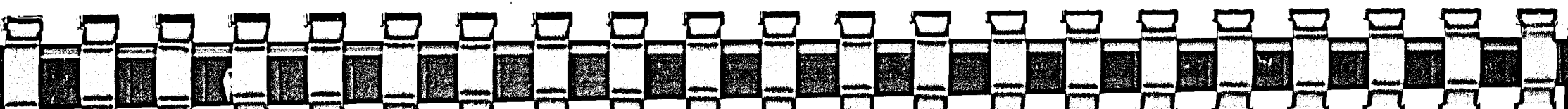
Q2A BY INDUSTRY & ORG_TYPE - 1	INDUSTRY SECTOR														ORGANIZATION TYPE IN VIETNAM				TOTAL
	BANKING				MINING				OIL AND GAS				OTHERS		JOINT VENTURE	100%	REP OFFICE	OTHERS	
	SEGMENTS			TOTAL	SEGMENTS			TOTAL	SEGMENTS			TOTAL	SEGMENTS	TOTAL					
	FOREIGN BANK	DOMESTIC BANK	FOREIGN AND DOMESTIC BANK		COAL MINING	OTHER MINING	SERVICES		EXPLORATION	DISTRIBUTIONS	SERVICES		OTHERS						
PLACE OF PURCHASE FOR SINGLE LINES SYSTEM																			
VIETNAM	16	3	3	22	1	2	1	4	4	1	1	6	1	1	4	10	17	1	32
	88.9%	100.0%	100.0%	91.7%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	11.8%	29.4%	50.0%	2.9%	94.1%
ELSEWHERE	2			2													2		2
	11.1%			8.3%													5.9%		5.9%
TOTAL	18	3	3	24	1	2	1	4	4	1	1	6	1	1	4	10	19	1	34
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	11.8%	29.4%	55.9%	2.9%	100.0%

Q2A BY INDUSTRY & ORG_TYPE - 1	INDUSTRY SECTOR																	ORGANIZATION TYPE IN VIETNAM				TOTAL
	BANKING				MINING						OIL AND GAS						OTHERS		JOINT VENTURE	100%	REP OFFICE	OTHERS	
	SEGMENTS			TOTAL	SEGMENTS					TOTAL	SEGMENTS					TOTAL	SEGMENTS	TOTAL					
	FOREIGN BANK	DOMESTIC BANK	FOREIGN AND DOMESTIC BANK		COAL MINING	OTHER MINING	EXPLORATION	SERVICES	COAL MINING AND OTHER MINING		EXPLORATION	DISTRIBUTIONS	OTHERS	EXPLORATION AND EXTRACTION	SERVICES		OTHERS						
VOICE LINE - DIRECT OR SHARED ?																							
DIRECT	19	3	3	25	1	2	1	1		5	5	1	2	2	1	11	2	2	10	11	19	2	42
	70.4%	100.0%	100.0%	75.8%	100.0%	100.0%	100.0%	100.0%		83.3%	50.0%	50.0%	100.0%	100.0%	100.0%	64.7%	100.0%	100.0%	17.5%	19.3%	33.3%	3.5%	73.7%
SHARED	4			4							5	1				6			1	4	5		10
	14.8%			12.1%							50.0%	50.0%				35.3%			1.8%	7.0%	8.8%		17.5%
BOTH	4			4					1	1											5		5
	14.8%			12.1%					100.0%	16.7%											8.8%		8.8%
TOTAL	27	3	3	33	1	2	1	1	1	6	10	2	2	2	1	17	2	2	11	15	29	2	57
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	19.3%	26.3%	50.9%	3.5%	100.0%



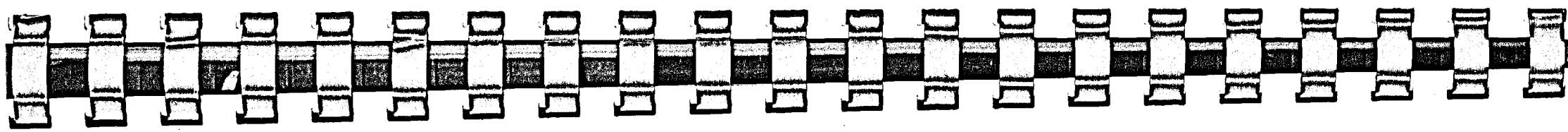
Q2A BY INDUSTRY & ORG_TYPE - 2	INDUSTRY SECTOR										ORGANIZATION TYPE IN VIETNAM			TOTAL
	BANKING				MINING		OIL AND GAS				JOINT VENTURE	100%	REP OFFICE	
	SEGMENTS			TOTAL	SEGMENTS	TOTAL	SEGMENTS			TOTAL				
	FOREIGN BANK	DOMESTIC BANK	FOREIGN AND DOMESTIC BANK		EXPLORATION		EXPLORATION	DISTRIBUTIONS	OTHERS					
PLACE OF PURCHASE FOR KEY PHONE SYSTEM														
VIETNAM	7	1	1	9			1	1	2	4	3	3	7	13
	70.0%	100.0%	100.0%	75.0%			50.0%	100.0%	100.0%	80.0%	16.7%	16.7%	38.9%	72.2%
ELSEWHERE	3			3	1	1	1			1	1	1	3	5
	30.0%			25.0%	100.0%	100.0%	50.0%			20.0%	5.6%	5.6%	16.7%	27.8%
TOTAL	10	1	1	12	1	1	2	1	2	5	4	4	10	18
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	22.2%	22.2%	55.6%	100.0%

Q2A BY INDUSTRY & ORG_TYPE - 2	INDUSTRY SECTOR																		ORGANIZATION TYPE IN VIETNAM				TOTAL
	BANKING				MINING						OIL AND GAS						OTHERS		JOINT VENTURE	100%	REP OFFICE	OTHERS	
	SEGMENTS			TOTAL	SEGMENTS					TOTAL	SEGMENTS					TOTAL	SEGMENTS	TOTAL					
-	FOREIGN BANK	DOMESTIC BANK	FOREIGN AND DOMESTIC BANK		COAL MINING	OTHER MINING	EXPLORATION	SERVICES	COAL MINING AND OTHER MINING		EXPLORATION	DISTRIBUTIONS	OTHERS	EXPLORATION AND EXTRACTION	SERVICES		OTHERS						
FAX LINE - DIRECT OR SHARED ?																							
DIRECT	25	3	3	31	1	2	1	1	1	6	7	1	2	2	1	13	2	2	10	13	26	2	51
	96.2%	100.0%	100.0%	96.9%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	87.5%	50.0%	100.0%	100.0%	100.0%	86.7%	100.0%	100.0%	18.5%	24.1%	48.1%	3.7%	94.4%
SHARED	1			1							1	1				2			1		2		3
	3.8%			3.1%							12.5%	50.0%				13.3%			1.9%		3.7%		5.6%
TOTAL	26	3	3	32	1	2	1	1	1	6	8	2	2	2	1	15	2	2	11	13	28	2	54
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	20.4%	24.1%	51.9%	3.7%	100.0%



Q2A BY INDUSTRY & ORG_TYPE - 2	INDUSTRY SECTOR																ORGANIZATION TYPE IN VIETNAM				TOTAL
	BANKING				MINING						OIL AND GAS					OTHERS		JOINT VENTURE	100%	REP OFFICE	OTHERS	
	SEGMENTS			TOTAL	SEGMENTS					TOTAL	SEGMENTS				TOTAL	SEGMENTS	TOTAL					
	FOREIGN BANK	DOMESTIC BANK	FOREIGN AND DOMESTIC BANK		COAL MINING	OTHER MINING	EXPLORATION	SERVICES	COAL MINING AND OTHER MINING		EXPLORATION	DISTRIBUTIONS	OTHERS	EXPLORATION AND EXTRACTION		OTHERS						
PLACE OF PURCHASE FOR FAX																						
VIETNAM	18	3	2	23	1	1	1	1		4	9	2	1	1	13	1	1	7	14	18	2	41
	85.7%	100.0%	100.0%	88.5%	100.0%	100.0%	100.0%	100.0%		80.0%	100.0%	100.0%	50.0%	100.0%	92.9%	100.0%	100.0%	15.2%	30.4%	39.1%	4.3%	89.1%
ELSE WHERE	3			3					1	1										4		4
	14.3%			11.5%					100.0%	20.0%										8.7%		8.7%
BOTH VIETNAM AND ELSEWHERE													1		1			1				1
													50.0%		7.1%			2.2%				2.2%
TOTAL	21	3	2	26	1	1	1	1	1	5	9	2	2	1	14	1	1	8	14	22	2	46
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	17.4%	30.4%	47.8%	4.3%	100.0%

Q2A BY INDUSTRY & ORG_TYPE - 2	INDUSTRY SECTOR																		ORGANIZATION TYPE IN VIETNAM				TOTAL
	BANKING				MINING						OIL AND GAS						OTHERS		JOINT VENTURE	100%	REP OFFICE	OTHERS	
	SEGMENTS			TOTAL	SEGMENTS					TOTAL	SEGMENTS					TOTAL	SEGMENTS	TOTAL					
	FOREIGN BANK	DOMESTIC BANK	FOREIGN AND DOMESTIC BANK		COAL MINING	OTHER MINING	EXPLORATION	SERVICES	COAL MINING AND OTHER MINING		EXPLORATION	DISTRIBUTIONS	OTHERS	EXPLORATION AND EXTRACTION	SERVICES		OTHERS						
NUMBER OF FAX LINE																							
1	23	2	3	28	1	2	1	1	1	6	6	2	2		1	11	2	2	7	10	28	1	46
	85.2%	66.7%	100.0%	84.8%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	60.0%	100.0%	100.0%		100.0%	68.8%	100.0%	100.0%	12.5%	17.9%	50.0%	1.8%	82.1%
2	4			4							1			1		2			1	3	1	1	6
	14.8%			12.1%							10.0%			100.0%		12.5%			1.8%	5.4%	1.8%	1.8%	10.7%
3											2					2			1	1			2
											20.0%					12.5%			1.8%	1.8%			3.6%
4		1		1																1			1
		33.3%		3.0%																1.8%			1.8%
5											1					1			1				1
											10.0%					6.3%			1.8%				1.8%
TOTAL	27	3	3	33	1	2	1	1	1	6	10	2	2	1	1	16	2	2	10	15	29	2	56
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	17.9%	26.8%	51.8%	3.6%	100.0%



	INDUSTRY SECTOR									ORGANIZATION TYPE IN VIETNAM				TOTAL
	BANKING				OIL AND GAS			OTHERS		JOINT VENTURE	100%	REP OFFICE	OTHERS	
	SEGMENTS			TOTAL	SEGMENTS		TOTAL	SEGMENTS	TOTAL					
	FOREIGN BANK	DOMESTIC BANK	FOREIGN AND DOMESTIC BANK		EXPLORATION	DISTRIBUTIONS		OTHERS						
PLACE OF PURCHASE FOR TELEX														
VIETNAM	11	3	2	16	5	2	7	1	1	5	10	8	1	24
	91.7%	100.0%	100.0%	94.1%	100.0%	100.0%	100.0%	100.0%	100.0%	20.0%	40.0%	32.0%	4.0%	96.0%
ELSE WHERE	1			1								1		1
	8.3%			5.9%								4.0%		4.0%
TOTAL	12	3	2	17	5	2	7	1	1	5	10	9	1	25
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	20.0%	40.0%	36.0%	4.0%	100.0%

Q2A BY INDUSTRY & ORG_TYPE - 3	INDUSTRY SECTOR													ORGANIZATION TYPE IN VIETNAM				TOTAL
	BANKING				MINING				OIL AND GAS			OTHERS		JOINT VENTURE	100%	REP OFFICE	OTHERS	
	SEGMENTS			TOTAL	SEGMENTS			TOTAL	SEGMENTS		TOTAL	SEGMENTS	TOTAL					
	FOREIGN BANK	DOMESTIC BANK	FOREIGN AND DOMESTIC BANK		COAL MINING	OTHER MINING	EXPLORATION		EXPLORATION	DISTRIBUTIONS		OTHERS						
NUMBER OF TELEX LINES																		
1	16	1	3	20	1	1	1	3	6	1	7	1	1	6	10	13	1	30
	88.9%	33.3%	100.0%	83.3%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	17.6%	29.4%	38.2%	2.9%	88.2%
2	1	1		2											2			2
	5.6%	33.3%		8.3%											5.9%			5.9%
3	1	1		2										1	1			2
	5.6%	33.3%		8.3%										2.9%	2.9%			5.9%
TOTAL	18	3	3	24	1	1	1	3	6	1	7	1	1	7	13	13	1	34
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	20.6%	38.2%	38.2%	2.9%	100.0%

Q2B BY INDUSTRY P ORG_TYPE - 1	INDUSTRY SECTOR			ORGANIZATION TYPE IN VIETNAM				TOTAL
	OIL AND GAS	OTHERS		JOINT VENTURE	100%	REP OFFICE	OTHERS	
	TOTAL	SEGMENTS	TOTAL					
		OTHERS						
NBER OF TENSION FOR SINGLE LINE SYSTEM								
					1	5		6
					2.9%	14.7%		17.6%
2	2	1	1			8	1	9
	33.3%	100.0%	100.0%			23.5%	2.9%	26.5%
					1	2		3
					2.9%	5.9%		8.8%
4	1				3	1		4
	16.7%				8.8%	2.9%		11.8%
5				3	1			4
				8.8%	2.9%			11.8%
						1		1
						2.9%		2.9%
9				1				1
				2.9%				2.9%
	1					1		1
	16.7%					2.9%		2.9%
14	1				1			1
	16.7%				2.9%			2.9%
					1			1
					2.9%			2.9%
30						1		1
						2.9%		2.9%
2	1				1			1
	16.7%				2.9%			2.9%
					1			1
					2.9%			2.9%
TOTAL	6	1	1	4	10	19	1	34
	100.0%	100.0%	100.0%	11.8%	29.4%	55.9%	2.9%	100.0%

Q2B BY INDUSTRY & ORG_TYPE - 2	INDUSTRY SECTOR										ORGANIZATION TYPE IN VIETNAM			TOTAL
	BANKING				MINING		OIL AND GAS				JOINT VENTURE	100%	REP OFFICE	
	SEGMENTS			TOTAL	SEGMENTS	TOTAL	SEGMENTS			TOTAL				
	FOREIGN BANK	DOMESTIC BANK	FOREIGN AND DOMESTIC BANK		EXPLORATION		EXPLORATION	DISTRIBUTIONS	OTHERS					
NUMBER OF EXTENSION FOR KEY PHONE SYSTEM														
2	3			3									3	3
	27.3%			23.1%									15.8%	15.8%
3	1			1									1	1
	9.1%			7.7%									5.3%	5.3%
4	3			3	1	1						1	3	4
	27.3%			23.1%	100.0%	100.0%						5.3%	15.8%	21.1%
5	2			2									2	2
	18.2%			15.4%									10.5%	10.5%
6								1	2	3	1	1	1	3
								100.0%	100.0%	60.0%	5.3%	5.3%	5.3%	15.8%
8	1			1									1	1
	9.1%			7.7%									5.3%	5.3%
10	1			1			1			1	1	1		2
	9.1%			7.7%			50.0%			20.0%	5.3%	5.3%		10.5%
12							1			1	1			1
							50.0%			20.0%	5.3%			5.3%
25			1	1							1			1
			100.0%	7.7%							5.3%			5.3%
40		1		1								1		1
		100.0%		7.7%								5.3%		5.3%
TOTAL	11	1	1	13	1	1	2	1	2	5	4	4	11	19
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	21.1%	21.1%	57.9%	100.0%

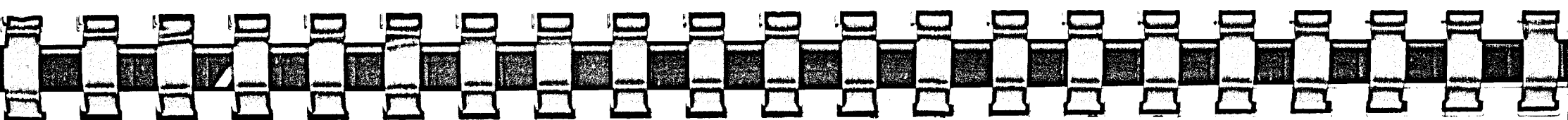
	INDUSTRY SECTOR											ORGANIZATION TYPE IN VIETNAM				TOTAL
	BANKING				MINING		OIL AND GAS			OTHERS		JOINT VENTURE	100%	REP OFFICE	OTHERS	
	SEGMENTS			TOTAL	SEGMENTS	TOTAL	SEGMENTS		TOTAL	SEGMENTS	TOTAL					
	FOREIGN BANK	DOMESTIC BANK	FOREIGN AND DOMESTIC BANK		COAL MINING AND OTHER MINING		EXPLORATION	EXPLORATION AND EXTRACTION		OTHERS						
PLACE OF PURCHASE FOR PBX SYSTEM																
VIETNAM	5	2	1	8	1	1	6	2	8	1	1	4	6	6	2	18
	62.5%	100.0%	100.0%	72.7%	100.0%	100.0%	85.7%	100.0%	88.9%	100.0%	100.0%	18.2%	27.3%	27.3%	9.1%	81.8%
ELSEWHERE	3			3			1		1			1	1	2		4
	37.5%			27.3%			14.3%		11.1%			4.5%	4.5%	9.1%		18.2%
TOTAL	8	2	1	11	1	1	7	2	9	1	1	5	7	8	2	22
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	22.7%	31.8%	36.4%	9.1%	100.0%

BY INDUSTRY ORG_TYPE - 1	INDUSTRY SECTOR											
	BANKING				MINING				OIL AND GAS			
	SEGMENTS			TOTAL	SEGMENTS			TOTAL	SEGMENTS			
	FOREIGN BANK	DOMESTIC BANK	FOREIGN AND DOMESTIC BANK		COAL MINING	OTHER MINING	SERVICES		EXPLORATION	DISTRIBUTIONS	SERVICES	
GER OF CTENSION FOR NGLE LINE YSTEM												
	5			5			1	1				
	27.8%			20.8%			100.0%	25.0%				
	5	1		6						1	1	
	27.8%	33.3%		25.0%						100.0%	100.0%	
	3			3								
	16.7%			12.5%								
	2			2		1		1	1			
	11.1%			8.3%		50.0%		25.0%	25.0%			
		1	2	3	1			1				
		33.3%	66.7%	12.5%	100.0%			25.0%				
	1			1								
	5.6%			4.2%								
			1	1								
			33.3%	4.2%								
						1		1	1			
						50.0%		25.0%	25.0%			
									1			
									25.0%			
	1			1								
	5.6%			4.2%								
	1			1								
	5.6%			4.2%								
									1			
									25.0%			
		1		1								
		33.3%		4.2%								
TAL	18	3	3	24	1	2	1	4	4	1	1	
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

(continued)

Q2B - 1	BRAND OF SINGLE LINE SYSTEM					TOTAL
	ALCATEL	SIEMENS	PANASONIC	GOLDSTAR	OTHERS	
NUMBER OF EXTENSION FOR SINGLE LINE SYSTEM						
1	1 16.7%	0 .0%	2 25.0%	0 .0%	1 20.0%	4 17.4%
2	1 16.7%	1 100.0%	1 12.5%	0 .0%	1 20.0%	4 17.4%
3	1 16.7%	0 .0%	2 25.0%	0 .0%	0 .0%	3 13.0%
4	1 16.7%	0 .0%	1 12.5%	1 33.3%	1 20.0%	4 17.4%
5	1 16.7%	0 .0%	0 .0%	0 .0%	1 20.0%	2 8.7%
8	0 .0%	0 .0%	0 .0%	1 33.3%	0 .0%	1 4.3%
9	0 .0%	0 .0%	0 .0%	0 .0%	1 20.0%	1 4.3%
14	0 .0%	0 .0%	1 12.5%	0 .0%	0 .0%	1 4.3%
20	1 16.7%	0 .0%	0 .0%	0 .0%	0 .0%	1 4.3%
30	0 .0%	0 .0%	1 12.5%	0 .0%	0 .0%	1 4.3%
32	0 .0%	0 .0%	0 .0%	1 33.3%	0 .0%	1 4.3%
TOTAL	6 100.0%	1 100.0%	8 100.0%	3 100.0%	5 100.0%	23 100.0%

Q2B BY INDUSTRY & ORG_TYPE - 4	INDUSTRY SECTOR											ORGANIZATION TYPE IN VIETNAM				TOTAL
	BANKING		MINING			OIL AND GAS						JOINT VENTURE	100%	REP OFFICE	OTHERS	
	SEGMENTS	TOTAL	SEGMENTS		TOTAL	SEGMENTS					TOTAL					
	FOREIGN BANK		COAL MINING	OTHER MINING		EXPLORATION	DISTRIBUTIONS	OTHERS	EXPLORATION AND EXTRACTION	SERVICES						
NUMBER OF MOBILE LINE																
1	2	2	1		1	1	1				2		2	3		5
	50.0%	50.0%	100.0%		33.3%	14.3%	100.0%				16.7%		11.1%	16.7%		27.8%
2	2	2		1	1	1		1			2	1	2	2		5
	50.0%	50.0%		50.0%	33.3%	14.3%		50.0%			16.7%	5.6%	11.1%	11.1%		27.8%
3				1	1	1					1		1			1
				50.0%	33.3%	14.3%					8.3%		5.6%			5.6%
4						1				1	2	1		1		2
						14.3%				100.0%	16.7%	5.6%		5.6%		11.1%
5						1		1	1		3	1	1		1	3
						14.3%		50.0%	100.0%		25.0%	5.6%	5.6%		5.6%	16.7%
12						1					1	1				1
						14.3%					8.3%	5.6%				5.6%
20						1					1	1				1
						14.3%					8.3%	5.6%				5.6%
TOTAL	4	4	1	2	3	7	1	2	1	1	12	5	6	6	1	18
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	27.8%	33.3%	33.3%	5.6%	100.0%



Q2B BY INDUSTRY & ORGTYPE - 5	INDUSTRY SECTOR																	ORGANIZATION TYPE IN VIETNAM				TOTAL
	BANKING				MINING						OIL AND GAS						OTHERS		JOINT VENTURE	100%	REP OFFICE	OTHERS	
	SEGMENTS			TOTAL	SEGMENTS					TOTAL	SEGMENTS					TOTAL	SEGMENTS	TOTAL					
	FOREIGN BANK	DOMESTIC BANK	FOREIGN AND DOMESTIC BANK		COAL MINING	OTHER MINING	EXPLORATION	SERVICES	COAL MINING AND OTHER MINING		EXPLORATION	DISTRIBUTIONS	OTHERS	EXPLORATION AND EXTRACTION	SERVICES		OTHERS						
NUMBER OF EXTENSION-FOR FAX SYSTEM																							
1	23	2	3	28	1	1	1	1	1	5	6	2	1		1	10	1	1	6	10	27	1	44
	88.5%	66.7%	100.0%	87.5%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	60.0%	100.0%	50.0%		100.0%	62.5%	100.0%	100.0%	11.1%	18.5%	50.0%	1.9%	81.5%
2	3			3							1		1	1		3			2	2	1	1	6
	11.5%			9.4%							10.0%		50.0%	100.0%		18.8%			3.7%	3.7%	1.9%	1.9%	11.1%
3											2					2			1	1			2
											20.0%					12.5%			1.9%	1.9%			3.7%
4		1		1																1			1
		33.3%		3.1%																1.9%			1.9%
5											1					1			1				1
											10.0%					6.3%			1.9%				1.9%
TOTAL	26	3	3	32	1	1	1	1	1	5	10	2	2	1	1	16	1	1	10	14	28	2	54
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	18.5%	25.9%	51.9%	3.7%	100.0%

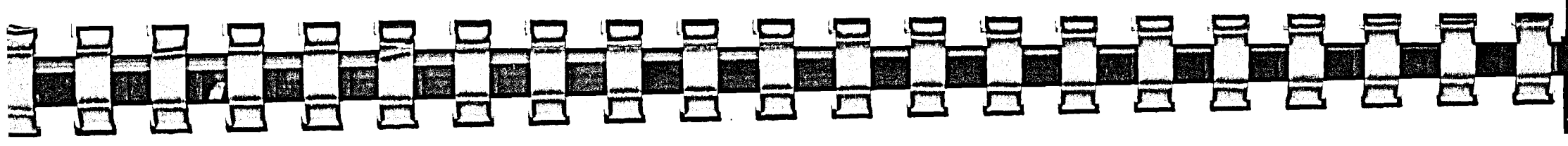
Q2B BY INDUSTRY & ORG_TYPE - 6	INDUSTRY SECTOR									ORGANIZATION TYPE IN VIETNAM				TOTAL
	BANKING				OIL AND GAS			OTHERS		JOINT VENTURE	100%	REP OFFICE	OTHERS	
	SEGMENTS			TOTAL	SEGMENTS		TOTAL	SEGMENTS	TOTAL					
	FOREIGN BANK	DOMESTIC BANK	FOREIGN AND DOMESTIC BANK		EXPLORATION	DISTRIBUTIONS		OTHERS						
NUMBER OF EXTENSION FOR TELEX SYSTEM														
1	12	1	3	16	4	2	6	1	1	4	7	11	1	23
	85.7%	33.3%	100.0%	80.0%	80.0%	100.0%	85.7%	100.0%	100.0%	14.3%	25.0%	39.3%	3.6%	82.1%
2	1	1		2	1		1			1	2			3
	7.1%	33.3%		10.0%	20.0%		14.3%			3.6%	7.1%			10.7%
3	1	1		2						1	1			2
	7.1%	33.3%		10.0%						3.6%	3.6%			7.1%
TOTAL	14	3	3	20	5	2	7	1	1	6	10	11	1	28
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	21.4%	35.7%	39.3%	3.6%	100.0%

Q3A	INDUSTRY SECTOR				TOTAL	HOME COUNTRY LOCATED ?				TOTAL	ORGANIZATION TYPE IN VIETNAM				TOTAL
	BANKING	MINING	OIL AND GAS	OTHERS		ASIA	EUROPE	NORTH AMERICA	OTHER		JOINT VENTURE	100%	REP OFFICE	OTHERS	
DO YOU HAVE ANY PRIVATE NETWORK ?															
YES	2 6.5%	2 33.3%	12 75.0%	1 50.0%	17 30.9%	4 21.1%	5 20.0%	1 100.0%	4 80.0%	14 28.0%	6 60.0%	5 35.7%	3 10.7%	2 100.0%	16 29.6%
NO	29 93.5%	4 66.7%	4 25.0%	1 50.0%	38 69.1%	15 78.9%	20 80.0%	0 .0%	1 20.0%	36 72.0%	4 40.0%	9 64.3%	25 89.3%	0 .0%	38 70.4%
TOTAL	31 100.0%	6 100.0%	16 100.0%	2 100.0%	55 100.0%	19 100.0%	25 100.0%	1 100.0%	5 100.0%	50 100.0%	10 100.0%	14 100.0%	28 100.0%	2 100.0%	54 100.0%

	INDUSTRY SECTOR					
	BANKING				OTHERS	
	SEGMENTS			TOTAL	SEGMENTS	TOTAL
	FOREIGN BANK	DOMESTIC BANK	FOREIGN AND DOMESTIC BANK		OTHERS	
BRAND OF TELEX MACHINE						
SAGEM						
NUMBER OF EXTENSION FOR TELEX SYSTEM						
1	5		1	6	1	1
	50.0%		100.0%	46.2%	100.0%	100.0%
2	1	1		2		
	10.0%	50.0%		15.4%		
3		1		1		
		50.0%		7.7%		
OTHERS						
NUMBER OF EXTENSION FOR TELEX SYSTEM						
1	3			3		
	30.0%			23.1%		
3	1			1		
	10.0%			7.7%		
TOTAL	10	2	1	13	1	1
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

	INDUSTRY SECTOR														
	BANKING				MINING				OIL AND GAS					OTHERS	
	SEGMENTS			TOTAL	SEGMENTS			TOTAL	SEGMENTS				TOTAL	SEGMENTS	TOTAL
	FOREIGN BANK	DOMESTIC BANK	FOREIGN AND DOMESTIC BANK		COAL MINING	OTHER MINING	COAL MINING AND OTHER MINING		EXPLORATION	DISTRIBUTIONS	OTHERS	EXPLORATION AND EXTRACTION		OTHERS	
BRAND OF FAX MACHINE															
RICOH															
NUMBER OF EXTENSION FOR FAX SYSTEM															
1	7			7		1		1	4				4		
	41.2%			36.8%		100.0%		33.3%	80.0%				50.0%		
2	1			1											
	5.9%			5.3%											
5									1				1		
									20.0%				12.5%		
PANASONIC															
NUMBER OF EXTENSION FOR FAX SYSTEM															
1			1	1	1			1							
			100.0%	5.3%	100.0%			33.3%							
2											1	1	2		
											100.0%	100.0%	25.0%		
4		1		1											
		100.0%		5.3%											
CANNON															
NUMBER OF EXTENSION FOR FAX SYSTEM															
1	5			5			1	1		1			1		
	29.4%			26.3%			100.0%	33.3%		100.0%			12.5%		
OTHERS															
NUMBER OF EXTENSION FOR FAX SYSTEM															
1	2			2										1	1
	11.8%			10.5%										100.0%	100.0%
6	2			2											
	11.8%			10.5%											
TOTAL	17	1	1	19	1	1	1	3	5	1	1	1	8	1	1
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

	INDUSTRY SECTOR														ORGANIZATION TYPE IN VIETNAM				TOTAL
	BANKING				MINING				OIL AND GAS				OTHERS		JOINT VENTURE	100%	REP OFFICE	OTHERS	
	SEGMENTS			TOTAL	SEGMENTS			TOTAL	SEGMENTS			TOTAL	SEGMENTS	TOTAL					
	FOREIGN BANK	DOMESTIC BANK	FOREIGN AND DOMESTIC BANK		COAL MINING	OTHER MINING	EXPLORATION		EXPLORATION	DISTRIBUTIONS	EXPLORATION AND EXTRACTION		OTHERS						
TELEX LINE - DIRECT OR SHARED ?																			
DIRECT	16	3	3	22	1			1	4	1	1	6	1	1	8	10	11	1	30
	94.1%	100.0%	100.0%	95.7%	100.0%			33.3%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	25.0%	31.3%	34.4%	3.1%	93.8%
SHARED	1			1		1	1	2								1	1		2
	5.9%			4.3%		100.0%	100.0%	66.7%								3.1%	3.1%		6.3%
TOTAL	17	3	3	23	1	1	1	3	4	1	1	6	1	1	8	11	12	1	32
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	25.0%	34.4%	37.5%	3.1%	100.0%



Q3A	LOCATION OF COMPANY			TOTAL	EMPSIZE					TOTAL
	HANOI	HO CHI MINH CITY	VUNG TAU		<= 10	11 - 50	51 - 100	101 - 500	> 500	
DO YOU HAVE ANY PRIVATE NETWORK ?										
YES	5 23.8%	7 25.0%	5 83.3%	17 30.9%	2 7.1%	10 50.0%	1 100.0%	2 66.7%	2 66.7%	17 30.9%
NO	16 76.2%	21 75.0%	1 16.7%	38 69.1%	26 92.9%	10 50.0%	0 .0%	1 33.3%	1 33.3%	38 69.1%
TOTAL	21 100.0%	28 100.0%	6 100.0%	55 100.0%	28 100.0%	20 100.0%	1 100.0%	3 100.0%	3 100.0%	55 100.0%

Q38	INDUSTRY SECTOR				TOTAL	HOME COUNTRY LOCATED ?				TOTAL	ORGANIZATION TYPE IN VIETNAM		
	BANKING	MINING	OIL AND GAS	OTHERS		ASIA	EUROPE	NORTH AMERICA	OTHER		JOINT VENTURE	100%	REP OFFICE
WHAT IS THE TRANSMISSION MEDIA FOR PRIVATE NETWORK ?													
RADIO - HF	0 .0%	1 50.0%	4 30.8%	0 .0%	5 27.8%	1 25.0%	3 50.0%	0 .0%	1 25.0%	5 33.3%	3 42.9%	0 .0%	1 33.3%
RADIO - VHF	0 .0%	0 .0%	3 23.1%	0 .0%	3 16.7%	2 50.0%	0 .0%	0 .0%	1 25.0%	3 20.0%	1 14.3%	2 40.0%	0 .0%
RADIO - WALKIE TALKIE	0 .0%	0 .0%	2 15.4%	0 .0%	2 11.1%	0 .0%	2 33.3%	0 .0%	0 .0%	2 13.3%	1 14.3%	1 20.0%	0 .0%
MICROWAVE	1 50.0%	0 .0%	0 .0%	0 .0%	1 5.6%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	1 20.0%	0 .0%
CABLE	1 50.0%	0 .0%	0 .0%	0 .0%	1 5.6%	0 .0%	0 .0%	0 .0%	1 25.0%	1 6.7%	0 .0%	0 .0%	0 .0%
SATELLITE	0 .0%	0 .0%	1 7.7%	1 100.0%	2 11.1%	1 25.0%	0 .0%	0 .0%	1 25.0%	2 13.3%	0 .0%	0 .0%	2 66.7%
MORE THAN ONE OF THE ABOVE	0 .0%	1 50.0%	3 23.1%	0 .0%	4 22.2%	0 .0%	1 16.7%	1 100.0%	0 .0%	2 13.3%	2 28.6%	1 20.0%	0 .0%
TOTAL	2 100.0%	2 100.0%	13 100.0%	1 100.0%	18 100.0%	4 100.0%	6 100.0%	1 100.0%	4 100.0%	15 100.0%	7 100.0%	5 100.0%	3 100.0%

(continued)

Q3B	LOCATION OF COMPANY			TOTAL	EMPSIZE					TOTAL
	HANOI	HO CHI MINH CITY	VUNG TAU		<= 10	11 - 50	51 - 100	101 - 500	> 500	
WHAT IS THE TRANSMISSION MEDIA FOR PRIVATE NETWORK ?										
RADIO - HF	1 20.0%	4 50.0%	0 .0%	5 27.8%	1 50.0%	3 30.0%	0 .0%	1 33.3%	0 .0%	5 27.8%
RADIO - VHF	0 .0%	2 25.0%	1 20.0%	3 16.7%	0 .0%	2 20.0%	0 .0%	1 33.3%	0 .0%	3 16.7%
RADIO - WALKIE TALKIE	0 .0%	0 .0%	2 40.0%	2 11.1%	0 .0%	2 20.0%	0 .0%	0 .0%	0 .0%	2 11.1%
MICROWAVE	1 20.0%	0 .0%	0 .0%	1 5.6%	0 .0%	0 .0%	0 .0%	1 33.3%	0 .0%	1 5.6%
CABLE	1 20.0%	0 .0%	0 .0%	1 5.6%	0 .0%	1 10.0%	0 .0%	0 .0%	0 .0%	1 5.6%
SATELLITE	1 20.0%	1 12.5%	0 .0%	2 11.1%	1 50.0%	0 .0%	1 100.0%	0 .0%	0 .0%	2 11.1%
MORE THAN ONE OF THE ABOVE	1 20.0%	1 12.5%	2 40.0%	4 22.2%	0 .0%	2 20.0%	0 .0%	0 .0%	2 100.0%	4 22.2%
TOTAL	5 100.0%	8 100.0%	5 100.0%	18 100.0%	2 100.0%	10 100.0%	1 100.0%	3 100.0%	2 100.0%	18 100.0%

038	ORGANIZATION TYPE IN VIETNAM	TOTAL
	OTHERS	
WHAT IS THE TRANSMISSION MEDIA FOR PRIVATE NETWORK ?		
RADIO - HF	1 50.0%	5 29.4%
RADIO - VHF	0 .0%	3 17.6%
RADID - WALKIE TALKIE	0 .0%	2 11.8%
MICROWAVE	0 .0%	1 5.9%
CABLE	1 50.0%	1 5.9%
SATELLITE	0 .0%	2 11.8%
MORE THAN ONE OF THE ABOVE	0 .0%	3 17.6%
TOTAL	2 100.0%	17 100.0%

Q3C	LOCATION OF COMPANY			TOTAL	EMPSIZE					TOTAL
	HANOI	HO CHI MINH CITY	VUNG TAU		<= 10	11 - 50	51 - 100	101 - 500	> 500	
WHO MAINTAINS THE PN ?										
SELF MAINTAIN	0 .0%	5 62.5%	4 80.0%	9 52.9%	0 .0%	6 60.0%	0 .0%	2 66.7%	1 50.0%	9 52.9%
SERVICE PROVIDERS	4 100.0%	3 37.5%	1 20.0%	8 47.1%	1 100.0%	4 40.0%	1 100.0%	1 33.3%	1 50.0%	8 47.1%
TOTAL	4 100.0%	8 100.0%	5 100.0%	17 100.0%	1 100.0%	10 100.0%	1 100.0%	3 100.0%	2 100.0%	17 100.0%

Q3C	INDUSTRY SECTOR				TOTAL	HOME COUNTRY LOCATED ?				TOTAL	ORGANIZATION TYPE IN VIETNAM				TOTAL
	BANKING	MINING	OIL AND GAS	OTHERS		ASIA	EUROPE	NORTH AMERICA	OTHER		JOINT VENTURE	100%	REP OFFICE	OTHERS	
WHO MAINTAINS THE PN ?															
SELF MAINTAIN	0 .0%	0 .0%	9 69.2%	0 .0%	9 52.9%	1 25.0%	6 100.0%	0 .0%	1 33.3%	8 57.1%	6 85.7%	2 40.0%	0 .0%	1 50.0%	9 56.3%
SERVICE PROVIDERS	2 100.0%	1 100.0%	4 30.8%	1 100.0%	8 47.1%	3 75.0%	0 .0%	1 100.0%	2 66.7%	6 42.9%	1 14.3%	3 60.0%	2 100.0%	1 50.0%	7 43.8%
TOTAL	2 100.0%	1 100.0%	13 100.0%	1 100.0%	17 100.0%	4 100.0%	6 100.0%	1 100.0%	3 100.0%	14 100.0%	7 100.0%	5 100.0%	2 100.0%	2 100.0%	16 100.0%

Q3D	INDUSTRY SECTOR				TOTAL	HOME COUNTRY LOCATED ?				TOTAL	ORGANIZATION TYPE IN VIETNAM			
	BANKING	MINING	OIL AND GAS	OTHERS		ASIA	EUROPE	NORTH AMERICA	OTHER		JOINT VENTURE	100%	REP OFFICE	OTHERS
TYPES OF COMMUNICATIONS DO YOU TRANSMIT OVER THOSE PRIVATE S														
VOICE	0 .0%	1 50.0%	2 15.4%	0 .0%	3 16.7%	0 .0%	2 33.3%	0 .0%	1 25.0%	3 20.0%	1 14.3%	1 20.0%	1 33.3%	0 .0%
DATA	1 50.0%	0 .0%	0 .0%	0 .0%	1 5.6%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	1 20.0%	0 .0%	0 .0%
VOICE AND FAX	0 .0%	1 50.0%	6 46.2%	0 .0%	7 38.9%	3 75.0%	2 33.3%	0 .0%	1 25.0%	6 40.0%	2 28.6%	2 40.0%	1 33.3%	1 50.0%
ALL THE ABOVE	0 .0%	0 .0%	2 15.4%	0 .0%	2 11.1%	0 .0%	0 .0%	1 100.0%	0 .0%	1 6.7%	1 14.3%	1 20.0%	0 .0%	0 .0%
VOICE AND DATA	1 50.0%	0 .0%	1 7.7%	0 .0%	2 11.1%	0 .0%	1 16.7%	0 .0%	1 25.0%	2 13.3%	1 14.3%	0 .0%	0 .0%	1 50.0%
VOICE, FAX AND DATA	0 .0%	0 .0%	0 .0%	1 100.0%	1 5.6%	1 25.0%	0 .0%	0 .0%	0 .0%	1 6.7%	0 .0%	0 .0%	1 33.3%	0 .0%
MORE THAN ONE OF THE ABOVE	0 .0%	0 .0%	2 15.4%	0 .0%	2 11.1%	0 .0%	1 16.7%	0 .0%	1 25.0%	2 13.3%	2 28.6%	0 .0%	0 .0%	0 .0%
TOTAL	2 100.0%	2 100.0%	13 100.0%	1 100.0%	18 100.0%	4 100.0%	6 100.0%	1 100.0%	4 100.0%	15 100.0%	7 100.0%	5 100.0%	3 100.0%	2 100.0%

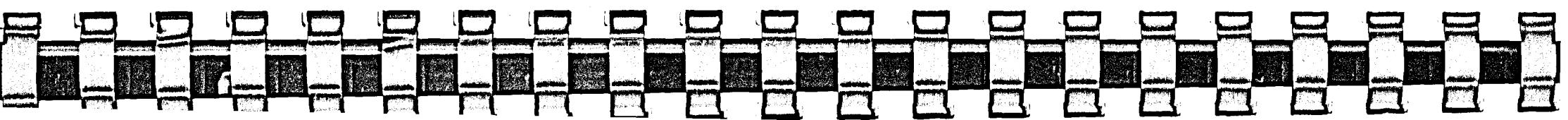
(continued)

Q3D	TOTAL
TYPES OF COMMUNICATIONS DO YOU TRANSMIT OVER THOSE PRIVATE S	
VOICE	3 17.6%
DATA	1 5.9%
VOICE AND FAX	6 35.3%
ALL THE ABOVE	2 11.8%
VOICE AND DATA	2 11.8%
VOICE, FAX AND DATA	1 5.9%
MORE THAN ONE OF THE ABOVE	2 11.8%
TOTAL	17 100.0%

Q3D	LOCATION OF COMPANY			TOTAL	EMPSIZE					TOTAL
	HANOI	HO CHI MINH CITY	VUNG TAU		<= 10	11 - 50	51 - 100	101 - 500	> 500	
TYPES OF COMMUNICATIONS DO YOU TRANSMIT OVER THOSE PRIVATE S										
VOICE	1 20.0%	0 .0%	2 40.0%	3 16.7%	1 50.0%	2 20.0%	0 .0%	0 .0%	0 .0%	3 16.7%
DATA	1 20.0%	0 .0%	0 .0%	1 5.6%	0 .0%	0 .0%	0 .0%	1 33.3%	0 .0%	1 5.6%
VOICE AND FAX	1 20.0%	5 62.5%	1 20.0%	7 38.9%	1 50.0%	5 50.0%	0 .0%	0 .0%	1 50.0%	7 38.9%
ALL THE ABOVE	0 .0%	1 12.5%	1 20.0%	2 11.1%	0 .0%	2 20.0%	0 .0%	0 .0%	0 .0%	2 11.1%
VOICE AND DATA	1 20.0%	0 .0%	1 20.0%	2 11.1%	0 .0%	1 10.0%	0 .0%	0 .0%	1 50.0%	2 11.1%
VOICE, FAX AND DATA	1 20.0%	0 .0%	0 .0%	1 5.6%	0 .0%	0 .0%	1 100.0%	0 .0%	0 .0%	1 5.6%
MORE THAN ONE OF THE ABOVE	0 .0%	2 25.0%	0 .0%	2 11.1%	0 .0%	0 .0%	0 .0%	2 66.7%	0 .0%	2 11.1%
TOTAL	5 100.0%	8 100.0%	5 100.0%	18 100.0%	2 100.0%	10 100.0%	1 100.0%	3 100.0%	2 100.0%	18 100.0%

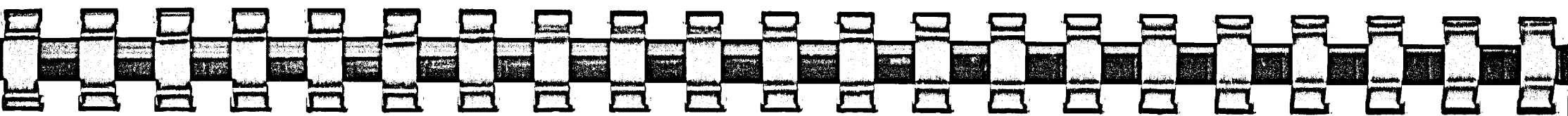
Q3E	INDUSTRY SECTOR			TOTAL	HOME COUNTRY LOCATED ?				TOTAL	ORGANIZATION TYPE IN VIETNAM				TOTAL
	BANKING	MINING	OIL AND GAS		ASIA	EUROPE	NORTH AMERICA	OTHER		JOINT VENTURE	100%	REP OFFICE	OTHERS	
HOW MANY SITES ARE CONNECTED THROUGH PN ?														
2	0 .0%	0 .0%	2 15.4%	2 11.8%	1 33.3%	1 16.7%	0 .0%	0 .0%	2 14.3%	1 14.3%	1 20.0%	0 .0%	0 .0%	2 12.5%
3	0 .0%	0 .0%	4 30.8%	4 23.5%	2 66.7%	1 16.7%	0 .0%	1 25.0%	4 28.6%	1 14.3%	2 40.0%	1 50.0%	0 .0%	4 25.0%
4	0 .0%	0 .0%	1 7.7%	1 5.9%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	1 20.0%	0 .0%	0 .0%	1 6.3%
5	1 50.0%	1 50.0%	1 7.7%	3 17.6%	0 .0%	1 16.7%	0 .0%	2 50.0%	3 21.4%	1 14.3%	0 .0%	1 50.0%	1 50.0%	3 18.8%
6	0 .0%	1 50.0%	1 7.7%	2 11.8%	0 .0%	1 16.7%	0 .0%	0 .0%	1 7.1%	1 14.3%	0 .0%	0 .0%	0 .0%	1 6.3%
8	0 .0%	0 .0%	1 7.7%	1 5.9%	0 .0%	0 .0%	0 .0%	1 25.0%	1 7.1%	1 14.3%	0 .0%	0 .0%	0 .0%	1 6.3%
12	0 .0%	0 .0%	1 7.7%	1 5.9%	0 .0%	1 16.7%	0 .0%	0 .0%	1 7.1%	0 .0%	0 .0%	0 .0%	1 50.0%	1 6.3%
13	1 50.0%	0 .0%	0 .0%	1 5.9%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	1 20.0%	0 .0%	0 .0%	1 6.3%
17	0 .0%	0 .0%	1 7.7%	1 5.9%	0 .0%	0 .0%	1 100.0%	0 .0%	1 7.1%	1 14.3%	0 .0%	0 .0%	0 .0%	1 6.3%
20	0 .0%	0 .0%	1 7.7%	1 5.9%	0 .0%	1 16.7%	0 .0%	0 .0%	1 7.1%	1 14.3%	0 .0%	0 .0%	0 .0%	1 6.3%
TOTAL	2 100.0%	2 100.0%	13 100.0%	17 100.0%	3 100.0%	6 100.0%	1 100.0%	4 100.0%	14 100.0%	7 100.0%	5 100.0%	2 100.0%	2 100.0%	16 100.0%

Q3E	LOCATION OF COMPANY			TOTAL	EMPSIZE				TOTAL
	HANOI	HO CHI MINH CITY	VUNG TAU		<= 10	11 - 50	101 - 500	> 500	
HOW MANY SITES ARE CONNECTED THROUGH PN ?									
2	0 .0%	1 12.5%	1 20.0%	2 11.8%	0 .0%	2 20.0%	0 .0%	0 .0%	2 11.8%
3	0 .0%	3 37.5%	1 20.0%	4 23.5%	1 50.0%	3 30.0%	0 .0%	0 .0%	4 23.5%
4	0 .0%	0 .0%	1 20.0%	1 5.9%	0 .0%	1 10.0%	0 .0%	0 .0%	1 5.9%
5	2 50.0%	1 12.5%	0 .0%	3 17.6%	1 50.0%	1 10.0%	1 33.3%	0 .0%	3 17.6%
6	1 25.0%	0 .0%	1 20.0%	2 11.8%	0 .0%	1 10.0%	0 .0%	1 50.0%	2 11.8%
8	0 .0%	1 12.5%	0 .0%	1 5.9%	0 .0%	0 .0%	1 33.3%	0 .0%	1 5.9%
12	0 .0%	1 12.5%	0 .0%	1 5.9%	0 .0%	1 10.0%	0 .0%	0 .0%	1 5.9%
13	1 25.0%	0 .0%	0 .0%	1 5.9%	0 .0%	0 .0%	1 33.3%	0 .0%	1 5.9%
17	0 .0%	1 12.5%	0 .0%	1 5.9%	0 .0%	1 10.0%	0 .0%	0 .0%	1 5.9%
20	0 .0%	0 .0%	1 20.0%	1 5.9%	0 .0%	0 .0%	0 .0%	1 50.0%	1 5.9%
TOTAL	4 100.0%	8 100.0%	5 100.0%	17 100.0%	2 100.0%	10 100.0%	3 100.0%	2 100.0%	17 100.0%



Q4B	LOCATION OF COMPANY			TOTAL	EMPSIZE					TOTAL
	HANOI	HO CHI MINH CITY	VUNG TAU		<= 10	11 - 50	51 - 100	101 - 500	> 500	
Q4B - DATA SVC ACCESS TO EFT_POS	2 28.6%	1 11.1%	0 .0%	3 15.0%	0 .0%	1 10.0%	0 .0%	2 66.7%	0 .0%	3 15.0%
SCADA	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%
X.25	1 14.3%	3 33.3%	0 .0%	4 20.0%	1 20.0%	2 20.0%	0 .0%	1 33.3%	0 .0%	4 20.0%
PROTOCOL CONVERSION	0 .0%	1 11.1%	0 .0%	1 5.0%	0 .0%	1 10.0%	0 .0%	0 .0%	0 .0%	1 5.0%
X.400	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%
EDI	1 14.3%	1 11.1%	0 .0%	2 10.0%	0 .0%	2 20.0%	0 .0%	0 .0%	0 .0%	2 10.0%
EMAIL	3 42.9%	6 66.7%	2 50.0%	11 55.0%	2 40.0%	6 60.0%	0 .0%	3 100.0%	0 .0%	11 55.0%
INFOMATION RETRIEVAL/DATA BASE SERVICE	2 28.6%	6 66.7%	2 50.0%	10 50.0%	2 40.0%	7 70.0%	0 .0%	1 33.3%	0 .0%	10 50.0%
FINANCIAL NETWORK SERVICE	3 42.9%	4 44.4%	1 25.0%	8 40.0%	3 60.0%	4 40.0%	0 .0%	1 33.3%	0 .0%	8 40.0%
OTHER DATA SERVICES ACCESS TO	3 42.9%	2 22.2%	2 50.0%	7 35.0%	2 40.0%	2 20.0%	1 100.0%	1 33.3%	1 100.0%	7 35.0%
TOTAL	7 100.0%	9 100.0%	4 100.0%	20 100.0%	5 100.0%	10 100.0%	1 100.0%	3 100.0%	1 100.0%	20 100.0%

Q48	INDUSTRY SECTOR			TOTAL	HOME COUNTRY LOCATED ?				TOTAL	ORGANIZATION TYPE IN VIETNAM				TOTAL
	BANKING	OIL AND GAS	OTHERS		ASIA	EUROPE	NORTH AMERICA	OTHER		JOINT VENTURE	100%	REP OFFICE	OTHERS	
Q48 - DATA SVC ACCESS TO EFT_POS	3 27.3%	0 .0%	0 .0%	3 15.0%	0 .0%	0 .0%	0 .0%	1 50.0%	1 5.9%	1 16.7%	1 16.7%	0 .0%	1 50.0%	3 15.0%
SCADA	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%
X.25	2 18.2%	2 25.0%	0 .0%	4 20.0%	0 .0%	3 30.0%	0 .0%	1 50.0%	4 23.5%	1 16.7%	1 16.7%	1 16.7%	1 50.0%	4 20.0%
PROTOCOL CONVERSION	0 .0%	1 12.5%	0 .0%	1 5.0%	0 .0%	0 .0%	1 100.0%	0 .0%	1 5.9%	1 16.7%	0 .0%	0 .0%	0 .0%	1 5.0%
X.400	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%
EDI	2 18.2%	0 .0%	0 .0%	2 10.0%	0 .0%	1 10.0%	0 .0%	1 50.0%	2 11.8%	0 .0%	1 16.7%	0 .0%	1 50.0%	2 10.0%
EMAIL	7 63.6%	4 50.0%	0 .0%	11 55.0%	0 .0%	7 70.0%	0 .0%	1 50.0%	8 47.1%	2 33.3%	6 100.0%	2 33.3%	1 50.0%	11 55.0%
INFOMATION RETRIEVAL/DATA BASE SERVICE	7 63.6%	3 37.5%	0 .0%	10 50.0%	2 50.0%	5 50.0%	1 100.0%	0 .0%	8 47.1%	3 50.0%	5 83.3%	2 33.3%	0 .0%	10 50.0%
FINANCIAL NETWORK SERVICE	7 63.6%	1 12.5%	0 .0%	8 40.0%	1 25.0%	4 40.0%	0 .0%	1 50.0%	6 35.3%	1 16.7%	3 50.0%	3 50.0%	1 50.0%	8 40.0%
OTHER DATA SERVICES ACCESS TO	2 18.2%	4 50.0%	1 100.0%	7 35.0%	3 75.0%	3 30.0%	0 .0%	1 50.0%	7 41.2%	4 66.7%	0 .0%	3 50.0%	0 .0%	7 35.0%
TOTAL	11 100.0%	8 100.0%	1 100.0%	20 100.0%	4 100.0%	10 100.0%	1 100.0%	2 100.0%	17 100.0%	6 100.0%	6 100.0%	6 100.0%	2 100.0%	20 100.0%

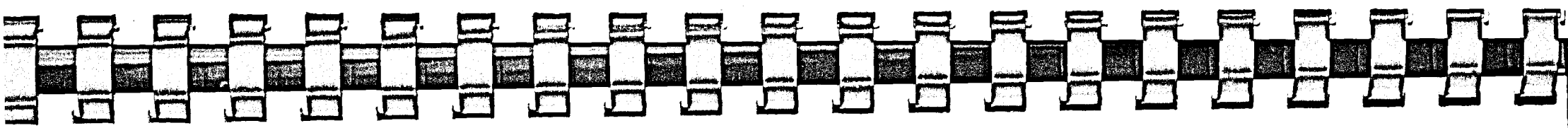


Q4C	LOCATION OF COMPANY			TOTAL	EMPSIZE					TOTAL
	HANOI	HO CHI MINH CITY	VUNG TAU		<= 10	11 - 50	51 - 100	101 - 500	> 500	
Q4C - EQUPMENT THAT FACILITATES										
MODEMS	7 87.5%	9 100.0%	3 75.0%	19 90.5%	5 100.0%	9 81.8%	1 100.0%	3 100.0%	1 100.0%	19 90.5%
LANS	5 62.5%	4 44.4%	0 .0%	9 42.9%	0 .0%	6 54.5%	0 .0%	3 100.0%	0 .0%	9 42.9%
WANS	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%
DATA OVER VOICE MULTIPLXERS	0 .0%	1 11.1%	0 .0%	1 4.8%	0 .0%	0 .0%	0 .0%	1 33.3%	0 .0%	1 4.8%
OTHER MULTIPLEXERS	0 .0%	1 11.1%	0 .0%	1 4.8%	0 .0%	0 .0%	0 .0%	1 33.3%	0 .0%	1 4.8%
SERVICE NODE	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%
OTHER FACILITIES USED	0 .0%	2 22.2%	2 50.0%	4 19.0%	0 .0%	2 18.2%	0 .0%	1 33.3%	1 100.0%	4 19.0%
TOTAL	8 100.0%	9 100.0%	4 100.0%	21 100.0%	5 100.0%	11 100.0%	1 100.0%	3 100.0%	1 100.0%	21 100.0%

Q4C	INDUSTRY SECTOR			TOTAL	HOME COUNTRY LOCATED ?				TOTAL	ORGANIZATION TYPE IN VIETNAM				TOTAL
	BANKING	OIL AND GAS	OTHERS		ASIA	EUROPE	NORTH AMERICA	OTHER		JOINT VENTURE	100%	REP OFFICE	OTHERS	
Q4C - EQUPMENT THAT FACILITATES														
MODEMS	11 91.7%	7 87.5%	1 100.0%	19 90.5%	4 80.0%	10 100.0%	1 100.0%	2 100.0%	17 94.4%	6 85.7%	5 83.3%	6 100.0%	2 100.0%	19 90.5%
LANS	7 58.3%	2 25.0%	0 .0%	9 42.9%	2 40.0%	3 30.0%	0 .0%	2 100.0%	7 38.9%	4 57.1%	3 50.0%	0 .0%	2 100.0%	9 42.9%
WANS	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%
DATA OVER VOICE MULTIPLXERS	1 8.3%	0 .0%	0 .0%	1 4.8%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	1 14.3%	0 .0%	0 .0%	0 .0%	1 4.8%
OTHER MULTIPLEXERS	0 .0%	1 12.5%	0 .0%	1 4.8%	0 .0%	0 .0%	0 .0%	1 50.0%	1 5.6%	1 14.3%	0 .0%	0 .0%	0 .0%	1 4.8%
SERVICE NODE	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%
OTHER FACILITIES USED	1 8.3%	3 37.5%	0 .0%	4 19.0%	0 .0%	1 10.0%	1 100.0%	0 .0%	2 11.1%	3 42.9%	1 16.7%	0 .0%	0 .0%	4 19.0%
TOTAL	12 100.0%	8 100.0%	1 100.0%	21 100.0%	5 100.0%	10 100.0%	1 100.0%	2 100.0%	18 100.0%	7 100.0%	6 100.0%	6 100.0%	2 100.0%	21 100.0%

Q4D	INDUSTRY SECTOR			TOTAL	HOME COUNTRY LOCATED ?				TOTAL	ORGANIZATION TYPE IN VIETNAM				TOTAL
	BANKING	OIL AND GAS	OTHERS		ASIA	EUROPE	NORTH AMERICA	OTHER		JOINT VENTURE	100%	REP OFFICE	OTHERS	
PLACE OF PURCHASE OF THE EQUIPMENT														
VIETNAM	5 45.5%	0 .0%	1 100.0%	6 31.6%	3 75.0%	0 .0%	0 .0%	1 50.0%	4 25.0%	3 42.9%	1 16.7%	1 25.0%	1 50.0%	6 31.6%
OVERSEAS	6 54.5%	6 85.7%	0 .0%	12 63.2%	1 25.0%	8 88.9%	1 100.0%	1 50.0%	11 68.8%	3 42.9%	5 83.3%	3 75.0%	1 50.0%	12 63.2%
BOTH	0 .0%	1 14.3%	0 .0%	1 5.3%	0 .0%	1 11.1%	0 .0%	0 .0%	1 6.3%	1 14.3%	0 .0%	0 .0%	0 .0%	1 5.3%
TOTAL	11 100.0%	7 100.0%	1 100.0%	19 100.0%	4 100.0%	9 100.0%	1 100.0%	2 100.0%	16 100.0%	7 100.0%	6 100.0%	4 100.0%	2 100.0%	19 100.0%

Q4E	LOCATION OF COMPANY			TOTAL	EMPSIZE					TOTAL
	HANOI	HO CHI MINH CITY	VUNG TAU		<= 10	11 - 50	51 - 100	101 - 500	> 500	
Q4E - SERVICES USED FOR										
ATN	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%
SEISMIC	0 .0%	1 14.3%	2 66.7%	3 17.6%	0 .0%	2 22.2%	0 .0%	0 .0%	1 100.0%	3 17.6%
SWIFT/ OTHER EFT/POS	2 28.6%	0 .0%	0 .0%	2 11.8%	0 .0%	1 11.1%	0 .0%	1 50.0%	0 .0%	2 11.8%
DATA FILE TRANSFER	7 100.0%	6 85.7%	3 100.0%	16 94.1%	3 75.0%	9 100.0%	1 100.0%	2 100.0%	1 100.0%	16 94.1%
FUNDS CLEARANCE	4 57.1%	0 .0%	0 .0%	4 23.5%	1 25.0%	2 22.2%	0 .0%	1 50.0%	0 .0%	4 23.5%
SITE TO SHORE	0 .0%	1 14.3%	2 66.7%	3 17.6%	0 .0%	2 22.2%	0 .0%	0 .0%	1 100.0%	3 17.6%
OTHER SERVICES USED	4 57.1%	6 85.7%	1 33.3%	11 64.7%	3 75.0%	6 66.7%	1 100.0%	1 50.0%	0 .0%	11 64.7%
TOTAL	7 100.0%	7 100.0%	3 100.0%	17 100.0%	4 100.0%	9 100.0%	1 100.0%	2 100.0%	1 100.0%	17 100.0%



Q4F	LOCATION OF COMPANY			TOTAL	EMPSIZE					TOTAL
	HANOI	HO CHI MINH CITY	VUNG TAU		<= 10	11 - 50	51 - 100	101 - 500	> 500	
Q4F - SERVICES NEEDED										
NONE	6	11	4	21	12	7	0	0	2	21
	27.3%	37.9%	66.7%	36.8%	41.4%	35.0%	.0%	.0%	66.7%	36.8%
INTERNATIONAL FINANCIAL INFORMATION SERVICES	6	7	0	13	5	8	0	0	0	13
	27.3%	24.1%	.0%	22.8%	17.2%	40.0%	.0%	.0%	.0%	22.8%
DOMESTIC FINANCIAL INFORMATION SERVICES	2	3	0	5	3	1	0	1	0	5
	9.1%	10.3%	.0%	8.8%	10.3%	5.0%	.0%	25.0%	.0%	8.8%
MOBILE SERVICES	1	1	1	3	2	1	0	0	0	3
	4.5%	3.4%	16.7%	5.3%	6.9%	5.0%	.0%	.0%	.0%	5.3%
DOMESTIC LEASE CIRCUIT	1	4	0	5	2	2	0	1	0	5
	4.5%	13.8%	.0%	8.8%	6.9%	10.0%	.0%	25.0%	.0%	8.8%
INTERNATIONAL LEASED CIRCUIT	2	3	0	5	2	1	1	1	0	5
	9.1%	10.3%	.0%	8.8%	6.9%	5.0%	100.0%	25.0%	.0%	8.8%
RADIO/OTHER DEDICATED NETWORK SERVICES	1	1	1	3	1	1	0	0	1	3
	4.5%	3.4%	16.7%	5.3%	3.4%	5.0%	.0%	.0%	33.3%	5.3%
DATACOMM/OTHER VALUE ADDED SERVICES	8	6	0	14	9	3	0	2	0	14
	36.4%	20.7%	.0%	24.6%	31.0%	15.0%	.0%	50.0%	.0%	24.6%
CHEAPER SERVICES	2	3	0	5	4	0	0	1	0	5
	9.1%	10.3%	.0%	8.8%	13.8%	.0%	.0%	25.0%	.0%	8.8%
BETTER QUALITY LINE CONNECTIONS	5	3	0	8	5	2	1	0	0	8
	22.7%	10.3%	.0%	14.0%	17.2%	10.0%	100.0%	.0%	.0%	14.0%
MORE CO LINES	0	0	1	1	0	1	0	0	0	1
	.0%	.0%	16.7%	1.8%	.0%	5.0%	.0%	.0%	.0%	1.8%
TOTAL	22	29	6	57	29	20	1	4	3	57
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Q4G	LOCATION OF COMPANY			TOTAL	EMPSIZE					TOTAL
	HANOI	HO CHI MINH CITY	VUNG TAU		<= 10	11 - 50	51 - 100	101 - 500	> 500	
Q4G - TELECOMMUNICATION EQUIPMENT NEEDED										
NONE	15 68.2%	22 75.9%	4 66.7%	41 71.9%	21 72.4%	14 70.0%	1 100.0%	3 75.0%	2 66.7%	41 71.9%
BETTER/MORE CPE & OTHER OA EQUIPMENT	2 9.1%	2 6.9%	1 16.7%	5 8.8%	2 6.9%	3 15.0%	0 .0%	0 .0%	0 .0%	5 8.8%
RADIO,MICROWAVE,STATELLITE OR OTHER DEDICATED TRANM. EQUP	2 9.1%	2 6.9%	1 16.7%	5 8.8%	2 6.9%	1 5.0%	0 .0%	1 25.0%	1 33.3%	5 8.8%
MOBILE EQUIPMENT	2 9.1%	2 6.9%	0 .0%	4 7.0%	3 10.3%	1 5.0%	0 .0%	0 .0%	0 .0%	4 7.0%
MODEMS AND OTHER DATACOMM EQUIPMENT	2 9.1%	1 3.4%	0 .0%	3 5.3%	2 6.9%	1 5.0%	0 .0%	0 .0%	0 .0%	3 5.3%
CHEAPER EQUIPMENT	0 .0%	1 3.4%	0 .0%	1 1.8%	0 .0%	1 5.0%	0 .0%	0 .0%	0 .0%	1 1.8%
BETTER MAINTENANCE/AFTERSALES SERVICE	2 9.1%	1 3.4%	0 .0%	3 5.3%	1 3.4%	1 5.0%	0 .0%	1 25.0%	0 .0%	3 5.3%
TOTAL	22 100.0%	29 100.0%	6 100.0%	57 100.0%	29 100.0%	20 100.0%	1 100.0%	4 100.0%	3 100.0%	57 100.0%

Q4G	INDUSTRY SECTOR				TOTAL	HOME COUNTRY LOCATED ?				TOTAL	ORGANIZATION TYPE IN VIETNAM				TOTAL
	BANKING	MINING	OIL AND GAS	OTHERS		ASIA	EUROPE	NORTH AMERICA	OTHER		JOINT VENTURE	100%	REP OFFICE	OTHERS	
Q4G - TELECOMMUNICATION EQUIPMENT NEEDED															
NONE	23 71.9%	4 66.7%	12 70.6%	2 100.0%	41 71.9%	16 84.2%	17 63.0%	1 100.0%	3 60.0%	37 71.2%	6 54.5%	10 71.4%	22 75.9%	2 100.0%	40 71.4%
BETTER/MORE CPE & OTHER OA EQUIPMENT	4 12.5%	0 .0%	1 5.9%	0 .0%	5 8.8%	3 15.8%	2 7.4%	0 .0%	0 .0%	5 9.6%	3 27.3%	0 .0%	2 6.9%	0 .0%	5 8.9%
RADIO, MICROWAVE, STATELLITE OR OTHER DEDICATED TRANM. EQUP	2 6.3%	1 16.7%	2 11.8%	0 .0%	5 8.8%	0 .0%	3 11.1%	0 .0%	1 20.0%	4 7.7%	2 18.2%	1 7.1%	2 6.9%	0 .0%	5 8.9%
MOBILE EQUIPMENT	1 3.1%	1 16.7%	2 11.8%	0 .0%	4 7.0%	0 .0%	3 11.1%	0 .0%	1 20.0%	4 7.7%	0 .0%	2 14.3%	2 6.9%	0 .0%	4 7.1%
MODEMS AND OTHER DATACOMM EQUIPMENT	1 3.1%	1 16.7%	1 5.9%	0 .0%	3 5.3%	0 .0%	3 11.1%	0 .0%	0 .0%	3 5.8%	0 .0%	2 14.3%	1 3.4%	0 .0%	3 5.4%
CHEAPER EQUIPMENT	1 3.1%	0 .0%	0 .0%	0 .0%	1 1.8%	1 5.3%	0 .0%	0 .0%	0 .0%	1 1.9%	1 9.1%	0 .0%	0 .0%	0 .0%	1 1.8%
BETTER MAINTENANCE/AFTERSALES SERVICE	3 9.4%	0 .0%	0 .0%	0 .0%	3 5.3%	0 .0%	2 7.4%	0 .0%	0 .0%	2 3.8%	0 .0%	2 14.3%	1 3.4%	0 .0%	3 5.4%
TOTAL	32 100.0%	6 100.0%	17 100.0%	2 100.0%	57 100.0%	19 100.0%	27 100.0%	1 100.0%	5 100.0%	52 100.0%	11 100.0%	14 100.0%	29 100.0%	2 100.0%	56 100.0%

Q4G	INDUSTRY SECTOR														
	BANKING				MINING						OIL AND GAS				
	SEGMENTS			TOTAL	SEGMENTS					TOTAL	SEGMENTS				
	FOREIGN BANK	DOMESTIC BANK	FOREIGN AND DOMESTIC BANK		COAL MINING	OTHER MINING	EXPLORATION	SERVICES	COAL MINING AND OTHER MINING		EXPLORATION	DISTRIBUTIONS	OTHERS	EXPLORATION AND EXTRACTION	SERVICES
Q4G - TELECOMMUNICATION EQUIPMENT NEEDED															
NONE	20	2	1	23	1	2	0	0	1	4	9	1	1	1	0
	62.5%	6.3%	3.1%	71.9%	16.7%	33.3%	.0%	.0%	16.7%	66.7%	52.9%	5.9%	5.9%	5.9%	.0%
BETTER/MORE CPE & OTHER OA EQUIPMENT	2	0	2	4	0	0	0	0	0	0	0	0	1	0	0
	6.3%	.0%	6.3%	12.5%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	5.9%	.0%	.0%
RADIO,MICROWAVE,STATELLITE OR OTHER DEDICATED TRANM. EQUP	1	1	0	2	0	0	0	1	0	1	1	0	0	1	0
	3.1%	3.1%	.0%	6.3%	.0%	.0%	.0%	16.7%	.0%	16.7%	5.9%	.0%	.0%	5.9%	.0%
MOBILE EQUIPMENT	1	0	0	1	0	0	1	0	0	1	0	1	0	0	1
	3.1%	.0%	.0%	3.1%	.0%	.0%	16.7%	.0%	.0%	16.7%	.0%	5.9%	.0%	.0%	5.9%
MODEMS AND OTHER DATACOMM EQUIPMENT	1	0	0	1	0	0	1	0	0	1	0	1	0	0	0
	3.1%	.0%	.0%	3.1%	.0%	.0%	16.7%	.0%	.0%	16.7%	.0%	5.9%	.0%	.0%	.0%
CHEAPER EQUIPMENT	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
	.0%	.0%	3.1%	3.1%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%
BETTER MAINTENANCE/AFTERSALES SERVICE	2	1	0	3	0	0	0	0	0	0	0	0	0	0	0
	6.3%	3.1%	.0%	9.4%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%
TOTAL	26	3	3	32	1	2	1	1	1	6	10	2	2	2	1
	81.3%	9.4%	9.4%	100.0%	16.7%	33.3%	16.7%	16.7%	16.7%	100.0%	58.8%	11.8%	11.8%	11.8%	5.9%

(continued)

Q6D	LOCATION OF COMPANY			TOTAL	EMPSIZE					TOTAL
	HANOI	HO CHI MINH CITY	VUNG TAU		<= 10	11 - 50	51 - 100	101 - 500	> 500	
RESPONSIBLE FOR EQUP AND SVC NEED FOR LOCAL OFFICE LOCAL OFFICE (IN VIETNAM)	19 90.5%	28 96.6%	4 80.0%	51 92.7%	25 89.3%	18 94.7%	1 100.0%	4 100.0%	3 100.0%	51 92.7%
REGIONAL HQ (OUTSIDE VIETNAM)	2 9.5%	1 3.4%	1 20.0%	4 7.3%	3 10.7%	1 5.3%	0 .0%	0 .0%	0 .0%	4 7.3%
TOTAL	21 100.0%	29 100.0%	5 100.0%	55 100.0%	28 100.0%	19 100.0%	1 100.0%	4 100.0%	3 100.0%	55 100.0%

Q60	INDUSTRY SECTOR				TOTAL	HOME COUNTRY LOCATED ?				TOTAL	ORGANIZATION TYPE IN VIETNAM				TOTAL
	BANKING	MINING	OIL AND GAS	OTHERS		ASIA	EUROPE	NORTH AMERICA	OTHER		JOINT VENTURE	100%	REP OFFICE	OTHERS	
RESPONSIBLE FOR EQUP AND SVC NEED FOR LOCAL OFFICE LOCAL OFFICE (IN VIETNAM)	29 93.5%	5 83.3%	15 93.8%	2 100.0%	51 92.7%	17 94.4%	24 92.3%	1 100.0%	4 80.0%	46 92.0%	11 100.0%	12 92.3%	25 89.3%	2 100.0%	50 92.6%
REGIONAL HQ (OUTSIDE VIETNAM)	2 6.5%	1 16.7%	1 6.3%	0 .0%	4 7.3%	1 5.6%	2 7.7%	0 .0%	1 20.0%	4 8.0%	0 .0%	1 7.7%	3 10.7%	0 .0%	4 7.4%
TOTAL	31 100.0%	6 100.0%	16 100.0%	2 100.0%	55 100.0%	18 100.0%	26 100.0%	1 100.0%	5 100.0%	50 100.0%	11 100.0%	13 100.0%	28 100.0%	2 100.0%	54 100.0%

LOCATION OF COMPANY
VUNG TAU

Q6C - 4	VERY SATISFIED	SOMEWHAT SATISFIED	UNSATISFIED
LOCAL EQUIPMENT DISTRIBUTION CHANNELS		2 3.9%	3 5.9%
FOREIGN EQUIPMENT DISTRIBUTION CHANNELS	2 5.4%	2 5.4%	
LOCAL VOICE/FAX CONNECTIVITY SERVICES	1 1.9%	4 7.4%	
INTERNATIONAL VOICE/FAX CONNECTIVITY SERVICES		4 7.5%	
LOCAL DATA CONNECTIVITY SERVICES		1 4.8%	
INTERNATIONAL DATA CONNECTIVITY SERVICES		1 4.5%	

LOCATION OF COMPANY
HO CHI MINH CITY

Q6C - 4	VERY SATISFIED	SOMEWHAT SATISFIED	UNSATISFIED
LOCAL EQUIPMENT DISTRIBUTION CHANNELS	3 5.9%	14 27.5%	9 17.6%
FOREIGN EQUIPMENT DISTRIBUTION CHANNELS	5 13.5%	7 18.9%	4 10.8%
LOCAL VOICE/FAX CONNECTIVITY SERVICES	7 13.0%	14 25.9%	7 13.0%
INTERNATIONAL VOICE/FAX CONNECTIVITY SERVICES	11 20.8%	15 28.3%	2 3.8%
LOCAL DATA CONNECTIVITY SERVICES	1 4.8%	2 9.5%	8 38.1%
INTERNATIONAL DATA CONNECTIVITY SERVICES	2 9.1%	5 22.7%	6 27.3%

LOCATION OF COMPANY
HANOI

Q6C - 4	VERY SATISFIED	SOMEWHAT SATISFIED	UNSATISFIED
LOCAL EQUIPMENT DISTRIBUTION CHANNELS	10 19.6%	9 17.6%	1 2.0%
FOREIGN EQUIPMENT DISTRIBUTION CHANNELS	10 27.0%	6 16.2%	1 2.7%
LOCAL VOICE/FAX CONNECTIVITY SERVICES	5 9.3%	11 20.4%	5 9.3%
INTERNATIONAL VOICE/FAX CONNECTIVITY SERVICES	11 20.8%	9 17.0%	1 1.9%
LOCAL DATA CONNECTIVITY SERVICES	2 9.5%	3 14.3%	4 19.0%
INTERNATIONAL DATA CONNECTIVITY SERVICES	3 13.6%	3 13.6%	2 9.1%

INDUSTRY SECTOR
OTHERS

Q6C - 2	VERY SATISFIED	SOMEWHAT SATISFIED	UNSATISFIED
LOCAL EQUIPMENT DISTRIBUTION CHANNELS	2 3.9%		
FOREIGN EQUIPMENT DISTRIBUTION CHANNELS	1 2.7%		
LOCAL VOICE/FAX CONNECTIVITY SERVICES		1 1.9%	1 1.9%
INTERNATIONAL VOICE/FAX CONNECTIVITY SERVICES	2 3.8%		
LOCAL DATA CONNECTIVITY SERVICES			
INTERNATIONAL DATA CONNECTIVITY SERVICES			

INDUSTRY SECTOR
MINING

Q6C - 2	VERY SATISFIED	SOMEWHAT SATISFIED	UNSATISFIED
LOCAL EQUIPMENT DISTRIBUTION CHANNELS	2 3.9%	1 2.0%	2 3.9%
FOREIGN EQUIPMENT DISTRIBUTION CHANNELS	3 8.1%	1 2.7%	1 2.7%
LOCAL VOICE/FAX CONNECTIVITY SERVICES		4 7.4%	2 3.7%
INTERNATIONAL VOICE/FAX CONNECTIVITY SERVICES	1 1.9%	4 7.5%	1 1.9%
LOCAL DATA CONNECTIVITY SERVICES			
INTERNATIONAL DATA CONNECTIVITY SERVICES			

INDUSTRY SECTOR
OIL AND GAS

Q6C - 2	VERY SATISFIED	SOMEWHAT SATISFIED	UNSATISFIED
LOCAL EQUIPMENT DISTRIBUTION CHANNELS		8 15.7%	7 13.7%
FOREIGN EQUIPMENT DISTRIBUTION CHANNELS	4 10.8%	5 13.5%	2 5.4%
LOCAL VOICE/FAX CONNECTIVITY SERVICES	2 3.7%	12 22.2%	1 1.9%
INTERNATIONAL VOICE/FAX CONNECTIVITY SERVICES	5 9.4%	9 17.0%	
LOCAL DATA CONNECTIVITY SERVICES		3 14.3%	3 14.3%
INTERNATIONAL DATA CONNECTIVITY SERVICES		4 18.2%	3 13.6%

INDUSTRY SECTOR
BANKING

Q6C - 2	VERY SATISFIED	SOMEWHAT SATISFIED	UNSATISFIED
LOCAL EQUIPMENT DISTRIBUTION CHANNELS	9 17.6%	16 31.4%	4 7.8%
FOREIGN EQUIPMENT DISTRIBUTION CHANNELS	9 24.3%	9 24.3%	2 5.4%
LOCAL VOICE/FAX CONNECTIVITY SERVICES	11 20.4%	12 22.2%	8 14.8%
INTERNATIONAL VOICE/FAX CONNECTIVITY SERVICES	14 26.4%	15 28.3%	2 3.8%
LOCAL DATA CONNECTIVITY SERVICES	3 14.3%	3 14.3%	9 42.9%
INTERNATIONAL DATA CONNECTIVITY SERVICES	5 22.7%	5 22.7%	5 22.7%

Q6C	VERY SATISFIED	SOMEWHAT SATISFIED	UNSATISFIED
LOCAL EQUIPMENT DISTRIBUTION CHANNELS			
Count	13	25	13
Count Percent	25.5%	49.0%	25.5%
FOREIGN EQUIPMENT DISTRIBUTION CHANNELS			
Count	17	15	5
Count Percent	45.9%	40.5%	13.5%
LOCAL VOICE/FAX CONNECTIVITY SERVICES			
Count	13	29	12
Count Percent	24.1%	53.7%	22.2%
INTERNATIONAL VOICE/FAX CONNECTIVITY SERVICES			
Count	22	28	3
Count Percent	41.5%	52.8%	5.7%
LOCAL DATA CONNECTIVITY SERVICES			
Count	3	6	12
Count Percent	14.3%	28.6%	57.1%
INTERNATIONAL DATA CONNECTIVITY SERVICES			
Count	5	9	8
Count Percent	22.7%	40.9%	36.4%

Q6B	INDUSTRY SECTOR				TOTAL	HOME COUNTRY LOCATED ?				TOTAL	ORGANIZATION TYPE IN VIETNAM				TOTAL
	BANKING	MINING	OIL AND GAS	OTHERS		ASIA	EUROPE	NORTH AMERICA	OTHER		JOINT VENTURE	100%	REP OFFICE	OTHERS	
EFFECT ON BUSINESS IF THERE ARE BETTER ALTERNATIVE															
A LOT	6	2	3	2	13	2	7		2	11	2	2	7	1	12
	24.0%	40.0%	23.1%	100.0%	28.9%	15.4%	31.8%		40.0%	26.8%	22.2%	20.0%	30.4%	50.0%	27.3%
A LITTLE	15	3	9		27	9	13		3	25	6	8	12	1	27
	60.0%	60.0%	69.2%		60.0%	69.2%	59.1%		60.0%	61.0%	66.7%	80.0%	52.2%	50.0%	61.4%
NONE	4		1		5	2	2	1		5	1		4		5
	16.0%		7.7%		11.1%	15.4%	9.1%	100.0%		12.2%	11.1%		17.4%		11.4%
TOTAL	25	5	13	2	45	13	22	1	5	41	9	10	23	2	44
Count Percent	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Q68	LOCATION OF COMPANY			TOTAL	EMPSIZE					TOTAL
	HANOI	HO CHI MINH CITY	VUNG TAU		<= 10	11 - 50	51 - 100	101 - 500	> 500	
EFFECT ON BUSINESS IF THERE ARE BETTER ALTERNATIVE										
A LOT	6	6	1	13	6	2	1	1	3	13
	37.5%	25.0%	20.0%	28.9%	27.3%	12.5%	100.0%	33.3%	100.0%	28.9%
A LITTLE	10	13	4	27	13	12		2		27
	62.5%	54.2%	80.0%	60.0%	59.1%	75.0%		66.7%		60.0%
NONE		5		5	3	2				5
		20.8%		11.1%	13.6%	12.5%				11.1%
TOTAL	16	24	5	45	22	16	1	3	3	45
Count Percent	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Q6A - 2	TOTAL
Q6A - RESTRICTIONS	
NONE	6 12.0%
SELECTION/VARIETY OF EQUIPMENT	11 22.0%
SERVICE COSTS	8 16.0%
EQUIPMENT COSTS	5 10.0%
DIFFICULITIES IN OBTAINING LICENSES FOR EQUIPMENT & SERVICES	13 26.0%
LACK OF SECURE COMMUNICATIONS/EQUIP. BUGGED	7 14.0%
POOR CONNECTIONS/LINES TRANSMISSION QUANLITY	9 18.0%
INTER - P&T/SERVICE OPERATOR COMPETITION	3 6.0%
DIFFICULT TO GET APPROVAL FOR INMARSAT INTL SERVICE	3 6.0%
REGULATIONS ON IVAN TO PROHIBITIVE	3 6.0%
RESTRICTIONS ON IMPORTING EQUIPMENT	6 12.0%
POOR MAINTENANCE/AFTERSALES SERVICES;PTT LACKS TRAINED STAFF	10 20.0%
LONG WAITING LIST	1 2.0%
CORRUPTION	1 2.0%
TOTAL Count Percent	50 100.0%

Q6A - 2	ORGANIZATION TYPE IN VIETNAM				TOTAL	LOCATION OF COMPANY		
	JOINT VENTURE	100%	REP OFFICE	OTHERS		HANOI	HO CHI MINH CITY	VUNG TAU
Q6A - RESTRICTIONS								
NONE		2	3	1	6	3	3	
		16.7%	11.5%	50.0%	12.2%	14.3%	12.5%	
SELECTION/VARIETY OF EQUIPMENT	3	3	4		10	3	6	2
	33.3%	25.0%	15.4%		20.4%	14.3%	25.0%	40.0%
SERVICE COSTS	1	2	5		8	3	5	
	11.1%	16.7%	19.2%		16.3%	14.3%	20.8%	
EQUIPMENT COSTS	2	2	1		5	1	2	2
	22.2%	16.7%	3.8%		10.2%	4.8%	8.3%	40.0%
DIFFICULITIES IN OBTAINING LICENSES FOR EQUIPMENT & SERVICES	2	3	7	1	13	3	8	2
	22.2%	25.0%	26.9%	50.0%	26.5%	14.3%	33.3%	40.0%
LACK OF SECURE COMMUNICATIONS/EQUIP. BUGGED			6	1	7	1	6	
			23.1%	50.0%	14.3%	4.8%	25.0%	
POOR CONNECTIONS/LINES TRANSMISSION QUANLITY	1	3	5		9	6	3	
	11.1%	25.0%	19.2%		18.4%	28.6%	12.5%	
INTER - P&T/SERVICE OPERATOR COMPETITION	2	1			3	1	2	
	22.2%	8.3%			6.1%	4.8%	8.3%	
DIFFICULT TO GET APPROVAL FOR INMARSAT INTL SERVICE	1	1	1		3	1	1	1
	11.1%	8.3%	3.8%		6.1%	4.8%	4.2%	20.0%
REGULATIONS ON IVAN TO PROHIBITIVE	1		2		3	1	2	
	11.1%		7.7%		6.1%	4.8%	8.3%	
RESTRICTIONS ON IMPORTING EQUIPMENT	3	1	2		6	4	1	1
	33.3%	8.3%	7.7%		12.2%	19.0%	4.2%	20.0%
POOR MAINTENANCE/AFTERSALES SERVICES;PTT LACKS TRAINED STAFF	2	4	4		10	4	6	
	22.2%	33.3%	15.4%		20.4%	19.0%	25.0%	
LONG WAITING LIST						1		
						4.8%		
CORRUPTION			1		1	1		
			3.8%		2.0%	4.8%		
TOTAL	9	12	26	2	49	21	24	5
Count Percent	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

(continued)

Q6A - 2	HOME COUNTRY LOCATED ?	TOTAL
	OTHER	
Q6A - RESTRICTIONS		
NONE	1	6
	20.0%	13.0%
SELECTION/VARIETY OF EQUIPMENT		10
		21.7%
SERVICE COSTS	1	7
	20.0%	15.2%
EQUIPMENT COSTS		4
		8.7%
DIFFICULITIES IN OBTAINING LICENSES FOR EQUIPMENT & SERVICES	2	12
	40.0%	26.1%
LACK OF SECURE COMMUNICATIONS/EQUIP. BUGGED	1	7
	20.0%	15.2%
POOR CONNECTIONS/LINES TRANSMISSION QUANLITY		9
		19.6%
INTER - P&T/SERVICE OPERATOR COMPETITION	1	2
	20.0%	4.3%
DIFFICULT TO GET APPROVAL FOR INMARSAT INTL SERVICE	1	2
	20.0%	4.3%
REGULATIONS ON IVAN TO PROHIBITIVE	1	3
	20.0%	6.5%
RESTRICTIONS ON IMPORTING EQUIPMENT		6
		13.0%
POOR MAINTENANCE/AFTERSALES SERVICES;PTT LACKS TRAINED STAFF	1	8
	20.0%	17.4%
LONG WAITING LIST		
CORRUPTION	1	1
	20.0%	2.2%
TOTAL	5	46
Count Percent	100.0%	100.0%

6A - 2	INDUSTRY SECTOR				TOTAL	HOME COUNTRY LOCATED ?		
	BANKING	MINING	OIL AND GAS	OTHERS		ASIA	EUROPE	NORTH AMERICA
6A - RESTRICTIONS								
ONE	5	1			6	2	3	
	17.9%	16.7%			12.0%	13.3%	12.0%	
ELECTION/VARIETY OF EQUIPMENT	7	1	3		11	5	5	
	25.0%	16.7%	21.4%		22.0%	33.3%	20.0%	
ERVICE COSTS	4	3		1	8	2	4	
	14.3%	50.0%		50.0%	16.0%	13.3%	16.0%	
QUIPMENT COSTS	1	2	2		5		4	
	3.6%	33.3%	14.3%		10.0%		16.0%	
IFFICULITIES IN OBTAINING LICENSES FOR EQUIPMENT & SERVICES	6	1	6		13	2	7	1
	21.4%	16.7%	42.9%		26.0%	13.3%	28.0%	100.0%
ACK OF SECURE COMMUNICATIONS/EQUIP. BUGGED	4	1	2		7	3	3	
	14.3%	16.7%	14.3%		14.0%	20.0%	12.0%	
OOR CONNECTIONS/LINES TRANSMISSION QUANLITY	7	1	1		9	4	5	
	25.0%	16.7%	7.1%		18.0%	26.7%	20.0%	
NTER - P&T/SERVICE OPERATOR COMPETITION	1		2		3		1	
	3.6%		14.3%		6.0%		4.0%	
IFFICULT TO GET APPROVAL FOR INMARSAT INTL SERVICE	1		2		3	1		
	3.6%		14.3%		6.0%	6.7%		
EGULATIONS ON IVAN TO PROHIBITIVE	2		1		3		2	
	7.1%		7.1%		6.0%		8.0%	
ESTRICTIONS ON IMPORTING EQUIPMENT	2	1	2	1	6	2	4	
	7.1%	16.7%	14.3%	50.0%	12.0%	13.3%	16.0%	
OOR MAINTENANCE/AFTERSALES SERVICES;PTT LACKS TRAINED STAFF	7	1	2		10	2	5	
	25.0%	16.7%	14.3%		20.0%	13.3%	20.0%	
ONG WAITING LIST		1			1			
		16.7%			2.0%			
ORRUPTION		1			1			
		16.7%			2.0%			
TOTAL	28	6	14	2	50	15	25	1
Count Percent	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

(continued)

Q6A - 2	EMPSIZE					TOTAL
	<= 10	11 - 50	51 - 100	101 - 500	> 500	
Q6A - RESTRICTIONS						
NONE	4	2				6
	16.0%	11.1%				12.0%
SELECTION/VARIETY OF EQUIPMENT	3	7			1	11
	12.0%	38.9%			33.3%	22.0%
SERVICE COSTS	5	2			1	8
	20.0%	11.1%			33.3%	16.0%
EQUIPMENT COSTS	2	1			2	5
	8.0%	5.6%			66.7%	10.0%
DIFFICULITIES IN OBTAINING LICENSES FOR EQUIPMENT & SERVICES	7	6				13
	28.0%	33.3%				26.0%
LACK OF SECURE COMMUNICATIONS/EQUIP. BUGGED	5	2				7
	20.0%	11.1%				14.0%
POOR CONNECTIONS/LINES TRANSMISSION QUANLITY	6	3				9
	24.0%	16.7%				18.0%
INTER - P&T/SERVICE OPERATOR COMPETITION				3		3
				100.0%		6.0%
DIFFICULT TO GET APPROVAL FOR INMARSAT INTL SERVICE	1	2				3
	4.0%	11.1%				6.0%
REGULATIONS ON IVAN TO PROHIBITIVE	2			1		3
	8.0%			33.3%		6.0%
RESTRICTIONS ON IMPORTING EQUIPMENT	2	1	1	1	1	6
	8.0%	5.6%	100.0%	33.3%	33.3%	12.0%
POOR MAINTENANCE/AFTERSALES SERVICES;PTT LACKS TRAINED STAFF	3	4		2	1	10
	12.0%	22.2%		66.7%	33.3%	20.0%
LONG WAITING LIST					1	1
					33.3%	2.0%
CORRUPTION	1					1
	4.0%					2.0%
TOTAL	25	18	1	3	3	50
Count Percent	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Q6A - 1	LOCATION OF COMPANY			TOTAL	EMPSIZE					TOTAL
	HANOI	HO CHI MINH CITY	VUNG TAU		<= 10	11 - 50	51 - 100	101 - 500	> 500	
PRIMARY RESTRICTIONS ON SERVICES MARKET/COMMERCIAL	7 38.9%	6 28.6%	1 20.0%	14 31.8%	7 33.3%	5 31.3%	0 .0%	0 .0%	2 66.7%	14 31.8%
REGULATORY	5 27.8%	8 38.1%	2 40.0%	15 34.1%	9 42.9%	5 31.3%	0 .0%	1 33.3%	0 .0%	15 34.1%
A COMBINATION	6 33.3%	7 33.3%	2 40.0%	15 34.1%	5 23.8%	6 37.5%	1 100.0%	2 66.7%	1 33.3%	15 34.1%
TOTAL	18 100.0%	21 100.0%	5 100.0%	44 100.0%	21 100.0%	16 100.0%	1 100.0%	3 100.0%	3 100.0%	44 100.0%

Q6A - 1	INDUSTRY SECTOR				TOTAL	HOME COUNTRY LOCATED ?				TOTAL	ORGANIZATION TYPE IN VIETNAM				TOTAL
	BANKING	MINING	OIL AND GAS	OTHERS		ASIA	EUROPE	NORTH AMERICA	OTHER		JOINT VENTURE	100%	REP OFFICE	OTHERS	
PRIMARY RESTRICTIONS ON SERVICES															
MARKET/COMMERCIAL	10 43.5%	2 40.0%	2 14.3%	0 .0%	14 31.8%	3 23.1%	9 40.9%	0 .0%	0 .0%	12 30.0%	2 22.2%	3 30.0%	8 34.8%	0 .0%	13 30.2%
REGULATORY	8 34.8%	1 20.0%	6 42.9%	0 .0%	15 34.1%	3 23.1%	8 36.4%	1 100.0%	2 50.0%	14 35.0%	3 33.3%	2 20.0%	9 39.1%	1 100.0%	15 34.9%
A COMBINATION	5 21.7%	2 40.0%	6 42.9%	2 100.0%	15 34.1%	7 53.8%	5 22.7%	0 .0%	2 50.0%	14 35.0%	4 44.4%	5 50.0%	6 26.1%	0 .0%	15 34.9%
TOTAL	23 100.0%	5 100.0%	14 100.0%	2 100.0%	44 100.0%	13 100.0%	22 100.0%	1 100.0%	4 100.0%	40 100.0%	9 100.0%	10 100.0%	23 100.0%	1 100.0%	43 100.0%

Q6A	LOCATION OF COMPANY			TOTAL	EMPSIZE					TOTAL
	HANOI	HO CHI MINH CITY	VUNG TAU		<= 10	11 - 50	51 - 100	101 - 500	> 500	
PRIMARY RESTRICTIONS ON SERVICES										
MARKET/COMMERCIAL	7 38.9%	6 28.6%	1 20.0%	14 31.8%	7 33.3%	5 31.3%	0 .0%	0 .0%	2 66.7%	14 31.8%
REGULATORY	5 27.8%	8 38.1%	2 40.0%	15 34.1%	9 42.9%	5 31.3%	0 .0%	1 33.3%	0 .0%	15 34.1%
A COMBINATION	6 33.3%	7 33.3%	2 40.0%	15 34.1%	5 23.8%	6 37.5%	1 100.0%	2 66.7%	1 33.3%	15 34.1%
TOTAL	18 100.0%	21 100.0%	5 100.0%	44 100.0%	21 100.0%	16 100.0%	1 100.0%	3 100.0%	3 100.0%	44 100.0%

Q6A	HOME COUNTRY LOCATED ?				TOTAL	ORGANIZATION TYPE IN VIETNAM				TOTAL
	ASIA	EUROPE	NORTH AMERICA	OTHER		JOINT VENTURE	100%	REP OFFICE	OTHERS	
PRIMARY RESTRICTIONS ON SERVICES										
MARKET/COMMERCIAL	3 23.1%	9 40.9%	0 .0%	0 .0%	12 30.0%	2 22.2%	3 30.0%	8 34.8%	0 .0%	13 30.2%
REGULATORY	3 23.1%	8 36.4%	1 100.0%	2 50.0%	14 35.0%	3 33.3%	2 20.0%	9 39.1%	1 100.0%	15 34.9%
A COMBINATION	7 53.8%	5 22.7%	0 .0%	2 50.0%	14 35.0%	4 44.4%	5 50.0%	6 26.1%	0 .0%	15 34.9%
TOTAL	13 100.0%	22 100.0%	1 100.0%	4 100.0%	40 100.0%	9 100.0%	10 100.0%	23 100.0%	1 100.0%	43 100.0%

Q6A

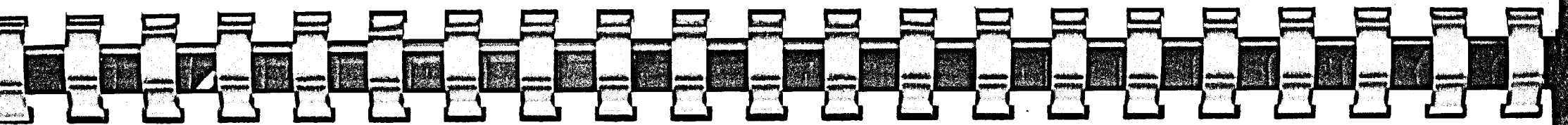
	INDUSTRY SECTOR													TOTAL
	BANKING			MINING				OIL AND GAS					OTHERS	
	SEGMENTS			SEGMENTS				SEGMENTS					SEGMENTS	
	FOREIGN BANK	DOMESTIC BANK	FOREIGN AND DOMESTIC BANK	COAL MINING	OTHER MINING	EXPLORATION	SERVICES	EXPLORATION	DISTRIBUTIONS	OTHERS	EXPLORATION AND EXTRACTION	SERVICES	OTHERS	
PRIMARY RESTRICTIONS ON SERVICES														
MARKET/COMMERCIAL														
Count	9	0	1	1	1	0	0	0	1	1	0	0	0	14
	47.4%	.0%	33.3%	100.0%	50.0%	.0%	.0%	.0%	50.0%	50.0%	.0%	.0%	.0%	31.8%
REGULATORY														
Count	7	0	1	0	0	0	1	3	0	1	1	1	0	15
	36.8%	.0%	33.3%	.0%	.0%	.0%	100.0%	42.9%	.0%	50.0%	50.0%	100.0%	.0%	34.1%
A COMBINATION														
Count	3	1	1	0	1	1	0	4	1	0	1	0	2	15
	15.8%	100.0%	33.3%	.0%	50.0%	100.0%	.0%	57.1%	50.0%	.0%	50.0%	.0%	100.0%	34.1%
TOTAL														
Count	19	1	3	1	2	1	1	7	2	2	2	1	2	44
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Q5 - 3	INDUSTRY SECTOR				TOTAL	HOME COUNTRY LOCATEO ?				TOTAL	ORGANIZATION TYPE IN VIETNAM				TOTAL
	BANKING	MINING	OIL AND GAS	OTHERS		ASIA	EUROPE	NORTH AMERICA	OTHER		JOINT VENTURE	100%	REP OFFICE	OTHERS	
AVERAGE MONTHLY TELEPHONE BILL															
<= 500	2	1	0	0	3	1	1	0	1	3	0	0	3	0	3
	6.9%	20.0%	.0%	.0%	6.3%	5.9%	4.5%	.0%	20.0%	6.7%	.0%	.0%	12.0%	.0%	6.4%
501 - 1,000	8	1	0	1	10	1	7	0	1	9	0	0	8	1	9
	27.6%	20.0%	.0%	50.0%	20.8%	5.9%	31.8%	.0%	20.0%	20.0%	.0%	.0%	32.0%	50.0%	19.1%
1,001 - 1,500	2	0	0	0	2	2	0	0	0	2	0	0	2	0	2
	6.9%	.0%	.0%	.0%	4.2%	11.8%	.0%	.0%	.0%	4.4%	.0%	.0%	8.0%	.0%	4.3%
1,501 - 3,000	7	1	1	0	9	5	2	0	0	7	2	2	5	0	9
	24.1%	20.0%	8.3%	.0%	18.8%	29.4%	9.1%	.0%	.0%	15.6%	25.0%	16.7%	20.0%	.0%	19.1%
3,001 - 5,000	3	2	6	0	11	5	3	1	2	11	5	2	4	0	11
	10.3%	40.0%	50.0%	.0%	22.9%	29.4%	13.6%	100.0%	40.0%	24.4%	62.5%	16.7%	16.0%	.0%	23.4%
5,001 - 10,000	6	0	1	1	8	1	7	0	0	8	0	5	3	0	8
	20.7%	.0%	8.3%	50.0%	16.7%	5.9%	31.8%	.0%	.0%	17.8%	.0%	41.7%	12.0%	.0%	17.0%
> 10,000	1	0	4	0	5	2	2	0	1	5	1	3	0	1	5
	3.4%	.0%	33.3%	.0%	10.4%	11.8%	9.1%	.0%	20.0%	11.1%	12.5%	25.0%	.0%	50.0%	10.6%
TOTAL	29	5	12	2	48	17	22	1	5	45	8	12	25	2	47
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Q5 - 3	LOCATION OF COMPANY			TOTAL	EMPSIZE					TOTAL
	HANOI	HO CHI MINH CITY	VUNG TAU		<= 10	11 - 50	51 - 100	101 - 500	> 500	
AVERAGE MONTHLY TELEPHONE BILL										
<= 500	0 .0%	3 11.1%	0 .0%	3 6.3%	2 8.0%	1 5.6%	0 .0%	0 .0%	0 .0%	3 6.3%
501 - 1,000	7 38.9%	3 11.1%	0 .0%	10 20.8%	8 32.0%	1 5.6%	0 .0%	0 .0%	1 50.0%	10 20.8%
1,001 - 1,500	2 11.1%	0 .0%	0 .0%	2 4.2%	2 8.0%	0 .0%	0 .0%	0 .0%	0 .0%	2 4.2%
1,501 - 3,000	2 11.1%	7 25.9%	0 .0%	9 18.8%	5 20.0%	2 11.1%	0 .0%	1 50.0%	1 50.0%	9 18.8%
3,001 - 5,000	4 22.2%	6 22.2%	1 33.3%	11 22.9%	6 24.0%	5 27.8%	0 .0%	0 .0%	0 .0%	11 22.9%
5,001 - 10,000	3 16.7%	4 14.8%	1 33.3%	8 16.7%	2 8.0%	5 27.8%	1 100.0%	0 .0%	0 .0%	8 16.7%
> 10,000	0 .0%	4 14.8%	1 33.3%	5 10.4%	0 .0%	4 22.2%	0 .0%	1 50.0%	0 .0%	5 10.4%
TOTAL	18 100.0%	27 100.0%	3 100.0%	48 100.0%	25 100.0%	18 100.0%	1 100.0%	2 100.0%	2 100.0%	48 100.0%

Q5 - 2	LOCATION OF COMPANY			TOTAL	EMPSIZE					TOTAL
	HANOI	HO CHI MINH CITY	VUNG TAU		<= 10	11 - 50	51 - 100	101 - 500	> 500	
Q5 - OVERSEAS CALLS										
CALL TO HONG KONG	7 36.8%	9 31.0%	0 .0%	16 30.2%	8 29.6%	7 35.0%	0 .0%	0 .0%	1 50.0%	16 30.2%
CALL TO SINGAPORE	15 78.9%	16 55.2%	4 80.0%	35 66.0%	16 59.3%	17 85.0%	1 100.0%	1 33.3%	0 .0%	35 66.0%
CALL TO BANGKOK	4 21.1%	3 10.3%	1 20.0%	8 15.1%	3 11.1%	4 20.0%	1 100.0%	0 .0%	0 .0%	8 15.1%
CALL TO TOKYO	1 5.3%	6 20.7%	1 20.0%	8 15.1%	4 14.8%	2 10.0%	0 .0%	0 .0%	2 100.0%	8 15.1%
CALL TO EUROPE	14 73.7%	12 41.4%	3 60.0%	29 54.7%	15 55.6%	11 55.0%	1 100.0%	2 66.7%	0 .0%	29 54.7%
CALL TO NORTH AMERICA	1 5.3%	2 6.9%	1 20.0%	4 7.5%	0 .0%	4 20.0%	0 .0%	0 .0%	0 .0%	4 7.5%
CALL TO OTHER PARTS OF THE WORLD	7 36.8%	17 58.6%	4 80.0%	28 52.8%	10 37.0%	15 75.0%	0 .0%	1 33.3%	2 100.0%	28 52.8%
TOTAL	19 100.0%	29 100.0%	5 100.0%	53 100.0%	27 100.0%	20 100.0%	1 100.0%	3 100.0%	2 100.0%	53 100.0%

Q5 - 1	LOCATION OF COMPANY			TOTAL	EMPSIZE			TOTAL
	HANOI	HO CHI MINH CITY	VUNG TAU		<= 10	11 - 50	> 500	
CALLS								
<= 10	2 13.3%	1 9.1%	0 .0%	3 11.1%	2 11.1%	1 12.5%	0 .0%	3 11.1%
11 - 50	5 33.3%	2 18.2%	0 .0%	7 25.9%	5 27.8%	1 12.5%	1 100.0%	7 25.9%
51 - 100	4 26.7%	3 27.3%	0 .0%	7 25.9%	5 27.8%	2 25.0%	0 .0%	7 25.9%
> 100	4 26.7%	5 45.5%	1 100.0%	10 37.0%	6 33.3%	4 50.0%	0 .0%	10 37.0%
TOTAL	15 100.0%	11 100.0%	1 100.0%	27 100.0%	18 100.0%	8 100.0%	1 100.0%	27 100.0%



Q6E	INDUSTRY SECTOR				TOTAL	HOME COUNTRY LOCATED ?				TOTAL	ORGANIZATION TYPE IN VIETNAM				TOTAL
	BANKING	MINING	OIL AND GAS	OTHERS		ASIA	EUROPE	NORTH AMERICA	OTHER		JOINT VENTURE	100%	REP OFFICE	OTHERS	
PLACE OF PURCHASE OF EQUP AND SVC															
VIETNAM	28	4	9	2	43	17	20		2	39	6	13	23	1	43
	90.3%	66.7%	56.3%	100.0%	78.2%	94.4%	76.9%		40.0%	78.0%	54.5%	92.9%	85.2%	50.0%	79.6%
ELSEWHERE	2	1	4		7	1	3	1	2	7	4	1	2		7
	6.5%	16.7%	25.0%		12.7%	5.6%	11.5%	100.0%	40.0%	14.0%	36.4%	7.1%	7.4%		13.0%
BOTH	1	1	3		5		3		1	4	1		2	1	4
	3.2%	16.7%	18.8%		9.1%		11.5%		20.0%	8.0%	9.1%		7.4%	50.0%	7.4%
TOTAL	31	6	16	2	55	18	26	1	5	50	11	14	27	2	54
Count Percent	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Q6E	LOCATION OF COMPANY			TOTAL	EMPSIZE					TOTAL
	HANOI	HO CHI MINH CITY	VUNG TAU		<= 10	11 - 50	51 - 100	101 - 500	> 500	
PLACE OF PURCHASE OF EQUP AND SVC										
VIETNAM	17	23	3	43	23	15	1	2	2	43
	81.0%	79.3%	60.0%	78.2%	85.2%	75.0%	100.0%	50.0%	66.7%	78.2%
ELSEWHERE	2	4	1	7	2	3		2		7
	9.5%	13.8%	20.0%	12.7%	7.4%	15.0%		50.0%		12.7%
BOTH	2	2	1	5	2	2			1	5
	9.5%	6.9%	20.0%	9.1%	7.4%	10.0%			33.3%	9.1%
TOTAL	21	29	5	55	27	20	1	4	3	55
Count Percent	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Q6F	INDUSTRY SECTOR				TOTAL	HOME COUNTRY LOCATED ?				TOTAL	ORGANIZATION TYPE IN VIETNAM	
	BANKING	MINING	OIL AND GAS	OTHERS		ASIA	EUROPE	NORTH AMERICA	OTHER		JOINT VENTURE	100%
Q6F - EXPANDING NETWORK VOICE/FAX CO ACCESS LINES	15 50.0%	2 33.3%	11 73.3%	1 50.0%	29 54.7%	11 64.7%	15 57.7%	1 100.0%	2 40.0%	29 59.2%	6 54.5%	6 46.2%
BIZ COMM SYSTEMS (PBX/KTS)	16 53.3%	4 66.7%	9 60.0%	1 50.0%	30 56.6%	9 52.9%	15 57.7%	1 100.0%	2 40.0%	27 55.1%	6 54.5%	9 69.2%
DATA COMM EQUIPMENT AND SVC	23 76.7%	3 50.0%	9 60.0%	1 50.0%	36 67.9%	10 58.8%	20 76.9%	0 .0%	4 80.0%	34 69.4%	7 63.6%	9 69.2%
DEDICATED TRANSMISSION SVC (LCs,ILCs,SATELLITE LINK UPs)	16 53.3%	4 66.7%	7 46.7%	0 .0%	27 50.9%	4 23.5%	18 69.2%	0 .0%	3 60.0%	25 51.0%	4 36.4%	11 84.6%
DEDICATED NETWORK EQUIPMENT	9 30.0%	1 16.7%	5 33.3%	0 .0%	15 28.3%	0 .0%	13 50.0%	0 .0%	1 20.0%	14 28.6%	3 27.3%	5 38.5%
TOTAL	30 100.0%	6 100.0%	15 100.0%	2 100.0%	53 100.0%	17 100.0%	26 100.0%	1 100.0%	5 100.0%	49 100.0%	11 100.0%	13 100.0%

(continued)

Q6F	LOCATION OF COMPANY			TOTAL	EMPSIZE					TOTAL
	HANOI	HO CHI MINH CITY	VUNG TAU		<= 10	11 - 50	51 - 100	101 - 500	> 500	
Q6F - EXPANDING NETWORK VOICE/FAX CO ACCESS LINES	10 45.5%	16 59.3%	3 75.0%	29 54.7%	17 65.4%	12 63.2%	0 .0%	0 .0%	0 .0%	29 54.7%
BIZ COMM SYSTEMS (PBX/KTS)	12 54.5%	15 55.6%	3 75.0%	30 56.6%	12 46.2%	14 73.7%	0 .0%	2 50.0%	2 66.7%	30 56.6%
DATA COMM EQUIPMENT AND SVC	16 72.7%	18 66.7%	2 50.0%	36 67.9%	18 69.2%	12 63.2%	1 100.0%	4 100.0%	1 33.3%	36 67.9%
DEDICATED TRANSMISSION SVC (LCs,ILCs,SATELLITE LINK UPs)	10 45.5%	15 55.6%	2 50.0%	27 50.9%	11 42.3%	12 63.2%	0 .0%	3 75.0%	1 33.3%	27 50.9%
DEDICATED NETWORK EQUIPMENT	4 18.2%	9 33.3%	2 50.0%	15 28.3%	5 19.2%	6 31.6%	0 .0%	2 50.0%	2 66.7%	15 28.3%
TOTAL	22 100.0%	27 100.0%	4 100.0%	53 100.0%	26 100.0%	19 100.0%	1 100.0%	4 100.0%	3 100.0%	53 100.0%

Q6F	ORGANIZATION TYPE IN VIETNAM		TOTAL
	REP OFFICE	OTHERS	
Q6F - EXPANDING NETWORK			
VOICE/FAX CO ACCESS LINES	16 61.5%	1 50.0%	29 55.8%
BIZ COMM SYSTEMS (PBX/KTS)	13 50.0%	1 50.0%	29 55.8%
DATA COMM EQUIPMENT AND SVC	18 69.2%	2 100.0%	36 69.2%
DEDICATED TRANSMISSION SVC (LCs,ILCs,SATELLITE LINK UPs)	11 42.3%	1 50.0%	27 51.9%
DEDICATED NETWORK EQUIPMENT	5 19.2%	1 50.0%	14 26.9%
TOTAL	26 100.0%	2 100.0%	52 100.0%

Q6G	INDUSTRY SECTOR													TOTAL
	BANKING			MINING				OIL AND GAS					OTHERS	
	SEGMENTS			SEGMENTS				SEGMENTS					SEGMENTS	
	FOREIGN BANK	DOMESTIC BANK	FOREIGN AND DOMESTIC BANK	OTHER MINING	EXPLORATION	SERVICES	COAL MINING AND OTHER MINING	EXPLORATION	DISTRIBUTIONS	OTHERS	EXPLORATION AND EXTRACTION	SERVICES	OTHERS	
EXPENDITURE FOR TELECOM EQUIPEMENT AND SVC IN NEXT YR														
UNDER US$20.000														
Count	11	0	1	2	0	0	1	0	1	0	0	0	2	18
	42.3%	.0%	33.3%	100.0%	.0%	.0%	100.0%	.0%	50.0%	.0%	.0%	.0%	100.0%	34.6%
US$20,000 TO US$100,000														
Count	11	2	2	0	1	1	0	1	1	1	0	0	0	20
	42.3%	66.7%	66.7%	.0%	100.0%	100.0%	.0%	16.7%	50.0%	50.0%	.0%	.0%	.0%	38.5%
US$100,000 TO US$500,000														
Count	4	1	0	0	0	0	0	3	0	1	1	1	0	11
	15.4%	33.3%	.0%	.0%	.0%	.0%	.0%	50.0%	.0%	50.0%	50.0%	100.0%	.0%	21.2%
US$400,000 TO US$1,000,000														
Count	0	0	0	0	0	0	0	0	0	0	1	0	0	1
	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	50.0%	.0%	.0%	1.9%
ABOVE US$1,000,000														
Count	0	0	0	0	0	0	0	2	0	0	0	0	0	2
	.0%	.0%	.0%	.0%	.0%	.0%	.0%	33.3%	.0%	.0%	.0%	.0%	.0%	3.8%
TOTAL														
Count	26	3	3	2	1	1	1	6	2	2	2	1	2	52
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Q6G	HOME COUNTRY LOCATED ?				TDTAL	ORGANIZATION TYPE IN VIETNAM				TOTAL
	ASIA	EUROPE	NORTH AMERICA	OTHER		JOINT VENTURE	100%	REP OFFICE	OTHERS	
EXPENDITURE FOR TELECOM EQUIPEMENT AND SVC IN NEXT YR										
UNDER US$20.000	7 41.2%	9 34.6%	0 .0%	1 20.0%	17 34.7%	1 11.1%	0 .0%	16 57.1%	0 .0%	17 33.3%
US$20,000 TO US$100,000	8 47.1%	9 34.6%	0 .0%	1 20.0%	18 36.7%	4 44.4%	5 41.7%	11 39.3%	0 .0%	20 39.2%
US$100,000 TO US$500,000	2 11.8%	6 23.1%	1 100.0%	2 40.0%	11 22.4%	1 11.1%	7 58.3%	1 3.6%	2 100.0%	11 21.6%
US$400,000 TO US$1,000,000	0 .0%	1 3.8%	0 .0%	0 .0%	1 2.0%	1 11.1%	0 .0%	0 .0%	0 .0%	1 2.0%
ABOVE US$1,000,000	0 .0%	1 3.8%	0 .0%	1 20.0%	2 4.1%	2 22.2%	0 .0%	0 .0%	0 .0%	2 3.9%
TOTAL	17 100.0%	26 100.0%	1 100.0%	5 100.0%	49 100.0%	9 100.0%	12 100.0%	28 100.0%	2 100.0%	51 100.0%

Q6G	LOCATION OF COMPANY			TOTAL	EMPSIZE					TOTAL
	HANOI	HO CHI MINH CITY	VUNG TAU		<= 10	11 - 50	51 - 100	101 - 500	> 500	
EXPENDITURE FOR TELECOM EQUIPEMENT AND SVC IN NEXT YR										
UNDER US$20.000	11	7	0	18	14	2	1	0	1	18
	50.0%	26.9%	.0%	34.6%	50.0%	11.8%	100.0%	.0%	50.0%	34.6%
US$20,000 TO US$100,000	9	10	1	20	12	6	0	2	0	20
	40.9%	38.5%	25.0%	38.5%	42.9%	35.3%	.0%	50.0%	.0%	38.5%
US$100,000 TO US$500,000	2	7	2	11	2	9	0	0	0	11
	9.1%	26.9%	50.0%	21.2%	7.1%	52.9%	.0%	.0%	.0%	21.2%
US$400,000 TO US$1,000,000	0	0	1	1	0	0	0	0	1	1
	.0%	.0%	25.0%	1.9%	.0%	.0%	.0%	.0%	50.0%	1.9%
ABOVE US$1,000,000	0	2	0	2	0	0	0	2	0	2
	.0%	7.7%	.0%	3.8%	.0%	.0%	.0%	50.0%	.0%	3.8%
TOTAL	22	26	4	52	28	17	1	4	2	52
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Vietnam Telecommunications Opportunities Report