CHAPTER 5

DATA ANALYSIS

Sample Characteristic

Data for this study were collected using a 38-item questionnaire and personal interview to 141 samples in East Malaysia and Peninsular Malaysia.

As shown in the table below, 20 (14.2%) samples in this study were selected from Sabah, 55 (39.0%) samples were from Sarawak, 46 (32.6%) samples were from Kelantan, whereas 20 (14.2%) samples were from Terengganu. This make up about half of the total samples from East Malaysia whereas another half from Peninsular Malaysia. These samples were selected in accordance to the criteria specified in sampling method.

In term of marital status, 92.9% of the respondents were married, 5.7% single and 1.4% could not be clearly classified.

Majority of the respondents (48.9%) were in the age group of 25-40 years, while 32.6% of the age group of 41-55 years, 9.2% of the age less than 25 years and another 9.2% of the age more than 55 years. 55 out of 141 samples were current telephone users.

With respect to monthly income, amounting 46% earned less than RM 400 per month, while 31.4% had monthly income between RM 400-800, 12.4% earned between RM 800-1200 and only 10.2% reported monthly income of more than RM 1200.

	Have Phones	Do Not Have phone service		
		Want	Do not want	
Sabah	7.1%	4.3%	2.8%	14.2%
Sarawak	14.2%	14.9%	9.9%	39.0%
Kelantan	10.6%	9.2%	12.8%	32.6%
Terengganu	7.1%	2.8%	4.3%	14.2%
	39.0%	31.2%	29.8%	100.0%

Total Number of Samples is 141

East Malaysia	53.2%
Peninsular Malaysia	46.8%

Current Users (Aggregate):

Average monthly revenues from rural subscribers	RM 61.30	
Usage distribution by traffic type:	Receive	Call
Local within state	85%	67%
State to state within Malaysia	71%	56%
International	15%	15%
Level of satisfaction with service (1:very unsatisfied- 4:very satisfied)	2.9	
Reliability of service (1: breaks every week- 4:never breaks)	3.2	
Average time to restore service when it breaks down (1: More than 30 days- 5: same day)	4.4	
Users perception of the service cost (1: very expensive- 4:Cheap)	2.7	

Current Users (Residential only):

Average monthly revenues from rural subscribers	RM 48.20	
Usage distribution by traffic type:	Receive	Call
Local within state	84%	75%
State to state within Malaysia	75%	59%
International	14%	16%
Level of satisfaction with service (1:very unsatisfied- 4:very satisfied)	2.8	
Reliability of service (1: breaks every week- 4: never breaks)	3.3	
Average time to restore service when it breaks down (1: More than 30 days - 5: same day)	4.4	
Users perception of the service cost (1: very expensive- 4:Cheap)	2.7	

Current Users (Residential East Malaysia):

Average monthly revenues from rural subscribers	RM 58.50	
Usage distribution by traffic type:	Receive	Call
Local within state	91%	74%
State to state within Malaysia	74%	65%
International	13%	9%
Level of satisfaction with service (1:very unsatisfied- 4:very satisfied)	2.8	
Reliability of service (1: breaks every week - 4: never breaks)	3.2	
Average time to restore service when it breaks down (1: More than 30 days- 5: same day)	4.7	
Users perception of the service cost (1: very expensive 9:Cheap)	2.7	

Current Users (Residential Peninsular Malaysia):

Average monthly revenues from rural subscribers	RM 36.85	
Usage distribution by traffic type:	Receive	Call
Local within state	76%	76%
State to state within Malaysia	76%	52%
International	14%	24%
Level of satisfaction with service (1:very unsatisfied - 4:very satisfied)	2.9	
Reliability of service (1: breaks every week- 4: never breaks)	3.3	
Average time to restore service when it breaks down (1: More than 30 days - 5: same day)	4.2	
Users perception of the service cost (1:very expensive- 4:Cheap)	2.6	

By using the subscriptions from the Statistical Package for the Social Science (SPSS) (Nie, Bent,and Hull 1970), the percentage of the sample variables have been calculated and confidence of the result has been executed.

On comparing the means of the above variables between the sub groups of East and Peninsular Malaysia, the only statistically significantly different variable is the monthly average revenue at a confidence level of 90%. The average monthly revenue is higher in East Malaysia at RM 58.50 compared to RM 36.85 in Peninsular Malaysia.

The ANOVA subscription showed that no significant difference between the mean of the satisfaction level and service cost perception at 95% confidence interval.

Potential Users (Residential):

Projected average monthly revenues from rural subscribers	RM 22.16	
Project usage distribution by traffic type:	Receive	Call
Local within state	64%	62%
State to state within Malaysia	81%	55%
International	21%	21%
Average willingness to pay for service installation	RM 82.21	
Average willingness to pay a premium for immediate service installation	RM 95.00	
Average wait time since application for service	4.33 months	

Potential Users (Residential East Malaysia):

Projected average monthly revenues from rural subscribers	RM 23.56	
project usage distribution by traffic type:	Receive	Call
Local within state	58%	50%
State to state within Malaysia	73%	35%
International	12%	12%
Average willingness to pay for service installation	RM 66.85	
Average willingness to pay a premium for immediate service installation	RM 118.57	
Average wait time since application for service	9.25 months	

Potential Users (Residential Peninsular Malaysia):

Projected average monthly revenues from rural subscribers	RM 19.81	
Project usage distribution by traffic type:	Receive	Call
Local within state	75%	81%
State to state within Malaysia	94%	88%
International	38%	38%
Average willingness to pay for service installation	RM 108.13	
Average willingness to pay a premium for immediate service installation	RM 76.67	
Average wait time since application for service	3.44 months	

The average willingness to pay for service installation is higher in Peninsular Malaysia at RM 108.13 than in East Malaysia at RM 66.85, on the other hand, the willingness to pay a premium for immediate installation is higher in East Malaysia at RM 118.57 compared to RM 76.67 in Peninsular Malaysia. Also, the average wait time for service in East Malaysia is higher at 9.25 months compared to Peninsular Malaysia at 3.44 months.

Non Users (Residential):

Reason for not wanting telephone service	% of Non Users
Prefer to visit friends/ relatives in person	21%
Have no friends relatives living far away	31%
Prefer to use other methods (letters, telegrams)	14%
Service cost too much to install	36%
Have to wait for a long time to install service	12%
Can not afford telephone service payment	38%

From the above table, it is clear that financial need is the leading cause for suppressing the demand for telephone service rural areas. 35% of the non users mentioned it as a reason.

Analysis of measures

WiLL versus Wireline Cost Analysis

As is to be expected, the costs involved in landline telephone service installation and maintenance in rural areas of Malaysia are not made publicly available. Furthermore, such figures are highly situation dependent, changing drastically with divergent terrains, distance between end-users and the local exchange, etc. In our interviews with Telekom Malaysia officials, we learned that the company has recently performed some analysis on rural installation costs and they are quoted an average installation cost of RM 7000-8000 per subscriber in rural areas, versus RM 1000 for urban wireline subscribers. Unfortunately, exact breakdown of wireline deployment and operation costs were not disclosed to the group. Telekom Malaysia was willing to confirm that about 1/3 to 1/2 of this cost is attributable to the local loop.

We have attempted to derive a relative cost estimate by using available cost information and plugging it into a mode developed by OMNITELE. Details of the calculations can be

found in TABLE 3 and 4.

Installation Cost

	Average	Rural
Wireline Construction Cost	RM 892	RM 1724
WiLL Construction Cost	RM 213	RM 216
Margin for RiLL (WiLL)	RM 678	RM 1508

Judging from the results of this exercise we find that in rural areas there is about RM 1,500 margin and on average there is about RM 700 for RiLL. Based on the information received by Motorola Singapore, the per subscriber installation cost of RiLL is from RM 1,045 to RM 1,525, depending of the number of subscribers. This shows that if comparison is made purely on installation cost basis, RiLL technology is competitive when compared with wireline service in the rural market, but its unlikely to be cost competitive in the urban market.

Loss of Revenue from Waiters

With the help of local Telekom official we were able to estimate average telephone revenues for the month of April,

1994 for rural customers of Terengganu state. The calculations are shown in TABLE 6. The average revenue for the month of April turned out to be RM 53. If we take this figure to be representative of the country of Malaysia as a whole we can equate this amount with the monthly, per customer loss of revenue a service provider has to forego for every person who desires service yet is unable to receive it due to insufficient facilities (hereafter referred to as "waiters"). In other words, service providers are losing about RM 50,000 of revenue per month for every 1,000 rural customers they are unable to provide service for.

Telekom Malaysia claims the number of waiters currently numbers 130,000. Based on higher estimates by numerous Celcom officials and the group's belief that there is a certain degree of "latent demand" amongst those without the option of telephone service (if service is not available many people don't realize their desire for a phone, yet if available demand would rise significantly), we feel this number to be much higher, possible as much as double Telekom's figure. If this is the case, RM 10.6 million in revenues every month remains uncollected due to the inability to

extend telephone service quickly enough, highlighting the value of WiLL's rapid deployment capability.

Return On Investment

The main reason that service providers did not enter rural areas even though there are potential customers (waiters) is that the return on investment is very low. We performed a simple ROI calculation shown in TABLE 7. The assumption was made that the operational costs are zero. The calculation shows that it takes at least 9 years to break even.

Therefore, from purely economic point of view, it is not attractive for the service providers to enter the rural market. There has to be a social obligation or government mandate to make them to enter this market.