

CHAPTER 6

CONCLUSION AND RECOMMENDATION

Summary and Conclusions

In piecing together the information we gathered and the calculations we ran, we came to the conclusion that when the decision of whether or not to utilize WiLL for rural development arises, the answer will not come down to the economics of its deployment versus that of wireline facilities. Quite the contrary, in consideration of the minimal revenues to be generated and consequential low return on investment figures for rural telephone installation of either type, wireline or wireless, the decision will be one of political necessity with WiLL pitted against competing fixed cellular systems, not wireline service.

Factors in Will's Favor

Political and competitive issues aside, Will technology offers an attractive solution to the problems inherent providing traditional copper landline telephone service to rural areas. The advantages of a fixed cellular product--rapid deployment and revenue generation, cost advantages versus wireline, reduced operation and management costs, subscriber mobility potential, reliability in the face of adverse weather conditions and terrain, and environmental friendliness versus copper wire are well understood and appreciated by both government officials in JTM and the Ministry of PTE and telecommunications service providers. As mentioned earlier, government officials we spoke with indicated enthusiasm toward the prospect of the technology's benefits for Malaysia.

Additionally, given the apparent inability of Telekom Malaysia to install sufficient telephone infrastructure to keep pace with the government's plans for rural telecommunications expansion and the speed and ease with which fixed cellular systems could pick up the slack for wireline, the

potential for increased adoption of Radio in the Loop systems in Malaysia would seem quite high.

The tremendous growth in subscribers will not only call for increased resources devoted to network installation, but also for greater numbers of employees to operate and maintain networks, making WiLL's lower operational/ maintenance and labor requirements all the more salient a benefit.

When the group traveled to Terengganu, they met with top officials from the Telekom Malaysia Kelantan. Top officials there disclosed Telekom Malaysia's cost of fault correction, which ranged from RM 250-200 per fault; Terengganu suffers 65,000 faults per month. The number one cause of faults, falling trees (due to lightning), would be eliminated with the deployment of WiLL. The costly practice of tracking down faults by tracing the copper wirelines is eliminated with WiLL as well.

Finally, the expansion of basic telephone service through the use of WiLL would allow Malaysia to capitalize on multiplier effects from expanded telecommunications, thus becoming a more attractive country vis-a-vis neighboring Asian nations for foreign capital investment, and make significant progress towards the lofty goals set for 2020.

Factors against WiLL

For a number of different reasons, it appears that despite the aforementioned positives associated with WiLL, there are a number of different issues that could preclude success in Malaysia.

One of the most prominent problems with WiLL is that it is not a digital system. As mentioned earlier, the Malaysian government has mandated that all switches be digitized by the year 2000, and if this is to be taken at face value, then WiLL would only offer a temporary solution, not likely acceptable by the forward looking Malaysia government. Competitors, Ericsson, Nokia and Hughes for example, all offer similar products which are digital.

Ericsson, Nokia and Hughes' systems also can all be run on 450MHz, whereas Motorola's WiLL system does not have this flexibility. The government has said repeatedly that it does not plan to award any more licenses, at least in the near future. While this statement is by no means etched in stone, in consideration of the other factors listed herein, the lack of spectrum flexibility presents yet another potential.

obstacle to obtaining a license-if the government decide to offer a 450MHz license for rural fixed cellular systems, Motorola will be out of the running.

The lack of a local presence to market the benefits of WiLL and to develop relationships with key government officials and telecommunication network carriers is another strike against the potential success of Motorola. The lack of current local presence is especially detrimental given the aggressive marketing efforts of competitors.

Recommendations

In consideration of technological issues, governmental postures, the competitive environment, and the status of current potential alliance partners, we expected that WiLL will be facing stiff competition and restriction in the Malaysia market. Nevertheless, it does not rule out the possibility of success, if Motorola were to initiate the level of commitment and devotion of resources necessary to successfully compete in the Malaysian marketplace. Our recommendations boil down to five strategic elements:

A) Establish local Presence

Motorola Fixed Cellular Division's lack of a Malaysia regional representative office is a competitive disadvantage. Given the rapidly rising affluence and overall market potential of Malaysia, it is hard to imagine continuing to orchestrate attempts at cracking the market from Motorola's Singapore office. One need only examine the success Ericsson has enjoyed to appreciate the rewards to be gained from exhibiting a long-term commitment to fostering relationships and doing business in Malaysia.

Ericsson has long had a regional office in Kuala Lumpur, and has been extremely successful in winning contracts for the provision of telecommunications equipment. Ten years ago the company constructed a training center located in Shah Alam. Since its inception, the center has hosted more than three thousand students. The training center exemplifies the company's commitment to working with its partners in Malaysia to advance both the development of its own business as well as the welfare of the country and its citizens. Ericsson is currently the main supplier for

all three cellular networks in Malaysia (Telekom Malaysia, Celcom and Mobikom) and recently secured a contract worth RM 1350 million to supply and install a STW fixed cellular network. As a marketing executive from Hughes put it, "They know how to play the game." Hughes also operates a regional representative office in Kuala Lumpur, and AT&T (which is also offering a fixed cellular system) is in the midst of opening an office there as well.

The ironic thing about Motorola Fixed Cellular Division's lack of a regional office is that Motorola Inc. is the largest foreign company employer in Malaysia, with its large manufacturing operations in the country. With additional presence, this can be leveraged in negotiations with the Malaysian government and turned into a competitive advantage, much as Ericsson has leveraged its prior business and relationships in Malaysia into more and more lucrative supplier contracts. Without greater presence in Malaysia Motorola cannot expect favourable treatment vis-a-vis competitors in business dealings with the Malaysian government over competitors.

B) Effective differentiation

We were surprised to discover the number of competitors offering fixed cellular systems for use in Malaysia and the surrounding countries in South East Asia. The member of the team who traveled to CommunicAsia in Singapore spent a considerable amount of time in competitors' booths, speaking with company representatives, leafing through fixed cellular product brochures and examining fixed cellular product displays. The common thread running through all of the different presentations was a clear lack of effort at product differentiation.

The Group's experience with Motorola was no different; during an extensive briefing on the WiLL technology from Motorola executives up from Singapore, there is no clear competitive advantages of WiLL versus competitive counterparts were presented. Within the marketing materials and presentation given to the group, the only entities addressed as competition were existing wireline service providers.

Amidst the backdrop of strong competition and service providers already beginning to align with fixed cellular

equipment suppliers, Motorola must carefully detail the virtues of its Will system, and why it is the fixed cellular system of choice for the Malaysian market.

C) Disregard Immediate ROI

Whomever the group spoke with, be it government officials, competitors, telecommunications service suppliers, contractors, etc. all made a point to underscore the importance of relationship building in Malaysia. On several occasions it was made clear that in Malaysia, when given a choice between a company with which business has been transacted prior and a company with which it has not, the company with prior sales into the market, barring dissatisfaction, is almost always chosen. It follows that the upfront costs of cultivating the relationships critical to successfully selling Will into the Malaysia market will in all likelihood exceed the gains to be received in the short-run.

The deployment of equipment in the underserved rural areas of Malaysia cannot expect traditional levels of return on investment, neither should Motorola view the Will opportu-

nity as strictly a short-term profit making venture. Should Motorola decide to pursue the sale of WiLL in Malaysia, it should be farsighted towards future dividends to be received in the form of additional future sales of WiLL or related telecommunication products, with rapidly rising Malaysia affluence.

D) Approach Mobikom and Binariang

With Celcom and Telekom Malaysia already testing their own fixed cellular products it would seem likely that they have all but finalized their choice of equipment suppliers. Neither Mobikom or Binariang however have announced plans for fixed cellular service deployment, nor any plans for doing their part in raising the teledensity of rural Malaysia.

E) Take Immediate Action

In combination with the aforementioned essentials, the speed with which Motorola can accomplish these endeavors will

be critical in their success. Once the other service providers have aligned with a manufacturer for equipment provision, the game will be over, and as stated previously, two of the four seem to have already committed to a competitor.

F) Explore Urban Overlay/Island Applications

Will could also be used as an overlay system for unserved needs in urban areas where wireline service exists, yet cannot be installed quick enough for customers who subsequently might be willing to pay a high premium for immediate service. Additionally, as the case of Pulau Langkawi bears out, the economics of island telephone service provision make Will appear a highly attractive solution to the obvious difficulties of traditional wireline service. Given Malaysia's development, its growing emphasis of tourism, and its wealth of tropical islands, Will could be particularly well-suited to island application.

TABLE 1

Telephone Service Survey

Age: 1. Less than 25 years 2. 25-40 years 3. 41-55 years
 4. More than 55 years

Marital Status: 1. Single 2. Married 3. Other

Number of people living in the same household:

Do you currently have a telephone in your house?
 1. Yes 2. No

If Yes (you have a telephone)

Since when do you have a telephone (Month/Year)?

Approximately how much do you pay every month?

Are you satisfied with the telephone service?
1. Very Unsatisfied 2. Unsatisfied 3. Satisfied 4. Very satisfied

How expensive do you think the service is?
1. Very expensive 2. Expensive 3. Reasonably priced 4. Cheap

How often does the service break down?
1 . Every week 2. Every month 3. Once a year 4. Never

How long does it take to fix the service if it breaks?
1. More than 30 days 2. 15-30 days 3. 7-14 days 4. 2-6 days
5. The same day

You use the telephone to (check all that apply):
Receive calls from friends/relatives in other same town
Receive calls from friends/relatives in other cities in Malaysia
Receive calls from friends/relatives in other countries
Call friends/relatives in the same town
Call friends/relatives in other cities in Malaysia
Call friends/relatives in other countries

If No(you do not have a telephone):

How far is the nearest telephone you use?

1. Less than 1 Km 2. 1-5 Km 3. 6-10 Km 4. More than 10 Km

Would you like to have one in your house?

1. Yes 2. No

If yes (you want a telephone):

Have you applied for a telephone? When (month/year) ?

How much are you willing to pay initially to install a telephone?

Are you willing to pay more to install a telephone immediately? How much?

How much are you willing to pay afterwards each month for a telephone?

You intend to use the telephone to (check all that apply):

Receive calls from friends/relatives in other same town

Receive calls from friends/relatives in other cities in Malaysia

Receive calls from friends/relatives in other countries

Call friends/relatives in the same town

Call friends/relatives in other cities in Malaysia

Call friends/relatives in other countries

If No (you do not want a telephone):

Why do not you want a telephone (check all that apply):

I prefer to visit my friends/ relatives in person

I have no friends/ relatives living far away

I prefer to use other methods (e.g. letters, telegrams)

A telephone costs too much to install

I have to wait for a long time to install a telephone

Other (specify):

Income (combined for household):

1. Less than RM400 2. 400-800 3. 800-1200 4. More than 1200

Work type:

Thank you for your cooperation

TABLE 2

Bancian Perkhidmatan Talipon

- Umur: 1. Kurang daripada 25 tahun 2. 25-40 tahun
3. 41-55 tahun 4. Lebih daripada 55 tahun
- Kedudukan Perkahwinan: 1. Bujang 2. Berkahwin 3. Lain-lain
- Bilangan orang yang mendiami di dalam keluarga yang sama:
- Adakah anda pada masa kini memiliki talipon di rumah anda?
1. Ya 2. Tidak
- Sekira Ya (anda memiliki talipon):
- Sejak bilakah anda memiliki talipon (Bulan/Tahun)?
- Berapakah anda membayar setiap bulan secara anggaran?
- Adakah anda berpuas hati dengan perkhidmatan tersebut?
1. Sangat kurang berpuas hati 2. Tidak berpuas hati
3. Berpuas hati 4. Sangat berpuas hati
- Berapa mahalkah anda fikir tentang dengan perkhidmatan tersebut?
1. Sangat mahal 2. Mahal 3. Harga berpatutan 4. Murah
- Berapa kerapkah perkhidmatan tersebut tidak berfungsi?
1. Setiap minggu 2. Setiap bulan 3. Setahun sekali 4. Tidak pernah
- Berapa lamakah perkhidmatan itu dipasang sekiranya ia tidak berfungsi?
1. Lebih daripada 30 hari 2. 15-30 hari 3. 7-14 hari
4. 2-6 hari 5. Pada hari yang sama

Anda menggunakan talipon itu untuk (semak semua di mana berkenaan) :

Menerima panggilan daripada kawan/saudara mara di bandar yang sama

Menerima panggilan daripada kawan/saudara mara di bandar-bandar lain dalam Malaysia

Menerima panggilan daripada kawan/saudara mara di negara-negara lain

Membuat panggilan kepada kawan/saudara mara di bandar yang sama

Membuat panggilan kepada kawan/saudara mara di bandar-bandar lain dalam Malaysia

Membuat panggilan kepada kawan/saudara mara di negara-negara lain

Sekira Tidak (anda tidak memiliki talipon):

1. Kurang daripada 1 Km 2. 1-5 Km 3. 6-10 Km
4. Lebih daripada 10 Km

Adakah anda ingin memiliki satu di rumah anda?

1. Ya 2. Tidak

Sekira Ya (anda ingin memiliki satu talipon):

Sudahkah anda memohon talipon? Bila (bulan/tahun) ?

Berapakah anda ingin membiayai untuk memasangkan satu talipon pada permulaannya?

Berapakah anda ingin membiayai setiap bulan untuk talipon selepas pemasangan?

Adakah anda rela membayar lebih untuk memasang talipon dengan segera? Berapa?

Anda ingin menggunakan talipon tersebut untuk
(semak semua di mana berkenaan):
Menerima panggilan daripada kawan/saudara mara di
bandar yang sama
Menerima panggilan daripada kawan/saudara mara di
bandar-bandar lain dalam
Malaysia
Menerima panggilan daripada kawan/saudara mara di
negara-negara lain
Membuat panggilan kepada kawan/saudara mara di
bandar yang sama
Membuat panggilan kepada kawan/saudara mara di
bandar-bandar lain dalam Malaysia
Membuat panggilan kepada kawan/saudara mara di
negara-negara lain

Sekiranya Tidak (anda tidak ingin memiliki talipon):

Mengapa anda tidak ingin memiliki talipon
(semak semua di mana berkenaan):
Saya lebih suka melawat kawan/saudara mara saya
dengan sendiri
Saya tidak mempunyai kawan/saudara mara yang tinggal jauh
Saya lebih suka menggunakan cara lain
(seperti surat, taligram)
Pembiayaan talipon sangat mahal untuk dipasang
Saya dikehendaki menunggu lama untuk memasang talipon
Lain-lain (nyatakan):

Pendapatan (jumlah untuk sekeluarga):

- | | | |
|--------------------------|--------------|---------------|
| 1. Lebih daripada RM400 | 2. RM400-800 | 3. RM800-1200 |
| 4. Lebih daripada RM1200 | | |

Jenis pekerjaan:

Terimakasih atas kerjasama anda

TABLE 3

WIRELINE CONSTRUCTION COST DISTRIBUTION

The calculations and "Base Data" is based on June 29., 1983 OMNITELE report "Wireless Local Loop Product Evaluation" by Pekka Nykanen Values in US\$.

Correction Factors:

	Nordic	Malaysia
GDP per cap.	20.000	2,804.69
rel. to Nordic		0.14 ¹
lines/emp(Telekom)	230	80.00
inv rel. to Nordic		2.88 ²
correction fac. for labor:		0.40

Base Data:

	rural	average	labor
Nordic			
adm.	100	100	100
machinery	80	80	10
int. office trunks	25	25	25
trunks	50	25	60
local loop	1,750	770	40
central office	250	170	18
Total	2,255	1,170	

Derived Costs for Malaysia:

	rural	average
adm.	40	40
machinery	75	75
int office trunks	27	21
trunks	32	16
local loop	1,332	586
central office	223	152
Total	1,724	891

(1) Ministry of Finance Malaysia, Economic Report 1983/84. Perse-
takan Nasional Malaysia Berhad Kuala Lumpur 1983. p 7 Per Capita
GNP=M\$17.539; 1 US\$=M\$2.67

(2) Telekom Malaysia Berhad, 1993 Annual Report, p5.

TABLE 4

RiLL CONSTRUCTION COST DISTRIBUTION

The calculations and "Base Data" is based on June 29., 1993 OMNI-TELE report "Wireless Local Loop Product Evaluation" by Pekka Nykanen Values in US\$.

Correction Factors:

	Nordic	Malaysia
GDP per cap.	20.000	2,804.69
rel. to Nordic		0.14 ¹
lines/emp(Telekom)	210	80.00
Inv. rel. to Nordic		2.63 ²
correction fac for labor		0.37

Base Data:

	rural	average	% labor
Nordic	100	100	100
adm.	30	30	10
machinery	5	5	25
int. office trunks	15	10	60
trunks			
local loop			18
central office	150	150	
Total	300	295	

Derived Costs for Malaysia:

	rural	average
adm.	40	40
machinery	28	28
int. office trunks	4	4
trunks	10	6
local loop	0	0
Central office	134	134
Total	216	213

Margin for RiLL: 1,508 678

(1) Ministry of Finance Malaysia, Economic Report 1993/94, percapita Nasional Malaysia Berhad, Kuala Lumpur 1993, p 7 Per capita GNP=M\$7,539; 1 US\$ = M\$2.67

(2) Telekom Malaysia Berhad, 1993 Annual Report, p 5

TABLE 5

GOVERNMENT RURAL TELEPHONE PROJECTIONS

	1993	1994	1995	1998	2000
% Rural Telephone Penetration (no. telephones/100 rural pop.)		3.2	3.8	8.8	14.2
Total Customers (cumulative)	278,023	333,119	401,210	950,400	1,547,800
Increase in no. of customer from prev. period	278,023	55,096	68,091	549,190	597,400
Increase in no. of customer per/year	39,106	55,096	68,091	183,063	119,480

TABLE 6

CALCULATION OF AVERAGE MONTHLY REVENUE FOR RURAL AREAS OF TERENGGANU

(all values in M\$)

Area	Average Monthly Charge	no. of subscriber	averg/bus. sub.in M\$	averg/res. sub.in M\$	Total Monthly Rev. in M\$	Number of Res. Subscribers	Number of Bus. Subscribers	from Res. Subscribers in M\$	from Bus. Subscribers in M\$
Terengganu	25	376	81	24	9,400	369	7	8,856	567
Manir	35	1,356	40	33	47,400	969	387	31,977	15,480
Cheneh	39	362	48	36	14,118	272	90	9,792	4,320
Ketengeh Java	42	385	83	34	16,170	322	63	10,948	5,229
Sri Bandri	44	342	133	31	15,048	298	44	9,238	5,852
Merchang	45	250	101	29	11,250	194	56	5,626	5,656
Bkt. Payung	45	2,045	73	41	92,025	1,789	256	73,349	18,688
Bkt. Besi	48	299	92	30	14,352	212	87	6,360	8,004
Bkt. Bakti	52	1,272	136	38	66,144	1,090	182	41,420	24,752
K. Besut	58	908	91	50	52,664	731	177	36,550	16,107
Wakaf Tapai	62	635	121	46	39,370	500	135	23,000	16,335
K. Berang	63	1,714	107	45	107,982	1,216	498	54,720	53,286
Kr. Raja	68	1,239	143	49	84,252	989	250	48,461	35,750
Al-Muktafi	75	421	228	32	31,575	329	92	10,528	20,976
Permaisuri	85	461	151	46	39,185	290	171	13,340	25,821
Total:		12,065			640,995	9,570	2,495	384,165	256,823
Average:	52.4		109	38					
Weighted Avg:	53		103	40					

TABLE 7

RETURN ON INVESTMENT CALCULATION

Installation cost: \$ 1.724 x 2.67 =	M\$4,603
Willingness to pay for installation	82
premium for immediate installation	95
	M\$4,426
Average residential monthly revenue (based on current users)	M\$48.20
Adjustment for receiving calls (additional 37%)	M\$66.034

	Year	Discounted Revenues	Cumulative Revenues
Yearly expected revenues: RM792.408			
Discounting rate = 10%	1	720	720
	2	655	1,375
	3	595	1,971
	4	541	2,512
	5	492	3,004
	6	447	3,451
	7	407	3,858
	8	370	4,227
	9	336	4,563

Conclusion: At least 9 years to break even (excluding operating costs)