

WiredWest/MBI Discussions about WW Business Plan

12/23/15 – 1/27/15

In December 2015, as Wired West was preparing for a January meeting at which it planned to ask for towns to agree to its proposed operating agreement, MBI provided a review of the WW business plan that had been undertaken by Wipro Technologies.

Wipro's review of the WW plan consisted of its own analysis and a synthesis of the reviews by several other industry subject matter experts. The report concluded that there was unanimous agreement among the reviewers that the WW plan was not viable as it was then structured and presented.

WW expressed its view that the plan was both conservative and accurate. WW also stated that CTC Technology & Energy had evaluated the plan and had concluded that the plan "may" be sustainable over the long term, "given the model's underlying cost and revenue assumptions".

At its December meeting, the MBI Board of Directors suggested that MBI and WW discuss their differences of opinion about the viability of the plan as it then existed. MBI and WW established two working groups, one of which was chartered to discuss the elements of the business plan. Kimberly Longey chaired that group on behalf of WW, and Chris Andrews on behalf of MBI. Other members of the working group include the MBI team of Dave Charbonneau, Lisa Erlandson, Marybeth Dixon, and Michael Morgenstern and the WW team of Jim Drawe, Kevin Donovan, Bob Handsaker, and Holleran Greenburger.

Over the next month, the teams met three times in Westboro and Northampton, and exchanged a number of written and oral communications between those meetings. The meetings were constructive, with each team exchanging its perspectives on numerous assumptions that underlay the model. A great deal of knowledge, experience, and expertise was shared. Some of the WW assumptions were accepted by both teams as being within a zone of validity; others were considered in a reasonable zone after changes were made by WW to its original inputs; others have not yet been discussed in detail; and on many, the teams have not come to a shared view of what constitutes reasonable assumptions.

In these discussions, MBI pointed out some fundamental premises underlying the WW business plan that it considered invalid and/or inappropriate. For example, the WW business plan included as an assumption that some of the Cartesian model's assumed capital funding needed for the network build could, and would, be re-purposed to cover such network operator costs as (i) operating losses in the early years and (ii) capital costs not associated with the network build but rather with operating the network.

MBI also explained that the business plan (and the one-page Income Cost Summary of the plan posted on the WW website) should not include only the results of one optimistic scenario, but rather should include the results of several different scenarios that would allow the reader to better understand what would happen under expected case, better case and worse case scenarios.

For example, where the WW plan presented at the first meeting and the website summary each assumed that 31 towns would be participating, WW acknowledged during the discussions that number did not provide a realistic view, at least for purposes of business planning for an expected case. Other

types of inputs that significantly affect the model and that MBI recommended should be modeled under different, more likely scenarios include product mix assumptions, take-rates, costs of goods sold, etc.

The WW team readily agreed with the suggestion that different scenarios be presented, although there remain differences of opinion as to what constitutes expected/better/worse case with respect to a number of the underlying assumptions.

MBI did not attempt to review the mechanics of the WW model to ensure formulae worked, elements were properly connected, assumptions rolled-up properly, etc. However, in the course of reviewing some of the underlying assumptions MBI did note certain errors in the WW modeling. Sometimes these were contained in the mechanics of the model. Other times, mistakes related to an assumption on which we thought there was an agreement to revise, but where one of our team members noticed the revision was not reflected in the next version of the model¹.

On January 27, MBI suggested that the WW team step back and kick the tires on its business model to ensure that the mechanics were working properly and were reviewed by more than one person.

At that time, MBI also suggested that the WW team digest the initial feedback that had been provided by Wipro and MBI in the course of the discussions up to that point. MBI wanted to be sure that the full WW team was aware of the changes that had been made or were in the process of being made and that they agreed with the changing assumptions and outputs WW representatives intended to include in the revised modeling and business plan.

MBI further requested that WW let MBI know what it proposes as its next steps and a schedule for presenting a revised plan incorporating the revisions it was making, including the results of its Risk Analysis and appropriate scenario modeling.

During the period in which WW revisited its model, MBI working group members continued to receive, and respond to, point questions as they arose.

Also during this period a WW official, Steve Nelson, publicly stated that “Wired West has revised its model essentially to MBI’s satisfaction” and that WW has “now demonstrated to MBI the financial viability of the network”.

At no time during these discussions did MBI conclude, much less indicate to WW, that the WW business plan or the underlying financial models had been revised to a point where MBI or Wipro believed that the financial viability of the network had been demonstrated.

Kimberly Longey immediately acknowledged to MBI the inaccuracy of Mr. Nelson’s statements and informed us that Mr. Nelson has stepped down from most of his posts within the organization.

Below we attempt to chronicle the results of these initial discussions as they affected general and specific elements of the model. We start by showing the starting-point as it existed in the model that was presented at the first meeting of the teams (Version Y)². We then describe some of the changes that

¹ The Quantrix model is a very complicated one, and MBI staff have not “vetted” the underpinnings of the model to ensure its accuracy or completeness, or to verify in all cases that changes have been made as intended. Where we have come across errors, we have pointed those out to WW; but we want to be clear that we have not sought to guarantee that others do not exist. MBI has urged WW to expand its modeling team and process to ensure the accuracy and completeness of the model by an appropriate number of reviewers.

² While this model was different from the one that had been presented earlier for MBI to review, we start here because it would be difficult, and not very useful, to try to reconstruct the changes that had been made between

were made during the period of these three meetings. The following table summarizes, by the categories discussed below, whether the Working Group had reached a common view as of January 27 about whether the WW assumptions being used were appropriate.

Category	Consensus
1.1 Participating Towns	
1.2 Product Mix Take Rates (Internet Only; Double-Play; Triple-Play)	
1.3 Data mix Take Rates (25Mbps, 50Mbps, 1000 Mbps)	
1.4 Take Rates (Residential; Business)	
1.5 Break Even Take Rate	
1.6 Pricing	
1.7 Phone Cost of Goods	
1.8 TV Cost of Goods	
1.9 General COGS	
1.10 Pole Rental Fees	✓
1.11 Line Maintenance	
1.12 Vendor Equipment Maintenance Costs	
1.13 Spares	

Category	Consensus
1.14 Customer Support	
1.15 Staffing	
1.16 Insurance	✓
1.17 Rent	✓
1.18 Construction Build Timing	
1.19 Set top boxes	
1.20 Retained Cash	
1.21 MBI (State) Funds	
1.22 Depreciation Reserve	
1.23 Non-Construction Capital Expense	
1.24 Start-up Costs	
1.25 Modeled Scenarios Included in Plan	

Following that, we provide a summary of some of the differences in modeled outcomes between the December Version Y and the revised model as it existed in late January (Version AC)³. The summary is intended to show, directionally, how material the effect of some of the initial changes has been over the initial discussion period. As two examples, Year 6 revenues modeled in Version AC (even assuming a 75% take-rate for apples-and-apples comparison purposes) decreased from \$15.7 million to \$9.6 million, and cashflow in that same year decreased from \$2,345,583 to \$6,265.

[Note that WW has been working on its financial modeling since late January and that Version AC does not represent any changes to assumptions that WW has recently made. Also note that MBI does not agree with many of the assumptions WW was using in Version AC. The only reason for using Version AC here is for comparison purposes, to give a sense of the magnitude of the effect of the changes WW had incorporated between its December and its January modeling.]

The discussions that occurred during this period made it clear to the MBI Working Group that the WW plan that existed at the time of the proposed town vote presented an unrealistic view of a likely outcome of the business, and that further work would need to be undertaken by WW for a plan to be developed that would represent a more realistic view.

the model that Wipro had reviewed and the model that was presented to the teams as the current model in December.

³ Version AC was the version that WW and MBI last reviewed together (during a working session with Jim Drawe on 1/25/16).

1.1 PARTICIPATING TOWNS

December: Both the summary of the revised model handed out at the meeting and the “Income Cost Summary” (the one-page summary provided on WW’s website) state an assumption of 31 towns.

- 12/23/15: MBI notes that the model is rolling up 32 towns into the summary
- 1/15/16: WW hands out two proposed scenarios modeling 24 and 18 towns. There was not consensus by the WW representatives at the meeting as to which towns should be included, and they determined that they would discuss and recommend any suggested revisions following the meeting.
- 1/25/16: Jim Drawe provides a list of 20 towns to be included in his working model.

1.2 PRODUCT MIX TAKE RATES (INTERNET; PHONE; TV)

December: Of the assumed subscribers: Internet 100%; Phone 52%; TV 52%

- 1/6/16: Extensive discussions about validity of WW’s assumed take rates. MBI expresses its belief that an assumption of up to 40% for phone would be in a reasonable zone and up to 10% for TV. Wipro and MBI also provide their input that at this scale providing a TV product doesn’t make sense.
- 1/14/16: WW provides updated model with revised assumptions - Phone and TV have been decreased to 17%.
- 1/15/16: WW suggests three new scenarios. As the middle-tier scenario, WW suggests that Internet be 100%, phone be 30%, and TV be 30%.
- 1/25/16: Jim informs MBI that he will be using a middle tier scenario of 100% internet, 38% phone and 38% TV.

1.3 DATA MIX TAKE RATES (25MBPS, 100MBPS, 1000 MBPS)

December: 25 Mbps 52%; 100 Mbps 28%; 1000 Mbps 20%

- 1/6/16: Wipro explains that based on its experience these take rates are overly skewed towards the higher-speed products vs. the lower-priced products and expresses its view that any scenario showing that more than 5% of subscribers would need/take the mid- and high-tier products would be aggressive.
- 1/15/16: WW hands out an expanded range of scenarios it will be modeling, as follows:
 - 80/15/5 (25Mbps/100/1000)
 - 71/16/13
 - 54/27/19
- 1/25/16: Jim informs MBI that he will be changing the WW middle tier scenario to 67/21/12

1.4 TAKE RATES (RESIDENTIAL; BUSINESS)

December: Residential starts at 40%, ramps by 5%/month to 75%; Business start at 10%, ramps to 75%.

- 1/6/2016: Extensive discussion of take rates. Wipro explains its view that 75% take rate being used for an expected case scenario is too aggressive and suggests that a range of 40 (downside) – 60 (expected) – 75 (maximum) would be more appropriate for three different scenarios.

- 1/11/2016: MBI notices business take rate starting point increased from 10% to 40% in recent submission of model (Version Z). In response to inquiry by MBI, WW indicates that it now proposes that business should match the starting take rates of residential customers.

1.5 BREAK EVEN TAKE RATE

December: The October 12, 2015 draft business plan had referenced that in year 5 a 48% take rate is needed to break even. At December meeting, WW explains that has now increased to 55%.

- 1/14/16: WW provides new version of model (version AA) and indicates that with all changes to date, breakeven take rate has increased to 69%.

1.6 PRICING

December: Internet \$49, \$79, \$109. Discounts for double & triple play. TV pricing will be \$5 over cost (\$46 on one page take rate sheet). Phone pricing \$25

- 1/14/16: WW provides updated model and email stating double and triple play discounts were eliminated. MBI notes that the modeled elimination of the discounts did not result in any change to the take-rates and expresses its disbelief that there would not be a correlation between discounts and take-rates.

1.7 PHONE COST OF GOODS

December: one page Income Cost Summary includes an assumption of \$10 per subscriber

- 12/23/15: Discussion about phone costs and whether \$8 is sufficient to cover customer service related activities. Wipro explains that the industry typically incurs \$2-3 more for service costs, front-end support, provisioning, billing inquiries, etc. WW explained that it would not be the resporg (responsible organization for maintaining phone number management and Local Number Portability).
- 1/15/16: WW says that WW model is now using \$8 per sub – the wholesale cost to buy the service from a VOIP provider.
- 1/20/16: Review of model by MBI found that the telephone costs being used in the COGS calculation were being modeled at between \$2.28 - \$4.61 per sub. WW agrees to correct, and the version reviewed with Jim on 1/24/16 appears to have corrected this.

1.8 TV COST OF GOODS

December: \$40 per subscriber (\$6 under price)

- 1/6/2016: WW explains that the assumptions for IPTV programming costs are currently based on Uptown and Civitium data, not VuBiquity pricing since WW had not yet talked to them. WW explains it will update based on VuBiquity and will look at model for 10 years to see if it is breakeven.
- 1/15/16: Teams identified costs for programming, some of which are in model (\$40 per sub placeholder until VuBiquity pricing obtained); retransmission costs (\$9 per sub); transport cost (amount not identified yet). Model does not include transmission from VuBiquity which had been assumed by WW to be in capital. MBI explains it has not been in the capital model. MBI

also points out that affiliate costs would need to be negotiated directly with the large media networks and those costs need to be included in the model.

- 1/20/16: MBI review of model determines that the retransmission cost itself is being calculated, but is not being rolled up to COGS due to a formula error.

1.9 GENERAL COGS

- 1/20/16: MBI notices that revenue is being calculated on end-of-period subscriber numbers, while a number of COGS categories are calculating the related costs based on average number of subscribers, resulting in a mismatch of revenue and expenses that under-represents costs in early months while towns are coming on line. WW agrees correction is needed.
- 1/20/16: MBI notices that there was no COGS being calculated for business product revenue. WW agrees correction is needed.

1.10 POLE RENTAL FEES

December: \$12 per pole

- 12/23/15: MBI suggests, and WW agrees, that pole rental fees be increased from \$12.00 to \$13.52 to represent full costs of jointly-owned poles.
- 1/11/16: MBI reviews current model (Z) and notes that rates had been updated and explains that timing of costs should also be revised to occur at about month 10 during construction project rather than end of construction cycle (30 months). WW agrees.
- 1/14/16: MBI's review of revised model (version AA) notices that the assumption was changed from month 30 to month 20
- 1/25/16: WW has updated to month 10 in current version (Version AC)

1.11 LINE MAINTENANCE

December: WW indicates that modeled costs have increased since June Business Plan, based on CTC feedback. One line truck for 150 miles of fiber and 12 trucks at \$15K/year + 20K miles @ \$0.55 per mile, plus one driver for each truck. Wipro agrees that these updated numbers are within a reasonable zone.

- 1/14/16: WW has updated model to reduce line maintenance from \$6 to \$3 per sub. (N.B., post-meetings MBI team discusses and determines it is unclear what costs are in and not in the \$3 per assumption, and to determine whether this is in a reasonable zone it would need further discussion with WW. Assuming all of the appropriate costs are included in that line item assumption, Wipro notes that the metric should be \$3 per home passed (vs. per subscriber) per month.)

1.12 VENDOR EQUIPMENT MAINTENANCE COSTS

- 12/23/15: WW assumes 5% of Capex excluding Professional Services. Dave indicates this is light and should probably be closer to 10%. WW states that it is going to balance this by having spares and using maintenance contracts. Dave also mentions that this line item typically covers software/firm support on the manufacturers' equipment and vendor technical assistance support. (N.B., MBI team is unclear what costs are included and not included in the 5%

assumption, and to determine whether this is in a reasonable zone, it would need further discussion with WW.)

1.13 SPARES

- 12/23/15: No cost for spares appear to be in the model. MBI explains that all non-construction costs of the operations of the network, including spares and the cost of maintaining a secure space for spares, need to be funded by the network operator and should be included in the WW Business Model. (N.B., MBI is unclear to what extent spares may be included in another line item and, if not, why they are not included in the model.)

1.14 CUSTOMER SUPPORT.

- 12/23/15: There was some initial discussion about customer support in the context of an initial discussion of staffing, including what customer support costs were assumed included in staffing vs. being out-sourced. The Working Group has not yet come back to this topic to address it in more detail.

1.15 STAFFING

- 12/23/15: There was some initial discussion about staffing. The Working Group has not yet come back to this topic to address it in more detail.

1.16 INSURANCE

December: One page Cost Income Statement - \$250K

- 12/23/15: WW indicates that since the Business Plan reviewed by Wipro it has increased this assumption from \$50K to \$250K. MBI states that it will have no further input on this assumption unless it acquires information leading it to believe that the number is materially off. (N.B., Wipro has recently mentioned that in its modeling it uses a formula of \$37 per mile per month, which would produce a cost of \$561K/yr in the 31 town scenario presented in December.)

1.17 RENT

December: WW assumption: \$50,400 annually

- 1/6/16: Wipro acknowledges that this is in a reasonable zone.

1.18 CONSTRUCTION BUILD TIMING

December: 30 month construction cycle; groups of towns starting construction cycle every month until all towns constructed

- 1/4/16: MBI notices that the modeled timing of build was changed to 25 months from the 30 months and questions why
- 1/14/15: WW model reverts back to a 30 month schedule
- 1/25/16: MBI indicates that the build schedule in WW model seems too aggressive and is not consistent with discussions we have had in the past. MBI suggests that WW update model to reflect 5 towns joining the build every three months.

1.19 SET TOP BOXES

December: WW assumes cost of all set top boxes in their business are included in the Cartesian model

- 1/15/16: MBI explains that the WW business model does not include sufficient amounts to provide for the number of set-top boxes WW is assuming will be providing revenue. WW assumption that the Cartesian capital model covers all the boxes for which revenue is assumed in the WW operating model is not valid. Cartesian model includes the costs of providing 87% of TV subscribers' set-top boxes (and presumes that 13% would not require boxes). Cartesian also forecasts a 65% TV take-rate.

1.20 RETAINED CASH

- 12/23/15: Jim explains that he has established in the plan a floor of \$2M to have sufficient cash to weather business downturns.
- 1/25/16: While reviewing model with Jim, MBI notices that the retained cash has been reduced by \$1.5M to \$500K and asks why. Jim explains that in his opinion the \$2M reserve was too high and that he is now recommending that only \$500K be retained as a reserve.

1.21 MBI (STATE) FUNDS

- 12/23/15: WW models all funds to be drawn over 3 years, with all state funds drawn and spent before any town funds are drawn.
- 1/15/16: MBI explains that state and town funds should be modeled to be drawn proportionately, and that the working assumption of timing of draw-downs should be 30% month 4; 35% month 13; and 35% month 18.

1.22 DEPRECIATION RESERVE

- 12/23/15: WW assumes 3%/year of depreciable assets (meaning, excluding Make Ready, for example). Current model assumes \$1.5M per year. After brief initial discussion about this it's left that Dave and Michael will review and provide additional input.
- 1/25/16: Based upon the reduction in the number of towns, the amount of capex has decreased and the related depreciation reserve is commensurately lower.

(N.B., Dave and Michael have recently advised that the modeled depreciation reserve is too low by a material amount. MBI needs to discuss this with WW at the next financial modeling working group meeting.)

1.23 NON-CONSTRUCTION CAPITAL EXPENSE

December: WW model includes an assumption that business software, computers, labs, and other non-construction capital costs of the business are to be paid for by bond funds included in the construction cost model.

- 1/11/16: MBI explains that all costs of the operations of the network, including capital costs, need to be funded by the network operator and should be included in the WW business model. This includes not only the initial costs but also the costs of replacement computers, software, etc. over the years of operation. Also, savings from other towns or construction changes cannot be assumed to be available to cover network operator costs.

1.24 START-UP COSTS

December: WW model includes an assumption that start-up costs of the operating entity (\$3.4 million of losses incurred in the early years of operations that are not covered by revenues) are to be paid for by bond funds included in the construction cost model.

- 1/11/16: MBI explains that all costs of the operations of the network, including start-up costs, need to be funded by the network operator and should be included in the WW business model in that manner.

1.25 MODELED SCENARIOS INCLUDED IN PLAN

December: October/December plans presented only one scenario, in which many of the key variables seemed to Wipro to be overly-optimistic, at least to be using for an expected case.

- 12/23/15: MBI advises presenting multiple scenarios, so that those reading the Plan can get a sense of what outcomes are modeled in optimistic, expected and pessimistic scenarios. WW agrees. MBI won't be able to comment on the proposed ranges of variables proposed for the different scenarios until WW has determined those.

1.26 OTHER

- 1/4/16: MBI indicates via email that they are unable to map the Income Cost Summary that has been posted on the WW website to the underlying business model provided by WW. Subsequent call with Jim indicates that it does not map, because the Summary on the website is a representation and approximation of costs and revenue and does not correlate directly to the model.

Summary of impact of changes to key data points following initial working group discussions.

	WW Version Y*	WW Version AC**	Diff Version Y vs Version AC
# Towns	32	21	-11
Town Contribution	50,210,004	33,390,003	(16,820,001)
With Video	Yes	Yes	
Subscribed Drops	Yes	Yes	
<u>Take Rates</u>			
Overall Take Rate	75%	75%***	
Residential Customers - Start	40%	40%	
Business Customers - Start	10%	40%	
Monthly Ramp UP	5%	5%	
<u>Subscriber Base</u>			
Households Total	19,139	12,759	(6,380)
Households Vacant	1,116	603	(513)
Households Seasonal	4,764	3,446	(1,318)
Households Available	16,040	10,721	(5,319)
Businesses	181	115	-66
<u>Income Statement (Year 6)</u>			
Revenue.Residential Access	14,307,241	8,843,214	(5,464,027)
Revenue.Residential Installation	-	-	-
Revenue.Equipment Rental	1,085,338	458,350	(626,988)
Revenue.Business Access	257,098	314,100	57,002
Revenue.Business Installation	3,100	-	(3,100)
Revenue.Gross Revenues	15,652,777	9,615,664	(6,037,113)
COGS	2,850,024	2,662,550	(187,474)
Net Revenues.Dollars	12,802,753	6,953,114	(5,849,639)
Net Revenues.Margin Percent	81.79%	72.31%	-9.48%
SG&A.Sales and Marketing	235,008	239,708	4,700
SG&A.G&A	4,631,388	3,118,659	(1,512,729)
EBITDA.Dollars	7,936,356	3,594,747	(4,341,609)
EBITDA.Percent	50.70%	37.38%	-13.32%
D&A	(3,809,287)	(2,412,836)	1,396,451
Interest Income	168,182	70,277	(97,905)
Net Income	4,295,252	1,252,188	(3,043,064)

Residential Subscribers	12,032	8,046	(3,986)
Residential Revenue per subscriber per month	106.61	96.34	(10.27)
Net Income per Residential Subscriber per month	29.75	12.97	(16.78)

Approximation of Cash Flow

Year 6 Summary

Net Income	4,295,252	1,252,188	(3,043,064)
Add back Depreciation	3,809,287	2,412,836	(1,396,451)
Less Town's Debt Service	(4,162,350)	(2,674,021)	1,488,329
Less Depreciation Reserve	(1,596,605)	(984,738)	611,867
Approximate Year 6 cash contribution	2,345,583	6,265	(2,339,318)

20 Year Cumulative

Net Income	81,949,830	6,745,471	(75,204,359)
Add back Depreciation	60,947,927	38,605,372	(22,342,555)
Less Town's Debt Service	(65,111,647)	(30,010,161)	35,101,486
Less Unspent Depreciation Reserve	(25,545,289)	(15,755,816)	9,789,473
Approximate Cash Available for Operations at end of 20 years	52,240,821	(415,134)	(52,655,955)

*Version Y was the WW model used to develop materials that were distributed by WW to the working group at the first meeting in December.

**Version AC was the version that WW and MBI last reviewed together (during a working session with Jim Drawe on 1/25/16). Note that WW has been working on its financial modeling since that time and that Version AC does not represent any changes to assumptions that WW has recently made. Also note that MBI does not agree with many of the assumptions WW was using in Version AC. The only reason for using Version AC here is for comparison purposes, to give a sense of the magnitude of the effect of the changes WW had incorporated between its December and its January modeling.

***While 75% was used by WW as its expected case in the Version Y materials the working group reviewed in December, by late January we believe that WW had acknowledged that would be an unlikely expected case. We are using 75% for the AC version in this analysis so that the rest of the comparison points below can be reviewed on an apples-to-apples basis.