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**New Rec: @Road, Inc. (ARDI: \$14.14) August 23, 2003**

**Position: Sell Target: \$8 Timing: 2 (1=aggressive; 5=cautious)**

\$000	Q3 03e	Q4 03e	Q1 04e	Q2 04e	2003e	2004e	2005e
Revs	16,992	18,737	19,050	20,308	65,239	83,960	101,345
EPS\$	0.01	0.03	0.04	0.05	0.01	0.23	0.35
Y/Y Gr	n/a	n/a	n/a	n/a	n/a	2275%	53%
PE	n/a	n/a	n/a	n/a	1414.0	61.5	40.4
PSR	n/a	n/a	n/a	n/a	12.1	9.4	7.8
Consens	0.01	0.03	0.05	0.07	0.01	0.27*	0.44**

\* The average "street" estimate reported to First Call is \$0.31. We adjusted these estimates for new shares sold in the secondary offering. \*\*Only one "street" analyst has an estimate.

**Shares Out: 56M**

**Market Cap: \$792M**

**FYE: Dec**

Summary: @Road, Inc. (ARDI) is a provider of Mobile Resource Management (MRM) solutions. The Fremont, California, based company integrates Global

Positioning System (GPS) technology, wireless communications, transaction processing, software applications and the Internet to enable companies to efficiently manage their mobile workers with location-relevant and time-sensitive information. As of June 30, 2003, ARDI had 109K “mobile managed resources” or subscribers.

ARDI’s business follows the “razor and razor blade” model. The company installs hardware for a one-time charge of \$300-\$400 per subscriber and provides location and activity data for a monthly fee of \$48-\$70. The monthly basic fee is \$48, and customers pay additional charges for options such as instant messaging and exception alerts. Customers sign up for an initial two or three year contract. After the contract expires, customers renew on a month-to-month basis.

ARDI shares have been on a tear in 2003, and have appreciated 286% since hitting a low of \$3.66 last December. The primary reasons that have contributed to investor enthusiasm for the shares include the company’s prediction that it would become profitable in the second half of 2003, better than expected net subscriber addition figures in the latest quarter, and optimism regarding the company’s pricing power. All five “street” analysts following the company rate the shares a “Buy”. Interestingly, three of the five analysts following the company also work for banks that took part in the recent secondary offering.

The bulls’ enthusiasm has resulted in shares trading at 12x 2003 estimated “street revenue” and 1400x “street” EPS estimates. Multiples on 2004 “street” estimates are no less impressive, at 9x sales and 52x EPS. The bullishness on ARDI, a pioneer in the “MRM space”, reminds us of the dot-com era. Indeed, management includes a couple of former “dot-commers”. All of management is from high-tech companies, and we see none from transportation.

Bullish analysts may be ignoring a few salient factors in their appreciation of the company’s business model. For starters, while ARDI’s 2003 net add performance has been good and has beaten “street” expectations, most of the positive surprise has been due to the addition of Verizon, which we estimate has contributed a fifth of all of ARDI’s subs to date. Excluding the 16K-17K subs that we estimate Verizon will contribute in 2003, ARDI’s net adds for 2003 should be around 23K-24K, not very different from its 2002 net add number (24K), and quite a bit lower than the company’s 2000 (29K) and 2001 (31K) net add numbers. We note that the 2000 and 2001 figures do not include the benefit of any large customers like Verizon.

Having one large customer boost net add numbers is, in itself, not a major problem, if it is sustainable. In fact, bulls are counting on similar net add performances in upcoming years. One “street” analyst predicts that the company

will post 53K net additions in 2004 and a stunning 85K net adds in 2005. There are several camels in the tent. First, there is the issue of just how many customers there might be even near Verizon's size, and whether those customers are similarly centrally organized. Second is competition. While the bulls mildly acknowledge that there could be competition, for the most part they have chosen to ignore it. We think that competition may inhibit the addition of large customers in coming years.

Unlike the similarly small companies that competed with ARDI when the MRM space was in its infancy, the latest competitor is Trimble Navigation, which is a leader in providing GPS technology related services. Trimble also happens to be about eight times ARDI's size on a revenue basis. Moreover, through partnerships with leading companies such as garbage truck-maker McNeilus, it is targeting some of the same "verticals" that ARDI is targeting.

For example, ARDI announced last year that it would be a preferred supplier to Waste Management, which it designated as one of its key enterprise customers. Unfortunately, decision making regarding MRM services is decentralized at Waste Management, and our sources tell us that Waste Management earthmoving equipment is equipped with Trimble MRM technology. It also does not help that construction, another of ARDI's target "verticals", is Trimble's strongest GPS business segment.

In its latest quarter, Trimble reported that MRM net adds jumped 80% Q/Q and 600% Y/Y, albeit from a low base. Trimble currently has less than 50K customers. (The corresponding figures for ARDI, which admittedly has a higher subscriber base, were 10% and 42%.) A Trimble representative told us that Trimble's MRM segment would reach profitability in half the time it took ARDI.

An industry source told us that ARDI won Verizon after a two-year pilot trial period, which he thought was unusually long to demonstrate performance, and probably resulted from lack of competition. In his opinion, ARDI would have had a harder time winning the contract today in the presence of competitors like Trimble.

Then there is the important issue of pricing. As we mentioned earlier, ARDI's monthly fee ranges from \$48 to \$70. Trimble offers its service in the \$20-\$50 price range, and it appears that Trimble's service may incorporate elements superior to ARDI's service, such as more frequent location updates and more historical data. We estimate that a third of ARDI's customers would be rolling off their minimum service contracts in the next year, and a 40% lower monthly fee may be a powerful inducement to switch. Consequently, ARDI's recently stable churn rate, another key factor in the bulls' enthusiasm, may be in jeopardy. Unless, of course, ARDI will lower its prices to meet the competition.

Despite this, some “street” analysts have increasing ARPU assumptions embedded in their models. For example, in the case of the analyst with the large net add numbers cited above, an analysis of his revenue projections indicates that this analyst is assuming an ARPU of \$39.37 in 2004 and about \$40 in 2005. ARDI’s ARPU in the latest quarter was \$38.89. Given competitors’ prices, we think the bulls’ projections are overly aggressive. We model a 10% decline in ARPU by 2005. However, we note that ARDI’s prices could well come down by 40%-50% in that time period and still be only equal to many of the prices being currently quoted.

We think that by ignoring competitive concerns and assuming business as usual, the “street” bulls have forecast overly aggressive net adds, too high ARPU, and too high revenue and EPS numbers for ARDI. In our opinion, ARDI should post net adds of 35K and 43K in 2004 and 2005, respectively versus the “street’s” estimates of 53.4K and 85K. Note that these estimates would represent a significant improvement over the 2003 figure, ex Verizon. The average “street” revenue estimate for 2004 is \$92M and the EPS estimate is \$0.27. We think that the figures are likely to be closer to \$84M and \$0.23, respectively.

The only “street” estimate for 2005 forecasts \$127M in revenue and \$0.44 in EPS. We think that ARDI will post revenue of \$101M, and EPS of \$0.35. As noted above, in our model, we have assumed only a 10% price decrease from Q4 04 to Q4 05. If the price decrease is closer to the 40% differential that exists today between Trimble’s and ARDI’s monthly fees, our 2005 estimates of revenue and EPS would be \$84M and \$0.16, respectively. Should this be the case, ARDI would not be a growth story any more.

Valuing ARDI shares is a bit tricky since we do not expect the company’s profits to be subject to taxes in 2004 or 2005, as a result of net operating loss carryforwards of \$91M. As we explain in the valuation section, we valued the company on both EPS growth and cash flow. Our initial price target for ARDI shares is \$8.

ARDI insiders, including its Chairman/CEO, sold 2.5M of shares in a recent secondary offering in which the company also sold 4M shares. Some of these insiders were buying last fall when the shares were trading in the \$4-\$5 range. We think the insiders, many of whom are professional investors, may have a good sense of when to buy and sell the shares. We note that, although the selling insiders from the recent secondary still have about 19.5M shares that are locked up for 90 days, there are still a substantial number of insider shares, about 7.6M, that can come on the market immediately.

What could go wrong with our thesis? The primary risk is that ARDI is able to land other large customers like Verizon that permit it to post net add numbers that meet “street” expectations. In our opinion, this would necessitate at least one large customer like Verizon next year, and two the following year. Remember, it took two years of trials to land Verizon. We think that were it possible to win such customers in the future, it would be at the cost of aggressive pricing, at least 40% below current pricing, which would still prevent ARDI from meeting the “street’s” revenue and EPS expectations. In our opinion, this mitigates the risk of the short position.

#### Background:

@Road (ARDI), headquartered in Fremont, CA, provides Mobile Resource Management (MRM) services through the integration of Global Positioning System (GPS) technology, wireless communications, transaction processing, software applications and the Internet. Examples of MRM services include tracking of employees, vehicles, and goods and services, as well as provision of two-way communications between staff at a company’s offices and its mobile workers.

By using such a service, a customer can obtain a complete snapshot of its mobile workforce 24 hours a day, or the location of the entire workforce or a single employee. The service can also provide location information when an employee is outside the wireless coverage area, and allows the customer to design the most efficient route for its mobile resources in real-time. ARDI’s customers can receive detailed reports on the entire workforce, a segment of their workforce or a single employee. These include reports on location, speed, direction of travel, and stops, as well as real-time end-of-day reports, activity reports and stop reports.

ARDI refers to each managed mobile resource as a “subscriber”. The company had 109K subscribers as of June 30, 2003. A customer pays a one-time charge of \$300-\$400 per subscriber for hardware installation (on the vehicle to be used by the subscriber) and \$48-\$70 in monthly service fees. ARDI customers initially sign up for a two or three year contract. (A one-year contract is available at a substantial price premium.) After the completion of the initial period, customers renew on a month-to-month basis. The monthly fee includes “bundled” wireless airtime. For customers who choose to arrange their own wireless service, ARDI offers an “unbundled” solution that costs about \$15 less. From the average revenue per user (ARPU) figure reported by ARDI in the second quarter, we estimate that only a third of its customers take the bundled offering, although the company has claimed in a past conference call that a greater proportion of its customers choose the bundled offering.

ARDI likens its business model to a “razor and razor blades” model. It sells hardware at or below cost, and attempts to make money on the service side via the recurring monthly fees. ARDI offers its services on all mainstream wireless technologies: Cellular Digital Packet Data (CDPD), offered by AT&T Wireless; General Packet Radio Services (GPRS), offered by Cingular and AT&T Wireless; Integrated Digital Enhanced Network (iDEN), offered by Nextel; and Code Division Multiple Access 1XRTT (CDMA 1X), offered by Verizon Wireless and Sprint. Table 1a shows the revenue breakup and service ARPU for the past eight quarters, while Table 1b shows the subscriber trend for the same period.

Table 1: ARDI revenue breakup and ARPU trend

	Q3 01	Q4 01	Q1 02	Q2 02	Q3 02	Q4 02	Q1 03	Q2 03
Service Revenue	5,550	6,371	7,251	7,957	8,657	9,813	10,603	12,135
Product Revenue	1,980	2,242	2,449	2,501	2,659	3,133	3,138	3,634
Total Revenue	7,530	8,613	9,700	10,458	11,316	12,946	13,741	15,769
Service as % of total rev	74%	74%	75%	76%	77%	76%	77%	77%
Product as % of total rev	26%	26%	25%	24%	23%	24%	23%	23%
ARPU	33.18	33.71	35.03	35.60	35.85	37.60	37.40	38.89

Sources: Company reports, OWS estimates

Table 1b: ARDI subscriber trend

	Q3 01	Q4 01	Q1 02	Q2 02	Q3 02	Q4 02	Q1 03	Q2 03
Subscribers	60,000	66,000	72,000	77,000	84,000	90,000	99,000	109,000
Q/Q change	17%	10%	9%	7%	9%	7%	10%	10%
Y/Y change	n/a	87%	66%	50%	40%	36%	38%	42%

Source: Company reports

The company is currently targeting customers in ten industries or “verticals”: telecommunications, construction, facilities and waste management, field service, freight and passenger transportation, courier and delivery services, distribution, security, cable and broadband, and utilities. Although small and mid-sized businesses have traditionally formed the company’s primary customer base, in the past twelve months ARDI has focused on attracting enterprise customers. As of June 30, 2003, about 25,000 of ARDI’s 109,000 subscribers were employees of five enterprise customers: Verizon, Qwest, Waste Management, Frontier and MASCO Contractor Services. ARDI did not list any 10% customers in its 2002 10-K. We think that Verizon will be a 10% customer in 2003, since ARDI has projected that the subscriber count from Verizon could be as high as 23,000 at the end of 2003 (out of a projected total subscriber count of 130K-135K).

The MRM market is a young market and is therefore quite fragmented. Unlike the older transportation and logistics segment, where Qualcomm, introduced a proprietary satellite-based tracking system called OmniTRACS in 1988, MRM services began to appear in the mid-to-late 1990s. For example, ARDI

was founded in 1996 as Vectorlink, and began offering its service in mid-1998. While there have been competitive MRM offerings from other small companies such as Aether Systems (also founded in 1996) and Minorplanet, Trimble Navigation Limited, a much larger company with estimated 2003 sales of \$530M, launched its MRM service last fall under the Telvisant brand.

Discussion:

1. ARDI shares have had a spectacular run in 2003, rising 242% year to date compared to a 32% increase for the NASDAQ. At the current price of \$14.14, the stock trades at 1414x 2003 EPS and 52x 2004 “street” EPS estimates. Price-to-sales ratios based on “street” revenue estimates are also lofty, at 12.2x and 8.6x 2003 and 2004 revenues, respectively. All the “street” analysts that follow the company rate it a “buy”. The share price has actually risen since a recent secondary issuance that diluted share count by 15% and included substantial insider selling.

There appear to be three factors behind the bullish enthusiasm. First, the company beat EPS estimates by a penny last quarter and reiterated its projections that the second half of the year, unlike the first half, would be profitable. Second, the company delivered a higher net subscriber add figure in Q2 03 than the “street” was expecting. Finally, the company said in its Q4 02 conference call that the price increases it had implemented back in 2001 had stuck, which greatly comforted the bulls’ concerns about competition. As a result, the most bullish “street” analysts have forecast revenue growth of as high as 45% Y/Y in 2004 and EPS rising from a penny in 2003 to as much as 33 cents in 2004.

Our research, detailed below, indicates that such buoyant optimism may be misplaced. While the market may be young and fragmented, in our opinion ARDI will not see the net subscriber adds and ARPU figures that are embedded in the bulls’ models. Accordingly, we think the shares are overvalued.

2. In our opinion, ARDI bulls are ignoring the potential impact of competition on future net subscriber additions.

As a pioneer in the MRM arena, ARDI encountered little competition until the end of 2002. Other companies with similar services, such as Aether Systems and Minorplanet, were of comparable size (\$40M-\$100M in annual revenue). However, the competitive environment is changing, in our opinion. Trimble Navigation, a leading GPS technology provider with \$530M in estimated 2003 revenue, launched its MRM offering last fall under the Telvisant brand.

We think the increased competition will impair ARDI’s ability to post the net add figures that the “street” is expecting, since competitors are targeting the same “verticals” as ARDI. For example, on its Q2 03 conference call, Trimble’s CEO said that a key area of focus for Telvisant is the 6M heavy vehicles in the US that are ready-mix trucks, refuse trucks, or other vehicles carrying high-value goods. According to a Trimble representative with whom we spoke, the company has an agreement with McNeilus Companies, Inc., a major manufacturer of trucks for the ready mix concrete and waste management industries, which facilitates the delivery of a complete MRM solution when a new fleet is acquired. The representative told us that McNeilus' sales team will market Trimble’s solution, which includes GPS-enabled hardware and hosted software provided for a monthly service fee, to its customers as a retrofit for trucks already in the field, or as a factory-installed option.

Trimble’s focus on MRM solutions for ready-mix and waste management businesses squarely affects ARDI which has facilities and waste management as one of its target “verticals”, and which counts on Waste Management, Inc. as a key enterprise customer. The Trimble representative also indicated that Trimble’s strong presence in engineering and construction would make asset inventorying in that area a natural target for Telvisant. As it happens, construction is another of ARDI’s target “verticals”.

3. Similarly, while bulls are excited about ARDI’s 2003 net subscriber add performance and expect similar increases in future years, we think the company’s 2003 performance is not sustainable.

ARDI added 29.1K, 30.7K and 24K net subscribers in 2000, 2001 and 2002, respectively, and has added 19K net subscribers to date in 2003. For all of 2003, both the “street” and we estimate that the company will add 39K-40K net subscribers (Table 2). However, bulls project substantial growth in net subscriber additions in 2004 and beyond.

Table 2: Actual and projected net subscriber additions for ARDI

	2000	2001	2002	2003E	2004E	2005E
Net subscriber additions (actual figures for 2000-02 and OWS estimates for 2003-05)	29,100	30,700	24,000	40,000	35,000	43,000
“Street” net subscriber addition estimates				39,700	53,400	85,000

Sources: Company reports, “Street” reports, OWS estimates

We think the bulls’ net add estimates are too high for the following reason. In July 2002, ARDI announced that Verizon would use the company’s MRM service to manage its field operations (installation and maintenance). At the time, ARDI said that it estimated that it could gain about 20K subscribers as a result. In

February 2003, the company upped the Verizon subscriber estimate to 23K. We think that about 16K-17K Verizon subscribers would be included in the 2003 net add estimate. Thus, the net add estimate for 2003 (excluding this one large contract) is about 23K-24K, which is similar to the 2002 net add figure and about 6K lower than the 2000 and 2001 figures.

Moreover, according to an industry source, ARDI would find it harder to attract enterprise customers such as Verizon in the future. ARDI conducted a two-year pilot to fine-tune its service before landing Verizon as a customer. Our source thought that two years was way too long to prove the performance of a product, and while ARDI might have gotten away with such a long trial period in the absence of serious competition, it would be a lot harder to land a large customer such as Verizon in the future with competitors such as Trimble in the fray.

Note that we have included other enterprise subscribers that ARDI added in 2003, such as Qwest (6K subs total; 4.5K estimated subs in 2003), Frontier (2K subs), and Waste Management (1.8K subs). We think that ARDI could continue to sign up enterprise customers of Qwest's or Frontier's size in the future. The "street's" estimate, on the other hand assumes that ARDI will sign up at least one customer of Verizon's size each year, which we consider unrealistic.

4. Bulls are heartened by the trends of increasing ARPU and stable deactivations, and project that these trends will continue. We think, instead, that competition and service substitution could end ARPU increases and increase deactivations.

Another effect of heightened competition in the MRM arena, in our opinion, would be price competition. As Table 1 shows, ARDI's ARPU has grown from \$33.18 in Q3 01 to \$38.89 in Q2 03. Besides lack of competition, the adoption of value-added services such as instant messaging and "check" alerts by customers has contributed to the growth in ARPU. However, the new competition is changing the established pricing structure.

We mentioned earlier that ARDI's monthly fees are \$48-\$70, including airtime. As can be seen from Table 3, competitors' prices are lower. (Hardware costs are roughly \$300-\$500 for all competitors.) In addition, some of the competitors' plans offer features not provided by ARDI. For instance, Telvisant's plan offers up-to-the-minute position updates, whereas ARDI recommends that its customers transmit location information at 15-minute intervals. (Up-to-the-minute transmission is available for an extra charge to ARDI customers.) Telvisant also provides historical data for 365 days, while ARDI does so only for 14 days.

Table 3: Monthly fees for competitive MRM service offerings

Service	Monthly fee (including airtime)
ARDI GeoManager	\$48-\$70
Telvisant SuperVision	\$20-\$50
Aether 20/20V	\$20-\$35
Xora TimeTrack	\$25

Sources: Company reports, Industry sources

Another threat to ARDI's ARPU may be the emergence of exception reporting. Exception reporting involves alerting a customer only if there is an "exception" or a problem, and thus uses less airtime. The monthly fee for Aether's GeoLogic service is \$10-\$15, compared to its 20/20V tracking service which costs \$20-\$35 per month.

Table 4 shows ARDI's deactivation trend for the past eight quarters. Except for increases in Q3 02 and Q4 02 which the company attributed to customer financial problems related to the economy, the deactivation rate has been stable at between 1%-1.5%. We note that deactivation has been stable in the absence of competition, and anticipate that the rate will increase, especially as customers roll off contracts and move into the month-to-month renewal regime.

Table 4: ARDI subscriber deactivation rate

	Q3 01	Q4 01	Q1 02	Q2 02	Q3 02	Q4 02	Q1 03	Q2 03
Deactivation rate	1.25%	1.25%	1.25%	1.25%	2.25%	1.75%	1.25%	1.25%

Source: Company reports

Another potential source of customer loss for ARDI could arise from AT&T's decision to cease operating its CDPD network by June 30, 2004. ARDI estimates that about 11,000 subscribers (10% of total subscribers) in their initial contract periods will need new hardware to continue to use ARDI's services. An industry source told us that ARDI plans to charge each of these subscribers \$150 for the new hardware, which may result in customer churn.

## 5. Recent Results.

ARDI reported Q2 03 revenue of \$15.8M, about \$1M above the "street" estimate, driven primarily by a 14% sequential increase in service revenues (versus the "street" expectation of 9%). The company reported break-even EPS for the quarter, which beat the "street" estimate by a couple of pennies. Net subscriber additions of 10,000 during the quarter exceeded the "street" expectation and previous company guidance by 1,000. Capital expenditures were the highest in ten quarters at \$642K, which is substantially above the \$100K-\$200K level of capital expenditures in the previous nine quarters. Management has said in the past that

the leverage of the business model is such that the company can increase subscriber capacity by 100K by spending \$1M in capital expenditures. Since ARDI is now at 109K subscribers, we think that capital expenditures bear watching to see if the leverage that management claims does exist.

## 6. Financial Assumptions.

### a. Revenue recognition.

According to ARDI's 10-K, the company recognizes service revenue ratably over the minimum service contract period, which commences upon the installation of the platform. ARDI defers product revenue from its platform at installation and recognizes it ratably over the minimum service contract period. Product costs, not in excess of related product revenue, are deferred at the time of shipment and amortized ratably over the minimum service contract period. Where the selling prices of ARDI's products are below its costs, the company expenses the difference at the time of shipment of the related products. Allowances for sales returns are recorded at the time product revenue is recognized.

### b. Subscriber additions.

As we explained earlier, we think that ARDI's 2003 net additions performance is due to the large Verizon contract. Remarkably, as can be seen from Table 5a, net adds in the most recent quarters, excluding estimated Verizon net adds, are comparable or worse than in previous quarters. Going forward, we assume the 2003 net add performance (excluding Verizon) as the baseline.

Table 5a: ARDI subscriber addition statistics for the past ten quarters

	Q1 01	Q2 01	Q3 01	Q4 01	Q1 02	Q2 02	Q3 02	Q4 02	Q1 03	Q2 03
Change (net adds)	8,100	8,100	8,500	6,000	6,000	5,000	7,000	6,000	9,000	10,000
Deactivation rate	1.25%	1.25%	1.25%	1.25%	1.25%	1.25%	2.25%	1.75%	1.25%	1.25%
Deactivations	1,324	1,628	1,931	2,250	2,475	2,700	5,198	4,410	3,375	3,713
Gross adds	9,424	9,728	10,431	8,250	8,475	7,700	12,198	10,410	12,375	13,713
Est. Verizon adds	n/a	n/a	n/a	n/a	n/a	200	4,500	2,000	4,000	4,500
Net adds (w/o VZ)	8,100	8,100	8,500	6,000	6,000	4,800	2,500	4,000	5,000	5,500

Source: Company reports, OWS estimates

We note that, prior to Q3 02, when ARDI started adding subscribers under the Verizon contract, the highest level of gross additions posted by the company was 10.4K in Q3 01 (Table 5a). We project that that ARDI will maintain at least the Q3 01 level of gross subscriber additions going forward. Due to the increased level of competition that we foresee, we expect the monthly deactivation rate to

increase from the present level of 1.25% to 1.6% by Q4 05. Our subscriber projections are shown in Table 5b.

Table 5b: ARDI subscriber addition statistics: Q3 03 to Q4 05

	Q303E	Q403E	Q104E	Q204E	Q304E	Q404E	Q105E	Q205E	Q305E	Q405E
Net adds	10,000	11,000	8,000	8,500	9,000	9,500	10,000	10,500	11,000	11,500
Deactivation rate	1.25%	1.25%	1.25%	1.30%	1.35%	1.40%	1.45%	1.50%	1.55%	1.60%
Deactivations	4,088	4,463	4,875	5,382	5,933	6,531	7,178	7,875	8,626	9,432
Gross adds	14,088	15,463	12,875	13,882	14,933	16,031	17,178	18,375	19,626	20,932

Source: OWS estimates

c. ARPU and service revenue.

As Table 1 shows, ARDI's ARPU in Q2 03 was \$38.89. We expect ARPU for new customers to decrease in the future due to the increased competition we cited earlier. However, the company still has customers on the initial minimum service contract. The company estimates that average remaining contract length today is 2-2.5 years. Since customers may also choose options resulting in additional revenue to ARDI, we project that ARPU will be flat at the Q2 03 level for the next year and a half (i.e., until Q4 04), and decline 10% to \$35 by the end of 2005. We obtain quarterly service revenue by multiplying the average subscriber number during the quarter by three times the monthly ARPU. Our service revenue estimates are shown in the financial projections section.

d. Product revenue.

In Table 6, we show the product revenue per gross addition for the past eight quarters. We note that the figure has been in the \$250-\$300 range in the most recent quarters. Going forward, we assume the product revenue per gross add to be the average of the prior four quarters. We multiply this by our gross add projection to obtain the quarterly product revenue.

Table 6: Product revenue per gross add for the past eight quarters

	Q3 01	Q4 01	Q1 02	Q2 02	Q3 02	Q4 02	Q1 03	Q2 03
Prod revenue/gross add	190	272	289	325	218	301	254	265

Source: Company reports, OWS estimates

e. Gross margin.

ARDI's service and revenue gross margin for the past eight quarters are shown in Table 7. The company's guidance for Q3 03 calls for service gross margin to sequentially improve by a percentage point and product gross margin to improve by about ten percentage points. We used the company's guidance for the service gross margin in Q3 03 (66%), but assumed an improvement of 8

percentage points for product gross margin (to -35%), since the company hasn't demonstrated a double digit gross margin improvement in recent quarters.

Table 7: Historical ARDI service and product gross margins

	Q3 01	Q4 01	Q1 02	Q2 02	Q3 02	Q4 02	Q1 03	Q2 03
Service gross margin	39%	50%	56%	58%	60%	64%	64%	65%
Product gross margin	-99%	-81%	-61%	-52%	-60%	-57%	-48%	-43%

Source: Company reports

Going forward, we assumed that the company would gradually increase service gross margin by keeping service costs in control and achieve its long-term target of 70% by the end of 2005. On the product side, we assumed that gross margin would gradually increase to -5% by the end of 2005.

#### f. Operating expenses.

Table 8 shows that ARDI has cut operating expenses by 41% over the past two years. The company's guidance calls for each of the operating expense categories to increase over the next twelve months. We project slight increases in R&D and G&A expenses over the next twelve months and in 2005. Our R&D expense forecast is for \$5.3M in 2003, \$5.4 in 2004, and \$5.5 in 2005. Similarly, for G&A expense, we forecast \$9.3M, \$9.6M and \$9.9M in 2003, 2004, and 2005, respectively.

Table 8: Historical ARDI operating expense levels

	Q1 01	Q2 01	Q3 01	Q4 01	Q1 02	Q2 02	Q3 02	Q4 02	Q1 03	Q2 03
Sales & Mktg.	5065	4835	4201	3166	2998	2604	2433	2711	2597	2840
R&D	2,237	2,204	1,575	1,592	1,586	1,476	1,476	1,340	1,336	1,297
G&A	3,830	3,177	2,692	3,034	2,933	1,879	1,875	2,026	2,218	2,440
Oper. Expense	11,132	10,216	8,468	7,792	7,517	5,959	5,784	6,077	6,151	6,577
Q/Q change	6%	-8%	-17%	-8%	-4%	-21%	-3%	5%	1%	7%

Source: Company reports

Sales and marketing expenses are more complicated to model because of the Verizon contract. Table 9 depicts the cost per gross add (CGPA) for the past eight quarters, with and without the Verizon additions. As one would expect, the addition of Verizon customers has significantly lowered the CPGA figures for the past four quarters. Going forward we project that the CPGA will continue to decline from the \$100 level after all the Verizon subscribers are added (by the end of Q1 04). We think that some "street" analysts are missing this Verizon impact on sales and marketing costs in their projection of minimal increases in SG&A expenses in 2004. One, for example, forecasts SG&A expense to increase from \$20.7M in 2003 to \$21.9M in 2004. By contrast, we expect SG&A expense to increase from \$21.2M in 2003 to \$24.8M in 2004.

Table 9: Monthly CPGA with and without Verizon additions

	Q3 01	Q4 01	Q1 02	Q2 02	Q3 02	Q4 02	Q1 03	Q2 03
CPGA	134	128	118	113	66	87	70	69
CPGA (excluding Verizon)	n/a	n/a	n/a	116	105	107	103	103

Source: Company reports, OWS estimates

g. Other items.

According to ARDI's latest 10-Q, intangible amortization expense is estimated to be \$22K in 2003 and \$27K in 2004, which extinguishes the unamortized balance. Also, deferred stock compensation expense at the end of the quarter was \$184K. We amortize \$125K in the remainder of 2003, and \$59K in 2004.

ARDI raised \$50M earlier this week through a secondary offering of 4M shares. Accordingly, we project interest income to rise from \$850K in 2003 to \$1.8M and \$2.1M in 2004 and 2005, respectively.

Since we estimate the company to be profitable on a GAAP basis starting in Q3 03, about 7.8M shares resulting from stock options will be included for diluted EPS calculations. We use the "street" diluted share estimates in our EPS computation.

We also note that had the company expensed stock based awards to employees in 2002, reported EPS would have been negative \$0.48 versus the reported negative \$0.31, and that the expensing of such awards, should they become part of GAAP in the future, would slow the company's path to profitability.

7. Valuation.

Table 10 shows our revenue and EPS projections for 2003-2005, as well as those of the "street". Our revenue estimates are about \$8M and \$26M lower than "street" estimates for 2004 and 2005, respectively. Similarly, we are four cents shy of the "street" EPS estimate for 2004, and nine cents lower in 2005.

Table 10: ARDI revenue and EPS projections: 2003-2005

	“Street” estimate	OWS estimate
2003 revenue (\$MM)	65.1	65.2
2004 revenue (\$MM)	92.0	84.0
2005 revenue (\$MM)	127.3	101.3
2003 EPS (\$)	0.01	0.01
2004 EPS (\$)	0.27	0.23
2005 EPS (\$)	0.44	0.35

Sources: OWS estimates, “Street” reports

We do not anticipate that the company will pay taxes in 2004 or 2005, since it had \$91.4M in net operating loss (NOL) carry-forwards at the end of 2002. We project EPS to grow 53% from \$0.23 in 2004 to \$0.35 in 2005. If we apply at 50x multiple to our 2004 estimate taxed at 35%, we obtain a share value of \$7.48.

From a cash flow standpoint, we estimate that the company will generate \$21.7M in net income in 2005. Annualized depreciation and amortization, less capex, is estimated to be \$2M for 2003. The corresponding figures for 2001 and 2002 were \$7M and \$5M. If we assume the highest of these figures (\$7M), in 2005 we get \$28.7M in free cash flow. A 15x multiple on this free cash yields a share value of \$7.08.

A similar calculation can be performed by backing out interest income and using operating income alone, which we estimate to be \$19.5M in 2005. Adding back \$7M for depreciation and amortization, less capex, yields free cash of \$26.5M. Applying a multiple of 15x to this figure gives us an “operating enterprise value” of \$397.5. If we add back the \$90M on the balance sheet, and divide by the estimated diluted share count for 2005, we obtain a share price of \$8.02.

We’ll set a target price of \$8.

## 8. Secondary Offering and Insider Selling.

On August 19, ARDI completed a secondary offering of 4M shares at \$14 per share. The company raised about \$50M after expenses, and plans to use the proceeds for capital expenditures, working capital and potential acquisitions. UBS Securities, US Bancorp Piper Jaffray, Needham & Company, and Raymond James & Associates served as underwriters. The last three firms cover the company, and Raymond James, which had the only neutral rating on the stock before the offering, joined the other “street” analysts and upgraded the stock to a “Buy” shortly after completion of the offering.

In addition, insiders sold 2.5M shares, and had the option of selling about 1M more shares, subject to the exercise of an over-allotment option by the underwriters. The key sellers are listed in Table 11.

Table 11: Insider selling in secondary offering

Seller	Shares owned before sale (% of shares outstanding, if > 1%)	Shares sold in offering	Shares owned after sale (% of shares outstanding, if > 1%)
US Venture Partners	8.9M (18.3%)	1M	7.9M (15.0%)
Institutional Venture Partners	7.7M (15.8%)	1M	6.7M (12.7%)
Chairman and CEO	3.8M (7.8%)	250K	3.6M (6.7%)
COO	561K	90K	471K
CFO	481K	85K	396K
Sr. VP, Engineering	441K	75K	366K

Source: Company filings

In its 424B1 filing, the company states: “If all stockholders subject to lock-up agreements and all stockholders who have registration rights were to decide to sell their stock immediately following the offering, then approximately up to 51.4% of our common stock would be sold.” About 19.5M shares are subject to 90-day lockup after the offering. Therefore, we estimate that as many as 7.6M shares could come on to the market at any time. With ARDI stock price near its all-time high, we wouldn’t be surprised if they did. We estimate that this potential overhang constitutes about 15% of basic shares outstanding.

## 9. Financial Projections.

a. Quarterly projections.

	Q1 03	Q2 03	Q3 03E	Q4 03E	Q1 04E	Q2 04E	Q3 04E	Q4 04E
Service Revenue	10,603	12,135	13,338	14,567	15,678	16,643	17,667	18,749
Product Revenue	3,138	3,634	3,654	4,171	3,372	3,665	3,939	4,246
Total Revenue	13,741	15,769	16,992	18,737	19,050	20,308	21,606	22,995
Cost of Service	3,792	4,266	4,602	4,953	5,331	5,492	5,830	6,000
Cost of Product	4,637	5,192	4,933	5,547	4,418	4,728	5,002	5,307
Sales and Marketing	2,597	2,840	3,170	3,340	3,515	3,706	3,898	4,088
R&D	1,336	1,297	1,310	1,320	1,330	1,340	1,350	1,360
G&A	2,218	2,440	2,300	2,325	2,350	2,375	2,400	2,425
Amort. Intangibles	424	10	11	11	7	7	7	6
Stock Compensation	192	95	75	50	25	20	9	5
Operating Expense	15,196	16,140	16,400	17,546	16,975	17,669	18,496	19,191
Operating Income	(1,455)	(371)	592	1,192	2,075	2,640	3,110	3,804
Investment Impair.	-	-	-	-	-	-	-	-
Interest Income, Net	148	144	160	400	420	440	460	480
Other Expense, Net	4	-	-	-	-	-	-	-
Income Before Taxes	(1,303)	(227)	752	1,592	2,495	3,080	3,570	4,284
Income Taxes	-	-	-	-	-	-	-	-
Net Income	(1,303)	(227)	752	1,592	2,495	3,080	3,570	4,284
Diluted Shares	47,577	48,196	54,000	57,000	57,500	57,800	58,100	58,400
Diluted EPS	(0.03)	(0.00)	0.01	0.03	0.04	0.05	0.06	0.07

Y/Y Change

	Q1 03	Q2 03	Q3 03E	Q4 03E	Q1 04E	Q2 04E	Q3 04E	Q4 04E
Service Revenue	46%	53%	54%	48%	48%	37%	32%	29%
Product Revenue	28%	45%	37%	33%	7%	1%	8%	2%
Total Revenue	42%	51%	50%	45%	39%	29%	27%	23%
Cost of Service	18%	28%	34%	39%	41%	29%	27%	21%
Cost of Product	17%	37%	16%	12%	-5%	-9%	1%	-4%
Sales and Marketing	-13%	9%	30%	23%	35%	31%	23%	22%
R&D	-16%	-12%	-11%	-1%	0%	3%	3%	3%
G&A	-24%	30%	23%	15%	6%	-3%	4%	4%
Amort. Intangibles	2%	-98%	-97%	-97%	-98%	-30%	-36%	-45%
Stock Compensation	215%	-75%	-80%	-80%	-87%	-79%	-88%	-90%
Operating Expense	0%	16%	15%	15%	12%	9%	13%	9%
Operating Income	-73%	-89%	n/a	n/a	n/a	n/a	426%	219%
Investment Impair.	n/a	-100%	n/a	n/a	n/a	n/a	n/a	n/a
Interest Income, Net	-38%	-33%	-21%	37%	184%	206%	188%	20%
Other Expense, Net	-33%	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Income Before Taxes	-75%	-95%	n/a	n/a	n/a	n/a	375%	169%
Income Taxes	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Net Income	-75%	-95%	n/a	n/a	n/a	n/a	375%	169%
Diluted EPS	-76%	-95%	n/a	n/a	n/a	n/a	341%	163%

As % of sales

	Q1 03	Q2 03	Q3 03E	Q4 03E	Q1 04E	Q2 04E	Q3 04E	Q4 04E
Service Revenue	77%	77%	78%	78%	82%	82%	82%	82%
Product Revenue	23%	23%	22%	22%	18%	18%	18%	18%
Total Revenue	100%	100%	100%	100%	100%	100%	100%	100%
Cost of Service	28%	27%	27%	26%	28%	27%	27%	26%
Cost of Product	34%	33%	29%	30%	23%	23%	23%	23%
Sales and Marketing	19%	18%	19%	18%	18%	18%	18%	18%
R&D	10%	8%	8%	7%	7%	7%	6%	6%
G&A	16%	15%	14%	12%	12%	12%	11%	11%
Amort. Intangibles	3%	0%	0%	0%	0%	0%	0%	0%
Stock Compensation	1%	1%	0%	0%	0%	0%	0%	0%
Operating Expense	111%	102%	97%	94%	89%	87%	86%	83%
Operating Income	-11%	-2%	3%	6%	11%	13%	14%	17%
Investment Impair.	0%	0%	0%	0%	0%	0%	0%	0%
Interest Income, Net	1%	1%	1%	2%	2%	2%	2%	2%
Other Expense, Net	0%	0%	0%	0%	0%	0%	0%	0%
Income Before Taxes	-9%	-1%	4%	8%	13%	15%	17%	19%
Income Taxes	0%	0%	0%	0%	0%	0%	0%	0%
Net Income	-9%	-1%	4%	8%	13%	15%	17%	19%

b. Annual projections.

	2002	2003E	2004E	2005E
Service Revenue	33,678	50,643	68,738	81,252
Product Revenue	10,742	14,597	15,222	20,093
Total Revenue	44,420	65,239	83,960	101,345
Cost of Service	13,544	17,612	22,653	25,290
Cost of Product	16,946	20,309	19,456	22,522
Sales and Marketing	10,746	11,947	15,207	18,527
R&D	5,878	5,263	5,380	5,540
G&A	8,713	9,283	9,550	9,925
Amort. Intangibles	1,670	456	27	-
Stock Compensation	1,065	412	59	-
Operating Expense	58,562	65,282	72,331	81,804
Operating Income	(14,142)	(43)	11,629	19,541
Investment Impair.	(1,035)	-	-	-
Interest Income, Net	948	852	1,800	2,120
Other Expense, Net	(8)	4	-	-
Income Before Taxes	(14,237)	813	13,429	21,661
Income Taxes	-	-	-	-
Net Income	(14,237)	813	13,429	21,661
Diluted EPS	(0.31)	0.01	0.23	0.35

## Y/Y Change

	2002	2003E	2004E	2005E
Service Revenue	67%	50%	36%	18%
Product Revenue	48%	36%	4%	32%
Total Revenue	62%	47%	29%	21%
Cost of Service	7%	30%	29%	12%
Cost of Product	25%	20%	-4%	16%
Sales and Marketing	-38%	11%	27%	22%
R&D	-23%	-10%	2%	3%
G&A	-32%	7%	3%	4%
Amort. Intangibles	1%	-73%	-94%	-100%
Stock Compensation	-65%	-61%	-86%	-100%
Operating Expense	-15%	11%	11%	13%
Operating Income	-66%	-100%	n/a	68%
Investment Impair.	N/a	-100%	n/a	n/a
Interest Income, Net	-64%	-10%	111%	18%
Other Expense, Net	-73%	n/a	-100%	n/a
Income Before Taxes	-63%	n/a	1551%	61%
Income Taxes	n/a	n/a	n/a	n/a
Net Income	-63%	n/a	1551%	61%
Diluted EPS	-65%	n/a	2275%	53%

## As % of sales

	2002	2003E	2004E	2005E
Service Revenue	76%	78%	82%	80%
Product Revenue	24%	22%	18%	20%
Total Revenue	100%	100%	100%	100%
Cost of Service	30%	27%	27%	25%
Cost of Product	38%	31%	23%	22%
Sales and Marketing	24%	18%	18%	18%
R&D	13%	8%	6%	5%
G&A	20%	14%	11%	10%
Amort. Intangibles	4%	1%	0%	0%
Stock Compensation	2%	1%	0%	0%
Operating Expense	132%	100%	86%	81%
Operating Income	-32%	0%	14%	19%
Investment Impair.	-2%	0%	0%	0%
Interest Income, Net	2%	1%	2%	2%
Other Expense, Net	0%	0%	0%	0%
Income Before Taxes	-32%	1%	16%	21%
Income Taxes	0%	0%	0%	0%
Net Income	-32%	1%	16%	21%